

CHARTER SCHOOL APPLICATION

**FLORIDA VIRTUAL ACADEMY
AT CLAY COUNTY**



Presented to

**THE SCHOOL DISTRICT OF CLAY COUNTY
23 SOUTH GREEN STREET, ROOM 201
GREEN COVE SPRINGS, FLORIDA 32043**

By

**NORTHEAST FLORIDA
VIRTUAL CHARTER SCHOOL BOARD, INC.**

August 1, 2013

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APPLICATION COVER SHEET

NAME OF PROPOSED CHARTER SCHOOL: FLORIDA VIRTUAL ACADEMY AT CLAY COUNTY

NAME OF NONPROFIT ORGANIZATION/MUNICIPALITY UNDER WHICH CHARTER WILL BE ORGANIZED OR OPERATED: Northeast Florida Virtual Charter School Board, Inc.

Provide the name of the person who will serve as the primary contact for this Application. The primary contact should serve as the contact for follow-up, interviews, and notices regarding this Application.

NAME OF CONTACT PERSON: Joe Chisholm

TITLE/RELATIONSHIP TO NONPROFIT: Contractually engaged through the services agreement to represent the Board's interest in the establishment and operation of the proposed school.

MAILING ADDRESS: 13760 Deer Chase Place, Jacksonville, Florida 32224

PRIMARY TELEPHONE: (904) 477-6938 ALTERNATE TELEPHONE: ()

E-MAIL ADDRESS: jchisholm@k12.com

NAME OF EDUCATION SERVICE PROVIDER (if any): K12 Florida LLC

NAME OF Approved Virtual Provider*: K12 Florida LLC

Projected School Opening: August 2014

School Year	Grade Levels	Total Projected Student Enrollment	Student Enrollment Capacity (if known)
First Year	K-8	50	Not Applicable
Second Year	K-9	60	Not Applicable
Third Year	K-10	72	Not Applicable
Fourth Year	K-11	83	Not Applicable
Fifth Year	K-12	91	Not Applicable

I certify that I have the authority to submit this application and that all information contained herein is complete and accurate, realizing that any misrepresentation could result in disqualification from the application process or revocation after award. I understand that incomplete applications will not be considered. The person named as the contact person for the application is so authorized to serve as the primary contact for this application on behalf of the applicant.

* Applicant must include executed contract with an Approved Virtual Provider



Signature

Legal Counsel to the Board
Title

Brady J. Cobb, Esquire
Printed Name

August 1, 2013
Date

I. EDUCATIONAL PLAN

Section 1: Mission, Guiding Principles and Purpose

A. Provide the mission statement for the proposed charter school.

The mission statement should, in a few concise sentences, indicate what the school intends to do, for whom and to what degree. A school's mission statement provides the foundation for the entire application.

The Florida Virtual Academy (FLVA) mission will be to equip every student with the academic and nonacademic foundations necessary for developing each student's full potential and exhibiting exemplary levels of student achievement in a high-quality learning environment that will integrate research-based technology applications, meaningful teacher/student/parent involvement, and engaging, individualized learning. This will be accomplished through the provision of a high-quality, online public charter school that will build a community of students, families, and educators.

B. Describe how the school will utilize the guiding principles found in section 1002.33(2)(a), F.S.

In accordance with the law, charter schools shall be guided by the following principles:

- *Meet high standards of student achievement while providing parents flexibility to choose among diverse educational opportunities within the state's public school system.*

Promoting high standards, improving academic success, achieving financial efficiency, and engaging parents are the cornerstones of an engaged educational institution. The curriculum that FLVA board has chosen to utilize is K12 Inc. ("K12") curriculum. K12 Inc. is a technology-based education company and the largest provider of individualized online education programs primarily for students in grades K-12 in the U.S. K12 Inc.'s subsidiary, K¹² Florida LLC, is a Florida Department of Education approved provider of virtual instruction services and has been providing those services in Florida for over ten years with strong academic results. The Board recognizes that, as an approved provider, the K12 curriculum is fully aligned with the Next Generation Sunshine State Standards (NGSSS). K12 is also committed to providing full alignment of its courses to the Common Core State Standards (CCSS) on grade level--high standards for a curriculum to meet--thereby equipping all students to meet both standards (Alignments to the Common Core State Standards are provided in **Attachment 1**. Due to the size of the NGSSS course alignment document, FLVA has provided a flash drive, rather than printed pages, with all courses aligned to NGSSS).

The FLVA Board will also require the use of formative pre- and post-assessments in grades 3 and above. These formative assessments along with prior year Florida Comprehensive Assessment Test 2.0 (FCAT 2.0) (or Common Core assessments upon implementation), will be utilized throughout the school year as the basis for targeted interventions that will meet each

student's individualized needs. The Florida Kindergarten Readiness Screening (FLKRS) will be administered within the required timeframe each fall and Florida Assessments for Instruction in Reading (FAIR) will be administered to students in grades K-12.

As necessary to ensure all grade levels have a formative pre- and post- assessment, the formative tests will be based on the best assessments currently available for a specific grade level. Scantron or a comparable alternate assessment system will be used in grades 3 – 12, while Study Island or a comparable alternate will be used in grades K – 12. FLVA will administer the online version of *Stanford Achievement Test Series, Tenth Edition (SAT 10)*, to evaluate student development toward high academic standards in grades 9-12. A hard copy version will be administered to grades K-3¹.

Information from all these assessments will provide the administration and teachers an understanding of strengths and weaknesses of the student population. To achieve high standards of learning, a culture of utilizing data will be cultivated to empower teachers to make data-informed decisions about their students' instructional needs.

Florida offers multiple and diverse public school options for families to choose among as they seek the best educational setting for their students. Informing and engaging parents about public school choice options ensure better education opportunities for students. Prior to enrollment in FLVA, parents have the opportunity to attend either face-to-face or online parent orientation sessions. At these sessions parents will learn about the curriculum, participate in sample lessons, experience a demonstration of common student and teacher interactions and communication methods, understand ancillary services offered by the School such as new parent and student mentoring and social gatherings, learn about other offerings of the School, such as clubs and advanced learners program, and engage staff with questions. Parents attending in-person events will have the opportunity to view a sampling of the materials that will be sent to their student at no cost (over 100 pounds of materials for kindergarten and Grade 1 students and about 90 pounds for Grades 2 through 12 students are shipped to families each school year). A complete list of K-8 course materials can be found at <http://www.k12.com/courses/materials/k-8> and a complete list of grades 9-12 course materials can be found at <http://www.k12.com/courses/materials/high-school>. Throughout the school year, parent sessions will be conducted on a regular basis to provide the opportunity for parents to engage the administration and teachers by learning about current school events and activities, and have the opportunity to ask questions.

It is important that all school staff, from the school counselor to the general education teacher, believe that more than one learning environment is needed to meet the needs of all students, and that parents have the right, and as educators we have the mission, to ensure that parents are provided the information needed to make quality choices. To that end, staff will work with all families to ensure that their children's needs are being met either by FLVA or other public school options within the district.

¹ SAT 10 administered in grade 3 will also be used for making promotion decisions for students scoring in Achievement Level 1 on Reading FCAT.

- *Promote enhanced academic success and financial efficiency by aligning responsibility and accountability.*

One of the innovative components of an online school is the ability for it to grow in a fiscally sound way. An online school is not bound by the size of the building. There is no need to ensure that each classroom is filled in order to be able to afford the building or bound by the restrictions of the size of the building on the number of students who can enroll. Online schools can also scale human resources by sharing resources efficiently. For example, a Florida certified counselor is not bound to just one single school or district and thus can assist students across several virtual schools, which creates the ability to share one resource across many schools. Something that was once considered a fixed cost becomes a much more flexible and efficient commodity and a shared cost. Therefore, FLVA will not only promote financial efficiency but will also be able to serve students in areas that might not otherwise be served because the demand for a particular class was not high enough to justify the cost for a single brick and mortar school. Meeting each student's needs is a high priority of the FLVA and the fiscal scalability of the virtual school model allows for that on a much more fluid level.

The FLVA Governing Board ("the Board") will have ultimate control and accountability for the budget. Each year the Board will set the goals and objectives for the School and will establish an annual budget to meet those goals and objectives. The Board will work with our Educational Services Provider (ESP) to ensure that expenditures are in line with the approved budget. The Board has successfully negotiated and fully executed a services agreement with our ESP which precludes deficits. The ESP will provide the Board with monthly reports, review expenditures, and ensure they are aligned with the mission of the School along with the academic success of the School. The Operations Manager will provide detailed cash flow management reports, forecasting reports and year-to-date expenditure reports.

Ensuring academic success will be another strong focus of the Board. Throughout the school year, the administrative team will provide monthly reports to the Board regarding enrollment, attendance, teacher training, satisfaction survey results, formative assessment results, passing rates for high school students in individual courses, disciplinary matters, legal matters, compliance, etc. Information will be shared about the School as a whole and at the teacher level. The Board will use this information to work with the Head of School to ensure that the mission and goals of the Board are being met. It is not enough to only examine state test scores or end of course exams. The Board will ensure that the School has in place benchmarking assessments throughout the school year in order to provide point in time interventions through focused instruction for students. The Board will receive monthly reports on student performance and the number of interventions provided. In order to enhance academic success, the Board will ensure that the School executes a strong assessment plan that is continuous and one that also has a clear component of intervention strategies for students.

- *Provide parents with sufficient information on whether their child is reading at grade level and whether the child gains at least a year's worth of learning for every year spent in the charter school.*

Baseline data is one of the best tools for teachers to use to begin talking with parents about their child. The Board will ensure that the School implements the use of formative assessments at the

beginning and end of the school year (i.e. Scantron Performance Series). By utilizing school-based formative assessment tools, teachers will be able to share this information quickly with parents and work with them to establish an individual learning plan (ILP) for their student. Throughout the school year, teachers will meet with parents to provide an update on their child's progress and the interventions that are being provided. These assessments will be able to show parents at the end of the year the gains their child made. However, this is not the only tool that will be used. The School will also utilize Study Island, SAT 10 (or comparable alternate assessment systems), the Florida Kindergarten Readiness Screening (FLKRS) (as appropriate), FAIR, FCAT 2.0, End-of-Course assessments (EOCs), Postsecondary Education Readiness Test (PERT), Florida Alternate Assessment (FAA) as necessary, Comprehensive English Language Learning Assessment (CELLA), and school-based benchmark assessments throughout the school year.

FAIR will be administered three times yearly and is augmented with a Broad Diagnostic Inventory for Grades K-2, a Diagnostic Toolkit for grades 3-12, and Progress Monitoring measures for all grades. These results will be used by teachers to regularly monitor the progress of students in reading. The Progress Monitoring and Reporting Network (PMRN) associated with the FAIR will provide teachers with detailed reports on student progress highlighting strengths and weaknesses of each student. Additionally, reports will also provide links to instructional practices that can be utilized to remediate the skills of students on an individualized basis.

Teachers will meet regularly with parents via live synchronous sessions or via scheduled telephone conferences to review student progress. These meetings will occur no less than once a month. Parents will be provided with a review of the results of their child's assessments, and engage in a discussion of the interventions being provided throughout the year. In addition to the meetings between parents and teachers, it is important that the student understands his or her progress and is engaged in the learning process. Therefore, students will also be a critical participant in these regular meetings.

Parents and students will also have access to view daily progress within K12's online school reporting system. Parents will be able to see how long it took for their student to pass the lesson or unit and what level of mastery the student achieved on lesson assessments. Parents will also be informed of their student's annual learning gains on the FCAT 2.0 via an individual student report generated by the state showing the student's current and past performance on the state assessments.

C. Describe how the school will meet the prescribed purposes for charter schools found in section 1002.33(2)(b), F.S.

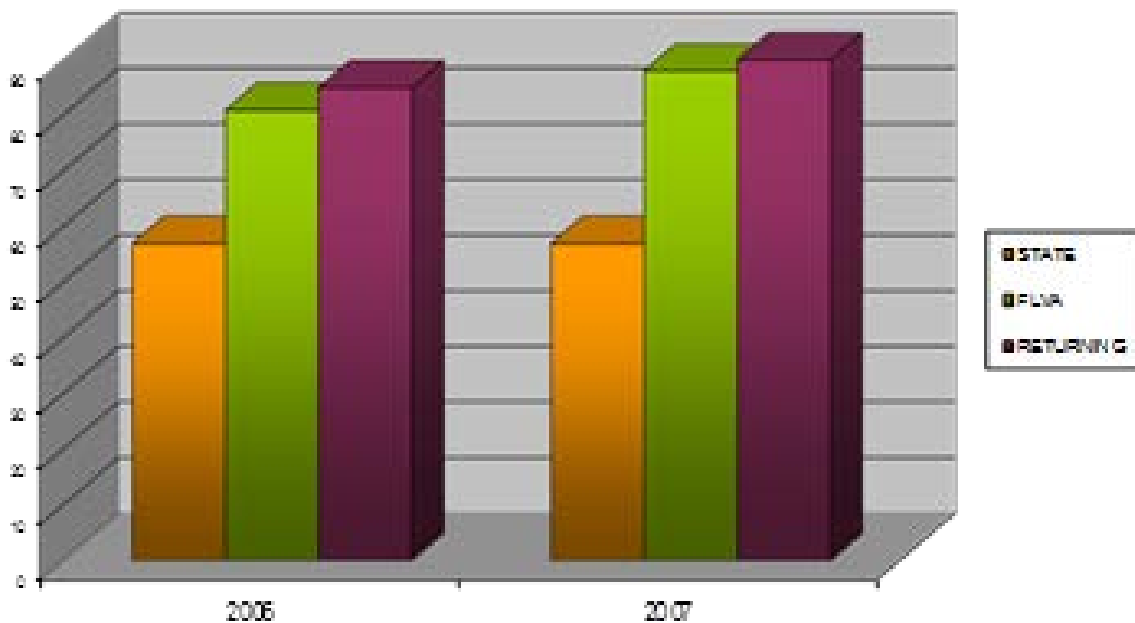
In accordance with the law, charter schools shall fulfill the following purposes:

- *Improve student learning and academic achievement.*

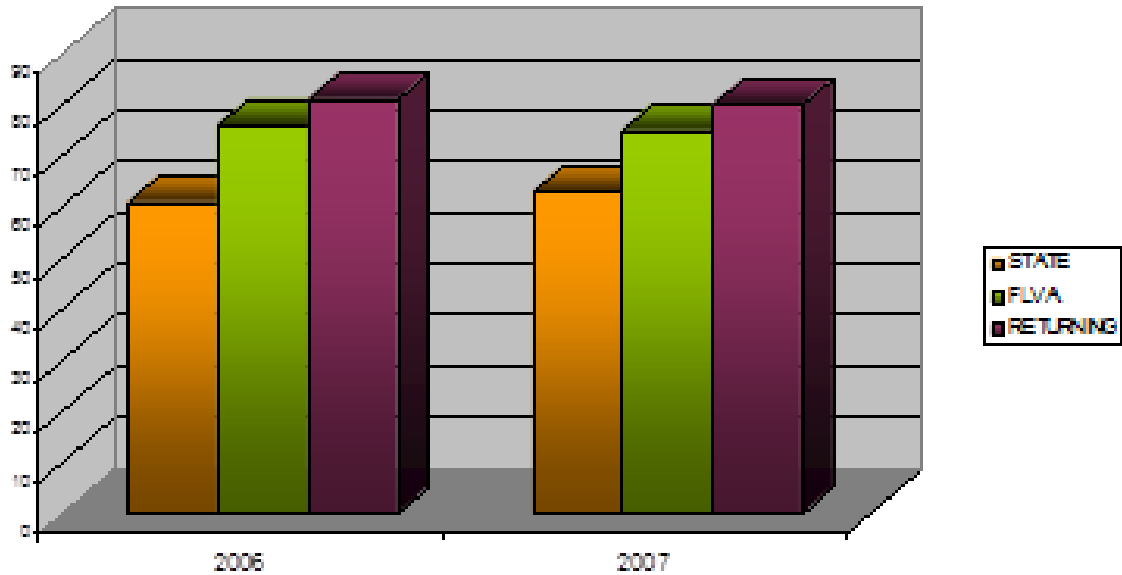
The instructional model for the School, as well as its curriculum, systems, and management team will be similar to the highly successful Florida Virtual Academy, which operated as a pilot program under the Florida Department of Education from 2003 to 2008. K¹² Florida LLC ("K¹²") was hired by the Florida Department of Education to use its instructional, management

and operational models as well as its curriculum and systems to design and launch the program. Its success informs this application and the Board’s desire to see a similar model offered more widely. In 2005, the first year K¹² Florida LLC earned a school grade as Florida Virtual Academy, the school celebrated a “B” with 400 points—just 10 points from earning an “A.” From school year 2006-2007 (with the addition of the Science Proficiency and Math Lowest 25% Learning Gains components) to school year 2008-2009, the Florida Virtual Academy earned an “A”. The graphs below illustrate the proficiency of Florida Virtual Academy students compared to state proficiency levels in reading and math. “Returning students” are those students who enrolled in Florida Virtual Academy for the second year or more.

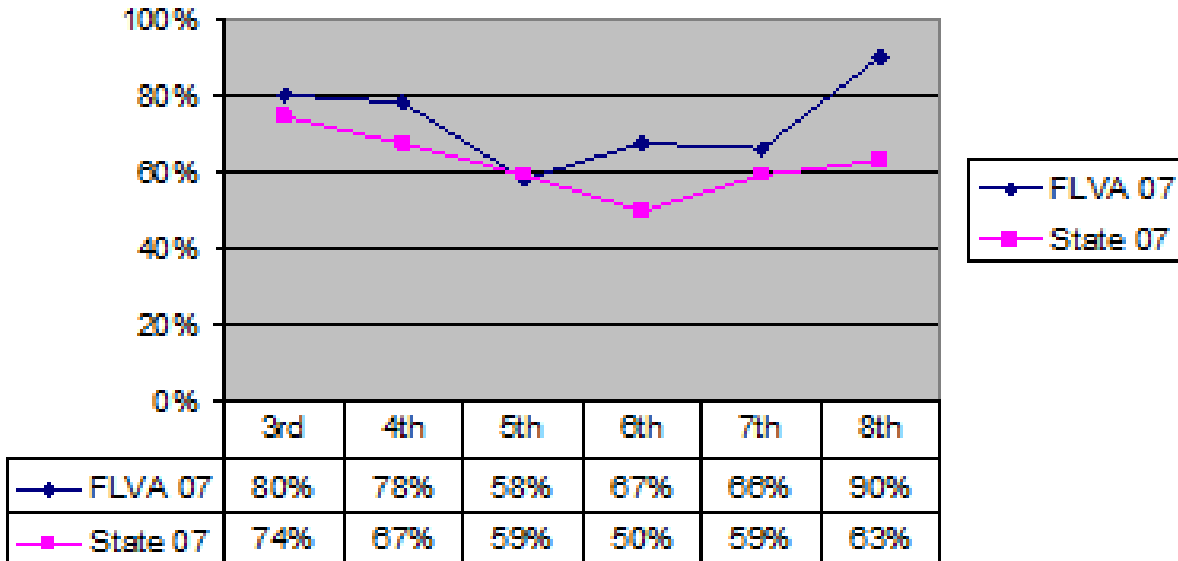
FCAT Reading by Percent Proficient Grades 3-8



FCAT Math Percent Proficient Grades 3-8



Math Proficiency by Grade 2007



Since legislation created the district virtual instruction program, K¹² Florida LLC (“K¹²”) applied to the Department of Education and received approval status during the first year. In 2009-2010, K¹² Florida LLC celebrated an “A”, with 89% of the students tested demonstrating high standards in reading. In the 2010-2011 school year, K¹² Florida LLC earned a “B”, which was appealed due to missing scores. The appeal was denied. In 2011-2012, K¹² Florida LLC earned a “C” which K¹² Florida LLC appealed

based on questions of accuracy of the data used to determine the grade. (Of the grades reported in 2011-2012 for three approved virtual instruction providers, K¹² Florida LLC had the highest unadjusted score.) FLDOE acknowledged the issues raised about the data in their vendor grade appeal response, however they denied the appeal. At the time of submission of this charter application, the school grades for the 2012 – 2013 school year are not yet available. The virtual instruction programs (VIP) are not operated under the same structure as the statewide FLVA program operated and the model that the FLVA Board of Directors is seeking to implement will mirror the operational structure under the statewide program.

- *Increase learning opportunities for all students, with a special emphasis on low-performing students and reading.*

Increased Learning Opportunities

FLVA at Clay County school will be a full-time virtual public charter school open in Year 1 to any grade K-8 child (growing one grade level per year to K-12 in Year 5) eligible for attendance in public charter schools in the sponsor's district and statutorily eligible for attendance at a virtual charter, including those who are struggling academically; students from diverse backgrounds; special populations of students, such as students with disabilities, English Language Learners, and gifted and talented students; students attending schools designated as Focus/Correct and Priority/Intervene; homebound students; or those who are struggling academically.

We have projected that 36.05%* of our students will be economically disadvantaged, which is equal to the overall proportion of economically disadvantaged students in the district in the 2012-2013 school year. We have projected students with disabilities (18.0%*) and English Language Learner (ELL) populations (1.6%*), approximating the same proportion of these groups of students who were enrolled in district public schools in the 2012-2013 school year.

*From FDOE here: <http://www.fldoe.org/eias/eiaspubs/pubstudent.asp>

Our application is submitted in the spirit of creating options, and increasing the learning opportunities for the students in Clay County. The academic philosophy of the charter school will be based on using innovations in technology to create and harness the power of Individualized Learning Plans. The common denominator among parents who will choose FLVA at Clay County for their children and the staff selected to work at the School will be a shared belief that not all children learn the same way and that individual students and families should have access to an array of high quality public education options. FLVA will be recognized as an education choice that is student-centered by providing each student with individualized instruction and matching teaching methods to individual learning styles to improve student performance.

Individualized Learning Plan

A key part of the FLVA education program is the Individualized Learning Plan (ILP). An ILP is designed for each student (K-12) to ensure a customized program that fits each student's unique

strengths, weaknesses, learning styles and aptitudes. The goals of all the ILPs are the same: reviewing current student progress, setting goals and a plan to reach those goals, and inclusion of teachers, parents, students, advisors and counselors (for high school students) in their formation and review. Often led by the teacher, the team creates a unique plan for each child, designed to organize and properly sequence a student's coursework while articulating his or her academic strengths and challenges. The ILP that will be developed for each high school student expands beyond academic objectives to include post-secondary goals for college and/or a career.

Low-Performing Students

Our instructional model will have a specific focus on an intervention program for our struggling learners (to include students scoring at Achievement Levels 1 or 2 on the FCAT 2.0). General education interventions will be developed and implemented providing each student who is not progressing toward meeting the content standards or who, through FCAT 2.0 scores or school level formative assessments, is performing below grade level. The interventions will be specific, timely and updated based upon ongoing formative assessments and progress monitoring.

General educational interventions are a systemic process (see below) using techniques to mobilize school resources to remove barriers to learning. At the core of the program is a professionally trained team, including, but not limited to, school teachers, administrators, counselors, community agencies and may include mental health agency members, and parents. The team is trained to identify concerns to determine the appropriate needs of the students to achieve the success needed for instruction and graduation requirements.

The virtual environment allows these students to participate in class activities including, but not limited to, large and small group instruction sessions led by Florida certified content teachers and collaborative activities with their peers.

FLVA uses a Multi-Tiered System of Supports (MTSS) that includes problem solving, positive behavior supports, and a three tiered Response to Intervention (RtI) process. All students will be served appropriately based on their placement within these tiers.

- In **Tier 1**, all students are screened (universal screening) for potential problems. All students also receive appropriate, standards-based, core instruction including any classroom, grade level, or school-wide interventions (universal interventions) for academics and behavior. Tier 1 universal interventions are provided in the general education classroom.
- In **Tier 2**, students who have not responded significantly to the Tier 1 core program with universal interventions are referred to the school's RtI team and may receive a targeted, individual intervention plan. This plan could include more intense instruction, individually or in a small group, and is provided in addition to the general education curriculum.
- In **Tier 3**, students who have not responded significantly to the Tier 2 interventions will be considered for more intensive interventions through the general education staff or for a referral for evaluation to determine if the student qualifies for special education services and receives specially designed instruction and related services through an Individualized Educational Plan (IEP).

The process for the provision of general education interventions will include:

- a. Documentation for every student, prior to entering the general education intervention process, as the basis for appropriate instruction in reading, including the essential components of reading instruction; appropriate mastery-based instruction in math; appropriate instruction in the writing process; and positive behavioral supports;
- b. A team-based (including the RTI/MTSS coordinator, ESE teacher(s), general education teacher(s), parent, a representative from the sponsoring district, and at times administrator, if necessary) decision-making process;
- c. Data analysis of results focusing on determining to what extent all students are progressing toward meeting Florida's NGSSS and graduation requirements and identifying which children are not making adequate progress towards these goals and are in need of targeted general education interventions;
- d. Data analysis of prior FCAT 2.0 scores or school level formative assessments to determine if students are performing below grade level;
- e. Provision of research-based general education interventions targeted at students presenting academic and/or behavioral concerns as determined by screening results;
- f. Regular progress monitoring through formative assessments of student responses to targeted interventions, conducted at reasonable intervals, generating measurable data for both specifying academic concerns and monitoring student progress during general education interventions;
- g. Screening occurs for all students during the monitoring process. Students who are not experiencing success are scheduled to additional sessions in smaller groups. When this is an ongoing area of concern, the teacher will convene the team to review all the data and determine if further interventions and plans are necessary. If so, interventions following the tiered structure, are then applied, monitored, and documented.
- h. Progress monitoring will be added to the student's ILP. This will provide parents with detailed information on the interventions and the process. Parents will be given the opportunity to participate in the instructional decision-making, and will be kept informed of their child's progress during targeted general education interventions.
- i. The ILP will be adapted to include:
 - Specific, diagnosed academic needs that need to be remediated
 - Success-based intervention strategies
 - An intense variety of remedial instruction
 - Monitoring and reevaluation activities
- j. A team shall review the student's plan and his/her progress no later than 20 school days after the start of formal general education interventions and approximately every 30 school days thereafter. At each meeting, the team shall review data about the student's progress to determine if changes to the general education interventions are needed and/or if a referral to special education is indicated.
- k. Provisions for targeted general education interventions to continue during any subsequent special education referral. The frequency, time and intensity of these interventions, as well as the students' response to interventions will determine where the student resides in the School's three-tiered RtI process.

Emphasis on Reading

In the primary grades, the most critical educational task is to ensure that students learn to read. To help ensure success in this task, K12 has developed a primary Language Arts curriculum with a comprehensive focus on phonics and decoding, as well as meaning and comprehension. The K12 Language Arts program is in full accord with the latest scientific research on early reading strategies—research that has now been accumulated and refined over more than thirty years.

In accordance with the best research on effective literacy instruction, the K12 program is thoroughly grounded in two complementary principles:

- Effective reading programs develop in children an early awareness of the alphabetic principle—the correspondence between letters and speech sounds—and offer explicit, systematic, and multisensory instruction in phonemic awareness and decoding skills.
- Early and systematic instruction in phonics needs to be complemented by equal attention to meaning, comprehension strategies, language development, and writing. Developing children’s interest and pleasure in reading must be as much a focus as developing their reading skills.

According to the No Child Left Behind Act (2001) and the subsequent Reading First initiative, a comprehensive reading program requires instruction in phonics, vocabulary, word recognition, fluency, and comprehension. K12 PhonicsWorks addresses phonics, word recognition, and fluency, and K12 Language Arts addresses vocabulary, fluency, and comprehension. The National Reading Panel supports the notion that a core, comprehensive reading program will reach all learners if it includes a strong, systematic, and explicit phonics component. That is the guiding principle behind K12 PhonicsWorks, a research-based, explicit, systematic, and direct method for teaching phonics.

Even with a strong reading-based core curriculum, such as K12, the Board must also ensure that there are additional interventions for those students that do not have a strong phonics background, are struggling readers, and/or score at Achievement Levels 1 or 2 on the Reading FCAT 2.0. A student identified as not meeting the district or state requirements for proficiency in reading, based on locally determined and statewide assessments, will be given intensive reading instruction immediately following the identification of the reading deficiency. Utilizing tools such as Blackboard Collaborate for small group instruction by Florida certified teachers; students will participate in instruction that focuses on specific reading strategies and phonemic awareness. This instruction will be in addition to the grade level instruction and the required 90 minutes of uninterrupted core reading instruction. In addition, parents will be offered reading workshops to help and support their children.

Identified students will be placed in an intensive reading course in addition to their grade level course. The elementary course is a three-stage adaptive remediation course giving students the opportunity to master missed concepts in a way that accelerates them through the remediation process. Students will work to develop oral reading, comprehension, phonics, spelling, and fluency skills. They will also practice grammar, usage, mechanics, and composition. The

engaging course features compelling graphics, learning tools, and games and adaptive activities that help struggling students master concepts and skills before moving on.

For students in middle school and high school, FLVA will meet the individual needs of students who are performing below grade level in reading (based on FCAT 2.0, screening and diagnostic data) through additional instructional minutes using a research-based intervention program. Students will receive additional instruction outside of the 90 minute reading block in a small-group setting with more frequent progress monitoring to ensure accelerated progress toward grade level expectations. Teachers have scheduled time in each weekly schedule for planned instructional time, small group remediation, and open office hours or general tutoring/help time for their students. For example, the math teacher may have instructional sessions Monday, Tuesday, and Thursday with open office hour time Wednesday and Friday.

Teachers may also utilize Study Island, Study Island Reading Eggs (a comprehensive, online supplemental literacy program), small group learning sessions led by Florida certified content teachers, peer learning groups, one-on-one tutoring, and other research-based tools as needed to work with students reading below grade level. Each tool will be used with the appropriate grade levels as indicated in the student's individual learning plans to meet their learning needs.

Throughout the school year, teachers will administer benchmark assessments to determine and monitor progress. Information from the assessments will be shared with the parents during the established and regular reviews of the student's ILP.

- *Encourage the use of innovative learning methods.*

Innovation, in our view, need not be tied to novelty. The Montessori approach to early education is over one hundred years old in this country, though its approach is certainly considered by many to be innovative. While full-time online education is certainly still in its early stages of development, it is not entirely novel. We recognize that virtual learning, in and of itself, is not new to the education world. However, as we move towards full-time, free-standing virtual charter schools with their own community of students, parents, teachers, administrators, and governing board members, we are engaging in an innovative K-12 public education model which uses virtual learning to give parents and students opportunities that haven't been fully accessible in public education in the past. With this model, students have the flexibility to work on a truly individualized schedule with an Individualized Learning Plan, and educators have a viable solution to the problem that has plagued them for years - how to engage parents in their child's learning process.

In 2010, the U.S. Department of Education released *Evaluation of Evidence-Based Practices in Online Learning A Meta-Analysis and Review of Online Learning Studies*, the largest study of online learning to date. While online learning is relatively new in K-12 public education, the report notes two important findings (while also encouraging the creation of new models to study):

- *Students who took all or part of their class online performed better, on average, than those taking the same course through traditional face-to-face instruction.*
- *The effectiveness of online learning approaches appears quite broad across different content and learner types.*

The Florida Virtual Academy at CLAY County community of teachers, administrators and Board members will be able to dedicate their time and talents in a singularly focused manner. Our students and families will benefit from this singular focus. Organizations focus on what is most important to them and our Board and staff will be focused on the success of Florida Virtual Academy at Clay County's students.

The Florida Digital Learning Now Act (s. 1002.321 F.S.) allows the Board to take advantage of all of the benefits that virtual learning has to offer: parental involvement, flexible learning schedules and styles, instantaneous data collection and intervention, one-on-one teacher and pupil interaction, Individual Learning Plans, student-to-student interaction that doesn't recognize geographic distance, and so on. FLVA is a school, a community, not simply a series of virtual courses. The Board understands that the Clay County School District currently uses K12 classes as part of the district's supplemental virtual program, but by creating FLVA, the Board aims to do something different, to create a virtual community and *that* is innovative.

In order to accomplish this, the Northeast Florida Virtual Charter School Board realized it needed to work with a management organization that not only offered excellent coursework, but an organization that understood the varied needs of students, teachers, parents, and administrators and had a means of identifying and serving those needs. We believe that K12 is the best online provider to fit that bill. Merging the infrastructure and technology that K12 has to offer with the progressiveness of the Florida Digital Learning Now Act (s. 1002.321 F.S.) will give the Northeast Florida Virtual Charter School Board the foundation to succeed.

Some of the benefits of working with K12 include:

- FLVA students will be able to **communicate and collaborate with other students of their age group anywhere in the world** from their computers due to K12's network of schools across the U.S. and internationally. FLVA will take the concept of a pen pal to a new level, not only offering social and cultural interactions, but teaching its pupils 21st century writing and communication skills in the process.
- Because FLVA students will have access to other FLVA teachers statewide, they will have **abundant access to courses** that may not otherwise be available from a virtual provider who offers a less robust curriculum, or a brick and mortar school whose course offerings are limited by budget and staffing constraints.
- FLVA's highly trained teachers will have access to the tools they need to measure student achievement growth via **ongoing student assessments with instant feedback** to track student progress.
- Teachers will have the time to work with students in small or one-on-one interactive breakout sessions and teachers will also have frequent direct contact with parents via regular telephone and email communications.
- FLVA teachers themselves will have an abundance of learning opportunities afforded to them by being part of the K12 learning community.

This model directly **engages parents**, not only in their child's learning and with their children's teachers, but with other parents via a variety of family support programs and activities, connecting parents all over the world. K12 provides access to an online community for FLVA's students, teachers, and parents including a speaker series, roundtable discussions, and informal

discussion rooms. In addition, as a Board, we want parents directly involved as board or committee members to help shape the policies and procedures for FLVA.

The only way the above can be accomplished is with a **solid infrastructure**. And, it is the infrastructure that K12 has to offer that will make FLVA truly innovative.

We see Florida Virtual Academy at Clay County as an integral part of implementing Florida's Digital Learning Now Act (s. 1002.321, F.S.) (specifically, virtual charter implementation) and we applaud this state's digital learning initiative. The plan's digital learning goals and the Florida Virtual Academy at Clay County mission are in sync:

- Use of technology to differentiate and individualize instruction
- Daily use of technology to enhance student learning
- Use of technology by students to access content
- Use of digital visual presentations in every school
- Use of technology to problem-solve occurs daily in all classrooms
- Use of technology for finding or creating lesson plans and learning materials
- Use of technology for compiling and analyzing student data
- Use of technology to improve teacher effectiveness

- *Require the measurement of learning outcomes.*

Florida Virtual Academy's (FLVA) education goals and objectives, as outlined in section 5, for improving student achievement are based on the progress and performance of students on the Florida Comprehensive Assessment Test (FCAT) 2.0 and Florida End-of-Course (EOC) Assessments. FCAT 2.0 is a valid and reliable measure of student performance that provides objective, external empirical evidence of the school's performance. Indicators of individual student progress and performance will be evaluated each year based on a high standard of student performance. Goals and measureable objectives are set for the School as a whole as well as each grade in Reading, Math, Science, Writing and End-of Course Exams (EOC). Goals for U.S. History have not been set because the state has not yet conducted standard setting to determine the passing standard.

FLVA will be administering a coordinated series of assessments through the school year for different purposes. The Florida Kindergarten Readiness Screener (FLKRS) will be administered to all first-time Kindergarten students within the first 30 days of school per 1002.69, Florida Statutes. Both components, Early Childhood Observation System (ECHOS) and Florida Assessments for Instruction in Reading (FAIR) will be administered. These results will provide the Kindergarten teachers valuable insight into a child's strengths as well as important information to share with parents during conferences.

FLVA will also use the Florida Assessments for Instruction in Reading (FAIR), available to K-12 public schools free of charge by the Florida Department of Education, as needed. Developed by the Florida Center for Reading Research in collaboration with Just Read, Florida!, the FAIR assessment system provides teachers screening, diagnostic, and progress monitoring information that is essential to guiding instruction. The K-2 assessments are available for web-based score entry and scores from the Grades 3-12 computerized assessments are directly imported into the

Progress Monitoring Reporting Network (PMRN). The assessment website also contains tools for linking assessment results to classroom instruction. The FAIR is administered three times yearly and is augmented with a Broad Diagnostic Inventory for Grades K-2, a Diagnostic Toolkit for grades 3-12, and Progress Monitoring measures for all grades. These results will be used by teachers to regularly monitor the progress of students in reading. The PMRN associated with the FAIR will provide teachers with detailed reports on student progress highlighting strengths and weaknesses of each student. Additionally, reports will also provide links to instructional practices that can be utilized to remediate the skills of students on an individualized basis.

Information from these assessments will provide the administration and teachers an understanding of strengths and weaknesses of the student population. These data will assist with targeting resources, planning and scheduling professional development, and allocating instructional time. This information will also be shared with parents as a snapshot of performance.

Students will take the Scantron Performance Series, or a comparable alternate assessment system, test in the fall of each school year. The scaled score will identify those students not performing at grade level and will provide information on subject area deficit. The Scantron Performance Series is given again in the spring in order to ensure that all students are making one year's growth in one school year as measured by Scantron. The Performance Series is a key aspect of the school's goal to measure annual value-added gains (detailed information about the use of Scantron is provided in **Sections 3 and 5**).

The SAT 10 is a multiple-choice normative assessment is a peer reviewed, scientifically-based valid and reliable assessment aligned to state and national standards. Data derived from the SAT 10 helps educators determine student achievement in real time and allows for automated capture, real-time reporting and scoring, and immediate normative analysis. SAT 10 results allow for national comparisons as well as a measure of year to year growth for students in grades not tested by the statewide assessments.

Students will also take Study Island benchmark assessments, or comparable alternate, in math and reading in order to assess each student's mastery of Florida grade appropriate standards. Study Island is an online program aligned with the Florida Next Generation State Sunshine Standards and is an effective test mastery program. Study Island Pathways will be organized and assigned based on the Florida state standards. Students answer a targeted number of questions which are scored electronically. Students are assigned a proficiency level to correlate with mastery of the standards and provided a prediction of success on the Florida tests. Study Island content is available in English Language Arts (grades 2 – 12 Common Core), Mathematics (grades 2 – 12 Common Core), Reading (grades 2 – 10), Math (grades 2-8), Science (grades 3 – 8 FCAT 2.0 and grade 11 FCAT 2.0), Social Studies (grades 3-8), Algebra I (EOC), Biology I (EOC), Geometry (EOC), and U.S. History (EOC).

Statewide summative assessments will be administered at the end of the school year to demonstrate progress the School has made over the course of the year against the established educational goals and will be used for state and federal accountability purposes. The FCAT 2.0,

Florida Alternate Assessment (FAA) and Comprehensive English Language Learning Assessment (CELLA) will be administered each spring.

College and career readiness is a focus of the FLVA. Secondary students at FLVA will have opportunities to participate in Advanced Placement (AP) courses and exams, as well as have their readiness for college assessed on the College Board's PSAT or ACT's PLAN and on the Postsecondary Education Readiness Test (PERT). Prepared with data from these assessments, students will be knowledgeable about their preparedness to meet the educational demands of postsecondary education and have the opportunity to work with teachers and guidance counselors to adjust their secondary education to ensure they are prepared.

D. Describe how the charter school will fulfill the optional purposes of charter schools found in section 1002.33(2)(c), F.S. This section is optional.

In accordance with the law, charter schools may fulfill the following purposes:

- *Create innovative measurement tools.*

FLVA will be innovative in the use of measurement tools to screen, monitor, and assess student progress and needs, as described above. Baseline data will be established for FLVA during the fall of its first year of operation. Scantron Performance Series, Study Island, and SAT 10, or comparable alternate assessment systems, will be administered to all students and will serve as a baseline for student performance for the School and individual students. These data will be used by FLVA to track the progress of individual students over the course of the year and during their time enrolled in FLVA. Results will be used to pinpoint specific individual student strengths and weaknesses relative to state content standards. These results will enable the teacher to develop a highly personalized Individual Learning Plan (ILP) for each student.

Students will be tested via an online, adaptive test at the beginning and end of the school year to provide a measure of individual student growth, demonstrating the value-added gains of the school program. Baseline data will be used at the school level to demonstrate the impact of the program in its entirety and be used to drive policy decision related to curriculum, instruction, instructional resources, professional development and teacher placement.

Student Administration Management System (SAMS), the School's master digital database, will capture raw student data, store it, organize it, and integrate with other systems. SAMS collects and provides all of the information required to manage student enrollment and monitor student performance. MyInfo and TotalView School are two sides of SAMS. They are applications for administrators, teachers, parents, and students to use that display the information stored in the SAMS database.

Parents and students will use MyInfo as a secure communications tool to track students' course progress, grades, and attendance history, and to check the status of course material shipments. TotalView School will serve the School—teachers, administrators, and other staff—by providing a secure, internal communications tool, an overview of their students' current progress and history, and the status of the shipment of curriculum materials. It will allow teachers to interact one-on-one with students.

TotalView houses student-specific data and is used for a variety of functions, including enrolling students in courses, assigning progress marks and grades, tracking student demographic data, generating student transcripts, and provides a sophisticated means of documenting student engagement in required classroom activities, identification of those students struggling with grade level state content standards, and previous year’s performance on state tests. In addition to Student Information functions, TotalView provides administrators, teachers, parents and students a unified view of student progress, attendance, communications, and learning kit shipment tracking. Using TotalView, FLVA’s administration will be able to generate customized reports in a variety of formats

Throughout the year, the School will use a variety of assessments to measure and monitor student achievement and progress:

Type of Assessment	Frequency
FLKRS	annually – fall
FAIR	three times/year
FCAT 2.0*	annually – spring
EOC*	winter, spring and summer administrations, as appropriate
PERT	annually
FAA	annually - spring
CELLA	annually - spring
Scantron Performance Series	semi-annually – fall and spring
SAT 10	semi-annually - fall and spring
Study Island	ongoing
PSAT/ACT’s PLAN	spring
Curriculum embedded assessments	on-going
Informal teacher assessments	on-going

* The table will be updated contingent on the implementation of the PARCC and Next Generation Science Standards’ assessments in the testing windows.

At the end of the school year, students’ baseline rates will be compared to the academic progress of the same students attending the charter school to ensure that the educational program is effective, students are making progress, and the School is meeting the stated school-wide goals and objectives.

- *Provide rigorous competition within the public school district to stimulate continual improvement in all public schools.*

At their best, charter schools can serve as a model for research and development in public education. Florida Virtual Academy at Clay County plans to share our successes and struggles with public school leaders and policy makers across the district. The instructional practices in our public charter school will be models for the school district to work with students in learning environments outside of the traditional classroom. We look forward to stimulating continual improvement in the public school district.

- *Expand the capacity of the public school system.*

The 2011 enactment of the Digital Learning Now Act (s. 1002.321, F.S.) and related amendments to the Florida charter law (s. 1002.33, F.S.) have provided students and families across Florida with an exciting new choice for public school education in this state: public virtual charter schools such as Florida Virtual Academy at Clay County. While over the past few years, some Florida students have had the opportunity to enroll in public virtual pilot programs and public virtual instruction programs and schools (with some restrictions and limitations), Florida students had not previously had the opportunity to enroll in a public virtual charter school. The Digital Learning Act Now requires that public school districts expand the capacity of the public school system by establishing “multiple opportunities for student participation in part-time and full-time kindergarten through grade 12 virtual instruction. Options (to) include...Full-time virtual charter school instruction authorized under s. 1002.33.”

The Florida Virtual Academy at Clay County will expand the capacity of the public school system for students and parents by establishing a state-of-the-art, full-time, on-line learning environment. This learning environment is more than just a delivery system; it is the comprehensive wraparound services that our partner K12 will bring to the table--from the development of strong community within the virtual academy to establishing unique settings for students and parents to interact. Within the virtual learning environments parents or caring adults play a strong and engaged role in the day-to-day success of the students. Instead of conferences with parents every nine weeks, teachers are communicating with parents regularly through emails, and scheduled meetings (these often occur every two to three weeks). Parents will be provided with opportunities to expand their learning through online sessions just for parents that happen monthly. Students will be exposed on a regular basis to students across the United States in other virtual academies and across the world.

- *Mitigate the educational impact created by the development of new residential dwelling units.*

The growth rates in Clay County between April 2010 to July 2012 were not drastic, approximately 1.8%. If the district was to experience the educational impact of new student population growth created by the development of new residential dwelling units, FLVA at Clay County could help address that impact in a timely fashion. Assuming that FLVA had the capacity to enroll additional students at that time, as a virtual school (compared to a traditional brick and mortar school), Florida Virtual Academy at Clay County would not incur the expenses

or delays of adding additional school buildings, daily student transportation, food service, etc. In the event of additional student enrollment, we could rapidly scale our instructional and administrative staff appropriately and perhaps lease additional administrative office space if the additional administrative staff could not be adequately housed in the school offices leased at the time, in order to meet educational needs.

- *Create new professional opportunities for teachers, including ownership of the learning program at the school site.*

FLVA is a school and all that a school encompasses not only for the students but also for the teachers. As virtual academy teachers, the FLVA teachers will participate in task forces that will shape the K12 curriculum and instructional model in the coming years. Virtual academy teachers will participate regularly in K12driven innovations that are focused on drawing on their teaching expertise and helping to make virtual teachers better at their job. The experience that virtual academy teachers gain through working on these task forces is invaluable in their professional growth and is experience they cannot get anywhere else. K12 has created opportunities for virtual academy teachers to gain certification in the use of Blackboard Collaborate through a variety of K12 and Blackboard Collaborate developed training courses. K12 has established relationships with universities to provide courses for virtual academy teachers to gain graduate credit in the field of virtual learning. Those institutions include the University of California San Diego and Northwest Nazarene University in Nampa, Idaho.

FLVA teachers have opportunities for ownership of the learning program at the School as they work with other virtual academy staff to develop innovative programs for students and solve problems that are unique to the virtual school setting. FLVA teachers will look for opportunities for their students, such as participating in state history fairs, applying for student leadership opportunities and grants, guiding students that are interested in government affairs to apply for governor's school. Establishing a school community to meet the academic needs of the students and their desire to create clubs and other student led experiences is one of the many keys to the success of a virtual academy.

The Board fully appreciates the benefits of and supports the need for ongoing professional development for all teachers and other staff, particularly in the areas of curriculum and instruction. K12 has the capability to provide the professional development our teachers will need. Professional development opportunities will be a combination of K12's best practices and training along with required annual professional development for all teachers and other staff. Professional development will be a year-long pursuit focused on providing teachers with the skills and competencies to meet the needs of students and their families. Each teacher will have an Individual Development Plan (IDP) that is a combination of required professional development and other optional offerings particular to their areas of interest as deemed appropriate based on their tenure or as identified by an administrator as an area where development is needed. Teachers and staff will receive professional development on these and other topics, at various points throughout the year.

Professional development will begin with Intake Training for new teachers and continues with Ongoing Training monthly for new and experienced teachers. The responsibilities of the teachers

are communicated through weekly staff meetings, monthly Professional Development sessions, and the teacher handbook.

Professional development for new FLVA administrators will consist of synchronous sessions on the BlackBoard Collaborate web conferencing platform as well as access to online reference tools. The sessions are designed for a wide range of administrative staff members with significant differences in their day-to-day responsibilities for working with students at various grade levels. The professional development will be designed and provided by K12.

Section 2: Target Population and Student Body

A. Describe the anticipated target population to be served.

If applicable, applicants should describe if they will target, in accordance with the law, certain populations defined in section 1002.33(10)(e), F.S.

FLVA will define its target population in alignment with 1002.33(10)(e)(1) – Students within specific age groups or grade levels. Our school will be a full-time virtual public charter school open to any public school age student in grades K-8 in 2014-15, grades K-9 in 2015-16, grades K-10 in 2016-17, grades K-11 in 2017-18 and grades K-12 in 2018-19, in the sponsor’s district and statutorily eligible for attendance at a virtual charter, including students from diverse backgrounds; special populations of students, such as students with disabilities, English Language Learners, and gifted and talented students; students attending schools designated as Focus/Correct and Priority/Intervene; homebound students; or those who are struggling academically. Florida Virtual Academy will not discriminate against students or families on the basis of disability, race, creed, color, gender, national origin or religion in all of its practices including admissions and enrollment and will adhere to all applicable federal and state antidiscrimination laws.

To attend a virtual charter school, students must meet one of the following eligibility criteria:

- The student spent the prior school year in attendance at a public school in the state and was enrolled and reported by the public school district for funding during the preceding October and February for purposes of the Florida Education Finance Program (FEFP) surveys;
- The student is a dependent child of a member of the United States Armed Forces who was transferred within the last 12 months to this state from another state or from a foreign country pursuant to the parent’s permanent change of station order;
- The student was enrolled during the prior school year in a virtual instruction program under s.1002.45, the K-8 Virtual School Program under s. 1002.415, or a full-time Florida Virtual School program under s. 1002.37(8)(a);
- The student has a sibling who is currently enrolled in a virtual instruction program and that sibling was enrolled in that program at the end of the prior school year;
- The student is eligible to enter kindergarten or first grade; or
- The student is eligible to enter grades 2 through 5 and is enrolled fulltime in a school district virtual instruction program, virtual charter school, or the Florida Virtual School.

The Board will make appropriate modifications to these eligibility criteria as needed to adhere to changes in legislation that affect student eligibility for virtual charter schools.

B. Provide the following projection for each year of proposed operation: the grades that the school will serve, the projected number of students to be served in each grade, and the total number of students enrolled.

The table below contains our projected enrollment for each of the grades that the School will serve in each of the five years of the charter.

**5 Year Projected Student Enrollment
Florida Virtual Academy at Clay County**

Year 1		Year 2		Year 3		Year 4		Year 5	
2014-2015		2015-2016		2016-2017		2017-2018		2018-2019	
Grade	Proj. Stdnts	Grade	Proj. Stdnts	Grade	Proj. Stdnts	Grade	Proj. Stdnts	Grade	Proj. Stdnts
K	5	K	6	K	6	K	3	K	3
1	5	1	6	1	6	1	4	1	3
2	5	2	6	2	6	2	4	2	3
3	7	3	7	3	8	3	4	3	3
4	6	4	7	4	9	4	4	4	4
5	5	5	6	5	7	5	5	5	5
6	7	6	6	6	7	6	9	6	8
7	5	7	6	7	6	7	11	7	11
8	5	8	5	8	6	8	13	8	12
9	0	9	5	9	6	9	12	9	14
10	0	10	0	10	5	10	9	10	12
11	0	11	0	11	0	11	5	11	8
12	0	12	0	12	0	12	0	12	5
Total	50	Total	60	Total	72	Total	83	Total	91

C. Provide the projection for the percentage and number of students who will qualify for free equipment pursuant to section 1002.45(3)(d), Florida Statutes.

As required by Section 1002.45(3)(d), F.S., each FLVA school student eligible for free and reduced price school lunches or who is on the direct certification list, will also be eligible to submit a request for a loaned computer and printer/fax/scanner for the duration of his/her enrollment in the School. The School will also provide students who are eligible for free and reduced priced lunches or who are on the direct certification list, with reimbursement for Internet access in their homes, at a pre-set rate. Internet access will be reimbursed at a set monthly reimbursement amount to assist with home Internet charges. Eligibility for loaned computers and peripherals and Internet service assistance will be determined each school year.

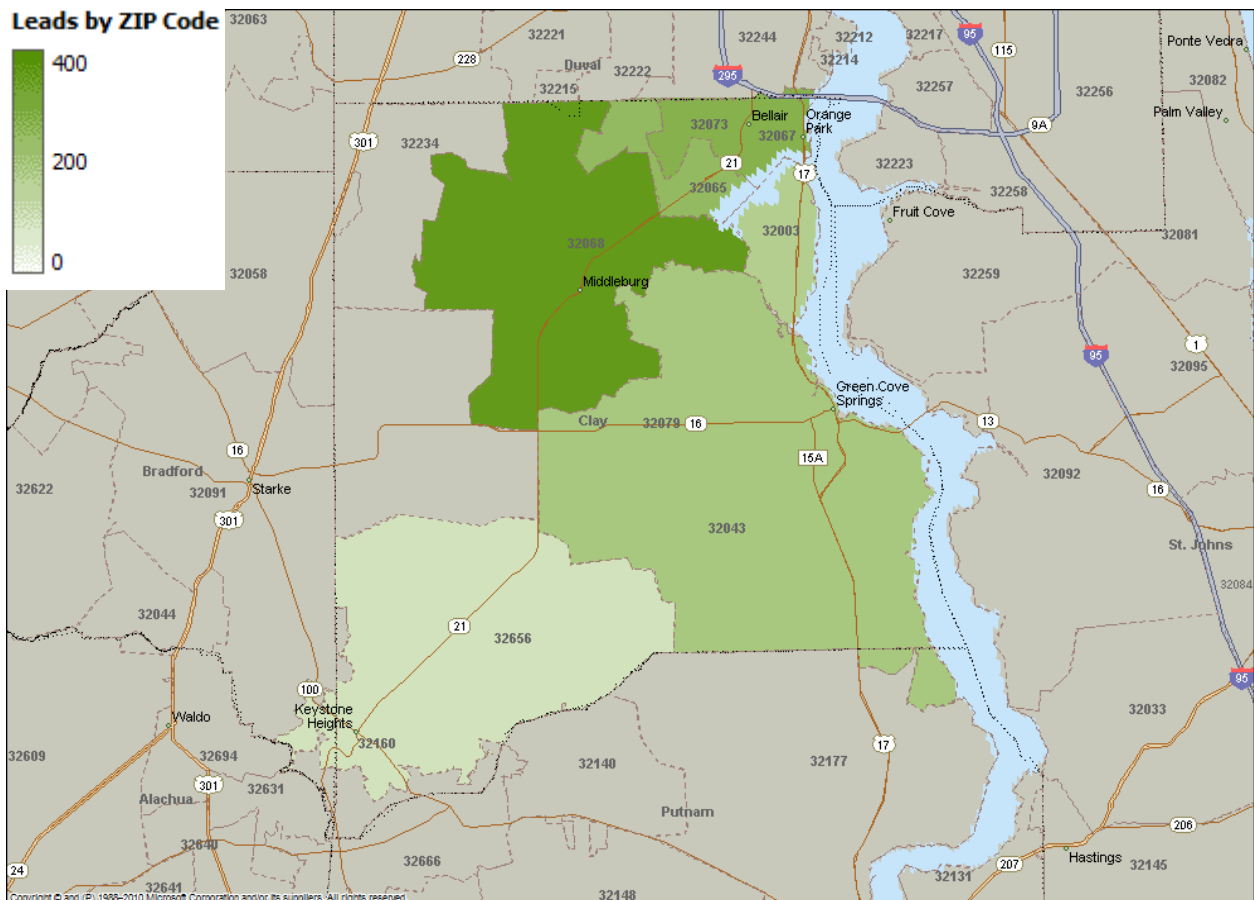
All FLVA students may also access the school’s web-based curriculum via publicly available Internet such as in public libraries or schools if needed to supplement home access. There will also be a process in place for students who do not qualify for free and reduced price school lunches or who are not on the direct certification list to request computer equipment and ISP

reimbursement. This process will be shared through the teacher and the teacher will assist the family in making the request.

K12 has informed the Board that, based on their experience, the School can project that 35% of the FLVA elementary students and 50% of FLVA high school students (during the future years) will receive the equipment and Internet service reimbursement consistent with Section 1002.45(3)(d) F.S. These projections have been factored into the School's budget. Again, based on K12's experience, the rate at which families are eligible for receiving the computer and ISP reimbursement is higher than the rate of families that actually request the computer equipment and ISP reimbursement. Many families that are eligible choose, for one reason or another, to not request the service.

D. Provide a description of how the student population projections were developed.

The School's enrollment projections for the term of the charter took into consideration the number of Clay County families who have contacted K12 directly to express their interest in virtual education for their children. K12 reports having received nearly 1,402 inquiries in Clay County from January 2009 – June 2013 which represents 4.0% of the total public school population in Clay County (based on membership as of December 2012). The following map represents the geographically widespread interest in virtual education in the district.



Based on K¹²'s more than 12 years of experience with the rate of enrollments which actually result from inquiries and the rate of enrollment growth each year the school is in operation (both based on strong and effective outreach and recruitment plans developed by K12), we conservatively projected a first year enrollment of 50 K-8 students growing to 91 K-12 students in Year 5. We are confident to base our fiscally sound budget on these projected enrollments.

The projections and grade level distributions are comparable to the distributions in similar virtual charter schools in states where there are similar district online offerings. The rate of enrollment growth each year the School is in operation is also based on historical trends in similar virtual charter schools with which K12 is associated, the highest growth rates being in the first years of operation and gradually decreasing growth rates as grades are added and the school has been in operation for a few years. K12's experience is also that the demographics of the inquiring families typically mirror the demographics of the locality from which they come.

Examples of enrollment in other virtual programs are provided below:

School Name	State	Grade Levels	Marketing Level	10/1/2010 Enrollment Count	10/1/2011 Enrollment Count
Falcon Virtual Academy	CO	K-12	No marketing provided	109	227
Kihei Charter School	HI	K-8	No marketing provided	227	296
Michigan Virtual School Programs	MI	6-12	No marketing provided	288	1300

Section 3: Educational Program Design

A. Explain how the educational program aligns with the school's mission.

As we previously stated:

The Florida Virtual Academy (FLVA) mission will be to equip every student with the academic and nonacademic foundations necessary for developing each student's full potential and exhibiting exemplary levels of student achievement in a high-quality learning environment that will integrate research-based technology applications, meaningful teacher/student/parent involvement, and engaging, individualized learning. This will be accomplished through the provision of a high-quality, online public charter school that will build a community of students, families, and educators.

To explain the alignment of our education program with our mission, it is necessary, first, to understand our education program. The Florida Virtual Academy academic program will combine online technology with traditional instruction and materials. Instruction will be provided by Florida certified teachers who will work in conjunction with learning coaches to ensure student success. A learning coach may be a parent, or another responsible adult designated by the parent, who helps guide a student through their daily coursework using the K12 curriculum and Online School. The School will require that each parent/guardian specifies an adult to have the responsibility for working with their student on a daily basis. Teachers will communicate with the students and learning coaches through e-mail, telephone, online web meetings, and physical meetings.

Instructional time will occur both during synchronous sessions where the student and the teacher are online together. Please see **Attachment 2** for examples of typical elementary, middle, and high virtual academies' weekly direct instruction schedules and asynchronous sessions when the student is working more independently online or offline. Students will study from home or other locations of their choosing where they can access the Internet as needed to access web-based curriculum, participate in direct instruction, teacher conferences and office hours, etc.

Teachers will provide instruction and support to students and their learning coaches by phone, email, and web conferencing. The teacher will provide direct instruction through Blackboard Collaborate, a web-based conferencing platform. Students will attend classroom sessions by logging in on Blackboard Collaborate, using chat, an interactive whiteboard, Voice-Over IP (VOIP), and other features to further explore and discuss lesson topics synchronously with teachers and fellow students. In addition to the direct instruction sessions, the K-8 teacher will conduct academic conferences with the learning coach, but will also be available to answer questions the student and/or learning coach have as they progress through the lessons.

The teacher will manage the student's Individualized Learning Plan, monitor progress, and focus on each student's individual problem areas. Teachers will be responsible for conducting online direct instruction sessions and discussion forums; holding office hours; validating student attendance, course activity, and curricular mastery; setting, reviewing, and grading assignments; and assigning course grades through K12's online Learning Management System. The teacher will also be the first point of contact for students and parents with all questions regarding the

curriculum. Resources provided by teachers will include instructional and curricular support, differentiated instruction and/or assessment as necessary, organizational assistance, and encouragement.

For students performing below grade level and/or at achievement level 1 or 2 on the FCAT 2.0, we are proposing an intervention model to be included as part of a student's Individual Learning Plan. These interventions will include both online and offline approaches to ensuring that struggling students are provided with structured efforts to address gaps in their knowledge or skills. The online approaches include targeted synchronous tutoring sessions via a tool like Blackboard Collaborate where the student and teacher are working together at the same time, detailed use of Scantron's Performance Series, Study Island benchmark testing, instruction of study skills, and other interventions. Regular and special education teachers and counselors may work as needed with students, parents, and/or learning coaches face-to-face (at locations where FLVA can utilize designated space to work with students) if the need is demonstrated. The approved sites could also be used for meetings of student clubs, proctored test administration sites, and parent training. We would hope to share space with other nonprofit organizations, or in public facilities such as libraries, in order to not incur additional costs. All academic interventions implemented at sites can be accomplished online via Blackboard Collaborate without diminishing instruction.

As mentioned previously, the FLVA Board of Directors will ensure equal access for all students by implementing a transparent enrollment process and providing computer equipment and Internet reimbursements for families as needed.

Elementary and Middle School

Each K-8 student will be instructed by a team of Florida certified and highly qualified teachers. A healthy working relationship between the student and the assigned teacher and between the learning coach and the teacher will be essential. The K-8 student's assigned certified teacher will communicate with the parent and student through e-mail, telephone, online web meetings, and direct instruction sessions. Middle school students will have content specific teachers who communicate with students and parents by subject matter. It is the teacher's professional responsibility to ensure the academic success of each individual student in his/her class. The teacher will engage students in the coursework and continually motivate them, monitor student progress in the course, as well as grading and providing instructional feedback on assignments. Students learn from this feedback and then revise their efforts for future assignments. Each student in grades 6 through 8 will also have a homeroom teacher who addresses noncurricular questions.

The K12 K-8 curriculum is self-paced and lesson plans will appear daily for each K-8 student in the learning management system called the Online School (OLS) for students in grades K-8. Lesson plans will update daily as students progress and master the content in each course. Teachers will provide both synchronous and asynchronous instruction and support to students and their learning coaches by phone, email, and web conferencing. The teacher will lead academic conferences with the learning coach, but will also be available to answer questions the student and/or learning coach have as they progress through the lessons. The teacher will also

provide direct instruction based on the students' Individualized Learning Plan through Blackboard Collaborate, a web-based conferencing platform. Students will attend classroom sessions by logging in on Blackboard Collaborate, using chat, an interactive whiteboard, Voice-Over IP (VOIP), and other features to further explore and discuss lesson topics synchronously with teachers and fellow students.

Teachers of K-5 students will monitor individual student progress by setting goals, reviewing/grading assignments, giving support and advice, and direct instruction through synchronous sessions. This approach, integrated with assessments and a comprehensive learning system, will provide learning coaches and teachers with the support needed to deliver an unparalleled education. Teachers can proactively track individual student academic progress through ongoing lesson and unit assessments tracked in "real time" through the Learning Management System. Students who master lessons ahead of schedule can progress seamlessly into the next unit. Students who need additional instructional time can continue working on lessons until the lesson objectives are mastered.

In the middle school program (grades 6-8), students will have one subject-specific teacher for each subject studied, and these teachers will be responsible for reviewing all student work and providing instructional feedback. The teachers will work together on a teaching team, and employ a cooperative team-teaching approach. Middle school subject area teachers "share" the same students. While they teach all of the same students (each in their own subject area), each teacher is also a homeroom teacher for a portion of those students. At times, they may "team teach" when needed for extra skill work, for instance, a Social Studies teacher may assist with Language Arts lessons or a Science teacher with math lessons. During team planning and meeting time they may collaborate on ILPs, review RTI status, etc. This approach will allow the parent to focus on serving as a learning coach and guide to her/his student to help them achieve academic excellence. Students are regularly involved on a course-by-course basis in threaded, teacher-monitored discussions with each other about key topics and ideas being covered.

High School

In the high school program, students will have one subject-specific teacher for each subject studied, and these teachers will be responsible for reviewing all student work and providing instructional feedback. Each high school student also has an advisor or homeroom teacher who fills many roles: initially welcomes the student; sends out progress reports and other school communications; monitors attendance; etc. The homeroom teacher may also be one the student's subject area teacher. Students are regularly involved on a course-by-course basis in threaded, teacher-monitored discussions with each other about key topics and ideas being covered.

While the K12 K-8 curriculum is self-paced, our high school courses will make use of a weekly schedule of activities and assignments. The student has the flexibility to decide when work gets done during the week. Each week, however, there are due dates, and assignments and mandatory online discussion sessions designed into the program to:

- Allow a class to move through material at the same time or in close proximity;
- Enable teachers to run online group activities as needed for each section of students,

- helping many students to overcome the same often complex obstacles at the same time;
- Free parents from detailed academic support burdens at the high school level;
 - Encourage students, with help from family and teachers, to acquire the experience of planning their work and lives day by day, which is a key skill for later in life.

Students will demonstrate mastery of a curriculum that meets or exceeds the Next Generation Sunshine State Standards including the Common Core State Standards (as defined by Florida Senate Bill 1076).

The most successful online learning environments are those in which groups form a “community of learners” with their teacher. Students come to know each other, respect each other’s differences and contributions, and work together. In the FLVA program, students will participate in online, teacher-monitored discussions providing students with both practice and confidence in the underlying concepts of a particular topic, as well as practice in communicating. Teachers can both coach one-on-one, privately, and provide direction to the whole group at once. Teachers and students get to know each other during these discussions.

Differentiated Instruction

A key part of the FLVA education program is the Individualized Learning Plan (ILP). An ILP is designed for each student (K-12) to ensure a customized program that fits each student’s unique strengths, weaknesses, learning styles and aptitudes. The goals of all the ILPs are the same: reviewing current student progress, setting goals and a plan to reach those goals, and inclusion of teachers, parents, students, advisors and counselors (for high school students) in their formation and review. Often led by the teacher, the team creates a unique plan for each child, designed to organize and properly sequence a student’s coursework while articulating his or her academic strengths and challenges. The ILP that will be developed for each high school student expands beyond academic objectives to include post-secondary goals for college and/or a career.

A crucial element of the ILP is the unique assessment testing. Students are given age-appropriate assessments at the start of the school year to identify strengths and challenges. These assessments include Scantron Performance Series, Study Island, SAT 10, or other comparable alternate assessment systems, and K12 proprietary assessments. In the high school grades, other indicators may be used, including student transcripts, SAT/ACT scores, prior state test scores, and end-of-course (EOC) exams.

ILP goals ensure that students focus not only on the areas in which they have learning deficits, to bring the students up to grade level in those areas, but also on the areas in which they are already strong and may want to deepen their knowledge. The School includes, but goes beyond, state testing, with a focus on determining exactly what each child needs. Ongoing testing is administered, as needed, to ensure each child is making progress toward goals.

All ILPs should be initially completed in the first 30 days of school. K-8 ILPs are reviewed at the end of each quarter. High school ILPs are created and reviewed minimally twice each year: in the first 30 days and at the beginning of second semester. The high school ILP includes the

elements of 4 year high school planning, credit and graduation requirement checks, and post-secondary planning as well as prior test score data.

Differentiated Instruction—Teacher Interaction

Teachers will regularly review data from school based and state assessments to determine a student’s need for differentiated instruction. Based on data, teachers may direct students to attend one on one tutoring sessions, complete additional assignments in the online school or through Study Island, or assignments created directly from Scantron assessments. Teachers have the ability to access data immediately and at any time. This allows teachers to provide point in time assistance to students. Data are a tremendous resource that allows true differentiated instruction to occur at the point that will have the most impact for students.

Differentiated Instruction—At Risk Students

Based on the experience of K¹² Florida LLC in Florida and other K12 subsidiaries providing educational services to statewide virtual schools in thirty-three other states and the District of Columbia, we have estimated that between 40 and 45% of our FLVA student body will be “at risk” students requiring an intervention model to be included as a part of their Individual Learning Plan. Our plan to meet the requirement to serve them is student-centered--looking at each student as an individual and matching teaching methods to individual learning styles and student performance. It is based on K12 Inc.’s National Instructional Model (NIM) plus an intervention plan which adds the support of our certified teachers online and, as needed, face-to-face at local physical spaces for remediation.

Student services such as guidance counseling, diagnostic achievement testing, contracted health services, college and career counseling, coordinated with a detailed instructional model and intensive academic intervention programs, will be part of our approach.

Students will take the Scantron Performance Series, or a comparable alternate assessment system, test in the fall of each school year. The scaled score will identify those students not performing at grade level and will provide information on subject area deficit. The Scantron Performance Series is given again in the spring in order to ensure that all students are making one year’s growth in one school year as measured by Scantron. The Performance Series is a key aspect of the school’s goal to measure annual value-added gains (detailed information about the use of Scantron is provided in **Sections 3 and 5**).

Following up on the Performance Series, students will take Study Island benchmark assessments, or a comparable alternative, in order to assess each student’s mastery of Florida grade appropriate standards. Study Island is an online tool used to help FLVA identify at-risk students in need of additional remediation and support. The assessment tool is aligned with the Florida Next Generation State Sunshine Standards and Common Core State Standards (CCSS) and is an effective test mastery program. Study Island Pathways will be organized and assigned based on the Florida state standards. Students answer a targeted number of questions which are scored electronically. Students are assigned a proficiency level to correlate with mastery of the standards and provided a prediction of success on the Florida tests. Study Island content is

available in English Language Arts (grades 2 – 12 Common Core), Mathematics (grades 2 – 12 Common Core), Reading (grades 2 – 10), Math (grades 2-8), Science (grades 3 – 8 FCAT 2.0 and grade 11 FCAT 2.0), Social Studies (grades 3-8), Algebra I (EOC), Biology I (EOC), Geometry (EOC), and U.S. History (EOC).

Students will complete the assigned Study Island Pathways that will assess students on all state standards. Students will earn blue ribbons to show mastery. If students do not earn a blue ribbon, building block activities will be automatically assigned as remediation. Those students who cannot earn the blue ribbons and do not demonstrate mastery will attend instructional intervention sessions specific to the deficient standard (unless IEP designation provides for alternative plan). The interventions will be targeted, synchronous, teacher-led, and web-based.

During intervention sessions, students and teachers will be online at the same time in the same online classroom—using a web conferencing platform such as Blackboard Collaborate. Teachers will provide intense targeted instruction on specific state standards to ensure mastery. Students will be reassessed on all state standards to ensure mastery.

Learning Management and Student Information Systems

Students, parents, teachers, administrators and the Board may continuously measure and receive reports on student achievement gains during the school year using the School’s learning management and student information systems. Using these systems, the School will deliver the curriculum to its students and permit teachers and parents to see, at every moment, how the student is progressing. These systems provide each student with an individualized learning experience. The School will be using the following management tools which are components of the education program that K12 will provide to the School:

Learning Management System (LMS)

The LMS is an intuitive, web-based software platform. It provides access to more than 22,000 online lessons and courses; lesson/unit/term assessments; hands-on activities; alternative learning approaches; classroom collaboration tools; and optional and supplemental lessons and activities, as well as lesson planning and scheduling tools and progress tracking tools. Students, parents and teachers can access the LMS with an Internet connection at any time.

Lesson Planning and Scheduling Tools

The K12 lesson planning and scheduling tools enable K-12 teachers and parents to establish a schedule for completing lessons. These tools are designed to update the plan as a K-8 student progresses through each lesson and course, allowing flexibility to increase or decrease the pace at which the student moves through the curriculum while ensuring that the student progresses towards completion in the desired time frame. Changes can be made to the schedule at any point and the remainder of the student’s schedule will automatically adjust. Examples of a 1st grader’s weekly plan and a high school course overview are provided below.

Welcome, Holly

My Account | New Log In | Log Out

Home Plan Progress Courses K-Mail Community Help

1st Grade's Plan

Today's Date: Thursday, January 20, 2011
Homeroom Teacher: Arkansas Teacher

Click to select a date. Print Weekly Plan

Mon, 01/24/2011	Tue, 01/25/2011	Wed, 01/26/2011	Thu, 01/27/2011	Fri, 01/28/2011
<ul style="list-style-type: none"> Math 1 <ul style="list-style-type: none"> 2.5. Ordinals Language Arts 1 <ul style="list-style-type: none"> 1.8. Language Arts 8 Phonics 1 <ul style="list-style-type: none"> 1.5. Weekly Wrap-Up: Short a, o, and u Practice handwriting for 10 minutes. Science 1 <ul style="list-style-type: none"> 1.2. Balancing Act Introduction to Online Learning K - 3 <ul style="list-style-type: none"> 1.3. How K-3 Lessons Work - With a Focus on Math 	<ul style="list-style-type: none"> Math 1 <ul style="list-style-type: none"> 2.6. Problem-Solving Strategy: Find a Pattern Language Arts 1 <ul style="list-style-type: none"> 1.9. Language Arts 9 Phonics 1 <ul style="list-style-type: none"> 2.5. Weekly Wrap-Up: Short Vowels Practice handwriting for 10 minutes. History 1 <ul style="list-style-type: none"> 1.3. Our World: The Lay of the Land Art 1 <ul style="list-style-type: none"> 1.3. How Artists Use Lines Beginning 1 Music <ul style="list-style-type: none"> 1.2. Let's Move High and Low Introduction to Online Learning K - 3 <ul style="list-style-type: none"> 1.4. The Art of Language Arts 	<ul style="list-style-type: none"> Math 1 <ul style="list-style-type: none"> 2.7. Problem-Solving Applications: Draw a Picture Math 1 <ul style="list-style-type: none"> 2.8. Numbers to 12, Part 2 Review and Assessment Language Arts 1 <ul style="list-style-type: none"> 1.10. Language Arts 10 Phonics 1 <ul style="list-style-type: none"> 3.1. Review Digraph sh Practice handwriting for 10 minutes. Introduction to Online Learning K - 3 <ul style="list-style-type: none"> 1.5. History and Mastery 	<ul style="list-style-type: none"> Math 1 <ul style="list-style-type: none"> 3.1. Understanding Addition Language Arts 1 <ul style="list-style-type: none"> 1.11. Language Arts 11 Phonics 1 <ul style="list-style-type: none"> 3.2. Review Digraph ch Practice handwriting for 10 minutes. History 1 <ul style="list-style-type: none"> 1.4. What is History? Art 1 <ul style="list-style-type: none"> 1.4. Sketchbook Introduction to Online Learning K - 3 <ul style="list-style-type: none"> 1.6. Young Scientists in Training 	<ul style="list-style-type: none"> Beginning 1 Music <ul style="list-style-type: none"> 1.3. Let's Clap the Rhythm Introduction to Online Learning K - 3 <ul style="list-style-type: none"> 1.7. Art is Fundamental

Firefox | K12 TotalView School | Inspector

https://totalviewsschool.k12.com/cgi-bin/WebObjects/TotalViewVA.woa/3/wo/VhgrdEqmcd4WdaDmnsZUw/8.0.17.1.1.3.194066712.0.9.0.0.3.1.3.1.1.0.0.139.3.1.3.1

SCI303B: Chemistry

Course Start Date: 01/02/2012
Primary Teacher:

ATTENDANCE	PROGRESS	ACTIVITY
Last Thirty Days: 25 Hours 0 minutes Year To Date: 38 Hours 50 minutes	Course Avg. To Date: 90.57% Points Earned: 480 Possible Points To Date: 530 Final Letter Grade: NA	Last Login (K ¹²): 02/17/2012 Last Login (LMS): 02/16/2012 Total Time Spent: 2883.0

ASSIGNMENTS

To Do Overdue Submitted Graded

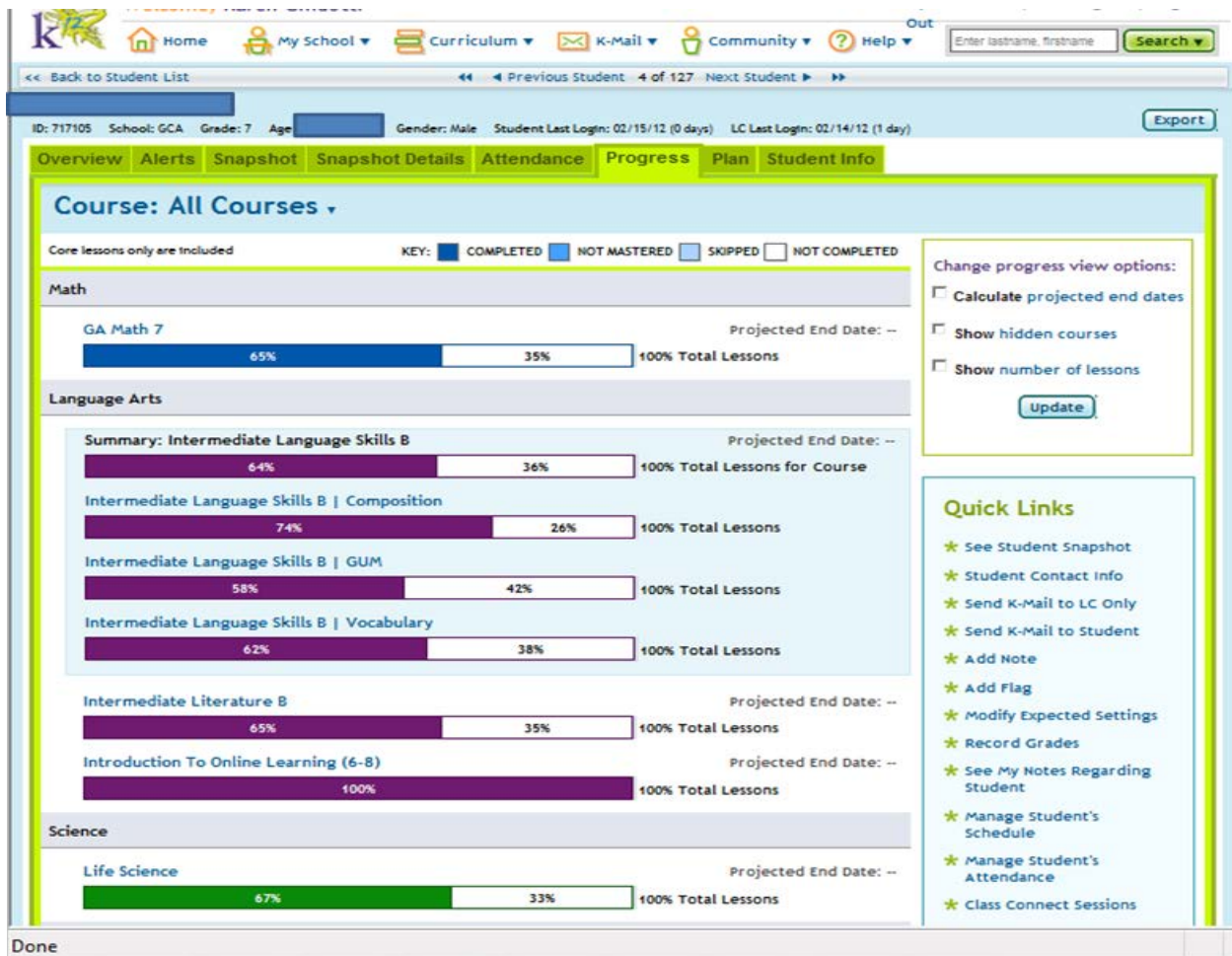
Assignment Name	Due Date	Submit Date	Graded Date	Possible Points	Points Earned
1.11 Quiz		01/18/2012	01/23/2012	5.0	5.0
Solution Formation Lab		02/01/2012	02/08/2012	20.0	20.0
Review Sheet	01/30/2012	01/13/2012	01/13/2012	5.0	5.0
1.04 Quiz		01/09/2012	01/17/2012	5.0	5.0
1.14 Quiz		01/20/2012	01/23/2012	5.0	4.0
Syllabus Extra Credit			01/09/2012	5.0	5.0
Review Sheet	01/30/2012	01/13/2012	01/13/2012	5.0	5.0
Journal			02/08/2012	40.0	20.0
Journal			02/08/2012	40.0	20.0
1.02 Quiz	01/09/2012	01/06/2012	01/17/2012	5.0	5.0
1.05 Quiz	01/16/2012	01/10/2012	01/17/2012	5.0	4.0
1.03 Quiz	01/16/2012	01/09/2012	01/17/2012	5.0	5.0
1.09 Mid-Unit Test: Part 1	01/16/2012	01/14/2012	01/17/2012	60.0	57.0
1.09 Mid-Unit Test: Part 2	01/16/2012	01/14/2012	01/17/2012	30.0	30.0
Gas Laws Lab	01/16/2012	01/14/2012	01/24/2012	20.0	20.0

9:10 AM 2/17/2012

For grades 9-12 students, teachers use these tools to establish assignment dates. They are designed to provide student and parent visibility into upcoming assignments and course progress.

Progress Tracking Tools

Once a master schedule has been established for K-8 students, the LMS delivers lessons based upon the schedule. Each day, a student is initially directed to a screen listing the syllabus for that day and selects one of the listed lessons. As each lesson is completed, the student returns to the day's syllabus to proceed to the next subject. If a student does not complete a lesson during the session, the lesson will be rescheduled to the next day resuming at the point where the student left off. The progress tracking tool allows students, parents and teachers to monitor student progress. In addition, information collected by the progress tracking tool regarding student performance, attendance and other data is transferred to the management system for use in providing administrative support services.



Once a master course schedule has been established by a high school teacher in the LMS, content units and assignments are delivered to students based upon the schedule. Each day, a student is initially directed to a screen listing the upcoming assignments for the course, as well as specific teacher-created announcements that assist in guiding the student's activities for the day and/or week. As each lesson is completed, the student returns to the day's assignment list to proceed to the next activity. The progress tracking tools allow students, parents and teachers to monitor

student progress in each course. Below is a screen shot of one of the progress screens from a student view.

The screenshot shows a web browser window titled "K12 TotalView School". The page displays a table of course progress for a student. The table has the following columns: Code, Course, Start Date, YTD Attendance, (K-8) Progress % (H5) Average, Report Card: GradeMark, and Report Card: Comment. The data rows are as follows:

Code	Course	Start Date	YTD Attendance	(K-8) Progress % (H5) Average	Report Card: GradeMark	Report Card: Comment
ENG-403BV1-K	ENG403B: British and World Literature 216960	01/02/2012	35 Hours 0 minutes	116.43%		
HST-303BV1-K	HST303B: U.S. History 217382	01/02/2012	34 Hours 50 minutes	98.05%		
MTH-303BV1-K	MTH003B: Algebra II 217157	01/02/2012	36 Hours 20 minutes	98.68%		
ORN-200V1-K	ORN200: Finding Your Path II 170930	06/03/2011	23 Hours 20 minutes	100.00%		
SCI-303BV1-K	SCI003B: Chemistry 217692	01/02/2012	38 Hours 50 minutes	90.57%		
TCH-01BV1-G	TCH01B: 3D Art II - Animation 217476	01/02/2012	33 Hours 30 minutes	115.77%		

Below are two views teachers have for monitoring students.

The screenshot shows a teacher's dashboard in the K12 Online School system. The page includes a navigation bar with "Home", "My School", "Curriculum", "K-Mail", "Community", and "Help". Below the navigation bar, there is a "Welcome" message and a search bar. The main content area is divided into several sections:

- ALERTS**: This section displays a list of alerts with the following items:
 - 27 Students with Missing Attendance (See List)
 - 76 Progress Alerts in Homeroom (See List)
 - 46 Students with Contact Alerts (See List)
 - 4 Students with Login Alerts (See List)
 - 7 Students with Flags (Teacher Set) (See List)
 - 7 Special Programs Students (See List)
- CLASSROOMS**: This section shows "STI Students: 0" and "Total Number of Students: 61". Below this is a table with the following data:

Name	Type	Primary Teacher Name	# of Students	School Name
Kindergarten	Homeroom			ARVA
- Quick Links**: This section contains two links: "K-Mail Teacher" and "TotalView School".

At the bottom of the page, there is a copyright notice: "Copyright © 2011 K12 Inc. All rights reserved. K12 is a registered trademark of K12 Inc. The K12 logo and other marks referenced herein are trademarks of K12 Inc., and other marks are owned by third parties. Privacy Policy | Copyright Policy | Terms of Use".

Course Home

- Syllabus
- Calendar
- Teacher Contact Information
- Participation
- ClassConnect
- Academic Integrity
- Grading Information
- Course Feedback
- Course Help
- Problems & Solutions and A Lab Guide
- Unit 1
- Unit 2
- Unit 3
- Unit 4
- Unit 5
- Unit 6
- Unit 7

View Gradebook | User Activity | Setup Gradebook

« back

My Gradebook:

Grade To Date: 480/530 (90.57%)

View Gradebook By: Unit | Item

Assignment	Grade	Earned to Date	Possible for Course
Unit 1: States of Matter - Journal	80/80	80 pts.	80 pts.
Unit 1: States of Matter - Syllabus Extra Credit	5/5	5 pts. Extra Credit	5 pts. Extra Credit
Unit 1: States of Matter - 1.02 Quiz	5/5	5 pts.	5 pts.
Unit 1: States of Matter - 1.03 Quiz	5/5	5 pts.	5 pts.
Unit 1: States of Matter - 1.04 Quiz	5/5	5 pts.	5 pts.
Unit 1: States of Matter - 1.05 Quiz	4/5	4 pts.	5 pts.
Unit 1: States of Matter - Gas Laws Lab	20/20	20 pts.	20 pts.
Unit 1: States of Matter - Review Sheet	5/5	5 pts. Extra Credit	5 pts. Extra Credit
Unit 1: States of Matter - 1.09 Mid-Unit Test: Part 1	57/60	57 pts.	60 pts.
Unit 1: States of Matter - 1.09 Mid-Unit Test: Part 2	30/30	30 pts.	30 pts.
Unit 1: States of Matter - 1.10 Quiz	4/5	4 pts.	5 pts.
Unit 1: States of Matter - 1.11 Quiz	5/5	5 pts.	5 pts.
Unit 1: States of Matter - 1.12 Quiz	4/5	4 pts.	5 pts.
Unit 1: States of Matter - 1.13 Quiz	2/5	2 pts.	5 pts.
Unit 1: States of Matter - 1.14 Quiz	4/5	4 pts.	5 pts.
Unit 1: States of Matter - 1.15 Quiz	5/5	5 pts.	5 pts.

Student Administration Management System (SAMS)

SAMS, the master digital database, captures raw student data, stores it, organizes it, and integrates with other systems. SAMS collects and provides all of the information required to manage student enrollment and monitor student performance. TotalView School and MyInfo are two sides of SAMS. They are applications for administrators, teachers, parents, and students to use that display the information stored in the SAMS database. TotalView School serves the school—teachers, administrators, and other staff—by providing a secure, internal communications tool, an overview of their students’ current progress and history, and the status of the shipment of curriculum materials. It allows teachers to interact one-on-one with students. Parents and students use MyInfo as a secure communications tool to track students’ course progress, grades, and attendance history, and to check the status of course material shipments.

Extracurricular Programs

Extracurricular activities will focus on developing a strong sense of “community” among our students. We plan to offer a school council, a community service club, and additional clubs depending on student interest (e.g. Arts, Debating, Chess, Computer and Network Repair, Robotics, Model United Nations, etc.).

Florida Virtual Academy will determine initial student interests and ideas for additional clubs by a survey distributed as part of orientation activities or during summer and fall welcome meetings and calls. It is typical for new schools to wait for student interest before making a final decision on what the exact extracurricular programs the school plans to offer. Establishing a sense of

school community is a high priority of Florida Virtual Academy and is an important part of a successful virtual school in just the same way as in a traditional school.

Clubs are run by school staff. Generally each teacher will sponsor a club. Most clubs will meet at a regular time - weekly or biweekly or monthly - in the web based classroom using Blackboard Collaborate. In that platform clubs can play chess, work to prepare for an upcoming event, give speeches or conduct elections, etc. Many clubs will meet face to face at times. For example, the robotics clubs or LEGO clubs will usually find a central area in which to meet, say weekly, and then will work towards competition. Other K12 managed schools have had travel clubs with destinations all over the world and student councils that attend state conventions.

In addition, unlike most other schools, Florida Virtual Academy's students will be able to connect with K12 students around the world in robust online extracurricular programs via K12 International Clubs. These clubs for students in Grades 2 to 12 include, for example, Book Buddies, Brain Teasers, Culinary, Creative Writing, Debate, Forensic Science, Geography, Health and Fitness, Music, Math, MS International, Photography, Sports, Story Seekers, Virtual Field Trips, Volunteer, and Yoga.

Florida Virtual Academy will list clubs and activities, and host a web-based "Meet the Clubs and Activities" night that leads to greater student awareness and participation in the School's offerings. Each interest or activity group develops a presentation to be offered on Blackboard Collaborate. All of these clubs will have a space on the K12 Online School Community, an online community designed to bring together our parents, students and schools to share information and resources specifically focused on their school. Students are encouraged to share their ideas and thoughts on each club space.

The Florida Virtual Academy administration will survey the families and teachers at least once a year on the success of the clubs and events and gather feedback for future planning. Pursuant to sections 1006.15 and 1002.20(18)(a), F.S., FLVA will work with the sponsoring district to ensure eligible students access to participation in district extracurricular activities.

Furthering the FLVA Mission and Program

The FLVA Board believes that K12 is unique in the education industry because of their direct involvement in every component of the educational development and delivery process. Most educational content, software and service providers typically concentrate on only a portion of that process, such as publishing textbooks, managing schools or providing testing and assessment services. This traditional segmented approach has resulted in an uncoordinated and unsatisfactory education for many students. Unburdened by legacy, K12 has taken a holistic approach to the design of their learning system. They have developed an engaging curriculum which includes online lessons delivered over their proprietary school platform. They combine this with a rigorous system to test and assess students and processes to manage school performance and compliance. In addition, K12's professional development programs enable teachers to better utilize technology for instruction. Their end-to-end learning system is designed to maximize the performance of the schools they serve and enhance student academic achievement.

FLVA’s mission (to equip every student with the academic and nonacademic foundations necessary for developing each student’s full potential and exhibiting exemplary levels of student achievement in a high-quality learning environment that will integrate research-based technology applications, meaningful teacher/student/parent involvement, and engaging, individualized learning. This will be accomplished through the provision of a high-quality, online public charter school that will build a community of students, families, and educators) will be furthered by our proposed relationship with K12. K12’s mission is to maximize a child’s potential by providing licensed access to an engaging and effective education, regardless of geographic location or socio-economic background. Since their inception in 2000, they have invested more than \$240 million to develop curriculum and online learning platforms that promote mastery of core concepts and skills for students of all ability levels. Their approach combines cognitive science with individualized learning and is well suited for virtual schools and other education applications. K12 Inc. is accredited through AdvancED, the world’s largest education community, including such members as NCA, SACS, and NWAC. K12 is the largest national K-12 online school provider to be recognized by AdvancED.

K¹² Services

Under the terms of the Educational Products and Services Agreement (see **Attachment 3**), K¹² will manage the day-to-day operations of the school, utilizing the K¹² curriculum, the K¹² Online School (“OLS”), and K¹²’s management services. K¹² will also provide the school’s Student Support Staff including teachers. What that will mean to FLVA is that K¹² will provide a myriad of services detailed in the Educational Products and Services Agreement (see **Attachment 3**) and summarized below:

K¹² Value to Florida Virtual Academy

K¹² makes two open-ended commitments to its Virtual Academies:

- School/program will remain in regulatory compliance
- School/program will remain financially viable

Each of these open-ended commitments was acutely important to the Board. Unlike most contracted service providers, K¹² is not limiting its exposure to the amount of work that needs to be done nor to the expenses which may make it difficult for K¹² to be paid (as they are last in line for payments). This is part of the reason we refer to them as partners throughout the application.

Curriculum and Instructional Methods

- Lessons and Courses
- Learning Management Systems
- Ongoing access to content experts
- National Instructional Model
- Assessment expertise and access to assessment products

Measuring academic status and growth

- Adaptive test
- Identifies proficiency level of students

- Assesses math and reading, grades 3-8 and select HS grades
- Used to identify “at risk” students at beginning of year so that interventions can begin immediately
- Given at beginning and end of year
- Provides a “scaled score” used to measure growth

Using assessments to drive achievement

- Each assessment targets ONE grade level standard
- Questions aligned to state content standards
- Assessment results show in real time which students need remediation

School Management

- On-site K¹² personnel, including School Leaders
- Administrator sourcing, selection, training, oversight
- Best practice sharing
- Mentoring of School Leaders by Regional Vice Presidents
- Teacher sourcing, recommendation, training, oversight
- Systems infrastructure designed for a virtual environment
- School community-building
- Student recruitment resources and expertise
- Enrollment processing and placement expertise
- Website development and maintenance
- Creative services for recruitment and messaging
- National activities, contests, etc.

Public Information Sharing and Student Enrollment

- Develop and implement public awareness programs through numerous media outlets
- TV
- Radio
- Internet
- Extensive web-based information efforts for schools
- Search engine programs
- Banner ads
- Monthly e-mail communications with school news and events
- Distribute mail and school brochures to interested families
- In-person and online events to educate interested families

Community and Family Support

- Community Events – These events include free admission (paid for by K¹²) and are opportunities to meet and socialize with one another. Event types include:
 - Family Fun Days
 - End Of Year Celebrations
 - Summer Socials
 - Back-To-School Events
- 4,000 events organized this year for enrolled families, in addition to what schools organize

- Parent Booster & Mentor Program
- Family Directory
- Speaker Series
- Coast2Coast
- K¹² Round Table
- Quarterly newsletter (The xPotential)
- K¹² International Clubs
- National Competitions across schools
- Safe and supervised social networking for students
- Parents' Lounge (social networking for parents)

Operations Support

- Will resolve all submitted “tickets” (special requests from the schools)
- Weekly operations meeting for updates on operational issues
- Enrollment and re-registration service and reporting
- Training, set up and roll out of K¹² tools for the operations team:
- Withdrawal Tool
- Year End Transition
- Transcript Tool
- Staff Account tools
- Class Connect
- New systems releases
- Blackboard Collaborate, Study Island and Scantron accounts/support
- Weekly distribution of grant opportunities available at the student, teacher, and school levels

Financial

- Compliance with reporting requirements, support for audits
- Financial “safety net”
- Coverage of “planned” deficits during startup years
- Coverage of unexpected deficits during term of contract
- “Float” in the event of delayed state payments

School Operations Support--Monthly Operations Metrics since January 2011 that include:

- Student withdrawal data
- Numbers of withdrawals by major subgroups
- Comparison of the representation of the special populations in the withdrawal group vs. the active students in the school
- Reasons for withdrawals for the whole year, last month, and by major subgroups in the school
- Length of enrollment at time of withdrawal
- School active population data
- Number of students by grade level
- Percent of population in grade school, middle school and high school
- Ethnicity breakdown
- Prior school type

- Special program membership
- Staff data
- FTEs data by staff role
- Ratio translation for staff load monitoring of FTEs against active student data
- Grants data
- Listing of grants active for school
- Value of grants
- Spend rate to date
- Brief description of how the grant funds are being used

HR Support

- Payroll for all school and K¹² staff supporting school
- Recruiting for K¹² school based positions
- Background checks for all K¹² employees
- Employee relations training
- Performance management training
- Benefits management
- Auditing of employee files

Legal Support

- K¹² provides legal support to schools on topics including:
 - Family Education Rights and Privacy Act (FERPA)
- Charter School Law
- NCLB and other Federal Education Laws and Regulation
- Employment Law
- Public Records and Other School Records Issues
- Real Estate and issues related to Learning Center operations

Virtual Teacher Training

- 40 to 50 hours of initial training over two weeks
- 11 units containing 65 lessons
- Blackboard Collaborate Moderator Skills (7 live sessions)
- Topics include:
 - Students and Families
 - Instructional Model
 - Synchronous and Asynchronous Instruction
 - Tools and Techniques
 - Ready to teach on Day 1 of school

Teacher Support

- Teacher Help Desk: real-time help for teachers, open 40 hours/week via phone, email, IM, and Blackboard Collaborate
- Teacher Support Website: online discussion threads, support documents and templates that can be accessed 24/7
- National Professional Development

- Online Synchronous Instructor (OSI) Certificate; will receive three graduate credits from UCSD
- Content area focused sessions
- Academic Services
- National Instructional Model
- Design and implementation oversight for assessment program
- Yearly School Academic Improvement Plans
- Ensures Special Education compliancy
- Assists schools with accreditation
- Continued training and Professional Development
- Monthly Teacher Performance Decks--Reports detail
- Student participation in formative testing, by teacher
- Student level of engagement, by teacher
- Number of interventions provided to students, by teacher
- Access to teacher help desk for real time support
- National Professional Development

Evidence of K12's Success

Florida Virtual Academy has entered into a contract with K¹² Florida LLC (“K¹²”), an education services provider and a wholly owned subsidiary of K12 Inc. (NYSE: LRN). Under the terms of the Services Agreement, K¹² will manage the day-to-day operations of the school, Florida Virtual Academy, utilizing the K12 curriculum, the K¹² Online School (“OLS”), and K¹²'s management services. K¹² would also provide the school's Student Support Staff, including teachers. In the 2012-2013 school year, K12 provided similar educational products and services to 120,000 K-12 students in online public schools in 33 states and the District of Columbia including statewide virtual charter schools, programs of statewide virtual charter schools, and statewide virtual schools.

K12's mission is to maximize a child's potential by providing licensed access to an engaging and effective education, regardless of geographic location or socio-economic background. Since their inception in 2000, they have invested more than \$240 million to develop curriculum and online learning platforms that promote mastery of core concepts and skills for students of all ability levels. Their approach combines cognitive science with individualized learning and is well suited for blended schools and other education applications. K12 Inc. is accredited through AdvancED, the world's largest education community, including such members as NCA, SACS, and NWAC. K12 is the largest national K-12 online school provider to be recognized by AdvancED.

K12 Inc., the parent company of K¹² Florida LLC, was founded in 2000 to utilize the advances in technology to provide children access to a high-quality public school education regardless of their geographic location or socio-economic background. Given the geographic flexibility of technology-based education, they believed that the pursuit of this mission could help address the growing concerns regarding the regionalized disparity in the quality of public school education, both in the United States and abroad. The convergence of these concerns and rapid advances in Internet technology created the opportunity to make a significant impact by deploying high quality online learning systems on a flexible, online platform.

In September 2001, after 18 months of research and development of their curriculum, K12 Inc., introduced their kindergarten through 2nd grade offering. They launched their initial online learning system in virtual public schools in Pennsylvania and Colorado, serving approximately 900 students in the two states combined. They added new grades over the first seven years and continue to manage schools in more states every year. They have also launched hybrid programs that combine face-to-face time in the classroom with online instruction and opened an online private school to reach students worldwide. For the 2010-11 school year, K12 Inc., managed schools in 27 states and through their Institutional Business served schools in all 50 states. In 2011-2012, K12 Inc. served new statewide public virtual schools in Louisiana, Tennessee, and Indiana and new blended learning (combining online and face to face instruction) schools and programs in Arizona, California, Colorado, Kansas, Michigan, Oklahoma, Pennsylvania, Texas, Utah, and Wyoming. In 2012-2013, K12 Inc. served a new districtwide public virtual school in Osceola County, Florida; new statewide public virtual schools in Iowa and New Mexico; as well a new blended learning school in New Jersey- bringing the states with managed schools to 33. In 2013 – 2014, K12 Inc. will serve new virtual schools in Colorado, Florida, Ohio, Kansas, Michigan, South Carolina and Tennessee.

The following table sets forth the grade levels offered, and new state(s) managed by school year for virtual public schools and hybrid schools:

School Year with Managed Schools	Grades with Managed Schools	# of States	New States
SY 2001 - 2002	K - 2	2	Colorado, Pennsylvania
SY 2002 - 2003	K - 5	7	Arkansas, California, Idaho, Minnesota, Ohio
SY 2003 - 2004	K - 7	11	Arizona, Florida (statewide pilot), Utah, Wisconsin
SY 2004 - 2005	K - 8	12	Kansas
SY 2005 - 2006	K - 9	13	Texas
SY 2006 - 2007	K - 10	15	Illinois, Washington
SY 2007 - 2008	K - 12	17	Georgia, Nevada
SY 2008 - 2009	K - 12	21	Hawaii, Indiana (blended), Oregon, South Carolina
SY 2009 - 2010	K - 12	25	Alaska, Oklahoma, Virginia, Wyoming
SY 2010 - 2011	K - 12	27	Massachusetts, Michigan
SY 2011 - 2012	K - 12	29	Louisiana, Tennessee, Indiana (virtual)
SY 2012 - 2013	K - 12	32	Florida (districtwide), Iowa, New Jersey, New Mexico
SY 2012 - 2013	K - 12	33	Florida (district wide), Iowa, New Jersey, New Mexico

In these 33 statewide programs using the K12 program, public school districts, charter school boards, and/or state education agencies have developed virtual schools which meet both the sponsor's and each state's attendance, enrollment, academic, legal, financial, and all other forms of compliance. At the federal level, these schools have also met NCLB, Title I, IDEA, and all other crucial aspects of accountability required of all public schools.

- B. Describe the process the school will use to ensure that students eligible to receive a computer, monitor, printer (if necessary) and/or internet access, pursuant to Section 1002.45(3)(d), Florida Statutes, receive such equipment and internet service, and how the school will provide, track, and retrieve the necessary equipment (this information should be reflected in the budget section as well).**

Pursuant to Section 1002.45(3)(d), F.S., each FLVA student eligible for free and reduced price school lunches or who is on the direct certification list will also be eligible to submit a request for a loaned computer and printer/fax/scanner for the duration of his/her enrollment in the school. The School will also provide students who are eligible for free and reduced priced lunches or who are on the direct certification list, with Internet service reimbursement. Internet access will be reimbursed at a set monthly reimbursement amount to assist with home Internet charges. Eligibility for loaned computers and peripherals and Internet service assistance will be determined each school year. All FLVA students may also access the school's web-based curriculum via publicly available Internet such as in public libraries or schools if needed to supplement home access.

FLVA will also establish a process for families that are not eligible for computer equipment as described above but, for one reason or other, have need and are unable to provide their own computer equipment and/or Internet access. The FLVA Board of Directors will ensure that access to the required computer equipment and/or Internet access will not prohibit a student's ability to enroll and maintain enrollment in FLVA.

K12 will provide technical support for K12 issued computer equipment and software (see "Technical Support" below) and has extensive experience and success providing this support for families in all 50 states and in 70 countries. If deemed necessary, K¹² will replace the computer to ensure that the student has an operational computer throughout the school year. If students are using their own computer equipment, their families are responsible for the maintenance and repair of that equipment. K¹² will ask that all families first contact their ISP if they are experiencing Internet connectivity problems. If the ISP determines there is a problem with K¹² issued hardware or software, families will contact the K12 Technical Support staff for further assistance.

If the primary or supplied computer experiences technical issues, the student can use another computer within the environment to access required instructional content until the primary or supplied computer is repaired since the required content is accessible using any computer that has Internet access. If there is a technology services (ISP) failure, the student can temporarily access local publicly available Internet (e.g., at a local public library or school) and use a computer to continue the OLS and all other K12 systems required to access instructional content until the ISP failure is corrected.

According to the terms of the Educational Products and Services agreement (see **Attachment 3**), K12 will track computer equipment and software by the serial number associated with each piece of equipment and software. The serial numbers will be included in K12's student information

system for school administrators to see and review. The information in the student information systems is the basis for invoicing.

When a student has completed the FLVA program, is no longer eligible for the loan of the equipment, or the computer otherwise needs to be returned, K12 will contact the parent with return instructions. Typically, this involves receiving return labels, packing the computers into their original boxes, and dropping off the equipment at a shipping center or scheduling a home pick-up.

Technical Support

Student and Family On-boarding and Ongoing Support

K¹² works with our partner schools to provide integrated orientation and on-going orientation support for both new and returning students and families. When a new student enrolls in the FLVA at Clay County, the student will be assigned a specific enrollment specialist who assists the family in completing the online enrollment process and submitting documents required by the FLVA at Clay County for compliancy. Our school specific enrollment specialists are well trained in customer support services and receive training, supervision and support. The Enrollment Center will work with FLVA at Clay County to ensure that the enrollment specialist understands those things that make the school unique and special. FLVA at Clay County will be provided access to TotalView Enrollment which allows the school to track and review where their prospective students are in the process as well as read notes and view documents. Once the student's enrollment is approved, the parent will receive a confirmation email and the family will receive a school specific mailer which includes a welcome letter from the FLVA at Clay County Head of School, a "How to Get Started" checklist, and directions to the school's specific "Strong Start" website.

A FLVA at Clay County Strong Start website will be developed cooperatively with the school's designated points of contact to ensure that the information on the website is timely, up to date, accurate and useful for the school's families. The Strong Start website is open to all new and returning FLVA at Clay County students and families. K12 offers several online summer camps for students of all grade levels; High School Jump Start, and the Parent to Parent Lifeline. School specific events, activities and information sessions may also be added. Many schools include important information such as school calendars and handbooks.

Shortly before the first day of school, families will receive shipments of their course materials and they will get access to K12 orientation courses in the online school. K¹² will work with FLVA at Clay County staff to design and implement orientation and support once school begins. The first 4 weeks of school are critical in the success and satisfaction of FLVA at Clay County students and families. K¹² is committed to work with Board to ensure that FLVA at Clay County students and families have a smooth and positive enrollment and orientation experience.

Student Orientation

Families will begin the school year with “Welcome to Online Learning” courses targeted to grades K–2, 3–5 or 6-8. The courses provide an overview of each curriculum area so students and Learning Coaches can familiarize themselves with the philosophy behind the curriculum methodology and overall course organization. The lessons are interactive and include actual animations or graphics that are used in the courses themselves. By the end of the course, students will be fully prepared to begin their K12 lessons in the online school.

High school students will begin the school year with the “Online Learning” course. The “Online Learning” course explains to high school students how the K12 high school program works, and provides tips on successful online learning. Students are introduced to the online tools they will use during their high school experience, including the Learning Management System that delivers course assignments. Students take part in online discussions and practice submitting computer-scored assessments and other assignments to teachers. Lifelong learning skills such as time management and study habits are also covered. By the end of the course, students will be fully prepared to begin their K12 high school courses.

Parent Training for LMS and Use of Technology

Prior to the start of the school year, parents of the virtual school students will be invited to parent orientation sessions that will be conducted in convenient locations or online. At the orientation session, parents will meet the administrative staff, teachers, and K¹² representatives. Sessions will be designed to inform parents about navigating the program including the Learning Management System, technical support, lesson delivery, effective communication, and the virtual school’s policies. This is mandatory for parents. Parents will receive a school program handbook. Follow up regular parent training may include speakers at the administrative office, convenient community locations, and online; modeling; webchats; roundtables; and the K12 online school community.

Customer Support

Customer support will be provided to students and their families by K12’s knowledgeable Customer Support Team (made up of a Technical Team and a Customer Care Team) according to the terms of the educational products and services agreement or contract.

K12’s Customer Support Team provides support in two (2) general areas:

- 1) Customer Care includes the following web-based support areas:
 - Using the K12 Online School (OLS)
 - K12 Supplied Computer Equipment
 - Connectivity- ISP, Firewall, Troubleshooting
 - Materials
 - Account Information

- 2) Technical Support to help solve problems relating to accessing the OLS. K12 provides technical assistance for students and parents including web-based and phone support.

All technical support personnel are knowledgeable in K12 systems use and have received training on resolving technical support problems.

Students and families can choose to access support through three separate channels; information about all three channels is available via the “Customer Support” portal on the K12 website (www.k12.com):

- *Phone:* K12 Customer Care and Technical Support are staffed to handle technical support issues 24 hours per day, 7 days per week.
- *Web:* A web-based form to request support is available 24 hours per day, 7 days per week. The form-driven front end is accessed via the K12 Customer Support portal, and guides the customer to provide all necessary information to allow a fast and accurate response. K12 responds via email or phone within 24 business hours of receiving a customer inquiry.
- *Self Help:* Self-help is available 24 hours per day, 7 days per week. This web-based channel is accessed via the K12 Customer Support portal; it provides answers to frequently asked questions (FAQs), video tutorials, instructional resources, software downloads, and other information on common issues.

K12 will provide technical support for K12 issued computer equipment and software and has extensive experience and success providing this support for families in all 50 states and in 70 countries. If deemed necessary, K12 will replace the computer to ensure that the student has an operational computer throughout the school year. If students are using their own computer equipment, their families are responsible for the maintenance and repair of that equipment.

K12 will ask that all families first contact their Internet Service Provider (ISP) if they are experiencing Internet connectivity problems. If the ISP determines there is a problem with K12 issued hardware or software, families will contact the K12 Technical Support staff for further assistance.

If the primary or supplied computer experiences technical issues, the student has several options. The student can use another computer within the environment to access required instructional content until the primary or supplied computer is repaired since the required content is accessible using any computer that has Internet access. If there is a technology services (ISP) failure, the student can temporarily access local publicly available Internet (e.g., at a local public library or school) and use a computer to access the OLS and all other K12 systems required instructional content until the ISP failure is corrected.

Internal escalation processes are in place to provide quick access to second-line technical support as necessary, as well as access to resources in other groups such as Systems & Technology, Product Development, Customer Fulfillment, etc., if required.

If the school intends to replicate an existing school design:

- C. Provide evidence that the existing design has been effective and successful in raising student achievement.

The effectiveness of an existing school design can be demonstrated by providing evidence of organizational viability and the success of the academic program, including compliance with legal requirements, as well as a direct relationship between program elements and student achievement.

- D. Describe the applicant's capacity to replicate an existing school design.

The capacity to replicate can be demonstrated by providing credible and well-defined strategies for replication, including the financial and human resources necessary to replicate the design.

Questions 3(C) and 3(D) are not applicable to our application. The School does not intend to replicate an existing school design.

Section 4: Curriculum Plan

A. Provide evidence that reading is a primary focus of the school.

In the primary grades, the most critical educational task is to ensure that children learn to read. To help ensure success in this task, K12 has developed a primary Language Arts curriculum with a comprehensive focus on phonics and decoding, as well as meaning and comprehension. In 1967, Jeanne Chall published her seminal and influential study, *Learning to Read: The Great Debate*. In her research she noted, as children are learning to read they need instruction that focuses on both decoding and comprehension. The National Reading Panel (2000) also did extensive research on reading and phonics based reading programs. In the largest, most comprehensive evidenced-based review ever conducted of research on how children learn reading, a Congressionally mandated independent panel has concluded that the most effective way to teach children to read is through instruction that includes a combination of methods.

“The panel determined that effective reading instruction includes teaching children to break apart and manipulate the sounds in words (phonemic awareness), teaching them that these sounds are represented by letters of the alphabet which can then be blended together to form words (phonics), having them practice what they’ve learned by reading aloud with guidance and feedback (guided oral reading), and applying reading comprehension strategies to guide and improve reading comprehension”²

The focus on phonics helps children acquire the skills they need to turn letters on a page into their corresponding speech sounds. The focus on meaning introduces children to the rich world of literature— stories, poems, nonfiction, and more—that they can explore independently once they have mastered the requisite skills. Learning to read doesn’t “just happen,” it requires explicit, systematic, and careful guidance from the instructor and conscious effort from the learner.

Reading begins with phonemic awareness—the ability to hear, discriminate, and manipulate the sounds that make up words. It is not an easy task to hear these sounds. As the distinguished reading researcher Marilyn Jager Adams explains,

It is difficult to become aware of phonemes because people do not attend to the sounds of phonemes as they produce or listen to speech. Instead, they process the phonemes automatically, directing their active attention to the meaning and force of the utterance as a whole. The challenge, therefore, is to find ways to get children to notice the phonemes, to discover their existence and reparability.”³

K12 begins phonics instruction with eight units of instruction dedicated to enabling children “to notice the phonemes, to discover their existence and separability”—in other words, to developing phonemic awareness. For example, an exercise might note that *mat* and *man* begin with the same sound (/m/) and that you can replace that sound—say, with /k/—and get two new words, *cat* and

² (Division of Research and Policy, International Reading Association, 2000)

³ (Adams, Barbara, Ingvar, & Beeler, 1998)

can. The lessons offer a variety of games and activities to help develop children’s listening skills, make them aware of the sounds that make up words, and engage them in manipulating those sounds, often in playful ways.

K12 PhonicsWorks helps students reach these important goals:

- Recognize the relationship between sounds and letters
- Blend sounds into words
- Read, write, and spell longer, unfamiliar words by breaking them into syllables
- Read “sight words” (frequently used words such as *said* or *was*, most of which do not follow previously taught spelling patterns)
- Read and write sentences

Key features of the program include:

- Multisensory instruction that allows the student to look, listen, touch, move, and speak
- PhonicsWorks Tile Kit that provides visual, auditory, tactile, and oral learning opportunities
- Phonological awareness instruction that develops listening skills
- Phonics lessons presented in a systematic, explicit, and developmentally appropriate manner
- Sight words to improve word recognition abilities
- Daily oral reading activities using decodable K12 PhonicsWorks readers or Sentence Sheets to provide repeated opportunities for students to increase fluency
- Daily handwriting practice presented in a developmentally appropriate manner

During these opening units on phonemic awareness, it is important to understand that even though students are not working with written text, they are learning to read. Phonemic awareness is not just a prerequisite—it’s an initial and integral part of learning to read.

Chall (1967) noted that phonics is only part of the story—and a relatively short part at that. The key is to give students an early and efficient grounding in phonics and then make the transition into reading literature. This approach places the initial emphasis, typically in the first two grades, on phonics. Then, assuming the student has mastered basic decoding skills, it moves briskly to an emphasis on comprehension and fluency, with continuing practice in more complex phonetic and spelling activities. The National Reading Panel (2000) report indicates that⁴:

- students in grades K-2 and older remedial readers all benefit from being taught how to use letter sounds and spelling patterns to decode words;
- oral reading fluency instruction provided learning benefits to students in a wide range of grade levels, particularly when they were practicing oral reading with materials written at an instructional or frustration level; and
- comprehension is more successful when instruction is focused on intentional actions students can use during reading to guide their thinking. Such strategies improve both understanding and memory.

⁴ (Division of Research and Policy, International Reading Association, 2000)

Design of the K12 reading program is consistent with key findings of the National Reading Panel (2000):

- Results of a meta-analysis show that “systematic phonics produces significant benefits for student in kindergarten through 6th grade and for children having reading difficulty” (p. 9). Accordingly, K12’s reading program has a strong and systematic phonics component, and it focuses as well on skills that low-achieving 3rd-5th graders often lack, according to literacy researchers such as Louisa Moats: that is, phonological awareness, syllabification, morphology, and reading fluency.
- “Guided repeated oral reading ...had a significant and positive impact on word recognition, fluency, and comprehension across a range of grade levels” (p.12) The K12 reading program provides frequent opportunities for students to read aloud from poetry, fiction, nonfiction, and dramatic texts.
- “Teaching a combination of reading comprehension techniques is the most effective” (p. 15). K12's instructional methods include question generation, summarization and use of organizers, mirroring techniques recommended by the National Reading Panel (2000).

In the primary K12 Language Arts program, while the emphasis in the first two grades is on phonics and decoding, there is a complementary emphasis on comprehension, surrounding the child with rich and meaningful texts. How does the child gain access to these texts if he cannot read them? Through listening.

As the child learns phonetic skills, she reads “decodable readers”—brief booklets that feature a high percentage of words with phonetic patterns that have already been taught, as well as a few common sight words. For example: “The cat sat on the mat,” or “Pam and Kim can swim.”

As the child makes progress in phonics, she moves on to guided reading, the “daily assisted or supported reading and rereading of texts that are slightly more difficult in wording or in linguistic, rhetorical, or conceptual structure” (National Research Council, 1998). K12 guided reading texts include such favorites as *Frog and Toad Are Friends*, *A Picture for Harold’s Room*, and *Amelia Bedelia*.

Decodable readers and guided reading selections provide important practice as well as the considerable satisfaction of being able to say, “I can read it by myself” or “with only a little help.” Still, these books are necessarily limited in the difficulty of their vocabulary and syntax. Because children in the primary grades can understand many more words than they can read on their own, K12 emphasizes reading aloud to children, in order to build vocabulary, develop comprehension, and delight the imagination.

Read-aloud selections from K12 focus on classic literature—folk tales, fairy tales, fables, and poetry. Read-aloud selections also include a generous sampling of modern-day children’s classics, such as the *Peter Rabbit* tales, *Make Way for Ducklings*, and *Mike Mulligan and His Steam Shovel*.

Vocabulary: Words Represent Knowledge

“Words, words, words”—as Hamlet replied when asked what he was reading—are key to a child’s development. A young child thrives in an environment teeming with rich, interesting, and challenging words—words that tickle the tongue and stimulate the imagination: ziggurat, tyrannosaurus, archaeologist, deciduous, constellation, chlorophyll, cylinder, still-life, self-portrait, harmony, harpsichord, and more.

The essence of reading is the comprehension of what is being read. And the development of comprehension depends greatly upon the development of children’s vocabulary—in particular, in the early grades, their aural (listening) vocabulary. In the early grades, children understand more than they can read. A first grader, for example, can enthusiastically learn about pyramids and pharaohs, knights and castles, and astronauts and asteroids, without necessarily being able to read any of those words.

To build vocabulary is to build background knowledge, because words represent knowledge and experience. Beginning in kindergarten, the K12 curriculum exposes children to a broad range of rich content and helps build children’s vocabulary, providing the background knowledge necessary for comprehending materials they will be asked to read in the later grades. (See Hirsch, 2006.)

The entire K12 curriculum—not just the discipline of English/Language Arts—addresses comprehension by providing, through diverse media, a broad and rich variety of content to help develop children’s aural and oral vocabulary.

Research Base

The K12 Language Arts program is in full accord with the latest scientific research on early reading strategies—research that has now been accumulated and refined over more than thirty years.

In accordance with the best research on effective literacy instruction, the K12 program is thoroughly grounded in two complementary principles:

- Effective reading programs develop in children an early awareness of the alphabetic principle—the correspondence between letters and speech sounds—and offer explicit, systematic, and multisensory instruction in phonemic awareness and decoding skills.
- Early and systematic instruction in phonics needs to be complemented by equal attention to meaning, comprehension strategies, language development, and writing. Developing children’s interest and pleasure in reading must be as much a focus as developing their reading skills.

According to the No Child Left Behind Act (2001) and the subsequent Put Reading First initiative, a comprehensive reading program requires instruction in phonics, vocabulary, word recognition, fluency, and comprehension. K12 PhonicsWorks addresses phonics, word recognition, and fluency, and K12 Language Arts addresses vocabulary, fluency, and

comprehension. The National Reading Panel supports the notion that a core, comprehensive reading program will reach all learners if it includes a strong, systematic, and explicit phonics component. That is the guiding principle behind K12 PhonicsWorks, a research-based, explicit, systematic, and direct method for teaching phonics.

90 Minute Reading Blocks

In order to achieve Florida's goal of having every child reading at or above grade level, the reading block will include all elements of the formula during an uninterrupted block of time that is at least 90 minutes in length:

Components of Comprehensive Core Reading Program:

- Phonemic Awareness: Blending and segmenting word parts and sounds in words;
- Phonics & Fluency: Letter-sound correspondence; blending words; choral reading decodable book;
- Vocabulary and Comprehension: Robust vocabulary instruction; pre-reading strategies; during reading strategies; post reading strategies.

Implementation of Resources – may include:

- Segment sounds with Elkonin boxes gradually adding letters representing those sounds throughout the week.
- word building with letters & pocket chart, read decodable book including words built. Culminating with fluent reading of decodable text without teacher support.
- read decodable book practicing blending words introduced in whole group, and fluent reading. Culminating with shared reading related to theme on the students' instructional level focusing on blending words, vocabulary, and use of comprehension strategies modeled in whole group.
- shared reading related to theme with a book on the students' instructional level focusing on vocabulary and use of comprehension strategies modeled in whole group.

Supplemental and/or intensive intervention materials and programs:

- Apply blending words previously taught in complete sentences that include known high frequency words
- Apply blending strategies using decodable text gradually releasing teacher support.

Assessment:

- Screening
- Progress Monitoring
- Diagnostic

In a virtual setting, the 90 minute reading block consists of a combination of teacher led direct instruction by a highly qualified reading teacher, the daily assignments offered by the OLS, and independent reading. The teacher led sessions will include large or small group instruction to meet the needs of the students.

Even with a strong reading based curriculum, such as K12, the Board must also ensure that there are additional interventions for those students that do not have a strong phonics background, struggling readers and/or students that score at achievement level 1 or level 2 on the FCAT 2.0. A student identified as not meeting the district or state requirements for proficiency in reading, based on locally determined assessments and statewide assessments will be given intensive reading instruction immediately following the identification of the reading deficiency in addition to the required 90 minutes of uninterrupted core reading instruction.

Students will participate in instruction that focuses on specific reading strategies, phonemic awareness, and other areas as identified in small group sessions via Blackboard Collaborate. This instruction will be in addition to grade level instruction. K12's adaptive remediation reading program, MARK¹² (Mastery. Acceleration. Remediation. K12) courses are for students who are struggling readers. MARK¹² Reading provides a series of three adaptive remediation courses that feature graphics, learning tools, and games; adaptive activities that help struggling students master concepts and skills before moving on; and more support for Learning Coaches to guide their students to success. MARK¹² gives students who are reading several grades below grade level the opportunity to master missed concepts in a way that accelerates them through the remediation process by incorporating adaptivity and online assessments. Throughout the three courses, students work independently and with a teacher who possesses a reading endorsement or certification in reading (Grades K-12) to develop oral reading, comprehension, phonics, spelling, and fluency skills. They also practice grammar, usage, mechanics, and composition.

Parents will also be offered reading workshops that will model for them techniques to help and support their students. Throughout the school year, teachers will administer benchmark assessments to determine and monitor progress. Information from the assessments will be shared with the parents during the established and regular reviews of the student's individual learning plan (ILP).

The ILP will include instructional and support services to be provided to meet the desired levels of performance. ELL students will meet with the committee to include strategies in their plan.

For students in middle school and high school, FLVA will meet the individual needs of students who are performing below grade level in reading (based on diagnostic data) through additional instructional minutes using a research-based intervention program. Students will receive additional instruction outside of the 90 minute reading block in a small-group setting with more frequent progress monitoring to ensure accelerated progress toward grade level expectations. Teachers will also conduct open office hours daily allowing students to receive additional one-on-one instruction as needed as they move through the curriculum.

Florida certified teachers may also use Study Island, Study Island Reading Eggs (a comprehensive, online supplemental literacy program), small group learning sessions, peer

learning groups, one-on-one tutoring, and other research-based tools as needed to work with students reading below grade level. Each tool will be used with the appropriate grade levels and as indicated in the student's individual learning plans to meet their learning needs.

B. Explain how students who enter the school below grade level will be engaged in and benefit from the curriculum.

The proposed online curriculum integrates features designed to support learners at every stage. The engaging approach features colorful graphics and animation, learning tools, and games; adaptive activities that help struggling students master concepts and skills before moving on; online games and animations that illustrate concepts and more support for families at home to support their students to succeed.

As mentioned earlier, a key part of the FLVA education program is the Individualized Learning Plan (ILP). An ILP is designed for each K-12 student to ensure a customized program that fits each student's unique strengths, weaknesses, learning styles and aptitudes. Students entering the School below grade level will have a comprehensive and engaging plan, which will include intensive strategies to bring the student to grade level or make exceptional gains.

Educational performance means performance in those academic and functional areas including, but not limited to, areas being assessed through state required assessments and school based assessments. Beginning in the fall of 2014, general education interventions will be developed and implemented for kindergarten to grade 8 students (with grades 9 through 12 added as the school grows) who are not progressing toward meeting the content standards or who, through prior FCAT 2.0 scores or school level formative assessments, are performing below grade level, with additional interventions or assistance to achieve the standards. The interventions will be specific, timely and based upon ongoing formative assessments, while continuously monitoring student progress.

National Math Lab (NML) is an innovative program aimed at addressing students' weaknesses in math—a national concern. Designed by a team of curriculum and instruction specialists at K12, in cooperation with school leaders from K12-managed schools and launched as a pilot at the beginning of the 2011-2012 school year, NML provides twice the usual coverage of math instruction to students in grades 5-10 who are identified as academically at-risk in math. In addition to the students' regular math coursework, students attend targeted synchronous mathematical instruction provided by highly trained math teachers four days per week. NML sessions are offered many times throughout the day and are designed to meet students where they are, provide remediation, and, over time, bring them to grade level. A controlled study for the 2011-2012 school year found that students in grades 5, 6, 7, 8, 9 and 10 with consistent attendance at NML classes experienced significantly higher gains on the Scantron Performance Series assessment in Math than a control group that was offered the standard math program. Consistent attendance at NML was defined as attending at least 70% of NML classes for at least two of the three 8-week NML sessions offered for the 2011-2012 year. In NML's second year, the program expanded to serve over 5,000 students across the nation. At the peak of enrollment, 34 teachers provided over 100 live class sessions per day.

General educational interventions are a systemic process using techniques to mobilize School resources to remove barriers to learning. The core of the program is a professionally trained team, including, but not limited to, school teachers, administrators, counselors, community agencies, and may include mental health agency members and parents. The team will be trained to identify concerns to determine the appropriate needs of the students to achieve the success needed for instruction and promotion and graduation requirements.

The virtual environment allows these students to participate in class activities including, but not limited to, large and small group instruction sessions led by Florida certified content teachers and collaborative activities with their peers.

FLVA uses a Multi-Tiered System of Supports (MTSS) that includes problem solving, positive behavior supports, and a three tiered Response to Intervention (RtI) process. All students will be served appropriately based on their placement within these tiers.

- In **Tier 1**, all students are screened (universal screening) for potential problems. All students also receive appropriate, standards-based, core instruction including any classroom, grade level, or school-wide interventions (universal interventions) for academics and behavior. Tier 1 universal interventions are provided in the general education classroom.
- In **Tier 2**, students who have not responded significantly to the Tier 1 core program with universal interventions are referred to the school's RtI team and may receive a targeted, individual intervention plan. This plan could include more intense instruction, individually or in a small group, and is provided in addition to the general education curriculum.
- In **Tier 3**, students who have not responded significantly to the Tier 2 interventions will be considered for more intensive interventions through the general education staff or for a referral for evaluation to determine if the student qualifies for special education services and receives specially designed instruction and related services through an Individualized Educational Plan (IEP).

The process for the provision of general education interventions will include:

- a. Documentation for every student, prior to entering the general education intervention process, as the basis for appropriate instruction in reading, including the essential components of reading instruction; appropriate mastery-based instruction in math; appropriate instruction in the writing process; and positive behavioral supports;
- b. A team-based (including the RTI/MTSS coordinator, ESE Teacher(s), general education teacher(s), parent, a representative from the sponsoring district, and at times administrator, if necessary) decision-making process;
- c. Data analysis of results focusing on determining to what extent all students are progressing toward meeting Florida's NGSSS and graduation requirements and identifying which children are not making adequate progress towards these goals and are in need of targeted general education interventions;
- d. Data analysis of prior FCAT 2.0 scores or school level formative assessments to determine if students are performing below grade level;

- e. Provision of research-based general education interventions targeted at students presenting academic and/or behavioral concerns as determined by screening results;
- f. Regular progress monitoring through formative assessments of student responses to targeted interventions, conducted at reasonable intervals, generating measurable data for both specifying academic concerns and monitoring student progress during general education interventions;
- g. Screening occurs for all students during the monitoring process. Students who are not experiencing success are scheduled to additional sessions in smaller groups. When this is an ongoing area of concern, the teacher will convene the team to review all the data and determine if further interventions and plans are necessary. If so, interventions following the tiered structure, are then applied, monitored, and documented.
- h. Progress monitoring will be added to the student's ILP. This will provide parents with detailed information on the interventions and the process. Parents will be given the opportunity to participate in the instructional decision-making, and will be kept informed of their child's progress during targeted general education interventions.
- i. The ILP will be adapted to include:
 - a. Specific, diagnosed academic needs that need to be remediated
 - b. Success-based intervention strategies
 - c. An intense variety of remedial instruction
 - d. Monitoring and reevaluation activities
- j. A team shall review the student's plan and his/her progress no later than 20 school days after the start of formal general education interventions and approximately every 30 school days thereafter. At each meeting, the team shall review data about the student's progress to determine if changes to the general education interventions are needed and/or if a referral to special education is indicated.
- k. Provisions for targeted general education interventions to continue during any subsequent special education referral. The frequency, time and intensity of these interventions, as well as the students' response to interventions will determine where the student resides in the School's three-tiered RtI process.

Four Phases of Targeted General Education Interventions

1. Referral:
 - a. Referral for academic concerns: School staff, teacher, and/or administrators may refer a student because of prior FCAT 2.0 scores indicating achievement level 1 or 2 performance or school level formative assessments which indicate the student is performing below grade level;
 - b. Referral for behavior concerns: School staff, parent, and a family member (that has legal custody or guardianship) may refer a student when the student's behavior becomes a concern. Students may refer themselves for assistance to the team.
2. Team Planning: The team gathers objective information about the student's performance in school from all school personnel who have contact with the student. Information is also collected from the parent. The team meets with the parent and the student, when appropriate, to discuss the data collected. Together, they develop an action plan including strategies for removing the learning barriers and promoting the

- student’s academic and personal success. This plan may include in-school and /or community–based services and activities.
3. Interventions and Recommendations: The plan is put into action along with all the assessments and timelines for implementation including follow-up. The team will also assign responsibilities for oversight, linking the student to in-school and/or community based services and activities.
 4. Support and Follow-up: The team continues to work with and support the student and family. Follow-up includes monitoring and motivating for academic success. The timelines for implementation will be reviewed and established.

C. Describe proposed curriculum areas to be included other than the core academic areas.

The Florida Virtual Academy at Clay County academic program will combine online technology with traditional instruction and materials. Students in grades K through 12, will receive the K12 course content, instruction, assignments, assessments and supplemental materials online (web-based lessons and assessments) as well as hands-on materials kits shipped directly to the student, including related books (textbooks, workbooks, reference books, and anthologies), DVDs, maps, and other hands-on activity materials (phonics kits, science experiments, art supplies, math manipulatives, musical instruments, etc.). K¹² Florida LLC is a Florida Department of Education approved provider of virtual instruction services.

The ratio of online to print materials for the student varies depending on curricula area/course and grade level. Note: as a general definition, printed materials are defined as a book, magazine, and binder sheets that are delivered 100% offline for the student. Some print materials will be delivered online and will need to be printed by the student. These materials are categorized as online materials. For a few high school history courses, the same material is delivered both as a pdf online and in print as a textbook.

Elective Curriculum

K12’s core curriculum is enhanced by a wide array of electives that enriches students’ education in essential areas—including those identified by 21st Century Skills and STEM initiatives—and will leave FLVA students well-prepared for the world beyond high school. K12’s elective curriculum includes courses in world languages, science, social science, fine arts, technology and computer science, business, health and physical education, communications, and more. Advanced Placement courses, for which students may receive college credit, are also available.

Students are guided through high school with a series of courses called Finding Your Path. These courses, which include K12’s school-counseling tool, ConnectEDU, help students navigate the unique challenges of each year of high school, plan ahead, and meet their goals. Other courses that focus on study skills, school success, and future plans include Reaching Your Academic Potential and Achieving Your Career and College Goals. Students may also get valuable work experience and school credit for projects they design themselves in Service Learning.

World Languages are increasingly important in the economy today, and students can take up to four years (including college-level AP) from a variety of World Languages. K12’s online

language courses include recording technology so students' speaking ability can be accurately assessed by their teachers.

A variety of technology and computer science courses are offered, ranging from basic Computer Literacy to AP Computer Science A. Students may explore career avenues with courses including 3D Art (Modeling and Animation), Digital Art, Image Design and Editing, Audio Engineering, Engineering Design/CAD, C++ Programming, and Web Design. Technology and computer science courses are heavily project-based, and students complete the courses with portfolios of completed work.

Students can earn credit and learn essential skills with the courses Skills for Health and Physical Education. Physical Education, which may be repeated for additional semesters as needed to meet state standards, requires daily physical activity, verified by a parent or mentor. Both courses are also available as credit recovery.

Students are given additional opportunities to explore careers with Introduction to Marketing I and II and Accounting. They can get practical experience in creating budgets, developing long-term financial plans to meet their goals, and making responsible choices about income and expenses with Personal Finance. Consumer Math's comprehensive review and study of arithmetic skills has both personal and vocational applications.

Electives in the arts include Fine Art, Music Appreciation, and AP Art History. Students can pursue their interests in communications with courses in Journalism, Public Speaking, or Creative Writing. Students interested in the social sciences can elect to explore Anthropology, Psychology, Economics, Civics, Sociology, or Contemporary World Issues, plus several Advanced Placement courses including Macroeconomics, Microeconomics, and Psychology. Special interests in science can be pursued in Environmental Science or Forensic Science, a new course that guides students through the application of the scientific process to forensic analysis, procedures and principles of crime scene investigation, and the law and courtroom procedures from the perspective of the forensic scientist.

Core and Elective Curricula

Elementary/Middle School Core Curriculum

From kindergarten through 8th grade, K12 courses are categorized into six core courses: Language Arts/English, Mathematics, Science, History, Art, and Music— plus adaptive K-5 math courses and MARK¹² adaptive reading remediation courses (see K-8 courses in **Attachment 4** and curriculum descriptions below). In addition, K12 provides multiple levels of World Languages. The proprietary curriculum includes all of the courses that students need to complete their core kindergarten through 8th grade education—in more than 700 engaging lessons in each subject. These courses focus on developing fundamental skills and teaching the key knowledge building blocks or schemas that each student will need to master the major subject areas, meet state standards and complete more advanced coursework. The curriculum is mastery-based with assessments built into every lesson to ensure mastery and provide for remediation or enrichment where necessary.

Enhancements to the K12 K-8 curriculum include a variety of innovative games—from “xGerms Computational Fluency,” which features colorful germ characters and a fun laboratory theme, to “Spell-n-Stack,” an arcade-style spelling drill game. K12 has also launched mobile applications for the iPhone and iPod Touch, available as free downloads on iTunes. These apps include “K12 Money,” which lets students solve math problems using currency, and “K12 Timed Reading Practice,” which helps them calculate their reading pace in words per minute.

FLVA will monitor the development of a Florida Digital Tools Certificate (Ch. 2013-27) to indicate a middle school student’s digital skills including skills that are necessary to the student’s academic work and skills the student may need in future employment. In compliance with state requirements when they are developed, FLVA will consider accessing the materials and assessments necessary for the school’s middle school students to earn the certificate.

MATH: K12's current elementary Math program, known as Math+, represents a second generation of research and development into effective approaches in early mathematics teaching and learning. A high priority for elementary math instruction is to establish fluency in arithmetical computation while also deepening the ability to reason mathematically. To address that priority, the Math+ program extends and improves upon the Math courses originally developed by K12 in the early 2000s, which built upon a highly respected textbook series, *Sadlier-Oxford’s Progress in Mathematics*. Since building the original Math courses, which largely focused on the high bar set by the California standards, K12 has gone on to incorporate a greater degree of cognitive science research, current e-learning, mathematics, and mathematics education research, as well as findings from their analysis of various state standards, and the Common Core State Standards for mathematics. While the new Math+ courses no longer include the Sadlier-Oxford textbooks, the Math+ program retains the priorities of the original program, with an emphasis on building solid foundations of computational fluency, conceptual understanding, and problem-solving ability, as recommended in the 2008 report of the National Math Advisory Panel.

K12 Math emphasizes an active, multi-sensory approach to ensure that students understand the concrete realities that underlie mathematical concepts. Regular practice and review ensures mastery of basic skills. Online games and animations motivate students and help illustrate concepts, while challenge problems help develop critical thinking skills. These exciting, research-based courses focus on computational fluency, conceptual understanding, and problem solving. The engaging approach features colorful new graphics and animation, learning tools, and games; adaptive activities that help struggling students master concepts and skills before moving on; and more support for families at home to support their students to succeed. From helping younger students make the link between the concrete and the abstract to introducing older students to Algebra, K¹² Math provides a thorough mathematic grounding. Math+ provides supplemental online activities, timed facts practice at repetitive intervals based on research findings for retention of information, regular lesson assessments, backup adaptive lessons for students needing extra practice, and optional enrichment problems for students who enjoy an extra challenge.

SCIENCE: K12 is unique in offering real science for young students. The program balances hands-on experience with systematic study of scientific terms and concepts. Students perform

many experiments to help them understand scientific principles, and receive guided instruction in important scientific concepts. Exploring life, earth, and physical sciences in each grade, K¹² science nurtures curiosity, analytical skills, and an appreciation of how the world is shaped by ongoing scientific and technological advances. Students learn about the human body, plants and animals, rocks and minerals, stars, matter, motion, electricity, magnetism, and much more. Through hands-on experiments, the program helps students develop skills of observation and analysis, and learn how scientists understand our world. Students will receive the hands-on science experiment kits shipped directly to them.

LANGUAGE ARTS/ENGLISH: K12 Language Arts/English helps students develop important reading and writing skills, while also inspiring a love of literature. Combining Phonics, Literature, Language Skills, and Spelling lessons, the Language Arts/English program emphasizes classic works, teaches writing as a process, and prepares students for standardized tests in the areas of language skills and reading comprehension. Younger children learn the basics of phonics and grammar and prepare for reading through systematic, multi-sensory activities; while older students develop literary analysis and comprehension skills by reading novels and nonfiction works. MARK¹² Reading is a three-stage course for students reading two or more grades below grade level. The course gives students the opportunity to master missed concepts in a way that accelerates them through the remediation process.

HISTORY: With integrated topics in Geography and Civics, K12 History opens young minds and imaginations to far-off lands, distant times, and diverse cultures. K¹² emphasizes the story in History—a story that includes not only great men and women but also everyday people. The kindergarten History program takes students on a world tour of the seven continents, and provides an overview of American History through a series of biographies of famous Americans. The History program in grades 1–4 tells the story of civilization from the Stone Age to the Space Age, while students in grades 5 and up explore major themes and topics in greater depth through survey courses in American and World History. Lessons for state specific history requirements are embedded throughout each grade level history course.

ART: Following the timelines in the History lessons, K12 Art lessons introduce students to great works of art from different cultures and eras, while engaging them in creative activity—painting, drawing, sculpting, and weaving using materials such as oil pastels, crayons, molding clay, plaster, and yarn etc. Students are introduced to the elements of art—line, shape, color—and identify different types of artworks such as portrait, landscape, and still life as they learn about important paintings, sculpture, and architecture. They study the works of famous artists, from Rembrandt to Warhol, and learn about different artistic movements such as Impressionism and Cubism. Students also create their own works of art similar to those they have learned about, such as mobiles, collages, and stained glass.

MUSIC: K12 Music teaches basic music concepts at different, age-appropriate levels, so that all music students have a consistent understanding of the essential concepts governing music. The curriculum builds quickly, in a structured, sensible way. The concepts in the lessons are critical to fostering music comprehension, which is taught in stages as students move through their years in K12. Much more than simple music appreciation, this is an approach that will help students train their own ears, voices, and bodies in the fundamental building blocks of music.

WORLD LANGUAGES: The only online language-learning program designed specifically for students in the lower elementary grade levels, the K12 offering in World Languages, powerspeaK¹² and Middlebury Interactive Languages, gives students a choice of World Language courses and helps students to read, write, speak, and listen for meaning in the languages they choose to study. Combining a variety of games, simple narratives, and regular writing and speaking challenges, the World Language program highlights common vocabulary terms and phrases, introducing younger students to a wide range of grammar patterns, while helping older students master numerous grammar principles. Courses prepare students to generate language incorporating the vocabulary and patterns they have learned.

In addition, culture lessons challenge younger students to recognize different cultural manifestations, while older students analyze and compare practices and perspectives of various cultures. Courses thoroughly meet all national standards as set forth by the American Council on the Teaching of Foreign Languages (ACTFL) and follow state guidelines in covering level-appropriate standards in communication, cultures, linguistic and cultural comparisons, cross-curricular connections, and engaging with target-language speaking communities.

High School Core Curriculum

FLVA high school students will be offered a broad selection of courses to meet all graduation requirements as well as a diversity of electives designed to both help students earn their high school diploma and find their own path to post-high school success—whether that’s in college or in the workforce. Math, English, Science, and History courses will be offered in a range of levels including Advanced Placement— plus remediation and credit recovery courses to meet the needs of diverse learners (see high school course catalog in **Attachment 4** and curriculum descriptions above). High school students can also take up to four years of a world language (depending on the language), and have a variety of physical education and art course options to choose from to fulfill graduation requirements. In addition, a large variety of electives, including Anthropology, Web design, and Entrepreneurship will be provided. Unlike other programs, where a student must be in a particular “academic path”, the K12 program allows students to chart their own course, choosing from among the levels of courses to match their aptitude and goals. So, if a student excels in Math and Science, they may take all Honors/AP courses in those subjects, while choosing from among the Comprehensive English and History courses. These multiple course levels prevent students from being “locked in” to one level of a particular subject, and account for natural progress and growth.

Many K12 science courses now include interactive vLabs (virtual labs). These highly engaging online experiments enable students to demonstrate the scientific method, test a hypothesis, witness various outcomes, and examine sources of error. Course vLabs can be used to reinforce concepts learned in the hands-on labs or, when appropriate, supplement or replace certain onsite labs.

Many K12 textbooks, reference guides, literature readers, and lab manuals are now also offered as online books (a.k.a. eBooks), and are optimized for use with mobile devices. Plus, K12 has launched new mobile applications for the iPhone and iPod Touch, available as free downloads on

iTunes. These apps include “K12 Algebra I Study and Review” and “K12 Periodic Table,” which students can use to reinforce course concepts.

By using the K12 high school curriculum, the School will allow students to harness the power of individualized learning by choosing from the following six levels of Math, English, Science, and History courses:

- **K12 Core courses:** Topics are broken into discrete modules that are taught in tandem with the framework students need to develop strong study skills. Rich, engaging content with interactive demonstrations and activities help students absorb and retain information.
- **K12 Comprehensive courses:** Students do more extensive writing and research projects, and tackle problems that require more analytical thinking. Course projects and activities also demand more independent thinking and self-discipline than projects in Core courses.
- **K12 Honors courses:** Hold students to a greater degree of accountability, and demand even greater independence and self-discipline. Students synthesize and evaluate information and concepts from multiple sources and read texts typically assigned in college-level courses. Students also demonstrate college-level writing in essays that require analysis of primary and secondary sources, responsible use of evidence, and comprehensive citation of sources.
- **K12 Advanced Placement (AP) courses:** College-level courses that follow curriculum specified by the College Board. These courses are designed to prepare students for success on AP exams, providing students the opportunity to earn credit at most of the nation’s colleges and universities. K12 currently offers twenty Advanced Placement courses that have been approved by the College Board. These courses were officially approved through the AP audit process in the early summer of 2013.

The K12 curriculum that is offered is one of the largest catalogs of online AP offerings in American education, and far larger than that in most conventional brick-and-mortar schools. K12 re-evaluates and expands their AP catalog of courses in accordance with changing College Board guidelines, and student and school requests.

K¹² will work with the Board to create a “dual pathway” for students to earn college credit while enrolled at FLVA: taking AP Courses as well as taking dual enrollment courses. Agreements will be sought with local colleges to develop an articulated agreement for co-enrollment whereby students can earn high school and college credits at the same time. Credits may be earned in a variety of ways, including: college classes at a community college or other post-secondary institution and virtual courses through FLVA that have been designated dual enrollment courses by a community college or post-secondary institution.

While most FLVA high school students will be prepared to enroll in one of our four levels of academic courses, especially those students who have been enrolled in FLVA through elementary and middle school, we can assume that some students will have gaps in their

proficiencies—predictably in math and reading. We are prepared to meet all students where they are. K12 also provides two levels of courses for struggling students, “at risk” students, and students who have not successfully completed courses required for graduation:

- **K12 remediation courses:** Brings students up to grade level in math and English—guiding them through the skills and knowledge needed for success. Remediation courses evaluate students’ current knowledge and provide the instruction needed for them to successfully continue their studies at a high school level.
- **K12 credit recovery courses:** Allows students to gain credit for courses they have previously taken and not completed successfully. These courses include diagnostic unit tests that assess students’ understanding of fundamental content and direct them to review or move ahead accordingly. Fresh, engaging content delivered with new approaches helps students grasp concepts they missed the first time. Designed to provide flexibility in delivering teacher support, these courses include computer-graded assignments and assessments with the option to augment with teacher-graded assignments and assessments, as appropriate.

HISTORY: K12 high school History emphasizes the narrative of History – a narrative that includes great men and women as well as everyday people, and the governments, arts, belief systems, and technologies they have developed over time. These History courses meet state and national standards for content and skills and are offered at levels appropriate to the student’s needs. Courses in World History, Modern World History, United States History, and Modern United States History combine stunning textbooks published by K12 Inc. with interactive online lessons that guide students’ reading, reinforce major concepts, allow students to practice the skills of the historian, and enrich student learning through virtual field trips, discussion boards, and a variety of research and skills activities. Online lessons also integrate topics in Geography, Civics, and Economics into the study of history. Economics and U.S. Government courses are also offered to meet graduation requirements.

ENGLISH: K12 High School English courses are designed to engage students in reading quality literature, writing in diverse genres, and communicating ideas in a variety of media. All courses, in the core, comprehensive, and honors curricula offer students the opportunity to read short stories, novels, dramas, poetry, and nonfiction from classic and contemporary authors. Students demonstrate their mastery of literal and inferential comprehension and then progress to more complex tasks of literary analysis and interpretation. K12 English courses focus on the craft of writing and the development of oral and written communication skills in standard (formal) English through structured lessons in composition, which include opportunities for teachers to provide frequent feedback so that students may revise and refine their work. By engaging in systematic practice in vocabulary, grammar, usage, and mechanics, and reading comprehension, students hone critical skills which are frequently found in standardized assessments.

SCIENCE: K12 offers a complete high school curriculum in science. The curriculum includes courses in physical science, biology, earth science, chemistry, physics and environmental science. Most of these courses are offered at core, comprehensive, and honors levels, allowing

students to select the level of rigor in keeping with their level of science achievement. AP courses are also available. All K12 courses are academically rigorous, meeting and exceeding national and state science standards and provide valid, continuing assessment of student work. Each course is built around a series of Big Ideas developed in association with working scientists.

K12 courses provide hand-on exploration of the sciences; courses have the option to use real materials to conduct scientific laboratory investigations at home. Options exist to take these courses using virtual laboratories that reflect actual laboratory experience in a virtual setting. Throughout the sweep of K12 high school science courses, students become familiar with, and practice using, science processes and scientific methods. They develop skills in areas such as questioning, hypothesizing, data collection and analysis, and forming scientific conclusions. Each K¹² high school science course prepares students for college science courses, not only by providing solid, scientifically accurate content but also by developing laboratory awareness and skills, and by firmly anchoring students in scientific principles.

MATH: K12 Math balances mastery of fundamental skills with critical thinking and problem-solving. The program emphasizes an active, research-based approach to ensure that each student understands the mathematical concepts, but also is able to master critical skills. Each course has both online and offline components. Online exploration, narration, and interactive activities help students develop and hone understanding of key concepts and skills. Online lessons also include worked examples that provide guidance and scaffolding to help students make connections between the concepts and the skills. Some worked examples are narrated by experienced teachers, while others provide students with the ability to interact with a structured, partially-completed problem.

The offline textbooks provide reference information, more worked examples, and robust, well-sequenced problem sets so students can learn by practicing. Each lesson also includes resources that help teachers and mentors support students. Formative assessments come in the form of computer-scored quizzes. Summative assessments include computer-scored as well as teacher-graded components with robust rubrics.

Many courses are available in various levels including core, comprehensive, honors, and AP. Among the math courses offered are Algebra I, Algebra II, and Geometry to meet graduation requirements.

WORLD LANGUAGES: K12 offers a selection of World Languages for high school students that will meet or exceed the 2 credit graduation requirements for the 18 Credit College Preparatory Diploma Option.

Curriculum Research Basis

K12 provides a curriculum which is based on more than fifty years of cognitive science research in the following areas:

- how students learn;
- the structure of expert knowledge in school subject areas;
- general instructional design principles, including research-based e-learning methods;

- and
- methods for teaching specific topics and addressing possible misconceptions on those topics.

To insure that they draw on methods shown by scientific research to be effective in improving learning, K12 has dedicated an Evaluation and Research team to reviewing and synthesizing cognitive science research and working with course development teams to implement it. The Evaluation and Research team, which is guided by Ph. D.-level cognitive science researchers and statisticians, also conducts original research on new teaching methods and tools in addition to studies of the effectiveness of their curricula. In addition to the cognitive science research that goes into K12 curricula, they also conduct evaluations of the assessment materials that are used to measure student performance as they move through the courses. The alignment between the cognitive research, measurement, and instructional strategies are targeted to insure best practice and student accessibility to K12 curricula.

Research on How Students Learn

Research has consistently shown that the most effective instruction is based on what is known about how students learn and how subject area knowledge develops. K12 uses research on learning that encompasses all major categories of research described in recent summaries by the National Research Council and major professional research and practice groups (e.g., the American Psychological Association, the National Reading Panel, the National Math Panel, the American Educational Research Association), as well as hundreds of papers, books, and articles by cognitive science researchers.

The National Research Council (2005) has organized two volumes of research on learning around three fundamental principles which K12 has taken as organizing principles for curriculum development:

- **Instruction must engage students’ prior knowledge**, because “new understandings are constructed on a foundation of existing understandings and experiences” (p. 4). This means it is important to assess what prior knowledge students have and either build on that knowledge or remediate as necessary before introducing new content. Further, it has been found that many students have serious misconceptions or partial understandings, particularly in science and math that must be addressed during instruction. Consistent with these and other widely-replicated research findings, K12 has adapted a variety of strategies for accounting for prior knowledge, including pre-testing and providing instruction on pre-requisites in lessons, taking care to build on knowledge that students mastered in previous grade levels, and teaching for mastery so that each topic learned provides a foundation for future learning (rather than needing to be reviewed repeatedly/multiple times in future grade levels). Misconceptions are addressed through subject-specific methods.
- **Both factual knowledge and conceptual understanding are necessary** to support the kind of learning that provides a foundation for future learning and competence in novel situations: “knowledge of facts and knowledge of important organizing ideas are mutually supportive” (p. 7) and both must be taught effectively. To address this challenge, K12 has developed frameworks for organizing curricula around the “big ideas”

in a subject area and for teaching for the integration of conceptual understanding and factual knowledge across the curriculum

- **Metacognition, or self-monitoring of learning and thinking, is a key characteristic of effective learning.** Instruction on metacognition is critically important for lower achieving students, who tend to be much less aware of how to overcome obstacles to their own learning than higher achieving students. To improve students' awareness of and ability to evaluate their own learning, K12 incorporates research-tested supports for metacognitive thinking into its courses and has also developed an academic skill course that explicitly teaches metacognitive skills. Some of the metacognitive strategies they use include:
 - Frequent assessments (usually at the end of each lesson, unit, and semester, and sometimes within or at the beginning of lessons) and self-assessments (Thorndike, 1913; Chi, 2009, Ericsson et al., 2003).
 - Modeling of self-monitoring behaviors (Palincsar & Brown, 1984).
 - Comprehension questions before, during, and after instruction (National Reading Panel, 2000; Paris & Stahl, 2005).
 - Prompts to think about whether one understands an explanation or is making progress in solving a problem (Whimbey & Whimbey, 1975).
 - Self-explanations (Trying to explain a concept or how to solve a problem improves learning even if the explanation is not graded [Alevan & Koedinger, 2002; Chi, 2009]).
 - Strategies for remembering information, which younger and lower achieving students need to be taught (Keeney et al., 1967).

Research on the Structure of Expert Knowledge

One of the most important theories in cognitive science is also one of the least applied in education. This is the theory that expert knowledge is organized around big ideas. Memory and classification studies have repeatedly shown that human memory is not best conceived as a storehouse of a large number of discrete pieces of information unconnected to each other (Bransford, Brown & Cocking, 1999), but as an organized structure of interrelated pieces of information. Extensive research on differences between the knowledge of experts and novices in many different fields has further shown that the long-term memory of someone who has mastered a subject area appears to be highly organized around a relatively small number of core principles (Bransford, Brown & Cocking, 1999; Bereiter & Scardamalia, 1986; Hiebert & Carpenter, 1999; Glaser & Chi, 1988; Niemi, 1996). For someone who has advanced knowledge in a domain, every element of that knowledge is connected to other elements in a highly organized structure, with the core principles, or “big ideas”, dominating and organizing the others.

Unfortunately, curricula and instruction do not always reflect what is known about subject area knowledge and how it develops. Too often, students are taught in a way that leads them to believe that learning means acquiring a huge number of unrelated and essentially meaningless facts and skills. K12, however, has worked with subject area experts including mathematicians, scientists, historians, writers, and others, to identify big ideas and map the relationships among big ideas, facts and skills in each subject area. These analyses are used to organize curriculum

development and to help students to see the “big picture” reflecting all the connections among different kinds of knowledge in a subject area. Big ideas are highlighted and explicitly taught using a variety of research-proven methods (e.g., Chi, 2009; Clark, 1998; Mayer, 2008; Merrill, 2000, 2008):

- Clearly state, explain, and exemplify the idea through illustrations, objects, situations, simulations, etc.
- Give students opportunities to demonstrate their understanding of the big idea in a variety of situations.
- Give examples and non-examples; show when the idea applies and when it doesn't.
- Show how to use the idea to understand and explain phenomena (e.g., how can counting be used to solve addition and subtraction problems; how can the multiplicative identify be used to find equivalent fractions).
- Demonstrate how the idea can be used to solve problems and justify solution procedures.
- Show how other ideas, facts and skills connect to the big idea. Show “concepts maps” of the structure of knowledge as it develops and enable students to modify these maps or build their own.

Research on General Instructional Principles

For both online and offline instructional activities K12 draws on empirically-tested general principles of instruction, including multimedia design principles. Evaluation and Research and Instructional Design staff have created summaries of these principles and course development teams are trained on the principles and how to apply them before and during course production (as discussed in a later section).

Their research on general strategies is organized by types of knowledge, since different strategies are required to teach different types of knowledge. Major categories of knowledge, which they have derived from the work of numerous cognitive science researchers, include the following: conceptual understanding, memorized facts and skills, problem solving strategies, and metacognition. They also use empirically-validated techniques to build student motivation to learn.

To teach for conceptual understanding, they use the methods described above for teaching big ideas. Several research-based strategies are implemented to help students overcome misconceptions related to big ideas (e.g., Klahr, 2000; Minstrell & Kraus, 2005; White, 1994; Vosniadou et al., 2001; White & Frederickson, 1998):

- Introduce known examples and bridging analogies.
- Create cognitive conflict, e.g., students predict what will happen in a situation, then see that the prediction is wrong. Then show students how to resolve this conflict.
- Present analogies and visual models.
- Use computer-based microworlds.

Since many different researchers (e.g., Clark, Mayer, Sweller) have demonstrated that worked

examples are the best way to show students how to solve problems, they have made extensive use of worked examples to teach problem solving across grade levels and curricula. The basic components of a worked example are: (1) a problem, (2) an expert solution with each step shown, and (3) an explanation for each step. For more complex problems, they apply a research-inspired scaffolding approach: students review examples of expert problem solving, then try to solve partially worked examples, working up gradually to solving whole problems. Following the worked examples, students practice solving problems, moving from accuracy to speed (if necessary) and automaticity (in some cases).

Strategies for improving metacognition are described at the end of the section on How Students Learn above. Their strategies for building motivation draw on the finding that the real motivation for learners is learning and that the ability to demonstrate improvement in a skill provides motivation (Merrill, 2006). Since learners of all ages are more motivated when they can see the usefulness of what they are learning (Cognition and Technology Group at Vanderbilt, 1998; McCombs, 1996; Pintrich and Schunck, 1996), they also reinforce throughout their curricula how important concepts and skills will be necessary both for future learning and in many kinds of activities beyond school.

Research on Teaching Specific Topics and Addressing Possible Misconceptions

In addition to synthesizing research on learning and instruction that applies across subject areas, the Evaluation and Research team (or in some cases content specialists) compiles summaries of research on teaching strategies and misconceptions related to specific instructional objectives or topics, such as “Demonstrate that addition and subtraction are inverse operations” or “Identify the theme of a story.” Some examples of this type of research for different subject areas are given below.

Design of the reading program, for instance, is consistent with key findings of the National Reading Panel (2000):

- Results of a meta-analysis show that “systematic phonics produces significant benefits for student in kindergarten through 6th grade and for children having reading difficulty” (p. 9). Accordingly, K12’s reading program has a strong and systematic phonics component, and it focuses as well on skills that low-achieving 3rd-5th graders often lack, according to literacy researchers such as Louisa Moats: that is, phonological awareness, syllabification, morphology, and reading fluency.
- “Guided repeated oral reading ...had a significant and positive impact on word recognition, fluency, and comprehension across a range of grade levels” (p.12) The K12 reading program provides frequent opportunities for students to read aloud from poetry, fiction, nonfiction, and dramatic texts.
- “Teaching a combination of reading comprehension techniques is the most effective” (p. 15). K12's instructional methods include question generation, summarization and use of organizers, mirroring techniques recommended by the National Reading Panel.

In addition to being aligned to the Florida Next Generation Sunshine State Standards and the Common Core State Standards, the K12 curriculum is also aligned to the mission and philosophy

of FLVA to equip every student with the academic and nonacademic foundations needed for any postsecondary opportunity they wish to pursue by utilizing research-based technology applications, meaningful teacher/student/parent involvement, and engaging, individualized learning based on:

- Careful work built on educational research to identify the "Big Ideas" of a subject area as well as the concepts that are stumbling blocks for many students
- Clear layout of the objectives to be mastered in each lesson, unit, and semester, crafted from educational research, the best state and national standards, and deep content expertise
- Easy-to-navigate online content, including summaries and reviews, with more time and effort spent on the hardest, most important topics and skills
- Engaging, interactive, media-rich content to illustrate and explain the toughest concepts in ways no static page (print or Web) could ever match
- Beautiful, printed and other hands-on materials complementing the online courses (in most cases actually built for the online course) so that the images, phrases, and organization of these references clearly reinforce the key concepts, explanations, and work done throughout the course
- Terrific offline experiences with labs, books, and writing designed to give sufficient practice in key skills that students must master, as well as challenging problems and assignments to develop each student's ability to apply what they've learned in new circumstances
- Clear assessment tools to measure mastery of lesson objectives, using both online and offline tasks to carefully probe mastery

For any given lesson, the curriculum development team at K12 creates and assembles different learning components to satisfy the diverse needs of students in multiple learning environments. The team strategically chooses the appropriate interactive activities, printed material, assessment, video, laboratory, essay assignment, or hands-on exercise to provide a well-coordinated and purposeful learning experience. The mosaic of these individual components forms a lesson; related lessons are collected into units, and units into courses. Ultimately, all of the lesson components work together to create a rich K12 experience that is unlike any other.

K12 utilizes every medium and opportunity to advance students' learning by using a comprehensive, diverse, and innovative selection of materials, including books, protractors, seeds, clay—virtually any object that can aid the teaching process. K12 materials are intrinsically tied to the curricula because they are selected by the same experts and developers who design, write, and build the courses.

Offline Materials

Younger students are engaged with hands-on materials that are especially rich in color, texture, and variety and incorporate and emphasize the excitement of learning. K12 books match and often surpass materials available from commercial publishers because K12 books are customized for our courses by grade level and subject area. All materials are rigorously studied, tested, and adapted for ease of use by students.

Mature students with more-developed cognitive skills require fewer offline materials—a norm found in all educational settings. K12 materials include major literary works, relevant historical textbooks, appropriate lab items, and other carefully selected tools to reflect the typical high school experience. Offline materials are designed and selected to be deeply tied to and fully supplement the online curriculum. Examples of offline materials include science laboratory and reference guides; materials for lab experiments; math reference guides and problem sets as well as compasses, protractors, and rulers; history textbooks; literature anthologies and novels; and music recordings and textbooks.

While K12 is well-known for the quality of their online learning curriculum, they also received recognition for the quality of their offline materials as well by the Association of Education Publishers (AEP).

Association of Education Publishers (AEP) Distinguished Achievement Award

- Winner, 2012 Association of Educational Publishers (AEP) Distinguished Achievement Award in the Whole Curriculum Program category for Mathematics. *Fundamentals of Geometry and Algebra* curriculum (textbook component of online curriculum)
- Finalist, 2012 Association of Educational Publishers (AEP) Distinguished Achievement Award (DAA) in the Reading and Language Arts category for Kindergarten Language Arts curriculum(textbook component of online curriculum)
- Finalist, 2010 AEP DAA: *Algebra II: A Reference Guide and Problem Sets (Grades 9-12)*
- Winner, 2009 AEP, 2009: *Algebra I: A Reference Guide and Problem Sets (Grades 9-12)*
- Winner, 2007 AEP DAA: *Earth Science: A Reference Guide*
- Finalist, 2006 AEP DAA: *The Human Odyssey* (Middle School History)
- Finalist, 2006 AEP DAA: K12 Grade 4 Art

Interactive Activities

K12 uses a variety of user-tested, educationally sound multimedia throughout each curriculum to teach and apply content, and to assess knowledge. The foundation and use of multimedia is based on several factors:

- Offer a consistent, informative, and rewarding learning experience
- Impart the right level of detail and a balanced age-appropriate cognitive load
- Engage students to provide valuable learning opportunities and encourage reflective thinking.

Several types of multimedia are used in the K12 curricula:

- Audio: maximize the learner’s ability to process information without being overwhelmed by visuals
- Photographs/illustrations: help represent, organize, and interpret the content
- Animations/interactive activities: used to segment content, personalize learning, promote interaction, and show relationships
- Videos: used as concrete modeling of behavioral learning objectives

As an example of interactive activities, many K12 science courses now include interactive vLabs (virtual labs). These highly engaging online experiments enable students to demonstrate the scientific method, test a hypothesis, witness various outcomes, and examine sources of error. Course vLabs can be used to reinforce concepts learned in the hands-on labs or, when appropriate, supplement or replace certain onsite labs.

K12 has won numerous awards in recognition of their web-based curriculum, innovative program, and leadership in the field of online and blended learning including:

- Winner, 2012-2013 eSchool News Readers' Choice Award for powerspeaK¹² world language programs, now part of Middlebury Interactive Languages, a joint venture between K12 and Middlebury College
- Winner, 2012 Association of Educational Publishers (AEP) Distinguished Achievement Award in the Whole Curriculum Program category for Mathematics. *Fundamentals of Geometry and Algebra* program (online and offline)
- Finalist, 2012 CODiE Award for Best Instructional Solution: Middlebury Interactive Languages
- Finalist, 2012 EdTech Digest Digital Textbook Award for *World History: Our Human Story*
- Finalist, 2012 Association of Educational Publishers (AEP) Distinguished Achievement Award in the Reading and Language Arts category for Kindergarten Language Arts program (online and offline)
- Winner, 2011 Readers' Choice Award by *District Administration* magazine: Online Education Curriculum
- Finalist, 2011 Association of Education Publishers (AEP) Golden Lamp Award: Math+ Program
- Finalist, 2011 AEP Distinguished Achievement Awards
 - Science: Environmental Science course
 - Science: Virtual Labs/Biology
 - Technology: Timed Reading Practice
 - Math: Math+ Program
- Finalist, 2011 The Software Information Industry Association, CODiE™ Awards
 - Best Mathematics Instructional Solution: Math+
 - Best Public Virtual School Solution for Students to K12 Inc.
- Winner, 2010 United States Distance Learning Association (USDLA) 21st Century Best Practices Award to K12 Inc.
- Bronze Award Winner, 2010 USDLA Best Practices in Distance Learning Programming: *K12 Inc. Honors Earth Science Program*
- Winner, 2009 AEP Distinguished Achievement Award, High School *Algebra* textbook
- Ohio Virtual Academy and Pennsylvania Virtual Charter School, Parent's Choice Winners in GreatSchools.net/*Business Week* January, 2009 School Rankings (*Both statewide online public schools use the K¹² curriculum.*)
- Co-Recipient with Florida Virtual Academy, 2007 ITFlorida Government Technology Leadership Award
- ComputED's Education Software Review Award for Innovation, 2007 Winner: *K¹²*

Curriculum Alignment

Florida Next Generation State Sunshine Standards and Common Core State Standards

As an approved provider, K¹² has documented how their courses are aligned to the Florida Next Generation State Sunshine Standards (NGSSS). K12 is also committed to providing full alignment of its courses to the Common Core State Standards (CCSS) on grade level-- high standards for a curriculum to meet--thereby equipping all students to meet both standards. The K12 Product Development group has a direct historical connection to the work of the Core Knowledge Foundation. This longstanding connection has positioned the K12 curriculum to be aligned to the Common Core State Standards, whose development K12 has followed closely in draft and final form. K12 courses developed after the publication of the CCSS are fully aligned to those standards. The K12 Product Development Team is also working to update courses released before the Common Core standards were published. Current alignments of the K12 math and ELA curriculum to the CCSS are provided in **Attachment 1**. In addition, FLVA has provided a flash drive with alignments to NGSSS.

The alignment process is overseen by K12's curriculum support and alignment department. K12 engaged alignment specialists to review and document the alignment between its curriculum and the standards. For each standard at each grade level, alignment specialists identified where in the K12 curriculum the concepts are addressed and noted specific units and lessons where students learn or demonstrate an understanding of the skills and knowledge required by the NGSSS and CCSS. All of the alignments will be thoroughly reviewed after charter approval and prior to School opening in fall 2014 to prepare teachers for student instruction. To further ensure alignment among the FLVA curriculum and Florida Next Generation and Computer-Based assessments, after charter approval and prior to school opening in fall 2014, test blueprint alignments will be developed for the FCAT 2.0, Florida End-of-Course Assessments, and Common Core Assessments (PARCC in 2014) for each student's grade level and course enrollment.

iNACOL National Standards for Quality Online Courses, version 2

In 2007, the International Association for K-12 Online Learning (iNACOL) published standards based closely on work originally formulated by the Southern Regional Education Board (SREB). iNACOL's standards outline quality guidelines for online courses—covering content, instructional design, student assessment, technology, and course evaluation and support. Schools and other educational organizations can use these standards as a rubric for evaluating the quality of any online courses they wish to offer. The iNACOL standards were revised in late summer 2011. K12's courses have been so widely recognized for embodying best practices for online learning that K12's curriculum department was invited to join the committee for revising the standards. Version 2—published in October 2011—includes reformulated standards that are more easily applicable and verifiable in the growing landscape of different online scenarios.

K12's rigorous courses—aligned to national and state content standards—engage students in active and self-directed learning that requires progressively sophisticated thinking, reasoning, information literacy, and communication skills. K12's courses address the many ways students learn, including the varied capabilities offered by the online medium and supported by instructor-student and facilitated student-student interaction. The curriculum provides for multiple levels of mastery, teaching concepts and skills that will be retained over time and that provide a foundation for further study. Ongoing assessments verify students' progress and readiness for advancement. K12 conducts continuous and systemic internal audits of its courses to assess effectiveness.

A K12 evaluation of its courses against the iNACOL standards reveals high marks for compliance. Documentation for alignment with the 2011 standards is available for review.

AdvancED Accreditation

K12 Inc. is accredited through AdvancED, the world's largest education community, including such members as North Central Association Commission on Accreditation and School Improvement (NCA CASI), Southern Association of Colleges and Schools Council on Accreditation and School Improvement (SACS CASI), and Northwest Accreditation Commission (NWAC).. K12 is the largest national kindergarten through grade 12 online school provider to be recognized by AdvancED. Online public schools using K12 curriculum have received accreditation from qualified accrediting organizations across the country including Middle States Association, NCA CASI (also now part of AdvancED), Northwest Association of Accredited Schools, and Western Association of Schools and Colleges.

NCAA Course Approval

Since its inception, K12 has been committed to creating thoroughly researched, high quality curriculum that is aligned to state and national standards. The National Collegiate Athletic Association (NCAA) has traditionally found K12 courses as meeting the requirements for establishing the initial-eligibility certification status for high school student-athletes wishing to compete in college. The courses eligible for all blended and virtual schools managed by K12 Inc. have been placed under Extended Review; during this review, K12 courses will continue to be considered for NCAA eligibility. Each school is listed individually on the NCAA website. K12 and Aventa courses taught or administered by school districts may also be eligible for NCAA course credit, and each course must be submitted by the district for final approval. Each school is listed individually on the NCAA website. K12 and Aventa courses taught or administered by school districts may also be eligible for NCAA course credit, and each course must be submitted by the district for final approval

Leading Sources Standards

K12 has developed courses that incorporate standards, parameters, and characteristics outlined by a host of leading sources including: the National Academy of Science; American Council on the Teaching of Foreign Languages; Chinese Language Teachers' Association; National Art Education Association; International Association for K-12 Online Learning; National

Association for Sport and Physical Education; National Council on Economic Education; National Council for History Education; National Council of Teachers of English; National Council of Teachers of Mathematics; National Institute of Child Health and Human Development; and Partnership for 21st Century Skills. The quality of the K12 courses and learning management system along with a track record of academic success has been thoroughly documented.

D. Describe how the effectiveness of the curriculum will be evaluated.

Selecting High Quality Curriculum

Part of ensuring that the curriculum is effective and of high quality is to first ensure that the Education Service Provider (ESP) has a track record of proven success. When choosing an ESP, the Board wanted to understand what measures the ESP uses to evaluate student performance across all clients. The FLVA Board of Directors is critically aware of the requirement for the curriculum, teachers, staff and the board to monitor student success against state standards, however, the Board is also interested in ensuring that the ESP is mindful of the roll out of Common Core State Standards and therefore asked the question - is the ESP monitoring performance across schools against a national normed assessment? The Board has selected K¹² Florida LLC as their ESP because of the high student performance across many states and the national recognition for the various components of the curriculum.

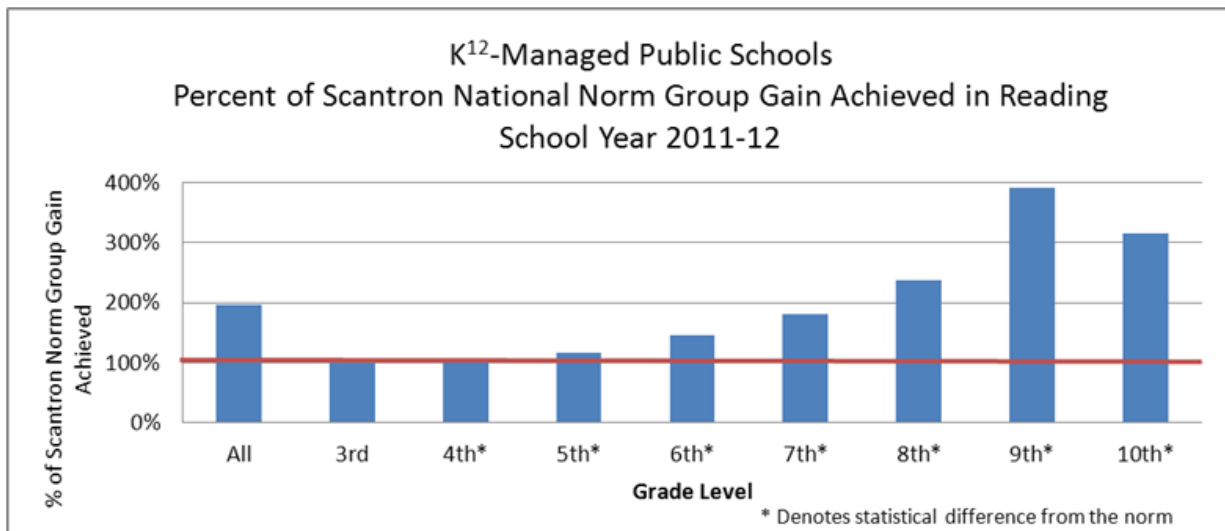
K12 Inc. is the largest provider of individualized online education programs primarily for students in kindergarten through high school in the U.S. Founded in 2000, K12 has provided over 2 million courses - core subjects, AP®, world languages, credit recovery, and electives - to more than 200,000 students worldwide. In the 2012-2013 school year, K12 served 120,000 full-time students in public schools they managed in 33 states and the District of Columbia, which equates to more than one million online semester courses.

K12's mission is to maximize a student's potential by providing licensed access to an engaging and effective education, regardless of geographic location or socio-economic background. Since their inception, they have invested more than \$330 million to develop curriculum and online learning platforms that promote mastery of core concepts and skills for students of all ability levels. Their approach combines cognitive science with individualized learning and is well suited for virtual education programs and other education applications. K12, using the entire K12 suite of services and instructional curriculum (currently including K12, Aventa, A+, and Middlebury Interactive Languages) to include world languages, credit recovery courses, remedial courses, and AP courses, has shown academic success and achievement in the schools it serves across the country.

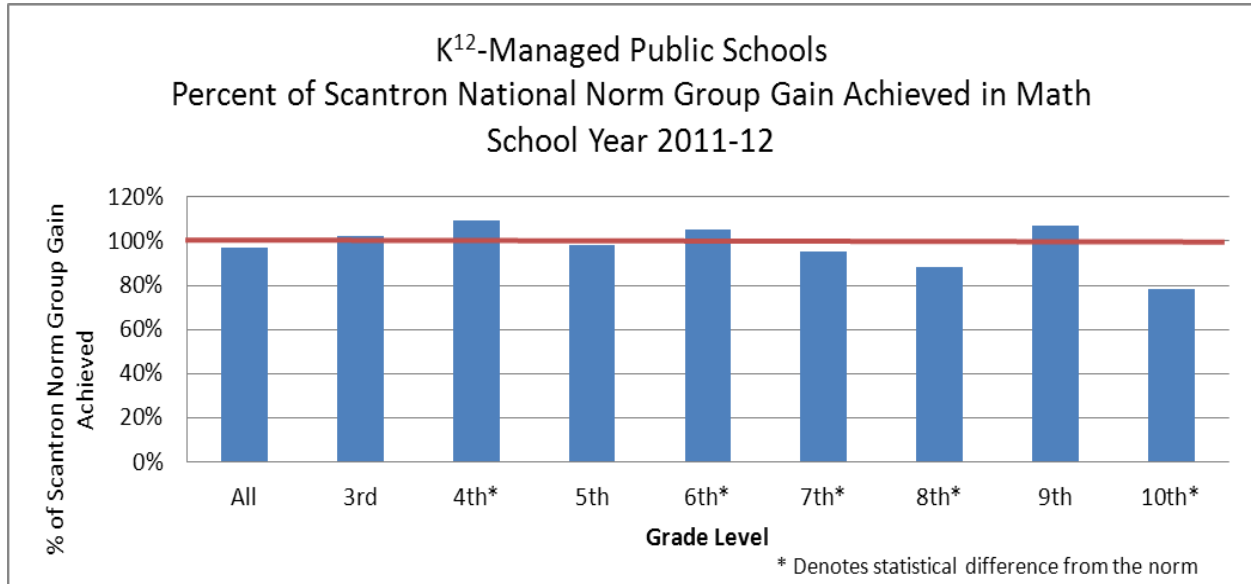
Academic assessments of students in K12 managed schools show positive student academic growth. Since the 2008-9 school year, Scantron Performance Series™ assessments were implemented to determine annual growth for students in the K12 virtual academies and to inform teachers of students' strengths and challenges in the fall so that, by spring, strengths could be built on and challenges could be remedied. Student growth is compared to the Scantron norm group which is comprised of thousands of students who represent the national demographics in terms of socio-economic status and ethnicity. The Scantron Performance Series provides

administration and teachers with data on students that they don't often get from prior year cumulative files or test scores. Continuity with a test is critical for meaningful comparisons across schools and to measure progress for individual students. K12 has several years of data to support the finding that the K12 students continually perform at or above the Scantron Norm Group in Math and Reading.

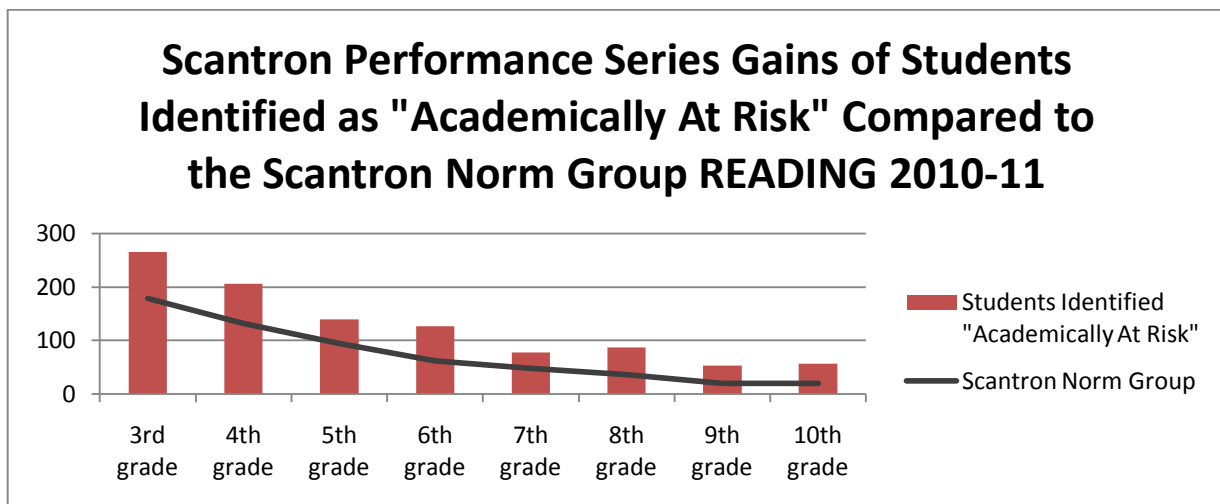
- In the fall of 2011, and again in the spring of 2012, approximately 38,700 K12-managed public school students in grades 3-10 took the Scantron Performance Series tests in Math and Reading. These online, adaptive assessments were implemented to determine annual growth for students in K12-managed public schools and to inform teachers of students' strengths and challenges in the fall so that, by spring strengths could be built upon, and challenges could be remedied. As can be seen in the following chart, K12-managed public schools did very well in Reading gains for the 2011-2012 school year, with an overall achievement of 196% of the Norm Group gain.



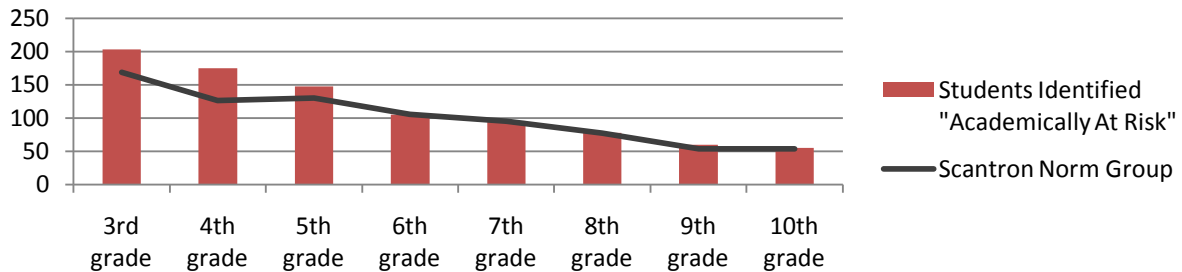
In Math, K12 managed public schools achieved 97% of the Norm Group gain across all grades for the 2011-2012 school year.



- K12 has proven success with “at risk” students like the students that FLVA School will serve. Data in this area are very promising. Students identified as “Academically at Risk” in math and/or reading were provided with instructional interventions targeted to remedy academic weaknesses. These interventions are making a difference in student performance. In fact, students initially identified as “Academically at Risk” are making equal to or more gains than the Scantron norm group in math and more gains than the Scantron norm group in reading as demonstrated by the charts below. These gains in the 2010-11 school year suggest that students who stay with the program have the potential to “catch up” to their peer group in math and reading.



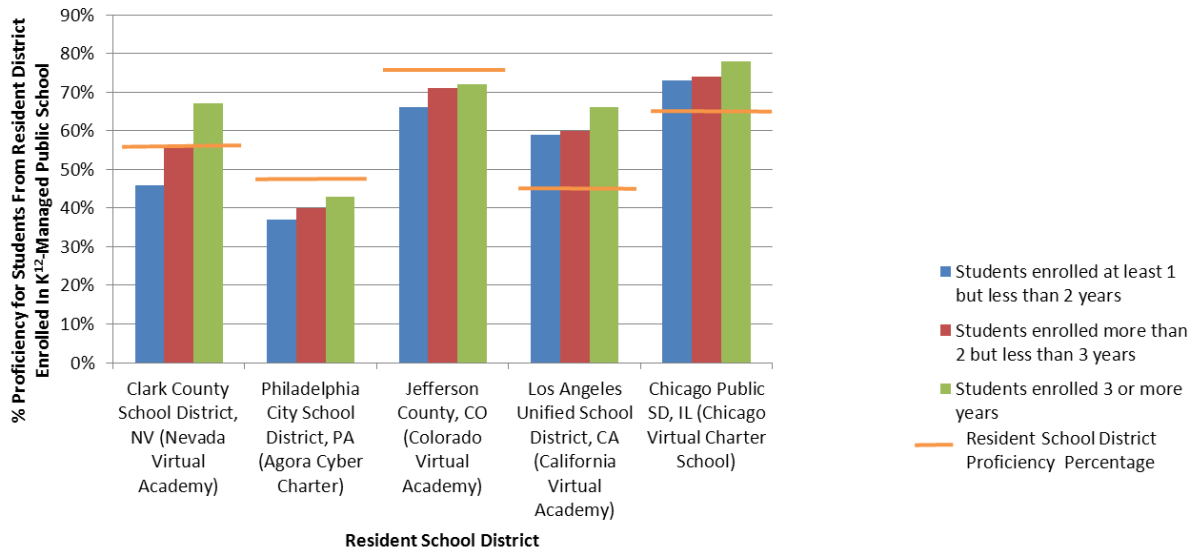
Scantron Performance Series Gains of Students Identified as "Academically At Risk" Compared to the Scantron Norm Group MATH 2010-11



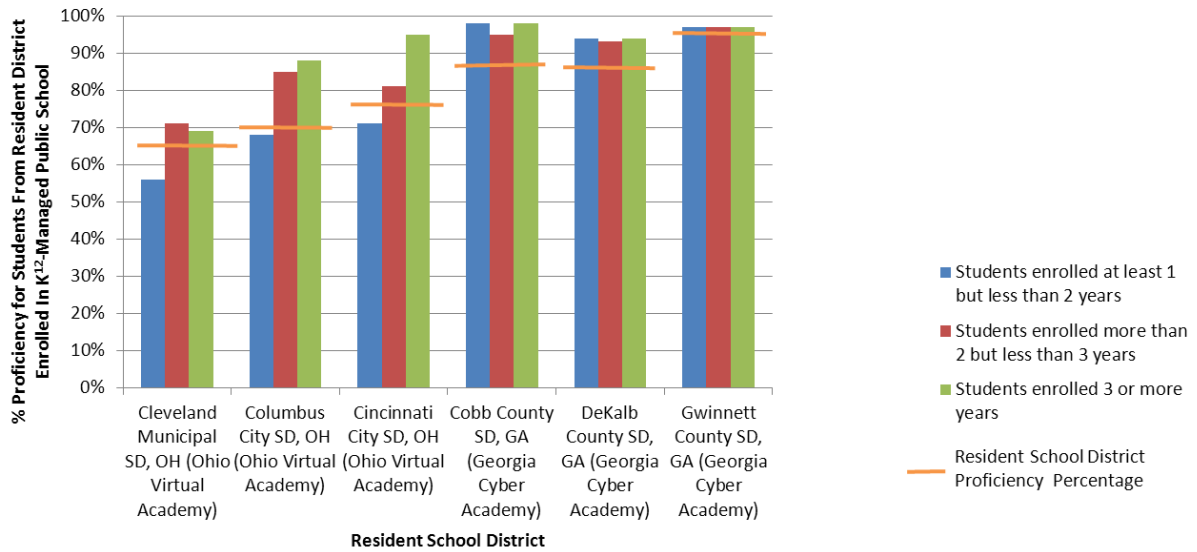
- When state test proficiency percentages of students from the resident districts where the largest numbers of students enroll in K12-managed public schools are analyzed, a positive trend is noted: the longer students have been enrolled in a K12-managed public school, the more likely the students are to be “Proficient” on state exams relative to students with shorter tenure, and the better the students perform compared to students enrolled in their resident districts.

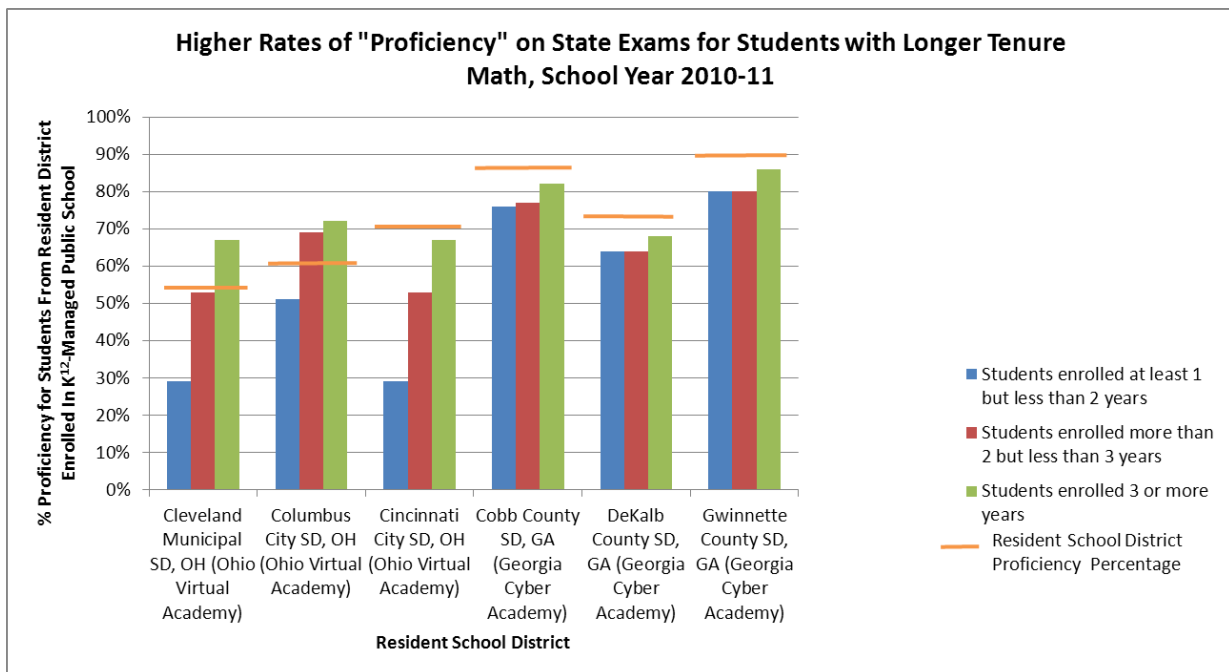
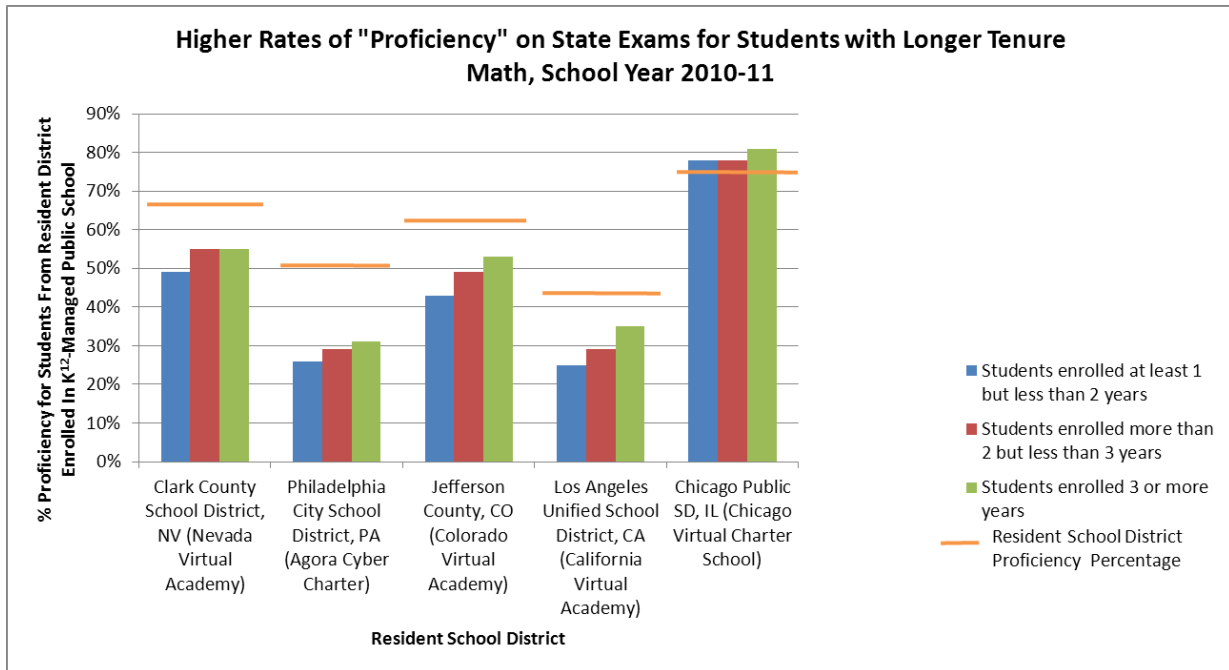
Although K12 finds these results encouraging, they are not satisfied with the achievement of their students, especially in math. Although many students enrolling in K12 managed schools are enrolling with severe deficits in the area of math, K12’s goal is to develop curriculum and programs that can “catch students up” until they are performing at or above grade level. One major initiative K12 is using to improve math achievement is the National Math Lab, described below in detail. New K12 curriculum is also designed to improve math achievement. Developmental Algebra is the first course in a two-year algebra sequence developed by K12 to teach the challenging concepts of algebra in an extended timeframe. By covering fewer topics in one year, students will be provided with more time to learn, practice, and master the abstract concepts of algebra—one of the most difficult courses for students to grasp. Developmental Algebra will be followed by the second course in the sequence, Continuing Algebra, in SY14-15. Practical Math is an innovative high school course that has been created by K12 to meet the needs of third year math students who are not prepared to take Algebra II after completing Geometry. Student mastery is ensured through the use of frequent online and offline assessments and real-life application of math skills in project-based units. This course will either serve as a capstone to students’ high school math education, or prepare them for success in Algebra II.

**Higher Rates of "Proficiency" on State Exams for Students with Longer Tenure
Reading, School Year 2010-11**



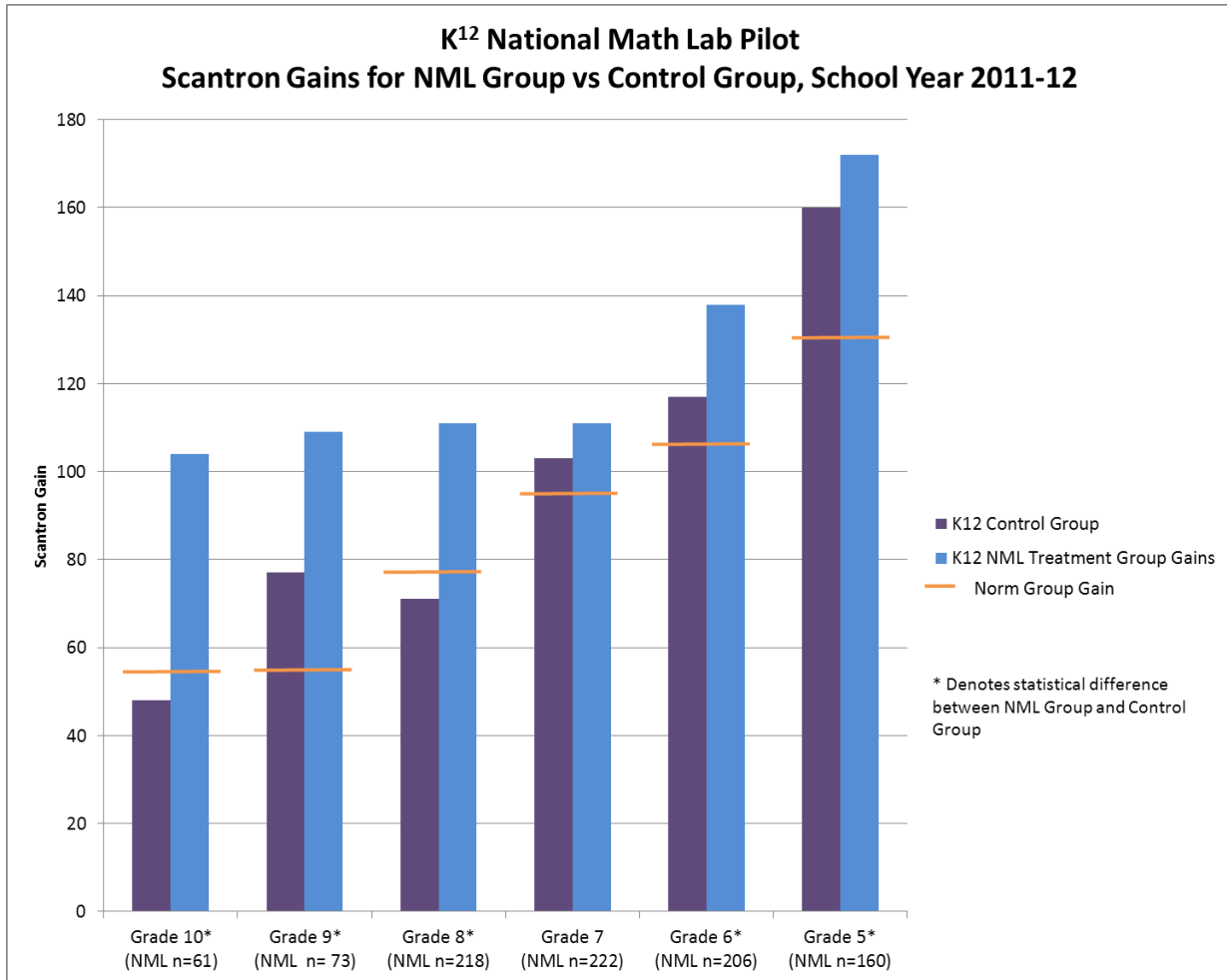
**Higher Rates of "Proficiency" on State Exams for Student with Longer Tenure
Reading, School Year 2010-11**





National Math Lab (NML) is an innovative program aimed at addressing students' weaknesses in math—a national concern. Designed by a team of curriculum and instruction specialists at K12, in cooperation with school leaders from K12-managed schools and launched as a pilot at the beginning of the 2011-2012 school year, NML provides twice the usual coverage of math instruction to students in grades 5-10 who are identified as academically at-risk in math. In addition to the students' regular math coursework, students attend targeted synchronous mathematical instruction provided by highly trained math teachers four days per week. NML sessions are offered many times

throughout the day and are designed to meet students where they are, provide remediation, and, over time, bring them to grade level. A controlled study for the 2011-2012 school year found that students in grades 5, 6, 7, 8, 9 and 10 with consistent attendance at NML classes experienced significantly higher gains on the Scantron Performance Series assessment in Math than a control group that was offered the standard math program. Consistent attendance at NML was defined as attending at least 70% of NML classes for at least two of the three 8-week NML sessions offered for the 2011-2012 year.



- K12-managed public schools have graduated more than 8,000 students since the first graduating class in 2007. Using a service provided by the National Student Clearinghouse, K12 is able to track student enrollment in post-secondary institutions after graduation from a K12-managed public school. The National Student Clearinghouse provides coverage of collegiate enrollment from more than 3,000 participating post-secondary institutions in the U.S., which collectively account for more than 96% of all student enrollments in U.S. higher education institutions, including two-year, four-year, graduate, public, private, trade, and vocational schools.

Students graduating from K12 virtual schools have been accepted to hundreds of higher education institutions. They are headed to schools of liberal arts, culinary arts, business, fine arts, and top technology and fashion institutes, among others. Graduates are also going into careers--in the military, vocational training, or directly into the job force. Whether K12 students are college bound or career bound, K12 is honored to have the opportunity to help them achieve their dreams.

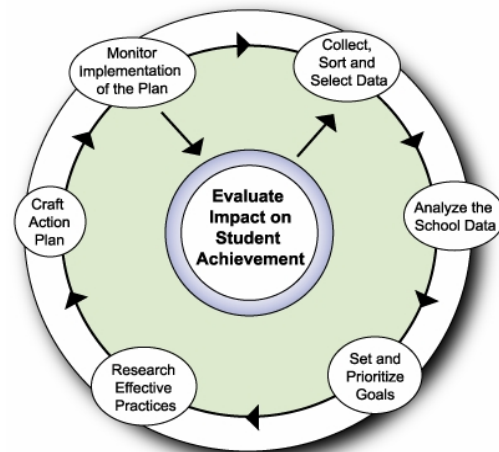
- Surveys from K12 parents in Spring 2013 showed that 90%* were likely to recommend the school their students attended; 93%* expressed satisfaction with the K12 curriculum quality; 92%* would recommend the K12 curriculum, and 95%* expressed their satisfaction with their students' K12 teachers (*weighted averages of K-8 and 9-12 parent surveys).

The above data are good evidence that the K12 Inc. curriculum is effective and evaluated on a regular basis.

SAIP Planning Process

The School's Student Achievement Improvement Process (SAIP) will be a primary means of self-evaluation of the curriculum, instructional methods and practices on an annual basis when Florida Virtual Academy at Clay County is operational. The SAIP process is a multi-stage planning process which will take into consideration data collected about the School's success in reaching its academic and nonacademic goals as stated in measurable terms in this charter application. The stages of the SAIP process are:

1. Prepare for Readiness to Benefit
2. Collect, Sort, and Select Data
3. Analyze the School Data
4. Set and Prioritize Goals
5. Research Effective Practices
6. Craft Action Plan
7. Monitor Implementation of the Plan
8. Evaluate Impact on Student Achievement



Stage 1: Prepare for Readiness to Benefit

The School Achievement Planning Team (representatives from all aspects of the school, including Human Resources, Operations, and Finance) must be aware of their own readiness, abilities, and willingness to embark in a collaborative strategic planning process. All Team Members should:

- Have completed training in conducting effective meetings
- Understand how decisions are made

- Agree on decision-making strategies for working toward consensus
- Commit time to meet and resources to support this work
- Assure open communication and trust among members
- Possess an understanding of the purpose of the SAIP process

Stage 2: Collect, Sort, and Select Data

- Team collects and sorts information from previous school records, past performances on state testing, anecdotal information from parents, and other sources
- Team verifies data is current and correct
- Team accurately tags students in TotalViewSchool

Stage 3: Analyze the School Data

- Team analyzes school data to understand current student achievement
- Team displays achievement and other data types in ways that are understandable to all audiences and stimulates shared responsibility
- Team clearly articulates answers to the following questions:
 - Who are the specific groups of students at our school (i.e., at risk, minority, advanced learner, etc.)?
 - How does each of these groups perform on various measures?
 - What does this data tell us about the strength and weaknesses of the program for these specific populations?
 - Team schedules frequent data reviews and considers whether new information should change SAIP

Stage 4: Set and Prioritize Goals

- Team identifies three-to-five areas based on data review. Goal-setting includes answering questions such as:
 - What state goals are required to meet AYP?
 - What are the areas of greatest need based on student achievement in subgroups?
 - Which strategic areas have the highest potential for impact?
- Team follows a systematic process to develop focused, student-centered, measurable, realistic, and time-bound goals to improve student achievement
- Team discusses desired and anticipated gains from SAIP implementation

Stage 5: Research Effective Practices

- K12 Inc. provides programs - Scantron testing, Study Island, Blackboard Collaborate, and others - that have proven to be effective and should be imbedded throughout the SAIP.

Stage 6: Craft Action Plan

- The Team creates an SAIP Action Plan that converts data analysis into action. Time spent in detailed planning at this stage is critical. The Action Plan should be detailed enough so that all staff members understand their role, stakeholders see a clear focus, and measurable goals are identified.

Stage 7: Monitor Implementation of the Plan

- Team monitors SAIP action plan quarterly or as new information/data is obtained

- Team discusses the progress of the Action Plan and its impact on student achievement
- Team assures the activities and tasks for each goal are moving forward under the identified timelines
- Team considers what revisions are needed to accomplish the learning improvement goals and increase student achievement

Stage 8: Evaluate Impact on Student Achievement

Evaluating the impact of the SAIP brings the process full circle. It is a time to measure SAIP effectiveness, determine which practices will be continued, and start the process again.

- Team collects and analyzes data to determine if SAIP goals were met and if student achievement resulted
- Team evaluation report creates an SAIP to implement the following August

In addition to the SAIP process, Florida Virtual Academy at Clay County will also be involved in self-assessment and evaluation in other ways. School staff will regularly track and report to the Board, administrators, teachers, and students the successes and challenges the School is experiencing in realizing the School's vision, achieving its mission, and accomplishing its goals and objectives.

Standardized assessments at the state level and school-based level are the ultimate evaluation of a curriculum and the instructional strategies used by teachers. The FLVA Board of Directors will utilize the SAIP process outlined above to provide a clear plan for constant review and analysis of student performance. This type of review process will allow the School to make changes in teacher professional development, implement additional intervention strategies and work with the ESP make needed curriculum changes.

Section 5. Student Performance, Assessment, and Evaluation

- A. State the school's educational goals and objectives for improving student achievement. Indicate how much academic improvement students are expected to show each year, how student progress and performance will be evaluated, and the specific results to be attained.

Florida Virtual Academy's (FLVA) education goals and objectives for improving student achievement are based on the progress and performance of students on the 2013 Florida Comprehensive Assessment Test (FCAT) 2.0 and Florida End-of-Course (EOC) Assessments. FCAT is a valid and reliable measure of student performance that provides objective, external empirical evidence of the school's performance.

Indicators of individual student progress and performance will be evaluated each year based on a high standard of student performance. Goals and measureable objectives are set for the School as a whole as well as each grade in Reading, Math, Science, and End-of Course Exams (EOC) in Algebra I, Geometry, and Biology Goals for U.S. History, have not been set because the state has not yet conducted standard setting to determine the passing standard. In addition, goals for Writing have not been set because beginning in 2014-15, Florida is planning to transition to Common Core assessments for reading aligned with the Common Core State Standards. FCAT 2.0 Reading and FCAT 2.0 Writing will be replaced by one assessment in English Language Arts (ELA). At that time, FLVA will revise the school goals to align with the new ELA assessments.

Each year, the administrative staff at FLVA, along with the school board, will review the performance and progress on the following goals to determine if adjustments need to be made.

Goal 1: Florida Virtual Academy's primary educational goal is to earn an "A" – a school making excellent progress - under Florida's school grading system (Florida Statute 1008.34) by 2016-17, its third year of operation.

Measurable Objectives Reading 1.1: FLVA school goals are initially based on district level reading data for the grade. Goals are increased based improvements made at the district and state level and exceeding the state average performance. At a minimum, school goals for reading increase by 2 percent each year in elementary, middle and high school grades. After baseline data are established for the School at the conclusion of its first year of operation, school level goals will be reevaluated for appropriateness.

Reading FCAT 2.0	State 2013 Percent Proficient	Clay 2013 Percent Proficient	School Goal 2014-15 ⁵	School Goal 2015-16	School Goal 2016-17	School Goal 2017-18	School Goal 2018-19
Grade 3	57	69	69	71	73	75	77
Grade 4	60	66	66	68	70	72	74
Grade 5	60	67	67	69	71	73	75
Grade 6	59	69	69	71	73	75	77
Grade 7	57	60	60	62	64	66	68
Grade 8	56	57	57	59	61	63	65
Grade 9	53	59	59	61	63	65	67
Grade 10	54	60	60	62	64	66	68

Measurable Objectives Mathematics 1.2: FLVA school goals are initially based on district level math data for the grade. Goals are increased based on improvements made at the district and state level and exceeding the state average performance. At a minimum, school goals for math increase by 2 percent each year. After baseline data are established for the School, school level goals will be reevaluated for appropriateness.

Math FCAT 2.0	State 2013 Percent Proficient	Clay 2013 Percent Proficient	School Goal 2014-15 ⁶	School Goal 2015-16	School Goal 2016-17	School Goal 2017-18	School Goal 2018-19
Grade 3	58	65	65	67	69	71	73
Grade 4	61	65	65	67	69	71	73
Grade 5	55	58	58	60	62	64	66
Grade 6	52	65	65	67	69	71	73
Grade 7	55	64	64	66	68	70	72
Grade 8	51	58	58	60	62	64	66

Measurable Objectives Science 1.3: FLVA school goals are initially based on district level science data for the grade. Goals are increased based on improvements made at the district and state level and exceeding the state average performance. At a minimum, the school goals for science increase by 2 percent each year. After baseline data are established for the School,

⁵ Beginning in 2014-15, Florida is planning to transition to Common Core assessments for reading aligned with the Common Core State Standards. FCAT 2.0 Reading and FCAT 2.0 Writing will be replaced by one assessment in English Language Arts (ELA). At that time, FLVA will revise the school goals to align with the new ELA assessments.

⁶ Beginning in 2014-15, Florida is planning to transition to Common Core assessments for math aligned with the Common Core State Standards. At that time, FLVA will revise the school goals to align with the new assessments.

school level goals will be reevaluated for appropriateness. The overall calculation is weighted based on the number of students assessed and passing in each grade.

Science	State 2013 Percent Proficient	Clay 2013 Percent Proficient	School Goal 2014-15 ⁷	School Goal 2015-16	School Goal 2016-17	School Goal 2017-18	School Goal 2018-19
Grade 5	53	62	62	64	66	68	70
Grade 8	47	52	52	54	56	58	60

Measurable Objectives Algebra I EOC 1.4: FLVA school goals are initially based on district level Algebra I data for the grade. Goals are increased based on improvements made at the district and state level and exceeding the state average performance. At a minimum, the school goals for Algebra I increase each year. After baseline data are established for the School, school level goals will be reevaluated for appropriateness. The overall calculation is weighted based on the number of students assessed and passing in each grade.

Algebra I EOC	State 2013 Percent Proficient	Clay 2013 Percent Proficient	School Goal 2014-15 ⁸	School Goal 2015-16	School Goal 2016-17	School Goal 2017-18	School Goal 2018-19
Grade 7	96	98	98	99	99	100	100
Grade 8	90	99	99	99	99	100	100
Grade 9	52	55	55	57	59	61	63
Grade 10	29	44	44	46	48	50	52
Grade 11	37	36	36	38	40	42	44
Grade 12	37						
Overall	64	65	65	67	69	71	73

Measurable Objectives Geometry EOC 1.5: FLVA school goals are initially based on district level Geometry data for the grade. Goals are increased based on improvements made at the district and state level and exceeding the state average performance. At a minimum, the school goals for Geometry increase each year. After baseline data are established for the School, school level goals will be reevaluated for appropriateness. The overall calculation is weighted based on the number of students assessed and passing in each grade.

⁷ Beginning in 2014-15, Florida is planning to transition to Common Core assessments for science aligned with the Common Core State Standards. At that time, FLVA will revise the school goals to align with the new science assessments.

⁸ Beginning in 2014-15, Florida is planning to transition to Common Core assessments for Algebra I aligned with the Common Core State Standards. At that time, FLVA will revise the school goals to align with the new assessments.

Geometry EOC	State 2013 Percent Proficient	Clay 2013 Percent Proficient	School Goal 2014-15 ⁹	School Goal 2015-16	School Goal 2016-17	School Goal 2017-18	School Goal 2018-19
Grade 8	97			97	99	100	100
Grade 9	88	95	95	97	99	100	100
Grade 10	53	58	58	60	62	64	66
Grade 11	31	15	15	17	19	21	23
Grade 12	30	33	33	35	37	39	41
Overall	7	68	68	70	72	74	76

Measurable Objectives Biology I EOC 1.6: FLVA school goals are initially based on district level Biology I data for the grade and overall. Goals are increased based on improvements made at the district and state level and exceeding the state average performance. At a minimum, the school goals for Biology I increase each year. After baseline data are established for the School, school level goals will be reevaluated for appropriateness. The overall calculation is weighted based on the number of students assessed and passing in each grade.

Biology I EOC	State 2013 Percent Proficient	Clay 2013 Percent Proficient	School Goal 2014-15 ¹⁰	School Goal 2015-16	School Goal 2016-17	School Goal 2017-18	School Goal 2018-19
Grade 8	93			95	97	99	100
Grade 9	80	71	71	73	75	77	79
Grade 10	55	71	71	73	75	77	79
Grade 11	44	60	60	62	64	66	68
Grade 12	38	69	69	71	73	75	77
Overall	67	71	71	67	69	71	73

Goal 2: To employ various parental engagement strategies to effectively engage our parents in a meaningful and purposeful way.

- *Measurable Outcome 2.1:* One hundred percent of parents will have access to online parenting materials including information about learning objectives that are appropriate

⁹ Beginning in 2014-15, Florida is planning to transition to Common Core assessments for Geometry aligned with the Common Core State Standards. At that time, FLVA will revise the school goals to align with the new assessments.

¹⁰ Beginning in 2014-15, Florida is planning to transition to Common Core assessments for Biology I aligned with the Common Core State Standards. At that time, FLVA will revise the school goals to align with the new assessments.

for their child's age and grade level, effective learning strategies for difficult content areas, etc.

- FLVA will maintain a list of assigned parent log on IDs and a list of materials selected for inclusion in the online parenting resources which are grade appropriate, and evidence and scientifically based.
- *Measurable Outcome 2.2:* One hundred percent of students will have an Individualized Learning plan. The ILP is developed in partnership with students, parents and educators and signed by the parent. The ILP will outline how students, parents, and educators, share the responsibility for improved student academic achievement and the means by which the School and parents will build and develop a partnership to help students achieve high standards. The ILP's are discussed quarterly to define and update the expectations of the student.
 - ILP's will be maintained in the student's file and regularly updated based on evidence of student progress
- *Measurable Outcome 2.3:* FLVA will develop a mentor program in which one hundred percent of newly enrolled families will be paired with an experienced learning coach who will be available to share tips for a successful school year. Parent mentors will be provided training to support them in this role.
 - Calendar of mentor program events, participation logs, and content of mentor activities will be maintained as evidence.
- *Measurable Outcome 2.4:* Beginning in year 2, when there are enough enrollments and revenue to support it, FLVA will conduct outings at least once per month for students and parents to have the opportunity to meet other families in both educational and social environments.
 - Meetings' and activities' agendas and participation logs will be maintained as evidence.

Goal 3: To ensure a collaborative environment for teachers and administrative staff is developed and nurtured and student learning is increased.

- *Measurable Outcome 3.1:* Monthly professional development opportunities will be provided to educators at FLVA to enhance the knowledge, skills and expectations necessary to increase student learning. Student data from state and school-based assessments will be used to drive content of teacher professional development.
 - Meeting agendas, participation logs, and professional development content, and student data used to determine professional development opportunities and offerings will be maintained as evidence.
- *Measurable Outcome 3.2:* Training will be provided to teachers once a month, either in person or virtually, to assist them in supporting students and families effectively.
 - Meeting agendas, participation logs, and training content materials will be maintained as evidence.

- *Measurable Outcome 3.3:* A professional resource library will be created to allow teachers to have immediate access to high-quality professional resources. Resources will be selected based on student achievement needs and educator professional needs.
 - A log of usage and the professional resource library itself will be maintained as evidence.

B. Describe the school’s student placement procedures and promotion standards, including any procedures regarding acceleration.

Consistent with s. 1008.25, F.S., FLVA will ensure that each student’s progression from one grade to another be determined, in part, by criteria that reflect the student’s proficiency in the state standards and upon proficiency in reading, writing, science, and mathematics; that FLVA’s policies facilitate such proficiency; and that each student and his or her parent be informed of that student’s academic progress.

FLVA has established a comprehensive program for student progression which is based on an evaluation of each student’s performance including how well the student masters the performance standards approved by the state board. The program for student progression is based on the School’s goals and objectives which are compatible with the state’s plan for education and pertinent factors considered by the teacher before recommending that a student progresses from one grade to another. FLVA’s draft Student Progression Plan is provided in **Attachment 5**.

To summarize the policy, FLVA ensures that no student will be assigned to a grade level based solely upon the student’s age or other factors that constitute social promotion. Social promotion is defined, in Florida, as the promotion of a student based on factors other than the student achieving the district and state levels of performance for student progress. FLVA will follow the state requirements for third grade progression. Students in Grade 3 must score at Achievement Level 2 or higher on the Reading FCAT 2.0 in order to be promoted to grade 4. Middle school students will be held to the course completion requirements in s. 1003.4156, F.S. A FLVA middle school student, to be promoted to high school, must successfully complete three academic courses at the middle school or higher level in English, mathematics, science, and social studies (including Civics), and complete one course in career and education planning that results in a completed, personalized academic and career plan.

Promotion decisions will be based primarily on student academic achievement, but a single test score will not be the sole determinant. The final decision for grade placement is the responsibility of the Head of School.

FLVA students who have mastered grade level course work, score at Achievement Level 3, 4 or 5 on the reading and math FCAT 2.0, and meet or exceed teacher expectations for their grade level will be recommended for grade acceleration. Decisions about grade acceleration will be made during a conference with the student, parents, and teachers based on student work and test scores. The final decision for grade acceleration will be the responsibility of the Head of School. Following the acceleration placement of a student, monthly conferences will be scheduled between the student, parents, and teachers to ensure the student is performing at grade level or

higher with a formal evaluation of student work and achievement being conducted midyear to ensure appropriateness the of acceleration placement and to adjust the placement if necessary.

In addition, pursuant to s. 1008.25, F.S., the students with the following performance levels on state assessments will receive remediation provided through a progress monitoring plan. This remediation will be offered in addition to the student’s general course load or during the summer.

Assessment	Grade	Achievement Level
FCAT Reading	3-10	1 and 2
FCAT Math	3-10	1 and 2
FCAT Science	5, 8, 11	1
FCAT Writing	4, 8, 11	Below a score of 2.0

C. If the school will serve high school students, *describe the methods used to determine if a student has satisfied the requirements specified in section 1003.428, F.S., and any proposed additional requirements.*

FLVA intends to graduate its first students in the class of 2019. FLVA will work closely with K12 to ensure that the curriculum will allow for proper sequencing and on time graduation for all students, regardless of what diploma option they obtain. FLVA will award three different diplomas, a 24 Credit Standard High School Diploma, an 18 Credit College Preparatory Diploma, and a Special Diploma Option One. To earn a diploma at FLVA, students will have to comply with the credit, assessment, and grade point average requirements as specified in sections 1003.428 or 1003.4282, Florida Statute.

To earn a **24 Credit Standard High School Diploma**, FLVA students must:

- earn a minimum of 24 credits over four years
 - English: 4 credits in the following
 - ELA I
 - ELA II
 - ELA III
 - ELA IV
 - pass 10th Grade FCAT Reading
 - take 10th Grade FCAT Writing
- Math: 4 credits to include the following:
 - 1 credit in Algebra I must pass the EOC assessment which accounts for 30% of grade
 - 1 credit in Geometry. The EOC assessment accounts for 30% of grade
 - 1 credit in Algebra II
- Science: 3 credits (2 of which will have a laboratory component) to include the following:
 - 1 credit in Biology 1. The EOC assessment accounts for 30% of grade.
 - 2 credits in an equally rigorous science course

- 1 Credit may be substituted with allowable industry certification that lead to college credit
- **Social Studies:** 3 credits to include the following:
 - 1 credit in World History
 - 1 credit United States History. The EOC accounts for 30% of the grade.
 - .5 credit United States government
 - .5 credit Economics, which must include financial literacy
- **Fine Arts or Performing Arts, Speech, Debate, or Practical Arts:** 1 credit
- **Physical Education:** 1 credit in physical education to include the integration of health
- **Electives:** 8 credits that will include opportunities for students to earn college credit. FLVA will work toward establishing statewide or local articulation agreements toward career education courses.
- **Online Course Requirement:** Students will complete at least one course within the 24 credits through online learning, excluding drivers' education
- have a cumulative GPA of 2.0 on a 4.0 scale

Students may earn a **Scholar Designation Diploma** by meeting the following requirements in addition to the Standard Diploma Requirements:

- English: pass the 11th grade English/Language Arts (ELA) assessment
- Math:
 - pass the Common Core Algebra II assessment (when administered)
 - statistics or an equally rigorous course
- Science:
 - pass the Biology 1 EOC
 - Chemistry or Physics
 - earn 1 credit in an equally rigorous course
- Social Studies: pass the U.S. History EOC
- Foreign Language: earn 2 credits in the same language
- Electives: earn one AP, or dual enrollment course*

* FLVA recognizes the IB and AICE options, but does not plan to offer these programs at the time of the charter application.

To earn an **18 Credit College Preparatory Diploma**, FLVA students must earn:

- English: 4 credits with major concentration in composition and literature
 - Math: 4 credits to include the following:
 - 1 credit in Algebra I by passing EOC assessment
 - 1 credit in Algebra II
 - 1 credit in Geometry by passing EOC assessment
 - 1 credit in equally vigorous Math course.
 - Science: 3 credits to include the following
 - 1 credit in Biology I by passing EOC assessment
 - 1 credit in Chemistry or Physics or its equivalent
 - 1 credit in an equally rigorous course
 - Social Studies: 3 credits to include the following:
 - 1 credit in United States history
 - 1 credit in world history
 - .5 credit in United States government
 - .5 credit in economics
 - Foreign Language: 2 credits as follows:
 - 2 credits in the same second language unless the student is a native speaker of or can otherwise demonstrate competency in a language other than English
 - Electives: 2 credits
- At least 6 credits must be AP, or Dual Enrollment, or specifically listed as rigorous by the FLDOE. The student must earn passing scores on the Grade 10 FCAT 2.0 Reading or scores on a standardized test that is concordant with passing scores on the FCAT (ACT or SAT). The student must maintain a GPA of 3.5 or better.

Special Diploma Option One

Special Diplomas are available to students who have been identified as having an intellectual disability, specific learning disability, emotional/behavioral disability, orthopedic impairment, dual sensory impairment, other health impairment, traumatic brain injury, autism spectrum disorder, or language impairment; or who are deaf or hard-of-hearing. Students who have been identified as having a visual or speech impairment are not eligible for a special diploma unless they also have another identified disability.

The decision to pursue a Special Diploma One option will be made by the student's IEP team. Students pursuing this diploma option will complete alternate graduation requirements that will include the minimum number of course credits in compliance with the school district's student progression plan. Special Diploma Option one includes procedures for determining and certifying mastery of student performance standards for exceptional students as prescribed in Rule 6A-1.09961(1)(a), F.A.C. As outlined in this rule, the methods for determining if a student pursuing the Special Diploma Option One has satisfied graduation requirements will be based on the student's severity of disability, whether that be educable mentally handicapped, trainable mentally handicapped, hearing impaired, physically impaired, language impaired, emotionally handicapped, specific learning disabilities, or profoundly handicapped.

Specific requirements will be outlined in each student's IEP. Generally, in order to earn a special diploma students should demonstrate proficiency at the independent, supported, or participatory level of each State Standard and complete the minimum number of course credits (24) for a special diploma. FLVA counselors and advisors will provide bi-annual credit checks for all students and work with students through the ILP process to monitor and adjust their courses based on credits earned and proficiency. This is an ongoing process and students and parents will be kept apprised regularly of their progress towards graduation. Seniors will go through a detailed graduation requirement checklist that will ensure they have met the credit and graduation requirement before being awarded a diploma and being graduated from FLVA.

- D. Describe how baseline achievement data will be *established*, collected, and used. *Describe the methods used to identify the educational strengths and needs of students and how these baseline rates will be compared to the academic progress of the same students attending the charter school.***

Establishing Baseline Data

Baseline data will be established for FLVA during the fall of its first year of operation. Scantron Performance Series, Study Island, and the SAT 10, or other comparable alternate assessment systems, will be administered to all students and will serve as a baseline for student performance for the School and individual students. These data will be used by FLVA to track the progress of individual students over the course of the year and during their time enrolled in FLVA. Results will be used to pinpoint specific individual student strengths and weaknesses relative to state content standards. These results will enable the teacher to develop a highly personalized individual learning plan (ILP) for each student.

Students will be tested via an online, adaptive test at the beginning and end of the school year to provide a measure of individual student growth, demonstrating the value-added gains of the school program. Baseline data will be used at the school level to demonstrate the impact of the program in its entirety and be used to drive policy decision related to curriculum, instruction, instructional resources, professional development and teacher placement.

FLVA will also have access to prior years' FCAT and EOC data for currently enrolled students from the district and the state. The FCAT and EOC data will serve as the summative baseline for the annual state assessment program so FLVA will be able to demonstrate improved student achievement results after this first year of operation and be able to compare the results of their students, on growth and proficiency measures, to students across the district and the state.

Baseline data will also be collected from previous school records, anecdotal information from parents, and other sources.

Collecting Baseline Data

Student Administration Management System (SAMS), the School's master digital database, will capture raw student data, store it, organize it, and integrate with other systems. SAMS collects and provides all of the information required to manage student enrollment and monitor student performance. MyInfo and TotalView School are two sides of SAMS. They are applications for

administrators, teachers, parents, and students to use that display the information stored in the SAMS database.

Parents and students will use MyInfo as a secure communications tool to track students' course progress, grades, and attendance history, and to check the status of course material shipments. TotalView School will serve the School—teachers, administrators, and other staff—by providing a secure, internal communications tool, an overview of their students' current progress and history, and the status of the shipment of curriculum materials. It will allow teachers to interact one-on-one with students.

Using Baseline Data

Once baseline data are established and collected in the SAMS TotalView system, the School Achievement Planning Team (including representatives from all areas of the School) will analyze the data to understand current student achievement for the School, grade levels, special populations, and individual students.

The team will clearly articulate answers to the following questions:

- Who are the specific groups of students at our school (i.e., school and grade-levels, at-risk, minority, advanced learner, etc.)?
- How does each of these groups perform on various measures?
- What do these data tell us about the strength and weaknesses for these specific populations?

Baseline data is one of the best tools for teachers to use to begin talking with parents about their child. Once baseline data are analyzed, teachers will be able to share baseline information quickly with parents and work with them to establish an individual learning plan (ILP) for each student.

FLVA's administration will be able to generate customized reports in a variety of formats required either by the governing board, charter authorizer or Florida Department of Education including data on enrollment, course loads, credit accrual, and course completion. Data from these reports can be collected from multiple sources including SAMS data, attendance logs, login reports, TotalView reports, teacher notes, and more.

SAMS generates a variety of reports that can be exported in MS Excel, comma delimited and other formats. SAMS generates daily reports each night. These reports will be used by teachers and administrators to monitor student progress and attendance.

At the end of the school year, students' baseline rates will be compared to the academic progress of the same students attending the charter school to ensure that the educational program is effective, students are making progress, and the School is meeting the stated school-wide goals and objectives.

- E. Identify the *types and frequency* of assessments that the school will use to measure and monitor student performance.**

FLVA will be administering multiple types of assessments through the school year for different purposes as described below.

Statewide Assessments

Florida Kindergarten Readiness Screener (FLKRS)

The FLVA will administer Florida Kindergarten Readiness Screener (FLKRS) to all first-time Kindergarten students within the first 30 days of school per s. 1002.69, F.S. Both components, Early Childhood Observation System (ECHOS) and Florida Assessments for Instruction in Reading (FAIR) will be administered. These results will provide the Kindergarten teachers valuable insight into a student's strengths, as well as important information to share with parents during conferences.

Florida Assessments for Instruction in Reading (FAIR)

FLVA will use the FAIR, available to K-12 public schools free of charge by the Florida Department of Education, as needed. Developed by the Florida Center for Reading Research in collaboration with Just Read, Florida!, the FAIR assessment system provides teachers screening, diagnostic, and progress monitoring information that is essential to guiding instruction. The K-2 assessments are available for web-based score entry and scores from the Grades 3-12 computerized assessments are directly imported into the Progress Monitoring Reporting Network (PMRN). The assessment website also contains tools for linking assessment results to classroom instruction. The FAIR is administered three times yearly and is augmented with a Broad Diagnostic Inventory for Grades K-2, a Diagnostic Toolkit for grades 3-12, and Progress Monitoring measures for all grades.

Two brief Broad Screening tasks will be available for administration to all students in order to identify those most likely to be on or above grade level in reading by the end of the school year. In Grades K-2, the Screening task includes Letter Sounds, Phonemic Awareness, and Word Reading. In Grades 3-12, the Screening tasks include an adaptive reading comprehension measure. This Reading Comprehension Screen will predict student success on the FCAT 2.0 and will also provide a Lexile score for each student.

Low performance on the Broad Screening measures will indicate the need for further assessment using the Targeted Diagnostic Inventory. In Grades K-2, the Inventory includes Print Awareness, Letter Identification, Phonemic Awareness, Letter Linking, and Word Building. In Grades 3-12, the Inventory includes Maze and Word Analysis, which may also be used for progress monitoring. Progress Monitoring measures will be available to assess student progress between administrations of the Broad Screening measure in Letter Sounds, Word Analysis, Word Building, and Oral Reading Fluency. Reading diagnostics provided by the FLDOE will be used on an as needed basis with struggling readers.

With FAIR data analyzed, reported, and charted in the PMRN, teachers will be able to easily use this information to alter instruction to meet student needs. Teachers in K-5 reading will have access to the Student Center Activities. Accompanying these Student Center Activities is a

Teacher Resource Guide and Professional Development DVD that offers important insights on differentiated instruction and how to use the student center materials. K-3 teachers will have access to the Florida Center for Reading Research Empowering Teacher website for information on the building blocks of reading, what reading skills should be taught and mastered in kindergarten and first grade, how to measure reading skills and use reading assessment results to guide reading instruction, how to determine effectiveness of reading instruction.

Florida Comprehensive Assessment Test (FCAT 2.0) and End of Course Exams (EOC)

All students at FLVA will be assessed annually for purposes of summative state, district, and school level accountability. FLVA will participate in the state's student assessment system program for public schools as described in s. 1008.22, F.S. FLVA ensures all students are annually assessed on the FCAT 2.0 in reading, mathematics, science, and writing aligned with the Next Generation Sunshine State Standards and the End of Course Exams in Algebra I, Geometry, Biology, and U.S. History. As the state assessment program changes, FLVA will change its assessment program to ensure it is meeting the state assessment requirements. FLVA acknowledges the state's transition to the Common Core State Standards and intention to utilize the Common Core assessments in their baseline administration in 2014-15. FLVA will make the transition to Common Core State Standards and common assessments at the same time as the state. Results from the state assessment program will be used to measure the education goals and objectives for the School to demonstrate improved student achievement.

Postsecondary Education Readiness Test (PERT)

Per s. 1088.30, F.S., FLVA will assess students before the beginning of grade 12 for college readiness if the student scored at Achievement Levels 2 or 3 on the reading portion of the grade 10 FCAT 2.0 or Achievement Levels 2, 3 or 4 on the mathematics statewide end of course exams. The purpose of Florida's Postsecondary Education Readiness Test (PERT) is to adequately assess a student's academic skills in mathematics, reading and writing through the delivery of three assessments. The results of these assessments are used to determine the student's placement into appropriate courses in college. Students cannot pass or fail the PERT – it is only used to determine if students are prepared for college-level work. For high school students who do not meet the college-ready cut score on the PERT, the high school must offer those students postsecondary preparatory instruction.

Florida Alternate Assessment (FAA)

FLVA will use the Florida Alternate Assessment (FAA) for students with significant cognitive disabilities in Grades 3-11 who are unable to take the FCAT 2.0 even with accommodations. This assessment measures student academic performance on the Next Generation Sunshine State Standards Access Points for Reading, Mathematics, Science, and Writing as an untimed assessment given over the course of multiple days.

Comprehensive English Language Learning Assessment (CELLA)

English Language Learners attending FLVA will be administered the Comprehensive English Language Learning Assessment (CELLA) to measure the ELL students' progress in listening, speaking, reading, and writing. FLVA will only administer CELLA to those students currently enrolled in the English Speakers of Other Languages (ESOL) program who are currently receiving services or have received services in the last two years.

Standardized Assessments

Scantron Performance Series

Students will take the Scantron Performance Series, or a comparable alternative, test in the fall of each school year. The scaled score will identify those students not performing at grade level and will provide information on subject area deficit. The Scantron Performance Series is given again in the spring in order to ensure that all students are making one year's growth in one school year as measured by Scantron. The Performance Series is a key aspect of the school's goal to measure annual value-added gains

Study Island

Students will take Study Island benchmark assessments, or a comparable alternate assessment, in the fall for math and reading in order to assess each student's mastery of Florida grade appropriate standards. Study Island is an online program aligned with the Florida Next Generation State Sunshine Standards and is an effective test mastery program. Study Island Pathways will be organized and assigned based on the Florida state standards. Students answer a targeted number of questions which are scored electronically. Students are assigned a proficiency level to correlate with mastery of the standards and provided a prediction of success on the Florida tests. Study Island content is available in English Language Arts (grades 2 – 12 Common Core), Mathematics (grades 2 – 12 Common Core), Reading (grades 2 – 10), Math (grades 2-8), Science (grades 3 – 8 FCAT 2.0 and grade 11 FCAT 2.0), Social Studies (grades 3-8), Algebra I (EOC), Biology I (EOC), Geometry (EOC), and U.S. History (EOC).

Stanford Achievement Test (SAT 10)

FLVA will administer the online version *Stanford Achievement Test Series*, Tenth Edition (SAT 10), to evaluate student development toward high academic standards in grades 9-12. A hard copy version will be administered to grades K-3. This multiple-choice normative assessment is a peer reviewed, scientifically-based valid and reliable assessment aligned to state and national standards. Data derived from the SAT 10 will help educators determine student achievement in real time and allow for automated capture, real-time reporting and scoring, and immediate normative analysis. Materials to support interpretation of results, instruction, and parent communication are provided with the assessment. SAT 10 results allow for national comparisons as well as a measure of year to year growth for students in grades not tested by the statewide assessments.

College and Career Readiness Assessments

FLVA is focused on ensuring students are college and career ready. As a result, FLVA offers several college preparation exam opportunities for students to start planning their postsecondary career while in high school.

The College Board's Preliminary SAT (PSAT) or ACT's PLAN will be administered to all Grade 10 students at FLVA. Under Florida's Partnership with the College Board, all Grade 10 students are eligible to take the PSAT or PLAN at no cost to the student or school. Students will receive feedback on their strengths and weaknesses with respect to the skills necessary for college study. FLVA will work with students to focus preparation on those areas identified in the student's results that could most benefit from additional study or practice. Students and the School will see how their performance on these college preparatory exams compares with that of others applying to college. In addition, taking this precursor exam will help prepare students taking the SAT and ACT to become familiar with the kinds of questions and the exact directions they will see on the SAT and ACT.

FLVA will offer a plethora of Advanced Placement (AP) courses. Students taking AP courses will also be able to take the exams to earn college credit and advanced placement, preparing them for success in college.

All students will also take the PERT as discussed above to determine student readiness for college level work.

Teacher Created and Embedded Curriculum Assessments

Academic progress is also measured by teacher created assessments, assessments embedded within the curriculum, online computerized adaptive assessments (i.e. Scantron Performance Series) and progress monitoring tools within the curriculum. Teachers will use the data and information gathered from these assessments to alter instruction on a regular basis and provide intensive interventions where deficiencies have been diagnosed.

In summary, the School will use a variety of assessments to measure and monitor student achievement and progress:

Type of Assessment	Frequency
FLKRS	annually – fall
FAIR	three times/year
FCAT 2.0*	annually – spring
EOC*	winter, spring and summer administrations, as appropriate
PERT	annually
FAA	annually - spring
CELLA	annually – spring
Scantron Performance Series	semi-annually – fall and spring

SAT 10	semi-annually - fall and spring
Study Island	ongoing
PSAT/ACT's PLAN	spring
Curriculum embedded assessments	on-going
Informal teacher assessments	on-going

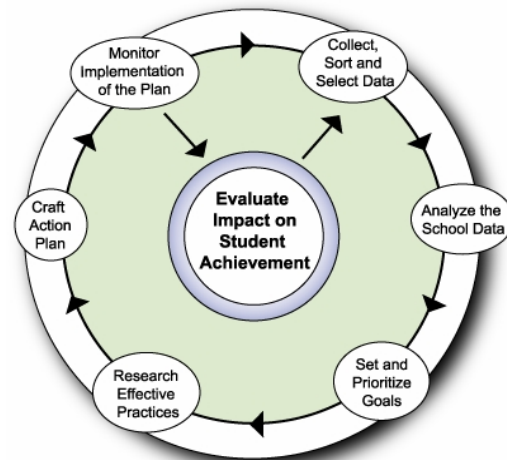
* The table will be updated contingent on the implementation of the PARCC and Next Generation Science Standards' assessments in the testing windows.

F. Describe how student assessment and performance data will be used to evaluate and inform instruction.

The FLVA's Student Achievement Improvement Process (SAIP) will be a primary means of self-evaluation of the curriculum, instructional methods, and practices on an annual basis. The SAIP process is a multi-stage planning process which will take into consideration data collected about the success the School is having in reaching its academic and nonacademic goals as stated in measurable terms in this virtual charter application. The stages of the SAIP process are:

SAIP Planning Process

1. Prepare for Readiness to Benefit
2. Collect, Sort, and Select Data
3. Analyze the School Data
4. Set and Prioritize Goals
5. Research Effective Practices
6. Craft Action Plan
7. Monitor Implementation of the Plan
8. Evaluate Impact on Student Achievement



Stage 1: Prepare for Readiness to Benefit

The School Achievement Planning Team (representatives from all aspects of the school, including Human Resources, Operations, and Finance) must be aware of their own readiness, abilities, and willingness to embark in a collaborative strategic planning process. All Team Members should:

- Have completed training in conducting effective meetings
- Understand how decisions are made
- Agree on decision-making strategies for working toward consensus
- Commit time to meet and resources to support this work
- Assure open communication and trust among members
- Possess an understanding of the purpose of the SAIP process

Stage 2: Collect, Sort, and Select Data

- Team collects and sorts information from previous school records, past performances on state testing, anecdotal information from parents, and other sources
- Team verifies data is current and correct
- Team accurately tags students in TotalViewSchool

Stage 3: Analyze the School Data

- Team analyzes school data to understand current student achievement
- Team displays achievement and other data types in ways that are understandable to all audiences and stimulates shared responsibility
- Team clearly articulates answers to the following questions:
 - Who are the specific groups of students at our school (i.e., at-risk, minority, advanced learner, etc.)?
 - How does each of these groups perform on various measures?
 - What does this data tell us about the strength and weaknesses of the program for these specific populations?
 - Team schedules frequent data reviews and considers whether new information should change SAIP

Stage 4: Set and Prioritize Goals

- Team identifies three-to-five areas based on data review. Goal-setting includes answering questions such as:
 - What state goals are required to earn an A school grade?
 - What are the areas of greatest need based on student achievement, the lowest 25 percent of performers?
 - Which strategic areas have the highest potential for impact?
- Team follows a systematic process to develop focused, student-centered, measurable, realistic, and time-bound goals to improve student achievement
- Team discusses desired and anticipated gains from SAIP implementation

Stage 5: Research Effective Practices

- K12 Inc. provides programs - Scantron testing, Study Island, *Blackboard Collaborate*, and others - that have proven to be effective and should be imbedded throughout the SAIP

Stage 6: Craft Action Plan

- The Team creates an SAIP Action Plan that converts data analysis into action. Time spent in detailed planning at this stage is critical. The Action Plan should be detailed enough so that all staff members understand their role, stakeholders see a clear focus, and measurable goals are identified.

Stage 7: Monitor Implementation of the Plan

- Team monitors SAIP action plan quarterly or as new information/data are obtained
- Team discusses the progress of the Action Plan and its impact on student achievement

- Team assures the activities and tasks for each goal are moving forward under the identified timelines
- Team considers what revisions are needed to accomplish the learning improvement goals and increase student achievement

Stage 8: Evaluate Impact on Student Achievement

Evaluating the impact of the SAIP brings the process full circle. It is a time to measure SAIP effectiveness, determine which practices will be continued, and start the process again.

- Team collects and analyzes data to determine if SAIP goals were met and if student achievement resulted
- Team evaluation report creates an SAIP to implement the following August

In support of this process, FLVA’s administration will be able to generate customized reports in a variety of formats including data on enrollment, course loads, credit accrual, and course completion. Data from these reports can be collected from multiple sources including SAMS data, attendance logs, login reports, TotalView reports, teacher notes, and more. Administrators and teachers will have additional drill-down functionality for quick troubleshooting and issue identification:

- Administrator reporting functionality - Administrators will have the ability to drill-down from summary reports on course, classroom and teacher performance to specific student performance data. Administrators are presented with reports that compare overall student performance between courses and classrooms within the School. See Figure 1: Administrator Reports Screen for an example of an administrator course view.
- Teacher reporting functionality – Teachers are presented with a summary of the number of students in each grade “decile” (0-9, 10-19, 20-29...80-89, 90-100). By clicking on each number, the user is presented with the list of students comprising that number and can contact and/or drill-down into each student’s individual data. All reports are exportable to spreadsheet format. See Figure 2: Classroom Tab Results and Figure 3: Students Tab Search Pane for examples of this functionality.

Figure 1: Administrator Reports Screen

Download As Excel

< Prev 1 2 3 4 5 6 7 8 9 Next >

Course Name	# of Students	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	Total
SCI020: Life Science: Oceanography	117	9	6	4	14	4	4	14	14	21	23	4	117
SCI102A: Physical Science	1,658	276	172	170	128	125	110	149	191	185	130	21	1,657
SCI102B: Physical Science	12	0	0	0	0	0	0	1	0	0	2	0	3
SCI112A: Earth Science	1,759	244	167	163	136	153	190	208	224	158	105	10	1,758
SCI112B: Earth Science	242	0	0	0	0	0	0	0	0	0	0	0	0
SCI113A: Earth Science	500	26	27	28	24	30	45	60	85	119	55	1	500
SCI113B: Earth Science	130	0	0	0	0	0	2	2	10	7	8	3	32
SCI202A: Biology	1,106	130	122	91	102	104	146	139	128	91	44	8	1,105
SCI202B: Biology	151	0	0	0	0	0	0	0	0	1	1	0	2
SCI203A: Biology	1,040	120	96	86	91	92	89	105	124	126	100	13	1,042
SCI203B: Biology	66	0	0	0	1	0	0	2	5	5	6	0	19
SCI302A: Chemistry	512	45	27	44	41	42	71	73	79	42	23	0	487
SCI302B: Chemistry	43	0	0	0	0	0	0	0	0	0	0	0	0
SCI303A: Chemistry	495	54	28	26	26	40	36	71	79	94	41	1	496
SCI304A: Honors Chemistry	52	0	1	0	1	2	1	4	11	13	18	1	52
SCI304B: Honors Chemistry	8	0	0	0	0	0	0	0	0	1	0	0	1

Figure 2: Classroom Tab Results

Communications Enrollment Classrooms **Students** Help

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Classroom Name: ART010A_Art_Sec1_Sem1_08-09 - DemoVA

Course Id: 2605 ART-010AV1-K Course Name: ART010A: Fine Art Start Date: 08/01/2008
 Type: Course Number of Students: 8 Maximum Size: 100

Teachers **Students**

<input type="checkbox"/>	Student (First Last Name)	Status	Start Date	End Date	Last Login Date (LMS)	Course Avg	Attendance YTD	School
<input type="checkbox"/>	Student Demo 3	Active	09/08/2008		02/06/2009	View Progress	No Attendance Reported	DemoVA
<input type="checkbox"/>	High School Packard-Demo	Active	09/08/2008			View Progress	No Attendance Reported	DemoVA
<input type="checkbox"/>	High School Saxberg-Demo	Active	08/26/2008			View Progress	No Attendance Reported	DemoVA
<input type="checkbox"/>	Demo Student 1	Active	09/08/2008		02/06/2009	33.33	No Attendance Reported	DemoVA
<input type="checkbox"/>	Demo Student 2	Active	09/08/2008		02/05/2009	66.67	No Attendance Reported	DemoVA
<input type="checkbox"/>	Demo Student 5	Active	08/19/2008			View Progress	No Attendance Reported	DemoVA
<input type="checkbox"/>	Demo Student 7	Active	09/08/2008		01/12/2009	View Progress	No Attendance Reported	DemoVA
<input type="checkbox"/>	Demo Student 8	Active	09/08/2008		10/01/2008	View Progress	No Attendance Reported	DemoVA

Figure 3: Students Tab Search Pane

The screenshot shows the 'Students' tab search pane in TotalView School. The search pane is titled 'Students' and contains the following fields and controls:

- First Name: Text input field
- Last Name: Text input field
- Student ID: Text input field
- Zip Code: Text input field
- Student Days Since Login (OLS): Text input field
- Student Days Since Login (LMS): Text input field with value '<30'
- Days Since Login (Coach): Text input field
- Full-time/Part-time: Dropdown menu
- Attendance in Last Thirty Days (Minutes): Text input field
- STI: Dropdown menu
- Met State Standard (Reading): Dropdown menu
- Engagement Level: Dropdown menu
- Met State Standard (Math): Dropdown menu
- Grade Level(s): List box with options 'Undefined', 'K', '1', '2', '3'
- School Name(s): Text input field with value 'K12 Demo VA'

At the bottom of the search pane, there are two buttons: 'Display All Students' and 'Search'.

The ability to drill down to individual student data will allow teachers to track individual student academic progress in “real time” through the Learning Management System. Students who master lessons ahead of schedule can progress seamlessly into the next unit. Students who need additional instructional time can continue working on lessons until the lesson objectives are mastered.

Teachers will regularly review data to determine a student’s need for differentiated instruction. Based on data, teachers may direct students to attend one on one tutoring sessions, complete additional assignments in the online school or through Study Island, or assignments created directly from Scantron assessments, or other comparable alternate assessment systems. Teachers have the ability to access data immediately and at any time. This allows teachers to provide point in time assistance to students. Data are a tremendous resource that allows true differentiated instruction to occur at the point that will have the most impact for students.

In addition to the SAIP process, FLVA will also be involved in self-assessment and evaluation in other ways. School staff will regularly track and report to the Board, administrators, teachers, and students the successes and challenges the School is experiencing in realizing the School’s vision, achieving its mission, and accomplishing its goals and objectives.

Professional and instructional resources provided by the Florida Center for Reading Research (FCRR) and the Data Quality Campaign (DQC) will supplement the materials and strategies used to inform instruction. FLVA will provide professional development opportunities to teachers to learn about the resources available from these organizations and how to access and use them to inform their instruction.

G. Describe how student assessment and performance information will be shared with students and with parents.

Creating progress reports using student-level longitudinal data enriches the information that is available to parents and teachers by providing information on a student's achievement history, including courses taken, grades earned, and scores on statewide and classroom assessments.

FLVA will comply with s. 1003.33, F.S., to provide K–12 report cards that clearly depict and grade the student's academic performance; conduct and behavior; and attendance, including absences and tardiness. The final report card for a school year will indicate end-of-the-year status regarding performance or non-performance at grade level, acceptable or non-acceptable behavior and attendance, and promotion or retention. The School report cards will be sent home to parents twice a year.

Once a month, teachers will have a conversation with parents to discuss the student's progress. The teacher will share an online report with the parents and discuss progress in each course the student is taking. Parents will also have access to this online student progress report on an unlimited basis through the FLVA TotalView online student progress tracking tool. Parents will be able to access information about their student's progress at any time.

Parents will also receive their student's state assessment reports for state level assessments (FCAT 2.0, EOCs, FAA, CELLA, and FLKRS) administered at the end of the school year. Parents will have valid and reliable state assessment information on the performance of their child with respect to state standards and demonstrated growth over the prior school year(s).

FLVA believes that all stakeholders including students, parents, policymakers, and community members need to know what data are available and be able to access, interpret and use data effectively. Very few stakeholders have had access to longitudinal education data; consequently, few will automatically know how to use the information effectively. FLVA will promote training on data use for parents, students, school board members, community leaders, and the general public.

H. Provide a description for how the charter school will conduct state testing, including:

- Identification and training of test-administrators
- Test security measures
- Plans for identifying and securing testing locations

Paper-Based State Testing

To ensure that students in a virtual school environment are provided equal opportunity to perform their best on the state standardized assessments, virtual schools across the country have successfully utilized a regional testing structure for the past ten years. The regional methodology ensures student and test material security and has been approved by departments of education in more than 20 states.

Students have the right to be in the best mental state when taking the state standardized tests. Being able to sleep in their own home and have minimal travel to and from testing each day ensures students are well rested and comfortable prior to testing. Therefore, the School will map the enrollment population and make the best effort to ensure the majority of the students have no more than an hour drive one way for mandatory state testing. The School will send out a parent survey providing state testing information, including information on all possible testing locations. Parents will be given the option to self-select the testing site that best meets their needs. After the survey is closed, staff will determine the final distribution of students and assign locations to those that did not complete the survey. Parents will be notified and provided a location map no later than two weeks prior to the first day of state testing.

When the parent or legal guardian arrives at the state testing site, they will provide identification and sign the student in. During the sign in process, parents must provide an emergency contact number for that day. After the sign in process is complete, matching security wrist bands are secured on the student and responsible adult. Students are not released from the testing location unless the wrist bands match at pick up.

School staff work with parents to obtain parent volunteers for each testing site to ensure there is ample assistance during state testing. Parents from the School will serve as monitors outside of the testing room, assist with registration, and various other tasks. These parents are required to attend training prior to serving in this position and are there to monitor bathroom breaks and or contact emergency phone numbers should a student become ill during testing. At no time are parents allowed into the testing classroom.

Test Administrator and Proctor Training

The FLVA's testing coordinator will attend all state and district testing training. This person will sign state affidavits regarding test security and other required measures. The testing coordinator will develop test proctor training in compliance with the state and district regulations. Training includes test security in a virtual setting, student safety in a remote testing facility, checking in/out secure materials, test administration, test coding and other proctor responsibilities. All proctors will be trained by the test coordinator and given a quiz to ensure the testing procedures are understood. Follow up training will be arranged as needed based on the quiz results until all proctors demonstrate an understanding of testing procedures and protocols.

Test Security

According to state timelines, test booklets and other secure testing materials are signed out from the testing coordinator to each proctor. Secure materials are packaged and inventoried separately from non-secure items (non-secure items may include activities for students to complete after finishing a testing section, dictionaries, thesaurus, etc. as permitted by the state's testing guidelines). All secured items will be transported to state testing sites in a locked box that is secured with a number zip tie. The site coordinator will seal and open the boxes each day upon arrival and prior to leaving. Locking and opening the secure boxes will be witnessed each day. The site coordinator and the witness will sign a log that lists the serial number of the zip tie that is used to secure the box the night before and then opened the next day.

The proctor will read and sign a test security affidavit. Once signed, the required testing materials for the site will be inventoried in her presence and signed over from the district test coordinator to the proctor. The materials will be re-inventoried at the start and conclusion of each testing session to ensure all testing materials are accounted for at all times. The materials must remain in the direct possession of the proctor until returned to the testing coordinator and inventoried.

Secure Test Locations

The regional testing classrooms will be established in appropriate public meeting rooms within local community buildings in advance of testing. The rooms will be set up with tables and chairs in classroom-style. The proctors will be provided with all of the supplies needed for the location and per the test regulations in a pre-made box. Each morning before testing the box of secure test booklets and the box of required classroom supplies will be brought into the testing room and distributed in accordance to the state test administration guidelines. Testing classrooms permit a separate space for parents to sign students in/out to ensure test security. Parents and people other than the proctor and students who are testing are not permitted within the testing classroom.

All testing sites will meet ADA requirements; have easy access to restrooms, unblocked and clearly labeled exits and age appropriate accommodations. The site administrator will have a comprehensive testing binder that will include but not be limited to:

- List of all students testing, grade levels and room assignments
- Required documentation to support all testing accommodations that are provided at that testing site
- Fire and safety information for that location
- Sign in and out forms for testing materials

Computer-Based State Testing

From the first year of operation in 2014, for all of the Florida computer-based state-mandated tests (CBT), FLVA will make arrangements with the district to have our students tested as provided for and required by Section 1002.45(6)(b), F.S. The arrangements for tests to be administered by the district and/or FLVA will be mutually agreed upon by the district and FLVA during the negotiation of the charter contract. We understand that state policies as well as administration processes regarding the computer-based state-mandated tests may change between the time this application is submitted and the charter school opens. We have based our proposed process of test preparation, administration, and reporting on the most recent information available to us in the *Spring 2013 Computer-Based Test Administration Manual* and the *Spring 2013 Reading, Math, and Science Test Administration Manual*, understanding that Florida's computer-based testing program is under development and that (as stated in the CBT manual on page v) "information in the manual can change significantly from one administration to the next."

Schools must administer the appropriate practice test(s) to all students to be tested using the Electronic Practice Assessment Tools (ePAT); however, if a student has previously participated

in an ePAT for the grade level and subject test he or she will take, the student is not required to participate in an ePAT session; however, these students should be encouraged to access the ePAT and practice on their own.

Students who will test using accommodated computer-based forms (large print, color contrast, zoom, screen reader, assistive devices) must practice using the TestHear accommodated ePAT(s) for the specific accommodated form or form combination that they will use during testing. The ePAT will be made available for students to download and practice on their own with the related script read synchronously by the FLVA School Assessment Coordinator or a FLVA teacher depending on their availability.

For the purposes of describing our plan for conducting computer-based state testing beginning in 2014, it is our assumption, based on the protocols in place at the present time, that the FLVA School Assessment Coordinator will work with the District Assessment Coordinator who is currently responsible for making arrangements to test virtual charter school students. The District Assessment Coordinator, with input from the FLVA School Assessment Coordinator, will become familiar with the participation requirements of the FLVA students, including allowable accommodations (e.g., large print, color contrast, zoom, screen reader, assistive devices, etc.). The District Assessment Coordinator will contact the appropriate School Assessment Coordinator(s) to make arrangements for FLVA students to be tested in their schools' computer lab facilities which have "certification of CBT readiness" to administer all of the state-mandated tests conducted during each test administration period. The District Assessment Coordinator will assign each FLVA student to the applicable test sessions at the designated brick and mortar school testing location. Once FLVA students have been assigned to their test sessions, the School Assessment Coordinator(s) will be able to monitor and manage the students' tests in the appropriate sessions without being able to access or modify the students' profiles or data. The District Assessment Coordinator will be responsible for recording any accommodations used once testing is complete, or invalidating a test as necessary.

Per the Attorney General's formal opinion 13-04, the School District is responsible for providing access to the School District's computer lab facilities, and FLVA will be responsible for providing certified school personnel as test administrators and proctors for the tests. The FLVA School Assessment Coordinator, Technology Coordinator, and Test Administrators will be responsible for reading and becoming familiar with all information in the manuals applicable to each test administration.

The following lists of responsibilities for the FLVA School Assessment Coordinator, Technology Coordinator, and Test Administrator are based on the current procedures as outlined in the *Spring 2013 Computer-Based Test Administration Manual*:

SCHOOL ASSESSMENT COORDINATOR CHECKLIST

Before Testing

- Carefully read the Spring 2013 CBT Manual, the Spring 2013 RMS Manual, and any local directions you have been given. Resolve any questions you might have with your district assessment coordinator.

- ❑ Read the *Test Administration Policies and Procedures* and Appendix B, then sign an *FCAT/FCAT 2.0 CBT Administration and Security Agreement* (located in Appendix E).
- ❑ Train your test administrators and proctors and ensure that they, as well as all school administrators, sign an *FCAT/FCAT 2.0 CBT Administration and Security Agreement*.
- ❑ Ensure that test administrators sign a *Test Administrator Prohibited Activities Agreement* (located in Appendix E).
- ❑ Receive test materials from your district assessment coordinator. Maintain an accurate *Test Materials Chain of Custody Form* at your school (located in Appendix E and at www.FLAssessments.com/SpringRMS). Inventory the materials within 24 hours of receipt and report missing materials or request additional materials immediately.
- ❑ Communicate the process for collecting required administration information to your test administrators (page 124).
- ❑ Distribute test group codes to test administrators (page 123).
- ❑ Make arrangements to test any special program students (e.g., district virtual instruction programs, Home Education Program) who may be testing at your school (page 126).
- ❑ Assign proctors, as needed (page 15).
- ❑ Ensure that appropriate test settings are available for all test sessions (pages 124–125).
- ❑ If any students who require accommodations are testing at your school, discuss with test administrators how accommodations will be provided (Appendix A).
- ❑ Verify student information and create test sessions (pages 128–131).
- ❑ Distribute Session Rosters, seal codes, and Student Authorization Tickets on the day of test administration (pages 143–144).
- ❑ Complete any Computer-Based Assessments Certification district readiness activities as directed by the FDOE.

During Testing

- ❑ Ensure the test sessions have been started in PearsonAccess.
- ❑ Provide test administrators with additional materials, as necessary.
- ❑ Monitor each testing room to ensure that test administration and test security policies and procedures are followed, seating charts and Security Logs are being properly completed, and required administration information is being collected.
- ❑ Be available during testing to answer questions from test administrators.
- ❑ In PearsonAccess, monitor session status and resume students' tests, if necessary.
- ❑ Arrange for and supervise make-up administrations (pages 142 and 149).

After Testing

- ❑ Verify that all distributed secure materials have been returned. Complete your *Test Materials Chain of Custody Form*. Report any missing materials to your district assessment coordinator and conduct the necessary investigation (pages 16–17).
- ❑ Make copies of all collected required administration information, seating charts, and Security Logs, and file the copies.
- ❑ In PearsonAccess, stop test sessions and invalidate student tests, if necessary (pages 153–154).
- ❑ In PearsonAccess, record accommodations actually used by students (pages 154–156).

- Organize materials and return them to your district assessment coordinator (page 150).
- Complete the **Spring 2013 CBT School Assessment Coordinator Comment Form** at www.FLAssessments.com/SpringRMS, and encourage test administrators to complete their forms.

TEST ADMINISTRATOR CHECKLIST

Before Testing

- Carefully read the Spring 2013 CBT Manual, any relevant sections of the Spring 2013 RMS Manual, and any local directions you have been given. Resolve any questions you might have with your school assessment coordinator.
- Read the *Test Administration Policies and Procedures* and Appendix B, then sign an *FCAT/FCAT 2.0 CBT Administration and Security Agreement* (located in Appendix E).
- Read and sign the *Test Administrator Prohibited Activities Agreement* (located in Appendix E).
- Establish an appropriate setting for test administration and remove or cover any unauthorized aids in the testing room (pages 20–21).
- Prepare necessary forms to collect required administration information during testing (pages 21–22).
- Prepare a Security Log (located in Appendix E) to be used in your testing room.
- Make copies of the Do Not Disturb sign, the Electronic Devices sign, and the Session signs (located in Appendix E) to post prior to testing.
- Prepare a seating chart to be used in your testing room. Ensure that you record room name/number, student names, their location in the room during testing, front and back of testing room, direction students are facing, date, time, subject tested, your name, names of proctors (if applicable), the test group code, and the Session Name in PearsonAccess (CBT).
- Receive your test group codes from your school assessment coordinator.
- Assemble all materials needed for test administration (pages 22–25).
- Ensure that your students understand the electronic devices policy prior to the first day of testing.
- If you are administering tests to students who require accommodations, become familiar with the accommodations specified in their IEPs, Section 504 plans, or ELL plans. Discuss with your school assessment coordinator how accommodations will be provided (Appendix A).
- Ensure that you are familiar with how to open TestNav or TestHear to the login screen for each student computer prior to testing.

During Testing

- Maintain your seating chart and record of required administration information.
- Ensure that proctors and anyone who enters your room for the purpose of monitoring the test sign the Security Log for your testing room.
- Administer the test according to the directions in the appropriate administration script and read the SAY boxes verbatim to students.
- Assist students with accessing the student comment form, located at www.FLAssessments.com/SpringCBTStudentCommentForm.

After Testing

- Verify that you have collected all required administration information, including accommodations actually used by each student. Make a copy for your files. Report any missing materials to your school assessment coordinator (pages 16–17).
- Verify that your seating chart and Security Log have been completed correctly; make copies for your files.
- Organize materials and return them to your school assessment coordinator (page 122).
- Complete the **Spring 2013 CBT Test Administrator Comment Form** at www.FLAssessments.com/SpringRMS.

TECHNOLOGY COORDINATOR CHECKLIST

Before Testing

- Carefully read the Spring 2013 CBT Manual, as well as any local directions you have been given. Resolve any questions you might have with your district assessment coordinator.
- Read the *Test Administration Policies and Procedures* and Appendix B, then sign the *FCAT/FCAT 2.0 CBT Administration and Security Agreement* (located in Appendix E).
- Ensure all workstations meet the minimum requirements posted at www.FLAssessments.com/MinimumSpecs, including screen resolutions set to 1024 x 768.
- Confirm TestNav 6.9 software has been installed (file share or local install) on all computers to be used for testing.
- Install TestHear on all computers to be used for testing students requiring accommodated CBT forms.
- Ensure all student workstations have successfully loaded the Infrastructure Trial.
- Meet with the school assessment coordinator to discuss the administration of the computer-based test and to walk through the test administration procedures.
- Discuss and implement plans for handling possible technical interruptions during testing.
- Run the TestNav System Check to determine the amount of bandwidth needed for testing.
- Evaluate the testing locations in the school to ensure availability of sufficient electrical outlets and network jacks.
- Ensure appropriate security protocols are used. There are many different types of security protocols and settings depending on the hardware and usage requirements. The three most common protocols are: Wired Equivalent Privacy (WEP), Wireless Access Protocol (WAP), and Wireless Access Protocol Version 2 (WAP2). WAP2 is recommended because it offers the highest level of security.
- Ensure you are aware of the applications that must be disabled prior to testing. Any screen savers, automated virus scan software, remote access applications, and the Macintosh control strip should be disabled during the period of computer-based testing.
- Confirm that the computers used for test administration (i.e., PearsonAccess) have the appropriate required version of a standard Internet browser based on the operating system in use on the computer, and the pop-up blocker is disabled (see Appendix C).
- Ensure the school has a high-speed connection to the Internet AND the connection is not over-allocated.

- If a firewall is used, confirm the appropriate destination/port/protocol combinations are allowed through the firewall.
- Ensure that any proxy servers have been checked to ensure that the appropriate URLs are not blocked.
- Confirm that Internet content filters are configured to allow the specific IP addresses required for administering computer-based testing.
- Ensure Proctor Caching computers have been set up properly.
- Ensure a printer is available for printing the Student Authorization Tickets, seal codes, and Session Rosters (color is not required).
- Analyze the network to determine whether network bottlenecks exist.
- Confirm that student computers and the Proctor Caching computer have not been updated with any additional software and will not be updated before testing begins.
- Confirm that test content has been cached for all scheduled test sessions. Test content is available one week prior to the test administration window.
- Verify that the performance of your Internet connection is consistent with expected levels of performance for computer-based testing.
- Alert your Internet Service Provider to your computer-based testing window, and also confirm that no scheduled maintenance or outages are planned during that entire window.
- Verify, as needed, that no high bandwidth network activity other than computer-based testing will be occurring during the computer-based testing window.
- If utilizing wireless network connections for computer-based testing, ensure that all computers can effectively communicate with their access point from the testing location.
- If utilizing wireless network connections for computer-based testing, ensure that all security measures have been properly enabled.
- Ensure that laptops are connected to AC power. If batteries must be used, ensure that they are fully charged and have the capacity to last for the entire test session.
- Ensure that each computer station is equipped with a keyboard and mouse (or other pointing device).
- Disable instant messaging and email notification.
- Disable screen savers, power savers, and remote desktop.
- Disable or delay anti-virus, auto-scan and/or auto-update, system restore utilities, Windows Security Firewall, web content filtering, or other software that may impact CPU speed, or scan/block information transferred between the workstation and the servers.
- Alert your school to the dates and times for computer-based testing, and ensure that students and teachers not testing will refrain from using any streaming media or other high-bandwidth applications while students are testing.
- Ensure student workstations and the user profiles and logins being used for testing allow full permissions (read-/write-/modify-) to the TestNav/Temp, TestNav/Logs, and gh/TestHearPearson/Data directories.
- Ensure that the primary and secondary save locations are set for student response files and that students have read-/write-access to these locations.
- Ensure that test administrators are familiar with how to access TestNav and TestHear software from student workstations and how to access the student comment forms (if

shortcuts are provided). The student comment form is available at:
www.FLAssessments.com/SpringCBTStudentCommentForm.

- On each day of testing, confirm that the Proctor Caching computer and Proctor Caching software are turned on and remain running.

During Testing

- Ensure Proctor Caching software is running on all Proctor Caching computers.
- Monitor each testing room to ensure that there are no technical issues.
- Be available to answer questions from test administrators.

After Testing

- Purge test content from the Proctor Caching computer(s).
- Complete the **Spring 2013 CBT Technology Coordinator Comment Form** at www.FLAssessments.com/Spring

Section 6: Exceptional Students

A. Please indicate the level of service that the school will provide to students with disabilities.

Students with disabilities will be served in accordance with federal and state requirements including Section 504 of the Rehabilitation Act of 1973 (and amendments thereto, at 29 USC Section 794 et seq. and its implementing regulations at 34 CFR Section 104), and the Individuals with Disabilities Educational Act (“IDEA” at 10 USC Section 14010 et seq. and its implementing regulations at 34 CFR section 300). A free and appropriate education will be provided to such students in accordance with their Individual Educational Plans (IEPs), as required by the IDEA and 504 plans as required by Section 504 of the Rehabilitation Act and the most recent Americans with Disabilities Amendment Act (ADAA).

FLVA will serve students with disabilities whose needs can be met in a regular classroom and resource room combination (between 40%-80% of instruction occurring in a class with non-disabled peers) with the provision of reasonable supplementary supports and services and/or modifications and accommodations. For an insightful paper on serving exceptional students in a virtual environment, please see **Attachment 6**, *Demystifying Special Education in Virtual Charter Schools*.

B. Describe how the school will ensure that students with disabilities will have an equal opportunity of being selected for enrollment in the charter school.

Child Find

The FLVA enrollment process, a conference call with a K¹² placement counselor, and conference calls with a general education teacher will all provide a query for the parent to indicate whether their child has special needs or has previously been identified as a student with a disability. In addition, a careful review of previous school records by the school’s Director of Exceptional Students or trained designee will be undertaken upon receipt of such records to identify any students enrolling who have previously been identified as a student with a disability.

FLVA’s general education teachers will be provided with professional development prior to and during the school year on their child find responsibilities. Throughout the school year, students may participate in various assessments that could show ‘at risk’ indicators in various academic areas. Teachers will use these data to design targeted interventions for students who may be struggling.

FLVA will be enrolling students in communities across the county. Public notification within the school district concerning the process for screening and the availability of exceptional student education services and programs of instruction for students with disabilities will be on the School website, in addition to being sent via electronic and/or U.S. postal service mail to all enrolled families.

Enrollment

Students with disabilities will have an equal opportunity to enroll in the School. All students, regardless of disability, will be approved for enrollment once they submit all required general education documents (such as verification of age, immunization record, proof of residency, etc.).

If applications exceed space available at the end of the application period, the School will conduct a lottery at that time to determine which students will be enrolled. The lottery is blind to disabilities, testing, academic achievement, etc. The lottery will be held once each year. Only applications received at the location designated on the application form and by the lottery deadline will be eligible to participate in the lottery.

As provided for in s. 1022.33 (10)(d), F.S., the School will give enrollment preference to the following district student populations:

1. Students who are siblings of a student enrolled in the charter school.
2. Students who are the children of a member of the governing board of the charter school.
3. Students who are the children of an employee of the charter school.
4. Students who are the children of an active-duty member of any branch of the United States Armed Forces.

Completed enrollment packets for applicants selected in the lottery must be received no later than the enrollment deadline. Those not responding by the enrollment deadline will be required to resubmit an application.

After the space allotted in each grade is filled in the order determined by the lottery, the remaining applications in rank order will be placed on a waiting list. Any applications received after the application deadline will be added to the end of the waiting list after the lottery in the order they were received. As students withdraw from or transfer out of the School, that space will be given to the next person on the list at that grade level.

If an enrolling student has been identified as a student with a disability, an IEP Committee will be held as soon as possible to review and revise the student's IEP as appropriate. Information on all the facets of learning in an online environment and the supports that are available will be discussed.

Based on K12's experience serving students with special needs in 33 statewide programs and the District of Columbia, FLVA projects that special education and related services will be provided across all disability categories including students identified as having hearing or visual impairments, intellectual disabilities, speech or language impairments, autism spectrum disorder, emotional/ behavioral disabilities, deaf/blindness, orthopedic impairments, other health impairments, specific learning disabilities, traumatic brain injury or visually impaired.

- C. Describe how the school will work with the sponsor to ensure the charter school is the appropriate placement for each student with a disability, based on the student's needs.**

The Board will ensure that FLVA provides a Free and Appropriate Public Education (FAPE) to all students with disabilities in accordance with all state and federal special education laws and regulations as provided in the Individuals with Disabilities Education Act, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act.

As indicated above, the IEP team, which includes a district representative, will be convened to review and revise the student's IEP as appropriate. As part of this process, the IEP team will determine the least restrictive environment in which to include the services and supports needed for the student with a disability.

Prior to the start of the school year, school staff will meet with the district special education department to review the School's identification, evaluation, placement, and due process procedures and will work to ensure all necessary district processes are implemented. In addition, the School will invite the School District's ESE representative to attend any IEP meeting related to identification, change in placement, or dismissal from ESE services.

D. Describe how the needs of exceptional students will be met, to the maximum extent appropriate, including the provision of supplementary aids and services.

Case Management

A certified special education teacher will be assigned to each student with a disability to serve as their teacher/case manager. The case manager will coordinate the development, monitoring and evaluation of the effectiveness of the IEP, facilitate communication between home and school, coordinate the annual review and re-evaluation process, ensure provision of services as indicated on the student's IEP, and serve as the contact point for the IEP team.

The case manager will ensure each parent/guardian has received a copy of the *Parental Rights (Notice of Procedural Safeguards)* when required and understands their rights throughout the special education process.

Least Restrictive Environment

FLVA will ensure that each student with a disability is placed in the least restrictive environment. All identified students with a disability will have an IEP meeting upon enrollment with the appropriate team members in attendance. The IEP Committee will include the general education teacher(s), ESE teacher(s), parent(s), the student if appropriate, a representative from the district, and administrators, if necessary, and other individuals who have knowledge or special expertise regarding the student.

The IEP will be developed consistent with the requirements of Rule 6A.6.03028, F.A.C., including a statement of the student's current level of performance and how the student's disability affects his/her ability to progress through the general education curriculum, a statement of measurable goals, and a statement of educational services, program modifications and support necessary for the student to be involved in the general education coursework, including assistive technology. Assessment accommodations will be consistent with the student's IEP. The IEP Committee will meet, as needed, throughout the school year and the IEP Committee will conduct

an annual review of student progress, strengths, and needs. The necessity of extended school year services will be discussed by the IEP team and, if the student is found eligible, then appropriate services will be provided by FLVA.

IEP meetings will take place within an online classroom or via teleconference with all appropriate IEP team members. At the conclusion of the meeting, all members of the IEP team will be asked individually if they agree to the content of the IEP and the decisions discussed during the meeting. If all are in agreement, the meeting will be adjourned and the documents sent electronically or via U.S. postal service to all attendees for signature. The signed documents will be returned by fax, electronic communication, or U.S. postal service to the case manager to be added to the student file. At any time, any member of the IEP team may request a face to face IEP meeting which would be held at the FLVA office.

If a student has a behavioral need, FLVA will administer a Functional Behavioral Assessment (FBA) and implement a Behavioral Intervention Plan (BIP). The IEP team will consider, when appropriate, strategies including positive behavioral interventions, strategies, and support to address that behavior through the IEP process.

Students with special needs will be supported by their assigned FLVA regular education teacher in the least restrictive environment (typically the student's home), in addition to receiving the supportive services of a special education teacher. The student's IEP will determine the type and amount of services necessary to meet the goals of the IEP.

Students with disabilities will participate in the general education program to the greatest extent possible offered by FLVA and as determined by the IEP team. The FLVA special education teacher will support students with disabilities and provide specially designed instruction through synchronous and asynchronous contact, which may include phone conferencing, email, and direct "real-time" interaction through a web-conferencing tool. With web conferencing, the special education teacher and general education teacher can provide real time support to the student and assessment of progress towards IEP goals. Academic services provided through web conferencing could be presented within a co-taught online classroom, small group, or individual session with the special education teacher. In addition, parent education and support can be effectively delivered using web conferencing.

Due to the ability of the student to access the general education web-based curriculum at any time, the student receiving special education services or programs within the general education classroom is not missing any general education instruction. Students with disabilities will fully participate in all general education classroom activities with their classmates including outings and field trips.

Accommodations

In addition to the team approach to serving students with disabilities, there may be necessary accommodations for instruction and assessment that will ensure students achieve the Next Generation Sunshine State Standards/Common Core State Standards. Accommodations will be

determined by the IEP team based upon student's disability and needs both in day-to-day progression through the general education curriculum as well as in the testing environment.

Assistive Technology

As required, FLVA will work to accommodate students with all disabilities who are using the K12 web-based courses in a distance learning setting. Assistive technology will be provided to students based on the recommendation of the IEP Committee and appropriate evaluation in order for students to have access to online and print materials. Technologies may include screen reader software, screen magnifiers, speech to text devices, word prediction software, audio books or other more traditional technologies and supports such as a calculator, graphic organizer, or math fact table.

FLVA will offer necessary accommodations by procuring the agreed-upon technology and other services to aid these students in navigating through their courses. Further, K12's experience making web-based content more accessible to students with disabilities includes incorporating audio and video enhancements into the courses and using equivalent alternatives to accommodate various disabilities, such as using text equivalents and various forms of assistive technology. All materials published after August 2006 meet the requirements of the National Instructional Materials Accessibility Standards (NIMAS).

Related Services

Related service providers, if required, will be located within the geographical vicinity of the student. These related services may be provided through contracts with the district or a private agency/provider. FLVA will ensure that all individuals contracted or in employment with the School have appropriate licensure to provide the assigned services and background checks are completed prior to beginning direct service with FLVA students.

Services may be delivered virtually or face-to-face either at the provider's place of business, a neutral location such as a local library or community center, or in special circumstances, in the student's home. The parent may provide transportation to a contracted provider within a reasonable distance of their home. Reimbursement will be provided to the family for mileage.

Examples of related services:

- Mobility Training
- Assistive Technology Evaluations
- Counseling Services
- Psychological Services
- Speech and Language Services
- Occupational Therapy
- Physical Therapy
- Transportation (when required)
- Interpreter services for the deaf or hard of hearing
- Braille Instruction
- Other

Discipline Policy for Students with Disabilities

Discipline procedures for students with disabilities are dictated by federal and state regulations. Please see **Section 8(B)** for a draft of the FLVA Student Code of Conduct including “Discipline of Students with Disabilities.” FLVA, as a virtual school, is likely to experience fewer discipline referrals than a brick and mortar school would experience based upon history of other virtual academies managed by K12.

E. Describe how the school’s effectiveness in serving exceptional education students will be evaluated.

The School’s effectiveness in serving exceptional students will be measured annually in the following areas:

- a. Tracking of timelines
 - i. Related to provision of IEP services
 - ii. Provision of evaluation/reevaluations
- b. Student achievement
 - i. State test scores,
 - ii. Curriculum based assessments
 - iii. Mastery of IEP goals
- c. Annual Satisfaction Surveys
 - i. Parent/guardian
 - ii. Student

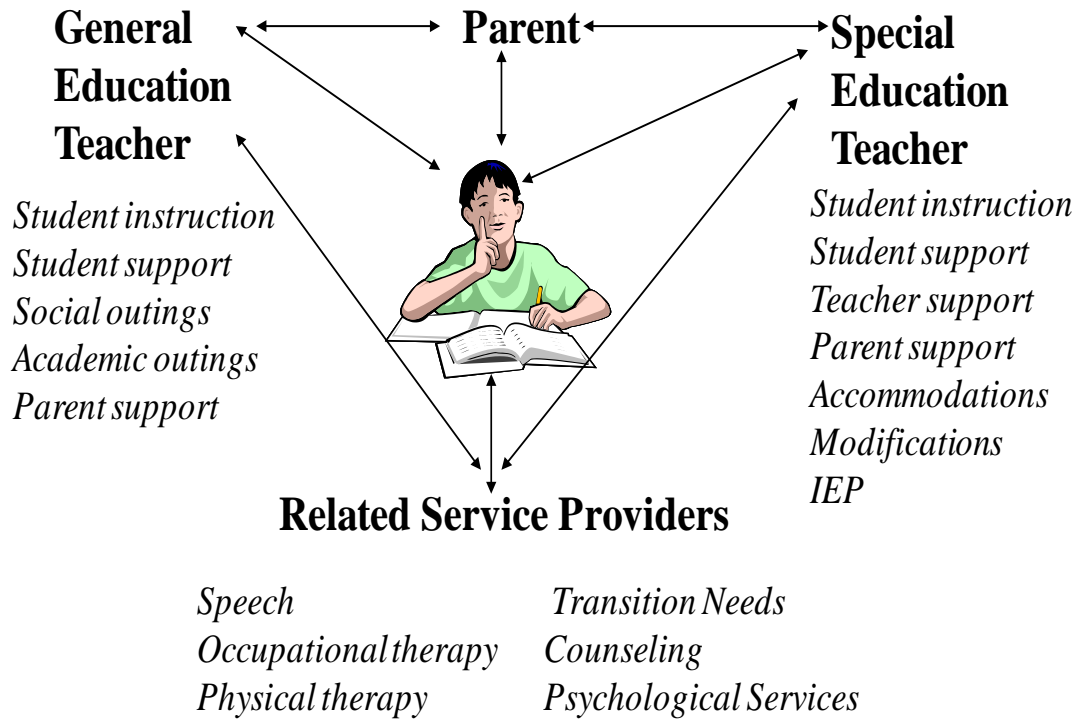
The results will be reviewed by the Board and incorporated into the School’s improvement plan, as appropriate. The results will also be published in the School’s annual report and made available to parents.

Parent Communication

Parents of students with disabilities will receive the required notices in writing prior to any proposal or refusal to change to their student’s identification, evaluation or placement. These notices will be in a manner and format consistent with the district’s procedures.

In addition to these state and federally required notices, parents will also receive a copy of their student’s progress toward completion of IEP goals on a quarterly basis via electronic means or U.S. Postal Service. FLVA general education and special education teachers will maintain regular communication with parents through phone calls, email, and online meetings. FLVA believes that it takes a complete team of individuals working together to serve students with disabilities to ensure academic success. (See picture below.) As such, frequent and relevant synchronous and asynchronous communication between all parties will be delivered through phone conferencing, notes, emails and web conferencing tools.

Model of Virtual Special Education Services



Staffing

FLVA will employ highly qualified special education teachers to maintain appropriate student/teacher ratios based on Florida state regulations and student needs to provide special education services. FLVA administrative staff will include a Director of Exceptional Students who will oversee the provision of services and special education compliancy at the school. The Director of Exceptional Students will receive support and oversight from the K12 Southern Region Special Programs Manager and National Special Education Director.

Supervision and Compliance

Oversight and compliance monitoring in a distance learning setting are assured through many means including detailed monitoring of student progress and achievement both in the general education curriculum and on IEP goals through work sample collection, synchronous instruction and assessment, and assessment data collected through the online school by a highly qualified general education and/or special education teacher; file review and monitoring of timelines and

processes by the Director of Exceptional Students at the School; and regional oversight and monitoring of the program by K12's Southern Region Special Programs Manager.

F. Provide the school's projected population of students with disabilities and describe how the projection was made.

K12 has twelve years of experience opening state wide virtual academies in thirty-three states and District of Columbia and, from this experience, has a significant amount of data about projected versus actual populations – including students with disabilities. In K12 managed schools, the average population of students with disabilities is 12% of the entire school population. In addition to tracking the number of students with disabilities, additional data on the disability categories are available which shows that K12 virtual academies serve students across all disability categories, including those in the low incidence categories.

To project our students with disabilities population, we referred to the Clay County students with disabilities' data reported in the district's Florida Department of Education Bureau of Exceptional Education and Student Services' *2013 LEA Profile* (see <http://www.fldoe.org/ese/datapage.asp>) and applied the Clay County students with disabilities' percentage (18.0%) to our total enrollment projections (see **Section 6(F)** of the application). Those projections were used to inform our staffing plan and budget. It is also our projection that we will serve students across all disability categories.

G. Explain how exceptional students who enter the school below grade level will be engaged in and benefit from the curriculum.

The proposed online curriculum integrates features designed to support learners at every stage, which are particularly important for students with disabilities. For example, online games and animations illustrate concepts. The engaging approach features colorful graphics and animation, learning tools, and games; adaptive activities that help struggling students master concepts and skills before moving on; and more support for families at home to support their students to succeed.

As mentioned earlier, a key part of the FLVA education program is the Individualized Learning Plan (ILP). An ILP is designed for each K-12 student, including students with disabilities, to ensure a customized program that fits each student's unique strengths, weaknesses, learning styles and aptitudes. The ILP will be coordinated with the student's IEP. Students entering the School below grade level will have a comprehensive and engaging plan, which will include intensive strategies to bring the student to grade level or make exceptional gains.

Exceptional students who are working below grade level in one or more subject areas will have access to the services, supports, and accommodations deemed appropriate by their IEP team. This includes the use of assistive technology to ensure equal access to all classroom tools, including the online curriculum component. Students with disabilities, as well as other at risk learners, will have the opportunity to have daily exposure to grade level content material and supplemental support in programs such as Study Island at their instructional level. Continual assessment of progress made in both settings will assist in closing the learning gap to ensure all are moving toward their instructional level being their grade level standards. The exceptional

student education teacher and other personnel, as appropriate, will provide the support deemed necessary in each student's IEP in these settings. This may include co-teaching, small group mentoring within the general education classroom, pull out for individual or small group sessions with the amount of pull out time dependent on student needs. Teachers will be able to accomplish these strategies through using the breakout rooms within the Blackboard Collaborate synchronous sessions. Examples of possible accommodations are: change of setting, timing, pace of learning, scheduling and how the student responds to the materials.

Serving Students with Significant Disabilities

If there are students with disabilities who are identified as having significant cognitive impairments, these students will be provided with the services and supports identified on their IEPs. While the K12 curriculum itself does not contain a functional or life skills component for students with significant delays, there are various 3rd party online programs such as Conover and Unique Learning System that can be utilized and integrated with academic offerings from the K12 curriculum to meet individual student needs based on their IEP.

H. Describe how the school will serve gifted and talented students.

Gifted/Talented or Academically Advanced Students

As indicated previously, the FLVA enrollment forms, a conference call with a K12 placement counselor, and conference calls with a general education teacher will all provide a query for the parent to indicate whether their child has previously been identified as a student who is gifted. These students will be designated in TotalView School upon enrollment and provided services consistent with their Educational Plans (EP). Additionally, FLVA will also provide for the identification of students who are gifted/talented through the Child Find process which includes parental input, teacher input and a records review. Students who are demonstrating characteristics of gifted students will be referred to the School's ESE department. The appropriate referral, evaluation, determination of eligibility, placement procedures, and provision of services will be followed. Eligible students who are gifted will have an EP developed as required.

Professional development about the characteristics of giftedness and best instructional practices in meeting the needs of this exceptional population will be provided to all staff. K12 Inc. has developed a proprietary National Instructional Model, which has been provided to the Board that includes a comprehensive plan for creating a strong advance learners program that meets the needs of students in a virtual learning environment. The FLVA curriculum allows for individualized levels, pace, style and subject for all students unique learning needs. A continuum of programming services are inherent to the mastery based distance learning curriculum used by FLVA.

Section 7: English Language Learners

- A. Describe how the school will comply with state and federal requirements for serving English language learners, including the procedures that will be utilized for identifying such students and providing support services.**

State requirements for English for Speakers of Other Language (ESOL), which were mandated to be implemented in 1990-1991, have far reaching implications for English Language Learner (ELL) students, school districts, and teacher training. The Florida Department of Education negotiated with Multicultural Education, Training and Advocacy, Inc. (META) and reached consensus on an agreement in August of 1990. The State Board of Education vs. LULAC, et al., Consent Decree was designed to bring ESOL programs in Florida into compliance with federal requirements. Florida Statutes and State Board Rules were enacted to implement the agreement.

The intent of the State Board of Education vs. LULAC, et al., Consent Decree or META Agreement and of the subsequent State mandates is to provide all English Language Learners with access to programs and services which are equal and comparable in amount, scope, sequence and quality to those provided to English proficient students and which are understandable to the student given his or her level of English language proficiency. The mandates address identification and assessment of students, equal access to appropriate programming, teacher certification and eligibility, in-service and hiring of program personnel, collection of data regarding the ESOL program, and parental involvement.

FLVA's ESOL program will strive to prepare and equip bilingual, bicultural, and bi-literate students to ensure academic success. In addition to each student's Individual Learning Plan, identified ELLs will have a Student ELL Plan, as required. Providing students with a learning environment that offers appropriate curriculum and instruction that promotes strong listening, speaking, reading and writing skills will ensure success. FLVA will employ appropriately certificated instructional staff with the ESOL endorsement.

Identification Procedures

FLVA will include the Home Language Survey (HLS), as part of the registration process, to identify English Language Learners (ELLs). The HLS will include the following questions:

- Is a language other than English used in the home?
- Did the student have a first language other than English?
- Does the student most frequently speak a language other than English?

The ESOL coordinator will follow up with all families who responded "yes" to any of these three questions.

If a family needs or requests it, a bilingual placement counselor in the parent's native language will be provided when possible. All parties asking these questions will be provided professional development on ESL indicators and their obligation in routing positive responses to the appropriate ESL point of contact (ESOL contact/liaison). Additionally, school records will be requested from the sending district and will be reviewed for prior program participation.

Parents who respond positively to any of the survey questions will be referred to the School’s ESOL liaison. The ESOL contact/liaison will inform parents that the student will need a formal language (aural/oral) assessment of English proficiency to determine eligibility and placement in the FLVA’s ESOL program. Assessment of the student’s listening and speaking proficiency (aural/oral) will be completed as soon as possible, but not later than twenty (20) school days after the student’s enrollment in the FLVA. However, if there is a delay in the assessment, the following will be documented and maintained in the student’s official school records for a minimum of one (1) year:

1. Reason for the delay in assessing the student
2. Documentation that ELL accommodations are being provided until the assessment is complete
3. Timetable to complete the assessment
4. Notification of timetable to parent/guardian, preferably in their primary language
5. Assessment to be completed no later than eight weeks (40 school days) after initial enrollment approval date.

Communication with Parents/Guardians

From the time of students’ registration, every effort will be made to inform and orient parents to the FLVA. Communication with parents will be made available through interpreters, when feasible and an online translation service is also available to FLVA.

English Language Proficiency and Reading and Writing Assessments

Consistent with the requirements of Rule 6A-6.0902, FAC, the FLVA’s appropriately trained ESOL teacher will administer Department of Education approved assessments within the required timeframe, score the assessments, and record the data. The assessment instruments used will follow or be comparable to the district’s assessment instruments. All deadlines will be strictly tracked and enforced.

The aural/oral language proficiency test used by FLVA to determine eligibility for the ESOL Program is LAS Links.

Initial Assessment Procedures by Grade Level

Assessment Name	Grade Level	Raw Score ⁽¹⁾	Scale Score ⁽²⁾	National Percentile ⁽³⁾
LAS Links Form A	K		280-486	
LAS Links Form A	1		280-489	
LAS Links Form A	2		290-494	
LAS Links Form A	3		290-504	
LAS Links Form A	4		300-513	
LAS Links Form A	5		300-515	
LAS Links Form A	6		310-517	
LAS Links Form A	7		310-520	

LAS Links Form A	8		310-524	
LAS Links Form A	9		320-524	
LAS Links Form A	10		320-526	
LAS Links Form A	11		320-529	
LAS Links Form A	12		320-530	

- (1) A raw score represents the number of points a student received for correctly answering questions on a test.
- (2) A scale score is a raw score that has been converted to a scale. The conversion table provided by test publisher should be used to report the scale score, if the test results are not provided in terms of a scale score.
- (3) A national percentile is the percentile rank provided by a national norm-referenced test that indicates the percentage of a referenced group obtaining scores equal to or less than the score achieved by an individual.

ESOL Assessment in Grades K - 2

Students scoring LAS levels 1, 2, or 3 are determined to be Non- English Speaking or Limited English Speaking and are automatically placed in the ESOL program. Students scoring LAS levels 4 or 5 are determined to be Fully English Speaking, and do not qualify for ESOL services.

ESOL Assessment in Grades 3 - 12

Students in grades 3 – 12 scoring levels 1, 2, or 3 on the LAS Links test are determined to be Non- English Speaking or Limited English Speaking and must be placed in the ESOL program. However, all ESOL students in grades 3-12 must be given the LAS Links within 4 weeks from the date of the HLS. If the student scores at or below the 32nd percentile on the reading comprehension or total language, he/she is entered automatically into the program. Students scoring at the 33rd percentile or above on the reading/writing assessment are not placed in the ESOL program. Students with one high and one low score on the LAS LINKS will be placed in the program.

ELL Committee

The ELL Committee will be comprised of the Head of School or designee, the School’s ESOL contact/liaison, the classroom/subject area teacher, and other school personnel, as appropriate. It is the role of the ELL Committee to review any students referred to them by the ESOL Contact, parents, or teachers. This may happen any time during the determination of eligibility for the ESOL Program, after placement, or exit from the program. Parents will be notified in writing of their opportunity to participate in any meeting of the ELL Committee concerning their student. This committee will be specifically responsible for:

- Reclassification of former ELLs
- Placement decisions for students in grades 6-12 scoring fluent English speaking on oral/aural and who are at or below the 32nd percentile on the reading and writing assessment
- Review of instructional programs or progress (after one semester)
- Parental concerns
- Exempting students classified as ELL for one year or less from statewide assessment program

- Review of instructional program of an English Language Learner who is enrolled in classes specifically designed for English Language Learners (LF Coded) during 2-year post-reclassification period with consistent pattern of academic underperformance
- Consideration of exiting a student who scored as fluent English speaking on aural/oral assessment, but at or below the 32nd percentile on reading and writing assessment
- Referring an LF student being considered for reclassification to appropriate compensatory, special and supportive services, evaluations, and programs, if necessary
- Referring a student who is an English Language Learner and is enrolled in classes specifically designed for English Language Learners (LY Coded) being considered for extension of services to appropriate compensatory, special and supportive services, evaluations, and programs, if necessary

Upon request of a parent or teacher, a student who is determined not to be an English Language Learner or any student determined to be an English Language Learner based solely on one reading or writing assessment may be referred to an ELL Committee. The parents' preference as to whether a student is determined to be an ELL or not to be an ELL will be considered in the final decision. The ELL Committee may determine a student to be an English Language Learner or not to be an English Language Learner according to consideration of at least two of the following criteria in addition to the test results referenced above.

1. The extent and nature of prior educational and social experience and student interview
2. Written recommendation and observation by current and previous instruction and supportive services staff
3. Level of mastery of basic competencies or skills in English and home language according to appropriate local, state, and national criterion-referenced standards;
4. Grades from current or previous years
5. Test results in addition to the approved identification tests
6. Parent request.

ELL committee decisions are documented and maintained in the student's official school record.

Programmatic Assessment

Programmatic assessment of all ELLs is conducted prior to placement in the ESOL program. These steps are taken to determine the student's academic knowledge and abilities independent of the student's English language proficiency. The ELL Committee Chairperson, ESOL teacher, and other appropriate school personnel will work together to determine each ELL student's academic achievement level to ensure appropriate grade level placement and scheduling.

Grade Level and Course Placement will be primarily based on:

- Programmatic Assessment
- Age Appropriateness
- Documented Prior Educational Services

- ELL Committee recommendation
- Assessment – Diagnostic/placement test
- Parent/Guardian and Student Interview

Parents may appeal the grade placement decision to the Head of School.

Student ELL Plan

Student ELL Plans will be developed and reviewed by the ELL committee to ensure that students are appropriately placed and provided with instructional options to help them make academic progress in the general curriculum and acquire English language proficiency. The Student ELL Plan is a written document which contains the student’s name, ELL services, programs other than the ESOL provided, amount of instructional time or the instructional schedule, the date the student’s limited English proficiency is identified, student progression, meetings convened to discuss the student’s progress, assessment data used to classify or reclassify the student as an English Language Learner, date of exit and assessment data used to exit students as English proficient. The Student ELL Plan may be included in or attached to an existing student plan, such as an Individual Educational Plan (IEP), or may be a separate document. The ESOL contact/liason is responsible for developing and updating the Student ELL Plan. The Student ELL Plan will be updated:

- Whenever an ELL Committee meeting is held
- Annually at the beginning of each school year to reflect current services and make a Program recommendation
- On the anniversary date of the student’s entry into the ESOL program
- Any other time when there is a change in the student’s educational plan

The Head of School’s designee (usually the ESOL teacher) will be responsible for developing and updating all Student ELL Plans at the beginning/end of each school year and as needed.

Instruction

Students will be provided curriculum that is age- and grade- appropriate that is tailored to the student’s proficiency level. ELL students will receive comprehensive instruction for the core curriculum to ensure progress that is comparable to that of native English speakers. FLVA will provide comprehensive instruction through a program of sheltered instruction and mainstream/inclusion delivery models that will provide ELL students equal access to the same scope and sequence as the instruction provided to the non-ELL students at the same grade levels, while providing specific accommodations.

Sheltered Instruction (K-12) (English and/or Core) refers to the instructional delivery where only ELL students from different language backgrounds are grouped together to receive instruction in content subject classes, such as Science, Social Studies, Math and English/Language Arts by highly qualified teachers. This type of grouping can be done during synchronous sessions by the teacher utilizing the breakout rooms within the web conferencing tool.

Students are “sheltered” in the sense that they do not compete with fluent speakers of English. Teachers adjust the level of instruction to ensure that students understand the grade level curriculum. This type of instruction enables ELLs to become proficient in English and facilitates the acquisition of academic language necessary to succeed in content area classrooms.

Mainstream Inclusion (K-12)(English and/or Core) is a model in which ELL students receive instruction with ESOL strategies during the synchronous sessions with non-ELL students. This model requires careful planning and ongoing support from a highly qualified teacher, to ensure that the needs of the ELL students and non-ELL students are met simultaneously and equitably. Implementation of this model will vary for the grade levels.

Students in the ESOL program will be required to meet the same curriculum standards as non-ELL students in English/Language Arts and content area instruction. The content of the curriculum will be established by the Next Generation Sunshine State Standards (NGSSS), which include the Common Core standards in English/Language Arts and mathematics in accordance with Senate Bill (SB) 1076. A program of ESOL instruction will be implemented according to the student’s individual needs based on their ELL plan, and will be delivered by teachers with appropriate certification and/or endorsement. Program instruction will be designed to develop the student's mastery of the four language skills, including listening, speaking, reading, and writing, as rapidly as possible. In addition to providing ESOL instruction, the School will also ensure that teachers are implementing ESOL strategies in mathematics, science, social studies, and other courses on the student’s schedule following state guidelines.

Teachers of ELL students will work with their students’ teachers to coordinate the development of their individual learning plan (ILP) and the student’s ELL plan. (The ILP is required for all FLVA students to track their progress.) In addition, the ELL team will meet to discuss interventions and strategies to support the ELL student’s continued academic success. The ESOL strategies will be documented in the Student’s ELL Plan. The effectiveness of these ESOL strategies will be determined by the teachers’ observations, administrative classroom walk through, data summits, ESP site visits, and fidelity checks.

When there are more than fifteen ELL students who speak the same heritage language in the school, a bilingual assistant will be provided who is proficient in such a language and whose function is to assist teachers and students in the attainment of comprehensive instruction, as per LULAC et al. vs. SBE Consent Decree, II E 3.

According to district and state mandates, ELL students will receive instruction which is comprehensible, equal, and comparable in amount, scope, sequence, and quality to the instruction provided to English proficient students. Instruction will be aligned with the appropriate NGSSS benchmarks and course descriptions. Instructional materials used with ELL students will be the same as those used with non-ELL students in the same grade. School administrators will be responsible for monitoring the implementation of ESOL strategies by the classroom teacher. Evidence will be observed through lesson plans, through use of materials and audiovisuals, and through grade book notations. All teachers of ELL students will document the ESOL strategies used for each lesson in their plan book.

FLVA will utilize general ESOL instructional strategies such as:

- Provide a learning environment that provides a sense of comfort
- Establish a daily routine for the student
- Use as many of the senses as possible to present information to students
- Provide ESOL students guidelines for written work
- Provide alternative instruction when appropriate
- Arrange small discussion and talking activities that permit students to practice verbal skills
- Utilize oral techniques
- Utilize graphic organizers such as webbing and semantic maps
- Modify lesson objectives according to the language level of the ELL student
- Use manipulatives to help students visualize the math concepts
- Allow students to use computational aids such as number lines, abacus, counters and computation charts
- Teach math concepts and computation procedures through games and kinesthetic activities
- Give practice in reading word problems by identifying the key words to determine the operation needed to solve the problem
- Utilize the cooperative learning approach in which the student is given the opportunity for peer instructions

Progress Monitoring

The following progress monitoring tools will be used to ensure all ELLs are mastering the grade level academic content standards and benchmarks, and the English Language Proficiency standards.

- Study Island Weekly Assessments
- CELLA
- Report Cards
- Other Teacher Designed Criterion Reference Tests

Statewide Assessment

ELL students will participate in the Florida statewide assessment program (FCAT 2.0, Common Core assessments upon implementation, End of Course Assessments, CELLA, etc), as applicable, with accommodations in accordance with the student's ELL plan. The School testing coordinator will participate in district training about the requirements for ELL testing and testing accommodations. Accommodations may include, but are not limited to, flexible setting, flexible scheduling, additional time, assistance in the student's native language (for math, science, and writing assessments) including the use of a heritage language dictionary. Students will also participate in all other assessment opportunities provided for non-ELL students at the School, as appropriate.

Comprehensive English Language Learning Assessment (CELLA)

The CELLA will be administered every spring to all eligible ELL students at the School. This assessment is a four-skill (reading, writing, listening and speaking) language proficiency assessment that is designed to provide:

1. Data for charting student progress over time.
2. Information about language proficiency levels of individual students that can be used in making decisions regarding placement into, or exit from, English for Speakers of Other Languages Programs.
3. Useful information about students' strengths and weaknesses in English.
4. Evidence of program accountability.

Exiting a Student

Annual Assessment of Students

ELL students must be re-evaluated annually to determine program options. Based on test scores and other educational data, a determination must be made for each child concerning program continuation or exit. Students who enter the ESOL program by ELL Committee may only be exited through ELL Committee action.

The ESOL teacher for each student is designated by the Head of School to complete the Student ELL Plan and record the results in the student ELL Plan. ESOL students may only exit as a result of test scores or by ELL committee action.

Exit Criteria

ESOL students may only exit as a result of test scores or by ELL committee action. Since the CELLA test and FCAT test are administered annually, mid- grading period exits would only apply to those students who have met exit criteria on CELLA and who score FCAT 3 during FCAT Retakes. If a student meets exit criteria at this time, the student would be exited at the end of the current semester. Students meet exit criteria when they are proficient on all areas of the CELLA.

Exit by ELL Committee

The ELL Committee may be convened any time at the request of school personnel or the parent to review student progress, for the purpose of recommending program continuance or exit. However, an ELL Committee must convene when a student is recommended for retention. At that time, all options must be reviewed for the ESOL Exemption from retention for ELL students if they have been in the program less than two years. This exemption applies to students in all grade levels K-12.

The ELL Committee will consider the 1) extent and nature of prior educational and social experiences 2) observations of current and previous instructional and support services 3) level of mastery of basic competencies in English 4) grades from current and previous years and 5) test

results other than those used in initial language proficiency assessment. The ELL Committee will also consider the student's progress in achieving English proficiency levels on the Comprehensive English Language Learner Assessment (CELLA) and in achieving academic proficiency on the Florida Comprehensive Assessment Test (FCAT), as part of the review.

Students entered into the ESOL program by an ELL Committee are re-evaluated annually to determine program continuance or exit.

Exit Procedures

Once the student is exited from the ESOL Program, the exit data section of the Student ELL Plan is completed by the English Language Arts/ESOL teacher. Parent notification of the student's exit will be sent to the student's home address. Since the CELLA test and FCAT test are administered annually, mid-grading period exits would only apply to those students who have met exit criteria on CELLA and who score FCAT 3 during FCAT Retakes. If a student meets exit criteria at this time, the student would be exited at the end of the current semester.

Monitoring Procedures

FLVA's ESOL contact monitors the progress of students who have exited the ESOL program for two school years at the specific intervals identified below. This monitoring occurs and is documented in the ELL Plan with signature and date:

- First report card after exit
- Second report card after exit
- The end of the first year
- The end of the second year from the date the student exited the ESOL program

If the former ESOL student is not on grade level based upon FCAT scores and report card, an ELL Committee is reconvened to recommend appropriate alternative interventions, including re-entry into the ESOL program. Additional assessments may be administered to determine the student's needs. If the student is reclassified as an ELL, the ESOL contact/liaison will initiate the development of a new Student ELL Plan.

Parent Notification

Parents will be notified of the placement of their child in the ESOL program via a Notification Letter. Communication with parents will be made available through interpreters, when feasible and an online translation service is also available to FLVA.

The letter will be dated to correspond with the entry date in the ESOL program. The letter will be sent home to the parents/guardian and a copy of the letter will be kept in the student's ESOL Program Records folder.

As long as the student is eligible to receive ESOL services, a new Parent Notification Letter will be completed at the beginning of each school year and whenever there is a programmatic change.

The School will keep copies of each of the letters that have been sent home during the time the student was receiving ESOL services.

Parents will also be notified of assessments and available accommodation, results of assessments, program delivery model options, retention/remediation, exit from the ESOL program, reclassification (if needed), and invitations to participate in ELL Committee meetings to discuss their child. Information that is provided to all parents will also be provided to parents of ELL students in the parents' native language to the extent feasible. This includes, but is not limited to, state assessments and results, invitations to participate in special programs, parental choice options, registration forms and requirements, disciplinary forms, information about opportunities for parent involvement, etc.

Personnel Training

Teachers who are required to obtain ESOL training or certification will be notified by the ESOL Coordinator of training requirements and professional development opportunities through the school district. It is the teacher's responsibility to complete each component within the timelines established by the Florida Consent Decree. Participants may enroll in courses offered during the first, second, and summer semesters.

Extension of Services in the ESOL Program

After an ELL student has been enrolled in the program for three years, an ELL Committee will be convened, within the required timeframe, annually to re-evaluate the student's progress towards English proficiency. The ELL Committee will follow the procedures required by Rule 6A-6.09022, FAC, in making its determination whether the student is English proficient. The basis and nature of the ELL Committee's determination will be documented and maintained in the student's official school record.

B. Describe how the needs of English Language Learners will be met.

FLVA's ESOL program will have three primary goals:

- 1) To provide ELLs with the appropriate support and instruction to facilitate their proficiency in English so that they can achieve academic success in the regular academic program.
- 2) To provide a learning environment that promotes cultural awareness to enhance self-esteem, and develop respect, and
- 3) To provide comprehensive and academic instruction using the ESOL strategies of instruction to meet the required Next Generation Sunshine State Standards/Common Core State Standards and concepts inherent in each subject area (for example, see "Language Arts through ESOL Curriculum" course described below).

An effective ESOL program for ELLs must contain the following essential components:



FLVA will utilize both sheltered and mainstream/inclusion models as described above to meet the needs of ELL students. Sheltered instruction can be done during synchronous sessions by the teacher utilizing the breakout rooms within the web conferencing tool. Students are “sheltered” in the sense that they do not compete with fluent speakers of English. Teachers adjust the level of instruction to ensure that students understand the grade level curriculum. This type of instruction enables ELLs to become proficient in English and facilitates the acquisition of academic language necessary to succeed in content area classrooms.

The primary model for the Florida Virtual Academy ESOL program will be the “mainstream/inclusion” model for instruction. The students will be immersed into the regular online classroom sessions. All classes will be taught by ESOL endorsed or certified teachers (K-12 coverage) using ESOL strategies for instruction. Students will be placed in the Language Arts through ESOL class according to their grade level.

Teachers will work with students in small groups on a regular basis. Small group instruction can occur during the regular scheduled general education synchronous session or during specific small group sessions. The instructional time of an ELL student must be equal to the instructional time of a non-ELL. The instruction must be understandable, equal, and comparable in amount, scope, sequence, and quality as to that which is provided to English proficient students. Full participation in classroom activities is expected by the student and will be supported by the ELL teacher.

High school students will receive ESOL instruction one to two hours per day, five to ten hours per week. Placement for ESOL instruction will be based on the screening test results, English language proficiency and grade level.

The proposed online curriculum integrates features designed to support learners at every stage, which are particularly important for ELL students. For example, online games and animations illustrate concepts. The engaging approach features colorful graphics and animation, learning tools, and games; adaptive activities that help struggling students master concepts and skills before moving on; and more support for families at home to support their students to succeed.

C. Explain how English Language Learners who enter the school below grade level will be engaged in and benefit from the curriculum.

As mentioned earlier, a key part of the FLVA education program is the Individualized Learning Plan (ILP). An ILP is designed for each K-12 student, including ELL students, to ensure a customized program that fits each student's unique strengths, weaknesses, learning styles and aptitudes. The ILP will be coordinated with the ELL student's English Language Learner (ELL) Plan. Students entering the School below grade level will have a comprehensive and engaging plan, which will include intensive strategies to bring the student to grade level or make exceptional gains.

Teachers in all subject areas will utilize and document the use of ESOL strategies to ensure that instruction is comprehensive at the appropriate level for the ELL student. This is reflected in student notes, which include the documentation of the use of ESOL strategies and methodologies. Additionally, instructional methods will be used to ensure accommodations are an integral part of the core instruction of ELL students. This includes making material understandable to the student given his/her individual level of English proficiency; providing curriculum which is parallel and comparable in scope and sequence and aligned with standards; using simplified language, not simplifying content; employing ESOL strategies; and implementing instruction based on the English Language Proficiency Standards embedded in the Next Generation Sunshine State Standards/Common Core State Standards. School administrators will be tasked with monitoring teachers of ELL students for comprehensive instruction and documented strategies in notes within TotalView School, the part of the School's student information system that monitors student performance.

Our instructional model will have a specific focus on an intervention program for all struggling learners (to include students scoring at Achievement Levels 1 or 2 on the FCAT 2.0). Interventions will be developed and implemented providing each student who is not progressing toward meeting the content standards or who is performing below grade level. The interventions will be specific, timely and updated based upon ongoing formative assessments and progress monitoring. The virtual environment allows these students to participate in class activities including, but not limited to, large and small group instruction sessions led by Florida certified content teachers and collaborative activities with their peers.

FLVA uses a Multi-Tiered System of Supports (MTSS) that includes problem solving, positive behavior supports, and a three tiered Response to Intervention (RtI) process. All students will be served appropriately based on their placement within these tiers.

- In **Tier 1**, all students are screened (universal screening) for potential problems. All students also receive appropriate, standards-based, core instruction including any classroom, grade level, or school-wide interventions (universal interventions) for academics and behavior. Tier 1 universal interventions are provided in the general education classroom.
- In **Tier 2**, students who have not responded significantly to the Tier 1 core program with universal interventions are referred to the school's RtI team and may receive a targeted, individual intervention plan. This plan could include more intense

- instruction, individually or in a small group, and is provided in addition to the general education curriculum.
- In **Tier 3**, students who have not responded significantly to the Tier 2 interventions will be considered for more intensive interventions that include, but are not limited to, more time and more focused instruction. Students who do not make progress with Tier 3 interventions may be considered for a referral for evaluation to determine if the student qualifies for exceptional student education (ESE) services to receive specially designed instruction and related services through an Individual Educational Plan (IEP).

Section 8: School Climate and Discipline

A. Describe the school's planned approach to classroom management during synchronous sessions, and any face to face events, and student discipline.

In order to assure classroom management using positive behavioral supports and effective disciplinary tools, the Florida Virtual Academy will identify data-driven academic, career and technical, and discipline/behavioral performance results in the School Improvement Plan (SIP). FLVA will establish a School-based leadership team to meet on a regularly scheduled basis to review data and guide the positive behavior process. This leadership team shall, to the extent possible, include representatives of the School administration, both regular and special education teachers, parents, and guidance counselor. The leadership team will ensure that the School provides the opportunity for all applicable personnel, including classroom teachers and parents, to participate in classroom management. The leadership team will monitor, evaluate and modify, the School-wide system of discipline as needed, throughout the school year.

The leadership team will use a decision-making process utilizing a data-management system that allows graphical representation of discipline issues. This data system will permit regular and efficient monitoring and evaluation of the effectiveness of the implementation of a School-wide system of discipline (see FLVA Code of Student Conduct in **Section 8(B)** below). School data collection shall include, but not be limited to, average referrals per day per month, referrals by problem behavior, referrals by location, referrals by time, referrals by student, referrals by staff, individual student report by month and by year, and referrals by grade level.

FLVA shall design programs so that the students are challenged and engaged in the School curriculum and community. The instructional program; extracurricular clubs, outings, and competitions; and partnership of parents and teachers will all help to increase student success. We believe that high levels of engagement will lead students to persist in their academics and remain in School rather than demonstrating behavior that leads to being suspended/expelled or becoming drop-outs.

Florida Virtual Academy adopts the following clearly defined behavioral expectations in these five basic rules.

1. Respect Others
2. Conduct yourself with positive behavior
3. No cheating
4. Actively participate in classroom discussion
5. No cyber bullying

These rules shall be posted each day at the start of the synchronous class sessions. These rules shall be provided to parents and shall be known by all students and school staff. Each teacher at FLVA shall develop lesson plans that teach these expectations across the School setting by providing direct instruction on expected behaviors at the beginning of the school year and reinforcing the initial instruction throughout the year for all students.

At FLVA, parents and students are expected to follow the rules of network etiquette, or

“netiquette” during synchronous class sessions. These rules are also found in the draft FLVA Student Code of Conduct in **Attachment 7**. The word netiquette refers to common-sense guidelines for abiding by the following standards while conversing with others online:

- Avoid sarcasm, jargon, and slang. Swear words are unacceptable.
- Never use derogatory comments, including those regarding race, age, gender, sexual orientation, religion, ability, political persuasion, body type, physical or mental health, or access issues.
- Focus your responses on the questions or issues being discussed, not on the individuals involved.
- Be constructive with your criticism, not hurtful.
- Review your messages before sending them. Remove easily misinterpreted language and proofread for typos.
- Respect other people’s privacy. Don’t broadcast online discussions, and never reveal other people’s e-mail addresses.

Teachers will provide direct instruction through Blackboard Collaborate, a web-based conferencing platform. Students will attend classroom sessions by logging in on Blackboard Collaborate, using chat, an interactive whiteboard, Voice-Over IP (VOIP), and other features to further explore and discuss lesson topics synchronously with teachers and fellow students.

Blackboard Collaborate Conduct for Parents and Students

Students:

- Arrive promptly at the scheduled time for the Blackboard Collaborate session.
- Whiteboard and microphone privileges will be assigned at the discretion of the teacher.
- Direct messaging conversions should be limited to the content of the lesson.
- Respectful and courteous behavior towards others is expected at all times.
- Non-participation or stepping away without the teacher’s approval will count as an absence.
- If there are multiple students in your home in Title 1, each student needs to log in to a session individually.

Individual teachers may also have expectations that are specific to their classrooms.

Parents:

Acceptable reasons to remove their child from a session include:

- Offensive behavior
- Illness
- Family Emergency/Situations

If they must remove their child from a Blackboard Collaborate session, parents will e-mail or call the teacher to discuss the situation following these guidelines:

- Keep comments and questions specific to the lesson. Contact your teacher about other concerns by phone, e-mail or in person during office hours.

- Because the lessons are student-centered, only students should be using the microphones during the sessions.
- Refrain from coaching your child during Blackboard Collaborate sessions. The goal of this instructional time is for your child to become an independent learner and critical thinker.

Prohibition of Harassment, Intimidation, Bullying and Cyber Bullying

The "Jeffrey Johnson Stand Up for All Students Act" (F.S. 1006.147) prohibits the bullying and/or harassment, including cyber bullying, of any public K-12 student or employee. FLVA is committed to a safe and positive learning environment for all students, employees, volunteers and parents free from harassment, intimidation or bullying. All forms of bullying are hereby prohibited. Anyone engaging in bullying is in violation of the Policy and shall be subject to appropriate discipline.

- B. Describe the school's Code of Conduct, including the school's proposed policies for discipline, suspension, and dismissal. The Code of Conduct must be appropriate for the virtual environment and must address cyber-bullying.**

The goal of Florida Virtual Academy (FLVA) is to provide the best possible educational experience for each student. The instructional program; extracurricular clubs, outings, and competitions; and partnership of parents and teachers help to increase student success. Coupled with the advantages and privileges of the School's educational opportunities is the need for students to assume personal responsibility for their behavior. Students share responsibility with the School community for developing FLVA into a school that exemplifies high standards and excellence. FLVA's Code of Student Conduct is based upon this responsibility.

The FLVA Student Code of Conduct shall apply to all School supplied equipment and materials and in all School sponsored environments, home and community and at any school location. The policies and procedures of the FLVA Student Code of Conduct will be communicated to students and parents (in the language they understand to the extent feasible) through the School's draft Parent-Student Handbook (**Attachment 8**) and the draft Student Code of Conduct (**Attachment 7**), which will be provided in the same languages as other school-to-home communications. The Handbook and Code of Conduct will be made available to students and parents both in hard copy and online on the School website. Several sections from the Handbook are provided below.

Non-Discrimination Equal Educational Opportunity Policy

Florida Virtual Academy, in compliance with section 1000.05(2)(a), F.S., prohibits discrimination on the basis of race, ethnicity, national origin, gender, disability, or marital status against a student or an employee. This policy is in accordance with state and federal laws, including Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and the Americans with Disabilities Act of 1990. Information relative to special accommodation, grievance procedure, and the designated responsible official for compliance with Title VI, Title IX, and Section 504 may be obtained by contacting the School.

Rights and Responsibilities for Students and Parents

Responsibilities of Students

All students share with the administration and staff a responsibility to develop a safe learning environment within school. Students shall have the responsibility to:

- Understand the Code of Conduct
- Attend school regularly, on time and report to all assigned synchronous sessions
- Put forth a conscientious effort in all school assignments
- Treat others courteously and with respect
- Treat school property and the property of others with respect
- Respect the privacy of others
- Listen courteously to the opinions and points of view of others
- Use appropriate speech refraining from indecent, obscene or foul language
- Come to class with all necessary materials and prepared to learn
- Maximize their learning opportunities
- Not interfere, impede, limit, or restrict the educational opportunity of any other student(s)
- Comply with all instructions and staff directions
- Truthfully answer all questions posed by school staff and students
- Report hazardous or dangerous situations, incidents or activities to an adult in authority

Rights of Students

Students shall have the right to:

- Create a safe and orderly environment in which to learn
- Be treated with dignity and respect
- Not be excluded from public schools or from school privileges because the student is married, pregnant, has a disability, is eligible for special education services and programs or because of race, gender, color religion, sexual orientation (known or perceived), or national origin
- Not be the subject of corporal punishment
- Express opinions and personal points of view in a responsible and constructive manner
- Peaceably assemble
- Be secure in their personal privacy
- Be informed of rules of conduct
- Request and receive interpretation and translation assistance for school-related matters if English is not their primary language

Responsibility of Parents/Guardians. Parents/guardians shall have the responsibility to:

- Ensure that their children enrolled in FLVA attend and accurately enter attendance daily in accordance with the laws of the State of Florida
- Enroll their child in another school if he/she withdraws from FLVA
- Present to the school administration any concern or complaint in a calm, reasonable manner
- Work with their child daily to ensure that the student is completing assignments

- Know the rules set forth in this code and review the contents with their child(ren)
- Ensure that their child complies with all required testing and assessments, including but not limited to FCAT 2.0, EOCs and Scantron, scheduled by FLVA
- Ensure that their child receives the periodic health examinations that are required by law.

Rights of Parent/Guardian

Parents/guardians shall have the right to:

- Receive regular official reports of their child’s academic progress
- Inspect, copy, and challenge, according to the appropriate guidelines, any and all information contained in their child’s records
- Receive an explanation for the basis of any grade given by the teacher;
- Request a conference with the teacher and/or the Head of School
- Receive translations and/or interpretations of any written or verbal communications regarding their child and their child’s education
- Appeal disciplinary actions
- Receive reasonable accommodations for any disability to have access to participate in their child’s education, to the extent all parents are permitted to participate, upon request for such accommodation and proof of medical necessity.

Student Infractions and Consequences

Disciplinary procedures shall be consistent with applicable requirements of Florida laws and rules. Student offenses dictate the severity of the consequence FLVA will impose. In addition to the specific offenses set forth below, FLVA has the right to discipline any student who engages in conduct that threatens the health, safety, or welfare of others or disrupts the learning environment. The appropriate consequence, up to expulsion, will be determined at the sole discretion of FLVA in accordance with the law. The sponsoring district will be advised of all situations where students are suspended. All recommendations for expulsions will be taken before the district board for action. A student has the right to certain discipline procedures as outlined in the final section of the School’s code.

Rule	Possible Consequence or Intervention for Infraction
<p>Attendance at Required Classes Students in a required session track shall attend all sessions</p> <ul style="list-style-type: none"> • Attend class on time • Actively participate in online sessions • Complete follow up activities/assessments in a timely manner 	<ul style="list-style-type: none"> • Lack of participation points – could lead to failure in course • Academic action plan implemented • Hold a disciplinary meeting with parents/guardians, student, and staff members. • Face to face learning at a designated destination
<p>Interaction with Teacher Students shall interact with teacher and keep lines of communication open</p> <ul style="list-style-type: none"> • Participate in scheduled meetings to review progress, attendance, etc. • Update family teacher coach on progress 	<ul style="list-style-type: none"> • Failure in courses • Hold a disciplinary meeting with parents/guardians, student, and staff members. • Noncompliance, lack of communication could ultimately lead to truancy and removal

Rule	Possible Consequence or Intervention for Infraction
<ul style="list-style-type: none"> Reach out to teacher with questions or concerns 	<p>from the active roles of FLVA</p>
<p>Prohibition of Disruption of School Students shall act in a courteous manner toward all members of the school and shall not disrupt any education or school-related program:</p> <ul style="list-style-type: none"> fails to obey directions fails to attend class without a valid excuse inappropriate use of chat functions during online sessions 	<ul style="list-style-type: none"> Discuss incident with student. Hold a disciplinary meeting with parents/guardians, student, and staff members. Suspend student from school privileges. Suspend from school if above interventions are not effective. Failure to attend school without a valid excuse also holds student to truancy violations. These are outlined in the Attendance Policy.
<p>Compliance with Dress Code Students shall dress in accordance with the standards described below:</p> <ul style="list-style-type: none"> pants must be worn on the waist so no undergarments are showing no halter tops, strapless garments, or garments revealing midriff may be worn to a school event no garments that reveal undergarments or that are see through may be worn to a school event no hats, stocking caps, doo rags, bandanas may be worn inside buildings at school events no clothing that has profanity, drug or offensive slogans may be worn to school events <p>Note: This section is enforced for students when attending a school function such as testing, school outings, orientations, or other face-to-face events.</p>	<ul style="list-style-type: none"> Discuss incident with student. Hold a disciplinary meeting with parents/guardians, student, and staff members. Suspend student from school privileges. Suspend from school if above interventions are not effective.
<p>Prohibition of Offensive Language Students shall not use offensive language. Violation of this includes but is not limited to:</p> <ul style="list-style-type: none"> curses, uses vulgar, obscene language sending or forwarding offensive, sexually-oriented, or threatening messages, pictures or symbols of offensive nature. 	<ul style="list-style-type: none"> Discuss incident with student. Hold a disciplinary meeting with parents/guardians, student, and staff members. Suspend student from school privileges. Suspend from school if above interventions are not effective.
<p>Mandate of Academic Honesty Students are expected to maintain the highest standards of honesty in their work. Violation of this includes but is not limited to:</p> <ul style="list-style-type: none"> copying work from another person plagiarizing work of another using answer keys provided for learning coach copying work from Internet sources without proper citations forging notes sharing test questions with others 	<p>First Incident</p> <ol style="list-style-type: none"> Express concerns and provide concrete examples of dishonesty. (K-8) Allow students to redo assignment and resubmit for a grade. (9-12) Assignment can be resubmitted. Citation submissions can be resubmitted. Notify learning coach and/or parent. <p>Second Incident</p> <ol style="list-style-type: none"> Hold a disciplinary meeting with parents/guardians, student and staff members. Teacher and team discretion about redoing

Rule	Possible Consequence or Intervention for Infraction
	<p>the assignment. All second incident assignments receive a zero (0) with no opportunity to make up.</p> <p>Third Incident</p> <ol style="list-style-type: none"> 1. Hold a face-to-face disciplinary meeting to discuss ways to eliminate academically dishonest behaviors.
<p>Abuse of Computer or Internet Privileges Students shall respect the computer privileges granted to them. Violations include:</p> <ul style="list-style-type: none"> • giving his/her password to another individual or uses another individual's account • illegally downloading copyrighted materials from the Internet • visiting sites on the Internet which contain sexually explicit material • harming or destroying data of another student or person, the Internet or other networks • creating, downloading, or uploading computer viruses; or • violating any rule outlined in the Acceptable Use Policy 	<ul style="list-style-type: none"> • Discuss incident with student. • Hold a disciplinary meeting with parents/guardians, student, and staff members. • Suspend student from school privileges. • Suspend from school if above interventions are not effective. • In addition to above measures students will be required to pay full restitution for acts of deliberate damage or graffiti. Costs for damage to school district property will include labor, materials, consulting fees and other costs associated with replacing or restoring the damaged property.
<p>Prohibition of Threats A student shall not communicate, directly or indirectly, any threat to another member of the school community that places him/her in fear of injury, pain, or ridicule. Serious threats to life or safety are included in the Bullying Policy.</p>	<ul style="list-style-type: none"> • Discuss incident with student. • Hold a disciplinary meeting with parents/guardians, student, and staff members. • Suspend student from school privileges. • Suspend from school if above interventions are not effective. • If the threat is serious to an individual's life or safety, a student could be presented to the board for expulsion.
<p>Prohibition of Fighting Students shall refrain from mutual confrontations involving physical contact with any members of the school community.</p>	<ul style="list-style-type: none"> • Discuss incident with student. • Hold a disciplinary meeting with parents/guardians, student, and staff members. • Suspend student from school privileges. • Suspend from school if above interventions are not effective.
<p>Prohibition of Tobacco Products and Paraphernalia A student may not possess or use any tobacco product, cigarette lighters, matches, rolling papers, pipes, or other such paraphernalia while attending any school sponsored events.</p>	<ul style="list-style-type: none"> • Discuss incident with student. • Hold a disciplinary meeting with parents/guardians, student, and staff members. • Suspend student from school privileges. • Suspend from school if above interventions are not effective.
<p>Prohibition of Drugs or Alcohol for Personal Use Students shall not have, use or be under the influence of any alcohol, drugs, or unauthorized prescription or non-prescription medication while</p>	<ul style="list-style-type: none"> • Hold a disciplinary meeting with parents/guardians, student, and staff members. Refer to Student Assistance Team. • Suspend student from school privileges.

Rule	Possible Consequence or Intervention for Infraction
attending school or school sponsored events.	<ul style="list-style-type: none"> • Suspend from school if above interventions are not effective. • Follow up with the SAP team to get invention measures in place.
<p>Prohibition of Bullying and Serious Threats Students shall not intimidate or bully members of the school community. A student violates this rule if he or she participates in the following behaviors directly or indirectly:</p> <ul style="list-style-type: none"> • Physical: hitting, kicking, pushing, shoving, getting another person to hurt someone; • Verbal: racial slurs, name-calling, teasing, taunting, verbal sexual harassment, gossiping, spreading rumors; or • Non-verbal: threatening, obscene gestures, isolation, exclusion, stalking, cyber bullying. 	<ul style="list-style-type: none"> • Discuss incident with student. • Hold a disciplinary meeting with parents/guardians, student, and staff members. • Suspend student from school privileges. • Suspend student from school if above interventions are not effective. • Expulsion is also possible when the nature of the incident is serious or repeated.
<p>Prohibition of Harassment Students shall not harass members of the school community. A student violates this by demanding sexual favors, threatening, intimidating or creating a hostile environment because of someone’s gender, age, race, color, sexual orientation (known or perceived), national origin, religion, disability, socioeconomic status and/or political beliefs.</p>	<ul style="list-style-type: none"> • Discuss incident with student. • Hold a disciplinary meeting with parents/guardians, student, and staff members. • Suspend student from school privileges. • Suspend from school if above interventions are not effective.
<p>Prohibition of Possession of a Weapon Students shall not possess any weapon as defined in this code’s glossary. A student violates this rule even if he/she did not intend to use such thing as a weapon.</p>	<ul style="list-style-type: none"> • Students in possession of a weapon will go to an expulsion hearing.

Search and Seizure Policy

To maintain order and discipline at school functions and protect the safety and welfare of students and school personnel, school authorities may search a student, student’s backpack or student automobiles in certain circumstances and may seize any illegal or unauthorized materials discovered during the search.

Disciplinary Meetings and Action

Discipline referrals to the administration will be reviewed individually, consistent with the Code of Student Conduct. Discipline problems are best resolved expediently and closest to their source by the parties most directly involved. Most discipline issues will be resolved with minimal administrative intervention. In the best interests of the student and the School, several disciplinary options are available including discussions with the student; academic and/or behavior action plans; disciplinary meetings with parents/guardians, student, and staff members suspension; and recommendation for expulsion.

Procedures for Suspensions of 3 Days or Less

Students who are being considered for suspension shall be afforded their due process rights, which will include a conference in a private location with an administrator before being suspended. During the conference, the student shall be:

- informed of the alleged violation and any of the surrounding circumstances examined;
- given an opportunity to respond to the accusations if he/she has not already done so;
- informed of the recommended remedial measure; and
- informed of the consequences of future infractions.

After the conference with the student, the administrator shall implement the recommended remedial measure and send the parent a disciplinary letter to inform them of the student's violation, the length of the suspension, and the day on which the student and parent/guardian are permitted to return to class.

Procedure for Suspensions of More than 3 Days

Students who are suspended for more than 3 days shall be afforded an informal hearing. Parents of the student must be notified in writing when the suspension is between 3 and 10 days. The notification must afford the parent time to attend the hearing. A representative from the sponsor district will also be notified of the meeting and requested to attend, if appropriate. When the suspension is in regards to health, safety and/or welfare, the student may be suspended immediately. The hearing will allow the student to meet with appropriate official to explain why he/she should not be suspended. During the hearing the student will be:

- informed of the alleged violation and any of the surrounding circumstances examined;
- given an opportunity to respond to the accusations if he/she has not already done so;
- informed of the recommended remedial measure; and
- informed of the consequences of future infractions.

Expulsion

By definition, expulsion is any exclusion from school for a period of more than 10 days. Any recommendations for expulsion will be presented to the sponsor district and will follow district policy.

A regular education student who has engaged in behavior that violates the Code of Student Conduct may assert any of the protections afforded to a student with a disability under Rule 6A-6.03312, Florida Administrative Code, if the district or the FLVA had knowledge of the student's disability before the behavior that precipitated the disciplinary action occurred.

Discipline of Students with Disabilities

Any disciplinary action of a student with a disability, as a consequence for violation of the FLVA's Code of Student Code, shall be consistent with the requirements of Rule 6A-6.03312, Florida Administrative Code. A manifestation determination will be conducted to determine if

the behavior is related to the student's disability. If it is determined that the behavior is not related to the student's disability, the disciplinary procedures applicable to students without disabilities may be applied to the student in the same manner in which they would be applied to students without disabilities. However, on the 11th day of any removal from School, the School must continue to provide FAPE to enable the student to continue to make academic progress towards the IEP goals.

For students with disabilities whose behavior impedes their learning or the learning of others and may result in a change of placement, strategies, including a functional behavioral assessment (FBA) and a behavioral intervention plan (BIP) with positive interventions and supports to address that behavior, will be implemented and documented on the students' IEPs.

As required by federal law¹¹,

[I]f a disciplinary action is being considered for a student with a disability that would result in a change of placement (defined as "(a) the removal is for more than 10 consecutive school days; or (b) the child is subjected to a series of removals that constitute a pattern because they cumulate to more than 10 school days in a school year..."), one of the following must have been completed by the IEP team either before or not later than 10 days after taking the disciplinary action:

- development of a plan for conducting an FBA and development of interim interventions
- review of the student's behavioral intervention plan that has already been developed and modification of the plan as necessary to address the student's behavior

FLVA personnel, in collaboration with district personnel, will consider any unique circumstances on a case-by-case basis when determining whether a change in placement, consistent with the requirements of Rule 6A-6.03312, Florida Administrative Code, is appropriate for a student with a disability who violates the FLVA's Code of Student Conduct.

BULLYING/CYBER BULLYING POLICY

Prohibition of Harassment, Intimidation, and Bullying

The "Jeffrey Johnson Stand Up for All Students Act" (s. 1006.147, F.S.) prohibits the bullying and/or harassment, including cyber bullying, of any public K-12 student or employee. Florida Virtual Academy is committed to a safe and positive learning environment for all students, employees, volunteers and parents free from harassment, intimidation or bullying. All forms of bullying and cyber bullying are hereby prohibited. Anyone engaging in bullying or cyber bullying is in violation of the Policy and shall be subject to appropriate discipline.

"Bullying" shall mean unwelcome verbal, written or physical conduct directed at a student, parent, staff member, or employee by another student or parent when the intentional act:

- Physically harms a student or damages the student's property;

¹¹ Florida Department of Education, Functional Behavioral Assessment and Behavioral Intervention Plans Technical Assistance Paper, <http://www.fl DOE.org/ese/pdf/tap99-3.pdf>

- Has the effect of substantially interfering with a student’s education;
- Is placing another in reasonable fear of physical, emotional or mental harm;
- Is so severe, persistent, or pervasive that it creates an intimidating or threatening educational environment; or
- Has the effect of substantially disrupting the orderly operation of the School.

“Cyber bullying” includes, but is not limited to, the following misuses of technology: harassing, teasing, intimidating, threatening or terrorizing another student, parent, staff member, or employee by way of any technological tool. This may include sending inappropriate or derogatory emails, instant messages, text messages, pictures or website postings that would include blogs, when the intentional act is:

- Physically, emotionally or mentally harming to a student/parent/staff member/employee
- Substantially interfering with the student’s education;
- Placing a student/parent/staff member/employee in reasonable fear of physical, emotional or mental harm;
- Is severe, persistent, or pervasive to the extent that it creates an intimidating or threatening educational environment; or
- Has the effect of substantially disrupting the orderly operation of the school.

All forms of bullying are unacceptable and when such actions are disruptive to the education process of the Florida Virtual Academy, offenders shall be subject to appropriate staff intervention, which may result in administrative discipline or action.

Harassment, intimidation or bullying can take many forms including: slurs, rumors, jokes, innuendos, demeaning comments, drawing cartoons, pranks, gestures, physical attacks, threats, or other written, oral or physical actions. “Intentional acts” refers to the individual’s choice to engage in the act rather than the ultimate impact of the action(s).

This policy is not intended to prohibit expression of religious, philosophical, or political views, provided that the expression does not substantially disrupt the education environment. Many behaviors that do not rise to the level of harassment, intimidation, or bullying may still be prohibited by other School policies or building, classroom, or program rules.

Counseling, corrective discipline, and/or referral to law enforcement may be used to change the behavior of the perpetrator and remediate the impact on the victim. This includes appropriate intervention(s), restoration of a positive climate, and support for victims and others impacted by the violation. False reports or retaliation for harassment, intimidation or bullying also constitute violations of this policy.

The Head of School is authorized to direct the development and implementation of procedures addressing the elements of this policy, consistent with the complaint and investigation.

Where to go with Questions or Concerns

FLVA staff recognizes that life at School does not always run smoothly. As problems arise, School personnel and parents must collaborate to seek solutions. FLVA staff also realizes that

parents and students do not always know what to do or where to seek out answers. Parents often give up and become frustrated if problems remain unsolved.

Please follow these procedures for general information or for assistance in resolving a problem:

- Step 1.** All concerns and issues should first be directed to the teacher. If an FLVA teacher cannot resolve the issue (e.g., materials and computer issues) he or she directs the parent/responsible adult to the appropriate contact for assistance.
- Step 2.** If the issue or concern is about the teacher, parents are advised to contact the Academic Administrator (see School Directory in draft Student Code of Conduct, **Attachment 7**).
- Step 3.** If the concern is not resolved at the Academic Administrator level, parents/responsible adults are advised to contact the Head of School (see School Directory in draft Student Code of Conduct, **Attachment 7**).

Informal Complaint Process

Anyone may use informal procedures to report and resolve complaints of harassment, intimidation, or bullying. Complaints must be appropriately investigated and handled consistent with due process requirements. Informal reports may be made to any staff member, although staff shall always inform complainants of their right to, and the process for, filing a formal complaint. Staff shall also direct potential complaints to an appropriate staff member who can explain the informal and formal complaint process and what a complainant can expect. Staff shall also inform an appropriate supervisor or designated staff person when they receive complaints of harassment, intimidation, or bullying, especially when the complaint is beyond their training to resolve or alleges serious misconduct.

Informal remedies include an opportunity for the complainant(s) to explain to the alleged perpetrator that the conduct is unwelcome, disruptive, or inappropriate either in writing or face-to-face; a statement from a staff member to the alleged perpetrator that the alleged conduct is not appropriate and could lead to discipline if proven or repeated; or a general public statement from an administrator reviewing the school harassment, intimidation and bullying policy without identifying the complainant, parent, or guardian, or because FLVA believes the complaint needs to be more thoroughly investigated.

Formal Complaint Process

Anyone may initiate a formal complaint of harassment, intimidation or bullying, even if the informal complaint process is being utilized. Complainant(s) should not be promised confidentiality at the onset of an investigation. It cannot be predicted what will be discovered or what kind of hearing may result. Efforts will be made to increase the confidence and trust of the person making the complaint. FLVA will fully implement the anti-retaliation provisions of this policy to protect complainant(s) and witness(es). Student complainants and witnesses may have a parent or trusted adult with them, if requested, during any School initiated investigatory

activities. The Head of School or designated compliance officer (hereinafter referred to as the compliance officer) may conclude that the School needs to conduct an investigation based on information in their possession regardless of the complainant's interest in filing a formal complaint. The following process shall be followed:

- A. All formal complaints shall be in writing. Formal complaints shall set forth the specific acts, conditions or circumstances alleged to have occurred that may constitute harassment, intimidation or bullying. The compliance officer may draft the complaint based on the report of the complainant, for the complainant to review and sign.
- B. Regardless of the complainant's interest in filing a formal complaint, the compliance officer may conclude that the School needs to draft a formal complaint based on the information in the officer's possession.
- C. The compliance officer shall investigate all formal, written complaints of harassment, intimidation or bullying, and other information in the compliance officer's possession that the officer believes requires further investigation.
- D. When the investigation is completed, the compliance officer shall compile a full written report of the complaint and the result of the investigation. If the matter has not been resolved to the complainant's satisfaction, the Head of School shall take further action on the report.
- E. The Head of School or designee, who is not the compliance officer, shall respond in writing to the complainant and the accused within thirty days, stating:
 - that FLVA intends to take corrective action; or
 - that the investigation is incomplete to date and will be continuing; or
 - that FLVA does not have adequate evidence to conclude that bullying, harassment or intimidation occurred.
- F. Corrective measures deemed necessary will be instituted as quickly as possible, but in no event more than thirty days after the Head of School's written response, unless the accused is appealing the imposition of discipline and the School is barred by due process considerations or a lawful order from imposing the discipline until the appeal process is concluded.
- G. If a student remains aggrieved by the Head of School's or designee's response, the student may pursue the complaint as one of discrimination pursuant to The FLVA Grievance Policy.

Students will be provided with age-appropriate information on the recognition and prevention of harassment, intimidation or bullying, and their rights and responsibilities under this and other School policies and rules at student orientation sessions and on other appropriate occasions, which may include parents. Parents shall be provided with copies of this policy and procedure and appropriate materials on the recognition and prevention of harassment, intimidation and bullying.

GRIEVANCE/COMPLAINT POLICY

Parent Complaint Response/Due Process Procedure

FLVA is interested in achieving and fostering student/family satisfaction. The following procedure ensures that student/family grievances are addressed fairly by the appropriate people in a timely manner. FLVA, in compliance with section 1000.05(2)(a), F.S., prohibits discrimination on the basis of race, ethnicity, national origin, gender, disability, or marital status against a student.

The student and parent(s), custodian(s), or legal guardian(s) should address in writing any concern or grievance to the Head of School. The Head of School responds within ten (10) working days.

If the concern or grievance is not resolved by the Head of School, the parent(s), custodian(s), or legal guardian(s) may, within ten (10) working days of the Head of School's response, request a meeting (via phone or in person) with the Head of School to discuss the concern or grievance. The meeting request must be in writing. The Head of School shall investigate and respond within ten (10) working days.

If the family's concern is not resolved at the meeting with the Head of School, the family may file a complaint with the FLVA Board of Directors. The decision of the School's Board will be final.

II. ORGANIZATIONAL PLAN

Section 9: Governance

A. Describe how the school will organize as or be operated by a non-profit organization.

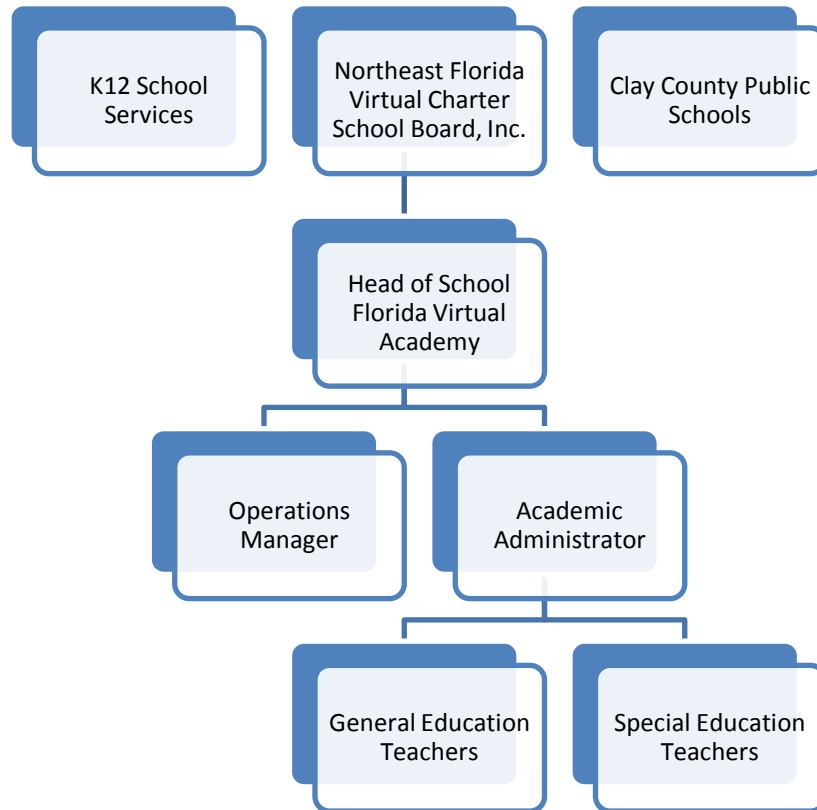
In July 2011, the Northeast Florida Virtual Charter School Board, Inc. filed with the Florida Secretary of State as a not-for-profit, non-stock corporation under the Florida Not for Profit Corporation Act (see **Attachment 9**). The initial purpose of the Corporation is to provide the northeast Florida area with a fully-accredited northeast Florida public charter school offering a blend of online and traditional learning, tuition-free to all northeast Florida families who are motivated to participate in a parent-coached and teacher-guided education option. The articles of incorporation provide that the affairs of the Corporation shall be governed by a Board of Directors. The initial Board of Directors consists of 3 members (see **Question/Answer G** in this section below) who will serve until the first election of the Directors as provided in the Bylaws. Board bylaws are included in this application (see **Attachment 10**).

The Board intends to submit an application for 501(c)(3) status to the IRS within the allowable time frame under the internal revenue code.

B. Provide an organizational chart for the school and a narrative description of the chart. Clearly describe the proposed reporting structure to the governing board and the relationship of the board to the school's leader and administration.

Below is a detailed organizational chart for the Florida Virtual Academy.

**Florida Virtual Academy at Clay County
Organizational Chart***



*Positions depend on enrollment numbers. See 5 year staffing chart for information on when certain positions are staffed

The chart represents the following reporting structure.

The Florida Virtual Academy Board of Directors is the governing body of the School and has the responsibility and authority over the charter and the operations and oversight of the School.

The FLVA Board of Directors will work with the sponsoring district as necessary and appropriate in areas such as, but not limited to, special education, student expulsion, state testing and state reporting.

The Board will contract with an approved education service provider (ESP). The Board has selected K¹² Florida LLC as their ESP and curriculum provider.

- K¹² Florida LLC will be responsible to and report directly to the FLVA Governing Board of Directors regarding all matters concerning the operations of the School.

The Head of School will be an employee of K¹² Florida LLC.

- The FLVA Board of Directors will have input into the hiring and evaluation of the HOS. The Board may remove the Head of School through the process described in the Services Agreement. (Please see additional information in **Attachment 3, Section 7**)

Among the Head of School’s responsibilities are to:

- oversee and manage all school level staff;
- ensure that all policies and directives of the FLVA Board of Directors are executed;
- attend all Board meetings;
- attend all appropriate Florida Department of Education meetings and district level meetings;
- provide school level leadership; and
- ensure all state reporting and compliancy.

The board will evaluate the ESP’s performance annually based on the effective delivery of services and performance clearly laid out in the services agreement. The Board will review monthly finance reports, monthly academic reports, evaluation of the data on student withdrawals and year over year retention rate, and most importantly student academic achievement. The Head of School will be required to provide this information at each board meeting. Even though the Head of School is not employed directly by the Board, the two entities will work hand in hand in order for the School to be successful. Establishing a strong line of communication and partnership between the Board and the ESP, the Board and the Head of School, and among all parties including the sponsor district will be vital to the success FLVA is able to provide for students.

C. Provide a description of how the governing board will fulfill its responsibilities and obligations, including but not limited to:

- Adoption of the annual budget
- Continuing oversight over charter school operations

The Northeast Florida Virtual Charter School Board will fulfill its comprehensive oversight responsibilities and obligations to govern the School according to the Florida Charter School Law, s. 1002.33, F.S., in the following ways:

- **In order to provide financial information that is comparable to that reported for other public schools, FLVA will maintain all financial records that constitute our accounting system in accordance with the accounts and codes prescribed in the most recent issuance of the publication *Financial and Program Cost Accounting and Reporting for Florida Schools* (s. 1002.33(9)(g), F.S.).**

FLVA will provide annual financial report and program cost report information in the state-required formats for inclusion in district reporting in compliance with s. 1011.60(1), F.S. FLVA will also provide a monthly financial statement to our sponsor as required by s. 1002.33(9)(g), F.S. that contains the information as required in Rule 6A-1.0081, F.A.C. including:

1. Projected enrollment for the current school year upon which the School’s budget is based.
2. Actual enrollment at the time the statement is submitted.

3. A balance sheet with assets, liabilities, and fund balances.
4. Year-to-date comparison of budgeted versus actual revenues and expenditures.
5. Notes to the monthly financial statement to include other information material to the monthly financial statement. Material is defined as when the magnitude of an omission or misstatement of accounting information that, in the light of surrounding circumstances, makes it probable that the judgment of a reasonable person relying on the information would have been changed or influenced by the omission or misstatement.

We understand that our sponsor will determine whether the monthly financial statement must be prepared on a cash or accrual basis. We will provide to Clay County a concise, uniform, monthly financial statement summary sheet that contains a balance sheet and a statement of revenue, expenditures, and changes in fund balance. The balance sheet and the statement of revenue, expenditures, and changes in fund balance shall be on a form provided by the Florida Department of Education in a format prescribed by the Governmental Accounting Standards Board.

FLVA and our sponsor will agree in writing to the date by which the monthly financial statements are to be submitted, with the due date being no more than thirty (30) days after the last day of the month for the prior month's statement. According to Rule 6A-1.0081(e), F.A.C., FLVA will not be required to have the monthly financial statements prepared by an independent certified public accountant, unless otherwise agreed to in the charter or a financial recovery plan. The reporting requirements will be supplemental to any financial reporting requirements established in the School's charter.

- **The governing board of the charter school shall annually adopt and maintain an operating budget (s. 1002.33(9)(h), F.S.).**

The Board will adopt an annual program operating budget for each fiscal year, including projected revenues, expenses and capital expenditures, not later than thirty (30) days prior to the start of the fiscal year. While it will be ESP's responsibility to present to the Board (or its authorized designees or subcommittee) a proposed program budget by May 1 of each fiscal year, it is solely the responsibility of the Board to adopt a budget and any necessary subsequent modifications to it. During the course of the school year, K¹² may submit to the Board proposed modifications to the program budget to take into account the actual program student enrollment for a school year, other changes in key assumptions, or other changes deemed necessary or appropriate. The Board and K¹² will work in good faith to agree in writing on modifications to the final Program budget but, in any event, the Board shall act on any modifications proposed by K¹² within thirty (30) days of the proposal thereof (see **Attachment 3 Section 4.3.3 and Exhibit A**).

The proposed Program budget shall include provisions for an independent auditor to be hired by the Board, and appropriate provisions for Board initiated programs.

The proposed Program budget will include assumptions provided by K¹², and shall include funding for the Reserve. The Parties will work in good faith to agree in writing on a final Program budget for the initial year of the Agreement on or before September 1, provided that the Board shall consider the budget proposed by K¹² and will act to approve a final Program budget not later than September 30 of the initial school year.

- **The governing body of the charter school shall exercise continuing oversight over charter school operations (s. 1002.33(9)(i), F.S.).**

The Board is responsible for accountability to all of its stakeholders. The Board is responsible for setting policies and budgets for the School, and for monitoring and ensuring compliance and successful implementation of those policies and budgets. The Board is charged, by statute (s. 1002.33(9)(i)) and their bylaws, with ultimate responsibility for all of the operations of the School including the School's finances (see **Section 9(D)** and **Attachment 10**).

The Governing Board member who serves as Treasurer will be assigned regular financial oversight responsibilities by the Board. The Board will receive financial updates as part of its regular and annual meetings, including an accounting of monthly disbursements. The Treasurer will convene regular monthly meetings with the HOS and Operations Manager to review revenues and expenditures against established plans and address any ongoing financial concerns. The Treasurer's meetings will also serve as an early warning system should any financial issues arise in between regularly scheduled Board meetings.

- **The governing body of the charter school shall be responsible for:**
 - **Ensuring that the charter school has retained the services of a certified public accountant or auditor for the annual financial audit, pursuant to s. 1002.345(2), F.S., who shall submit the report to the governing body (s. 1002.33(9)(j)(1), F.S.).**

The board will be responsible for overseeing the school's quality, operational, and financial performance. One critical tool that the Board will use for financial oversight is an annual financial audit. To assist in monitoring the financial performance of the School, the governing board will annually hire an independent auditor to audit the School's financial statements pursuant to s. 1002.345(2), F.S. and s. 218.39, F.S. The audit will be conducted in accordance with the rules of the Auditor General adopted pursuant to s. 11.45, F.S. The audit report will include a management letter as required by s. 218.39(4), F.S., which is a statement of the auditor's comments and recommendations. K¹², by entering into the services agreement with the Board, agrees to reasonably cooperate with the School's monitoring and oversight, including the audit (See **Attachment 3 Section 3.1**).

- **Reviewing and approving the audit report, including audit findings and recommendations for the financial recovery plan (s. 1002.33(9)(j)(2), F.S.).**

At the conclusion of the audit, the independent auditor will discuss all of the findings that will be included in the audit report with the charter school board President or the President's designee, and provide the findings in writing.

In addition, the auditor will notify each member of the governing board if deteriorating financial conditions exist that may cause a financial emergency condition to occur as described in s. 218.503(1), F.S., if actions are not taken to

address those conditions. Please refer to the next section of this application for an explanation of our plans to address cash flow challenges should they arise.

If deteriorating financial conditions exist, the Board President will review and prepare a written explanation or rebuttal to the audit and file it with the Board within 30 days of delivery of the audit findings. The governing board will then review and approve the audit report in accordance with s. 1002.33(9)(j)(2), F.S. The audit report and written response to the findings by the school's board, including descriptions of corrective actions to be taken in response to each of the auditor's recommendations included in the audit report, will be filed as required with the Auditor General within 45 days after delivery of the audit report to the charter school's board but no later than 9 months after the end of the School's fiscal year. Each member of the charter school board will receive a copy. Copies will also be filed with our sponsor and the Florida Department of Education as required (s. 218.39(10), F.S.). The audit report will also be included in the School's annual report.

- **Performing the duties in s. 1002.345 F.S., including monitoring a corrective action plan (s. 1002.33(9)(j)(3)(a), F.S.).**

and

- **Monitoring a financial recovery plan in order to ensure compliance (s. 1002.33(9)(j)(3)(b), F.S.).**

As a virtual school (compared to a traditional brick and mortar school), Florida Virtual Academy at Clay County will not incur the expenses of large school buildings, daily student transportation, food service, etc. In the event of lower than expected student enrollment, we would scale our instructional staff appropriately. In response to cash flow challenges, in the event that the cash receipts of FLVA available from time to time are insufficient to cover payment of expenses on a timely basis, K¹² will advance to FLVA such amounts as will be necessary to allow payment of such expenses on a timely basis. The advances will be repaid and become due subject to Balanced Budget Credits discussed below and owed to K¹² by FLVA thirty (30) days after K¹² advances the funds. All past due amounts will be subject to the effective interest rate.

The Board's goal will be to achieve a balanced budget each year and not experience a "deteriorating financial condition" described in s. 218.503(1), F.S. or a circumstance that has resulted or will result in the occurrence of a condition described in s. 218.503(1), F.S., if action is not taken to assist the School. According to the terms of the executed educational products and services agreement (see **Attachment 3**), K¹² will be last in the priority of payments for educational and technology services, and, when the School's budget cannot support the standard rates, K¹² will reduce their fees to ensure the School does not end the year with a negative balance--a "Balanced Budget Credit." This financial guarantee, rare among educational service providers, is most important. Our partner, K¹², is agreeing to ensure that the School never ends a year in the red. Due to the strength of their current school operations, the strength of their financial statements (viewable in real-time since they are listed on the New York Stock

Exchange: LRN), and the tested value of their service agreements in over thirty states, we believe we will have a partner that will invest in our success.

- **Participating in governance training approved by the department which must include government in the sunshine, conflicts of interest, ethics, and financial responsibility (s. 1002.33(9)(j)(4), F.S.).**

Board skills will be developed continuously and comprehensively according to the Board training requirements in Rule 6A-6.0784, F.A.C. Each governing board member will complete a minimum of four (4) hours of instruction by a Florida Department of Education approved provider focusing on government in the sunshine, conflicts of interest, ethics, and financial responsibility as specified in s. 1002.33(9)(j)(4), F.S. Additional topics, generally recognized and supported by research or practitioners as important for effective governing board operation, may also be addressed in the initial training or subsequent trainings. After the initial four hour training, each member will be required, within the subsequent three years and for each three year period thereafter, to complete a two hour refresher training on the four topics above in order to retain his or her position on the charter school board. Any member who fails to obtain the two hour refresher training within any three year period must take the four hours of instruction again in order to remain eligible as a charter school board member. New members joining a charter school board must complete the four hour training within 90 days of their appointment to the Board.

Florida Virtual Academy will contract with or provide a trainer who delivers governance training consistent with the school's governance training plan that has been approved by the Florida Department of Education. FLVA is aware that information is available on the Florida Department of Education website about several highly qualified trainers whose charter school governance training plans have been approved by FLDOE. School trainings may include attendance at mandatory and other FLDOE training for charter schools; school board and charter school conferences; curriculum training; school funding training; team-building sessions; school mission and vision reviews; review of Board and officer job descriptions; leadership training; new Board member orientation; networking; and committee and task force assignments.

- **The governing body of the charter school shall report its progress annually to our sponsor, which shall forward the report to the Commissioner of Education at the same time as other annual school accountability reports (s. 1002.33(9)(k), F.S.).**

The Board will report the School's progress annually to our sponsor, which shall forward the report to the Commissioner of Education at the same time as other annual school accountability reports. FLVA will use the Department of Education's uniform, online annual accountability report to be completed by charter schools to provide demographic information, student performance data, and financial accountability information. The report shall include at least the following components according to s. 1002.33(9)(k)(1-4), F.S.:

1. Student achievement performance data, including the information required for the annual school report and the education accountability system governed by ss. 1008.31 and 1008.345, F.S. FLVA will report student achievement information

that links baseline student data to the School's performance projections identified in the charter. FLVA will identify reasons for any difference between projected and actual student performance.

2. Financial status of FLVA including revenues and expenditures at a level of detail that allows for analysis of the charter school's ability to meet financial obligations and timely repayment of debt.
3. Documentation of the facilities in current use and any planned facilities for use by FLVA for instruction of students, administrative functions, or investment purposes.
4. Descriptive information about FLVA's personnel, including salary and benefit levels of FLVA employees, the proportion of instructional personnel who hold professional or temporary certificates, and the proportion of instructional personnel teaching in-field or out-of-field.

In addition to the individual competencies of Board members that will be brought to bear in providing oversight of the School's management, the Board chose K¹², in part, because it has a track record of helping virtual public schools achieve successful state program and financial audits in various states. As part of Florida Virtual Academy's services agreement with K¹², K¹² will provide the School with the administrative services and systems necessary for the School to comply with all reporting requirements established by the Florida Department of Education.

- **The FLVA Board will undergo background screening (s. 1002.33 (12)(g)(1), F.S.).**

Governing board members shall undergo background screening in a manner similar to that provided in s. 1012.32, F.S. for charter school employees, using state and national criminal history records.

- **The governing board of a charter school shall adopt policies establishing standards of ethical conduct for instructional personnel and school administrators (s. 1002.33(12)(g)(3), F.S.)**

The FLVA Board of Directors has reviewed the ESP's personnel handbook and will work with the ESP to ensure that all the Florida required policies are in place. The personnel handbook covers policies such as, but not limited to:

- equal employment opportunity,
- code of conduct,
- anti-harassment and discrimination,
- progressive discipline,
- drug-free work place,
- leave policy,
- FLMA, and
- employee benefits and assistance program.

All new employees will attend an orientation training that reviews benefits, addresses questions, and provides information and access to all School and company systems that are appropriate to

the individual's job role. All full time employees will have access to an online Human Resources (HR) portal that provides up- to-date information on policy changes, all required HR forms, access to be able to change personal information such as contact information, and amount of available leave time. A copy of the ESP, K12 employee handbook has been provided in **Attachment 11**.

- **To facilitate parental involvement, provide access to information, assist parents and others with questions and concerns, and resolve disputes, FLVA's governing board will appoint a representative (s. 1002.33 (7)(d)(1-2), F.S.).**

The Florida Virtual Academy governing board will designate a representative to facilitate parental involvement, provide access to information, assist parents and others with questions and concerns, and resolve disputes as required by s. 1002.33 (7)(d)(1-2), F.S. The representative may be a governing board member, employee, or individual contracted to represent the governing board. Contact information for the representative will be provided in writing to parents each year, and will be posted prominently on the charter school's web site. The representative appointed by the governing board will reside in the school district in which the school is located and will be physically present at the two required public Board meetings each year.

- D. Describe the proposed policies and procedures by which the governing board will operate, including board powers and duties; board member selection, removal procedures and term limits; code of ethics, conflict of interest, and frequency of meetings. If the Board has not yet developed policies, the applicant shall describe the timeline for development and approval of Board policies.**

Charter school governing boards must be guided by a set of by-laws that define how the board will operate. Applicants may include their proposed by-laws.

Adopted bylaws for the charter applicant, Northeast Florida Virtual Charter School Board, Inc., are included in this application (see **Attachment 10**). A primary purpose of the Corporation which the Board directs is "to assist with the establishment, development and administration of virtual charter schools." The bylaws specify the rules that govern the operations of the Board.

Board Policies

In addition to Bylaws, the Board has a comprehensive draft Policy Manual (see **Attachment 12** and **Section F** below). The Policy Manual addresses: School mission; Board legal status, Articles of Incorporation, Bylaws and contact information; process for formulating board policy; policy dissemination; recruitment and appointment of the Head of School; administration in the absence of policy; policy review and maintenance; board ethical guidelines; public participation in board meetings; equal opportunity/nondiscrimination; board powers and responsibilities; board authority and responsibility; board member training; board meetings; and fund balance.

Following the process for adopting new policies as stated in the Policy Manual, the proposed Code of Ethics and Conflict of Interest policy will be submitted either by a Board member or the Head of School. After review and discussion, they will be considered for adoption by an affirmative vote of a majority of the members of the Board when that action has been scheduled on the agenda of a regular or special meeting. The policies will take effect either upon the date

of adoption or upon another date set by the Board. The Board is currently reviewing a draft Code of Ethics and a Conflict of Interest policy and plans to review, discuss, and vote on adopting them by the first day of the 2013 school year (see **Attachment 13** for the draft Code of Ethics and Conflict of Interest Policies).

Board Powers and Duties

The Northeast Florida Virtual Charter School Board will fulfill its comprehensive oversight duties to govern the School according to the Florida Charter School Law, s. 1002.33, F.S., as detailed above. In summary, the Board:

- is the holder of the charter for the School;
- will provide the vision, mission and goals for the School;
- will exercise continuing oversight of the School operations;
- will set the budget annually;
- will review and approve regular financial reports;
- will ensure an independent annual audit is conducted by a certified CPA or auditor;
- will monitor a financial recovery plan, if needed;
- will participate in the interview and hiring of the Head of School;
- will have input into the removal of the Head of School, if necessary;
- will approve all School policies;
- will appoint a parent representative to facilitate parental involvement, provide access to information, assist parents and others with questions and concerns, and resolve disputes;
- will participate in required training and undergo required background screening; and
- will make all required reports to the sponsor.

Board Officers

The Board will have five officers position, however, one person can serve in more than one position (example – the secretary may also serve as the Treasurer): Chairman, President, Vice-President, Secretary, and Treasurer. The duties of those officers are:

Chairman: The Chairman of the Board shall preside at all meetings of the Board and shall perform such other duties as may be assigned to him by the Board.

President: The President shall be the principal executive officer of the Corporation and, subject to the control of the Board, shall in general supervise and control all of the business and affairs of the Corporation. He shall act as a duly authorized representative of the Board and the Corporation in all matters in which the Board has not formally designated some other person to act. He shall report as directed to the Board at each meeting. He may sign, with the Secretary or any other proper officer of the Corporation authorized by the Board, deeds, mortgages, bonds, contracts or other instruments which the Board has authority to execute, except in cases where the signing and execution thereof shall be expressly delegated by the Board or by these Bylaws to some other officer or agent of the Corporation, or shall be required by law to be otherwise signed or executed; and in general, shall perform all duties incident to the office of President and such other duties as may be prescribed by the Board from time to time.

Vice-President: The Vice-President shall act in the place and stead of the President in the event of the President's absence, inability or refusal to act, and shall exercise and discharge such other duties as may be required of him by the Board.

Secretary: The Secretary shall keep or cause to be kept all of the records of the Corporation, record or cause to be recorded the minutes of the meetings of the Board, send out or cause to be sent out all notices of meetings of the Board and all Committees, attest to the seal of the Corporation where necessary or required, and keep or cause to be kept a register of the names and addresses of each Director. The Secretary shall perform such other duties as may be prescribed by the Board.

Treasurer: The Treasurer shall insure or cause to be insured that a true and accurate accounting of the financial transactions of the Corporation is made and that such accounting is presented to and made available to the Board. The Treasurer shall perform such other duties as may be prescribed by the Board.

The Bylaws provide an order of succession for the officers.

Board Committees

Unless otherwise authorized by resolution of the Board or the bylaws, the Chairman shall annually appoint members and chairmen of the Board's standing committees. By vote of the Board, the Chairman can also appoint the members and chairmen of special committees that the Board creates. Special committees may include persons who are not Board members. All committee appointments and chairmen appointments must be approved by a vote of the board.

Board Member Selection, Removal Procedures and Term Limits

According to the bylaws, the initial Board shall consist of the Directors named in the Articles of Incorporation. The Board will consist of at least 3, but no more than 9 members. New or replacement board members will be, first, nominated by a nomination committee to consist of no fewer than 2 board members, appointed by the Board and, then, elected by the Board at any meeting.

Each board member shall have a term of 1, 2, or 3 years, designated when they join the board, to effect a staggering of terms, with each successive board term being for a period of three years after the expiration of the initial term.

A Board member may resign by tendering his resignation in writing to the Chairman or Secretary. Any elected Board member, including officers of the Board, may be removed at any time, with or without cause, by a majority vote of the other Board members.

Frequency of Meetings

The Board will hold regular and annual meetings each year. As required in s. 1002.33 (7)(d)2., the governing board must hold at least two public meetings each school year in the school district. The meetings will be noticed, open, and accessible to the public. Attendees will be provided an opportunity to offer input regarding the School's operations and receive information about the School. The representative appointed by the governing board, and referenced in the response to **Question C** above, will be physically present at the two required meetings. All meetings of the Board and its committees are subject to the Florida Open Meetings Law, Fl. Stat. Chapter 286, and notice of meetings shall be provided as required by that law.

- E. Explain how the founding group for the school intends to transition to a governing board. (This question is not applicable if the applicant is an established governing board.)**

The founding group, the Northeast Florida Virtual Charter School Board, Inc. (see **Question/Answer G** in this section below), is an established governing board, and therefore this question is not applicable to our application.

- F. Describe the plans for board member recruitment and development, including the orientation process for new members and ongoing professional development.**

Recruitment

It is the Board's goal that its members will represent diversity of expertise and interests including teachers, parents, community members and business leaders. It is the intent of the Board to always retain one or more members from each county in which the board operates a charter school. The current board members each have track records which demonstrate successful performance in at least one of the following areas: education, parent involvement programs, community service, fund raising, marketing, law, finance, management, public relations, personnel, legislative affairs and commitment to this region of Florida. Their intent is to recruit other members who share their commitment to the Florida Virtual Academy at Clay County and have a variety of experience and talents including:

- Elementary and secondary education, including at risk students, curriculum, instruction, assessment, data analysis, special needs populations, and online learning
- Startup organizations
- Finance, especially school finance
- Law
- Community outreach
- Fundraising and partnerships
- Communications, marketing, and public relations

New Board members will be recruited by posting the open positions on the Florida Virtual Academy at Clay County website and by advertising in media serving the population in this county. Referrals will also be accepted. As new members are added to the Board, we will provide the district with an updated Board list and information about the new Board members.

Orientation and Ongoing Professional Development

Board member development will be a priority of the School's Board. Board member development will focus on developing skills in the areas of academic, administrative, fiscal and operational accountability as they apply to our School.

Board skills will be developed continuously and comprehensively according to the board training requirements in Rule 6A-6.0784, F.A.C. As stated earlier, each governing board member must complete a minimum of four (4) hours of instruction focusing on government in the sunshine, conflicts of interest, ethics, and financial responsibility as specified in s. 1002.33(9)(k), F.S. Additional topics, generally recognized and supported by research or practitioners as important for effective governing board operation, may also be addressed in the training.

Florida Virtual Academy at Clay County will contract with or provide a trainer who delivers governance training that has been approved by the Department and is consistent with the school's governance training plan. FLVA is aware that information is available on the Florida Department of Education website about several highly qualified trainers whose charter school governance training plans have been approved by FLDOE.

After the initial four hour training, each member is required, within the subsequent three years and for each three year period thereafter, to complete a two hour refresher training on the four topics above in order to retain his or her position on the charter school board. Any member who fails to obtain the two hour refresher training within any three year period must take the four hours of instruction again in order to remain eligible as a charter school board member. New members joining a charter school board must complete the four hour training within 90 days of their appointment to the board.

Existing Board members and new Board members will attend, as appropriate, mandatory and other FLDOE training for charter schools; school board and charter school conferences; curriculum training; school funding training; team-building sessions; School mission and vision reviews; review of Board and officer job descriptions; leadership training; new Board member orientation; networking; and committee and task force assignments.

- G. List each of the proposed members of the school's governing board, indicating any ex-officio members and vacant seats to be filled. For each proposed member, provide a brief description of the person's background that highlights the contribution he/she intends to make through service as a governing board member and any office of the board that individual holds.**

Larry E. Williams, Chairperson

Larry Williams has over twenty-five years of progressive experience in both business and government sectors including expertise in Developing Strategies and Policies, Building Coalitions, Government Relations, Legislative Affairs, Public Relations, Communications, Public Speaking, Research, Recruiting, Training, Finance, Sales and Information Technology. Larry served in the Florida House of Representatives as the Legislative Aide/Budget and Policy Director for State Representative Janet H. Adkins from 2008 – 2012, and retired from U.S. military service in November 2005. He currently has his own consulting firm specializing in

consulting and lobbying services. Larry was the Gubernatorial Appointee for the Northeast Florida Regional Council Board of Directors and has served on a plethora of Government committees throughout his career.

Charlene Sprague, Secretary

Charlene Sprague is a graduate of Edward H. White High School and Florida Community College at Jacksonville (Associates in Arts). She then worked at Prudential Insurance Company for 13 years before becoming a stay-at-home mom. Sprague has been an active PTA member, homeroom mom, and has logged more than 150 volunteer hours at the Duval County brick and mortar schools that her two children attended. She was also a Substitute Teacher in Duval County. Beginning January, 2008, Sprague started her journey as a Virtual School Learning Coach for her children who are currently entering 7th and 9th grades. Since then, she has been an advocate for public virtual education. As a governing board member Sprague intends to provide a perspective to virtual education not all board members possess, having participated in three different public virtual programs.

Deborah Palmer

Deborah Palmer, is currently pursuing a BSET in Information Systems Technology with a specialization in Cyber Security, at Daytona State College. While at Daytona State, she has served as a Student Ambassador and President of REGROUP (a support and networking club for non-traditional students) and the Culinary Club. She left her career as a Manager for the Florida Prepaid College Program's administrative contractor to be a stay-at-home mom for her two children in 2001. She has held positions at her children's public, private and virtual schools since 1993, in various volunteer roles, including serving on PTA, SAC and extra-curricular activity boards and has worked closely with the Volusia County School Board with the implementation of their drop-out prevention program at the Storefront West school.

H. Outline the methods to be used for resolving disputes between a parent and the school.

FLVA will follow this procedure to resolve disputes between a parent and the School. This procedure is included in the Code of Student Conduct (see **Section 8(B)** above and **Attachment 7**) and the school's draft Parent-Student Handbook (see **Attachment 8**) published in the same languages as other school-to-home communications. The Handbook will be made available to students and parents both in hard copy and online on the School website.

GRIEVANCE/COMPLAINT POLICY

Parent Complaint Response/Due Process Procedure

The Florida Virtual Academy is interested in achieving and fostering student/family satisfaction. The following procedure ensures that student/family grievances are addressed fairly by the appropriate people in a timely manner. FLVA, in compliance with section 1000.05(2)(a), F.S., prohibits discrimination on the basis of race, ethnicity, national origin, gender, disability, or marital status against a student.

The student and parent(s), custodian(s), or legal guardian(s) should address in writing any concern or grievance to the Head of School. The Head of School responds within ten (10) working days.

If the concern or grievance is not resolved by the Head of School, the parent(s), custodian(s), or legal guardian(s) may, within ten (10) working days of the Head of School's response, request a meeting (via phone or in person) with the Head of School to discuss the concern or grievance. The meeting request must be in writing. The Head of School shall investigate and respond within ten (10) working days.

If the family's concern is not resolved at the meeting with the Head of School, the family may file a complaint with the FLVA Board of Directors. The decision of the Board will be final.

If the school is filing the application in conjunction with a college, university, museum, educational institution, another nonprofit organization or any other partner, provide the following information:

- I. Name of the partner organization.**
- J. Name of the contact person at the partner organization and that person's full contact information.**
- K. A description of the nature and purpose of the school's partnership with the organization.**
- L. An explanation of how the partner organization will be involved in the governance of the school.**

Florida Virtual Academy at Clay County is not filing an application in conjunction with a college, university, museum, educational institution, another nonprofit organization or any other partner; therefore, questions I-L are not applicable to our application.

Section 10: Management

A. Describe the management structure of the school. Include job descriptions for teachers and each administrative position that identify key roles, responsibilities and accountability.

The Board intends to fulfill its obligations relative to the day-to-day management of the School through a Services Agreement with K¹², a FLDOE-approved provider of virtual instruction services. The Services Agreement (see **Attachment 3**) reflects the Board's determination that K12 is uniquely situated with 12 years of experience providing not only the K12 end-to-end curriculum and learning system, but also the associated administrative and technology services necessary to deliver that curriculum and maximize student academic achievement.

Principal day-to-day management of all academic, operation, and management issues will be assigned by the Board to the Head of School ("HOS") who will be assisted by administrative staff. The Head of School will be an experienced leader with demonstrated expertise in areas of responsibilities such as curriculum, instruction, assessment, finance, facilities, business management, governance and administration.

The Head of School will be responsible for Florida Virtual Academy at Clay County's operations, will oversee the staff that will manage the School, and will handle the academic and supervisory issues. The Head of School will supervise an administrative staff that will be structured based on the School's education program and projected enrollment. Administrative staff members will include Academic Administrators, Operations Manager, and Registrar. The HOS, or his or her designee, will supervise and monitor each of the teachers. The HOS will be designated by the board to be responsible for ensuring that evaluations for instructional personnel are conducted with fidelity to the evaluation system. The HOS will be required to make regular reports to the Board regarding overall performance of the instructional staff.

The Academic Administrator reports to the Head of School and works closely with the Operations Manager. Primary responsibilities include coordinating all academic aspects of the school, ensuring that the student academic performance, progress and attendance is compliant with school requirements, and developing and updating educational policy.

The key role of the Operations Manager is to establish the policies and procedures necessary to meet the legal requirements of operating a school in this state. This includes all reporting obligations to the state, district, and K¹², coordinating the enrollment process of families, and overseeing state testing.

The Registrar supports administrators with the enrollment process by developing student data reports and attendance reports as needed, including attendance audits, fulfilling records requests for withdrawn students, and requesting and tracking receipt of records for newly enrolled students. The Registrar maintains the K¹² and state student-level database, student cumulative files and other student records.

The Board will monitor K¹², including the HOS and administrative staff, through a variety of tools, including, among other things: administrator evaluations; frequent direct reporting from

the HOS, Academic Administrators, and Operations Manager; suggestions from the Parent Advisory Council; parent surveys; and the multiple data collecting/reporting tools which are built into the Board/K12 technological frameworks.

If the Board is dissatisfied or concerned about the job performance of a K¹² staff member assigned to the Program, the Board shall discuss the matter first with the HOS or its equivalent. In the event that the Board has a concern or is not satisfied with the HOS' job performance, the Board will provide K¹² with written notice pursuant to the Services Agreement and set forth the specific issues with supporting documentation. K¹² shall review such request and respond within thirty (30) days to the Board with a six (6) month corrective action plan for the HOS. At the conclusion of the corrective action plan, K¹² and the Board shall discuss the results of the corrective action plan. If, at the conclusion of the corrective action plan, the Board requests K¹² to assign a new HOS to the Program, K¹² shall do so within ninety (90) days.

Job descriptions for administrative, instructional, counseling, and support staff are included in in **Attachment 14**.

B. Outline the criteria and process that will be used to select the school's leader.

Prior to opening in the fall of 2014, the process to advertise for, select and employ the Head of School for the charter school will begin after the district has approved the charter and the district and Board have signed the charter contract.

School Leader Criteria

As stated in the HOS job description in **Attachment 14**, the requirements for a HOS include:

- Master's degree or equivalent work experience
- Professional certificate as a school principal and related experience
- Experience with Local, State, and Federal school laws and reporting
- Experience in a charter school environment preferred
- Proficient organizational and time management skills
- Flexible schedule
- Proficient in MS Excel, MSWord, and Outlook
- Experience using search engines (Internet) for research projects
- Experience using a student information system and/or other type of database preferred
- Strong written and verbal communication skills

School Leader Hiring Process

The Head of School will be recruited with advertisements in well-known educational trade publications such as *Education Week*, via online job recruitment sites such as Monster.com, and in local media throughout Florida. HOS candidates' resumes will be reviewed and sorted by K¹² staff.

K¹² shall provide the Board with background information on finalists for the position, and an opportunity to interview finalist if the Board so chooses, and a reasonable time for the Board to provide K¹² with comments upon the finalists. The responsibilities and performance of K¹²'s staff will be consistent with

Applicable Law. Such administrative personnel may be assigned to the Program on a full- or part-time basis. K¹² will have the sole authority to select, supervise, compensate and determine compensation, evaluate, transfer, promote, discipline and dismiss its staff members.

As K¹² is an approved provider of online instruction, state statute requires administrative staff to be state residents, and requires that K¹² Florida LLC conduct background screenings for all employees or contracted personnel (s. 1012.32, F.S.) using state and national criminal history records. All school staff will undergo a criminal background check prior to an offer of employment. Background checks include:

- National Address Locator (SSN Trace)
- 7 year County Criminal Search (F/M) in each county applicant lived based on the SSN Trace, employment history, and education history
- National Criminal Database (includes National Sex Offender Registry)
- Name submitted plus up to 3 aliases searched
- Education Verification (highest level)
- Employment Verifications (past 3 employers)

Upon confirmation of the background check, an offer of employment will be made and a contract will be signed.

C. Provide a staffing plan for each year of the charter term aligned with the school’s projected enrollment as detailed on the cover page of this application.

The Florida Virtual Academy at Clay County projected staffing plan is structured according to functional areas of school operation related to student enrollment. The functions are necessary for proper support of students, families and faculty. The number of specific positions will be determined by confirmed enrollments. The table below represents the plan for staffing for 2014-2019. Positions will be adjusted in subsequent years in accordance with actual enrollment.

**Florida Virtual Academy at Clay County
5 Year Staffing Plan**

	Year 1	Year 2	Year 3	Year 4	Year 5
Administration, Support Staff, and Instructional Staff (FTE’s)					
Head of School	1.0	1.0	1.0	1.0	1.0
Academic Administrator	0.5	0.5	1.0	1.0	1.0
Operations Manager	0.5	0.5	0.5	0.5	0.5
Total FTE Administrative and Support Staff	2.0	2.0	2.5	2.5	2.5
K – 8 General Education Teachers	2.5	2.5	2.5	2.5	2.5

High School General Education Teachers			0.5	1.0	1.0
K – 8 Special Education Teachers	0.5	0.5	0.5	0.5	0.5
Total FTE Instructional	3.0	3.0	3.5	4.0	4.0
Total All FTE's	5.0	5.0	6.0	6.5	6.5

D. Explain the school's plan for recruitment, selection, and development of staff.

Recruitment and Selection

In the first year of operation, the process to advertise for, select and employ instructional, counseling and support staff for the charter school will begin after the district has approved the charter and as enrollments are confirmed. After the first year of operation, teaching personnel and other staff will be recruited beginning in the spring and continuing into the summer each school year.

Instructional and other staff will be recruited with advertisements in well-known educational trade publications such as *Education Week*, via online job recruitment sites such as Monster.com, and in local media throughout Florida. School administrators will also attend job fairs and set up recruiting sites to inform teachers about the School and conduct interview. Another effective method of recruitment is by referral from current teachers. The number and types of teachers recruited will depend on student enrollment and needs from year to year. Ongoing enrollment may necessitate hiring throughout the year as necessary.

Teacher candidates will be selected and interviewed by the HOS and Academic Administrator. After checking references for final candidates, the HOS will make hiring recommendations to K¹².

Florida Virtual Academy at Clay County teachers will be experienced educators and highly qualified as defined by the No Child Left Behind Act of 2001. They will have a Bachelor's or higher degree, be Florida-certified, and demonstrate competency in elementary, middle school, or high school education depending on their assignment. Each teacher will also demonstrate technological competency. The faculty will include regular education and special education teachers at the elementary, middle, and high school levels. The School will employ, as needed, ESOL endorsed or certified teachers (K-12 coverage) for ELL identified students. In addition, all general education teachers will receive training in teaching and providing modifications to ELL students and providing assistance to parents/coaches.

As an approved provider of online instruction, state statute requires that all K¹² instructional staff are Florida-certified teachers under Chapter 1012, F.S., and requires that K¹² Florida LLC conduct background screenings for all employees or contracted personnel, as required by s. 1012.32, F.S., using state and national criminal history records. Teachers will be fingerprinted at the state level. Background checks include:

- National Address Locator (SSN Trace)

- 7 year County Criminal Search (F/M) in each county applicant lived based on the SSN Trace, employment history, and education history
- National Criminal Database (includes National Sex Offender Registry)
- Name submitted plus up to 3 aliases searched
- Education Verification (highest level)
- Employment Verifications (past 3 employers)
- Professional License Verification

Upon confirmation of the background check, an offer of employment will be made and a contract will be signed.

Professional Development

Professional development will be a year-long pursuit focused on providing teachers and administrators with the skills and competencies to meet the needs of students and their families. In alignment with s. 1012.98, F.S., the purpose of the School’s professional development program is to “increase student achievement, enhance classroom instructional strategies that promote rigor and relevance throughout the curriculum, and prepare students for continuing education and the workforce.” Professional learning will be the result of every staff member’s commitment to improvement. All educators employed with FLVA will be evaluated in accordance with s. 1012.34, F.S., and professional development will be aligned with staff needs as evidenced by the results of their evaluations.

Staff Evaluation

The FLVA Board of Directors will implement rigorous, transparent and fair evaluation systems in compliance with s. 1012.34, F.S., that differentiate effectiveness with data on student growth and include timely and constructive feedback for teachers and the Head of School. The evaluation system will be designed to support effective instruction and student learning growth, and performance evaluation results will be used when developing the school improvement plans. The evaluation system will include performance data from multiple sources, including a valid and reliable observation rubric and measures of student learning, and opportunities for parents to provide input into employee performance evaluations when appropriate. FLVA will identify those teaching fields for which special evaluation procedures and criteria are necessary, and implement those procedures. The results of the evaluation will support teacher growth and development, and inform retention and compensation decisions.

The School budget accounts for yearly bonuses that will be tied directly to the teacher evaluation. Each year salary adjustment for instructional personnel and school administrators will be based upon performance determined by the personnel evaluation system. Salary adjustments will only be provided for those employees rating highly effective or effective. The Board may approve cost of living salary adjustments that would be applicable to all staff, but bonuses will only be provided to staff receiving highly effective or effective ratings.

The Board will strive to ensure that students and parents, when appropriate, have the opportunity to provide input into the process. As a part of the process for retaining highly effective teachers,

FLVA has developed and will implement a teacher mentoring program to provide new teachers with peer assistance and the resources and training needed to be successful.

Instructional Staff

Instructional Practices and Professional Responsibilities

The K¹² products and services include several online and offline tools that allow for meaningful and contemporaneous observation (scheduled or un-scheduled) of instructional staff by the HOS and Academic Administrator. The virtual teaching environment does not easily lend itself to “walk in classroom observations” therefore the Academic Administrator and the Head of School will do no less than 3 online classroom observations. These observations will take the following form: no less than 2 scheduled online observations and at least one unscheduled online observation. Observations will be conducted with a formal observation tool and will provide informal input and formal documentation to the teachers as a reflection of all the observations. While teachers work at a distance, the HOS can use a collection of online “dashboards”, along with various reporting and data collection tools, to monitor and evaluate performance elements, including: course level progress; synchronous (i.e., real-time) instruction; teacher-student & teacher-parent communications; student attendance and performance; teacher professional development; and individual teacher training, development and/or improvement goals. Some of the tools include automatic data collection with warning indicators and alerts if standards are not met, while other tools, such as observation of synchronous instruction, are similar to observation in a traditional classroom.

Staff effectiveness in instructional practice and professional responsibilities will be evaluated with a valid and reliable observation protocol, used by a trained evaluator, to assess the teacher’s performance. FLVA will be implementing the Art and Science of Teaching Causal Teacher Evaluation Model developed by Dr. Robert Marzano and used as the state model in Florida. The Florida Educator Accomplished Practices adopted by the State Board of Education are reflected in the Marzano model. Slight modifications may be needed for effective implementation in the virtual teaching and learning environment. Changes and modifications to the model will be submitted to the sponsor district and the Department of Education for review and approval. The Marzano model, developed over the last 50 years by studying effective teaching and learning practices, bridges the gap between teacher evaluation and student achievement. This teacher evaluation model identifies the direct cause and effect relationship between teaching practices and student achievement to help teachers and leaders make the most informed decisions that yield the greatest benefits for their students.

The Head of School will be designated by the board to be responsible for ensuring that evaluations for instructional personnel are conducted with fidelity to the evaluation system. FLVA will train evaluators to use the Marzano protocol for teacher evaluations and participate in technical assistance opportunities afforded by the Florida Department of Education. FLVA will host professional development sessions for educators to learn about the protocol and teaching practices aligned with the Marzano framework.

The evaluator may consider input from others as long as that individual is trained in the evaluation model. The evaluator will submit a written report of the evaluation to the Head of School for the purpose of reviewing the employee's contract.

Based on the results of all observations, teachers will earn a computer-generated "instructional practice" score. These scores will be uploaded to the Florida Department of Education to be used in the final calculation of teacher effectiveness.

Student Performance

FLVA instructional personnel and school administrator performance evaluations will also be based on the performance of students assigned to their classrooms. Teachers will also receive a state-generated "value added" score that is the result of a comparison of the expected performance of the teachers' students on state assessments as compared with the actual performance of the teachers' students on state assessments. This "student growth" score is intended to indicate the teacher's impact on student achievement.

Evaluation Results

A weighted combination of teachers' instructional practice scores combined with their student growth score will yield a final evaluation score. Educators will earn one of four ratings on the performance evaluations: Highly Effective, Effective, Needs Improvement or Developing (for teachers in the first 3 years of employment who need improvement), and Unsatisfactory. Half (50 percent) of this rating will be determined based on student learning data for teachers, as defined by s. 1012.01(2)(a), F.S., and school administrators as defined by s. 1012.01(2)(b-d), F.S. For instructional personnel who are not classroom teachers, 30 percent of this rating will be based on student learning data. If the educator does not have at least three years of student learning data, FLVA will weight this component of the evaluation at 40 percent for teachers and school administrators and 20 percent for instructional personnel who are not classroom teachers.

Beginning in the 2014-2015 school year, for grades and subjects not assessed by statewide assessments but otherwise assessed as required under s. 1008.22(8), F.S., FLVA will measure student learning growth using an equally appropriate formula. The Florida Department of Education will provide models for measuring student learning growth.

For a course that is not measured by a statewide assessment FLVA will use a student achievement measure rather than a student learning growth measure if achievement is demonstrated to be a more appropriate measure of classroom teacher performance.

In cases where student learning growth in a course is not measured by a statewide assessment but is measured by a school assessment, FLVA will use those data in the performance evaluation for the classroom teacher assigned to that course and include the learning growth of his or her students on the state or applicable school assessments. If this request is made, FLVA will clearly explain the rationale supporting the request. However, the classroom teacher's performance evaluation must give greater weight to student learning growth on the school assessment.

The evaluator will schedule a conference to discuss the evaluation report with the employee. The employee has the right to initiate a written response to the evaluation, and the response will become a permanent attachment to his or her personnel file. The evaluator will provide a copy of the evaluation to the Head of School and employee.

The Head of School will annually notify the sponsor and the Florida Department of Education of any instructional personnel or school administrators who earn two consecutive unsatisfactory evaluations.

The Head of School will annually review instructional personnel and school administrator evaluation systems to determine compliance. All substantial revisions to an approved system will be reviewed and approved by the Board before being used to evaluate instructional personnel or school administrators. Upon request by the Head of School, the Florida Department of Education will provide assistance in developing, improving, or reviewing an evaluation system.

This evaluation model will be used during the 2014-15 school year. FLVA will modify the evaluation system as the Department of Education provides additional guidance on the criteria for the performance levels, value-added models, observation protocols, and appropriate assessments. FLVA will provide all employees with a training session so they are fully informed of the criteria and procedures associated with the evaluation process before the evaluation takes place. Please see **Attachment 15** for a draft Teacher Evaluation Plan.

School Leader Evaluation

The School leader will be held to a high standard of performance. The evaluation criteria for the FLVA school leader include indicators based upon each of the Florida Principal Leadership Standards adopted by the State Board of Education (Rule 6A-5.0080, F.A.C.), including performance measures related to the effectiveness of classroom teachers in the school, the administrator's appropriate use of evaluation criteria and procedures, recruitment and retention of effective and highly effective classroom teachers, improvement in the percentage of instructional personnel evaluated at the highly effective or effective level, and other leadership practices that result in student learning growth.

In addition, the school leader will address specific areas of improvement using an additional metric – Deliberate Practice. The school leader and the evaluator will identify 1 to 4 specific and measurable priority learning goals related to teaching, learning, or school leadership practices that impact student learning growth. One or two targets are recommended. The targets are “thin slices” of specific gains sought – not broad overviews or long term goals taking years to accomplish. The target of a deliberate practice process will describe an intended result and will include “scales” or progress points that guide the leader toward highly effective levels of personal mastery. The school leader will take actions to make discernible progress on those priority goals; monitoring progress toward them, using the monitoring data to make adjustments to practice, and providing measurable evidence of growth in personal mastery of the targeted priorities. The evaluator will monitor progress and provide feedback. Deliberate practices ratings will be based on comparison of proficiency at a “start point” and proficiency at a designated “evaluation point”. The start point data can be based on a preceding year FSLA

evaluation data on a specific indicator or proficiency area, or determined by the school leader and evaluator either at the end of the preceding work year or at the start of the new work year in which the DP targets will be used for evaluation.

The School Leader will be evaluated by both the Board and K12's Regional Vice President of School Services. All Board members will be provided a rubric, based on the FSLA process, on which to rate the Head of School. At the beginning of each school year, the Head of School and Regional Vice President will set targets for the HOS using the Deliberate Practice metric. The Head of School will be evaluated on these targets which may include items such as student academic achievement and growth on state assessments, student growth and gains on internal assessments like Scantron and Study Island, parent satisfaction with the school, compliance with district, state, and federal reporting, and relations with stakeholders, including boards, partners, etc. Subsequent reviews will be based on these goals and will take place during a mid-year review and an end of year final evaluation. Evaluations from the Board will be reflected in the end of year performance evaluation.

The Florida School Leader Assessment (FSLA) evaluation process will include the following:

1. **Orientation** to the process, tools, content, and expectations of the evaluation, including personal reflection on the individual's current practice and the Florida Principal Leadership Standards (FPLS).
2. **Pre-Evaluation Planning** for the evaluator to identify strengths and growth needs; and the school leader to identify improvement priorities.
3. **Initial Meeting** between the evaluator and school leader to review the process, and discuss the tools and Deliberate Practice targets.
4. **Monitoring, Data Collection, and Application to Practice** evidence are collected.
5. **Mid-Year Progress Review** is conducted by the evaluator with the school leader to discuss strengths, progress, and priority growth needs.
6. **Consolidated Performance Assessment** is prepared by the evaluator to summarize the domain ratings and calculate an FSLA score.
7. **Year End Meeting** is conducted to
 - explain the FSLA score,
 - review growth on Deliberate Practice targets, and
 - combine the FSLA score with the Deliberate Practice score to generate a Leadership Practice Score (LPS). The LPS is combined with the Student Growth Measure score to provide a summative performance level of Highly Effective, Effective, Needs Improvement, or Unsatisfactory.

Individual Development Plan (IDP)

Each teacher will have an Individual Development Plan (IDP) that is a combination of required professional development as deemed appropriate by their tenure or as identified by an administrator as an area where development is needed, and other optional offerings particular to their areas of interest. Teachers and staff will receive professional development on these and other topics, at various points throughout the year.

Professional development will begin with Intake Training for new teachers and continues with Ongoing Training monthly for new and experienced teachers. The responsibilities of the teachers are communicated through weekly staff meetings, monthly Professional Development sessions, and the teacher handbook.

Intake Training

New teacher training for teachers will be a multi-day, synchronous and asynchronous event. Virtual National Teacher Training (VNTT) is the initial training offered by the K12 Academic Services Division to all teachers new to teaching using the K12 program. Successful virtual teaching takes a very different set of skills, knowledge, and competencies than those used in a brick and mortar setting. This 40-50 hour synchronous and asynchronous training course immerses new teachers in the platform, tools, and activities they will use every day in their new role. This course is designed to emphasize the first 30 days in the program. Our research shows this time to be the most challenging for new students and families. VNTT teaches and develops skills to guide and support families and students when virtual teachers are most needed. Hundreds of teachers from around the nation (and now the world) will come together with the K12 Academic Services Division to not only learn new skills but also collaborate as professionals and pioneers on a journey to hone their practice and develop into the best virtual teaching professionals in the world. It is a three-week process each year.

During the first week, teachers meet synchronously, covering topics included in the list below. During the second week, teachers work from their home environments, practicing the skills learned in the first week including familiarizing themselves with the tools of the Online School such as lesson planning and tracking student progress. In the final and third week, the teachers convene synchronously again as a group to review progress made, successes, challenges, and to address questions raised. At the end of the intake training each new teacher is also assigned a veteran teacher as a mentor to provide support as they transition to teaching in the virtual environment.

K-8 Teachers

The K-8 Virtual New Teacher Training is designed utilizing both synchronous and asynchronous components that exemplify the same instructional methods and practices utilized within the K12 curriculum and by K12 teachers.

This training path includes 16 asynchronous courses and 5 synchronous sessions at the start of the training path plus additional training in the form of 3 synchronous exhibit hall sessions and 3 synchronous sessions sharing promising practices.

Course Length: 40-50 hours
Materials: Computer equipment, Internet access, log in access to K12 websites
Prerequisites: Course Registration and Confirmation, Classroom Assignment, Reference Course Access granted in Student Administration Management System (SAMS) for K-8 courses

Week 1

1.01 K12 and You

- Welcome to K12
- Introduction to Academic Services and group members
- Best practices for moving forward with training
- Overview of the course
- Increase your understanding of what to expect as a K12 virtual teacher
- Understand the differences between K12 Inc. and your school
- Identify characteristics of public virtual education
- Understand K12's approach to learning
- Understand the mission of K12
- Understand the reasons why families choose K12 as an education option
- Cite the background of the curriculum and the cognitive science approach

1.02 The Online School

- Describe how to assist parents in setting up their OLS accounts and student accounts
- Demonstrate how and where to log into the OLS
- Understand the different features and purposes of teacher, learning coach and student OLS accounts
- Understand the various OLS navigation options
- Understand the dynamic nature of the OLS Plan and lesson shifting
- Understand that there are a variety of alerts available within the OLS
- Understand that teachers have the ability to send K-mail and create notes within the OLS
- Understand how to locate the student information available within the OLS
- Understand how to tell if students are missing days or hours in attendance

1.03 Overview of Resources about the K12 Curriculum

- Demonstrate how to access and use the Scope and Sequence for the K12 curriculum
- Demonstrate how to search through the K12 Support Center
- Demonstrate use of Reference Courses
- Demonstrate access to the Course Introductions
- Demonstrate access to the Speaker's Series recordings
- Demonstrate access to the Curriculum Training Guide Series
- Understand the importance of a regular plan to read lessons from the curriculum

1.04 Understanding a K12 Lesson

- Identify the basic components of a K12 lesson; materials list, objectives, summary, lesson, and assessment
- Identify the online/offline movement within a lesson
- Identify this is a "mastery based curriculum" and mastery is 80%. Explain the appropriate process for handling not mastered lessons
- Determine if a lesson is "Completed, Not Mastered, Not Completed or Skipped" and understand what each means

1.05 Starting Families Out Right

- Describe the on-boarding experience of a new school family.
- Identify the roles of K12, the school and the teacher in welcoming families
- Explain what learning coaches will learn in the Introduction to Online Learning Course
- Demonstrate skills needed by new teachers during the on-boarding phase.
- Understand the importance of building a strong relationship with families

1.06 Learning TotalView School (TVS) and My Info (MI)

- Access TotalView School account
- Identify 3 primary uses of TotalView School as documentation, communication, and investigation
- Access Classroom Information through Classroom Tab
- Access Student Information through Student Tab
- Describe the purpose of the K-mail inbox, outbox, draft, and archive in the communication center
- Demonstrate how to create, read and reply to a new K-mail message
- Demonstrate how to create a new note
- Explain the value of tagging messages and how to tag a message
- Understand the six navigation zones and primary functionality of each zone

1.07 Initial Call and Active Listening

- Understand the importance of early and consistent communication and active listening
- Understand the purpose of the initial call
- Practice active listening by responding to scenarios
- Become aware of the diversity of family situations

1.08 Learning Coach Keys

- Define the role of the learning coach
- Identify challenges of being a learning coach and the role of the teacher in supporting the challenges
- Identify 10 key understandings that learning coaches need for success
- Explain how to use the key understandings proactively

1.09 Serving Students with Special Needs in the Virtual Setting

- Identify the special services model in the K12 virtual learning environment as utilizing the team approach
- Understand the difference between accommodations and modifications
- Compare the roles of the general education and special education teachers
- Understand the importance of confidentiality and professionalism

1.10 Individualizing the Path

- Locate and utilize the Individualizing the Path Training Guide Series
- Describe the purposes of Scantron, Individualized Learning Plan, State Testing Intervention

- (STI), Study Island, and the Advanced Learner Program in promoting academic achievement
- Demonstrate a basic understanding of the role of the teacher in each of the five initiatives
- Summarize the use of each initiative at the school

Week 2

2.01 Moving to Virtual Instruction

- Identify differences between virtual and brick and mortar instructional practices.
- Identify a variety of purposes and formats for delivery of instruction.
- Understand how to identify, prioritize, create and deliver skill specific targeted instruction.
- Understand the options in Blackboard Collaborate for displaying content and student interactive
- Explain the results of quality vs. non-quality instruction in the virtual environment

2.02 Finding Your Work Flow

- Identify various tools available to help plan a work flow
- Understand the basic steps for creating a work flow
- Understand ways to modify a work flow
- Identify behaviors that prevent effective organization and time management
- Identify best practices that allow virtual teachers to develop more effective organizational skills

2.03 The K12 Online School Community

- Name at least five resources/uses for the online school community
- Identify the need to use the online school community to share resources
- Perform: sign up to receive notifications

2.04 Math+ Introduction

- Understand course basics
- Understand the flow of a Math+ lesson
- Be aware of course materials
- Understand the impact of Adaptive activities within a lesson

2.05 MARK¹² Reading Introduction

- Understand course basics
- Understand the flow of a MARK¹² Reading lesson
- Be aware of course materials
- Locate and utilize documents for placement decisions
- Understand the purpose of a Progression Plan

2.06 Middle School Math

- Describe the components and structure of the Middle School Math curriculum
- Identify a strong use of the curriculum

- Identify the location of additional resources
- Identify differences in Pre-Algebra A course and Pre-Algebra B, Algebra I

School Year Support

Exhibit Halls (3 synchronous sessions)

- Display exemplary examples of synchronous content that promotes an interactive, learner focused lesson.
- Guided practice with synchronous skills to further the ability to create exemplary content and facilitate interactive sessions.

Promising Practices (3 synchronous sessions)

- Understand the tools and resources that are available to create a specific and personalized personal development plan to target growth and continue moving toward excellence.
- Understand the promising practices that have been demonstrated effective when working with learning coaches and K-8 students to promote high academic achievement.
- Understand how to identify various patterns of engagement in the learning environment and discover some promising practices to use with students who range from disconnected with school to overly committed with academic and personal activities.

High School Teachers (9 - 12)

This course is designed to equip new K12 high school teachers with the skills they need to begin teaching in the K12 model. Teachers will learn the background of K12, the instructional theories that drive the model, identify the characteristics of an effective home worker, and examine why students and families choose online education. The course presents and demonstrates the tools available to K12 teachers, identifies important communication strategies, and identifies paths for teachers support. The conclusion of the course brings all of the pieces together, demonstrates how teachers setup their classes, and prepares them to teach.

Course Length

- Asynchronous activities are two weeks, approximately 30 to 40 hours of work
- Synchronous sessions are twice during week 1 and three times during week 2, each session meets for approximately 1 ½ hours

Materials: Startup documents, Teacher Guides and other online resources

Prerequisites: Registration and confirmation

Unit 1: K12 and the HS Model

Discover the K12 vision and the distinguishing characteristics that set K12 apart. Learn about K12 products and services, as well as the schools they serve. Compare the synchronous instructional model found in traditional brick and mortar schools to the virtual, asynchronous

model that K12 schools boast. Meet key players, their roles, and learn how everyone cooperates in fostering student success. Find out who our students and families are and why this instructional model is the best possible choice for them.

- K12 and You
- K12 High School Instructional Model
- K12 High School versus Traditional High School
- X-Team
- Who are K12 High School Families?
- Key Understandings for Families

Unit 2: Working from Home

Learn best practices in equipping and managing your home office. Find out how to communicate meaningfully and build a good rapport with students from a remote location. Examine both good and bad practices of time management to become the most efficient, effective virtual teacher to your students.

- Effective Home Work Environments
- Staying Connected
- The Effective Home Worker

Unit 3: A Tour of your Virtual School

Take a virtual tour of the tools used for K12 High Schools. Learn how to access and utilize the various tools on the Online School (OLS), K12 Teacher Support, TotalView School (TVS), and the Learning Management System (LMS). Explore the resources available at K12 Teacher Support and practice creating and sending K-Mail through simulation.

- Tour of K12 High School Tools
- The Online School (OLS)
- K12 Teacher Support
- TotalView School
- Reading and Sending K-Mail
- LMS Tour and Tools

Unit 4: Effective Communication

Recognize the significance of effective communication and its role in improving students' academic performance. Understand the difference between effective and ineffective forms of communication.

Learn to create meaningful forms of communication through a variety of venues. Use the simulations to determine the appropriate modes of communication for various scenarios.

- Communication in Online Learning
- Crucial Communication
- Effective Communication
- Effective Communication with K-Mail
- Effective Communication with Announcements
- Schedule of Communications

Unit 5: The K12 Curriculum

Discover the methods and educational philosophies used to develop K12 curriculum and the breadth of the K12 course Catalog. Compare and contrast the three levels of K12 curriculum. Examine the pedagogy of both asynchronous and synchronous instruction. Explore the course variations offered by K12 and learn specific details of navigating each type of course.

- K12 Curriculum Overview
- K12 High School Pedagogy
- Course Variations

Unit 6: Classroom Management

Discover the intricacies of the LMS and its features. Learn to employ best practices in utilizing the Course Administration Tab, What's New, Doc Sharing, Course Scheduler, Course Home Area, and Threaded Discussions. Maintain Course Quality and Integrity by learning the course modification guidelines and discovering methods to control access to course content. Find out how and when to use the extra credit option and how to proceed when you find errors in the course.

- LMS Course Administration Tab
- What's New
- Doc Sharing
- Controlling Access to Course Items
- Managing the Course Home Area
- Threaded Discussions
- Moderating Threaded Discussions
- Maintaining Course Quality and Integrity

Unit 7: Evaluation and Feedback

Find out what types of assignments you'll be grading, how to grade them, and what constitutes quality instructional feedback. Hear from expert K12 teachers about best practices in grading as they share their tricks of the trade. Discover how to use the grading rubrics provided to develop quality feedback.

- Teacher-Graded Assignments (TGA) and the Dropbox
- Grading and Instructional Feedback
- Using Answer Keys and Rubrics
- Grading Threaded Discussions
- Computer Scored (CS) Assessments
- Teaching with Computer Scored (CS) Assessments

Unit 8: Pacing and Scheduling

Learn to pace your course using the Pacing Guide, Course Calendar and Course Scheduler. Practice your skills through a simulation activity. Discover the connection between student success and proper pacing.

Find ways to motivate your students to stay on schedule in your course.

- Course Pacing and Scheduling
- The Course Calendar
- Setting Up Your Course Scheduler
- Secrets to Keeping Students on Pace

Unit 9: Student Engagement and Performance

Learn how to monitor student activity and performance using TotalView (TVS) and Gradebook reports. Discover reasons why students become disengaged and the correlation between level of involvement and academic success. Explore best practices in motivating and engaging students using effective communication, quality feedback, and well planned Blackboard Collaborate sessions, among other tools.

- Monitoring Student Activity and Performance
- Engaging Students

Unit 10: Live Teaching and Support

Explore the variety of live sessions teachers can offer to students. Listen to an expert K12 teacher tell about best practices in moderating effective sessions and learn to maximize your use of Blackboard Collaborate tools. Search the Blackboard Collaborate website and find out how to troubleshoot and/or escalate any technical problems you might encounter.

- Blackboard Collaborate Sessions
- Explore Blackboard Collaborate.com

Unit 11: Bringing It All Together

Culminate your teacher training experience by putting your newly acquired skills into practice. Follow the prompts to set up your course in the LMS, complete and upload all necessary course documents, and send effective communication to students. Hear tricks of the trade from expert K12 teachers for course setup, communication and time management, as well as download helpful checklists to keep you organized and on top of things.

- Course Set-Up
- First Days of a Course
- Ready to Teach!

Unit 12: Final Assessment and Survey

Record a Blackboard Collaborate session to demonstrate your developing skills in moderating a live class. Consider choosing the Live Lesson Modeling Session for efficiency since you need to prepare this for your first day of school. Complete an End of Course survey giving us quality feedback to improve our efforts as needed.

- Final Exam Part 1
- Final Exam Part 2
- Course Survey

Establishing a Social Presence (synchronous and asynchronous)

- Identify the key requirements and timeline for the Virtual New Teacher Training program
- Perform updates and verify system requirements
- Describe Blackboard Collaborate as a tool and resource for direct instruction, conference, remediation, club participation and other online school related activities
- Compare the differences between online synchronous learning and brick and mortar classroom learning
- Identify what types of assistance and methods to obtain help from Teacher Effectiveness Division

- Demonstrate management of the participant window
- Demonstrate management of chat messages
- Demonstrate management of audio communication
- Demonstrate use of the whiteboard tools

Managing Content (synchronous and asynchronous)

- Identify and utilize correct way to upload presentation, add blank whiteboard, and use whiteboard tools to modify presentations
- Discuss synchronous classroom management strategies and student behavior policies
- Participants will demonstrate ability to load and manage content in Blackboard Collaborate including adding a whiteboard and using the whiteboard tools
- Participants will demonstrate understanding of the difference between saving as pdf and wbd and when it's appropriate to save as each file type

Application Sharing (synchronous and asynchronous)

- Identify the correct application share icon
- Demonstrate how to share one application
- Demonstrate how to share their entire desktop
- Demonstrate how to share a region of an application
- Distinguish the difference between regular and Presentation Mode
- Demonstrate how the Blackboard Collaborate windows are resized while application sharing
- Identify the pros and cons of each sharing option/view
- Give and take away application sharing privileges to participants
- Give and take away participant control of an application while sharing
- Identify the Application Sharing Status Indicator icon and what information it conveys
- Share their Internet browser with participants
- Share one additional application with participants
- Share their entire desktop with participants
- Share a region of an application with participants
- Show their application in presentation mode
- Give and take away control of the shared application with a participant

Web Tour, Web Push and Polling (synchronous and asynchronous)

- Initiate a Web Tour in a live room
- Initiate a Web Push in a live room
- Locate and adjust polling settings in a live room
- Demonstrate use of Web Tour
- Demonstrate use of Web Push
- Demonstrate use of Polling Tools (Select Tool, Show, Hide, Lock, Publish)

Teachers of Special Needs Populations

Adaptive instruction teachers, including ELL, exceptional student education, and gifted teachers, are included in all aspects of FLVA's professional development. To develop effective learning

plans (such as IEPs, EPs, and ELL plans) with appropriate content, instructional modifications, and measurable goals, teachers must possess knowledge of specific curriculum content as well as intervention and adaptation points within the curriculum to successfully teach their students. In such situations, learning activities and assessments may require accommodations to meet the terms of individual student learning plans. Accordingly, all teachers must become familiar with the full scope and sequence of the curriculum, the goals for each child, and the ways they can best achieve success through content or instructional modifications.

School Administrators

Professional development for new FLVA administrators will consist of synchronous sessions on the BlackBoard Collaborate web conferencing platform as well as access to online reference tools. The sessions are designed for a wide range of administrative staff members with significant differences in their day-to-day responsibilities for working with students at various grade levels. The professional development will be designed and provided by K12.

There are four required training assignments for administrators:

- **Orientation to Training** (1 synchronous session): This live session provides a context for training, knowledge of the path for assistance, an awareness of best practices, and a plan for next steps.
- **Monthly Leadership Series** (monthly synchronous sessions): School leaders from K12 managed schools across the country meet monthly for training and discussion of current issues.
- **New Administrator Customized Training Plan:** This is a guide provided to new administrators to assist them to create a customized training plan that effectively addresses their own job. Training content will be made available to new administrators on K12Training.com. Each new administrator provides her/his training plan to the administrator's supervisor or designated reviewer.
- **ClassConnect Basics:** This is a series of four synchronous sessions to introduce the use of the web conferencing tool, Blackboard Connect, for direct instruction in the virtual classroom and running school related meetings.

As an example of the focus of the professional development sessions, in the 2013-2014 school year the focus for leadership development by K12 will be on Data Driven Instruction. The basis for this series will come from Leverage Leadership: A Practical Guide to Building Exceptional Schools by Paul Bambrick-Santoyo and Doug Lemov as well as Driven by Data: A Practical Guide to Improve Instruction by Paul Bambrick-Santoyo.

Ongoing Professional Development (monthly)

Teachers enjoy the benefit of monthly online workshops which provide the opportunity for sharing best practices and team building as well as hearing presentations from curriculum experts. Topics covered will include assessment, technology, instructional strategies, and content, for example, professional development sessions around student and even teacher misconceptions by subject. An online real-time presentation tool is used to facilitate professional development. This tool allows professional development to happen at a common time for

everyone, but eliminates travel costs, in some cases, as teachers can log in, interact with each other, and view presentations in a collaborative online environment.

The flexibility of virtual teaching will allow the program's teachers to participate extensively in professional development offered through K12 Academic Services division. Teachers will be sent the schedule of available professional development sessions each month, and department chairs will be required to attend subject-specific professional development sessions on a regular basis, in addition to program, district, and state provided professional development.

Professional Advancement

A comprehensive Teacher Quality Plan will provide opportunities for teachers to advance into positions of leadership at the School. Lead teachers carry reduced student loads and assist in supervision of teachers and specific other duties (coordinating a reading program, community building, etc.) Master teachers carry a further reduced student load and have some supervisory and evaluative duties. For instance, a Master Teacher – Project Support may be responsible for a specific project or initiative in the school such as raising student achievement. A Master Teacher – Teacher Support carries out professional development, supervisory, and evaluative duties to assist the academic administrators.

Section 11: Education Service Providers

If the school intends to enter into a contract with an Education Service Provider (ESP) that is separate from the Approved Virtual Provider:

- A. Describe the services to be provided by the ESP.
- B. Provide a draft of the proposed contract between the school and the ESP including, at a minimum, proposed services, performance evaluation measures, fee structure, renewal and termination provisions, and terms of property ownership (real, intellectual and personal).
- C. Unless the ESP is the parent non-profit organization, explain why the ESP was selected, including what due diligence efforts were conducted to inform the selection and how the relationship with the ESP will further the school's mission.
- D. Explain the ESP's roles and responsibilities for the financial management of the proposed charter school, if applicable, and the internal controls that will be in place to guide this relationship.
- E. Unless the ESP is the parent non-profit organization, explain how the governing board will ensure that an "arm's length," performance-based relationship exists between the governing board and the ESP.
- F. Provide a summary of the ESP's history, including its educational philosophy and background and experience of senior management.
- G. Provide a list of other schools with which the ESP has contracts, including contact information and student and financial performance data of such schools.

The Board has entered into an Educational Products and Services Agreement ("Services Agreement") for educational products and services related to the operation of Florida Virtual Academy at Clay County with K¹² Florida LLC ("K¹²"), an Approved Virtual Provider in Florida, therefore Questions A-G are not applicable to this application.

If the school will not utilize the services of an Education Service Provider separate from the Approved Virtual Provider:

- A. Provide a copy of the executed contract with the Approved Virtual Provider. The contract must align with the explanations and descriptions contained within this application and must comply with applicable law.

The Board has entered into an Educational Products and Services Agreement ("Services Agreement") for educational products and services related to the operation of Florida Virtual Academy at Clay County with K¹² Florida LLC, an education services provider and a wholly owned subsidiary of K12 Inc. (NYSE: LRN), and an Approved Virtual Instruction Program Provider in Florida. A copy of the Services Agreement is attached as **Attachment 3**. The Services Agreement aligns with the explanations and descriptions in the charter application and complies with applicable law.

Section 12: Human Resources and Employment

A. Explain the school's compensation plan, including whether staff will be publicly or privately employed.

The FLVA Board of Directors has chosen to operate the School with privately employed staff; however, the Board will ensure that all educators employed with FLVA are evaluated in accordance with 1012.34, Florida Statutes, retained according the s. 1012.33, F.S. and compensated based on s. 1012.22F.S.

Compensation

FLVA will implement a performance salary that provides annual salary adjustments for instructional personnel and school administrators based upon performance evaluations ratings. Salary adjustments for highly effective personnel will be greater than the highest annual salary adjustment available to an employee of the same classification through any other salaries adopted by the Board. The salary adjustment for an employee rated as effective will be equal to at least 50 percent and no more than 75 percent of the annual adjustment provided for a highly effective employee of the same classification. FLVA will not provide an annual salary adjustment for an employee who earns a rating other than highly effective or effective for the year.

The Board believes in fairly compensating employees and will work with the Educational Services Provider (ESP) to establish a compensation plan each year that fits within the School's budget. A plan that is strongly tied to student achievement will be utilized to reward high performing staff members. An average new virtual school teacher's starting salary will be \$36,000. Higher entry level pay will be based on key elements such as experience within the virtual learning environment, effectiveness in improving student achievement, and other prior experience outside of the virtual learning environment. The Board does not believe in rewarding staff based on length of service, therefore, educators earn increases in salary based on individual performance evaluation rating and, in part, on improvements in student achievement for the school as a whole.

Salary supplements are an annual addition to the base salary, but do not become part of the base salary, for the term of the negotiated supplement as long as the employee continues his or her employment for the purpose of the supplement.

If budget constraints in any given year limit FLVA's ability to fully fund all salary increases, the performance salary will not be reduced on the basis of total cost or the value of individual awards in a manner that is proportionally greater than reductions to any other salary adjustments.

If workforce reductions are needed, FLVA will retain employees based upon educational program needs and the performance evaluations of employees within the affected program areas. Within the program areas requiring reduction, the FLVA employee with the lowest performance evaluation will be the first to be released; the employee with the next lowest performance evaluations will be the second to be released; and reductions will continue like this until the

needed number of reductions has occurred. FLVA will not prioritize retention of employees based upon seniority per Florida Statute, 1012.33.

Any instructional personnel may be suspended or dismissed at any time for just cause. Just cause includes, but is not limited to, immorality, misconduct in office, incompetency, gross insubordination, willful neglect of duty, being convicted or found guilty of, or entering a plea of guilty to, regardless of adjudication of guilt, or any crime involving moral turpitude, as defined by the Florida State Board of Education.

The Board will notify the employee in writing whenever charges are made and may suspend such person without pay. However, if the charges are not sustained, the employee shall be immediately reinstated and his or her back pay shall be paid. If the employee wishes to contest the charges, he or she must, within 15 days after receipt of the written notice, submit a written request for a hearing to the Board. A direct hearing shall be conducted by the Board or a subcommittee thereof within 60 days after receipt of the written appeal. The hearing shall be conducted in accordance with ss. 120.569 and 120.57, F.S. A majority vote of the membership of the Board will be required to sustain the Head of School's recommendation. The Board's determination is final as to the sufficiency or insufficiency of the grounds for suspension without pay or dismissal. Any such decision adverse to the employee may be appealed by the employee pursuant to s. 120.68, F.S.

B. Describe the proposed personnel policies and procedures to which staff will be required to adhere, including expectations for participation in the school's professional development program. If personnel policies and procedures have not been developed provide a clear plan, including timeline, for the development and approval by governing board.

The FLVA Board of Directors has reviewed the ESP's personnel handbook and will work with the ESP to ensure that all the Florida required policies are in place. The personnel handbook covers policies such as, but not limited to:

- equal employment opportunity;
- code of conduct;
- anti-harassment and discrimination;
- progressive discipline;
- drug-free work place;
- leave policy;
- FMLA; and
- employee benefits and assistance program.

All new employees will attend an orientation training that reviews benefits, addresses questions, and provides information and access to all school and company systems that are appropriate to the individual's job role. All full time employees will have access to an online Human Resources (HR) portal that provides up- to-date information on policy changes, all required HR forms, access to be able to change personal information such as contact information, and amount of available leave time. A copy of the ESP, K12, employee handbook has been provided in **Attachment 11**.

Professional development will be a year-long pursuit focused on providing teachers with the skills and competencies to meet the needs of students and their families. Each teacher will have an Individual Development Plan (IDP) that is a combination of required professional development as deemed appropriate by their tenure or as identified by an administrator as an area where development is needed, and other optional offerings particular to their areas of interest. Teachers and staff will receive professional development on these and other topics, at various points throughout the year.

Professional development will begin with Intake Training for new teachers and continues with Ongoing Training monthly for new and experienced teachers. The responsibilities of the teachers are communicated through weekly staff meetings, monthly Professional Development sessions, and the teacher handbook.

Initial Training

New teacher training for teachers will be a multi-day, synchronous and asynchronous event. Virtual National Teacher Training (VNTT) is the initial training offered by the K12 Academic Services Division to all teachers new to teaching using the K12 program. Successful virtual teaching takes a very different set of skills, knowledge, and competencies than those used in a brick and mortar setting. This 40-50 hour synchronous and asynchronous training course immerses new teachers in the platform, tools, and activities they will use every day in their new role. This course is designed to emphasize the first 30 days in the program. Our research shows this time to be the most challenging for new students and families. VNTT teaches and develops skills to guide and support families and students when virtual teachers are most needed. Hundreds of teachers from around the nation (and now the world) will come together with the K12 Academic Services Division to not only learn new skills but also collaborate as professionals and pioneers on a journey to hone their practice and develop into the best virtual teaching professionals in the world. It is a three-week process each year.

During the first week, teachers meet synchronously, covering topics included in the list below. During the second week, teachers work from their home environments, practicing the skills learned in the first week including familiarizing themselves with the tools of the Online School such as lesson planning and tracking student progress. In the final and third week, the teachers convene synchronously again as a group to review progress made, successes, challenges, and to address questions raised. At the end of the intake training each new teacher is also assigned a veteran teacher as a mentor to provide support as they transition to teaching in the virtual environment.

K-8 Teachers

The K-8 Virtual New Teacher Training is designed utilizing both synchronous and asynchronous components that exemplify the same instructional methods and practices utilized within the K12 curriculum and by K12 teachers.

This training path includes 16 asynchronous courses and 5 synchronous sessions at the start of the training path plus additional training in the form of 3 synchronous exhibit hall sessions and 3 synchronous sessions sharing promising practices.

Course Length: 40-50 hours
Materials: Computer equipment, Internet access, log in access to K12 websites
Prerequisites: Course Registration and Confirmation, Classroom Assignment, Reference Course Access granted in Student Administration Management System (SAMS) for K-8 courses

Week 1

1.01 K12 and You

- Welcome to K12
- Introduction to Academic Services and group members
- Best practices for moving forward with training
- Overview of the course
- Increase your understanding of what to expect as a K12 virtual teacher
- Understand the differences between K12 Inc. and your school
- Identify characteristics of public virtual education
- Understand K12's approach to learning
- Understand the mission of K12
- Understand the reasons why families choose K12 as an education option
- Cite the background of the curriculum and the cognitive science approach

1.02 The Online School

- Describe how to assist parents in setting up their OLS accounts and student accounts
- Demonstrate how and where to log into the OLS
- Understand the different features and purposes of teacher, learning coach and student OLS accounts
- Understand the various OLS navigation options
- Understand the dynamic nature of the OLS Plan and lesson shifting
- Understand that there are a variety of alerts available within the OLS
- Understand that teachers have the ability to send K-mail and create notes within the OLS
- Understand how to locate the student information available within the OLS
- Understand how to tell if students are missing days or hours in attendance

1.03 Overview of Resources about the K12 Curriculum

- Demonstrate how to access and use the Scope and Sequence for the K12 curriculum
- Demonstrate how to search through the K12 Support Center
- Demonstrate use of Reference Courses
- Demonstrate access to the Course Introductions
- Demonstrate access to the Speaker's Series recordings
- Demonstrate access to the Curriculum Training Guide Series
- Understand the importance of a regular plan to read lessons from the curriculum

1.04 Understanding a K12 Lesson

- Identify the basic components of a K12 lesson; materials list, objectives, summary, lesson, and assessment
- Identify the online/offline movement within a lesson
- Identify this is a “mastery based curriculum” and mastery is 80%. Explain the appropriate process for handling not mastered lessons
Determine if a lesson is “Completed, Not Mastered, Not Completed or Skipped” and understand what each means

1.05 Starting Families Out Right

- Describe the on-boarding experience of a new school family.
- Identify the roles of K12, the school and the teacher in welcoming families
- Explain what learning coaches will learn in the Introduction to Online Learning Course
- Demonstrate skills needed by new teachers during the on-boarding phase.
- Understand the importance of building a strong relationship with families

1.06 Learning TotalView School (TVS) and My Info (MI)

- Access TotalView School account
- Identify 3 primary uses of TotalView School as documentation, communication, and investigation
- Access Classroom Information through Classroom Tab
- Access Student Information through Student Tab
- Describe the purpose of the K-mail inbox, outbox, draft, and archive in the communication center
- Demonstrate how to create, read and reply to a new K-mail message
- Demonstrate how to create a new note
- Explain the value of tagging messages and how to tag a message
- Understand the six navigation zones and primary functionality of each zone

1.07 Initial Call and Active Listening

- Understand the importance of early and consistent communication and active listening
- Understand the purpose of the initial call
- Practice active listening by responding to scenarios
- Become aware of the diversity of family situations

1.08 Learning Coach Keys

- Define the role of the learning coach
- Identify challenges of being a learning coach and the role of the teacher in supporting the challenges
- Identify 10 key understandings that learning coaches need for success
- Explain how to use the key understandings proactively

1.09 Serving Students with Special Needs in the Virtual Setting

- Identify the special services model in the K12 virtual learning environment as utilizing the team approach
- Understand the difference between accommodations and modifications
- Compare the roles of the general education and special education teachers
- Understand the importance of confidentiality and professionalism

1.10 Individualizing the Path

- Locate and utilize the Individualizing the Path Training Guide Series
- Describe the purposes of Scantron, Individualized Learning Plan, State Testing Intervention
- (STI), Study Island, and the Advanced Learner Program in promoting academic achievement
- Demonstrate a basic understanding of the role of the teacher in each of the five initiatives
- Summarize the use of each initiative at the school

Week 2

2.01 Moving to Virtual Instruction

- Identify differences between virtual and brick and mortar instructional practices.
- Identify a variety of purposes and formats for delivery of instruction.
- Understand how to identify, prioritize, create and deliver skill specific targeted instruction.
- Understand the options in Blackboard Collaborate for displaying content and student interactive
- Explain the results of quality vs. non-quality instruction in the virtual environment

2.02 Finding Your Work Flow

- Identify various tools available to help plan a work flow
- Understand the basic steps for creating a work flow
- Understand ways to modify a work flow
- Identify behaviors that prevent effective organization and time management
- Identify best practices that allow virtual teachers to develop more effective organizational skills

2.03 The K12 Online School Community

- Name at least five resources/uses for The K12 Online School Community
- Identify the need to use The K12 Online School Community to share resources
- Perform: sign up to receive notifications

2.04 Math+ Introduction

- Understand course basics
- Understand the flow of a Math+ lesson
- Be aware of course materials
- Understand the impact of Adaptive activities within a lesson

2.05 MARK¹² Reading Introduction

- Understand course basics
- Understand the flow of a MARK¹² Reading lesson
- Be aware of course materials
- Locate and utilize documents for placement decisions
- Understand the purpose of a Progression Plan

2.06 Middle School Math

- Describe the components and structure of the Middle School Math curriculum
- Identify a strong use of the curriculum
- Identify the location of additional resources
- Identify differences in Pre-Algebra A course and Pre-Algebra B, Algebra I

School Year Support

Exhibit Halls (3 synchronous sessions)

- Display exemplary examples of synchronous content that promotes an interactive, learner focused lesson.
- Guided practice with synchronous skills to further the ability to create exemplary content and facilitate interactive sessions.

Promising Practices (3 synchronous sessions)

- Understand the tools and resources that are available to create a specific and personalized personal development plan to target growth and continue moving toward excellence.
- Understand the promising practices that have been demonstrated effective when working with learning coaches and K-8 students to promote high academic achievement.
- Understand how to identify various patterns of engagement in the learning environment and discover some promising practices to use with students who range from disconnected with school to overly committed with academic and personal activities.

High School Teachers (9-12)

This course is designed to equip new K12 high school teachers with the skills they need to begin teaching in the K12 model. Teachers will learn the background of K12, the instructional theories that drive the model, identify the characteristics of an effective home worker, and examine why students and families choose online education. The course presents and demonstrates the tools available to K12 teachers, identifies important communication strategies, and identifies paths for teachers support. The conclusion of the course brings all of the pieces together, demonstrates how teachers setup their classes, and prepares them to teach.

Course Length

- Asynchronous activities are two weeks, approximately 30 to 40 hours of work

- Synchronous sessions are twice during week 1 and three times during week 2, each session meets for approximately 1 ½ hours

Materials: Startup documents, Teacher Guides and other online resources

Prerequisites: Registration and confirmation

Unit 1: K12 and the HS Model

Discover the K12 vision and the distinguishing characteristics that set K12 apart. Learn about K12 products and services, as well as the schools they serve. Compare the synchronous instructional model found in traditional brick and mortar schools to the virtual, asynchronous model that K12 schools boast. Meet key players, their roles, and learn how everyone cooperates in fostering student success. Find out who our students and families are and why this instructional model is the best possible choice for them.

- K12 and You
- K12 High School Instructional Model
- K12 High School versus Traditional High School
- X-Team
- Who are K12 High School Families?
- Key Understandings for Families

Unit 2: Working from Home

Learn best practices in equipping and managing your home office. Find out how to communicate meaningfully and build a good rapport with students from a remote location. Examine both good and bad practices of time management to become the most efficient, effective virtual teacher to your students.

- Effective Home Work Environments
- Staying Connected
- The Effective Home Worker

Unit 3: A Tour of your Virtual School

Take a virtual tour of the tools used for K12 High Schools. Learn how to access and utilize the various tools on the Online School (OLS), K12 Teacher Support, TotalView School (TVS), and the Learning Management System (LMS). Explore the resources available at K12 Teacher Support and practice creating and sending K-Mail through simulation.

- Tour of K12 High School Tools
- The Online School (OLS)
- K12 Teacher Support
- TotalView School
- Reading and Sending K-Mail
- LMS Tour and Tools

Unit 4: Effective Communication

Recognize the significance of effective communication and its role in improving students' academic performance. Understand the difference between effective and ineffective forms of communication.

Learn to create meaningful forms of communication through a variety of venues. Use the simulations to determine the appropriate modes of communication for various scenarios.

- Communication in Online Learning
- Crucial Communication
- Effective Communication
- Effective Communication with K-Mail
- Effective Communication with Announcements
- Schedule of Communications

Unit 5: The K12 Curriculum

Discover the methods and educational philosophies used to develop K12 curriculum and the breadth of the K12 Course Catalog. Compare and contrast the three levels of K12 curriculum. Examine the pedagogy of both asynchronous and synchronous instruction. Explore the course variations offered by K12 and learn specific details of navigating each type of course.

- K12 Curriculum Overview
- K12 High School Pedagogy
- Course Variations

Unit 6: Classroom Management

Discover the intricacies of the LMS and its features. Learn to employ best practices in utilizing the Course Administration Tab, What's New, Doc Sharing, Course Scheduler, Course Home Area, and Threaded Discussions. Maintain Course Quality and Integrity by learning the course modification guidelines and discovering methods to control access to course content. Find out how and when to use the extra credit option and how to proceed when you find errors in the course.

- LMS Course Administration Tab
- What's New
- Doc Sharing
- Controlling Access to Course Items
- Managing the Course Home Area
- Threaded Discussions
- Moderating Threaded Discussions
- Maintaining Course Quality and Integrity

Unit 7: Evaluation and Feedback

Find out what types of assignments you'll be grading, how to grade them, and what constitutes quality instructional feedback. Hear from expert K12 teachers about best practices in grading as they share their tricks of the trade. Discover how to use the grading rubrics provided to develop quality feedback.

- Teacher-Graded Assignments (TGA) and the Dropbox
- Grading and Instructional Feedback
- Using Answer Keys and Rubrics
- Grading Threaded Discussions
- Computer Scored (CS) Assessments

- Teaching with Computer Scored (CS) Assessments

Unit 8: Pacing and Scheduling

Learn to pace your course using the Pacing Guide, Course Calendar and Course Scheduler. Practice your skills through a simulation activity. Discover the connection between student success and proper pacing.

Find ways to motivate your students to stay on schedule in your course.

- Course Pacing and Scheduling
- The Course Calendar
- Setting Up Your Course Scheduler
- Secrets to Keeping Students on Pace

Unit 9: Student Engagement and Performance

Learn how to monitor student activity and performance using TotalView (TVS) and Gradebook reports. Discover reasons why students become disengaged and the correlation between level of involvement and academic success. Explore best practices in motivating and engaging students using effective communication, quality feedback, and well planned Blackboard Collaborate sessions, among other tools.

- Monitoring Student Activity and Performance
- Engaging Students

Unit 10: Live Teaching and Support

Explore the variety of live sessions teachers can offer to students. Listen to an expert K12 teacher tell about best practices in moderating effective sessions and learn to maximize your use of

Blackboard Collaborate tools. Search the Blackboard Collaborate website and find out how to troubleshoot and/or escalate any technical problems you might encounter.

- Blackboard Collaborate Sessions
- Explore blackboard.com

Unit 11: Bringing It All Together

Culminate your teacher training experience by putting your newly acquired skills into practice. Follow the prompts to set up your course in the LMS, complete and upload all necessary course documents, and send effective communication to students. Hear tricks of the trade from expert K12 teachers for course setup, communication and time management, as well as download helpful checklists to keep you organized and on top of things.

- Course Set-Up
- First Days of a Course
- Ready to Teach!

Unit 12: Final Assessment and Survey

Record a Blackboard Collaborate session to demonstrate your developing skills in moderating a live class. Consider choosing the Live Lesson Modeling Session for efficiency since you need to prepare this for your first day of school. Complete an End of Course survey giving us quality feedback to improve our efforts as needed.

- Final Exam Part 1

- Final Exam Part 2
- Course Survey

Establishing a Social Presence (synchronous and asynchronous)

- Identify the key requirements and timeline for the Virtual New Teacher Training program
- Perform updates and verify system requirements
- Describe Blackboard Collaborate as a tool and resource for direct instruction, conference, remediation, club participation and other online school related activities
- Compare the differences between online synchronous learning and brick and mortar classroom learning
- Identify what types of assistance and methods to obtain help from Teacher Effectiveness Division
- Demonstrate management of the participant window
- Demonstrate management of chat messages
- Demonstrate management of audio communication
- Demonstrate use of the whiteboard tools

Managing Content (synchronous and asynchronous)

- Identify and utilize correct way to upload presentation, add blank whiteboard, and use whiteboard tools to modify presentations
- Discuss synchronous classroom management strategies and student behavior policies
- Participants will demonstrate ability to load and manage content in Blackboard Collaborate including adding a whiteboard and using the whiteboard tools
- Participants will demonstrate understanding of the difference between saving as pdf and wbd and when it's appropriate to save as each file type

Application Sharing (synchronous and asynchronous)

- Identify the correct application share icon
- Demonstrate how to share one application
- Demonstrate how to share their entire desktop
- Demonstrate how to share a region of an application
- Distinguish the difference between regular and Presentation Mode
- Demonstrate how the Blackboard Collaborate windows are resized while application sharing
- Identify the pros and cons of each sharing option/view
- Give and take away application sharing privileges to participants
- Give and take away participant control of an application while sharing
- Identify the Application Sharing Status Indicator icon and what information it conveys
- Share their internet browser with participants
- Share one additional application with participants
- Share their entire desktop with participants
- Share a region of an application with participants
- Show their application in presentation mode
- Give and take away control of the shared application with a participant

Web Tour, Web Push and Polling (synchronous and asynchronous)

- Initiate a Web Tour in a live room
- Initiate a Web Push in a live room
- Locate and adjust polling settings in a live room
- Demonstrate use of Web Tour
- Demonstrate use of Web Push
- Demonstrate use of Polling Tools (Select Tool, Show, Hide, Lock, Publish)

Teachers of Special Needs Populations

Adaptive instruction teachers, including ELL, exceptional student education, and gifted teachers, are included in all aspects of FLVA's professional development. To develop effective learning plans (such as IEPs, EPs, and ELL plans) with appropriate content, instructional modifications, and measurable goals, teachers must possess knowledge of specific curriculum content as well as intervention and adaptation points within the curriculum to successfully teach their students. In such situations, learning activities and assessments may require accommodations to meet the terms of individual student learning plans. Accordingly, all teachers must become familiar with the full scope and sequence of the curriculum, the goals for each child, and the ways they can best achieve success through content or instructional modifications.

School Administrators

Professional development for new FLVA administrators will consist of synchronous sessions on the BlackBoard Collaborate web conferencing platform as well as access to online reference tools. The sessions are designed for a wide range of administrative staff members with significant differences in their day-to-day responsibilities for working with students at various grade levels. The professional development will be designed and provided by K12.

There are four required training assignments for administrators:

- **Orientation to Training** (1 synchronous session): This live session provides a context for training, a knowledge of the path for assistance, an awareness of best practices, and a plan for next steps.
- **Monthly Leadership Series** (monthly synchronous sessions): School leaders from K12 managed schools across the country meet monthly for training and discussion of current issues.
- **New Administrator Customized Training Plan:** This is a guide provided to new administrators to assist them to create a customized training plan that effectively addresses their own job. Training content will be made available to new administrators on K12Training.com. Each new administrator provides her/his training plan to the administrator's supervisor or designated reviewer.
- **ClassConnect Basics:** This is a series of four synchronous sessions to introduce the use of the web conferencing tool, Blackboard Connect, for direct instruction in the virtual classroom and running school related meetings.

As an example of the focus of the professional development sessions, in the 2013-2014 school year the focus for leadership development by K12 will be on Data Driven Instruction. The basis for this series will come from Leverage Leadership: A Practical Guide to Building Exceptional

Schools by Paul Bambrick-Santoyo and Doug Lemov as well as Driven by Data: A Practical Guide to Improve Instruction by Paul Bambrick-Santoyo.

Ongoing Professional Development (monthly)

Teachers enjoy the benefit of monthly online workshops which provide the opportunity for sharing best practices and team building as well as hearing presentations from curriculum experts. Topics covered will include assessment, technology, instructional strategies, and content, for example, professional development sessions around student and even teacher misconceptions by subject. An online real-time presentation tool is used to facilitate professional development. This tool allows professional development to happen at a common time for everyone but eliminates travel costs, in some cases, as teachers can log in, interact with each other, and view presentations in a collaborative online environment.

The flexibility of virtual teaching will allow the program's teachers to participate extensively in professional development offered through K12 Academic Services division. Teachers will be sent the schedule of available professional development sessions each month, and department chairs will be required to attend subject-specific professional development sessions on a regular basis, in addition to program, district, and state provided professional development.

Section 13: Student Recruitment and Enrollment

- A. Describe the plan for recruiting students, including strategies for reaching the school's targeted populations and those that might otherwise not have easy access to information on available educational options.

Under the Services Agreement with the Board, K¹² is to provide pupil recruitment services, including creating, designing, and preparing information to assist parents and students in making an informed choice about Florida Virtual Academy at Clay County.

As part of its outreach plans, Florida Virtual Academy at Clay County will make available information on its curriculum and policies to all persons, parents and pupils considering enrollment in the School. The information will include, but not be limited to, background on the K12 curriculum, the Florida Virtual Academy at Clay County Online School, and a Parent-Student Handbook that includes policies on admission, enrollment, role of the responsible adult, grade level promotion, course level placement, materials and computers, Internet service, school outings, exceptional student education, standardized tests, and teacher conferences.

Florida Virtual Academy at Clay County will use several means of recruitment for potential students and their families⁴. It is a recruitment model which has been used successfully by charter schools in other states to attract diverse student bodies that includes using a variety of marketing techniques--matching the charter school program and applicants' educational and personal needs.

- Florida Virtual Academy at Clay County Board members and representatives will meet with community leaders throughout the district, including those in minority and low income areas, both urban and rural, to recruit students.
- Information sessions open to interested families and the general public will be held throughout the district and online that will be open to interested families and the general public. Information sessions will be advertised in various print and electronic media. During these sessions, prospective patrons will have the opportunity to interact with the Florida Virtual Academy at Clay County curriculum, including lessons and materials, and have questions answered. A proposed Parent/Student Handbook will be available. Enrollment forms will be available online. The same format will be followed during the online sessions.
- FLVA will work with local faith-based organizations and community organizations such as the YMCA and Boys and Girls Clubs to ensure awareness of the program within the local community
- Florida Virtual Academy at Clay County may participate in organized grade-appropriate awareness activities and sponsored events.
- Florida Virtual Academy at Clay County and K12 Inc. may inform students and families about enrollment opportunities and other program information through a variety of media such as print (i.e. flyers), radio, eBlasts, TV, Internet, and out of home advertising (e.g., billboards).
- The School will establish a website and will use this as the primary mechanism to communicate with interested, prospective families.
- The School will establish a call center to provide information to prospective applicants.

- Florida Virtual Academy at Clay County staff may participate in television, radio and newspaper interviews as necessary.
- Enrollment applications for Florida Virtual Academy at Clay County will be available online as well as at the School's administrative office.
- Florida Virtual Academy at Clay County will distribute recruiting materials about the school's mission, curriculum, leadership, and the application process to public places such as libraries or schools.

FLVA at Clay County, pursuant to the 2013 Senate Bill 7009, will maintain a website that enables the public to obtain information regarding the school; the school's academic performance; the names of the governing board members; the programs at the school; any management companies, service providers, or education management corporations associated with the school; the school's annual budget and its annual independent fiscal audit; the school's grade pursuant to s. 1008.34; and, on a quarterly basis, the minutes of governing board meetings.

B. Explain how the school will achieve a racial/ethnic balance reflective of the community it serves or with the racial/ethnic range of other local public schools.

Florida Virtual Academy will prohibit discrimination against students, families, and employees on the basis of disability, race, creed, color, gender, national origin or religion in all of its practices including admissions and employment and will adhere to all applicable federal and state antidiscrimination laws. As stated in the preceding description of our recruitment plan, Florida Virtual Academy at Clay County will use numerous means of recruitment for potential students and their families, especially those who have been traditionally underserved. It is a recruitment model which has been used successfully by charter schools in other districts and states to attract diverse student bodies that includes using a variety of marketing techniques--matching the charter school program and applicants' educational and personal needs.

Our strategy makes use of many methods of contact including personal contact as well as advertising through print and electronic media, including our own website; and a variety of venues throughout the district such as local churches, YMCA's, and Boys and Girls Clubs to reach as many families as possible.

C. Describe the school's proposed enrollment policies and procedures, including an explanation of the enrollment timeline, criteria and/or any preferences for enrollment, and lottery process.

After the district approves the charter application and a charter contract is signed, the School will give public notice that we will begin to accept applications from students who meet state school-age and residency requirements for enrollment in the 2014-2015 school year. In addition, students must meet one of the following eligibility criteria:

- The student spent the prior school year in attendance at a public school in the state and was enrolled and reported by the public school district for funding during the preceding October and February for purposes of the Florida Education Finance Program (FEFP) surveys;

- The student is a dependent child of a member of the United States Armed Forces who was transferred within the last 12 months to this state from another state or from a foreign country pursuant to the parent’s permanent change of station order;
- The student was enrolled during the prior school year in a virtual instruction program under s.1002.45, the K-8 Virtual School Program under s. 1002.415, or a full-time Florida Virtual School program under s. 1002.37(8)(a);
- The student has a sibling who is currently enrolled in a virtual instruction program and that sibling was enrolled in that program at the end of the prior school year; or
- The student is eligible to enter kindergarten or first grade; or
- The student is eligible to enter grades 2 through 5 and is enrolled fulltime in a school district virtual instruction program, virtual charter school, or the Florida Virtual School.

It is expected that the application period for Year 1 will begin in March 2014. Each year, after the application period is closed, if the number of applicants does not exceed the space available based on the projected enrollment stated in the charter, families will be notified by Florida Virtual Academy at Clay County to confirm their intent to enroll and complete the enrollment process in time to start school in the fall. All required documentation must be submitted before enrollment is approved. Before school starts, families and enrolled students will be involved in a variety of introductions that will include the School staff, and other families and students—by phone, web conference, and face to face meetings.

If applications do exceed the space available at the end of the application period, Florida Virtual Academy at Clay County will conduct a lottery at that time to determine which students will be enrolled in the School. The lottery will not discriminate based on disabilities, academic achievement, etc. The lottery will be held once each year. Only applications received at the location designated on the application form and by the lottery deadline will be included in the lottery.

As provided for in s. 1022.33 (10)(d), F.S., Florida Virtual Academy at Clay County will give enrollment preference to the following:

1. Students who are siblings of a student enrolled in the charter school.
2. Students who are the children of a member of the governing board of the charter school.
3. Students who are the children of an employee of the charter school.
4. Students who are the children of an active-duty member of any branch of the United States Armed Forces.

Completed enrollment packets for applicants selected in the lottery must be received no later than the enrollment deadline. Those not responding by the enrollment deadline will be required to resubmit an application.

After the space allotted in each grade is filled in the order determined by the lottery, the remaining applications in rank order will be placed on a waiting list. Any applications received after the application deadline will be added to the end of the waiting list after the lottery in the

order they were received during the annual enrollment cycle. As students withdraw from or transfer out of Florida Virtual Academy at Clay County, that space will be given to the next person on the list at that grade level.

D. Explain any student and/or family contracts that will be used as a requisite for initial and continued enrollment in the school. Describe if and how the school will enforce such contracts.

A sample application package is included in this application as **Attachment 16**. The application includes three agreements (“contracts”) to be signed as a requisite for initial and continued enrollment in the School:

- Primary Adult Working with Student (see p. 3 of **Attachment 16**)
- Acknowledgement of Expectations (see p. 5 **Attachment 16**)
- Agreement for Use of Instructional Property (see pp. 6-7 of **Attachment 16**)

During the enrollment process, the enrollment specialist will talk with the family about each document and ask the parent or other responsible adult to provide an electronic signature at that time. If the documents are not signed during the enrollment process, the teacher will follow up with the parent and ensure that the parent signs the document.

Primary Adult Working with Student

- This contract is enforced during the required parent conferences. Parents are required to attend and fully participate in parent teacher conferences, in general, once every 3 weeks. This is the time that the teacher reviews items with the parent, discusses concerns, and develops plans with the parent.

Acknowledgment of Expectations

- This is when parents and teachers discuss the role of the teacher and how progress and attendance are monitored. Teachers integrate these discussions into their regular conferences with parents. Teachers check attendance and progress daily, and provide on-going feedback to parents and students. Teachers and parents set learning goals which address attendance, progress, etc. and these goals are monitored on a regular basis.

Agreement for Use of Instructional Property

- This is reviewed with parents at the required parent/student orientation. It will also be in the parent handbook and will be enforced as the situation warrants. For example, if a student destroys a school textbook, the parent will be billed for a replacement book for the student. This will also apply to computer equipment.

E. Explain any other efforts to encourage parental and community involvement, if applicable.

Florida Virtual Academy at Clay County believes the involvement of parents in the education of students is critical to school and student success. The virtual school model utilized by the School emphasizes the parent’s role on the teaching team. The expectation is that parents in that role will contribute significantly to the education of the student.

The Florida Virtual Academy governing board will appoint a representative to facilitate parental involvement, provide access to information, assist parents and others with questions and concerns, and resolve disputes as required by 1002.33 (7)(d)(1-2), F.S. The representative will reside in the school district. The representative may be a governing board member, employee, or individual contracted to represent the governing board. Contact information for the representative will be provided in writing to parents each year, and will be posted prominently on the charter schools web site. The representative appointed by the governing board will be physically present at the two required public Board meetings each year.

The most fundamental role parents will play will be in their role in supporting their child's learning and in helping continuously evaluate Florida Virtual Academy at Clay County's operation, governance, and instructional program. At Florida Virtual Academy at Clay County, learning coaches will help guide students through their daily coursework using the K12 curriculum and OLS and will verify the number of hours of educational activities completed by the student each school year. If a parent(s) does not serve as the learning coach, the parent(s) will determine the "other responsible adult," unless the student is under court placement or in the custody of a person other than the parent(s). For the assignment to be effective, the parent(s) must formally notify the School of "the other responsible adult" assigned responsibility as the learning coach. In the context of the educational program, parents or, in the case of an assignment, other responsible adults, serve as the learning coach.

Throughout their child's education and as part of the learning process, parents will work closely with certified teachers who will oversee the learning of each child. Parents will conference with teachers on a regular basis via phone, email, synchronous sessions using platforms such as Class Connect, or in person to discuss their child's progress. When scheduled, parents are expected to attend school outings, field trips, and other outside learning opportunities with their child, but other arrangements can be made to enable a student's attendance in the event that a parent is unable to bring them. Students will not be penalized if they are unable to make an outing because of a parent's inability to attend.

Florida Virtual Academy at Clay County will provide an extensive support system to both parents and students. Parents serve a critical role in the School's education process, and are partners to the teachers in promoting accountability for their students and the entire Florida Virtual Academy at Clay County community. The School will combine flexibility and individualized instruction with high accountability. At the simplest level, students, teachers, and parents interact face-to-face at outings and other events such as back-to-school events, coffee or ice cream socials, educational expos, open houses, science and art fairs, and school showcases. In addition to face-to-face interaction, the School allows access to a monitored, private, virtual social community which enables students, parents and teachers to communicate and connect online. Parents benefit from exchanging ideas and information with others using the K¹² program and gain a sense of connectedness within the boundaries of a contained but global community. Each K¹² sponsored school has its own subcommunity within the larger virtual social community to generate school pride as well as provide its own content and clubs, a school calendar, announcements, and information on upcoming activities and outings.

Upon enrollment, Florida Virtual Academy at Clay County will conduct parent orientation sessions. Every parent and student will have the opportunity to meet administrative and teaching staff as well as receive information about navigating the curriculum, lesson delivery, effective communication, and school policies. Parents will receive a School handbook that provides guidance on School policies, including tips and advice about getting organized and getting to know the Online School. Knowledge of the School's program and systems allows parents to access web-based lessons and data to see directly how their child is doing.

The School will offer support through regular parent training, speakers, and modeling. Sessions will focus on: reading and helping children improve reading comprehension; essential skills for grammar and writing; motivating struggling learners; focus on reluctant writers; essential note taking skills; numbers and math concepts in the real world; and supporting students as they complete homework. While teachers will be leading these activities at School each day, we believe parents who wish to be engaged with their child's learning after school hours need to be trained in the School's practices. We will maintain a balance between onsite training for parents who can come to the School and will ensure that all sessions have a corollary online webinar which can be accessed live (synchronously) or can be viewed as a recording (asynchronously). K12 is the nation's leader in developing web-based trainings for teachers and parents. We plan to use the web conferencing tool Blackboard Collaborate for web-based training.

Florida Virtual Academy at Clay County will provide family programs and activities to allow parents to meet other likeminded learning coaches, connect students through special interest clubs, discuss a topic that affects families, or become a booster parent. Examples of these programs and activities are:

Parent Workshops

Parent workshops offer a large selection of live online sessions. Topics include:

- Using K12's Curriculum Effectively
- Managing your time
- Using Microsoft/Open Office Tools
- Math and Writing Skills refresher series
- School Effectively at Home series
- Avoiding Burnout
- Preparing for state testing
- Block Scheduling
- Reading Comprehension

Parent 2 Parent Hotline

K12 facilitates hotline hours where a new parent can ask a veteran parent questions or for suggestions about: student motivation, using the curriculum, setting up their school space, time management, and using the Online School or LMS.

Parent RoundTable Discussions

This once-a-month discussion covers topics of interest to learning coaches and is hosted by a K12 team member. Topics planned for this year include "Single-Parenting and Virtual Education," and "Schooling an Only Child at Home," "The Working Parent," and more.

Parent Clubs

K12 hosts a small variety of online clubs where parents can gather and meet from the convenience of their own home to discuss topics of interest outside of virtual schooling.

- ParenTeK¹²
- The Military Hub
- K12 Parents' Novel Corner
- The K12 Parents' Book Chat

Talking Parent2Parent

Florida Virtual Academy at Clay County parents will be expected to be proactive, to contact teachers, specialists, and other parents to solve problems, to give feedback, or pass on ideas and insights to the School community. Where possible, the School also asks that parents volunteer their time and effort on behalf of the School—and to suggest, help organize, and participate in field trips, other educational outings, and social events. In addition:

- Parents can be encouraged to hold a direct leadership position and influence the management of the School by serving on the Florida Virtual Academy at Clay County Board. The Board sets policy and provides governance and oversight on the School's academic, extracurricular, finance, personnel, and legal matters.
- Parents who are not members of the Board will be actively encouraged to attend Board and other Florida Virtual Academy at Clay County meetings and to participate on ad-hoc committees appointed to address specific issues.
- Florida Virtual Academy at Clay County will organize a Parent Advisory Council. The Parent Advisory Council will be parent-driven and recognized as the official voice of the School's parents. The group will serve as a direct communication link between the families and the School and will be a resource for parents, both as a source of conveying School information to families as well as relaying parental suggestions to the School administration.
- Teachers will initiate regular conferences and conversations with parents about their child's progress and also about parents' needs and concerns about the operation of the school. Parents are free to contact teachers, specialists, and other parents to solve problems, give feedback, or pass on ideas and insights to the School community.
- The Florida Virtual Academy at Clay County website will have a moderated School online community discussion board to facilitate a constructive and interactive communication process.
- Parents will help to continuously evaluate the operation and governance of the School both online and offline. Florida Virtual Academy at Clay County will survey parents online annually to determine their satisfaction with their overall experience. Elements of the survey will include the curriculum, instruction, Online School, administration, support, quality of materials, student progress, student attitude towards learning, communication, and interaction with other Florida Virtual Academy at Clay County students and parents. Parents may supply critiques and/or endorsements regarding their experience at the School.

Throughout the school year, the HOS, other administrators, and teachers will account for contributions that parents and community members have made to the business and governance of

the School and communicate this to the Board and the School community through the School website, in print reports and in face-to-face meetings. New opportunities for parents and community members to contribute will always be considered.

Family Support

Florida Virtual Academy is committed to parental involvement and family strengthening. Effective approaches to involving families more fully as partners in the process of their children's learning require the participation and coordination of numerous state and local, public and private agencies shall be encouraged. FLVA shall seek to make connections through a variety of local and culturally sensitive methods to facilitate parents/family members/access to local/regional family strengthening programs available in the community. (e.g., Families Helping Families, Regional Family Resource centers, Parent Information Resource Center, Families In Need of Services (FINs) programs and other family strengthening programs exhibiting peer to peer support systems and positive mental health initiatives).

FLVA shall seek training to facilitate mutual understanding of research-based practices promoting positive relationships between parents, district personnel and community service providers.

FLVA shall seek to identify the mental health needs of its students and match those needs with available local resources including public, nonpublic and/or volunteer organizations.

III. BUSINESS PLAN

Section 14: Budget

- A. Provide an operating budget covering each year of the requested charter term that contains revenue projections, expenses and anticipated fund balances. The budget should be based on the projected student enrollment indicated on the cover page of the application.

The proposed start-up and five year operating budget based on the projected student enrollment indicated on the cover page of the application is included in this application in **Attachment 17**.

- B. Provide a start-up budget that contains a balance sheet, revenue projections, including source of revenues, expenses, and anticipated fund balance. The start-up budget must cover any period prior to the beginning of FTE payments in which the school will expend funds on activities necessary for the successful start-up of the school.

The proposed start-up budget including revenue projections (including the source of revenues), expenses, and anticipated fund balance is included in this application in **Attachment 17**. The start-up budget covers the period from prior to the beginning of FTE payments in which the school will expend funds on activities necessary for the successful start-up of the school. K¹² will provide the school a cash advance to cover the projected startup cost to be repaid after the school receives FTE payments. Balance sheets are included (see **Attachment 17**).

The startup budget represents those costs that are incurred after the charter application has been approved and the charter contract signed with the sponsor district. Once the charter application is approved, the management agreement with the ESP begins and therefore the startup budget only addresses items that are not covered by the management contract. Traditional startup costs such as marketing, school administrative staff salaries, etc. will not be allocated within the startup budget. Consequently, the only startup costs broken out separately are facility and travel costs. The list below represents items/costs that might typically be represented in a startup budget that are not reflected in the FLVA startup budget (see **Attachment 3**) because they are a part of K¹² services under the management agreement.

School Management

- On-site K¹² personnel, including School Leaders that are hired prior to July
- Administrator sourcing, selection, training, oversight
- Teacher sourcing, recommendation, training, oversight
- Systems infrastructure designed for a virtual environment
- School community-building
- Student recruitment resources and expertise
- Enrollment processing and placement expertise
- Website development and maintenance
- Creative services for recruitment and messaging

Public Information Sharing and Student Enrollment

- Develop and implement public awareness programs through numerous media outlets
 - TV
 - Radio
 - Internet
- Extensive web-based information efforts for schools
- Search engine programs
- Banner ads
- Monthly e-mail communications with school news and events
- Distribute mail and school brochures to interested families
- In person and online events to educate interested families

HR Support

- K¹² staff supporting school
- Recruiting for K¹² school based positions
- Background checks for all K¹² employees

Legal Support

- K¹² provides legal support to schools on topics including:
 - Family Education Rights and Privacy Act (FERPA)
 - Charter School Law
 - NCLB and other Federal Education Laws and Regulation
 - Employment Law
 - Public Records and Other School Records Issues
 - Real Estate

- C. Provide a detailed narrative description of the revenue and expenditure assumptions on which the operating and start-up budget are based, including the projected completion rate of students. The narrative should include a description of how the governing board will monitor student completion rate and make any budgetary adjustments necessary to address mid-year adjustments to FTE payments. *The budget narrative should provide sufficient information to fully understand how budgetary figures were determined.***

Revenue Assumptions

As advised by the FLDOE, rather than basing our revenue forecast on the Florida Department of Education Charter School Revenue Estimate Worksheet, it is based on \$5200 per student which is the amount currently established for virtual charter schools. The Board also understands that funding is based on “successful completion”. Based on the experience of our ESP, K¹², with passing/completion rates in the Florida virtual instruction program in Clay County in 2012-2013 (82.66%) and K¹²'s experience as a statewide provider in the Florida Virtual Academy from 2005-2008 (92% passing/completion rate statewide), the projected student completion and passing rate was calculated for FLVA as an average of these two rates. This average rate (87%), in regards to the budget, was applied to the student revenue rate to partially calculate our forecasted revenue. We also made conservative estimates of student enrollments (indicated on the cover page of the application) for funding projections.

FLVA did not include funding from grants, donations, or other additional revenue sources. We intend to apply for Federal (such as the USDOE Charter School Program), state, and philanthropic grants, but know that these are often competitive and restricted to highly targeted interventions. If available, we will apply for such funding to be used to supplement the program spending reflected within the submitted budget with the application. The budget does not assume any long term loans during start up or the term of the charter.

Expense Assumptions

The expense forecast is based on realistic budgeting for costs and contingences. Following the categories of expenditures as outlined in the Florida state required chart of accounts Red Book, our projected expenses include:

Instruction - Teachers

Salary - The Board believes in fairly compensating employees and will work with the Educational Services Provider (ESP) to establish a compensation plan each year that fits within the school's budget. A plan that is strongly tied to student achievement will be utilized to reward high performing staff members. Starting pay wages have been developed. An average new virtual school teacher's starting salary will be \$36,000. In addition to annual cost of living increases in instructional staff salaries, the budget also provides for increases in salaries and/or bonuses based on individual performance evaluation ratings and, in part, on improvements in student achievement for the school as a whole. The budget also accounts for yearly bonuses that will be tied directly to the teacher evaluation which takes into account student performance. Each year salary adjustment for instructional personnel and school administrators will be based upon performance determined under s.1012.34. Salary adjustment will only be provided for those employees rating highly effective or effective. The Board may approve cost of living salary adjustments that would be applicable to all staff but bonuses will only be provided to staff receiving highly effective or effective rating.

Part time positions – These are positions for substitute teachers for maternity leave, part time staff for low demand courses, etc.

Travel & Phone - The budget includes \$500 per teacher per year for travel for offsite professional development and school events; and 360 per teacher for business phone expenses.

Instructional/Non-Instructional materials/Curriculum Delivery - Teachers are allocated resources for the purchase of personal instructional materials and K¹² instructional materials (paper, pens, printer ink, other general office supplies and instructional materials). Teachers will receive a complete set of curriculum materials that students receive. The budget includes sufficient funds to ensure that teachers have online accounts within the learning management system in order to access a complete set of curriculum, student information system, test preparation tools, and all

reporting tools. Teachers are not limited to only having access to one grade level's worth of materials. They have access to multiple levels to ensure they can provide the appropriate resources to assist in student learning.

Laptops - Each teacher is provided a new laptop computer and printer.

Teacher Training & Professional Development - The budget provides \$200 per teacher per year for professional development (in addition to training provided through the federal start-up grant). The budget also provides teachers with an effective real-time web-based classroom (Blackboard Collaborate) to teach students in a distance learning setting.

ISP – teachers are reimbursed at a set rate for their school internet service. The budget reflects a rate of \$30 per month per teacher.

Student Instruction

Florida Virtual Academy at Clay County plans on spending an average of \$75 per student for test administration expenses, including, as needed, facility rental and teacher travel expense for proctoring.

K12 will send every student in grades K-8 approximately 90 pounds of curriculum materials. This cost is reflected in the Instructional Materials line item. It also takes into account shipping to and from the student home. Every student will need a full set of curriculum and access to the Online School account.

The budget assumes that about 35% of the elementary students and 50% of the high school (during the appropriate outlaying years) students will check out a computer system from Florida Virtual Academy at Clay County, based on the ESP's experience nationally. The system includes a desk top computer, a print/fax/scanner and a headset. The 35% and 50% is also the base for the ISP calculation on a set reimbursement rate per month.

As aforementioned, the school plans to offer students the option to earn college credit while enrolled at FLVA, through dual enrollment courses with local colleges. The budget assumes that the dual-enrollment program will be in operation by year 4, with 50% of the 11th and 12th graders taking one course per year. The cost of each course is assumed to be \$71.98 per credit, with one course totaling three credits, or \$215.94. A materials and coursework fee of \$100 per student per course is included in the total estimated cost.

Student and Family Services

Special Ed Services – The Board understands that it may not directly receive special education funds from the sponsor district and that arrangements for payment of services based on a student's IEP will be handled by the district. The Board is aware

of the need to budget for special education costs at the school level. Therefore, the budget was developed on spending an average of \$500 per special education student per year for evaluation and related services provision.

School Events - After year 1, when there are enough enrollments and revenue to support it, FLVA will hold various field trips throughout the year. The amount budgeted here is to reflect projected cost related to those trips.

School Administration and Governance

Sponsor-provided administrative and educational services: Florida Virtual Academy at Clay County, proposes to contract with our sponsor for most of the administrative and educational services which the sponsor is statutorily required to provide (s. 1002.33 (20)(a)). The services, as mentioned in s. 1002.33(20)(a), include contract management services; full-time equivalent and data reporting services; exceptional student education administration services; test administration services, including payment of the costs of state-required or district-required student assessments; processing of teacher certificate data services; and information services, including equal access to student information systems that are used by public schools in the district in which the charter school is located. Lunch services referenced in the statute will not be included. Student performance data for each student in a charter school, including, but not limited to, FCAT scores, standardized test scores, previous public school student report cards, and student performance measures, shall be provided by the sponsor to a charter school in the same manner provided to other public schools in the district. The budget assumes, as referenced in s. 1002(20)6, that a fee may be withheld for such services. While the fee is statutorily capped at five percent, the draft contract assumes the fee will be appropriately set in discussions with the district about the actual services needed.

Legal Services - The budget assumes significant legal expenses after charter approval and during the first year of operation to cover policy review and procurement advice as Florida Virtual Academy at Clay County contracts with vendors for goods and services.

Auditing - The budget includes the annual audit expense during each operational year. The proposed Program budget shall include provisions for an independent auditor to be hired by the Board, and appropriate provisions for Board initiated programs.

Board Training - The Florida Virtual Academy at Clay County budget provides for governing board member training during each operational year, which shall include participation in Florida Department of Education volunteer and mandated training (per 6A-6.0784 F.A.C.) and may include membership in the Florida Charter School Alliance and participation in state and national conference events.

Administrator Travel / Phone / Computer – these line items are projected to cover the travel cost, business cell phone, and computer equipment for all administrative staff.

Consultants - Provides for additional services that may be needed throughout the year on a short term basis (short meaning length of time in number of days or hours provided) to provide for services such as a bilingual assistant.

Technology - Florida Virtual Academy at Clay County plans to provide and/or contract for services, including student recruitment, technology management, a student information system management system, and other reporting needs.

Insurance/Facilities/Other

As a virtual charter school, Florida Virtual Academy at Clay County will have leased facilities for administrative offices as well as meeting space for Florida Virtual Academy at Clay County-related activities, such as Board meetings, learning coach and teacher meetings, and workshops. We plan to lease private commercial facilities, possibly needing renovation, for the term of the charter which will accommodate our needs for administrative space for the five year period of the charter contract.

The facility will be an estimated 1500 square feet. The facility will have space to accommodate our administrative staff, meeting/conference rooms, and restrooms. The facility will provide sufficient wiring and communication capabilities to support the high-tech nature and infrastructure of the school. It will comply with the Florida Building Code, Florida Fire Prevention Code, and local zoning codes as well as health and safety codes, laws, and regulations including the federal Occupational Safety and Health Act of 1970 and the Americans with Disabilities Act (ADA).

Florida Virtual Academy at Clay County has analyzed property rental rates and utility rates (phone, Internet, water, electricity) in the area served by Board and have factored that information into our estimated facility costs. We have assumed in our proposed budget that the costs of operation and maintenance of facilities will be included in the lease payments. Since the location of the administrative offices and facilities are unknown at this time, the renovation needs are unknown as well. We have estimated anticipated Year 1 facility costs of \$28,250, including rent, water/sewer, electricity, phone, and maintenance.

The budget also reflects carrying the required liability insurance (letter from provider is supplied in **Attachment 18**).

D. Explain how the governing board will monitor budget, including a strategy for addressing revenue shortfalls due to lower than expected enrollment.

In the event of lower student enrollment, we would scale our instructional staff appropriately. In response to cash flow challenges, in the event that the cash receipts of FLVA available from time to time are insufficient to cover payment of expenses on a timely basis, K¹² will advance to

FLVA such amounts as will be necessary to allow payment of such expenses on a timely basis. The advances will be repaid and become due subject to Balanced Budget Credits discussed below and owing to K¹² by FLVA thirty (30) days after K¹² advances the funds. All past due amounts will be subject to the effective interest rate.

Our goal will be to achieve a balanced budget each year. According to the terms of the executed educational products and services agreement (see **Attachment 3**), K¹² will be last in the priority of payments for educational and technology services, and, when the school's budget cannot support the standard rates, K¹² will reduce their fees to ensure the school does not end the year with a negative balance--a "Balanced Budget Credit." This financial guarantee, rare among educational service providers, is most important. Our partner, K¹², is agreeing to ensure that the school never ends a year in the red. Due to the strength of their current school operations, the strength of their financial statements (viewable in real-time since they are listed on the New York Stock Exchange: LRN), and the tested value of their service agreements in over thirty states, we believe we will have a partner that will invest in our success. Balanced budget credits are not loans or reportable liabilities of the Board, pursuant to the attached letter in **Attachment 19**.

E. Provide monthly cash flow projections for the school's start-up period through the first year of operation.

The proposed monthly cash flow projections for the school's start-up period (i.e. from the date on which the application is approved to the beginning of the first fiscal year of operation) through the first year of operation is included in this application in **Attachment 17**.

F. Describe the school's fundraising plan, if applicable. Report on the current status of any fundraising efforts, including verification of any fundraising monies reported in the school's start-up or operating budgets.

Florida Virtual Academy at Clay County will apply for a USDOE Charter School Program (CSP) grant through the Florida Department of Education. The CSP funds can be used for a variety of purposes which will support the mission, goals, and objectives of Florida Virtual Academy at Clay County including governing board development, staff professional development, instructional materials, and technology.

Florida Virtual Academy at Clay County will also apply for private and other federal and state grants, as appropriate, after charter approval. Florida Virtual Academy at Clay County recognizes that many grants will be dependent on the demographics of students enrolled in Florida Virtual Academy at Clay County and, therefore, since the budget submitted with the charter application must be developed before we know our actual student demographics, we have not assumed any discretionary or competitive grant funds to achieve our financial goals in either the start-up or operating budgets. Florida Virtual Academy at Clay County will seek grant funds to support activities and services above and beyond the primary instructional program.

Section 15: Financial Management and Oversight

A. Describe who will manage the school's finances and how the school will ensure financial resources are properly managed.

The Board is charged, by statute (s. 1002.33(9)(i), F.S.) and bylaws with ultimate responsibility for all of the operations of the School including the School's finances. The day-to-day financial operation of the School will be managed by the Operations Manager who reports to the HOS who reports to the Board. The Operations Manager will be responsible for day-to-day operational affairs of the School, including budget, bookkeeping, record keeping, cash collections and disbursements, vendor contracting, security, and other non-academic matters.

The Board of Trustees member who serves as Treasurer will be assigned regular oversight responsibilities by the Board. The Board will receive financial updates as part of its regular and annual meetings, including an accounting of monthly disbursements. Added to the Board's oversight, the Treasurer will convene regular monthly meetings with the HOS and Operations Manager to review revenues and expenditures against established plans and address any ongoing financial concerns. The Treasurer's meetings will also serve as any early warning system should any financial issues arise in between regularly scheduled Board meetings.

In addition to the individual competencies of Board members that will be brought to bear in providing direct responsibility and oversight of the School's finances, the School's financial management will be further supplemented by the services of K¹² in overseeing the day-to-day finances of the School. The Board chose K¹², in part, because it has a track record of helping virtual public schools achieve successful state program and financial audits in various states. As part of Florida Virtual Academy at Clay County's contract, K¹² will provide the School with the administrative services and systems necessary for the School to comply with all reporting requirements established by the Florida Department of Education.

K¹² Florida LLC has the capacity for back office financial support and management in accounting, budget analysis and cash flow analysis and monitoring at its central office in Herndon, Virginia. K¹²'s operational skills include establishing the Schools' chart of accounts and accounting system, payroll and benefits management, inventory/asset management and tracking, invoicing, insurance management, financial reporting, and day-to-day business operations. K¹² will provide the Board and the School with the financial expertise, personnel, and support necessary to deliver the budgeting, financial reporting, and management services called for under its Services Agreement with the Board. The onsite Operations Manager will handle daily operational issues including finance. In addition, K¹² will train the School's administrative support staff in the process of bookkeeping and records management so that there is clear accountability for all funds collected and spent. The financial management team, included in the ESP's management fee in the budget, will include:

- Chief Financial Officer at the corporate site
- Regional Account Manager – Financial Planning and Analysis at the corporate site
- Operations Manager at the School site
- Academic Administrator at the School site

- Registrar at the School site

The Board may authorize any officer or officers, agent or agents, to enter into any contract or execute and deliver any instrument in the name of and on behalf of the Corporation, and such authority may be general or confined to specific instances. All checks, drafts or other orders for the payment of money, notes or other evidences of indebtedness issued in the name of the Corporation shall be signed by such officer or officers, agent or agents of the Corporation and in such manner as shall from time to time be determined by resolution of the Board.

The Corporation shall keep correct and complete books and records of account and shall keep minutes of the proceedings of the Board and committees of the Board. Not later than two (2) months after the close of each fiscal year, the Corporation shall prepare a balance sheet showing in reasonable detail the financial condition of the Corporation as of the close of its fiscal year, a profit and loss statement showing the results of the operations of the Corporation during its fiscal year, and any other financial statements as may be required by a resolution of the Board. The balance sheets and profit and loss statements shall be filed in the principal office of the Corporation, shall be kept for at least five (5) years, and shall be subject to public inspection during business hours.

B. Describe the financial controls, including an annual audit and regular board review of financial statements, which will be employed to safeguard finances.

K12 has provided the Board with draft “Fiscal Policies and Procedures, School Accounting and Monthly Financial Reporting” (see **Attachment 20**). The Board will work with K¹² to modify these policies and procedures as needed and appropriate for this School.

Annual Audit

The School, through its Board, will arrange for a certified public accountant (CPA) to conduct an independent audit of the Program’s financial statements on an annual basis in accordance with s. 218.39, F.S. as required by s. 1002.33(9)(j)1, F.S. The audit shall be conducted in accordance with generally accepted accounting principles applicable to schools. Unaudited financial statements will be submitted to the district by July 31 of each year. The annual audit shall be completed and submitted to the district by September 30 of each year. The scope of the audit will include:

1. An examination of financial statements to express an opinion on the fairness with which the charter school presents financial position, changes in financial position, and, where applicable, cash flows of each opinion unit in those financial statements in conformity with generally accepted accounting principles.
2. An examination to determine whether operations are properly conducted in accordance with legal and regulatory requirements.
3. An examination of any additional financial information necessary to comply with generally accepted accounting principles.

When applicable, the scope of the audit shall encompass the additional activities necessary to establish compliance with the Federal Single Audit Act. The rule requires that auditors report on:

1. The financial statements.
 - a. A statement as to whether the financial statements are presented in accordance with generally accepted accounting principles;
 - b. Expression of opinions regarding the basic financial statements, or an assertion to the effect that an opinion cannot be expressed including the reasons therefore; and
 - c. A statement that the audit was conducted in accordance with generally accepted auditing standards.
2. Internal controls and compliance.¹²
 - a. The scope of the auditor's testing of internal control over financial reporting;
 - b. The scope of the auditor's testing of compliance with laws, regulations, contracts, and grant agreements; and
 - c. The auditor's findings and recommendations resulting from those tests, including deficiencies in internal control that are considered to be reportable conditions; instances of fraud and illegal acts; and significant violations of provisions of contracts or grant agreements and abuse that are material to the financial statements.

At the conclusion of the audit, the independent auditor will discuss the findings that will be included in the audit report with the charter school board chairperson or the chairperson's designee, or provide the findings in writing if the chairperson or the chairperson's designee is unavailable. In addition, the auditor will notify each member of the governing board if deteriorating financial conditions exist that may cause a financial emergency condition to occur if actions are not taken. The audit report will include a management letter which is a statement of the auditor's comments and recommendations.

The governing board will review and approve the audit report in accordance with s. 1002.33(9)(j)2 F.S. The audit report and written response to the findings by the School's board will be filed as required with the Auditor General within 45 days after delivery of the audit report to the charter school's board. Each member of the charter school board will receive a copy. Copies will be filed with our sponsor and the Florida Department of Education (s. 218.39(10), F.S.). The audit report will be included in the School's annual report.

Regular Board Review

As mentioned previously, the Board member who serves as Treasurer will be assigned regular oversight responsibilities by the Board. As described in the Bylaws, the "Treasurer shall insure or cause to be insured that a true and accurate accounting of financial transactions of the Corporation is made and that such accounting is presented to and made available to the Board." The Board will receive financial statements as part of its regularly meetings, including an accounting of monthly disbursements. Added to the Board's oversight, the Treasurer will

¹² Internal controls will also be addressed in the charter contract (s. 1002.33(7)(a)9., F.S.), which requires a description of internal audit procedures and establishment of controls to ensure that financial resources are properly managed.

convene regular monthly meetings with the HOS and Operations Manager to review revenues and expenditures against established plans and address any ongoing financial concerns. The Treasurer's meetings will also serve as an early warning system should any financial issues arise in between regularly scheduled Board meetings.

C. Describe the method by which accounting records will be maintained.

Florida Virtual Academy at Clay County understands that Florida charter law (s. 1002.33(9)(g), F.S.) mandates that, in order to provide financial information that is comparable to that reported for other public schools, charter schools are to maintain all financial records that constitute their accounting system. The Florida Virtual Academy at Clay County will elect to follow generally accepted accounting standards for not-for-profit organizations, but will reformat this information for reporting according to the accounts and codes prescribed in the most recent issuance of the publication titled "Financial and Program Cost Accounting and Reporting for Florida Schools" which is known as the Red Book.

Regardless, the GAAP and Red Book reports that will be provided include, but are not limited to:

Charter School-Wide Financial Statements:

- Statement of Net Assets
- Statement of Activities

Fund Financial Statements

- Balance Sheet
- Statement of Revenues, Expenditures and Changes in Fund Balance
- Reconciliation of Statement of Revenues, Expenditures and Changes in Fund Balance to the Statement of Activities
- Others as required by Type of Funds

Monthly Reports

- Reconciliation of Cash Accounts
- Transaction Detail by Account
- Journal Entry Posting
- Balance Sheet
- Statement of Revenues and Expenditures

Florida Virtual Academy at Clay County shall provide a monthly financial statement to our sponsor as required by s. 1002.33(9)(g)(2), F.S. The monthly financial statement shall be in a form prescribed by the Florida Department of Education.

Florida Virtual Academy at Clay County shall provide an annual financial report and program cost report information in the state-required formats for inclusion in district reporting, in compliance with s. 1011.60(1), F.S.

D. Describe how the school will store student and financial records.

School student and financial records will be stored in locked fire proof and waterproof file cabinets in the School's administrative offices, a location that is safe and secure and affords reasonable protection from misuse and access by unauthorized persons, as per Florida Statutes, Chapter 119.

Maintenance of Financial and Student Records (see **Attachment 3, Exhibit A.8**). Following are the procedures as stated in the Services Agreement:

Maintenance of Financial and Student Records

K¹² will maintain and keep the records and books of the program at the Facility or where permitted by Applicable Law. K¹² may maintain electronic or paper copies of records and provide other services elsewhere, unless prohibited by Applicable Law. The School recognizes and agrees that for purposes of the Family Educational Rights and Privacy Act and the State open records act, K¹² has a legitimate educational interest for purposes of School disclosing to K¹² the program student's educational records.

K¹² will maintain accurate financial records pertaining to the operation of the program and will retain all such records for a period of seven (7) years (or longer if required by Applicable Law) from the close of the Fiscal Year to which such books, accounts, and records relate.

K¹² will maintain accurate student records pertaining to students enrolled in the program in the manner required by Applicable Law, and retain such records on behalf of School at the Facility until this Agreement is terminated, at which time such records will be retained by and become the sole responsibility of School.

K¹² will ensure accessibility of program records to School, its independent auditor and the State for completion of audits required by Applicable Law. The Parties understand that all financial, educational and other records, regardless of source of origin, are the property of School. The Parties agree to maintain, retain, disclose, and withhold program records as may be required and in the manner required by Applicable Law.

E. Describe the insurance coverage the school will obtain, including applicable health, workers compensation, general liability, property insurance and directors and officers liability coverage.

Evidence of Florida Virtual Academy at Clay County's ability and preparation to obtain insurance coverage has been provided by Arthur J. Gallagher & Company (see **Attachment 18**). The coverages to be secured include:

- General Liability (Latest ISO form CG 00 01)
- Workers Compensation Part I
- Workers Compensation Part II (Employers Liability)
- Employee Benefits Liability
- Automobile/Bus Liability including owned, nonowned, hired, underinsured and uninsured as needed
- Umbrella / Excess Liability above primary program (GL, Abuse, Auto, EBL, ELL, DO, EPLI, EL)

- Employment Practices Liability
- Educators Legal Liability (School Leaders E&O and/or Professional Liability)
- Directors and Officers
- Sexual Abuse and Misconduct Liability
- Crime / Dishonesty/Fidelity Coverage (Surety Bond for as required)
- Property/Lease and Boiler Machinery Coverage
- Student Accident Coverage

The estimated premiums for this insurance for have been included in the proposed budget (see **Attachment 18**).

Section 16: Action Plan

- A. Present a projected timetable for the school’s start-up, including but not limited to the following key activities:
- i. Recruiting and hiring staff
 - ii. Staff training
 - iii. Governing Board training
 - iv. Policy Adoption by Board (if necessary)
 - v. Lottery, if necessary
 - vi. Student enrollment

The activities included should align with the start-up budget described earlier in the application. If an activity will be paid for by a source of funding not included in the start-up budget, it should be clearly indicated. (This timetable is a projection and is not meant to be binding on the school or sponsor)

The Northeast Florida Virtual Charter School Board will implement a detailed action plan to ensure that all areas of school launch are addressed and managed as the project unfolds. The table below is a projection in fair detail of the activities that need to be achieved, and the timetable to prepare to open in the 2014-15 school year. The activities in the Action Plan below are aligned with the start-up budget in **Attachment 17**.

Florida Virtual Academy Action Plan		
January 2014	Contract	Finalize charter contract with district
		Establish school website / logo
	Systems Set up	Establish online enrollment portal
		Establish online enrollment packet
		Create contact info: phone, fax and email for school
		Establish course defaults and terms (semesters)
March – April 2014	Marketing	Create and deploy marketing strategies: radio ads, print ads, eblasts, etc.
		Conduct face to face parent information sessions
		Conduct online parent information sessions
		Process incoming applications - if applications exceed space available at the end of the application period (by April 15 th) - conduct lottery
	Lottery	Conduct lottery - contact families regarding results

		Collection of required documents for student enrollment
		Begin verifying enrollments
		Register families of enrollees - for Success over Summer program to promote engagement and begin parent training
	HR / Staffing	Advertise and recruit for staff positions (Head of School / Teachers / etc.)
		Begin interview process / background checks
	Office	Locate office space
		Negotiate lease agreement
		Set-up office (phones, equipment, insurance, furniture)
	Board	Ensure all board members receive required 4 hours of board training
	Board & K ¹²	Interview and hire Head of School and other administrative staff positions
May 2014	Hiring	Initial teacher hires based on enrollment numbers
		Begin training administrative staff (a two to four week process)
		Finalize School handbook
		Finalize School policies
		Appropriate administrative staff training regarding state reporting
		Establish School calendar to include: outings, teacher professional development, parent training, state testing
	Special Education	Initial hires for special education teachers based on enrollments
		Intensive training for special education staff on virtual model, state reporting, and providing services to students
		Begin to locate possible related service providers
		Develop IEP process
		Meet with district and state officials regarding exceptional student education reporting
	Marketing	Administrative staff travel to K12 to meet with enrollment team and provide cross training
June 2014	Marketing	Continue marketing events, as needed
	Board	Work with the Board to review goals and prioritize needs

		Approvals of policies / student handbook / school calendar/ etc.
	Communication	Head of School begins to send out jlogs (short informational videos about specific topics) to enrolled families
		Head of School sends out jlogs to families still in enrollment process
		Head of School - develop strong communication plan for teachers as they come on board to reach out to parents
		Head of School - develops an 8th grade transition program that will launch in January
	Materials	Materials begin to ship to students
		Computers begin to ship to students
July 2014	Teachers	Begin National Teacher Training process (40 to 60 hours of training)
		Teachers will attend Face to face professional development
	Communication/Screenings	Conduct parent orientation sessions throughout the state to train parents; conduct vision, hearing screenings; perform kindergarten screening or other needed assessments
		Develop orientation schedule for students for first two weeks of school
	Access	Students gain access to their Online School account two weeks prior to the start of School
August 2014	Marketing	Back to School events
	School	School Starts

In addition to the startup activities for the School staff and all the support services surrounding the School there are specific activities for students and parents as the School opens. Below is a general outline of the first few weeks for students. This is not meant to be a comprehensive list, rather a general overview to provide insight into the process.

Each student will receive instructions to do the following in the first two weeks of School:

WEEK 1

- Log into the OLS & create student login
- Begin the habit of checking and reading all kmails (an internal communications system whereby administrators and teachers can communicate electronically with learning coaches and students in a secure environment) daily
- Expect a call from your homeroom teacher

- Take Reading and Math Scantron tests
- Plan to attend homeroom orientations on Blackboard Collaborate
- Check kmail and/or calendar for a “meet the teacher” date and location and plan to attend
- Read Handbook and submit signature page to homeroom teacher
- Preview daily/weekly plan on the OLS to prepare for next week
- Check the School calendar for events, meetings, or outings you may want to attend
- Read Study Island Instruction Manual sent in kmail
- Begin your Introduction to Online Learning course and work on daily
- Login to Study Island
- Begin OLS coursework

WEEK 2 AND BEYOND

- Preview and save kmailed Blackboard Collaborate schedule and add the times to your personal planner/calendar
- Continue to focus on work in your OLS until Blackboard Collaborate sessions begin
- Begin attending Blackboard Collaborate sessions (these will show up in your daily plan) at the beginning of September
- Begin logging onto Study Island daily and working on assignments listed (you will be sent log in information, so you will not need to purchase this yourself)
- Keep in contact with your homeroom teacher... check kmails daily!!!!

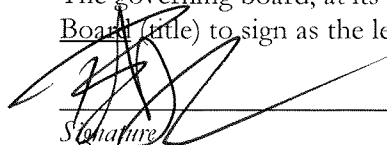
III. STATEMENT OF ASSURANCES

This form must be signed by a duly authorized representative of the applicant group and submitted with the application for a charter school.

As the authorized representative of the applicant group, I hereby certify that the information submitted in this application for a charter for Florida Virtual Academy at Clay County is accurate and true to the best of my knowledge and belief; and further, I certify that, if awarded a charter, the school:

- Will be nonsectarian in its programs, admission policies, employment practices and operations.
- Will enroll any eligible student who submits a timely application, unless the school receives a greater number of applications than there are spaces for students, in which case students will be admitted through a random selection process.
- Will adhere to the antidiscrimination provisions of section 1000.05, F.S.
- Will adhere to all applicable provision of state and federal law relating to the education of students with disabilities, including the Individuals with Disabilities Education Act; section 504 of the Rehabilitation Act of 1974; and Title II of the Americans with Disabilities Act of 1990.
- Will adhere to all applicable provisions of federal law relating to students who are limited English proficient, including Title VI of the Civil Rights Act of 1964 and the Equal Educational Opportunities Act of 1974.
- Will participate in the statewide assessment program created under section 1008.22, F.S.
- Will comply with Florida law relating to public records and public meetings, including Chapter 119, Florida Statutes (F.S.) and Section 286.011, F.S., which are applicable to applicants even prior to being granted a charter.
- Will obtain and keep current all necessary permits, licenses and certifications related to fire, health and safety within the building and on school property.
- Will provide for an annual financial audit in accordance with section 218.39, F.S.

The governing board, at its discretion, allows Brady J. Cobb, Esquire (name), Legal Counsel to the Board (title) to sign as the legal correspondent for the school.



Signature

August 1, 2013
Date

Brady J. Cobb, Esquire
Printed Name

ATTACHMENTS

Attachment 1	Alignments to Common Core State Standards
Attachment 2	Typical Teacher’s Weekly Direct Instruction Schedule
Attachment 3	Educational Products and Services Agreement
Attachment 4	K – 12 Course Catalog
Attachment 5	Draft Student Progression Plan
Attachment 6	Demystifying Special Education in a Virtual Environment
Attachment 7	Draft Student Code of Conduct
Attachment 8	Draft Parent Student Handbook
Attachment 9	Articles of Incorporation
Attachment 10	Board Bylaws
Attachment 11	Employee Handbook
Attachment 12	Draft Board Policy Manual
Attachment 13	Draft Code of Ethics and Conflict of Interest Policies
Attachment 14	Job Descriptions
Attachment 15	Draft Teacher Evaluation Plan
Attachment 16	Sample Application Package
Attachment 17	Budget at 100% Projected Enrollments
Attachment 18	Insurance Coverage
Attachment 19	Balance Budget Credits

Attachment 20	Fiscal Policies and Procedures, School Accounting and Monthly Financial Reporting
Flash Drive (only 1 provided per application)	Curriculum Alignments to NGSSS

NGSSS CURRICULUM ALIGNMENTS

NOTE: A flash drive has been included as part of this application. The drive includes NGSSS curriculum alignments for all K12 courses. Due to the level of detail and length of this document, the Board did not believe it prudent to include printed versions with the application. Printed versions will be provided upon request.

Common Core Kindergarten English Language Arts Standards
Compared to K¹² Language Arts Blue (Grade K)

Standard/Topic	Standards	Coverage	Course Name	K ¹² Unit Name	Lesson #	Comments
Literature	Key Ideas and Details					
	RL.K.1. With prompting and support, ask and answer questions about key details in a text.	Full	Blue	LIT Good Choices	2	<i>HAN refers to the Handwriting Course LAN refers to the Language Skills Course LIT refers to the Literature and Composition Course PHO refers to the Phonics Course</i>
				LIT Listen to Learn	7	
				LIT Out of the Mouths	3	
	RL.K.2. With prompting and support, retell familiar stories, including key details.	Full	Blue	LIT Get Moving	4	
				LIT Tiny People	3	
				LIT Help Yourself and Others	6	
				LIT Three	7	
	RL.K.3. With prompting and support, identify characters, settings, and major events in a story.	Full	Blue	LIT Good Choices	1	
				LIT Three Fairy Tales	9	
				LIT Amazing Tales	9	
	Craft and Structure					
	RL.K.4. Ask and answer questions about unknown words in a text.	Full	Blue	LIT Listen to Learn	7	
				LIT Out of the Mouths	3	
				LIT Tiny People	4	
	RL.K.5. Recognize common types of texts (e.g., storybooks, poems).	Full	Blue	LIT Dig Deep	1	
				LIT Dig Deep	4	
				LIT Among Animals	5	
				LIT A Visit to Australia	3	
				LIT Hot and Cold	4	
			LAN Body Parts, Jobs, and Poems	9		
RL.K.6. With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.	Full	Blue	LIT House and Home	5		
			LIT Dig Deep	5		
			LIT Among Animals	11		
Integration of Knowledge and Ideas						
RL.K.7. With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).	Full	Blue	LIT Among Animals	15		
			LIT Listen to Learn	1		
			LIT Out of the Mouths	2		
RL.K.8. (Not applicable to literature)	N/A					
RL.K.9. With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.	Full	Blue	LIT Three Fairy Tales	2		
			LIT Novel	2		
			LIT Among Animals	1		
Range of Reading and Level of Text Complexity						
RL.K.10. Actively engage in group reading activities with purpose and understanding.	Full	Blue	LIT Among Animals	2		
			LIT Get Moving	1		
Key Ideas and Details						
RI.K.1. With prompting and support, ask and answer questions about key details in a text.	Full	Blue	LIT House and Home	1		
			LIT Dig Deep	1		
RI.K.2. With prompting and support, identify the main topic and retell key details of a text.	Full	Blue	LIT Creature Features	2		
RI.K.3. With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.	Full	Blue	LIT Creature Features	2		
Craft and Structure						
RI.K.4. With prompting and support, ask and answer questions about unknown words in a text.	Full	Blue	LIT Dig Deep	1		
			LIT Amazing Tales	2		
			LIT Out of the Mouths	7		
RI.K.5. Identify the front cover, back cover, and title page of a book.	Full	Blue	LIT Helping Hands	1		
			LIT Novel	1-3		
RI.K.6. Name the author and illustrator of a text and define the role of each in presenting the ideas or information in a text.	Full	Blue	LIT Dig Deep	5		
			LIT Novel	1-3		
Informational Text						

Integration of Knowledge and Ideas					
RI.K.7. With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).	Full	Blue	LIT Among Animals	15	
RI.K.8. With prompting and support, identify the reasons an author gives to support points in a text.	Full	Blue	LIT Out of the Mouths	7	
			LIT Help Yourself and Others	1	
RI.K.9. With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).	Full	Blue	LIT Among Animals	16	
Range of Reading and Level of Text Complexity					
RI.K.10. Actively engage in group reading activities with purpose and understanding.	Full	Blue	LIT Helping Hands	1	
			LIT Out of the Mouths	7	
			LIT A Visit to Australia	4	

Print Concepts

RF.K.1. Demonstrate understanding of the organization and basic features of print.

RF.K.1.a. Follow words from left to right, top to bottom, and page by page.	Full	Blue	PHO Sounds /m/, /t/, /n/, /p/, /ē/, /h/, /d/, and /ō/	1	
			PHO Getting Stronger: /ā/, /ī/, /ō/, and /ū/	1	
			PHO Sounds for Letters a, m, s, t, b, f, c, h, and j	2	
RF.K.1.b. Recognize that spoken words are represented in written language by specific sequences of letters.	Full	Blue	Embedded throughout, for example: PHO Sounds /m/, /t/, /n/, /p/, /ē/, /h/, /d/, and /ō/	1	
			PHO Sounds /m/, /t/, /n/, /p/, /ē/, /h/, /d/, and /ō/	2	
			PHO Sounds /m/, /t/, /n/, /p/, /ē/, /h/, /d/, and /ō/	5	
			PHO Sounds for o, d, g, k, and v	3	
			PHO Sounds for o, d, g, k, and v	4	
			PHO Getting Stronger: /ā/ and /ō/	1	
RF.K.1.c. Understand that words are separated by spaces in print.	Full	Blue	HAN Handwriting 2	2	
RF.K.1.d. Recognize and name all upper- and lowercase letters of the alphabet.	Full	Blue	Embedded throughout, for example: PHO Sounds /b/, /f/, /ā/, /g/, /ō/, and /j/	1-5	

Phonological Concepts

RF.K.2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes).

RF.K.2.a. Recognize and produce rhyming words.	Full	Blue	PHO Sounds /b/, /f/, /ā/, /g/, /ō/, and /j/	1	
			PHO Sounds /b/, /f/, /ā/, /g/, /ō/, and /j/	2	
			LAN Colors, Shapes, and Poems	6	
			LAN Music, Reading, and Poems	9	
RF.K.2.b. Count, pronounce, blend, and segment syllables in spoken words.	Full	Blue	Embedded throughout, for example: PHO Sounds /b/, /f/, /ā/, /g/, /ō/, and /j/	2	
			PHO Sounds /s/, /ā/, /w/, /z/, /ī/, and /l/	4	
			PHO Sounds /ī/, /ū/, /ch/, and /y/	4	
			LAN Sounds /sh/, /aw/, & /kw/ and Syllables	4	
			LAN Music, Reading, and Poems	3	
			LAN Music, Reading, and Poems	5	
RF.K.2.c. Blend and segment onsets and rimes of single-syllable spoken words.	Full	Blue	PHO Digraphs sh and th	2	
			PHO Getting Stronger: Short Vowels and Digraphs	1	
			PHO Sounds /m/, /t/, /n/, /p/, /ē/, /h/, /d/, and /ō/	1-5	
RF.K.2.d. Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonant-vowel-consonant, or CVC) words. (This does not include CVCs ending with /l/, /r/, or /x/.)	Full	Blue	PHO Sounds /s/, /ā/, /w/, /z/, /ī/, and /l/	1	
			PHO Sounds for Letters a, m, s, t, b, f, c, h, and j	3	
			PHO Sounds for Letters a, m, s, t, b, f, c, h, and j	2	
RF.K.2.e. Add or substitute individual sounds (phonemes) in simple, one-syllable	Full	Blue	PHO Sounds for Letters a, m, s, t, b, f, c, h, and j	2	

Foundational Skills

words to make new words.			PHO Sounds for Letters l, n, p, & r, Sound Review, and Vowels	2	
Phonics and Word Recognition					
RF.K.3. Know and apply grade-level phonics and word analysis skills in decoding words.					
RF.K.3.a. Demonstrate basic knowledge of letter-sound correspondences by producing the primary or most frequent sound for each consonant.	Full	Blue	PHO Getting Stronger: Short Vowels and Digraphs	1	
			PHO Getting Strong: Letter Sounds	1	
RF.K.3.b. Associate the long and short sounds with the common spellings (graphemes) for the five major vowels.	Full	Blue	Embedded throughout, for example: PHO Sounds Long Double o & /ow/ and Sound Practice	1-5	
			PHO Getting Stronger: Short Vowels	1-5	
			PHO Getting Stronger: Short Vowels and Digraphs	1-5	
			PHO Getting Stronger: Letter Sounds	1-5	
			PHO Getting Stronger: Short Vowels, Digraphs, and Sentences	1-5	
			PHO Getting Stronger: Vowels	1-5	
			PHO Words, Letters & Sounds, and Sentences	1-5	
RF.K.3.c. Read common high-frequency words by sight (e.g., <i>the, of, to, you, she, my, is, are, do, does</i>).	Full	Blue	PHO Sounds for Letters a, m, s, t, b, f, c, h, and j	1-5	
			PHO Sounds for Letters l, n, p, & r, Sound Review, and Vowels	1	
RF.K.3.d. Distinguish between similarly spelled words by identifying the sounds of the letters that differ.	Full	Blue	PHO Sounds for Letters a, m, s, t, b, f, c, h, and j	2	
			PHO Sounds for Letters l, n, p, & r, Sound Review, and Vowels	2	
			PHO Review Short Vowels	1	
Fluency					
RF.K.4. Read emergent-reader texts with purpose and understanding.	Full	Blue	LIT Among Animals	2	
			PHO Sounds for Letters a, m, s, t, b, f, c, h, and j	1	
			PHO Sounds for Letters l, n, p, & r, Sound Review, and Vowels	3	
Text Types and Purposes					
W.K.1. Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., <i>My favorite book is...</i>).	Full	Blue	LAN Music, Reading, and Poems	5	
			LAN Music, Reading, and Poems	8	
W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.	Full	Blue	LAN Body Parts, Jobs, and Poems	5	
			LAN Adults & Babies, Homographs, and Poems	5	
W.K.3. Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.	Full	Blue	LAN Writing, Manners, and Poems	2	
			LAN Sequences, Growing, and Poems	2	
			LAN Adults & Babies, Homographs, and Poems	5	
Production and Distribution of Writing					
W.K.4. (Begins in grade 3)	N/A		N/A		
W.K.5. With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.	Full	Blue	LAN Music, Reading, and Poems	8	
			LIT Novel	1-3	
W.K.6. With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.	Full	Blue	LIT Peter Rabbit	7	
			LIT Novel	1-3	
Research to Build and Present Knowledge					
W.K.7. Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).	Full	Blue	LAN Music, Reading, and Poems	5	
			LIT Novel	1-3	
W.K.8. With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.	Full	Blue	LAN Kitchens, Food, and Poems	5	
			LAN Animals, Subjects, and Poems	8	
			LAN Music, Reading, and Poems	5	
W.K.9. (Begins in grade 4)	N/A		N/A		

Range of Writing						
W.K.10. (Begins in grade 3)		N/A		N/A		
Comprehension and Collaboration						
SL.K.1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.						
Speaking & Listening	SL.K.1.a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).	Full	Blue	LAN Opposites and Poems	9	
				LIT Among Animals	1-16	
				LIT Novel	1-3	
	SL.K.1.b. Continue a conversation through multiple exchanges.	Full	Blue	LIT Among Animals	1-16	
				LIT Novel	1-3	
	SL.K.2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.	Full	Blue	LIT Good Choices	2	
				LIT Listen to Learn	1	
				LIT Listen to Learn	7	
	SL.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.	Full	Blue	LIT Listen to Learn	7	
				LIT Tiny People	4	
	SL.K.4. Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.	Full	Blue	LAN Colors, Body Parts, and Poems	1	
				LAN Communities, Friends, and Poems	10	
				LAN Communities, Friends, and Poems	5	
SL.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail.	Full	Blue	LAN Communities, Friends, and Poems	8		
			LAN Colors, Shapes, and Poems	5		
			LIT Listen to Learn	7		
SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.	Full	Blue	LIT Out of the Mouths	2		
			LIT Among Animals	1-16		
			LIT Novel	1-3		
Conventions of Standard English						
L.K.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.						
L.K.1.a. Print many upper- and lowercase letters.	Full	Blue	HAN Handwriting 1	1-5		
L.K.1.b. Use frequently occurring nouns and verbs.	Full	Blue	LAN Colors, Body Parts, and Poems	1		
			LAN Body Parts, Jobs, and Poems	1		
			LAN Families, Friends, and Poems	1		
			LAN Comparison, Emotions, and Poems	5		
L.K.1.c. Form regular plural nouns orally by adding /s/ or /es/ (e.g., dog, dogs; wish, wishes).	Full	Blue	PHO Endings -s and -es	1-5		
L.K.1.d. Understand and use question words (interrogatives) (e.g., who, what, where, when, why, how).	Full	Blue	PHO Telling and Asking Sentences	1-5		
L.K.1.e. Use the most frequently occurring prepositions (e.g., to, from, in, out, on, off, for, of, by, with).	Full	Blue	LAN Position, Opposites, and Poems	7-9		
			LAN Review Poems	4-6		
				9		
				10		
L.K.1.f. Produce and expand complete sentences in shared language activities.	Full	Blue	LAN Body Parts, Jobs, and Poems	8		
			LAN Communities, Friends, and Poems	2		
			LAN Comparison, Emotions, and Poems	2		
			LAN Adults & Babies, Homographs, and Poems	5		
			LIT Novel	1-3		
L.K.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.						
L.K.2.a. Capitalize the first word in a sentence and the pronoun I.	Full	Blue	LAN Ordinals, Sequences, and Poems	5		
			LAN Review Poems	8		
L.K.2.b. Recognize and name end punctuation.	Full	Blue	PHO Getting Stronger: Sentences, Endings, and Compound Words	1		
			PHO Compound Words	4		
			L.K.2.c. Write a letter or letters for most consonant and short-vowel sounds (phonemes).	Full	Blue	Embedded throughout, for example: HAN Handwriting 1
HAN Handwriting 2	1-5					
HAN Handwriting 3	1-5					
PHO Sounds for Letters a, m, s, t, b, f, c, h, and j	2					
PHO Sounds for Letters l, n, p, & r, Sound Review, and Vowels	1					
PHO Sounds for o, d, g, k, and v	3					

Language					
L.K.2.d. Spell simple words phonetically, drawing on knowledge of sound-letter relationships.	Full	Blue	PHO Sounds for Letters a, m, s, t, b, f, c, h, and j	2	
			PHO Sounds for Letters l, n, p, & r, Sound Review, and Vowels	1	
			PHO Sounds for o, d, g, k, and v	3	
			PHO Getting Stronger: /ă/ and /ô/	2	
Knowledge of Language					
L.K.3. (Begins in grade 2)	N/A				
Vocabulary Acquisition and Use					
L.K.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on kindergarten reading and content.					
L.K.4.a. Identify new meanings for familiar words and apply them accurately (e.g., knowing duck is a bird and learning the verb to duck).	Full	Blue	LAN Adults & Babies, Homographs, and Poems	1-10	
L.K.4.b. Use the most frequently occurring inflections and affixes (e.g., -ed, -s, re-, un-, pre-, -ful, -less) as a clue to the meaning of an unknown word.	Full	Blue	LAN Comparison, Emotions, and Poems	1-3	
			LAN Ordinals, Sequences, and Poems	4-6	
			PHO Endings -s and -es	1-5	
			LIT Novel	1-3	
L.K.5. With guidance and support from adults, explore word relationships and nuances in word meanings.					
L.K.5.a. Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.	Full	Blue	LAN Body Parts, Jobs, and Poems	8	
			LAN Families, Friends, and Poems	7	
			LAN Animals, Subjects, and Poems	1	
			LAN Sequences, Growing, and Poems	1-8	
			LAN Adults & Babies, Homographs, and Poems	1-6	
			LIT Novel	1-3	
L.K.5.b. Demonstrate understanding of frequently occurring verbs and adjectives by relating them to their opposites (antonyms).	Full	Blue	LAN Opposites and Poems	1	
			LAN Opposites and Poems	4	
			LAN Opposites and Poems	7	
L.K.5.c. Identify real-life connections between words and their use (e.g., note places at school that are colorful).	Full	Blue	LAN Colors, Body Parts, and Poems	6	
			LAN Position, Opposites, and Poems	6	
L.K.5.d. Distinguish shades of meaning among verbs describing the same general action (e.g., walk, march, strut, prance) by acting out the meanings.	Full	Blue	LAN Ordinals, Sequences, and Poems	5	
			LIT Why Mosquitoes Buzz in People's Ears	5	
			LIT Novel	1-3	
L.K.6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.	Full	Blue	LIT Good Choices	1	
			LIT Peter Rabbit	10	
			LAN Kitchens, Food, and Poems	10	

**Common Core Grade One English Language Arts Expectations
Compared to K¹² Language Arts Green (Grade 1)**

Standard/Topic	Performance Indicator	Coverage	Course Name	K ¹² grade, unit, lesson number	Lesson #	Comments	
Key Ideas and Details							
Literature	RL.1.1. Ask and answer questions about key details in a text.	Full	Green	Embedded throughout, for example: LC How Are You Feeling?	3-6	<i>LC refers to Literature and Comprehension</i>	
				LC Sharing Through Stories	1 3		
				LC You Reap What You Sow	1 3		
	RL.1.2. Retell stories, including key details, and demonstrate understanding of their central message or lesson.	Full	Green	Embedded throughout, for example: LC How Are You Feeling?	2		
				LC Sharing Through Stories	1 8		
				LC There's Magic in the Air	4 6		
				LC How's the Weather?	2		
				LC You Reap What You Sow	2		
				LC Animal Antics	2		
	RL.1.3. Describe characters, settings, and major events in a story, using key details.	Full	Green	Embedded throughout, for example: LC How Are You Feeling?	2		
				LC There's Magic in the Air	2		
				LC You Reap What You Sow	4 6		
				LC A Whirl of Words	6 9		
				LC Our Place in Space	7		
				LC If You're Happy and You Know It	6 8		
	Craft and Structure						
	RL.1.4. Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.	Full	Green	Embedded throughout, for example: LC How Are You Feeling?	4-6	<i>LC refers to Literature and Comprehension</i>	
				LC A Whirl of Words	5		
				LC A Friend Indeed	1		
	RL.1.5. Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types.	Full	Green	Embedded throughout, for example: LC Sharing Through Stories	2 4 8		
LC There's Magic in the Air				6			
LC How's the Weather?				3			
LC Colonial Times				2 7			
LC Family Fun				3			
RL.1.6. Identify who is telling the story at various points in a text.	Full	Green	Embedded throughout, for example: LC How's the Weather?	1			
			LC Family Fun	2 3			
			LC A Friend Indeed	1			
			LC Creative Characters	8			

Integration of Knowledge and Ideas					
RL.1.7. Use illustrations and details in a story to describe its characters, setting, or events.	Full	Green	Embedded throughout, for example: LC How's the Weather?	2	<i>LC refers to Literature and Comprehension</i>
			LC Wordly Wisdom	8	
			LC You Reap What You Sow	5	
			LC Colonial Times	4	
RL.1.8. (Not applicable to literature.)			LC Family Fun	3	
RL.1.9. Compare and contrast the adventures and experiences of characters in stories.	Full	Green	Embedded throughout, for example: LC How Are You Feeling?	2	
			LC Sharing Through Stories	2	
				4	
			LC A Whirl of Words	8	
				2	
Range of Reading and Level of Text Complexity					
RL.1.10. With prompting and support, read prose and poetry of appropriate complexity for grade 1.	Full	Green	Embedded throughout, for example: LC A Whirl of Words	2 3 6-9	<i>LC refers to Literature and Comprehension</i>
Key Ideas and Details					
RI.1.1. Ask and answer questions about key details in a text.	Full	Green	Embedded throughout, for example: LC Our Place in Space	4 6	<i>LC refers to Literature and Comprehension</i>
RI.1.2. Identify the main topic and retell key details of a text.	Full	Green	Embedded throughout, for example: LC Sharing Through Stories	5 6	
			LC Our Place in Space	3 6	
RI.1.3. Describe the connection between two individuals, events, ideas, or pieces of information in a text.	Full	Green	Embedded throughout, for example: LC How Are You Feeling?	2-4	
			LC Sharing Through Stories	1 2 4	
Craft and Structure					
RI.1.4. Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.	Full	Green	Embedded throughout, for example: LC Sharing Through Stories	2 8	<i>LC refers to Literature and Comprehension</i>
			LC Animal Antics	3	
			LC Animals: Fact and Fiction	10	
RI.1.5. Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	Full	Green	Embedded throughout, for example: LC Sharing Through Stories	6	
			LC How's the Weather?	6	
			LC Our Place in Space	5 7	
			LC Mid-Semester Checkpoint	1	
RI.1.6. Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.	Full	Green	LC Colonial Times	1 5 6	
Integration of Knowledge and Ideas					
RI.1.7. Use the illustrations and details in a text to describe its key ideas.	Full	Green	Embedded throughout, for example: LC How's The Weather?	2	<i>LC refers to Literature and Comprehension</i>
			LC Wordly Wisdom	8	
			LC Colonial Times	4-6	
			LC Family Fun	3	

Informational Text

	RI.1.8. Identify the reasons an author gives to support points in a text.	Full	Green	LC Our Place in Space	3			
				LC Colonial Times	4			
					6			
	RI.1.9. Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).	Full	Green	LC Sharing Through Stories	2			
						LC There's Magic in the Air	6	
						LC How's the Weather?	3	
						LC Wordly Wisdom	4	
						LC If You're Happy and You Know It	8	
				LC Colonial Times	1			
					4			
					5			
Range of Reading and Level of Text Complexity								
	RI.1.10. With prompting and support, read informational texts appropriately complex for grade 1.	Full	Green	Embedded throughout, for example: LC A Whirl of Words	2 3 6-9	<i>LC refers to Literature and Comprehension</i>		
	Print Concepts							
	RF.1.1. Demonstrate understanding of the organization and basic features of print.							
	RF.1.1.a. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).	Full	Green	Embedded throughout, for example: LC Colonial Times	1-4			
	Phonological Awareness							
	RF.1.2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes).							
	RF.1.2.a. Distinguish long from short vowel sounds in spoken single-syllable words.	Full	Green	Embedded throughout, for example: PH Look Back: Sounds /ă/, /ō/, and /ū/	3	<i>PH refers to Phonics</i>		
						PH Look Back: Sounds /ă/, /ē/, /ī/, /ō/, and /ū/	3-5	
						PH Beginning Consonant Blends br-, cr-, dr-, fr-, gr-, pr-, and tr-	3	
	RF.1.2.b. Orally produce single-syllable words by blending sounds (phonemes), including consonant blends.	Full	Green	Embedded throughout, for example: PH Ending Consonant Blends -nd, -ft, -lk, and -ct	1-5			
	RF.1.2.c. Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words.	Full	Green	Embedded throughout, for example: PH Digraphs, Trigraphs, Sounds, Letters, and Vowels	1 4 5			
						PH Ending Consonant Blends -nd, -ft, -lk, and -ct	2	
	RF.1.2.d. Segment spoken single-syllable words into their complete sequence of individual sounds (phonemes).	Full	Green	Embedded throughout, for example: PH Digraphs, Trigraphs, Sounds, Letters, and Vowels	1 4 5			
						PH Ending Consonant Blends -nd, -ft, -lk, and -ct	2	
	Phonics and Word Recognition							
	RF.1.3. Know and apply grade-level phonics and word analysis skills in decoding words.							
Foundational Skills	RF.1.3.a. Know the spelling-sound correspondences for common consonant digraphs (two letters that represent one sound).	Full	Green	Embedded throughout, for example: PH Digraphs sh, ch, and th	1-5	<i>VC refers to Vocabulary; PH refers to Phonics; SP refers to Spelling</i>		
	RF.1.3.b. Decode regularly spelled one-syllable words.	Full	Green	Embedded throughout, for example: PH Digraphs sh, ch, and th	1-5			
	RF.1.3.c. Know final -e and common vowel team conventions for representing	Full	Green	PH Silent e Spellings for Sounds /ă/, /ī/, /ō/, and /ē/	1-5			

long vowel sounds.	Full	Green	PH Silent e Spellings for Sounds /ū/ and Long Double o	1-5	
RF.1.3.d. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word.	Full	Green	PH Look Back: Sounds /ā/, /ō/, and /ū/	3 4	
			PH Beginning Consonant Blends br-, cr-, dr-, fr-, gr-, pr-, and tr-	4	
			PH Silent e Spellings for Sounds /ā/, /ī/, /ō/, and /ē/	1	
RF.1.3.e. Decode two-syllable words following basic patterns by breaking the words into syllables.	Full	Green	PH Look Back: Sounds /ā/, /ō/, and /ū/	3 4	
			PH Beginning Consonant Blends br-, cr-, dr-, fr-, gr-, pr-, and tr-	4	
			PH Silent e Spellings for Sounds /ā/, /ī/, /ō/, and /ē/	1	
RF.1.3.f. Read words with inflectional endings.	Full	Green	VC Inflectional Endings, Verb Tenses, and Multiple-Meaning Words	1-6	
RF.1.3.g. Recognize and read grade-appropriate irregularly spelled words.	Full	Green	Embedded throughout, for example: SP Heart Words and Regular Plurals	1-4	

Fluency

RF.1.4. Read with sufficient accuracy and fluency to support comprehension.

RF.1.4.a. Read grade-level text with purpose and understanding.	Full	Green	Embedded throughout, for example: LC A Whirl of Words	2 3 6-9	LC refers to Literature and Comprehension
RF.1.4.b. Read grade-level text orally with accuracy, appropriate rate, and expression.	Full	Green	Embedded throughout, for example: LC A Whirl of Words	2 3 6-9	
RF.1.4.c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	Full	Green	LC Our Place in Space	9	
			LC If You're Happy and You Know It	6	
			LC Family Fun	1	

Text Types and Purposes

W.1.1. Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.	Full	Green	WS Opinion Paragraph & Handwriting	1-5	WS refers to Writing Skills.
			WS Write a Response to a Book & Handwriting	4	
W.1.2. Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.	Full	Green	WS Write to Inform or Explain & Handwriting	1-5	
W.1.3. Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.	Full	Green	WS Experience Story: Write a Story About You & Handwriting	1-5	

Production and Distribution of Writing

W.1.4. (Begins in grade 3)					
W.1.5. With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers, and add details to strengthen writing as needed.	Full	Green	Embedded throughout, for example: LC Sharing Through Stories	5	LC refers to Literature and Comprehension
			LC You Need To Make a Choice	5	
			LC You Reap What You Sow	5	
W.1.6. With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.	Full	Green	Embedded throughout, for example: LC Sharing Through Stories	5	
			LC Wordly Wisdom	5	
			LC Semester Review	4	

Research to Build and Present Knowledge

W.1.7. Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions).	Full	Green	WS Write About Information: Heritage & Handwriting	1-5	WS refers to Writing Skills.
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	W.1.8. With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.	Full	Green	WS Write to Inform or Explain & Handwriting	1-5	
	W.1.9. (Begins in grade 4)					
	Range of Writing					
	W.1.10. (Begins in grade 3)					
	Comprehension and Collaboration					
	SL.1.1. Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.					
Speaking & Listening	SL.1.1.a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).	Full	Green	LC You Need To Make a Choice (Unit 4)	10	LC refers to Literature and Comprehension
				LC You Need To Make a Choice (Unit 16)	10	
	SL.1.1.b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.	Full	Green	LC There's Magic in the Air	3	
				LC You Need To Make a Choice (Unit 4)	10	
				LC You Need To Make a Choice (Unit 16)	10	
	SL.1.1.c. Ask questions to clear up any confusion about the topics and texts under discussion.	Full	Green	LC You Need To Make a Choice (Unit 4)	10	
				LC You Need To Make a Choice (Unit 16)	10	
	SL.1.1.2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.	Full	Green	Embedded throughout, for example: LC How Are You Feeling?	3-6	
				LC Sharing Through Stories	1 3	
				LC You Reap What You Sow	1 3	
	SL.1.3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.	Full	Green	LC You Need To Make a Choice (Unit 4)	10	
				LC You Need To Make a Choice (Unit 16)	10	
	Presentation of Knowledge and Ideas					
	SL.1.4. Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.	Full	Green	WS Experience Story: Write a Story About You & Handwriting	1-5	LC refers to Literature and Comprehension; WS refers to Writing Skills.
SL.1.5. Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.	Full	Green	LC You Need To Make a Choice (Unit 4)	10		
			LC You Need To Make a Choice (Unit 16)	10		
SL.1.6. Produce complete sentences when appropriate to task and situation.	Full	Green	Write Strong Sentences & Handwriting	2-4		
Conventions of Standard English						
L.1.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.						
L.1.1.a. Print all upper- and lowercase letters.	Full	Green	Embedded throughout, for example: WS Handwriting 1	1-5	WS refers to Writing Skills.	
			WS Handwriting 9	1-5		
			WS Handwriting 18	1-5		
L.1.1.b. Use common, proper, and possessive nouns.	Full	Green	WS Nouns & Handwriting	1-5		
L.1.1.c. Use singular and plural nouns with matching verbs in basic sentences (e.g., He hops; We hop).	Full	Green	WS Verbs & Handwriting	2-3		
L.1.1.d. Use personal, possessive, and indefinite pronouns (e.g., I, me, my; they, them, their, anyone, everything).	Full	Green	WS Pronouns & Handwriting	1-5		
L.1.1.e. Use verbs to convey a sense of past, present, and future (e.g., Yesterday I walked home; Today I walk home; Tomorrow I will walk home).	Full	Green	WS Verb Tense & Handwriting	1-5		

	L.1.1.f. Use frequently occurring adjectives.	Full	Green	WS Adjectives & Handwriting	1-5			
	L.1.1.g. Use frequently occurring conjunctions (e.g., <i>and, but, or, so, because</i>).	Full	Green	WS Write Strong Sentences & Handwriting	3 4			
	L.1.1.h. Use determiners (e.g., articles, demonstratives).	Full	Green	WS Adjectives & Handwriting	2			
	L.1.1.i. Use frequently occurring prepositions (e.g., <i>during, beyond, toward</i>).	Full	Green	WS Write Strong Sentences & Handwriting	3 5			
	L.1.1.j. Produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences in response to prompts.	Full	Green	WS Kinds of Sentences & Handwriting	1-5			
L.1.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.								
	L.1.2.a. Capitalize dates and names of people.	Full	Green	WS Nouns & Handwriting	1-5	<i>WS refers to Writing Skills. SP refers to Spelling; PH refers to Phonics</i>		
	L.1.2.b. Use end punctuation for sentences.	Full	Green	WS Kinds of Sentences & Handwriting	1-5			
				WS Complete Sentences & Handwriting	3-5			
	L.1.2.c. Use commas in dates and to separate single words in a series.	Full	Green	WS Capital Letters and Punctuation & Handwriting	2-8			
	L.1.2.d. Use conventional spelling for words with common spelling patterns and for frequently occurring irregular words.	Full	Green	Embedded throughout, for example: SP Heart Words and CVC Words	1-5			
	L.1.2.e. Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.	Full	Green	Embedded throughout, for example: SP Heart Words and CVC Words	1-5			
Language	Knowledge of Language							
	L.1.3. (Begins in grade 2)							
	Vocabulary Acquisition and Use							
	L.1.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on <i>grade 1 reading and content</i>, choosing flexibly from an array of strategies.							
	L.1.4.a. Use sentence-level context as a clue to the meaning of a word or phrase.	Full	Green	Embedded throughout, for example: LC Sharing Through Stories	2	<i>LC refers to Literature and Comprehension</i>		
				LC How's the Weather?	2			
				LC Wordly Wisdom	8			
				LC You Reap What You Sow	5			
				LC If You're Happy and You Know It	11			
	L.1.4.b. Use frequently occurring affixes as a clue to the meaning of a word.	Full	Green	VC Inflectional Endings, Verb Tenses, and Multiple-Meaning Words	1 2 4 5			
VC Synonyms and Plural Inflectional Endings				4				
L.1.4.c. Identify frequently occurring root words (e.g., <i>look</i>) and their inflectional forms (e.g., <i>looks, looked, looking</i>).				Full	Green	VC Inflectional Endings, Verb Tenses, and Multiple-Meaning Words	1 2 4 5	
						VC Synonyms and Plural Inflectional Endings	4	

L.1.5. With guidance and support from adults, demonstrate understanding of figurative language, word relationships and nuances in word meanings.					
L.1.5.a. Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent.	Full	Green	Embedded throughout, for example: VC Weather Words and Multiple-Meaning Words	2 9 10	VC refers to Vocabulary
			VC Compound Words and Animals	6 10	
L.1.5.b. Define words by category and by one or more key attributes (e.g., a <i>duck</i> is a bird that swims; a <i>tiger</i> is a large cat with stripes).	Full	Green	VC Time and Collective Names	3 4	
L.1.5.c. Identify real-life connections between words and their use (e.g., note places at home that are <i>cozy</i>).	Full	Green	Embedded throughout, for example: VC Weather Words and Multiple-Meaning Words	3 5 6 8	
L.1.5.d. Distinguish shades of meaning among verbs differing in manner (e.g., <i>look, peek, glance, stare, glare, scowl</i>) and adjectives differing in intensity (e.g., <i>large, gigantic</i>) by defining or choosing them or by acting out the meanings.	Full	Green	VC Related Verbs, Related Adjectives, and Homographs	1-3 9 10	
			VC Related Verbs and Geography Terms	2	
L.1.6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., <i>because</i>).	Full	Green	WS Write a Response to a Book & Handwriting	1-5	

**Common Core Grade Two English Language Arts Standards
Compared to K¹² Language Arts Orange (Grade 2)**

Standard/Topic	Standards	Coverage	Course Name	K ¹² Unit Name	Lesson #	Comments
Literature	Key Ideas and Details					
	RL.2.1. Ask and answer such questions as <i>who, what, where, when, why</i> , and <i>how</i> to demonstrate understanding of key details in a text.	Full	Orange	Embedded throughout, for example: LIT Ira Sleeps Over	2 3	LAN refers to the Language Skills Course LIT refers to the Literature and Composition Course SPE refers to the Spelling Course WRI refers to the Writing Course VOC refers to the Vocabulary Course
				LIT Peter Pan	1 5	
				LIT Cam Jansen	2 3	
	RL.2.2. Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.	Full	Orange	Embedded throughout, for example: LIT Classic Stories	7 10	
				LIT Rome (A)	11	
				LIT Rome (B)	5	
				LIT The Jackals and the Lion	2	
				LIT Lessons to Learn	3 9	
	RL.2.3. Describe how characters in a story respond to major events and challenges.	Full	Orange	Embedded throughout, for example: LIT Furry Friends	2	
				LIT Classic Stories	1 5 8	
	Craft and Structure					
	RL.2.4. Describe how words and phrases (e.g., regular beats, alliteration, rhymes, repeated lines) supply rhythm and meaning in a story, poem, or song.	Full	Orange	LIT Winds and Wings	1-4	
				LIT Poetry	2	
	RL.2.5. Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.	Full	Orange	LIT Furry Friends	3 4	
	RL.2.6. Acknowledge differences in the points of view of characters, including by speaking in a different voice for each character when reading dialogue aloud.	Full	Orange	LIT Furry Friends	3 4	
				LIT Lessons to Learn	6	
	Integration of Knowledge and Ideas					
	RL.2.7. Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.	Full	Orange	Embedded throughout, for example: LIT Classic Stories	5	
				LIT The Jackals and the Lion	1	
			LIT Cam Jansen	1		
RL.2.8. (Not applicable to literature)	N/A		N/A			
RL.2.9. Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.	Full	Orange	LIT Classic Stories	7		
			LIT Clara and the Bookwagon	4		
			LIT Revolution	2 6		
Range of Reading and Level of Text Complexity						
RL.2.10. By the end of the year, read and comprehend literature, including stories and poetry, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Orange	Embedded throughout, for example: LIT Poetry	1 2		
			LIT Quilting Stories	1-6		
			LIT Going to the Dogs	1-12		
Key Ideas and Details						
RI.2.1. Ask and answer such questions as <i>who, what, where, when, why</i> , and <i>how</i> to demonstrate understanding of key details in a text.	Full	Orange	LIT Flying Friends	1		
			LIT Rome (A)	1-5		
			LIT Rome (B)	8		
RI.2.2. Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.	Full	Orange	LIT Flying Friends	1 2		
RI.2.3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.	Full	Orange	LIT Rome (B)	9		
			LIT Revolution	2		
Craft and Structure						
RI.2.4. Determine the meaning of words and phrases in a text relevant to a <i>grade 2 topic or subject area</i> .	Full	Orange	LIT Flying Friends	3		
RI.2.5. Know and use various text features (e.g., captions, bold print,			LIT Flying Friends	2		

Informational Text	subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.	Full	Orange	LIT Rome (A)	3 6-8	
	RI.2.6. Identify the main purpose of a text, including what the author wants to answer, explain, or describe.	Full	Orange	LIT Flying Friends LIT Rome (A) LIT Bears	3 5 1	
	Integration of Knowledge and Ideas					
	RI.2.7. Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.	Full	Orange	LIT Westward Expansion	1-5	
	RI.2.8. Describe how reasons support specific points the author makes in a text.	Full	Orange	LIT Rome (A)	2	
	RI.2.9. Compare and contrast the most important points presented by two texts on the same topic.	Full	Orange	LIT Rome (B)	10 11	
	Range of Reading and Level of Text Complexity					
	RI.2.10. By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Orange	LIT Flying Friends LIT Rome (A) LIT Dolphins! LIT Poetry LIT Novel	1-5 1-11 1-3 1-5 1-3	
	Phonics and Word Recognition					
	RF.2.3. Know and apply grade-level phonics and word analysis skills in decoding words.					
RF.2.3.a. Distinguish long and short vowels when reading regularly spelled one-syllable words.	Full	Orange	SPE Review Heart Words, Long Vowel, and Double o & /ow/ Spellings	1-5		
RF.2.3.b. Know spelling-sound correspondences for additional common vowel teams.	Full	Orange	SPE Heart Words and Multisyllabic Words with Vowel-Team Syllables	1-5		
			SPE Review Heart Words, Syllables, Suffixes, Unusual Plurals, and Silent Consonants	1-5		
RF.2.3.c. Decode regularly spelled two-syllable words with long vowels.	Full	Orange	SPE Heart Words and v-c-e Syllables	1-5		
			SPE Review Heart Words, /oi/, /au/, Long Vowels, and Closed & Open Syllables	1-5		
RF.2.3.d. Decode words with common prefixes and suffixes.	Full	Orange	VOC Vocabulary 1	1-10		
RF.2.3.e. Identify words with inconsistent but common spelling-sound correspondences.	Full	Orange	SPE Heart Words and Digraphs (A)	1-5		
			SPE Heart Words and Digraphs (B)	1-5		
RF.2.3.f. Recognize and read grade-appropriate irregularly spelled words.	Full	Orange	SPE Heart Words and Digraphs (A)	1-5		
			SPE Heart Words and Digraphs (B)	1-5		
Fluency						
RF.2.4. Read with sufficient accuracy and fluency to support comprehension.						
RF.2.4.a. Read grade-level text with purpose and understanding.	Full	Orange	Embedded throughout, for example: LIT Clara and the Bookwagon	2 3		
			LIT Lessons to Learn	7		
			LIT More Lessons to Learn	1		
RF.2.4.b. Read grade-level text orally with accuracy, appropriate rate, and expression.	Full	Orange	Embedded throughout, for example: LIT Flying Friends	4		
			LIT Poetry	1		
			LIT Classic Stories	9		
RF.2.4.c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	Full	Orange	Embedded throughout, for example: LIT A Weed is a Flower	2 3		
			LIT Rome (B)	7		
			LIT Peter Pan	3		
			LIT Revolution	1		
Text Types and Purposes						

Writing	W.2.1. Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., <i>because</i> , <i>and</i> , <i>also</i>) to connect opinion and reasons, and provide a concluding statement or section.	Full	Orange	WRI Write About Literature	1-5	
	W.2.2. Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.	Full	Orange	WRI Write About Information	1-5	
	W.2.3. Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings,	Full	Orange	LIT Cam Jansen WRI Write an Experience Story	4 1-5	
	Production and Distribution of Writing					
	W.2.4. (Begins in grade 3)	N/A		N/A		
	W.2.5. With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.	Full	Orange	WRI Polish and Publish a Paragraph WRI Revise and Publish Your Work	4 5 1-4	
	W.2.6. With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.	Full	Orange	WRI Polish and Publish a Paragraph WRI Revise and Publish Your Work	5 5	
	Research to Build and Present Knowledge					
	W.2.7. Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).	Full	Orange	WRI Research Skills	1-5	
	W.2.8. Recall information from experiences or gather information from provided sources to answer a question.	Full	Orange	WRI Write About Information	1-5	
W.2.9. (Begins in grade 4)	N/A		N/A			
Range of Writing						
W.2.10. (Begins in grade 3)	N/A		N/A			
Comprehension and Collaboration						
SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.						
SL.2.1.a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).	Full	Orange	LIT Going to the Dogs WRI Write Thank-You Notes	3 5 Optional		
SL.2.1.b. Build on others' talk in conversations by linking their comments to the remarks of others.	Full	Orange	LIT Dolphins!	3		
SL.2.1.c. Ask for clarification and further explanation as needed about the topics and texts under discussion.	Full	Orange	LIT Robin Hood LIT Dolphins!	3 3		
SL.2.2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.	Full	Orange	LIT Furry Friends LIT Classic Stories	3 2 9		
SL.2.3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.	Full	Orange	LIT Dolphins!	3		
Presentation of Knowledge and Ideas						
SL.2.4. Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.	Full	Orange	LIT A Weed is a Flower LIT Travel Poems	3 1-5		
SL.2.5. Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.	Full	Orange	LIT Classic Stories WRI Make a Presentation	1 2 5 Optional		
SL.2.6. Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification.	Full	Orange	WRI Make a Presentation	4 5		
Conventions of Standard English						
L.2.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.						
L.2.1.a. Use collective nouns (e.g., <i>group</i>).	Full	Orange	WRI Nouns	2		
L.2.1.b. Form and use frequently occurring irregular plural nouns (e.g., <i>feet</i> , <i>children</i> , <i>teeth</i> , <i>mice</i> , <i>fish</i>).	Full	Orange	WRI Singular and Plural Nouns	1-5		
L.2.1.c. Use reflexive pronouns (e.g., <i>myself</i> , <i>ourselves</i>).	Full	Orange	WRI Pronouns	3 4		
L.2.1.d. Form and use the past tense of frequently occurring irregular verbs (e.g., <i>sat</i> , <i>hid</i> , <i>told</i>).	Full	Orange	WRI Verb Tense	3-5		
L.2.1.e. Use adjectives and adverbs, and choose between them depending on what is to be modified.	Full	Orange	WRI Adverbs	3 5		

L.2.1.f. Produce, expand, and rearrange complete simple and compound sentences (e.g., <i>The boy watched the movie; The little boy watched the movie; The action movie was watched by the little boy</i>).	Full	Orange	WRI Write Sentences	3-5	
L.2.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.					
L.2.2.a. Capitalize holidays, product names, and geographic names.	Full	Orange	WRI Names, Initials, and Titles	1-5	
			WRI More Capital Letters	2	
				3	
L.2.2.b. Use commas in greetings and closings of letters.	Full	Orange	WRI Write Friendly Letters	5	
L.2.2.c. Use an apostrophe to form contractions and frequently occurring possessives.	Full	Orange	WRI Commas and Apostrophes	2-4	
L.2.2.d. Generalize learned spelling patterns when writing words (e.g., <i>cage</i> → <i>badge</i> ; <i>boy</i> → <i>boil</i>).	Full	Orange	Embedded throughout, for example: SPE Heart Words and Digraphs (A)	1-5	
L.2.2.e. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.	Full	Orange	WRI Write Descriptively	5	
			WRI Revise and Publish an Experience Story	5	
Knowledge of Language					
L.2.3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.					
L.2.3.a. Compare formal and informal uses of English.	Full	Orange	WRI Write Friendly Letters	1	
			WRI Write Thank-You Notes	1	
Vocabulary Acquisition and Use					
L.2.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies.					
L.2.4.a. Use sentence-level context as a clue to the meaning of a word or phrase.	Full	Orange	LIT A Weed is a Flower	2	
				3	
			LIT Rome (B)	7	
			LIT Peter Pan	3	
L.2.4.b. Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., <i>happy/unhappy</i> , <i>tell/retell</i>).	Full	Orange	VOC Vocabulary 2	4	
			VOC Vocabulary 10	2-4	
L.2.4.c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., <i>addition</i> , <i>additional</i>).	Full	Orange	VOC Vocabulary 1	1-10	
			VOC Vocabulary 7	4-6	
L.2.4.d. Use knowledge of the meaning of individual words to predict the meaning of compound words (e.g., <i>birdhouse</i> , <i>lighthouse</i> , <i>housefly</i> ; <i>bookshelf</i> ,	Full	Orange	VOC Vocabulary 6	1	
			VOC Vocabulary 13	1-3	
L.2.4.e. Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.	Full	Orange	LIT Revolution	1	
				2	
			VOC Vocabulary 5	4	
			VOC Vocabulary 9	2-6	
			VOC Vocabulary 13	5	
				6	
			VOC Vocabulary 18	1-4	
L.2.5. Demonstrate understanding of figurative language, word relationships and nuances in word meanings.					
L.2.5.a. Identify real-life connections between words and their use (e.g., <i>describe foods that are spicy or juicy</i>).	Full	Orange	VOC Vocabulary 2	5	
				6	
			VOC Vocabulary 3	6	
			VOC Vocabulary 4	1	
			VOC Vocabulary 8	2	
				3	
L.2.5.b. Distinguish shades of meaning among closely related verbs (e.g., <i>toss</i> , <i>throw</i> , <i>hurl</i>) and closely related adjectives (e.g., <i>thin</i> , <i>slender</i> , <i>skinny</i> , <i>scrawny</i>).	Full	Orange	VOC Vocabulary 5	4-6	
				9	
			VOC Vocabulary 14	4-6	
				9	
				10	
			VOC Vocabulary 17	4	
			LIT Novel	1-3	
L.2.6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to	Full	Orange	LIT Poetry	1	
				2	
			WRI Adverbs	1	

Language

being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

Full

Orange

WRI Write Poetry	1
	2
WRI Write Descriptively	1
	2
	5

**Common Core Grade Two English Language Arts Standards
Compared to K¹² Language Arts Purple (Grade Three)**

Standard/Topic	Performance Indicator	Coverage	Course Name	K ¹² Unit Name	Lesson #	Comments	
Key Ideas and Details							
Literature	RL.3.1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	Full	Purple	LIT Weather or Not	1-11	<i>LIT refers to the Literature and Composition Course SPE refers to the Spelling Course WRI refers to the Writing Course VOC refers to the Vocabulary Course</i>	
				LIT Animal Friends Poetry	1-5		
				LIT Folk Tales of Many Lands	1-10		
	RL.3.2. Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.	Full	Purple	LIT Folk Tales of Many Lands	1-10		
				LIT Greek and Roman Myths	1-11		
	RL.3.3. Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	Full	Purple	LIT Stories That Teach	1-9		
				LIT Nature's Way	1-7		
				LIT Greek and Roman Myths	1-11		
	Craft and Structure						
	RL.3.4. Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.	Full	Purple	VOC Literal and Nonliteral Meanings	1-10		
	RL.3.5. Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.	Full	Purple	LIT Weather or Not	1-11		
				LIT Animal Friends Poetry	1-5		
				LIT Nature's Way	1		
				LIT Folk Tales of Many Lands	1-10		
RL.3.6. Distinguish their own point of view from that of the narrator or those of the characters.	Full	Purple	LIT Animal Friends Poetry	1			
			LIT Animal Friends Poetry	2			
			LIT Animal Tales	6			
Integration of Knowledge and Ideas							
RL.3.7. Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).	Full	Purple	LIT Lessons Learned	1-8			
			LIT Animal Tales	3			
RL.3.8. (Not applicable to literature)	N/A						
RL.3.9. Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series).	Full	Purple	LIT Animal Friends Poetry	1			
			LIT Animal Friends Poetry	2			
			LIT Greek and Roman Myths	1-11			
Range of Reading and Complexity of Text							
RL.3.10. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 2–3 text complexity band independently and proficiently.	Full	Purple	LIT Weather or Not	1-11			
			LIT Animal Friends Poetry	1-5			
			LIT Nature's Way	1			
			LIT Folk Tales of Many Lands	1-10			
			LIT Greek and Roman Myths	3			
Key Ideas and Details							
RI.3.1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	Full	Purple	LIT George Washington: Soldier, Hero, President	1-7			
			LIT Greek and Roman Myths	1			
RI.3.2. Determine the main idea of a text; recount the key details and explain how they support the main idea.	Full	Purple	LIT Lessons Learned	1-8			
			LIT Weather or Not	1-11			

Informational Text	RI.3.3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	Full	Purple	LIT The Glory of Greece	9	
	RI.3.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a <i>grade 3 topic or subject area</i> .	Full	Purple	LIT Weather or Not	1-11	
				VOC Compound Words and Math Words	7-10	
	RI.3.5. Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.	Full	Purple	LIT Weather or Not	1-11	
	RI.3.6. Distinguish their own point of view from that of the author of a text.	Full	Purple	LIT Nature's Way	1	
	Integration of Knowledge and Ideas					
	RI.3.7. Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).	Full	Purple	LIT Weather or Not	1-11	
	RI.3.8. Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).	Full	Purple	WRI Sentences	1-10	
				WRI Paragraphs	1-10	
	RI.3.9. Compare and contrast the most important points and key details presented in two texts on the same topic.	Full	Purple	LIT Greek and Roman Myths	1-12	
Range of Reading and Complexity of Text						
RI.3.10. By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2–3 text complexity band independently and proficiently.	Full	Purple	LIT Weather or Not	1-11		
			LIT Greek and Roman Myths	1-12		
Phonics and Word Recognition						
RF.3.3. Know and apply grade-level phonics and word analysis skills in decoding words.						
RF.3.3.a. Identify and know the meaning of the most common prefixes and derivational suffixes.	Full	Purple	VOC Antonyms, Prefixes, and Multiple-Meaning Words	1-10		
			VOC Suffixes and Homophones	1-10		
			VOC Weather Words and Suffixes	1-10		
			VOC Suffixes and Contractions	1-10		
			VOC Suffixes and Shades of Meaning	1-10		
			VOC Prefixes and Multiple Meanings	1-10		
			VOC Suffixes and Antonyms	1-10		
RF.3.3.b. Decode words with common Latin suffixes.	Full	Purple	VOC Suffixes and Homophones	1-10		
			VOC Weather Words and Suffixes	1-10		
			VOC Suffixes and Contractions	1-10		
			VOC Suffixes and Shades of Meaning	1-10		
			VOC Suffixes and Antonyms	1-10		
			VOC Suffix -ous and Shades of Meaning	1-10		
			SPE Heart Words and Suffixes -s & -es	1-5		
RF.3.3.c. Decode multisyllable words.	Full	Purple	VOC Compound Words, Acronyms, and Abbreviations	1-10		
			VOC Latin Roots and Homographs	1-11		
			VOC Dictionary Skills and Contractions	1-10		
RF.3.3.d. Read grade-appropriate irregularly spelled words.	Full	Purple	SPE Heart Words and Short Vowel Sounds	1-5		
			SPE Heart Words and Suffixes -s & -es	1-5		
			SPE Heart Words and -ng & -nk Words	1-5		
			SPE Heart Words and Long a Spelling	1-5		
			SPE Heart Words and Long i Spelling	1-5		
Fluency						
RF.3.4. Read with sufficient accuracy and fluency to support comprehension.						
RF.3.4.a. Read grade-level text with purpose and understanding.	Full	Purple	LIT Lessons Learned	1-8		
			LIT Animal Tales	1-7		
			LIT Animals and Their People	1-7		
RF.3.4.b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression.	Full	Purple	LIT Weather or Not	1-11		
			LIT Animal Friends Poetry	1-5		

RF.3.4.c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	Full	Purple	VOC Compound Words and Math Words	1-9	
			LIT Lessons Learned	1-8	
Text Types and Purposes					
W.3.1. Write opinion pieces on topics or texts, supporting a point of view with reasons.					
W.3.1.a. Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons.	Full	Purple	WRI Verbs and Persuasive Essay	2	
			WRI Verbs and Persuasive Essay	4	
			WRI Verbs and Persuasive Essay	6-9	
			WRI Turn a Persuasive Essay into a Business Letter	2	
			WRI Turn a Persuasive Essay into a Business Letter	2	
W.3.1.b. Provide reasons that support the opinion.	Full	Purple	WRI Verbs and Persuasive Essay	2	
			WRI Verbs and Persuasive Essay	4	
			WRI Verbs and Persuasive Essay	6-9	
			WRI Turn a Persuasive Essay into a Business Letter	2	
			WRI Turn a Persuasive Essay into a Business Letter	2	
W.3.1.c. Use linking words and phrases (e.g., <i>because, therefore, since, for example</i>) to connect opinion and reasons.	Full	Purple	WRI Verbs and Persuasive Essay	2	
			WRI Verbs and Persuasive Essay	4	
			WRI Verbs and Persuasive Essay	6-9	
			WRI Turn a Persuasive Essay into a Business Letter	2	
			WRI Turn a Persuasive Essay into a Business Letter	2	
W.3.1.d. Provide a concluding statement or section.	Full	Purple	WRI Verbs and Persuasive Essay	6-9	
			WRI Turn a Persuasive Essay into a Business Letter	2	
			WRI Turn a Persuasive Essay into a Business Letter	2	
W.3.2. Write opinion pieces on topics or texts, supporting a point of view with reasons.					
W.3.2.a. Introduce a topic and group related information together; include illustrations when useful to aiding comprehension.	Full	Purple	WRI Paragraphs	1-10	
			WRI Sentence Combining and Personal Story	1-10	
			WRI Verbs and Persuasive Essay	2	
			WRI Verbs and Persuasive Essay	4	
			WRI Verbs and Persuasive Essay	6-9	
			WRI Pronouns and Book Review	1-11	
			WRI Quotations and Short Research Project	3-8	
			WRI Pronouns and Book Review	1-11	
W.3.2.b. Develop the topic with facts, definitions, and details.	Full	Purple	WRI Verb Tense and Plan a Short Story	7-10	
			WRI Sentence Combining and Personal Story	1-10	
			WRI Verbs and Persuasive Essay	2	
			WRI Verbs and Persuasive Essay	4	
			WRI Verbs and Persuasive Essay	6-9	
			WRI Quotations and Short Research Project	3-8	
			WRI Pronouns and Book Review	1-11	
			WRI Pronouns and Book Review	1-11	
			WRI Verb Tense and Plan a Short Story	7-10	

Writing	W.3.2.c. Use linking words and phrases (e.g., also, another, and, more, but) to connect ideas within categories of information.	Full	Purple	WRI Sentence Combining and Personal Story	1-10		
				WRI Verb Tense and Plan a Short Story	7-10		
	W.3.2.d. Provide a concluding statement or section.	Full	Purple	WRI Sentence Combining and Personal Story	1-10		
				WRI Verb Tense and Plan a Short Story	7-10		
	W.3.3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.						
	W.3.3.a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally.	Full	Purple	WRI Sentence Combining and Personal Story	1-10		
				WRI Verb Tense and Plan a Short Story	7-10		
	W.3.3.b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations.	Full	Purple	WRI Sentence Combining and Personal Story	1-10		
				WRI Verb Tense and Plan a Short Story	7-10		
	W.3.3.c. Use temporal words and phrases to signal event order.	Full	Purple	WRI Sentence Combining and Personal Story	1-10		
			WRI Verb Tense and Plan a Short Story	7-10			
W.3.3.d. Provide a sense of closure.	Full	Purple	WRI Sentence Combining and Personal Story	1-10			
			WRI Verb Tense and Plan a Short Story	7-10			
WR							
W.3.4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	Purple	WRI Sentence Combining and Personal Story	1-10			
			WRI Verbs and Persuasive Essay	2			
			WRI Verbs and Persuasive Essay	4			
			WRI Verbs and Persuasive Essay	6-9			
			WRI Quotations and Short Research Project	3-8			
			WRI Pronouns and Book Review	1-11			
			WRI Agreement and Plan a Research	1-11			
WRI Adjectives and Write a Research Report	1-11						
W.3.5 With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.	Full	Purple	WRI Sentence Combining and Personal Story	1-10			
			WRI Share Information in a Letter	7			
			WRI Verbs and Persuasive Essay	2			
			WRI Verbs and Persuasive Essay	4			
			WRI Verbs and Persuasive Essay	6-9			
			WRI Quotations and Short Research Project	3-8			
			WRI Pronouns and Book Review	1-11			
WRI Agreement and Plan a Research	1-11						
WRI Adjectives and Write a Research Report	1-11						
W.3.6. With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.	Full	Purple	WRI Book Review Presentation	1-6			
Research to Build and Present Knowledge							
W.3.7. Conduct short research projects that build knowledge about a topic.	Full	Purple	WRI Agreement and Plan a Research	1-11			
			WRI Adjectives and Write a Research Report	1-11			
W.3.8. Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.	Full	Purple	WRI Sentence Combining and Personal Story	1-10			
			WRI Agreement and Plan a Research	1-11			
			WRI Adjectives and Write a Research Report	1-11			
W.3.9. (Begins in grade 4)	N/A						
Range of Writing							
W.3.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Full	Purple	WRI Paragraphs	1-10			
			WRI Pronouns and Book Review	1-11			
			WRI Quotations and Short Research Project	3-8			

Comprehension and Collaboration						
Speaking and Listening	SL.3.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.					
	SL.3.1.a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about	Full	Purple	LIT Greek and Roman Myths	11	
				LIT The Sign of the Beaver	10	
	SL.3.1.b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the	Full	Purple	LIT Greek and Roman Myths	11	
				LIT The Sign of the Beaver	10	
	SL.3.1.c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.	Full	Purple	LIT Greek and Roman Myths	11	
				LIT The Sign of the Beaver	10	
	SL.3.1.d. Explain their own ideas and understanding in light of the discussion.	Full	Purple	LIT Stories That Teach	9	
				LIT Greek and Roman Myths	11	
				LIT The Sign of the Beaver	10	
	SL.3.2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	Full	Purple	LIT Stories That Teach	9	
				LIT Critical Skill Practice 4	1-5	
				LIT Weather or Not	4	
				LIT Greek and Roman Myths	11	
SL.3.3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.	Full	Purple	LIT Animal Friends Poetry	1		
			LIT Stories That Teach	9		
			LIT Greek and Roman Myths	11		
Presentation of Knowledge and Ideas						
SL.3.4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.	Full	Purple	WRI Book Review Presentation	1-6		
SL.3.5. Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.	Full	Purple	WRI Book Review Presentation	1-6		
SL.3.6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.	Full	Purple	LIT Animal Friends Poetry	1		
			LIT Greek and Roman Myths	11		
Conventions of Standard English						
L.3.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.						
L.3.1.a. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.	Full	Purple	WRI Nouns and Informative Essay	1-3		
			WRI Nouns and Informative Essay	5-7		
			WRI Verbs and Persuasive Essay	1-5		
			WRI Pronouns and Book Review	1-6		
			WRI Adjectives and Write a Research Report	1, 2		
			WRI Adjectives and Write a Research Report	6-8		
			WRI Adverbs and Present Your Research Report	1, 2		
	WRI Verb Tense and Plan a Short Story	1-6				
	L.3.1.b. Form and use regular and irregular verbs.	Full	Purple	WRI Verbs and Persuasive Essay	1-5	
				WRI Verb Tense and Plan a Short Story	1-6	
	L.3.1.c. Use abstract nouns (e.g., <i>childhood</i>).	Full	Purple	WRI Nouns and Informative Essay	1-3	
				WRI Nouns and Informative Essay	5-7	
	L.3.1.d. Form and use regular and irregular plural nouns.	Full	Purple	WRI Nouns and Informative Essay	1-3	
				WRI Nouns and Informative Essay	5-7	
L.3.1.e. Form and use the simple (e.g., <i>I walked</i> ; <i>I walk</i> ; <i>I will walk</i>) verb tenses.	Full	Purple	WRI Verbs and Persuasive Essay	1-5		
			WRI Verb Tense and Plan a Short Story	1-6		
L.3.1.f. Ensure subject-verb and pronoun-antecedent agreement.*	Full	Purple	WRI Critical Skills Practice 1	2		
			WRI Nouns and Informative Essay	1-3		
			WRI Nouns and Informative Essay	5-7		
L.3.1.g. Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified.	Full	Purple	WRI Adjectives and Write a Research Report	1		
			WRI Adjectives and Write a Research Report	2		

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			WRI Adjectives and Write a Research Report	6-8
L.3.1.h. Use coordinating and subordinating conjunctions.	Full	Purple	WRI Sentence Combining and Personal Story	9
L.3.1.i. Produce simple, compound, and complex sentences.	Full	Purple	LIT Animal Tales	5-8
L.3.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.				
L.3.2.a. Capitalize appropriate words in titles.	Full	Purple	WRI Capital Letters, Punctuation, Forms	1-6
L.3.2.b. Use commas in addresses.	Full	Purple	WRI Share Information in a Letter	1
			WRI Share Information in a Letter	5
L.3.2.c. Use commas and quotation marks in dialogue.	Full	Purple	WRI Quotations and Short Research Project	2-3
L.3.2.d. Form and use possessives.	Full	Purple	WRI Pronouns and Book Review	5
			VOC Suffixes and Homophones	1-10
L.3.2.e. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., <i>sitting, smiled, cries, happiness</i>).	Full	Purple	VOC Weather Words and Suffixes	1-10
			VOC Suffixes and Contractions	1-10
			VOC Suffixes and Contractions	1-10
			VOC Suffixes and Shades of Meaning	1-10
			VOC Suffixes and Antonyms	1-10
L.3.2.f. Use spelling patterns and generalizations (e.g., <i>word families, position-based spellings, syllable patterns, ending rules, meaningful word parts</i>) in writing words.	Full	Purple	VOC Suffixes and Contractions	1-2
			VOC Suffixes and Shades of Meaning	1-10
			VOC Dictionary Skills and Contractions	1-10
L.3.2.g. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.	Full	Purple	VOC Dictionary Skills and Contractions	1-10
Knowledge of Language				
L.3.3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.				
L.3.3.a. Choose words and phrases for effect.*	Full	Purple	WRI Verbs and Persuasive Essay	2-9
L.3.3.b. Recognize and observe differences between the conventions of spoken and written standard English.	Full	Purple	WRI Sentence Combining and Personal Story	1-5
			WRI Nouns and Informative Essay	1-5
Vocabulary Acquisition and Use				
L.3.4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies.				
L.3.4.a. Use sentence-level context as a clue to the meaning of a word or phrase.	Full	Purple	VOC Suffixes and Shades of Meaning	7-10
L.3.4.b. Determine the meaning of the new word formed when a known affix is added to a known word (e.g., <i>agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat</i>).	Full	Purple	VOC Antonyms, Prefixes, and Multiple-Meaning Words	1-10
			VOC Suffixes and Homophones	1-10
			VOC Weather Words and Suffixes	1-10
			VOC Suffixes and Contractions	1-10
			VOC Suffixes and Shades of Meaning	1-10
			VOC Prefixes and Multiple Meanings	1-10
			VOC Suffixes and Antonyms	1-10
L.3.5.c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., <i>company, companion</i>).	Full	Purple	VOC Latin Roots and Homographs	1-10
			VOC Dictionary Skills and Contractions	1-10
L.3.4.d. Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.	Full	Purple	VOC Dictionary Skills and Contractions	1-10
L.3.5. Demonstrate understanding of figurative language, word relationships and nuances in word meanings.				
L.3.5.a. Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., <i>take steps</i>).	Full	Purple	VOC Literal and Nonliteral Meanings	1-10
			LIT Nature's Way	2
L.3.5.b. Identify real-life connections between words and their use (e.g., describe people who are <i>friendly</i> or <i>helpful</i>).	Full	Purple	VOC Synonyms, Dictionary Skills, and Abbreviations	1-9
			VOC Suffixes and Shades of Meaning	8-10
L.3.5.c. Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., <i>knew, believed, suspected, heard, wondered</i>).	Full	Purple	VOC Synonyms, Dictionary Skills, and Abbreviations	1-9
			VOC Suffixes and Shades of Meaning	8-10

L.3.6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., <i>After dinner that night we went looking</i>)	Full	Purple	LIT Weather or Not	1-11
			VOC Compound Words and Math Words	7-10
			VOC Solar System Words	1-9

**Common Core Grade Four English Language Arts Expectations
Compared to K¹² Grade 4 Language Arts**

Standard/Topic	Performance Indicator	Coverage	K ¹² grade, unit, lesson number	Comments
Key Ideas and Details				
	RL.4.1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	Full	Embedded throughout, for example: LIT 4.2.1-4.2.7 LIT 4.5.1-4.5.10 LIT 4.14.4 LIT 4.14.5	
	RL.4.2. Determine a theme of a story, drama, or poem from details in the text; summarize the text.	Full	LIT 4.9.1-4.9.6 LIT 4.9.8 LIT 4.9.9 LIT 4.13.1-4.13.5 LIT 4.13.7 LIT 4.14.2 LIT 4.15.4 LIT 4.15.5	
	RL.4.3. Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).	Full	Embedded throughout, for example: LIT 4.1.9-4.1.12 LIT 4.2.5 LIT 4.2.6 LIT 4.9.4-4.9.7	
Craft and Structure				
Literature	RL.4.4. Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean).	Full	Embedded throughout, for example: LIT 4.1.9-4.1.12 LIT 4.2.5 LIT 4.2.6 LIT 4.9.4-4.9.7 VOC 4.1.1-4.1.5 VOC 4.2.1-4.2.5	
	RL.4.5. Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.	Full	COM 4.4.5 LIT 4.1.8 LIT 4.1.10	
	RL.4.6. Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.	Full	LIT 4.1.3 LIT 4.14.1	
Integration of Knowledge and Ideas				
	RL.4.7. Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.	Full	LIT 4.9.8	
	RL.4.8. (Not applicable to literature)	N/A	N/A	
	RL.4.9. Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.	Full	LIT 4.2.7 LIT 4.13.3 LIT 4.13.7	
Range of Reading and Level of Text Complexity				

	RL.4.10. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Embedded throughout, for example: LIT 4.1.1-4.1.12 LIT 4.4.1-4.4.6 LIT 4.7.1-4.7.5	
Informational Text	Key Ideas and Details			
	RI.4.1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	Full	LIT 4.6.1-4.6.9 LIT 4.10.1-4.10.6 LIT 4.17.1-4.17.5	
	RI.4.2. Determine the main idea of a text and explain how it is supported by key details; summarize the text.	Full	LIT 4.6.3 LIT 4.6.5 LIT 4.6.9 LIT 4.10.1-4.10.6	
	RI.4.3. Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.	Full	LIT 4.6.1-4.6.9 LIT 4.8.1-4.8.8 LIT 4.10.1-4.10.6 LIT 4.17.1-4.17.5	
	Craft and Structure			
	RI.4.4. Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.	Full	LIT 4.6.1-4.6.9 LIT 4.8.1-4.8.8 LIT 4.10.1-4.10.6 LIT 4.17.1-4.17.5	
	RI.4.5. Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.	Full	LIT 4.6.1 LIT 4.10.1-4.10.6 LIT 4.17.3 LIT 4.17.4	
	RI.4.6. Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.	Full	LIT 4.8.3 LIT 4.8.4	
	Integration of Knowledge and Ideas			
	RI.4.7. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.	Full	LIT 4.6.1 LIT 4.17.1-4.17.4	
	RI.4.8. Explain how an author uses reasons and evidence to support particular points in a text.	Full	LIT 4.17.1-4.17.4 COM 4.6.1-4.6.6	
	RI.4.9. Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.	Full	COM 4.2.1-4.2.10 LIT 4.17.1-4.17.5	
	Range of Reading and Level of Text Complexity			
RI.4.10. By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	LIT 4.6.1-4.6.9 LIT 4.8.1-4.8.8 LIT 4.10.1-4.10.6 LIT 4.17.1-4.17.5		
Phonics and Word Recognition				
RF.4.3. Know and apply grade-level phonics and word analysis skills in decoding words.				
RF.4.3.a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.	Full	Embedded throughout, for example: VOC 4.1.1-4.1.5 VOC 4.2.1-4.2.5		
Fluency				
RF.4.4. Read with sufficient accuracy and fluency to support comprehension.				

Foundational Skills	RF.4.4.a. Read grade-level text with purpose and understanding.	Full	Embedded throughout, for example: LIT 4.1.1-4.1.12 LIT 4.5.1-4.5.11	
	RF.4.4.b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression.	Full	Embedded throughout, for example: LIT 4.1.1-4.1.12 LIT 4.2.7 Lit 4.13.7 LIT 4.5.1-4.5.11	
	RF.4.4.c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	Full	Embedded throughout, for example: LIT 4.1.1-4.1.12 LIT 4.5.1-4.5.11	
Text Types and Purposes				
W.4.1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.				
W.4.1.a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose.	Full	COM 4.3.2-4.3.8 COM 4.6.5-4.6.8		
W.4.1 b. Provide reasons that are supported by facts and details.	Full	COM 4.3.4 COM 4.6.6		
W.4.1 c. Link opinion and reasons using words and phrases (e.g., for instance, in order to, in addition).	Full	COM 4.3.1-4.3.9		
W.4.1 d. Provide a concluding statement or section related to the opinion presented.	Full	COM 4.3.8 COM 4.6.7		
W.4.2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.				
W.4.2.a. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.	Full	COM 4.2.1-4.2.10		
W.4.2.b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.	Full	COM 4.2.5 COM 4.2.8 COM 4.2.10 COM 4.5.4		
W.4.2.c. Link ideas within categories of information using words and phrases (e.g., another, for example, also, because).	Full	COM 4.2.8 COM 4.2.5 COM 4.2.9		
W.4.2.d. Use precise language and domain-specific vocabulary to inform about or explain the topic. Provide a concluding statement or section related to the information or explanation presented.	Full	COM 4.2.8 COM 4.2.9 COM 4.2.10 COM 4.5.4		
W.4.2.e. Provide a concluding statement or section related to the information or explanation presented.	Full	COM 4.2.7 COM 4.5.4		
W.4.3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.				
W.4.3.a. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.	Full	COM 4.1.1-4.1.9 COM 4.5.3		
W.4.3.b. Use dialogue and description to develop experiences and events or show the responses of characters to situations.	Full	COM 4.5.3 COM 4.5.5		
W.4.3.c. Use a variety of transitional words and phrases to manage the sequence of events.	Full	COM 4.1.1-4.1.9		
W.4.3.d. Use concrete words and phrases and sensory details to convey experiences and events precisely.	Full	COM 4.1.1-4.1.9 COM 4.5.3		

Writing	W.4.3.e. Provide a conclusion that follows from the narrated experiences or events.	Full	COM 4.1.7 COM 4.5.3	
	Production and Distribution of Writing			
	W.4.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	Embedded throughout, for example: COM 4.2.1-4.2.10 COM 4.3.1-4.3.9 COM 4.6.1-4.6.9	
	W.4.5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.	Full	Embedded throughout, for example: COM 4.1.6-4.1.9 COM 4.2.1-4.2.10 COM 4.3.4 COM 4.3.9	
	W.4.6. With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.	Full	COM 4.2.2 COM 4.3.9 COM 4.4.8 COM 4.6.3	
	Research to Build and Present Knowledge			
	W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.	Full	COM 4.2.1-4.2.10	
	W.4.8. Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.	Full	LIT 4.10.2 LIT 4.10.6 COM 4.2.2-4.2.4	
	W.4.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.			
	W.4.9.a. Apply grade 4 Reading standards to literature (e.g., “Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character’s thoughts, words, or actions].”).	Full	Embedded throughout, for example: LIT 4.1.9-4.1.12 LIT 4.2.5 LIT 4.2.6 LIT 4.9.4-4.9.7	
	W.4.9.b. Apply grade 4 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text”).	Full	LIT 4.17.1-4.17.4 COM 4.6.1-4.6.6	
	Range of Writing			
	W.4.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Full	Embedded throughout, for example: LIT 4.1.6-4.1.9 COM 4.2.1-4.2.10 COM 4.5.1-4.5.5 COM 4.6.1-4.6.9	
	Comprehension and Collaboration			
SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others’ ideas and expressing their own clearly.				
SL.4.1.a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.	Full	LIT 4.1.1-4.1.12		
SL.4.1.b. Follow agreed-upon rules for discussions and carry out assigned roles.	Full	LIT 4.1.1		
SL.4.1.c. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.	Full	LIT 4.1.1-4.1.12		

Speaking & Listening	SL.4.1.d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.	Full	LIT 4.1.1-4.1.12	
	SL.4.2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	Full	LIT 4.1.1-4.1.12 LIT 4.6.1	
	SL.4.3. Identify the reasons and evidence a speaker provides to support particular points.	Full	COM 4.2.10 COM 4.6.1-4.6.9	
	Presentation of Knowledge and Ideas			
	SL.4.4. Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	Full	LIT 4.1.7 LIT 4.1.10 LIT 4.1.11 LIT 4.7.4	
	SL.4.5. Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.	Full	COM 4.2.10 LIT 4.14.5	
SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.	Full	LIT 4.1.7 LIT 4.7.4 COM 4.4.1		
Conventions of Standard English				
L.4.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.				
L.4.1.a. Use relative pronouns (<i>who, whose, whom, which, that</i>) and relative adverbs (<i>where, when, why</i>).	Full	GUM 4.5.9		
L.4.1.b. Form and use the progressive (e.g., <i>I was walking; I am walking; I will be walking</i>) verb tenses.	Full	GUM 4.9.2 GUM 4.9.3 GUM 4.9.7 GUM 4.9.8		
L.4.1.c. Use modal auxiliaries (e.g., <i>can, may, must</i>) to convey various conditions.	Full	GUM 4.7.4 GUM 4.7.6-4.7.8		
L.4.1.d. Order adjectives within sentences according to conventional patterns (e.g., <i>a small red bag</i> rather than <i>a red small bag</i>).	Full	Embedded throughout, for example: GUM 4.1.5 VOC 4.1.1 LIT 4.6.1 - LIT 4.6.10 LIT 4.13.1-LIT 4.13.8		
L.4.1.e. Form and use prepositional phrases.	Full	GUM 4.11.4 GUM 5.2.9 GUM 5.10.1-5.10.8		
L.4.1.f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.*	Full	Embedded throughout, for example: COM 4.1.9 COM 4.2.10 COM 4.6.9		
L.4.1.g. Correctly use frequently confused words (e.g., <i>to, too, two; there, their</i>).*	Full	GUM 4.11.4-4.11.7		
L.4.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.				
L.4.2.a. Use correct capitalization.	Full	GUM 4.3.3-4.3.6		
L.4.2.b. Use commas and quotation marks to mark direct speech and quotations from a text.	Full	GUM 4.2.5-4.2.7		
L.4.2.c. Use a comma before a coordinating conjunction in a compound sentence.	Full	GUM 4.2.5-4.2.7		
L.4.2.d. Spell grade-appropriate words correctly, consulting references as needed.	Full	GUM 4.11.1-4.11.6		

Knowledge of Language			
L.4.3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.			
Language	L.4.3.a. Choose words and phrases to convey ideas precisely.*	Full	COM 4.2.9
	L.4.3.b. Choose punctuation for effect.*	Full	GUM 4.1.1-4.1.3 GUM 4.1.9
	L.4.3.c. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).	Full	LIT 4.1.7 LIT 4.7.4 COM 4.4.1
Vocabulary Acquisition and Use			
L.4.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.			
	L.4.4.a. Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.	Full	Embedded throughout, for example: VOC 4.1.1-4.1.5 VOC 4.2.1-4.2.5 VOC 4.3.1-4.3.5
	L.4.4.b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., <i>telegraph</i> , <i>photograph</i> , <i>autograph</i>).	Full	Embedded throughout, for example: SPE 4.7.3 SPE 4.12.3 SPE 4.13.4
	L.4.4 c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.	Full	Embedded throughout, for example: LIT 4.1.6-4.1.9 LIT 4.2.1-4.2.7 LIT 4.5.1-4.5.10 LIT 4.8.1-4.8.8 LIT 4.10.1-4.10.6 LIT 4.17.1-4.17.5
L.4.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.			
	L.4.5 a.. Explain the meaning of simple similes and metaphors (e.g., <i>as pretty as a picture</i>) in context.	Full	LIT 4.3.1 LIT 4.3.5 LIT 4.7.1 LIT 4.7.4 LIT 4.7.5 LIT 4.11.3 LIT 4.15.1-4.15.5
	L.4.5 b. Recognize and explain the meaning of common idioms, adages, and proverbs.	Full	LIT 4.1.3
	L.4.5.c. Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).	Full	GUM 4.11.1 GUM 4.11.2 GUM 4.11.6 GUM 4.11.7
	L.4.6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., <i>wildlife</i> , <i>conservation</i> , and <i>endangered</i> when discussing animal preservation).	Full	Embedded throughout, for example: COM 4.1.8 LIT 4.3.3-4.3.5 LIT 4.6.1 LIT 4.6.8

**Common Core Grade Five English Language Arts Expectations
Compared to K¹² Grade 5 Language Arts**

Standard/Topic	Performance Indicator	Coverage	K ¹² grade, unit, lesson number	Comments
Literature	Key Ideas and Details			
	RL.5.1. Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.	Full	Embedded throughout, for example: LIT 5.2.1 LIT 5.2.2 LIT 5.2.9 LIT 5.2.10 LIT 5.3.4	
	RL.5.2. Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.	Full	LIT 5.1.4 LIT 5.1.6 LIT 5.3.3	
	RL.5.3. Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).	Full	LIT 5.1.5 LIT 5.2.6 LIT 5.2.7	
	Craft and Structure			
	RL.5.4. Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.	Full	LIT 5.4.2-5.4.5	
	RL.5.5. Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.	Full	LIT 5.3.2 LIT 5.4.5 LIT 5.11.1	
	RL.5.6. Describe how a narrator's or speaker's point of view influences how events are described.	Full	LIT 5.10.5	
	Integration of Knowledge and Ideas			
	RL.5.7. Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).	Full	LIT 5.16.7	
	RL.5.8. (Not applicable to literature)	N/A	N/A	
	RL.5.9. Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.	Full	LIT 5.5.1-5.5.5 LIT 5.7.7-5.7.9 LIT 5.9.2 LIT 5.10.6	
	Range of Reading and Level of Text Complexity			
	RL.5.10. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4–5 text complexity band independently and proficiently.	Full	Embedded throughout, for example: LIT 5.1.1-5.1.10 LIT 5.8.1-5.8.7 LIT 5.9.1-5.9.7 LIT 5.10.1-5.10.8	
Key Ideas and Details				
RI.5.1. Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.	Full	Embedded throughout, for example: LIT 5.5.3 LIT 5.5.5 LIT 5.5.6 LIT 5.13.5		

Informational Text	RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.	Full	LIT 5.5.1-5.5.3 LIT 5.5.5-5.5.7 LIT 5.5.10 LIT 5.13.1-5.13.6	
	RI.5.3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.	Full	LIT 5.7.9	
	Craft and Structure			
	RI.5.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a <i>grade 5 topic or subject area</i> .	Full	LIT 5.5.1-5.5.10 LIT 5.13.1-5.13.6	
	RI.5.5. Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.	Full	LIT 5.5.3 LIT 5.5.5 LIT 5.5.6 LIT 5.13.5	
	RI.5.6. Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.	Full	COM 5.2.2 COM 5.2.4	
	Integration of Knowledge and Ideas			
	RI.5.7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.	Full	COM 5.2.1-5.2.5	
	RI.5.8. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).	Full	LIT 5.5.10 LIT 5.7.3 LIT 5.7.4	
	RI.5.9. Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.	Full	COM 5.2.1-5.2.5	
Range of Reading and Level of Text Complexity				
RI.5.10. By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.	Full	Embedded throughout, for example: LIT 5.5.1-5.5.7 LIT 5.13.1-5.13.6		
Foundational Skills	Phonics and Word Recognition			
	RF.5.3. Know and apply grade-level phonics and word analysis skills in decoding words.			
	RF.5.3.a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.	Full	Embedded throughout, for example: VOC 5.1.1-5.1.5 VOC 5.2.1-5.2.5 VOC 5.3.1-5.3.5	
	RF.5.4. Read with sufficient accuracy and fluency to support comprehension.			
RF.5.4.a. Read grade-level text with purpose and understanding.	Full	Embedded throughout, for example: LIT 5.1.1-5.1.10 LIT 5.5.1-5.5.10 LIT 5.7.1-5.7.9		
RF.5.4.b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression.	Full	Embedded throughout, for example: LIT 4.1.1-4.1.12 LIT 4.5.1-4.5.11		

	RF.5.4.c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	Full	Embedded throughout, for example: LIT 4.1.1-4.1.12 LIT 4.2.7 Lit 4.13.7 LIT 4.5.1-4.5.11	
	Text Types and Purposes			
	W.5.1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.			
	W.5.1.a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose.	Full	COM 5.3.6 COM 5.4.6-5.4.8	
	W.5.1.b. Provide logically ordered reasons that are supported by facts and details.	Full	COM 5.3.6 COM 5.4.5-5.4.8	
	W.5.1.c. Link opinion and reasons using words, phrases, and clauses (e.g., <i>consequently</i> , <i>specifically</i>).	Full	COM 5.4.7	
	W.5.1.d. Provide a concluding statement or section related to the opinion presented.	Full	COM 5.3.6 COM 5.4.6	
	W.5.2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.			
	W.5.2.a. Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.	Full	COM 5.2.7 COM 5.2.8 COM 5.7.3	
	W.5.2.b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.	Full	COM 5.2.4-5.2.6 COM 5.7.4	
	W.5.2.c. Link ideas within and across categories of information using words, phrases, and clauses (e.g., <i>in contrast</i> , <i>especially</i>).	Full	COM 5.2.8 COM 5.7.5	
	W.5.2.d. Use precise language and domain-specific vocabulary to inform about or explain the topic.	Full	COM 5.2.6	
	W.5.2.e. Provide a concluding statement or section related to the information or explanation presented.	Full	COM 5.2.7 COM 5.7.4 COM 5.7.5	
	W.5.3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.			
	W.5.3.a. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.	Full	COM 5.1.2-5.1.5 COM 5.1.7 COM 5.1.8 COM 5.3.3	
	W.5.3.b. Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations.	Full	COM 5.1.2 COM 5.1.4	
	W.5.3.c. Use a variety of transitional words, phrases, and clauses to manage the sequence of events.	Full	COM 5.1.7	
	W.5.3.d. Use concrete words and phrases and sensory details to convey experiences and events precisely.	Full	COM 5.1.2 COM 5.1.8 COM 5.3.3	
	W.5.3.e. Provide a conclusion that follows from the narrated experiences or events.	Full	COM 5.1.6 COM 5.3.3	
	Production and Distribution of Writing			
Writing	W.5.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	Embedded throughout, for example: COM 5.1.8 COM 5.2.10 COM 5.4.8	

	W.5.5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	Full	Embedded throughout, for example: COM 5.1.3 COM 5.1.6 COM 5.2.10 COM 5.5.2 COM 5.6.4	
	W.5.6. With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.	Full	COM 5.2.10 COM 5.4.8 COM 5.5.4	
	W.4.6. With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.	Full	COM 5.2.10 COM 5.4.8 COM 5.5.4	
	W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.	Full	COM 5.2.1-5.2.10	
	W.5.8. Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.	Full	COM 5.2.2-5.2.4	
W.5.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.				
	W.5.9.a. Apply <i>grade 5 Reading standards</i> to literature (e.g., “Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]”).	Full	LIT 5.2.11 LIT 5.3.4	
	W.5.9.b. Apply <i>grade 5 Reading standards</i> to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]”).	Full	LIT 5.5.10 LIT 5.7.8	
Range of Writing				
	W.5.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Full	Embedded throughout, for example: COM 5.1.1 COM 5.2.1 COM 5.2.8	
Comprehension and Collaboration				
SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 5 topics and texts</i>, building on others’ ideas and expressing their own clearly.				
	SL.5.1.a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.	Full	LIT 5.9.6 LIT 5.9.7 LIT 5.15.5	
	SL.5.1.b. Follow agreed-upon rules for discussions and carry out assigned roles.	Full	LIT 5.1.1	
	SL.5.1.c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.	Full	LIT 5.9.6 LIT 5.9.7 LIT 5.13.6 LIT 5.15.5 COM 5.2.10	
	SL.5.1.d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.	Full	LIT 5.9.6 LIT 5.9.7 LIT 5.15.5	
	SL.5.2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	Full	LIT 5.13.1	

Speaking and Listening

SL.5.3. Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.	Full	COM 5.1.1	
Presentation of Knowledge and Ideas			
SL.5.4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	Full	COM 5.5.1-5.5.4	
SL.5.5. Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.	Full	LIT 5.12.1 LIT 5.18.3	
SL.5.6. Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation.	Full	COM 5.5.3	
Conventions of Standard English			
L.5.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.			
L.5.1.a. Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.	Full	GUM 5.10.1-5.10.8 GUM 5.11.1-5.11.6	
L.5.1.b. Form and use the perfect (e.g., <i>I had walked</i> ; <i>I have walked</i> ; <i>I will have walked</i>) verb tenses.	Full	GUM 5.7.5 GUM 5.7.6 GUM 5.7.10	
L.5.1.c. Use verb tense to convey various times, sequences, states, and conditions.	Full	GUM 5.7.5 GUM 5.7.6 GUM 5.7.10	
L.5.1.d. Recognize and correct inappropriate shifts in verb tense.*	Full	GUM 5.7.5 GUM 5.7.6 GUM 5.7.10	
L.5.1.e. Use correlative conjunctions (e.g., <i>either/or</i> , <i>neither/nor</i>).	Full	GUM 5.12.4 GUM 5.12.5	
L.5.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.			
L.5.2.a. Use punctuation to separate items in a series.*	Full	GUM 5.1.2 GUM 5.1.5 GUM 5.1.8 GUM 5.1.9	
L.5.2.b. Use a comma to separate an introductory element from the rest of the sentence.	Full	GUM 5.1.1 GUM 5.1.5 GUM 5.1.8 GUM 5.1.9	
L.5.2.c. Use a comma to set off the words <i>yes</i> and <i>no</i> (e.g., <i>Yes, thank you</i>), to set off a tag question from the rest of the sentence (e.g., <i>It's true, isn't it?</i>), and to indicate direct address (e.g., <i>Is that you, Steve?</i>).	Full	GUM 5.1.1 GUM 5.1.5 GUM 5.1.8 GUM 5.1.9	
L.5.2.c. Use underlining, quotation marks, or italics to indicate titles of works.	Full	GUM 5.1.6 GUM 5.1.8 GUM 5.1.9	
L.5.2.d. Spell grade-appropriate words correctly, consulting references as needed.	Full	Embedded throughout, for example: SPE 5.1.1-5.1.5 SPE 5.2.1-5.2.5 COM 5.2.10 COM 5.4.8	
Knowledge of Language			
L.5.3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.			

Language	L.5.3.a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.	Full	GUM 5.12.4 GUM 5.12.8 GUM 5.12.10 GUM 5.12.12 GUM 5.12.14	
	L.5.3.b. Compare and contrast the varieties of English (e.g., <i>dialects, registers</i>) used in stories, dramas, or poems.	Full	LIT 5.3.1-5.3.4 LIT 5.8.1-5.8.7 LIT 5.10.1-5.10.8 LIT 5.18.1-5.18.6	
Vocabulary Acquisition and Use				
L.5.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.				
	L.5.4.a. Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.	Full	Embedded throughout, for example: VOC 5.1.1-5.1.5 VOC 5.2.1-5.2.5 VOC 5.3.1-5.3.5	
	L.5.4.b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., <i>photograph, photosynthesis</i>).	Full	Embedded throughout, for example: VOC 5.1.1-5.1.5 VOC 5.2.1-5.2.5 VOC 5.3.1-5.3.5	
	L.5.4.c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.	Full	Embedded throughout, for example: LIT 5.3.1-5.3.4 LIT 5.8.1-5.8.7 LIT 5.10.1-5.10.8 LIT 5.18.1-5.18.6	
L.5.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.				
	L.5.5.a. Interpret figurative language, including similes and metaphors, in context.	Full	LIT 5.4.1 LIT 5.4.2 LIT 5.4.4	
	L.5.5.b. Recognize and explain the meaning of common idioms, adages, and proverbs.	Full	LIT 5.1.1 LIT 5.1.2 LIT 5.1.5	
	L.5.5.c. Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.	Full	Embedded throughout, for example: VOC 5.1.1-5.1.5 VOC 5.2.1-5.2.5 VOC 5.3.1-5.3.5	
	L.5.6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., <i>however, although, nevertheless, similarly, moreover, in addition</i>).	Full	COM 5.1.7 COM 5.2.8 COM 5.7.5 GUM 5.2.1-5.2.10	

**Common Core Grade Six English Language Arts Expectations
Compared to K¹² Intermediate English A**

Standard/Topic	Performance Indicator	Coverage	K ¹² grade, unit, lesson number	Comments
Reading: Literature	Key Ideas and Details			
	RL.6.1. Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Full	LIT 6.7.11 LIT 6.11.9-6.11.13	
	RL.6.2. Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	Full	Embedded throughout, for example: LIT 6.1.1 LIT 6.1.3-6.1.7 LIT 6.1.9	
	RL.6.3. Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.	Full	Embedded throughout, for example: LIT 6.1.4-6.1.7 LIT 6.2.8 LIT 6.11.4	
	Craft and Structure			
	RL.6.4. Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.	Full	Embedded throughout, for example: LIT 6.2.2 LIT 6.2.5 LIT 6.2.8 LIT 6.12.1-6.12.8	
	RL.6.5. Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.	Full	LIT 6.2.2 LIT 6.2.6	
	RL.6.6. Explain how an author develops the point of view of the narrator or speaker in a text.	Full	LIT 6.2.9 LIT 6.11.3 LIT 6.11.4 LIT 6.11.6 LIT 6.11.8	
	Integration of Knowledge and Ideas			
	RL.6.7. Compare and contrast the experience of reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text, including contrasting what they "see" and "hear" when reading the text to what they perceive when they listen or watch.	Full	LIT 6.2.2	
	RL.6.8. Not applicable to literature	N/A	N/A	
	RL.6.9. Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.	Full	Embedded throughout, for example: LIT 6.1.5-6.1.9 LIT 6.2.2 LIT 6.4.1 LIT 6.10.8	
	Range of Reading and Level of Text Complexity			
RL.6.10. By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Embedded throughout, for example: LIT 6.5.1-6.5.10 LIT 6.11.1-6.11.8 LIT 6.12.1-6.12.8 LIT 6.15.1-6.15.8		
Key Ideas and Details				

Informational Text	RI.6.1. Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Full	LIT 6.3.6 LIT 6.6.7 LIT 6.10.11	
	RI.6.2. Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	Full	LIT 6.3.5 LIT 6.8.6	
	RI.6.3. Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).	Full	LIT 6.6.1-6.6.5	
	Craft and Structure			
	RI.6.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.	Full	LIT 6.3.2-6.3.5	
	RI.6.5. Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.	Full	LIT 6.3.1 LIT 6.3.4	
	RI.6.6. Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.	Full	LIT 6.3.1 LIT 6.3.2-6.3.4 LIT 6.3.6 LIT 6.10.8	
	Integration of Knowledge and Ideas			
	RI.6.7. Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.	Full	LIT 6.6.2 LIT 6.6.3 LIT 6.6.5	
	RI.6.8. Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.	Full	LIT 6.2.10 LIT 6.2.11 COM 6.4.3	
RI.6.9. Compare and contrast one author's presentation of events with that of another (e.g., a memoir written by and a biography on the same person).	Full	LIT 6.6.5		
Range of Reading and Level of Text Complexity				
RI.6.10. By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range	Full	LIT 6.3.1-6.3.7 LIT 6.6.2 LIT 6.6.3 LIT 6.6.5		
Text Types and Purposes				
W.6.1. Write arguments to support claims with clear reasons and relevant evidence.				
W.6.1.a. Introduce claim(s) and organize the reasons and evidence clearly.	Full	COM 6.4.1-6.4.10		
W.6.1.b. Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.	Full	COM 6.4.1-6.4.10		
W.6.1.c. Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.	Full	COM 6.4.1-6.4.10		
W.6.1.d. Establish and maintain a formal style.	Full	COM 6.4.1-6.4.10		
W.6.1.e. Provide a concluding statement or section that follows from the argument presented.	Full	COM 6.4.4-6.4.9		
W.6.2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.				
W.6.2.a. Introduce a topic; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.	Full	COM 6.3.1-6.3.4 COM 6.5.1-6.5.17 COM 6.6.1 COM 6.6.5 COM 6.7.1-6.7.6		

Writing

W.6.2.b. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.	Full	COM 6.4.1-6.4.9 COM 6.5.1 COM 6.5.2 COM 6.5.10-6.5.17	
W.6.2.c. Use appropriate transitions to clarify the relationships among ideas and concepts.	Full	COM 6.1.3-6.1.5 COM 6.3.4 COM 6.3.5 COM 6.4.6-6.4.8 COM 6.5.15-6.5.17 COM 6.6.1-6.6.5 COM 6.8.4 COM 6.8.5	
W.6.2.d. Use precise language and domain-specific vocabulary to inform about or explain the topic	Full	COM 6.6.1-6.6.5	
W.6.2.e. Establish and maintain a formal style.	Full	COM 6.5.1-6.5.17	
W.6.2.f. Provide a concluding statement or section that follows from the information or explanation presented.	Full	COM 6.2.2-6.2.6 COM 6.3.1-6.3.5 COM 6.4.4-6.4.9 COM 6.5.10-6.5.17	
W.6.3. Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.			
W.6.3.a. Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.	Full	COM 6.2.1-6.2.6	
W.6.3.b. Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.	Full	COM 6.2.1-6.2.6	
W.6.3.c. Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.	Full	COM 6.2.4-6.2.6	
W.6.3.d. Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events.	Full	COM 6.2.1-6.2.6	
W.6.3.e. Provide a conclusion that follows from the narrated experiences or events.	Full	COM 6.2.1-6.2.6	
Production and Distribution of Writing			
W.6.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	Embedded throughout, for example: COM 6.1.2-6.1.5 COM 6.2.4-6.2.6 COM 6.3.2-6.3.5	
W.6.5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	Full	COM 6.1.5 COM 6.2.2 COM 6.2.6	
W.6.6. Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting.	Full	COM 6.1.5	
Research to Build and Present Knowledge			
W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.	Full	COM 6.5.1-COM 6.5.17	
W.6.8. Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.	Full	COM 6.5.1-6.5.17	

W.6.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.			
W.6.9.a. Apply grade 6 Reading standards to literature (e.g., “Compare and contrast texts in different forms or genres [e.g., stories and poems; historical novels and fantasy stories] in terms of their approaches to similar themes and topics”).	Full	Embedded throughout, for example: LIT 6.1.5-6.1.9 LIT 6.2.2 LIT 6.4.1 LIT 6.10.8	
W.6.9.b. Apply grade 6 Reading standards to literary nonfiction (e.g., “Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not”).	Full	LIT 6.3.1-6.3.6	
Range of Writing			
W.6.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes.	Full	Embedded throughout, for example: COM 6.1.1-6.1.6 COM 6.5.1-6.5.17 LIT 6.2.7 LIT 6.14.2 LIT 6.15.7	
Comprehension and Collaboration			
SL.6.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 6 topics, texts, and issues, building on others’ ideas and expressing their own clearly.			
SL.6.1.a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.	Full	Embedded throughout, for example: LIT 6.1.1 LIT 6.7.1-6.7.13 LIT 6.8.1-LIT 6.8.8	
SL.6.1.b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.	Full	Embedded throughout, for example: LIT 6.1.1 LIT 6.7.1-6.7.13 LIT 6.8.1-LIT 6.8.8	
SL.6.1.c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.	Full	Embedded throughout, for example: LIT 6.7.1-6.7.13 LIT 6.8.1-LIT 6.8.8	
SL.6.1.d. Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.	Full	LIT 6.4.11 LIT 6.6.6 LIT 6.10.10 LIT 6.16.4	
SL.6.2. Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.	Full	LIT 6.6.8	
SL.6.3. Delineate a speaker’s argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.	Full	LIT 6.4.1	
Presentation of Knowledge and Ideas			
SL.6.4. Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.	Full	COM 6.7.6	

Speaking and
Listening

	SL.6.5. Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.	Full	COM 6.6.1 COM 6.6.5	
	SL.6.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	Full	COM 6.7.6	
Conventions of Standard English				
L.6.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.				
	L.6.1.a. Ensure that pronouns are in the proper case (subjective, objective, possessive).	Full	GUM 6.9.1-6.9.9	
	L.6.1.b. Use intensive pronouns (e.g., <i>myself</i> , <i>ourselves</i>).	Full	GUM 6.2.3	
	L.6.1.c. Recognize and correct inappropriate shifts in pronoun number and person.*	Full	GUM 6.2.2 GUM 6.2.4 GUM 6.2.5 GUM 6.9.1-6.9.9	
	L.6.1.d. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).*	Full	GUM 6.9.6-6.9.9	
	L.6.1.e. Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.*	Full	Embedded throughout, for example: LIT 6.9.3 LIT 6.11.1 LIT 6.11.4	
L.6.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.				
	L.6.2.a. Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.*	Full	GUM 6.15.3-6.15.5	
	L.6.2.b. Spell correctly.	Full	Embedded throughout, for example: COM 6.1.5 COM 6.3.5 COM 6.4.9 COM 6.5.17 COM 6.6.4 COM 6.6.5	
Knowledge of Language				
L.6.3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.				
	L.6.3.a. Vary sentence patterns for meaning, reader/listener interest, and style.*	Full	Embedded throughout, for example: COM 6.5.2 COM 6.5.10-6.5.17 COM 6.7.1 COM 6.7.4-6.7.6 COM 6.8.1 COM 6.8.4 COM 6.8.5	
Language	L.6.3.b. Maintain consistency in style and tone.*	Full	COM 6.5.2 COM 6.5.10-6.5.17 COM 6.7.1 COM 6.7.4-6.7.6 COM 6.8.1 COM 6.8.4 COM 6.8.5	
Vocabulary Acquisition and Use				

L.6.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.

L.6.4.a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Full	Embedded throughout, for example: VOC 6.1.1-6.1.8 VOC 6.2.1-6.2.8 VOC 6.3.1-6.3.8	
L.6.4.b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., <i>audience, auditory, audible</i>).	Full	Embedded throughout, for example: VOC 6.1.1-6.1.8 VOC 6.2.1-6.2.8 VOC 6.3.1-6.3.8	
L.6.4.c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.	Full	VOC 6.1.1-6.1.8 VOC 6.4.1-6.4.7 GUM 6.13.1-6.13.3	
L.6.4.d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	Full	Embedded throughout, for example: GUM 6.1.1-6.1.3 GUM 6.2.1-6.2.5 VOC 6.1.1-6.1.8	

L.6.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

L.6.5.a. Interpret figures of speech (e.g., personification) in context.	Full	Embedded throughout, for example: LIT 6.2.2 LIT 6.12.4 LIT 6.12.5	
L.6.5.b. Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words.	Full	VOC 6.4.1-VOC 6.4.7 VOC 6.7.1-6.7.7	
L.6.5.c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., <i>stingy, scrimping, economical, unwhasteful, thrifty</i>).	Full	VOC 6.4.1-VOC 6.4.7 VOC 6.7.1-6.7.7	
L.6.6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.	Full	Embedded throughout, for example: GUM 6.12.1-6.12.4 COM 6.1.1-6.1.5	

**Common Core Grade Seven English Language Arts Grade Expectations
Compared to K¹² Intermediate English B**

Standard/Topic	Performance Indicator	Coverage	K ¹² grade, unit, lesson number	Comments
Reading: Literature	Key Ideas and Details			
	RL.7.1. Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Full	LIT 7.2.1-7.2.3 LIT 7.11.13-7.11.17	
	RL.7.2. Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text.	Full	Embedded throughout, for example: LIT 7.1.2-7.1.9 LIT 7.8.2 LIT 7.8.5-7.8.8 LIT 7.11.1-7.11.6 LIT 7.11.8-7.11.17	
	RL.7.3. Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).	Full	LIT 7.7.4 LIT 7.8.1 LIT 7.8.2	
	Craft and Structure			
	RL 7.4. Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of rhymes and other repetitions of sounds (e.g., alliteration) on a specific verse or stanza of a poem or section of a story or drama.	Full	LIT 7.1.4 LIT 7.1.6 LIT 7.1.7 LIT 7.1.8 LIT 7.4.3-7.4.5	
	RL.7.5. Analyze how a drama's or poem's form or structure (e.g., soliloquy, sonnet) contributes to its meaning.	Full	LIT 7.4.5 LIT 7.4.6 LIT 7.12.4 LIT 7.12.6 LIT 7.12.7	
	RL.7.6. Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.	Full	LIT 7.11.4 LIT 7.11.11	
	Integration of Knowledge and Ideas			
	RL.7.7. Compare and contrast a written story, drama, or poem to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, or camera focus and angles in a film).	Full	LIT 7.8.7	
	RL.7.8. (Not applicable to literature)	N/A	N/A	
	RL.7.9. Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.	Full	LIT 7.1.12 LIT 7.5.1-7.5.6 LIT 7.11.1 LIT 7.15.11	
	Range of Reading and Level of Text Complexity			
	RL 7.10. By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Embedded throughout, for example: LIT 7.1.12 LIT 7.10.3 LIT 7.19.2	
Key Ideas and Details				
RI.7.1. Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Full	LIT 7.5.1-LIT 7.5.5		
RI.7.2. Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.	Full	LIT 7.5.1-LIT 7.5.5		

Informational Text	RI.7.3. Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).	Full	LIT 7.16.1-7.16.6	
	Craft and Structure			
	RI.7.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	Full	LIT 7.16.1-7.16.6	
	RI.7.5. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.	Full	LIT 7.16.1-7.16.6	
	RI.7.6. Determine an author's point of view or purpose in a text and analyze how the author distinguishes his or her position from that of others.	Full	LIT 7.16.1-7.16.6	
	Integration of Knowledge and Ideas			
	RI.7.7. Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).	Full	LIT 7.9.1-LIT 7.9.4	
	RI.7.8. Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.	Full	LIT 7.13.3	
	RI.7.9. Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts.	Full	LIT 7.4.6	
	Range of Reading and Level of Text Complexity			
RI.7.10. By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	LIT 7.5.1-LIT 7.5.5 LIT 7.9.1-LIT 7.9.4 LIT 7.16.1-7.16.6		
Text Types and Purposes				
W.7.1. Write arguments to support claims with clear reasons and relevant evidence.				
W.7.1.a. Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically.	Full	COM 7.4.1-7.4.7		
W.7.1.b. Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.	Full	COM 7.4.5 COM 7.4.6		
W.7.1.c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.	Full	COM 7.4.7 COM 7.4.8		
W.7.1.d. Establish and maintain a formal style.	Full	Embedded throughout, for example: COM 7.3.1-COM 7.3.5 COM 7.5.1-COM 7.5.15 COM 7.6.1-COM 7.6.6		
W.7.1.e. Provide a concluding statement or section that follows from and supports the argument presented.	Full	COM 7.1.3 COM 7.1.4 COM 7.1.5		
W.7.2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.				
W.7.2.a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.	Full	COM 7.3.1-7.3.5 COM 7.5.1-7.5.17 COM 7.7.1-7.7.8		

Writing

W.7.2.b. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.	Full	COM 7.3.1-7.3.5 COM 7.5.10-7.5.12 COM 7.7.1-7.7.8	
W.7.2.c. Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts.	Full	COM 7.3.4 COM 7.3.5 COM 7.5.15-7.5.17 COM 7.7.4-7.7.8	
W.7.2.d. Use precise language and domain-specific vocabulary to inform about or explain the topic.	Full	COM 7.5.1-7.5.17	
W.7.2.e. Establish and maintain a formal style.	Full	COM 7.5.10-7.5.17	
W.7.2.f. Provide a concluding statement or section that follows from and supports the information or explanation presented.	Full	COM 7.5.10-7.5.17 COM 7.7.1-7.7.8	
W.7.3. Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.			
W.7.3.a. Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.	Full	COM 7.2.1-7.2.5 COM 7.8.1-7.8.8 LIT 7.9.5-7.9.8	
W.7.3.b. Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.	Full	COM 7.2.3-7.2.5 COM 7.8.1-7.8.8 LIT 7.9.5-7.9.8	
W.7.3.c. Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.	Full	COM 7.2.3-7.2.5 COM 7.8.5-7.8.8 LIT 7.9.5-7.9.8	
W.7.3.d. Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.	Full	COM 7.2.3-7.2.5 COM 7.8.5-7.8.8 LIT 7.9.5-7.9.8	
W.7.3.e. Provide a conclusion that follows from and reflects on the narrated experiences or events.	Full	COM 7.2.3-7.2.5 COM 7.8.5-7.8.8 LIT 7.9.5-7.9.8	
Production and Distribution of Writing			
W.7.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	COM 7.4.1-7.4.9 COM 7.5.1-7.5.17 COM 7.7.1-7.7.8 COM 7.8.1-7.8.8	
W.7.5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	Full	Embedded throughout, for example: COM 7.1.4 COM 7.1.5 COM 7.5.14 COM 7.5.15 COM 7.6.1 COM 7.7.3	
W.7.6. Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.	Full	Embedded throughout, for example: COM 8.5.2 COM 8.5.9-8.5.11	
Research to Build and Present Knowledge			
W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.	Full	COM 7.5.1-7.5.17	

	W.7.8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	Full	COM 7.5.1-7.5.17	
W.7.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.				
	W.7.9.a. Apply grade 7 Reading standards to literature (e.g., “Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history”).	Full	LIT 7.1.11 LIT 7.19.2	
	W.7.9b Apply grade 7 Reading standards to literary nonfiction (e.g. “Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims”).	Full	LIT 7.5.1-LIT 7.5.5 LIT 7.9.1-LIT 7.9.4 LIT 7.16.1-7.16.6	
Range of Writing				
	W.7.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Full	Embedded throughout, for example: COM 7.5.1-7.5.17 COM 7.2.2 COM 7.3.4 COM 7.6.4	
Speaking & Listening				
Comprehension and Collaboration				
SL.7.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others’ ideas and expressing their own clearly.				
	SL.7.1.a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.	Full	LIT 7.1.1	
	SL.7.1.b. Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.	Full	LIT 7.1.1	
	SL.1.c. Pose questions that elicit elaboration and respond to others’ questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.	Full	LIT 7.1.4 LIT 7.1.5	
	SL.7.1.d. Acknowledge new information expressed by others and, when warranted, modify their own views.	Full	LIT 7.1.1	
	SL.7.2. Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.	Full	LIT 7.9.2	
	SL.7.3. Delineate a speaker’s argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.	Full	LIT 7.1.4 LIT 7.1.5	
Presentation of Knowledge and Ideas				
	SL.7.4. Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.	Full	LIT 5.9.6 LIT 5.9.7 LIT 5.13.6 LIT 5.15.5 COM 5.2.10	
	SL.7.5. Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.	Full	COM 7.7.6-7.7.8	
	SL.7.6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	Full	COM 7.7.4-7.7.8	
Conventions of Standard English				
L.7.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.				

L.7.1.a. Explain the function of phrases and clauses in general and their function in specific sentences.	Full	GUM 7.3.1-7.3.5 GUM 7.4.1-7.4.8 GUM 7.5.1-7.5.4 GUM 7.5.7-7.5.9	
L.7.1.b. Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas.	Full	GUM 7.5.5-7.5.9 GUM 7.6.3 GUM 7.6.4 GUM 7.9.2	
L.7.1.c Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.*	Full	GUM 7.3.1-7.3.4 GUM 7.4.4 GUM 7.5.4 GUM 7.5.7-7.5.9	
L.7.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.			
L.7.2.a. Use a comma to separate coordinate adjectives (e.g., It was a fascinating, enjoyable movie but not He wore an old[,] green shirt).	Full	Embedded throughout, for example: COM 7.1.5 COM 7.2.5 COM 7.3.5 COM 7.4.9 COM 7.5.17 COM 7.6.5 COM 7.7.5-7.7.8 GUM 7.13.2	
L.7.2.b. Spell correctly.	Full	Embedded throughout, for example: LIT 7.9.8 LIT 7.11.14-7.11.17 LIT 7.13.8 LIT 7.13.9	
Knowledge of Language			
L.7.3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.			
L.7.3.a. Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.*	Full	Embedded throughout, for example: COM 7.1.5 COM 7.2.5 COM 7.3.5 COM 7.4.9 COM 7.5.17 COM 7.6.5 COM 7.7.5-7.7.8	
Vocabulary Acquisition and Use			
L.7.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibly from a range of strategies.			
L.7.4.a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Full	Embedded throughout, for example: LIT 7.1.1-7.1.12 LIT 7.3.1-7.3.10 LIT 7.6.1-7.6.13 LIT 7.7.1-7.7.8	

Language

L.7.4.b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., belligerent, bellicose, rebel).	Full	Embedded throughout, for example: VOC 7.1.1-7.1.8 VOC 7.2.1-7.2.8 VOC 7.3.1-7.3.8	
L.7.4.c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.	Full	Embedded throughout, for example: VOC 7.1.1-7.1.8 VOC 7.2.1-7.2.8 VOC 7.3.1-7.3.8	
L.7.4.d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	Full	Embedded throughout, for example: VOC 7.1.1-7.1.8 VOC 7.2.1-7.2.8 VOC 7.3.1-7.3.8	
L.7.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.			
L.7.5.a. Interpret figures of speech (e.g., literary, biblical, and mythological allusions) in context.	Full	Embedded throughout, for example: LIT 7.1.6-7.1.8 LIT 7.7.3 LIT 7.7.8 LIT 7.11.4 LIT 7.12.1-7.12.7	
L.7.5.b. Use the relationship between particular words (e.g., synonym/antonym, analogy) to better understand each of the words.	Full	Embedded throughout, for example: VOC 7.4.1-7.4.8 VOC 7.9.1-7.9.8	
L.7.5.c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., refined, respectful, polite, diplomatic, condescending).	Full	VOC 7.3.1-7.3.8 VOC 7.4.1-7.4.8	
L.7.6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.	Full	Embedded throughout, for example: GUM 7.1.1-7.1.6 GUM 7.2.1-7.2.6 GUM 7.9.1-7.9.2 GUM 7.10.1-7.10.7 GUM 7.16.1-7.16.2	

**Common Core Grade Eight English Language Arts Expectations
Compared to K¹² Literary Analysis and Composition**

Standard/Topic	Performance Indicator	Coverage	K ¹² grade, unit, lesson number	Comments
Reading-Literature	Key Ideas and Details			
	RL.8.1. Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.	Full	COM 8.6.3-8.6.5	
	RL.8.2. Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.	Full	Embedded throughout, for example: LIT 8.1.2-8.1.6 LIT 8.4.1-8.4.9 LIT 8.5.1-8.5.6 LIT 8.7.1-8.7.7	
	RL.8.3. Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.	Full	LIT 8.1.2-8.1.4 LIT 8.3.1-8.3.10 LIT 8.7.1-8.7.7	
	Craft and Structure			
	RL.8.4. Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.	Full	Embedded throughout, for example: LIT 8.1.2-8.1.6 LIT 8.2.3 LIT 8.5.1-8.5.6 LIT 8.7.1-8.7.7	
	RL.8.5. Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.	Full	LIT 8.1.3-8.1.6 LIT 8.3.6-8.3.10 LIT 8.5.3	
	RL.8.6. Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.	Full	LIT 8.3.6 LIT 8.3.7 LIT 8.10.2 LIT 8.10.4	
	Integration of Knowledge and Ideas			
	RL.8.7. Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by the director or actors.	Full	LIT 8.13.9	
	RL.8.8. (Not applicable to literature)	N/A	N/A	
	RL.8.9. Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new.	Full	LIT 8.7.1 LIT 8.10.1-8.10.5	
	Range of Reading and Level of Text Complexity			
	10. By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6–8 text complexity band independently and proficiently.	Full	Embedded throughout, for example: LIT 8.2.1-8.2.3 LIT 8.3.1-8.3.9 LIT 8.7.1-8.7.7 LIT 8.14.1-8.14.6	
Key Ideas and Details				
RI.8.1. Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.	Full	COM 8.3.1-8.3.8 COM 8.5.1-8.5.11		
RI.8.2. Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.	Full	COM 8.3.1-8.3.8 COM 8.5.1-8.5.11		

Reading- Informational Text	RI.8.3. Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).	Full	LIT 8.5.3-8.5.6	
	Craft and Structure			
	RI.8.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.	Full	LIT 8.1.5 LIT 7.16.1-7.16.6	
	RI.8.5. Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.	Full	LIT 8.1.5 LIT 7.16.1-7.16.6	
	RI.8.6. Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.	Full	LIT 7.16.1-7.16.6	
	Integration of Knowledge and Ideas			
	RI.8.7. Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.	Full	COM 8.5.11	
	RI.8.8. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.	Full	COM 8.3.4	
	RI.8.9. Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.	Full	LIT 8.9.6	
	Range of Reading and Level of Text Complexity			
RI.8.10. By the end of the year, read and comprehend literary nonfiction at the high end of the grades 6–8 text complexity band independently and proficiently.	Full	LIT 8.1.1-8.1.6		
Text Types and Purposes				
W.8.1. Write arguments to support claims with clear reasons and relevant evidence.				
W.8.1.a. Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.	Full	COM 8.3.1-8.3.8		
W.8.1.b. Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.	Full	COM 8.3.1-8.3.8		
W.8.1.c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.	Full	COM 8.3.6-8.3.8		
W.8.1.d. Establish and maintain a formal style.	Full	Embedded throughout, for example: LIT 4.1.1-4.1.12 LIT 4.5.1-4.5.11		
W.8.1.e. Provide a concluding statement or section that follows from and supports the argument presented.	Full	Embedded throughout, for example: LIT 4.1.1-4.1.12 LIT 4.2.7 Lit 4.13.7 LIT 4.5.1-4.5.11		
W.8.2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.				

Writing

W.8.2.a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.	Full	COM 8.5.1-8.5.11 COM 8.7.1-8.7.5	
W.8.2.b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.	Full	COM 8.5.1-8.5.11 COM 8.7.1-8.7.5	
W.8.2.c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.	Full	COM 8.5.6-COM 8.5.8 COM 8.7.4 COM 8.7.5	
W.8.2.d. Use precise language and domain-specific vocabulary to inform about or explain the topic.	Full	COM 8.5.5-COM 8.5.8 COM 8.7.4 COM 8.7.5	
W.8.2.e. Establish and maintain a formal style.	Full	COM 8.5.6.-COM 8.5.11 COM 8.7.4 COM 8.7.5	
W.8.2.f. Provide a concluding statement or section that follows from and supports the information or explanation presented.	Full	COM 8.5.8.-COM 8.5.11 COM 8.7.4 COM 8.7.5	
W.8.3. Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.			
W.8.3.a. Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.	Full	COM 8.1.4-8.1.7	
W.8.3.b. Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.	Full	COM 8.1.4-8.1.7	
W.8.3.c. Use a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another, and show the relationships among experiences and events.	Full	COM 8.1.4-8.1.6	
W.8.3.d. Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.	Full	COM 8.1.4-8.1.6	
W.8.3.e. Provide a conclusion that follows from and reflects on the narrated experiences or events.	Full	COM 8.1.4-8.1.6	
Production and Distribution of Writing			
W.8.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	Embedded throughout, for example: COM 8.3.1-8. 3.8 COM 8.5.1-8.5.11 COM 8.8.1-8.8.6	
W.8.5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	Full	Embedded throughout, for example: COM 8.1.3 COM 8.1.6	
W.8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.	Full	Embedded throughout, for example: COM 8.1.7 COM 8.5.11	
Research to Build and Present Knowledge			
W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.	Full	COM 8.5.1-8.5.11	

	W.8.8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	Full	COM 8.5.1-8.5.11	
W.8.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.				
	W.8.9.a. Apply grade 8 Reading standards to literature (e.g., "Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new").	Full	LIT 8.7.1 LIT 8.10.1-8.10.5	
	W.8.9b Apply grade 8 Reading standards to literary nonfiction (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced").	Full	LIT 8.1.1-8.1.6	
Range of Writing				
	W.8.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Full	Embedded throughout, for example: LIT 8.14.6 COM 8.2.1-8.2.7 COM 8.5.1-8.5.11 COM 8.6.1-8.6.6	
Speaking and Listening	Comprehension and Collaboration			
	SL.8.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.			
	SL.8.1.a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.	Full	LIT 8.1.2	
	SL.8.1.b. Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.	Full	LIT 8.1.2	
	SL.8.1.c. Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.	Full	COM 8.1.6	
	SL.8.1.d. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.	Full	COM 8.1.6	
	SL.8.2. Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.	Full	COM 8.8.1	
	SL.8.3. Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.	Full	LIT 8.8.1 LIT 8.8.2	
	Presentation of Knowledge and Ideas			
	SL.8.4. Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.	Full	LIT 8.8.4-8.8.6	
SL.8.5. Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.	Full	LIT 8.8.4-8.8.6		

	SL.8.6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	Full	COM 8.8.2 COM 8.8.5 COM 8.8.6 LIT 8.16.1	
	Conventions of Standard English			
	L.8.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.			
	L.8.1.a. Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences.	Full	GUM 8.4.1-8.4.4	
	L.8.1.b. Form and use verbs in the active and passive voice.	Full	GUM 8.6.4-8.6.6	
	L.8.1.c. Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood.	Full	GUM 8.4.1-8.4.4	
	L.8.1.d. Recognize and correct inappropriate shifts in verb voice and mood.*	Full	GUM 8.6.4-8.6.6	
	L.8.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.			
	L.8.2.a. Use punctuation (comma, ellipsis, dash) to indicate a pause or break.	Full	GUM 8.12.2 GUM 8.13.2 GUM 8.14.4	
	L.8.2.b. Use an ellipsis to indicate an omission.	Full	GUM 8.14.4	
	L.8.2.c. Spell correctly.	Full	Embedded throughout, for example: COM 8.1.7 COM 8.2.7 COM 8.3.8 COM 8.5.11	
	Knowledge of Language			
	L.8.3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.			
	L.8.3.a. Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).	Full	GUM 8.6.1-8.6.5	
	Vocabulary Acquisition and Use			
	L.8.4. Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies.			
	L.8.4.a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Full	Embedded throughout, for example: VOC 8.1.1-8.1.8 VOC 8.2.1-8.2.8 VOC 8.3.1-8.3.8	
	L.8.4.b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., <i>precede</i> , <i>recede</i> , <i>secede</i>).	Full	Embedded throughout, for example: VOC 8.1.1-8.1.8 VOC 8.2.1-8.2.8 VOC 8.3.1-8.3.8	
Language	L.8.4.c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.	Full	Embedded throughout, for example: VOC 8.1.1 VOC 8.3.1 VOC 8.6.1 VOC 8.9.1	

L..8.4.d . Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	Full	Embedded throughout, for example: VOC 8.1.1 VOC 8.3.1 VOC 8.6.1 VOC 8.9.1	
L.8.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.			
L.8.5.a. Interpret figures of speech (e.g. verbal irony, puns) in context.	Full	Embedded throughout, for example: LIT 8.2.3-8.2.7 LIT 8.3.7 LIT 8.5.1 LIT 8.5.5 LIT 8.8.1 LIT 8.8.2 LIT 8.13.1-8.13.9 LIT 8.16.4	
L.8.5.b. Use the relationship between particular words to better understand each of the words.	Full	Embedded throughout, for example: LIT 8.2.3-8.2.7 LIT 8.3.7 LIT 8.5.1 LIT 8.5.5 LIT 8.8.1 LIT 8.8.2 LIT 8.13.1-8.13.9 LIT 8.16.4	
L.8.5.c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., <i>bullheaded, willful, firm, persistent, resolute</i>).	Full	Embedded throughout, for example: VOC 8.1.1-8.1.8 VOC 8.2.1-8.2.8 VOC 8.3.1-8.3.8	
L.8.6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.	Full	Embedded throughout, for example: LIT 8.3.6-8.3.10 LIT 8.5.3 LIT 8.5.5	

Common Core English Language Arts Standards for Grades 9-10
Compared to K¹² ENG102: LAC I and ENG202: LAC II

Strand/Topic	Performance Indicator	Coverage	ENG102: LAC I	ENG202: LAC II	Comments	
Key Ideas and Details						
Literature	RL.9-10.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Full	Embedded throughout, for example: ENG102A: LIT 2.1 - 2.12 ENG102A LIT: 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12		
	RL.9-10.2. Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12		
	RL.9-10.3. Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12		
	Craft and Structure					
		RL.9-10.4. Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 (yes) ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12	
		RL.9-10.5. Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.	Full	Embedded throughout, for example: ENG102A LIT 2.2 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 5.2 (yes) ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12	
	RL.9-10.6. Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.4 ENG102A LIT 2.7 - 2.10 ENG102A LIT 10.2 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	Embedded throughout, for example: ENG202A 1.8 - 1.10 ENG202A 9.1 ENG202A 9.2 ENG202A 9.6 ENG202B 4.4		
Integration of Knowledge and Ideas						

	RL.9-10.7. Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).	Full		ENG202A 1.2 ENG202A 1.3 ENG202A 1.10	
	RL.9-10.8. (Not applicable to literature)	N/A	N/A	N/A	
	RL.9-10.9. Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).	Full	Embedded throughout, for example: ENG102A LIT 10.6 ENG102B LIT 1.1 - 1.8	ENG202A 1.2	
Range of Reading and Level of Text Complexity					
	RL.9-10.10. By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12	
Key Ideas and Details					
	RI.9-10.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1	ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.1 - 2.13 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13	
	RI.9-10.2. Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1	ENG202A 2.1 - 2.12 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.1 - 2.13 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13	
	RI.9-10.3. Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1	ENG202A 2.1 ENG202A 5.1 ENG202A 8.1 ENG202B 2.1	
Craft and Structure					
	RI.9-10.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).	Full	ENG102A LIT 4.1 ENG102ALIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1	Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.1 - 2.13 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13	
	RI.9-10.5. Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B COMP 2.1 ENG102B LIT 3.1 ENG102B LIT 5.1	ENG202A 2.1 ENG202A 5.1 ENG202A 8.1 ENG202B 2.1	
	RI.9-10.6. Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B COMP 2.1 ENG102B LIT 3.1 ENG102B LIT 5.1	ENG202A 2.1 ENG202A 5.1 ENG202B 1.9	
Integration of Knowledge and Ideas					

Informational
Text

RI.9-10.7. Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.	Full	ENG102A COM 2.1-2.6	ENG202A 8.1 - 8.9	
RI.9-10.8. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.	Full	ENG102A LIT 4.1 ENG102A LIT 6.1 ENG102A LIT 6.4 ENG102A LIT 8.1	ENG202A 5.5 ENG202A 10.3 ENG202A 10.6	
RI.9-10.9. Analyze seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.	Full		ENG202A LIT 8.1	
Range of Reading and Level of Text Complexity				
RI.9-10.10. By the end of grade 9, read and comprehend literary nonfiction in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1 ENG102B LIT 6.1 - 6.9	Embedded throughout, for example: ENG202A 2.1 ENG202A 2.5 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.2 ENG202B 6.1	
Text Types and Purposes				
W.9-10.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.				
W.9-10.1.a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear	Full	ENG102B COM 2.1 - 2.12	ENG202A 8.1 - 8.9 ENG202A 10.3 ENG202A 10.6 ENG202B 6.1	
W.9-10.1.b. Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns.	Full	ENG102B COM 2.1 - 2.12	ENG202A 8.1 - 8.9 ENG202A 10.3 ENG202A 10.6 ENG202B 6.1	
W.9-10.1.c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.	Full	ENG102B COM 2.1 - 2.12	ENG202A 8.1 - 8.9 ENG202A 10.3 ENG202A 10.6 ENG202B 6.1	
W.9-10.1.d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG102B COM 2.1 - 2.12	ENG202A 8.1 - 8.9 ENG202A 10.3 ENG202A 10.6 ENG202B 6.1	
W.9-10.1.e. Provide a concluding statement or section that follows from and supports the argument presented.	Full	ENG102B COM 2.1 - 2.12	ENG202A 8.1 - 8.9 ENG202A 10.3 ENG202A 10.6 ENG202B 6.1	
W.9-10.2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.				
W.9-10.2.a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.	Full	ENG102B COM 6.1 - 6.19	ENG202B 7.1 - 7.13	
W.9-10.2.b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.	Full	ENG102B COM 6.1 - 6.19	ENG202B 7.1 - 7.13	
W.9-10.2.c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.	Full	ENG102B COM 6.1 - 6.19	ENG202B 7.1 - 7.13	
W.9-10.2.d. Use precise language and domain-specific vocabulary to manage the complexity of the topic.	Full	ENG102B COM 6.1 - 6.19	ENG202B 7.1 - 7.13	

W.9-10.2.e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG102B COM 6.1 - 6.19	ENG202B 7.1 - 7.13	
W.9-10.2.f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	Full	ENG102B COM 6.1 - 6.19	ENG202B 7.1 - 7.13	
W.9-10.3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.				
W.9-10.3.a. Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.	Full	Embedded throughout, for example: ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7	ENG202A 2.1 - 2.12 ENG202A 10.1 ENG202A 10.2 ENG202B 6.1	
W.9-10.3.b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.	Full	Embedded throughout, for example: ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7	ENG202A 2.1 - 2.12 ENG202A 10.1 ENG202A 10.2 ENG202B 6.1	
W.9-10.3.c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.	Full	Embedded throughout, for example: ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7	ENG202A 2.1 - 2.12 ENG202A 10.1 ENG202A 10.2 ENG202B 6.1	
W.9-10.3.d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.	Full	Embedded throughout, for example: ENG102A COM 6.1 ENG102A COM 6.2 ENG102A COM 6.7 ENG102A COM 9.3 - 9.7	ENG202A 2.1 - 2.12 ENG202A 10.1 ENG202A 10.2 ENG202B 6.1	
W.9-10.3.e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.	Full	Embedded throughout, for example: ENG102A COM 6.1 - 6.7 ENG102A COM 3.1 - 3.8 ENG102A COM 9.1 - 9.7 ENG102B COM 1.1 -1.13	ENG202A 2.1 - 2.12 ENG202A 10.1 ENG202A 10.2 ENG202B 6.1	
Production and Distribution of Writing				
W.9-10.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	Embedded throughout, for example: ENG102A COM 1.1 - 1.10 ENG102A COM 3.1 - 3.12 ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7 ENG102B COM 2.1 - 2.12 ENG102B COM 6.1 - 6.19	Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7	
W.9-10.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	Full	Embedded throughout, for example: ENG102A COM 1.1 - 1.10 ENG102A COM 3.1 - 3.12 ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7 ENG102B COM 2.1 - 2.12 ENG102B COM 6.1 - 6.19	Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7	
W.9-10.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.	Full	ENG102A COM 1.10 ENG102A COM 2.1-2.6 ENG102A COM 3.8	Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7	

Writing

Research to Build and Present Knowledge				
W.9-10.7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	Full	ENG102B COM 6.1 - 6.19	ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13	
W.9-10.8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.	Full	ENG102B COM 6.1 - 6.19	ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13	
W.9-10.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.				
W.9-10.9.a. Apply grades 9–10 Reading standards to literature (e.g., “Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]”).	Full	Embedded throughout, for example: ENG102A: LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12	
W.9-10.9.b. Apply grades 9–10 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning”).	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1	ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.1 - 2.13 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13	
Range of Writing				
W.9-10.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	Full	Embedded throughout, for example: ENG102A COM 1.1 - 1.10 ENG102A COM 3.1 - 3.12 ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7 ENG102B COM 2.1 - 2.12 ENG102B COM 6.1 - 6.19	Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.1-2.13 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7	
Comprehension and Collaboration				
SL.9-10.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.				
SL.9-10.1.a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	Embedded throughout, see Moderator Guides for Synchronous Sessions	
SL.9-10.1.b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	Embedded throughout, see Moderator Guides for Synchronous Sessions	
SL.9-10.1.c. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	Embedded throughout, see Moderator Guides for Synchronous Sessions	
SL.9-10.1.d. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	Embedded throughout, see Moderator Guides for Synchronous Sessions	
SL.9-10.2. Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.	Full	ENG102A COM 2.1-2.6		

Speaking & Listening

SL.9-10.3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.	Full		ENG202A LIT 8.1	
Presentation of Knowledge and Ideas				
SL.9-10.4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	ENG202A 8.1 - 8.9 See also: Moderator Guides for Synchronous Sessions	
SL.9-10.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.	Full		ENG202A 8.1 - 8.9	
SL.9-10.6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	Full		ENG202A 8.1 ENG202A 8.2 See also: Moderator Guides for Synchronous Sessions	
Conventions of Standard English				
L.9-10.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.				
L.9-10.1.a. Use parallel structure.*	Full	ENG102B GUM 1.4 ENG102B GUM 1.5	ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9	
L.9-10.1.b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.	Full	Embedded throughout, for example: ENG102A GUM 7.1 - 7.5 ENG102A GUM 8.1 - 8.9 ENG102 GUM 9.1 - 9.9	ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7	
L.9-10.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.				
L.9-10.2.a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.	Full	ENG102B GUM 8.4 ENG102B GUM 8.9	ENG202B 2.1-2.13	
L.9-10.2.b. Use a colon to introduce a list or quotation.	Full	ENG102B GUM 8.5 ENG102B GUM 8.8	ENG202B 10.7	
L.9-10.2.c. Spell correctly.	Full	ENG102A COM 1.9 ENG102A COM 3.8 ENG102A COM 9.7 ENG102B COM 2.12 ENG102B COM 6.19	ENG202A 2.12 ENG202A 5.13 ENG202A 9.13 ENG202B 2.1-2.13	
Knowledge of Language				
L.9-10.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.				
L.9-10.3.a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., MLA Handbook, Turabian's Manual for Writers) appropriate for the discipline and writing type.	Full	Embedded throughout, for example: ENG102A COM 3.1 - 3.8 ENG102B COM 6.1 - 6.9	Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7	
Vocabulary Acquisition and Use				
L.9-10.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.				

Language

<p>L.9-10.4.a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 6.1 - 6.9</p>	<p>Embedded throughout, for example: ENG202A 1.1 ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 3.1 ENG202A 6.1 ENG202A 9.1 ENG202A 9.2 ENG202A 9.3 ENG202A 9.5 ENG202B 2.2 ENG202B 3.1 ENG202B 5.1</p>	
<p>L.9-10.4.b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical; advocate, advocacy).</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG102A VOC Units 1-5</p>	<p>Embedded throughout, for example: ENG202A 1.1 ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 3.1 ENG202A 6.1 ENG202A 9.1 ENG202A 9.2 ENG202A 9.3 ENG202A 9.5 ENG202B 2.2 ENG202B 3.1 ENG202B 5.1</p>	
<p>L.9-10.4.c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG102A LIT 4.1 ENG102A LIT 2.5 ENG102A LIT 2.7 ENG102A LIT 5.1 - 5.7 ENG102A LIT 10.1 - 10.7 ENG102A VOC 1.1 ENG102A VOC 3.1 ENG102A VOC 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 6.1 - 6.9</p>	<p>Embedded throughout, for example: ENG202A 1.1 ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 3.1 ENG202A 6.1 ENG202A 9.1 ENG202A 9.2 ENG202A 9.3 ENG202A 9.5 ENG202B 2.2 ENG202B 3.1 ENG202B 5.1</p>	
<p>L.9-10.4.d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 6.1 - 6.9 ENG102A VOC 1.1 ENG102A VOC 3.1 ENG102A VOC 4.1</p>	<p>Embedded throughout, for example: ENG202A 1.1 ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 3.1 ENG202A 6.1 ENG202A 9.1 ENG202A 9.2 ENG202A 9.3 ENG202A 9.5 ENG202B 2.2 ENG202B 3.1 ENG202B 5.1</p>	
<p>L.9-10.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p>				

L.9-10.5.a. Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text.	Full	Embedded throughout, for example: ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	Embedded throughout, for example: ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 1.1 - 1.12 ENG202A 8.1 - 8.9 ENG202A 9.1 - 9.11 ENG202B 1.9 ENG202B 1.11 ENG202B 1.12	
L.9-10.5.b. Analyze nuances in the meaning of words with similar denotations.	Full	Embedded throughout, for example: ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102A VOC 2.1 ENG102A VOC 5.5 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	Embedded throughout, for example: ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 1.1 - 1.12 ENG202A 8.1 - 8.9 ENG202A 9.1 - 9.11 ENG202B 1.9 ENG202B 1.11 ENG202B 1.12	
6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.	Full	Embedded throughout, for example: ENG102A LIT 4.1 ENG102A LIT 2.5 ENG102A LIT 2.7 ENG102A LIT 5.1 - 5.7 ENG102A LIT 10.1 - 10.7 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 4.2 ENG102B LIT 6.1 - 6.9	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202A 11.3 - 11.5 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12	

**Common Core English Language Arts Standards for Grades 9-10
Compared to K¹² ENG102: Literary Analysis and Composition I**

Strand/Topic	Performance Indicator	Coverage	Course/Unit/Lesson	Comments	
Key Ideas and Details					
Literature	RL.9-10.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11		
	RL.9-10.2. Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11		
	RL.9-10.3. Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11		
	Craft and Structure				
	RL.9-10.4. Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 (yes) ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11		
	RL.9-10.5. Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.	Full	Embedded throughout, for example: ENG102A LIT 2.2 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 5.2 (yes) ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11		
RL.9-10.6. Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.4 ENG102A LIT 2.7 - 2.10 ENG102A LIT 10.2 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11			

Integration of Knowledge and Ideas			
RL.9-10.7. Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden’s “Musée des Beaux Arts” and Breughel’s Landscape with the Fall of Icarus).	None		This concept is addressed in ENG 202: Literary Analysis and Composition II.
RL.9-10.8. (Not applicable to literature)	N/A	N/A	
RL.9-10.9. Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).	Full	Embedded throughout, for example: ENG102A LIT 10.6 ENG102B LIT 1.1 - 1.8	
Range of Reading and Level of Text Complexity			
RL.9-10.10. By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Embedded throughout, for example: ENG102A LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	
Key Ideas and Details			
RI.9-10.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1	
RI.9-10.2. Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1	
RI.9-10.3. Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1	
Craft and Structure			
RI.9-10.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).	Full	ENG102A LIT 4.1 ENG102ALIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1	
RI.9-10.5. Analyze in detail how an author’s ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B COMP 2.1 ENG102B LIT 3.1 ENG102B LIT 5.1	
RI.9-10.6. Determine an author’s point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B COMP 2.1 ENG102B LIT 3.1 ENG102B LIT 5.1	

Informational
Text

Integration of Knowledge and Ideas			
RI.9-10.7. Analyze various accounts of a subject told in different mediums (e.g., a person’s life story in both print and multimedia), determining which details are emphasized in each account.	None		This concept is addressed in ENG 202: Literary Analysis and Composition II.
RI.9-10.8. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.	Full	ENG102A LIT 4.1 ENG102A LIT 6.1 ENG102A LIT 6.4 ENG102A LIT 8.1	
RI.9-10.9. Analyze seminal U.S. documents of historical and literary significance (e.g., Washington’s Farewell Address, the Gettysburg Address, Roosevelt’s Four Freedoms speech, King’s “Letter from Birmingham Jail”), including how they address related themes and concepts.	None		Teachers will supplement the curriculum to include opportunities for students to analyze seminal U.S. documents of historical and literary significance (e.g., Washington’s Farewell Address, the Gettysburg Address, Roosevelt’s Four Freedoms speech, King’s “Letter from Birmingham Jail”), including how they address related themes and concepts.
Range of Reading and Level of Text Complexity			
RI.9-10.10. By the end of grade 9, read and comprehend literary nonfiction in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1 ENG102B LIT 6.1 - 6.9	
Text Types and Purposes			
W.9-10.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.			
W.9-10.1.a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear	Full	ENG102B COM 2.1 - 2.12	
W.9-10.1.b. Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience’s knowledge level and concerns.	Full	ENG102B COM 2.1 - 2.12	
W.9-10.1.c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.	Full	ENG102B COM 2.1 - 2.12	
W.9-10.1.d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG102B COM 2.1 - 2.12	
W.9-10.1.e. Provide a concluding statement or section that follows from and supports the argument presented.	Full	ENG102B COM 2.1 - 2.12	
W.9-10.2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.			
W.9-10.2.a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.	Full	ENG102B COM 6.1 - 6.19	

	W.9-10.2.b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.	Full	ENG102B COM 6.1 - 6.19	
	W.9-10.2.c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.	Full	ENG102B COM 6.1 - 6.19	
	W.9-10.2.d. Use precise language and domain-specific vocabulary to manage the complexity of the topic.	Full	ENG102B COM 6.1 - 6.19	
	W.9-10.2.e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG102B COM 6.1 - 6.19	
	W.9-10.2.f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	Full	ENG102B COM 6.1 - 6.19	
W.9-10.3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.				
	W.9-10.3.a. Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.	Full	Embedded throughout, for example: ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7	
	W.9-10.3.b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.	Full	Embedded throughout, for example: ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7	
	W.9-10.3.c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.	Full	Embedded throughout, for example: ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7	
	W.9-10.3.d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters	Full	Embedded throughout, for example: ENG102A COM 6.1 ENG102A COM 6.2 ENG102A COM 6.7 ENG102A COM 9.3 - 9.7	
Writing	W.9-10.3.e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.	Full	Embedded throughout, for example: ENG102A COM 6.1 - 6.7 ENG102A COM 3.1 - 3.8 ENG102A COM 9.1 - 9.7 ENG102B COM 1.1 -1.13	
Production and Distribution of Writing				
	W.9-10.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	Embedded throughout, for example: ENG102A COM 1.1 - 1.10 ENG102A COM 3.1 - 3.12 ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7 ENG102B COM 2.1 - 2.12 ENG102B COM 6.1 - 6.19	

W.9-10.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	Full	Embedded throughout, for example: ENG102A COM 1.1 - 1.10 ENG102A COM 3.1 - 3.12 ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7 ENG102B COM 2.1 - 2.12 ENG102B COM 6.1 - 6.19	
W.9-10.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.	Full	ENG102A COM 1.10 ENG102A COM 2.2 ENG102A COM 3.8	
Research to Build and Present Knowledge			
W.9-10.7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	Full	ENG102B COM 6.1 - 6.19	
W.9-10.8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.	Full	ENG102B COM 6.1 - 6.19	
W.9-10.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.			
W.9-10.9.a. Apply grades 9–10 Reading standards to literature (e.g., “Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]”).	Full	Embedded throughout, for example: ENG102A: LIT 2.1 - 2.12 ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	
W.9-10.9.b. Apply grades 9–10 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning”).	Full	ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 5.1	
Range of Writing			
W.9-10.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	Full	Embedded throughout, for example: ENG102A COM 1.1 - 1.10 ENG102A COM 3.1 - 3.12 ENG102A COM 6.1 - 6.7 ENG102A COM 9.1 - 9.7 ENG102B COM 2.1 - 2.12 ENG102B COM 6.1 - 6.19	
Comprehension and Collaboration			
SL.9-10.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.			

Speaking & Listening	SL.9-10.1.a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	
	SL.9-10.1.b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	
	SL.9-10.1.c. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	
	SL.9-10.1.d. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	
	SL.9-10.2. Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.	Full	ENG102A COM 2.1-2.6	
	SL.9-10.3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.	None		
	Presentation of Knowledge and Ideas			
SL.9-10.4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions		
SL.9-10.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.	None			This concept is addressed in ENG 202: Literary Analysis and Composition II.
SL.9-10.6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	None			This concept is addressed in ENG 202: Literary Analysis and Composition II.
Conventions of Standard English				
L.9-10.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.				

L.9-10.1.a. Use parallel structure.*	Full	ENG102B GUM 1.4 ENG102B GUM 1.5	
L.9-10.1.b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.	Full	Embedded throughout, for example: ENG102A GUM 7.1 - 7.5 ENG102A GUM 8.1 - 8.9 ENG102 GUM 9.1 - 9.9	
L.9-10.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.			
L.9-10.2.a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.	Full	ENG102B GUM 8.4 ENG102B GUM 8.9	
L.9-10.2.b. Use a colon to introduce a list or quotation.	Full	ENG102B GUM 8.5 ENG102B GUM 8.8	
L.9-10.2.c. Spell correctly.	Full	ENG102A COM 1.9 ENG102A COM 3.8 ENG102A COM 9.7 ENG102B COM 2.12 ENG102B COM 6.19	
Knowledge of Language			
L.9-10.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.			
L.9-10.3.a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., MLA Handbook, Turabian's Manual for Writers) appropriate for the discipline and writing type.	Full	Embedded throughout, for example: ENG102A COM 3.1 - 3.8 ENG102B COM 6.1 - 6.9	
Vocabulary Acquisition and Use			
L.9-10.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.			
L.9-10.4.a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Full	Embedded throughout, for example: ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 6.1 - 6.9	
L.9-10.4.b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical; advocate, advocacy).	Full	Embedded throughout, for example: ENG102A VOC Units 1-5	
L.9-10.4.c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.	Full	Embedded throughout, for example: ENG102A LIT 4.1 ENG102A LIT 2.5 ENG102A LIT 2.7 ENG102A LIT 5.1 - 5.7 ENG102A LIT 10.1 - 10.7 ENG102A VOC 1.1 ENG102A VOC 3.1 ENG102A VOC 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 6.1 - 6.9	

Language

L.9-10.4.d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	Full	Embedded throughout, for example: ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 6.1 - 6.9 ENG102A VOC 1.1 ENG102A VOC 3.1 ENG102A VOC 4.1	
L.9-10.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.			
L.9-10.5.a. Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text.	Full	Embedded throughout, for example: ENG102A LIT 5.1 - 5.9 ENG102A LIT 10.1 - 10.7 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	
L.9-10.5.b. Analyze nuances in the meaning of words with similar denotations.	Full	Embedded throughout, for example: ENG102A LIT 4.1 ENG102A LIT 8.1 ENG102A VOC 2.1 ENG102A VOC 5.5 ENG102B LIT 1.1 - 1.8 ENG102B LIT 4.1 - 4.14 ENG102B LIT 7.1 - 7.11	
6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.	Full	Embedded throughout, for example: ENG102A LIT 4.1 ENG102A LIT 2.5 ENG102A LIT 2.7 ENG102A LIT 5.1 - 5.7 ENG102A LIT 10.1 - 10.7 ENG102A LIT 8.1 ENG102B LIT 3.1 ENG102B LIT 4.2 ENG102B LIT 6.1 - 6.9	

**Common Core English Language Arts Standards for Grades 9-10
Compared to K¹² ENG202: Literary Analysis and Composition II**

Strand/Topic	Performance Indicator	Coverage	Course/Unit/Lesson	Comments
Literature	Key Ideas and Details			
	RL.9-10.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Full	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12	
	RL.9-10.2. Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	Full	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12	
	RL.9-10.3. Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.	Full	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12	
	Craft and Structure			
	RL.9-10.4. Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).	Full	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12	
RL.9-10.5. Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.	Full	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12		

RL.9-10.6. Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.	Full	Embedded throughout, for example: ENG202A 1.8 - 1.10 ENG202A 9.1 ENG202A 9.2 ENG202A 9.6 ENG202B 4.4	
Integration of Knowledge and Ideas			
RL.9-10.7. Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden’s “Musée des Beaux Arts” and Breughel’s Landscape with the Fall of Icarus).	Full	ENG202A 1.2 ENG202A 1.3 ENG202A 1.10	
RL.9-10.8. (Not applicable to literature)	N/A	N/A	
RL.9-10.9. Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).	Full	ENG202A 1.2	
Range of Reading and Level of Text Complexity			
RL.9-10.10. By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12	
Key Ideas and Details			
RI.9-10.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Full	ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.1 - 2.13 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13	
RI.9-10.2. Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	Full	ENG202A 2.1 - 2.12 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.1 - 2.13 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13	
RI.9-10.3. Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.	Full	ENG202A 2.1 ENG202A 5.1 ENG202A 8.1 ENG202B 2.1	
Craft and Structure			
RI.9-10.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).	Full	Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.1 - 2.13 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13	

Informational Text	RI.9-10.5. Analyze in detail how an author’s ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).	Full	ENG202A 2.1 ENG202A 5.1 ENG202A 8.1 ENG202B 2.1	
	RI.9-10.6. Determine an author’s point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.	Full	ENG202A 2.1 ENG202A 5.1 ENG202B 1.9	
	Integration of Knowledge and Ideas			
	RI.9-10.7. Analyze various accounts of a subject told in different mediums (e.g., a person’s life story in both print and multimedia), determining which details are emphasized in each account.	Full	ENG202A 8.1 - 8.9	
	RI.9-10.8. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.	Full	ENG202A 5.5 ENG202A 10.3 ENG202A 10.6	
	RI.9-10.9. Analyze seminal U.S. documents of historical and literary significance (e.g., Washington’s Farewell Address, the Gettysburg Address, Roosevelt’s Four Freedoms speech, King’s “Letter from Birmingham Jail”), including how they address related themes and concepts.	Full	ENG202A 8.1	
	Range of Reading and Level of Text Complexity			
	RI.9-10.10. By the end of grade 9, read and comprehend literary nonfiction in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Embedded throughout, for example: ENG202A 2.1 ENG202A 2.5 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.2 ENG202B 6.1	
	Text Types and Purposes			
	W.9-10.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.			
W.9-10.1.a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear	Full	ENG202A 8.1 - 8.9 ENG202A 10.3 ENG202A 10.6 ENG202B 6.1		
W.9-10.1.b. Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience’s knowledge level and concerns.	Full	ENG202A 8.1 - 8.9 ENG202A 10.3 ENG202A 10.6 ENG202B 6.1		
W.9-10.1.c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.	Full	ENG202A 8.1 - 8.9 ENG202A 10.3 ENG202A 10.6 ENG202B 6.1		
W.9-10.1.d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG202A 8.1 - 8.9 ENG202A 10.3 ENG202A 10.6 ENG202B 6.1		

W.9-10.1.e. Provide a concluding statement or section that follows from and supports the argument presented.	Full	ENG202A 8.1 - 8.9 ENG202A 10.3 ENG202A 10.6 ENG202B 6.1	
W.9-10.2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.			
W.9-10.2.a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.	Full	ENG202B 7.1 - 7.13	
W.9-10.2.b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.	Full	ENG202B 7.1 - 7.13	
W.9-10.2.c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.	Full	ENG202B 7.1 - 7.13	
W.9-10.2.d. Use precise language and domain-specific vocabulary to manage the complexity of the topic.	Full	ENG202B 7.1 - 7.13	
W.9-10.2.e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG202B 7.1 - 7.13	
W.9-10.2.f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	Full	ENG202B 7.1 - 7.13	
W.9-10.3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.			
W.9-10.3.a. Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.	Full	ENG202A 2.1 - 2.12 ENG202A 10.1 ENG202A 10.2 ENG202B 6.1	
W.9-10.3.b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.	Full	ENG202A 2.1 - 2.12 ENG202A 10.1 ENG202A 10.2 ENG202B 6.1	
W.9-10.3.c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.	Full	ENG202A 2.1 - 2.12 ENG202A 10.1 ENG202A 10.2 ENG202B 6.1	
W.9-10.3.d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters	Full	ENG202A 2.1 - 2.12 ENG202A 10.1 ENG202A 10.2 ENG202B 6.1	
W.9-10.3.e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.	Full	ENG202A 2.1 - 2.12 ENG202A 10.1 ENG202A 10.2 ENG202B 6.1	
Production and Distribution of Writing			

Writing

<p>W.9-10.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7</p>	
<p>W.9-10.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7</p>	
<p>W.9-10.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7</p>	
<p>Research to Build and Present Knowledge</p>			
<p>W.9-10.7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</p>	<p>Full</p>	<p>ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13</p>	
<p>W.9-10.8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</p>	<p>Full</p>	<p>ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13</p>	
<p>W.9-10.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.</p>			
<p>W.9-10.9.a. Apply grades 9–10 Reading standards to literature (e.g., “Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]”).</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12</p>	

	W.9-10.9.b. Apply grades 9–10 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning”).	Full	ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.1 - 2.13 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13	
Range of Writing				
	W.9-10.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	Full	Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 2.1-2.13 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7	
Comprehension and Collaboration				
SL.9-10.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.				
	SL.9-10.1.a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	
	SL.9-10.1.b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	
	SL.9-10.1.c. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	
Speaking & Listening	SL.9-10.1.d. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.	Full	Embedded throughout, see Moderator Guides for Synchronous Sessions	

SL.9-10.2. Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.	Full	ENG202A 8.1	
SL.9-10.3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.	Full	ENG202A 8.1	
Presentation of Knowledge and Ideas			
SL.9-10.4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.	Full	ENG202A 8.1 - 8.9 See also: Moderator Guides for Synchronous Sessions	
SL.9-10.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.	Full	ENG202A 8.1 - 8.9	
SL.9-10.6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	Full	ENG202A 8.1 ENG202A 8.2 See also: Moderator Guides for Synchronous Sessions	
Conventions of Standard English			
L.9-10.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.			
L.9-10.1.a. Use parallel structure.*	Full	ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9	
L.9-10.1.b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.	Full	ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7	
L.9-10.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.			
L.9-10.2.a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.	Full	ENG202B 2.1-2.13	
L.9-10.2.b. Use a colon to introduce a list or quotation.	Full	ENG202B 10.7	
L.9-10.2.c. Spell correctly.	Full	ENG202A 2.12 ENG202A 5.13 ENG202A 9.13 ENG202B 2.1-2.13	
Knowledge of Language			
L.9-10.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.			

<p>L.9-10.3.a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., MLA Handbook, Turabian’s Manual for Writers) appropriate for the discipline and writing type.</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 2.1 - 2.12 ENG202A 5.1 - 5.13 ENG202A 8.1 - 8.9 ENG202A 10.1 - 10.6 ENG202B 6.1 ENG202B 7.1 - 7.13 ENG202B 9.1 - 9.13 ENG202B 10.1 - 10.7</p>	
<p>Vocabulary Acquisition and Use</p>			
<p>L.9-10.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.</p>			
<p>L.9-10.4.a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 1.1 ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 3.1 ENG202A 6.1 ENG202A 9.1 ENG202A 9.2 ENG202A 9.3 ENG202A 9.5 ENG202B 2.2 ENG202B 3.1 ENG202B 5.1</p>	
<p>L.9-10.4.b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical; advocate, advocacy).</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 1.1 ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 3.1 ENG202A 6.1 ENG202A 9.1 ENG202A 9.2 ENG202A 9.3 ENG202A 9.5 ENG202B 2.2 ENG202B 3.1 ENG202B 5.1</p>	

Language

<p>L.9-10.4.c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 1.1 ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 3.1 ENG202A 6.1 ENG202A 9.1 ENG202A 9.2 ENG202A 9.3 ENG202A 9.5 ENG202B 2.2 ENG202B 3.1 ENG202B 5.1</p>	
<p>L.9-10.4.d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 1.1 ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 3.1 ENG202A 6.1 ENG202A 9.1 ENG202A 9.2 ENG202A 9.3 ENG202A 9.5 ENG202B 2.2 ENG202B 3.1 ENG202B 5.1</p>	
<p>L.9-10.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p>			
<p>L.9-10.5.a. Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text.</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 1.1 - 1.12 ENG202A 8.1 - 8.9 ENG202A 9.1 - 9.11 ENG202B 1.9 ENG202B 1.11 ENG202B 1.12</p>	
<p>L.9-10.5.b. Analyze nuances in the meaning of words with similar denotations.</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 1.2 ENG202A 1.4 - 1.9 ENG202A 1.1 - 1.12 ENG202A 8.1 - 8.9 ENG202A 9.1 - 9.11 ENG202B 1.9 ENG202B 1.11 ENG202B 1.12</p>	

<p>L.9-10.6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.</p>	<p>Full</p>	<p>Embedded throughout, for example: ENG202A 1.1 - 1.12 ENG202A 4.1 - 4.11 ENG202A 7.1 - 7.12 ENG202A 9.1 - 9.11 ENG202A 11.3 - 11.5 ENG202B 1.1 - 1.14 ENG202B 4.1 - 4.11 ENG202B 8.1 - 8.12</p>	
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Common Core English Language Arts Standards for Grades 11-12
Compared to K¹² ENG302: American Literature and ENG402: British and World Literature

Strand/Topic	Performance Indicator	Coverage	ENG302: American Literature	ENG402: British and World Literature	Comments	
Key Ideas and Details						
Literature	RL.11-12.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302A 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12 ENG302B 7.1 - 7.13	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18		
	RL.11-12.2. Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302A 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12 ENG302B 7.1 - 7.13	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18		
	RL.11-12.3. Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302A 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18		
	Craft and Structure					
	RL.11-12.4. Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302 9.2 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18		
	RL.11-12.5. Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12 ENG302B 7.1 - 7.13	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18		
RL.11-12.6. Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12 ENG302B 7.1 - 7.13	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18			
Integration of Knowledge and Ideas						

	RL.11-12.7. Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)	Full	ENG302B 7.1-17.10	ENG402A 2.3 - 2.9 ENG402B 7.1	
	RL.11-12.8. (Not applicable to literature)	N/A	N/A	N/A	
	RL.11-12.9. Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.	Full	ENG302A 3.1 - 3.12 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12		
Range of Reading and Level of Text Complexity					
	RL.11-12.10. By the end of grade 11, read and comprehend literature, including stories, dramas, and poems, in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12 ENG302B 7.1 - 7.13	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
Key Ideas and Details					
	RI.11-12.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 4.1 - 4.6 ENG302A 6.1 - 6.11 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	ENG402A 3.1 ENG402A 8.15 - 8.20 ENG402B 2.1	
	RI.11-12.2. Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 4.1 - 4.6 ENG302A 6.1 - 6.11 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	ENG402A 3.1 ENG402A 8.15 - 8.20 ENG402B 2.1	
	RI.11-12.3. Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 7.1 ENG302 7.2 ENG302A 4.1 - 4.6 ENG302A 6.1 - 6.11 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	ENG402A 3.1 ENG402A 8.15 - 8.20 ENG402B 2.1	
Craft and Structure					
	RI.11-12.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).	Full	ENG302A 1.1 - 1.14 ENG302A 4.1 - 4.6 ENG302A 7.1 ENG302 7.2 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6		
	RI.11-12.5. Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.	Full	ENG302A 6.1 - 6.4 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	ENG402A 3.1 ENG402A 8.15 - 8.20 ENG402B 2.1	
	RI.11-12.6. Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.	Full	ENG302 1.1 - 1.13 ENG302A 6.1 - 6.4 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	ENG402A 3.1 - 3.12 ENG402A 8.15 - 8.20 ENG402B 2.1	
Informational Text					

Integration of Knowledge and Ideas				
RI.11-12.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.	Full	ENG302A 7.1 ENG302A 7.2		
RI.11-12.8. Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses).	Full	ENG302A 7.1 ENG302A 7.2		
RI.11-12.9. Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.	Full	ENG302A 6.1 ENG302A 7.1 ENG302 7.2		
Range of Reading and Level of Text Complexity				
RI.11-12.10. By the end of grade 11, read and comprehend literary nonfiction in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	ENG302A 1.1 - 1.14 ENG302 7.1 ENG302 7.2 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	ENG402A 3.1 - 3.12 ENG402A 8.15 - 8.20 ENG402B 2.1	
Text Types and Purposes				
W.11-12.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.				
W.11-12.1.a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.	Full	ENG302A 6.1 - 6.11 ENG302A 4.4 ENG302B 3.4	ENG402A 6.4 ENG402A 6.5 ENG402B 3.5 ENG402B 3.6	
W.11-12.1.b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.	Full	ENG302A 6.1 - 6.11 ENG302A 4.4 ENG302B 3.4	ENG402A 6.4 ENG402A 6.5 ENG402B 3.5 ENG402B 3.6	
W.11-12.1.c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.	Full	ENG302A 6.1 - 6.11 ENG302A 4.4 ENG302B 3.4	ENG402A 6.4 ENG402A 6.5 ENG402B 3.5 ENG402B 3.6	
W.11-12.1.d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG302A 6.1 - 6.11 ENG302A 4.4 ENG302B 3.4	ENG402A 6.4 ENG402A 6.5 ENG402B 3.5 ENG402B 3.6	
W.11-12.1.e. Provide a concluding statement or section that follows from and supports the argument presented.	Full	ENG302A 6.1 - 6.11 ENG302A 4.4 ENG302B 3.4	ENG402A 6.4 ENG402A 6.5 ENG402B 3.5 ENG402B 3.6	
W.11-12.2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.				
W.11-12.2.a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.2.b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.2.c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.2.d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.2.e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	

Writing	W.11-12.2.f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
	W.11-12.3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.				
	W.11-12.3.a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.	Full	ENG302A 2.1 - 2.12	ENG402A 4.5 ENG402A 4.6	
	W.11-12.3.b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.	Full	ENG302A 2.1 - 2.12	ENG402A 4.5 ENG402A 4.6	
	W.11-12.3.c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).	Full	ENG302A 2.1 - 2.12	ENG402A 4.5 ENG402A 4.6	
	W.11-12.3.d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.	Full	ENG302A 2.1 - 2.12	ENG402A 4.5 ENG402A 4.6	
	W.11-12.3.e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.	Full	ENG302A 2.1 - 2.12	ENG402A 4.5 ENG402A 4.6	
	Production and Distribution of Writing				
	W.11-12.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	Embedded throughout, for example: ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 8.1 - 8.8	
	W.11-12.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	Full	Embedded throughout, for example: ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
	W.11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.	Full	ENG302A 6.2 ENG302B 4.1 - 4.19	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 8.1 - 8.8	
	Research to Build and Present Knowledge				
	W.11-12.7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	Full	ENG302B 4.1 - 4.19	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.	Full	ENG302B 4.1 - 4.19	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10		
W.11-12.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.					

	W.11-12.9.a. Apply grades 11–12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”).	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302B 1.1 - 1.11	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
	W.11-12.9.b. Apply grades 11–12 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).	Full	Embedded throughout, for example: ENG302A 7.1 ENG302A 7.2 ENG302B 4.1 - 4.19	ENG402A 3.1 ENG402A 8.15 - 8.20 ENG402B 2.1	
Range of Writing					
	W.11-12.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes	Full	ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
Comprehension and Collaboration					
SL.11-12.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.					
	SL.11-12.1.a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.	Full	ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
	SL.11-12.1.b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.	Full	ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
	SL.11-12.1.c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.	Full	ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
	SL.11-12.1.d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.	Full	ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
Speaking & Listening	SL.11-12.2. Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	

	SL.11-12.3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.	Full	ENG302A 7.1 ENG302A 7.2	ENG402B 4.1 - 4.10	
Presentation of Knowledge and Ideas					
	SL.11-12.4. Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.	Full	ENG302A 7.3 - 7.10	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
	SL.11-12.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
	SL.11-12.6. Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.	Full	ENG302A 7.3 - 7.10	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
Conventions of Standard English					
L.11-12.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.					
	L.11-12.1.a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.	Full	Embedded throughout, for example: ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 8.1 - 8.8	
	L.11-12.1.b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.	Full	Embedded throughout, for example: ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 8.1 - 8.8	
L.11-12.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.					
	L.11-12.2.a. Observe hyphenation conventions.	Full	ENG302A 4.5	ENG402A 4.4	
	L.11-12.2.b. Spell correctly.	Full	ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 8.1 - 8.8	
Knowledge of Language					
L.11-12.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.					
	L.11-12.3.a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.	Full	ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	
L.11-12.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.					
Language	L.11-12.4.a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Full	ENG302A 4.1 - 4.6 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	
	L.11-12.4.b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).	Full	ENG302A 4.1 - 4.6 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	

L.11-12.4.c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.	Full	ENG302A 4.1 - 4.6 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	
L.11-12.4.d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	Full	ENG302A 4.1 - 4.6 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	
L.11-12.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.				
L.11-12.5.a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	Embedded throughout, for example: ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 6.1 - 6.13 ENG402B 8.1 - 8.8	
L.11-12.5.b. Analyze nuances in the meaning of words with similar denotations.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	Embedded throughout, for example: ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 6.1 - 6.13 ENG402B 8.1 - 8.8	
L.11-12.6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 4.1 - 4.6 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	Embedded throughout, for example: ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	

**Common Core English Language Arts Standards for Grades 11-12
Compared to K¹² ENG302: American Literature**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson	Comments
Key Ideas and Details				
	RL.11-12.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302A 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12 ENG302B 7.1 - 7.13	
	RL11-12.2. Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302A 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12 ENG302B 7.1 - 7.13	
	RL.11-12.3. Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302A 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	
Craft and Structure				
	RL.11-12.4. Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302 9.2 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	
Literature	RL.11-12.5. Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12 ENG302B 7.1 - 7.13	

RL.11-12.6. Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12 ENG302B 7.1 - 7.13	
Integration of Knowledge and Ideas			
RL.11-12.7. Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)	Full	ENG302B 7.1-17.10	
RL.11-12.8. (Not applicable to literature)	N/A	N/A	
RL.11-12.9. Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.	Full	ENG302A 3.1 - 3.12 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	
Range of Reading and Level of Text Complexity			
RL.11-12.10. By the end of grade 11, read and comprehend literature, including stories, dramas, and poems, in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302 9.1 - 9.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12 ENG302B 7.1 - 7.13	
Key Ideas and Details			
RI.11-12.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 4.1 - 4.6 ENG302A 6.1 - 6.11 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	
RI.11-12.2. Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 4.1 - 4.6 ENG302A 6.1 - 6.11 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	

Informational Text	RI.11-12.3. Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 7.1 ENG302 7.2 ENG302A 4.1 - 4.6 ENG302A 6.1 - 6.11 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	
	Craft and Structure			
	RI.11-12.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).	Full	ENG302A 1.1 - 1.14 ENG302A 4.1 - 4.6 ENG302A 7.1 ENG302 7.2 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	
	RI.11-12.5. Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.	Full	ENG302A 6.1 - 6.4 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	
	RI.11-12.6. Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.	Full	ENG302 1.1 - 1.13 ENG302A 6.1 - 6.4 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6	
	Integration of Knowledge and Ideas			
	RI.11-12.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.	Full	ENG302A 7.1 ENG302A 7.2	
	RI.11-12.8. Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses).	Full	ENG302A 7.1 ENG302A 7.2	
	RI.11-12.9. Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.	Full	ENG302A 6.1 ENG302A 7.1 ENG302 7.2	
	Range of Reading and Level of Text Complexity			
RI.11-12.10. By the end of grade 11, read and comprehend literary nonfiction in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	ENG302A 1.1 - 1.14 ENG302 7.1 ENG302 7.2 ENG302B 3.1 - 3.6 ENG302B 4.1 - 4.19 ENG302B 6.1 - 6.6		
Text Types and Purposes				
W.11-12.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.				

W.11-12.1.a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.	Full	ENG302A 6.1 - 6.11 ENG302A 4.4 ENG302B 3.4	
W.11-12.1.b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.	Full	ENG302A 6.1 - 6.11 ENG302A 4.4 ENG302B 3.4	
W.11-12.1.c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.	Full	ENG302A 6.1 - 6.11 ENG302A 4.4 ENG302B 3.4	
W.11-12.1.d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG302A 6.1 - 6.11 ENG302A 4.4 ENG302B 3.4	
W.11-12.1.e. Provide a concluding statement or section that follows from and supports the argument presented.	Full	ENG302A 6.1 - 6.11 ENG302A 4.4 ENG302B 3.4	
W.11-12.2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.			
W.11-12.2.a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	
W.11-12.2.b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	
W.11-12.2.c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	
W.11-12.2.d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	
W.11-12.2.e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	
W.11-12.2.f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	Full	ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19	
W.11-12.3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.			
W.11-12.3.a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.	Full	ENG302A 2.1 - 2.12	
W.11-12.3.b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.	Full	ENG302A 2.1 - 2.12	
W.11-12.3.c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).	Full	ENG302A 2.1 - 2.12	

Writing

W.11-12.3.d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.	Full	ENG302A 2.1 - 2.12	
W.11-12.3.e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.	Full	ENG302A 2.1 - 2.12	
Production and Distribution of Writing			
W.11-12.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	Embedded throughout, for example: ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	
W.11-12.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	Full	Embedded throughout, for example: ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	
W.11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.	Full	ENG302A 6.2 ENG302B 4.1 - 4.19	
Research to Build and Present Knowledge			
W.11-12.7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	Full	ENG302B 4.1 - 4.19	
W.11-12.8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.	Full	ENG302B 4.1 - 4.19	
W.11-12.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.			
W.11-12.9.a. Apply grades 11–12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”).	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302B 1.1 - 1.11	
W.11-12.9.b. Apply grades 11–12 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).	Full	Embedded throughout, for example: ENG302A 7.1 ENG302A 7.2 ENG302B 4.1 - 4.19	
Range of Writing			
W.11-12.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes	Full	ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	

Comprehension and Collaboration			
SL.11-12.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.			
Speaking & Listening	SL.11-12.1.a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.	Full	ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12
	SL.11-12.1.b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.	Full	ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12
	SL.11-12.1.c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.	Full	ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12
	SL.11-12.1.d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.	Full	ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12
	SL.11-12.2. Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12
	SL.11-12.3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.	Full	ENG302A 7.1 ENG302A 7.2
	Presentation of Knowledge and Ideas		
SL.11-12.4. Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.	Full	ENG302A 7.3 - 7.10	

	SL.11-12.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	
	SL.11-12.6. Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.	Full	ENG302A 7.3 - 7.10	
	Conventions of Standard English			
	L.11-12.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.			
	L.11-12.1.a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.	Full	Embedded throughout, for example: ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	
	L.11-12.1.b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.	Full	Embedded throughout, for example: ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	
	L.11-12.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.			
	L.11-12.2.a. Observe hyphenation conventions.	Full	ENG302A 4.5	
	L.11-12.2.b. Spell correctly.	Full	ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	
	Knowledge of Language			
	L.11-12.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.			
	L.11-12.3.a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.	Full	ENG302A 2.1 - 2.12 ENG302A 6.1 - 6.11 ENG302A 7.6 - 7.10 ENG302B 4.1 - 4.19 ENG302B 8.1 - 8.7	
	L.11-12.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.			
Language	L.11-12.4.a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Full	ENG302A 4.1 - 4.6 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	
	L.11-12.4.b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).	Full	ENG302A 4.1 - 4.6 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	

L.11-12.4.c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.	Full	ENG302A 4.1 - 4.6 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	
L.11-12.4.d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	Full	ENG302A 4.1 - 4.6 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	
L.11-12.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.			
L.11-12.5.a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	
L.11-12.5.b. Analyze nuances in the meaning of words with similar denotations.	Full	Embedded throughout, for example: ENG302A 1.1 - 1.14 ENG302A 3.1 - 3.12 ENG302A 5.1 - 5.20 ENG302B 1.1 - 1.11 ENG302B 2.1 - 2.13 ENG302B 5.1 - 5.12	
L.11-12.6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.	Full	Embedded throughout, for example: ENG302A 3.1 - 3.12 ENG302A 4.1 - 4.6 ENG302B 3.1 - 3.6 ENG302B 6.1 - 6.6	

**Common Core English Language Arts Standards for Grades 11-12
Compared to K¹² ENG402: British and World Literature**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson	Comments	
Key Ideas and Details					
Literature	RL.11-12.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	Full	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18		
	RL11-12.2. Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.	Full	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18		
	RL.11-12.3. Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).	Full	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18		
	Craft and Structure				
	RL.11-12.4. Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)	Full	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18		
RL.11-12.5. Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.	Full	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18			

RL.11-12.6. Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).	Full	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
Integration of Knowledge and Ideas			
RL.11-12.7. Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)	Partial	ENG402A 2.3 - 2.9 ENG402B 7.1	Teachers will supplement the curriculum to include additional opportunities for students to analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)
RL.11-12.8. (Not applicable to literature)	N/A	N/A	
RL.11-12.9. Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.	None		This concept is addressed in ENG 302: American Literature.
Range of Reading and Level of Text Complexity			
RL.11-12.10. By the end of grade 11, read and comprehend literature, including stories, dramas, and poems, in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
Key Ideas and Details			
RI.11-12.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	Full	ENG402A 3.1 ENG402A 8.15 - 8.20 ENG402B 2.1	
RI.11-12.2. Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.	Full	ENG402A 3.1 ENG402A 8.15 - 8.20 ENG402B 2.1	
RI.11-12.3. Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.	Full	ENG402A 3.1 ENG402A 8.15 - 8.20 ENG402B 2.1	
Craft and Structure			

Informational Text	RI.11-12.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).	None		This concept is addressed in ENG 302: American Literature.
	RI.11-12.5. Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.	Full	ENG402A 3.1 ENG402A 8.15 - 8.20 ENG402B 2.1	
	RI.11-12.6. Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.	Full	ENG402A 3.1 - 3.12 ENG402A 8.15 - 8.20 ENG402B 2.1	
	Integration of Knowledge and Ideas			
	RI.11-12.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.	Full	ENG402A 3.1 - 3.12 ENG402A 8.15 - 8.20 ENG402B 2.1	
	RI.11-12.8. Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses).	None		This concept is addressed in ENG 302: American Literature.
	RI.11-12.9. Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.	None		This concept is addressed in ENG 302: American Literature.
	Range of Reading and Level of Text Complexity			
	RI.11-12.10. By the end of grade 11, read and comprehend literary nonfiction in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.	Full	ENG402A 3.1 - 3.12 ENG402A 8.15 - 8.20 ENG402B 2.1	
	Text Types and Purposes			
W.11-12.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.				
W.11-12.1.a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.	Full	ENG402A 6.4 ENG402A 6.5 ENG402B 3.5 ENG402B 3.6		
W.11-12.1.b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.	Full	ENG402A 6.4 ENG402A 6.5 ENG402B 3.5 ENG402B 3.6		
W.11-12.1.c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.	Full	ENG402A 6.4 ENG402A 6.5 ENG402B 3.5 ENG402B 3.6		
W.11-12.1.d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG402A 6.4 ENG402A 6.5 ENG402B 3.5 ENG402B 3.6		
W.11-12.1.e. Provide a concluding statement or section that follows from and supports the argument presented.	Full	ENG402A 6.4 ENG402A 6.5 ENG402B 3.5 ENG402B 3.6		

Writing

W.11-12.2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.			
W.11-12.2.a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.	Full	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.2.b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.	Full	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.2.c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.	Full	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.2.d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.	Full	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.2.e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Full	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.2.f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	Full	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.			
W.11-12.3.a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.	Full	ENG402A 4.5 ENG402A 4.6	
W.11-12.3.b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.	Full	ENG402A 4.5 ENG402A 4.6	
W.11-12.3.c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).	Full	ENG402A 4.5 ENG402A 4.6	
W.11-12.3.d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.	Full	ENG402A 4.5 ENG402A 4.6	
W.11-12.3.e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.	Full	ENG402A 4.5 ENG402A 4.6	
Production and Distribution of Writing			
W.11-12.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	Full	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 8.1 - 8.8	
W.11-12.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	Full	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	

W.11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.	Full	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 8.1 - 8.8	
Research to Build and Present Knowledge			
W.11-12.7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	Full	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.	Full	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
W.11-12.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.			
W.11-12.9.a. Apply grades 11–12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”).	Full	Embedded throughout, for example: ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
W.11-12.9.b. Apply grades 11–12 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).	Full	ENG402A 3.1 ENG402A 8.15 - 8.20 ENG402B 2.1	
Range of Writing			
W.11-12.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes	Full	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
Comprehension and Collaboration			
SL.11-12.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.			
SL.11-12.1.a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.	Full	ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	

Speaking & Listening	SL.11-12.1.b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.	Full	ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
	SL.11-12.1.c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.	Full	ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
	SL.11-12.1.d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.	Full	ENG402A 1.1 - 1.16 ENG402A 2.1 - 2.9 ENG402A 8.1 - 8.20 ENG402B 1.1 - 1.10 ENG402B 5.1 - 5.12 ENG402B 6.1 - 6.13 ENG402B 7.1 - 7.18	
	SL.11-12.2. Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.	Full	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
	SL.11-12.3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.	Full	ENG402B 4.1 - 4.10	
	Presentation of Knowledge and Ideas			
	SL.11-12.4. Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.	Full	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10	
SL.11-12.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.	Full	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10		
SL.11-12.6. Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.	Full	ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10		
Conventions of Standard English				
L.11-12.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.				
L.11-12.1.a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.	Full	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 8.1 - 8.8		

	L.11-12.1.b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.	Full	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 8.1 - 8.8	
L.11-12.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.				
	L.11-12.2.a. Observe hyphenation conventions.	Full	ENG402A 4.4	
	L.11-12.2.b. Spell correctly.	Full	ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 8.1 - 8.8	
Knowledge of Language				
L.11-12.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.				
	L.11-12.3.a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.	Full	ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	
L.11-12.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.				
	L.11-12.4.a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Full	ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	
	L.11-12.4.b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).	Full	ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	
	L.11-12.4.c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.	Full	ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	
	L.11-12.4.d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	Full	ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	
L.11-12.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.				
	L.11-12.5.a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.	Full	Embedded throughout, for example: ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 6.1 - 6.13 ENG402B 8.1 - 8.8	

Language

L.11-12.5.b. Analyze nuances in the meaning of words with similar denotations.	Full	Embedded throughout, for example: ENG402A 3.1 - 3.12 ENG402A 5.1 - 5.6 ENG402A 7.1 - 7.6 ENG402B 2.1 - 2.5 ENG402B 4.1 - 4.10 ENG402B 6.1 - 6.13 ENG402B 8.1 - 8.8	
L.11-12.6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.	Full	Embedded throughout, for example: ENG402A 4.1 - 4.8 ENG402A 6.1 - 6.7 ENG402B 3.1 - 3.8	

**Common Core ELA Standards for Grade 6-8 History/Social Studies
Compared to K¹² American History Before 1865, American History After 1865, World History A, World History B**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson	Comments
Key Ideas and Details	1. Cite specific textual evidence to support analysis of primary and secondary sources.	None		Teachers will supplement the curriculum to include opportunities for students to cite specific textual evidence to support analysis of primary and secondary sources.
	2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.	Full	AHB 4.1 AHB 12.2 AHB 16.2 WHB 8.1	
	3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).	None		Teachers will supplement the curriculum to include opportunities for students to identify key steps in a text's description of a process related to history/social studies.
Craft and Structure	4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.	Full	Embedded throughout, for example: AHB 2.1 WHA 1.1 WHB 3.2	
	5. Describe how a text presents information (e.g., sequentially, comparatively, causally).	None		Teachers will supplement the curriculum to include opportunities for students to describe how a text presents information.
	6. Identify aspects of a text that reveal an author's point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts).	None		Teachers will supplement the curriculum to include opportunities for students to identify aspects of a text that reveal an author's point of view or purpose.
Integration of Knowledge and Ideas	7. Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.	Full	WHB 12.1	
	8. Distinguish among fact, opinion, and reasoned judgment in a text.	None		Teachers will supplement the curriculum to include opportunities for students to distinguish among fact, opinion, and reasoned judgment in a text.
	9. Analyze the relationship between a primary and secondary source on the same topic.	Full	AHB 4.1 AHB 12.2 AHB 16.2 WHB 8.1	
Range of Reading and Level of Text Complexity	10. By the end of grade 8, read and comprehend history/social studies texts in the grades 6–8 text complexity band independently and proficiently.	Full	Embedded throughout, for example: AHB 2.1 WHA 1.1 WHB 3.2	

**Common Core ELA Standards for Grade 9-10 History/Social Studies
Compared to K¹² HST 202 and HST 212**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson	Comments
Key Ideas and Details	1. Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.	Full	HST202A 1.08 HST202A 2.03 HST202A 3.01 HST202A 4.07 HST202B 6.01-6.11	
	2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.	Full	HST202A 1.08 HST202A 4.07 HST202B 6.01-6.11	
	3. Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.	Full	HST202A 3.09 HST202A 7.01-7.05 HST202B 1.05	
Craft and Structure	4. Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.	Full	Embedded throughout, for example: HST202A 1.01 HST202A 2.01 HST202A 3.01 HST202B 1.01 HST202B 2.01 HST202B 3.01 HST202B 4.11 HST212 3.3 HST212 4.2 HST212 5.3	
	5. Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.	Full	Embedded throughout, for example: HST202A 1.01 HST202A 2.01 HST202A 3.01 HST202B 1.01 HST202B 2.01 HST202B 3.01 HST202B 5.15 HST202B 5.16	
	6. Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.	Full	HST202A 2.03 HST202B 5.15 HST202B 5.16 HST202B 6.01-6.11	
Integration of Knowledge and Ideas	7. Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.	Full	Embedded throughout, for example: HST202B 5.13 HST202B 6.01-6.11 HST212 3.1 HST212 2.2 HST212 4.4	
	8. Assess the extent to which the reasoning and evidence in a text support the author's claims.	Full	HST202A 3.01 HST202B 6.01-6.11 HST212 4.4	

	9. Compare and contrast treatments of the same topic in several primary and secondary sources.	Full	HST202B 6.01-6.11	
Range of Reading and Level of Text Complexity	10. By the end of grade 10, read and comprehend history/social studies texts in the grades 9–10 text complexity band independently and proficiently.	Full	Embedded throughout, for example: HST202A 1.01 HST202A 2.01 HST202A 3.01 HST202B 1.01 HST202B 2.01 HST202B 3.01 HST202B 6.01-6.11 HST212 2.1 HST212 3.1	

**Common Core ELA Standards for Grade 11-12 History/Social Studies
Compared to K¹² HST 320, HST 402, and HST 412**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson	Comments
Key Ideas and Details	1. Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.	Full	HST302A 2.08 HST302A 3.06 HST302A 4.05 HST302A 7.07 HST302B 2.01-2.17 HST302B 3.11 HST302B 5.01 HST302B 6.15	
	2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.	Full	Embedded throughout, for example: HST302A 4.07 HST302A 5.01 HST302A 5.02 HST302A 7.07 HST302B 2.01-2.17 HST302B 3.02 HST302B 3.11 HST302B 5.01 HST402 1.1-1.3 HST402 2.3	
	3. Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.	Full	HST302A 2.08 HST302A 3.06 HST302B 3.11 HST402 2.1-2.3 HST402 7.1-7.4	
Craft and Structure	4. Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines <i>faction</i> in <i>Federalist</i> No. 10).	Full	Embedded throughout, for example: HST302A 2.08 HST302A 2.11 HST302A 3.10 HST302A 4.02 HST302B 3.11 HST402 2.1-2.4 HST402 7.1-7.4	
	5. Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.	Full	HST302A 2.03 HST302A 2.08 HST302A 6.07 HST302A 7.07 HST402 1.1-1.3 HST402 2.3 HST402 2.4	
	6. Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.	Full	HST302A 3.06 HST302B 3.02 HST302B 4.02 HST302B 5.06 HST402 1.1-1.3 HST402 7.4	

Integration of Knowledge and Ideas	7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.	Full	Embedded throughout, for example: HST302A 2.08 HST302A 3.06 HST302A 4.05 HST302A 3.05 HST302B 2.01-2.17 HST302B 3.11 HST302B 5.01 HST302B 5.07 HST302B 6.05 HST302B 6.15 HST402 1.1-1.3 HST402 4.1	
	8. Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.	Full	HST302A 3.06 HST302B 3.11 HST402 1.1-1.3 HST402 2.4	
	9. Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.	Full	Embedded throughout, for example: HST302A 3.06 HST302A 3.10 HST302A 4.07 HST302A 5.07 HST302A 6.02 HST302A 7.07 HST302B 2.01-2.17 HST302B 3.07 HST302B 5.01 HST302B 6.05 HST302B 6.15 HST402 1.2 HST402 1.3 HST402 2.3 HST402 7.1-7.4	
Range of Reading and Level of Text Complexity	10. By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.	Full	Embedded throughout, for example: HST302A 3.12 HST302A 6.02 HST302A 7.05 HST302B 1.01 HST302B 1.04 HST302B 3.11	

**Common Core ELA Standards for Grade 6-8 Science & Technical
Compared to K¹² Earth Science, Life Science, Physical Science**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson	Comments
Key Ideas and Details	1. Cite specific textual evidence to support analysis of science and technical texts.	Full	Embedded throughout, for example: ES 5.13 LS 6.2 PS 7.2	
	2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.	Full	Embedded throughout, for example: ES 5.13 LS 6.10 PS 6.3	
	3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.	Full	Embedded throughout, for example: ES 1.9 LS 3.3 PS 4.4	
Craft and Structure	4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.	Full	Embedded throughout, for example: ES 3.2 LS 7.2 PS 3.3	
	5. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.	Partial	ES 3.2 LS 3.1-3.8 PS 1.1 PS 1.2	Teachers will supplement the curriculum to include opportunities for students to clearly analyze the structure an author uses to organize a text.
	6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.	None		Teachers will supplement the curriculum to include opportunities for students to analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.
Integration of Knowledge and Ideas	7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).	Full	Embedded throughout, for example: ES 3.3 ES 5.13 LS 7.5 PS 7.1	
	8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.	Partial	ES 5.13	Teachers will supplement the curriculum to include opportunities for students to distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
	9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.	Full	Embedded throughout, for example: ES 5.13 LS 2.10 PS 2.8 PS 4.9	

Range of Reading and Level of Text Complexity	10. By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.	Full	Embedded throughout, for example: ES 3.5 ES.5.13 LS 2.11 PS 2.6	
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**Common Core ELA Standards for Grade 9-10 Science & Technical
Compared to K¹² SCI102: Physical Science, SCI112: Earth Science, and SCI202: Biology**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson	Comments
Key Ideas and Details	1. Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.	None		Teachers will supplement the curriculum to include opportunities for students to cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
	2. Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.	Partial	Embedded throughout, for example: SCI102A 2.1-2.3 SCI102A 2.5-2.7 SCI102A 5.1-5.3 SCI112A 2.1-2.5 SCI112A 3.1-3.6 SCI112A 4.1-4.5 SCI202A 1.2-1.8 SCI202A 2.12-2.20 SCI202B 2.1-2.9	Teachers will supplement the curriculum to include opportunities for students to provide an accurate summary of the text.
	3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.	Full	Embedded throughout, for example: SCI102A 1.5 SCI102A 1.6 SCI102A 1.8 SCI102A 1.9 SCI102A 6.4-6.7 SCI112A 2.9 SCI112A 2.15 SCI112A 5.16 SCI112A 5.17 SCI112B 1.13 SCI112B 1.14 SCI202A 2.8 SCI202A 2.9 SCI202A 3.18 SCI202A 3.19 SCI202B 2.13 SCI202B 2.14	
	4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.	Full	Embedded throughout, for example: SCI102A 2.1-2.3 SCI102A 2.5-2.7 SCI102A 5.1-5.3 SCI112A 2.1-2.5 SCI112A 3.1-3.6 SCI112A 4.1-4.5 SCI202A 1.2-1.8 SCI202A 2.12-2.20 SCI202B 2.1-2.9	

Craft and Structure	5. Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).	Full	Embedded throughout, for example: SCI102A 2.1-2.3 SCI102A 2.5-2.7 SCI102A 5.1-5.3 SCI112A 2.1-2.5 SCI112A 3.1-3.6 SCI112A 4.1-4.5 SCI202A 1.2-1.8 SCI202A 2.12-2.20 SCI202B 2.1-2.9	
	6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.	None		Teachers will supplement the curriculum to include opportunities for students to analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.
Integration of Knowledge and Ideas	7. Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.	Full	Embedded throughout, for example: SCI102A 1.4-1.6 SCI102B 1.5 SCI102B 1.6 SCI112A 4.7 SCI112A 4.8 SCI112A 6.4 SCI112A 6.6 SCI112A 6.7 SCI202A 4.4 SCI202A 4.5 SCI202B 1.9 SCI202B 1.10 SCI202B 4.11	
	8. Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.	None		Teachers will supplement the curriculum to include opportunities for students to assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.

	<p>9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.</p>	<p>Full</p>	<p>Embedded throughout, for example: SCI102A 1.5 SCI102A 1.6 SCI102A 1.8 SCI102A 1.9 SCI102A 6.4-6.7 SCI112A 2.9 SCI112A 2.15 SCI112A 5.16 SCI112A 5.17 SCI112B 1.13 SCI112B 1.14 SCI202A 2.8 SCI202A 2.9 SCI202A 3.18 SCI202A 3.19 SCI202B 2.13 SCI202B 2.14</p>	
<p>Range of Reading and Level of Text Complexity</p>	<p>10. By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.</p>	<p>Full</p>	<p>Embedded throughout, for example: SCI102A 2.1-2.3 SCI102A 2.5-2.7 SCI102A 5.1-5.3 SCI112A 2.1-2.5 SCI112A 3.1-3.6 SCI112A 4.1-4.5 SCI202A 1.2-1.8 SCI202A 2.12-2.20 SCI202B 2.1-2.9</p>	

**Common Core ELA Standards for Grade 11-12 Science & Technical
Compared to K¹² SCI302: Chemistry and SCI403: Physics**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson	Comments
Key Ideas and Details	1. Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.	None		Teachers will supplement the curriculum to include opportunities for students to cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
	2. Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.	Partial	Embedded throughout, for example: SCI302A 1.1-1.20 SCI302A 2.1-2.11 SCI302A 3.1-3.11 SCI403A 1.2-1.5 SCI403A 2.1-2.8 SCI403A 4.1-4.4	Teachers will supplement the curriculum to include opportunities for students to summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
	3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text	Full	Embedded throughout, for example: SCI302A 2.5 SCI302A 2.7 SCI302A 3.8 SCI302A 3.9 SCI302B 1.5 SCI302B 1.6 SCI403A 4.5 SCI403A 4.6 SCI403A 4.9 SCI403A 4.10 SCI403A 7.3-7.5 SCI403A 7.9 SCI403A 7.10	
Craft and Structure	4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 11–12 texts and topics</i> .	Full	Embedded throughout, for example: SCI302A 1.1-1.20 SCI302A 2.1-2.11 SCI302A 3.1-3.11 SCI403A 1.2-1.5 SCI403A 2.1-2.8 SCI403A 4.1-4.4	
	5. Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.	Full	Embedded throughout, for example: SCI302A 1.1-1.20 SCI302A 2.1-2.11 SCI302A 3.1-3.11 SCI403A 1.2-1.5 SCI403A 2.1-2.8 SCI403A 4.1-4.4	

	6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.	None		Teachers will supplement the curriculum to include opportunities for students to analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.
Integration of Knowledge and Ideas	7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.	Full	Embedded throughout, for example: SCI302A 2.5-2.7 SCI302B 2.4 SCI302B 2.5 SCI302B 5.4-5.6 SCI403A 7.9 SCI403A 7.10 SCI403A 8.2 SCI403A 8.3 SCI403B 1.5-1.7	
	8. Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.	None		Teachers will supplement the curriculum to include opportunities for students to evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
	9. Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.	Full	Embedded throughout, for example: SCI302A 2.1-2.7 SCI302A 3.1-3.6 SCI302A 3.8 SCI302A 3.9 SCI302B 1.2 SCI302B 1.3 SCI302B 1.5 SCI302B 1.6 SCI403A 4.1-4.6 SCI403A 4.9 SCI403A 4.10 SCI403A 7.1-7.5 SCI403A 7.7-7.10	
Range of Reading and Level of Text Complexity	10. By the end of grade 12, read and comprehend science/technical texts in the grades 11–12 text complexity band independently and proficiently.	Full	Embedded throughout, for example: SCI302A 1.1-1.20 SCI302A 2.1-2.11 SCI302A 3.1-3.11 SCI403A 1.2-1.5 SCI403A 2.1-2.8 SCI403A 4.1-4.4	

**Common Core ELA Standards for Grade 6-8 Writing
Compared to K¹² History and Science Courses**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson History	Coverage	Course, unit, lesson Science	Comments
Text Types and Purposes	<p>1. Write arguments focused on discipline-specific content.</p> <ul style="list-style-type: none"> * Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. * Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. * Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. * Establish and maintain a formal style. * Provide a concluding statement or section that follows from and supports the argument presented. 	Full	AHA.11.6 AHB.4.1-AHB.4.3 AHB.12.1-AHB.12.6 AHB.16.1-AHB.16.4 WHA.8.1-WHA.8.3 WHA.14.1-WHA.14.8 WHB.8.1	Full	Embedded throughout, for example: ES 11.6 LS 10.5 PS 10.5	
	<p>2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <ul style="list-style-type: none"> * Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. * Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. * Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. * Use precise language and domain-specific vocabulary to inform about or explain the topic. * Establish and maintain a formal style and objective tone. * Provide a concluding statement or section that follows from and supports the information or explanation presented. 	Full	AHA.11.6 AHB.4.1-AHB.4.3 AHB.12.1-AHB.12.6 AHB.16.1-AHB.16.4 WHA.8.1-WHA.8.3 WHA.14.1-WHA.14.8 WHB.8.1	Full	Embedded throughout, for example: ES 11.6 LS 10.5 PS 10.5	
	<p>3. (See note; not applicable as a separate requirement)</p> <p>Note</p> <p>Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p>	Full	AHA.11.6 AHB.4.1-AHB.4.3 AHB.12.1-AHB.12.6 AHB.16.1-AHB.16.4 WHA.8.1-WHA.8.3 WHA.14.1-WHA.14.8 WHB.8.1	Full	ES 11.6 LS 10.5 PS 10.5	
Production and Distribution of Writing	<p>4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	Full	AHA.11.6 AHB.4.1-AHB.4.3 AHB.12.1-AHB.12.6 AHB.16.1-AHB.16.4 WHA.8.1-WHA.8.3 WHA.14.1-WHA.14.8 WHB.8.1	Full	Embedded throughout, for example: ES 11.6 LS 10.5 PS 10.5	
	<p>5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</p>	Full	AHA.11.6 AHB.4.1-AHB.4.3 AHB.12.1-AHB.12.6 AHB.16.1-AHB.16.4 WHA.8.1-WHA.8.3 WHA.14.1-WHA.14.8 WHB.8.1	Full	Embedded throughout, for example: ES 11.6 LS 10.5 PS 10.5	

	6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.	Full	AHA.11.6 AHB.4.1-AHB.4.3 AHB.12.1-AHB.12.6 AHB.16.1-AHB.16.4 WHA.8.1-WHA.8.3 WHA.14.1-WHA.14.8 WHB.8.1	Full	Embedded throughout, for example: ES 11.6 LS 10.5 PS 10.5	
Research to Build and Present Knowledge	7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.	Full	AHA.11.6 AHB.4.1-AHB.4.3 AHB.12.1-AHB.12.6 AHB.16.1-AHB.16.4 WHA.8.1-WHA.8.3 WHA.14.1-WHA.14.8 WHB.8.1	Full	Embedded throughout, for example: ES 1.5 ES 11.6 LS 10.5 PS 10.5	
	8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	Full	AHA.11.6 AHB.4.1-AHB.4.3 AHB.12.1-AHB.12.6 AHB.16.1-AHB.16.4 WHA.8.1-WHA.8.3 WHA.14.1-WHA.14.8 WHB.8.1	Full	Embedded throughout, for example: ES 11.6 LS 10.5 PS 10.5	
	9. Draw evidence from informational texts to support analysis reflection, and research.	Full	AHA.11.6 AHB.4.1-AHB.4.3 AHB.12.1-AHB.12.6 AHB.16.1-AHB.16.4 WHA.8.1-WHA.8.3 WHA.14.1-WHA.14.8 WHB.8.1	Full	Embedded throughout, for example: ES 11.6 LS 10.5 PS 10.5	
Range of Writing	10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Full	AHA.11.6 AHB.4.1-AHB.4.3 AHB.12.1-AHB.12.6 AHB.16.1-AHB.16.4 WHA.8.1-WHA.8.3 WHA.14.1-WHA.14.8 WHB.8.1	Full	Embedded throughout, for example: ES 1.1 LS 1.1 PS 1.1	

**Common Core ELA Standards for Grade 9-10 Writing
Compared to K¹² History and Science Courses**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson History	Coverage	Course, unit, lesson Science	Comments
Text Types and Purposes	<p>1. Write arguments focused on discipline-specific content.</p> <ul style="list-style-type: none"> * Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. * Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns. * Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. * Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. * Provide a concluding statement or section that follows from or supports the argument presented. 	Full	<p>HST202A 1.05 HST202A 2.03 HST202A 4.07 HST202A 6.04 HST202A 7.01-7.05 HST202B 1.05 HST202B 1.11 HST202B 2.08 HST202B 3.04 HST202B 4.05 HST202B 5.16 HST202B 6.01-6.13</p>	Full	<p>Embedded throughout, for example: SCI102A 9.3 SCI112A 2.9 SCI112A 5.16 SCI112B 1.6 SCI112B 4.4 SCI202A 2.17 SCI202A 3.18 SCI202A 4.6 SCI202B 3.3</p>	
	<p>2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <ul style="list-style-type: none"> * Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. * Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. * Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. * Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers. * Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. * Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic). 	Full	<p>HST202A 1.05 HST202A 2.03 HST202A 3.09 HST202A 4.07 HST202A 6.04 HST202A 7.01-7.05 HST202B 1.05 HST202B 2.12 HST202B 4.11 HST202B 6.01-6.13</p>	Full	<p>Embedded throughout, for example: SCI102A 7.10 SCI102A 9.3 SCI102B 3.3 SCI112A 2.17 SCI112A 5.16 SCI112B 5.4 SCI112B 5.6 SCI202A 3.23 SCI202B 4.17 SCI202B 3.3 SCI202B 3.17</p>	
	<p>3. (See note; not applicable as a separate requirement)</p> <p>Note</p> <p>Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p>	Full	<p>Embedded throughout, for example: HST202A 5.03 HST202A 6.12 HST202A 7.01-7.05 HST202B 2.08 HST202B 6.01-6.13</p>	Full	<p>SCI102B 3.3 SCI112B 5.6 SCI202A 3.23</p>	

Production and Distribution of Writing	4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Full	HST202A 1.05 HST202A 2.03 HST202A 3.09 HST202A 4.07 HST202A 5.03 HST202A 6.04 HST202A 6.12 HST202A 7.01-7.05 HST202B 1.05 HST202B 1.11 HST202B 2.08 HST202B 2.12 HST202B 3.04 HST202B 3.07 HST202B 4.05 HST202B 4.11 HST202B 5.16 HST202B 6.01-6.13	Full	Embedded throughout, for example: SCI102A 2.4 SCI102A 7.10 SCI112A 2.9 SCI112B 5.4 SCI112B 5.6 SCI202A 1.13 SCI202A 2.7 SCI202A 2.17 SCI202A 3.18	
	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	Full	HST202A 1.05 HST202A 2.03 HST202A 3.09 HST202A 4.07 HST202A 6.04 HST20A 5.03 HST202A 7.01-7.05 HST202B 1.05 HST202B 1.11 HST202B 2.08 HST202B 2.12 HST202B 3.07 HST202B 4.05 HST202B 5.16 HST202B 6.01-6.13	None		Teachers will supplement the curriculum to include opportunities for students to develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience in the Science curriculum.
	6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.	Full	HST202A 7.01-7.05 HST202B 6.01-6.13	Full	Embedded throughout, for example: SCI102A 2.4 SCI102A 7.10 SCI112A 2.9 SCI112A 2.17 SCI112B 5.6 SCI202A 2.17 SCI202A 3.18 SCI202A 4.6 SCI202B 4.17	
Research to Build and Present Knowledge	7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	Full	HST202A 1.05 HST202A 2.03 HST202A 6.04 HST202A 7.01-7.05 HST202B 1.05 HST202B 2.12 HST202B 4.05 HST202B 5.16 HST202B 6.01-6.13	Full	Embedded throughout, for example: SCI102A 6.4-6.7 SCI102A 7.9 SCI102A 7.10 SCI102B 3.4 SCI102B 3.5 SCI112A 2.9 SCI112A 3.8 SCI112A 3.9 SCI112A 5.16 SCI112A 5.17 SCI202A 2.17 SCI202A 3.18 SCI202A 3.19 SCI202B 4.12 SCI202B 4.15-4.17	
	8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.	Full	HST202A 6.04 HST202A 7.01-7.05 HST202B 5.16 HST202B 6.01-6.13	Partial	SCI112B 5.4	Teachers will supplement the curriculum to include opportunities for students to follow a standard format for citations.

	9. Draw evidence from informational texts to support analysis, reflection, and research.	Full	HST202A 2.03 HST202A 3.09 HST202A 5.03 HST202A 6.04 HST202A 6.12 HST202A 7.01-7.05 HST202B 1.05 HST202B 1.11 HST202B 2.08 HST202B 2.12 HST202B 3.04 HST202B 4.05 HST202B 4.11 HST202B 5.16 HST202B 6.01-6.13	Full	Embedded throughout, for example: SCI102A 2.4 SCI102A 7.10 SCI112A 2.9 SCI112A 2.17 SCI112A 3.2 SCI112B 5.4 SCI202A 1.13 SCI202A 2.17 SCI202A 3.18 SCI202A 4.6 SCI202B 4.17	
Range of Writing	10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Full	HST202A 1.05 HST202A 2.03 HST202A 3.09 HST202A 4.07 HST202A 5.03 HST202A 6.04 HST202A 6.12 HST202A 7.01-7.05 HST202B 1.05 HST202B 1.11 HST202B 2.08 HST202B 2.12 HST202B 3.04 HST202B 3.07 HST202B 4.05 HST202B 4.11 HST202B 5.16 HST202B 6.01-6.13	Full	Embedded throughout, for example: SCI102A 2.4 SCI102A 7.10 SCI112A 2.9 SCI112A 2.17 SCI112A 3.2 SCI112B 5.4 SCI112B 5.6 SCI112B 5.16 SCI202A 1.13 SCI202A 2.7 SCI202A 3.18 SCI202A 4.6	

**Common Core ELA Standards for Grade 11-12 Writing
Compared to K¹² History and Science Courses**

Strand/Topic	Performance Indicator	Coverage	Course, unit, lesson	Coverage	Course, unit, lesson Science	Comments
Text Types and Purposes	Write arguments focused on discipline-specific content. <ul style="list-style-type: none"> * Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence. * Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases. * Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. * Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. * Provide a concluding statement or section that follows from or supports the argument presented. 	Full	HST302A 2.10 HST302A 4.05 HST302B 2.01-2.17 HST302B 6.15	Full	Embedded throughout, for example: SCI302A 2.6 SCI302B 3.8 SCI302B 5.5 SCI403B 1.6 SCI403B 2.4	
	2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. <ul style="list-style-type: none"> * Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. * Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. * Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. * Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers. * Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic). 	Full	HST302A 2.08 HST302A 5.02 HST302A 6.03 HST302B 2.01-2.17 HST302B 6.15 HST402 5.1	Full	Embedded throughout, for example: SCI302A 4.8 SCI302B 3.8 SCI302B 5.5 SCI302B 8.5 SCI403A 6.5 SCI403B 7.5	
	3. (See note; not applicable as a separate requirement) Note Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.	Full	HST302A 2.08 HST302A 4.05 HST302A 4.10 HST302A 6.03 HST302A 6.07 HST302A 7.02 HST302B 1.11 HST302B 2.01-2.17 HST302B 3.07 HST302B 5.07 HST302B 6.05	Full	SCI302A 4.8 SCI302B 8.5 SCI403A 6.5 SCI403B 1.6	

Production and Distribution of Writing	4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Full	HST302A 1.12 HST302A 2.08 HST302A 2.10 HST302A 3.06 HST302A 4.05 HST302A 4.10 HST302A 5.02 HST302A 6.03 HST302A 6.07 HST302A 6.11 HST302A 7.02 HST302A 7.07 HST302B 1.05 HST302B 1.11 HST302B 2.01-2.04 HST302B 3.07 HST302B 3.11 HST302B 4.02 HST302B 4.05 HST302B 5.07 HST302B 6.05 HST302B 6.15 HST402 5.1	Full	Embedded throughout, for example: SCI302A 2.10 SCI302B 3.8 SCI302B 5.5 SCI302B 8.5 SCI403A 6.5 SCI403A 8.3 SCI403B 7.5
	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	Full	HST302A 1.12 HST302A 2.08 HST302A 2.10 HST302A 3.06 HST302A 4.05 HST302A 4.10 HST302A 5.02 HST302A 6.03 HST302A 6.07 HST302A 7.02 HST302B 2.01-2.04 HST302B 3.07 HST302B 3.11 HST302B 4.02 HST302B 4.05 HST302B 5.07 HST302B 6.05 HST302B 6.15	Full	
	6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.	Full	HST302A 3.12 HST302A 6.03 HST302B 2.01-2.17 HST302B 4.01-4.08	Full	Embedded throughout, for example: SCI302A 2.10 SCI302B 3.8 SCI302B 5.5 SCI302B 8.5 SCI403A 6.5 SCI403A 8.3 SCI403B 1.6 SCI403B 2.4
	7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	Full	HST302A 2.08 HST302A 2.10 HST302A 3.06 HST302A 3.12 HST302A 4.05 HST302A 5.02 HST302A 6.03 HST302A 6.07 HST302A 6.11 HST302A 7.02 HST302B 1.05 HST302B 2.01-2.17 HST302B 3.07 HST302B 6.05 HST302B 6.15	Full	Embedded throughout, for example: SCI302B 3.7 SCI302B 3.9 SCI302B 5.4 SCI302B 5.6 SCI403A 7.9 SCI403A 7.10 SCI403B 4.3 SCI403B 4.4

Research to Build and Present Knowledge	8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.	Full	HST302A 3.06 HST302A 4.05 HST302A 5.02 HST302A 6.03 HST302A 6.11 HST302B 1.05 HST302B 2.01-2.17 HST302B 3.07 HST302B 6.05 HST302B 6.15	None		Teachers will supplement the curriculum to include opportunities for students to gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation in the Science curriculum.
	9. Draw evidence from informational texts to support analysis, reflection, and research.	Full	HST302A 2.08 HST302A 2.10 HST302A 4.05 HST302A 5.02 HST302A 6.11 HST302A 7.07 HST302B 1.05 HST302B 2.01-2.17 HST302B 3.07 HST302B 5.01 HST302B 6.05 HST302B 6.15	Full	Embedded throughout, for example: SCI302A 4.8 SCI302B 3.8 SCI403A 8.3 SCI403B 1.6 SCI403B 2.4	
Range of Writing	10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Full	HST302A 1.12 HST302A 2.08 HST302A 2.10 HST302A 3.06 HST302A 4.05 HST302A 4.10 HST302A 5.02 HST302A 6.03 HST302A 6.07 HST302A 6.11 HST302A 7.02 HST302A 7.07 HST302B 1.05 HST302B 1.11 HST302B 2.01-2.17 HST302B 3.07 HST302B 5.07 HST302B 6.05 HST302B 6.15 HST402 5.1	Full	Embedded throughout, for example: SCI302A 2.10 SCI302B 3.8 SCI302B 5.5 SCI302B 8.5 SCI403A 6.5 SCI403A 8.3 SCI403B 1.6 SCI403B 2.4	

ELA-CCSS	Full	Partial	None	Diff't level	Total	Full	Partial	None	Diff't level	Total
K	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
LA Blue	64	0	0	0	64	100%	0%	0%	0%	100%
1	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
LA Orange	63	0	0	0	63	100%	0%	0%	0%	100%
2	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
3	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
4	75	0	0	0	75	100%	0%	0%	0%	100%
5	74	0	0	0	74	100%	0%	0%	0%	100%
6	69	0	0	0	69	100%	0%	0%	0%	100%
7	66	0	0	0	66	100%	0%	0%	0%	100%
8	67	0	0	0	67	100%	0%	0%	0%	100%
Grades 9-10	65	0	0	0	65	100%	0%	0%	0%	100%
Grades 11-12	64	0	0	0	64	100%	0%	0%	0%	100%
History/Social Studies 6-8	5	0	5	0	10	50%	0%	50%	0%	100%
History/Social Studies 9-10	10	0	0	0	10	100%	0%	0%	0%	100%
History/Social Studies 11-12	10	0	0	0	10	100%	0%	0%	0%	100%
Science & Technical Subjects 6-8	7	2	1	0	10	70%	20%	10%	0%	100%
Science & Technical Subjects 9-10	6	1	3	0	10	60%	10%	30%	0%	100%
Science & Technical Subjects 11-12	6	1	3	0	10	60%	10%	30%	0%	100%
Writing 6-8	10	0	0	0	10	100%	0%	0%	0%	100%
Writing 9-10	10	0	0	0	10	100%	0%	0%	0%	100%
Writing 11-12	10	0	0	0	10	100%	0%	0%	0%	100%

**Common Core Grade Six Math Expectations
Compared to K¹² Fundamentals of Geometry and Algebra (FGA)**

Standard/Topic	Common Core Grade 6 Standards	Coverage	Course	K ¹² Unit Title	Lesson #
Ratios & Proportional Relationships	Understand ratio concepts and use ratio reasoning to solve problems.				
	1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. <i>For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."</i>	Full	FGA	Comparisons: Ratios	1 2
	2. Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. <i>For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."</i>	Full	FGA	Rates	1-4 6
	3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. - Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. - Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</i> - Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. - Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	Full	FGA	Distance: Addition Equations	2
				Comparisons: Ratios	2-4 6-8
				Rates	1-4 6 10
	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.				
	1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. <i>For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$-cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi? Compute fluently with multi-digit numbers and find common factors and multiples.</i>	Full	FGA	Working with Rational Numbers	8 9
	2. Fluently divide multi-digit numbers using the standard algorithm	Full	FGA	Solving Problems	4

The Number System	2. Fluently divide multi-digit numbers using the standard algorithm.	Full	FGA	Area: Multiplication Equations	9	
				Working with Positives and Negatives	6	
	3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	Full	FGA	Embedded throughout, for example:		
				Distance: Addition Equations	1	
				Area: Multiplication Equations	3	
	4. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. <i>For example, express $36 + 8$ as $4(9 + 2)$. Apply and extend previous understandings of numbers to the system of rational numbers.</i>	Full	FGA	Problem Solving	5	
				Patterns, Primes and Puzzles	7	
					9	
	Apply and extend previous understandings of numbers to the system of rational numbers.					
	5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	Full	FGA	Distance: Addition Equations	8-11	
			Working with Positives and Negatives	2		
6. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. - Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite. - Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. - Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	Full	FGA	Problem Solving	3		
			Distance: Addition Equations	8		
			Working with Rational Numbers	4		
			The Second Dimension	1-4		
			Working with Positives and Negatives	1		
			Making and Moving Figures	11		
7. Understand ordering and absolute value of rational numbers. - Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right. - Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C . - Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative	Full	FGA	Problem Solving	3		
			Distance: Addition Equations	8		
				9		

	quantity in a real-world situation. For example, for an account balance of –30 dollars, write $ -30 = 30$ to describe the size of the debt in dollars. - Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.			Working with Positives and Negatives	9
	8. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	Full	FGA	Distance: Addition Equations	9
The Second Dimension				3 4	
Making and Moving Figures				11	
Apply and extend previous understandings of arithmetic to algebraic expressions.					
	1. Write and evaluate numerical expressions involving whole-number exponents.	Full	FGA	Area: Multiplication Equations	10
	2. Write, read, and evaluate expressions in which letters stand for numbers. - Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation “Subtract y from 5” as $5 - y$. - Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms. - Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.	Full	FGA	Solids	1
				Patterns, Primes and Puzzles	5
				Embedded throughout, for example:	
				Solving Problems	1 4 7 8
				Area: Multiplication Equations	3 6 10
				Solids	7
	3. Apply the properties of operations to generate equivalent expressions. <i>For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.</i>	Full	FGA	Problem Solving	4 5
	4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). <i>For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for. Reason about and solve one-variable equations and inequalities.</i>	Full	FGA	Problem Solving	2 4 5
				Distance: Addition Equations	5
Reason about and solve one-variable equations and inequalities.					
Expressions & Equations					2

Equations	5. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	Full	FGA	Problem Solving	9
				Distance: Addition Equations	5 6
				Working with Positives and Negatives	9
	6. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	Full	FGA	Embedded throughout, for example:	
				Solving Problems	1 7 9
				Distance: Addition Equations	2 5
	7. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers.	Full	FGA	Distance: Addition Equations	5 6 11
				Area: Multiplication Equations	9
8. Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	Full	FGA	Working with Positives and Negatives	9	
Represent and analyze quantitative relationships between dependent and independent variables.					
9. Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. <i>For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.</i>	Full	FGA	Rates	3 7 9 10	
Solve real-world and mathematical problems involving area, surface area, and volume.					
Geometry	1. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	Full	FGA	Area: Multiplication Equations	3 6 7
	2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	Full	FGA	Solids	1-3 7
	3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first	Full	FGA	Making and Moving Figures	11

	coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	Full	FGA	The Second Dimension	3
	4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	Full	FGA	Solids	4
Statistics & Probability	Develop understanding of statistical variability.				
	1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. <i>For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.</i>	Full	FGA	Statistics	1 8
	2. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	Full	FGA	Statistics	1 4 6-8
	3. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	Full	FGA	Statistics	1 4 6-8
	Summarize and describe distributions.				
	4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	Full	FGA	Statistics	3 4 7 10
				The Second Dimension	1
	5. Summarize numerical data sets in relation to their context, such as by: - Reporting the number of observations. - Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. - Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. - Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	Full	FGA	Statistics	1-4 6-8 10

**Common Core Kindergarten Math Expectations
Compared to K¹² Math+ Blue (including supplemental unit)**

Standard/Topic	Common Core Grade K Standards	Coverage	Course	K ¹² Unit Title	Lesson #	
Counting & Cardinality	Know number names and the count sequence.					
	1. Count to 100 by ones and by tens.	Full	Blue	Numbers Through 30	1 2	
				Math+Blue Common Core Appendix	15 16	
	2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	Full	Blue	Problem Solving with Addition		1 2
	3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).	Full	Blue	Numbers Through 20		7 9
				Count to tell the number of objects.		
	4. Understand the relationship between numbers and quantities; connect counting to cardinality. - When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. - Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. - Understand that each successive number name refers to a quantity that is one larger.	Full	Blue	Numbers Through 5 and Plane Figures	1-3	
				Numbers Through 10	1-6	
	5. Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.	Full	Blue	Numbers Through 20		1-9
	Compare numbers.					
	6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.	Full	Blue	Numbers Through 10		9 10 12 13
				Numbers Through 20		6 8
Numbers Through 30				5 6 8		
7. Compare two numbers between 1 and 10 presented as written numerals.	Full	Blue	Numbers Through 10		10 12 13	
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.						
1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations,	Full	Blue	Introduction to Addition		1-5	
			Introduction to Subtraction		1-5	
			Problem Solving with Subtraction		1 2 5-7	

Operations & Algebraic Thinking	expressions, or equations.			Subtraction with Comparison	1-6
				Comparison Subtraction Word Problems	1-5
				Addition and Subtraction Problem Solving	1-4
	2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	Full	Blue	Problem Solving with Subtraction	1 2
				Comparison Subtraction Word Problems	2 3 5
				Addition and Subtraction Problem Solving	3 4
				Problem Solving with Addition	1-3
3. Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).	Full	Blue	Math+Blue Common Core Appendix	3	
4. For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.	Full	Blue	Math+Blue Common Core Appendix	3	
5. Fluently add and subtract within 5.	Full	Blue	Add or Subtract: Problem Solving	5	
			Introduction to Addition	5	
			Introduction to Subtraction	5	
Number & Operations in Base Ten	Work with numbers 11-19 to gain foundations for place value.				
	1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	Full	Blue	Math+Blue Common Core Appendix	4 5
Measurement & Data	Describe and compare measurable attributes.				
	1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	Full	Blue	Measurement	1 2 4 5
				Math+Blue Common Core Appendix	10
	2. Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>	Full	Blue	Measurement	2 4 5
	Classify objects and count the number of objects in each category.				
	3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	Full	Blue	Shapes and Sorting	9 10 12 13
Numbers Through 5 and Plane Figures				5 6 8	
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).					
1. Describe objects in the environment using names of shapes, and describe the			Shapes and Sorting	1-4 6 7	

Geometry	relative positions of these objects using terms such as <i>above</i> , <i>below</i> , <i>beside</i> , <i>in front of</i> , <i>behind</i> , and <i>next to</i> .	Full	Blue	Solid Figures	3 4
				Math+Blue Common Core Appendix	1 2
	2. Correctly name shapes regardless of their orientations or overall size.	Full	Blue	Shapes and Sorting	1-3 7
				Solid Figures	1 3
	3. Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").	Full	Blue	Solid Figures	1
	Analyze, compare, create, and compose shapes.				
	4. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).	Full	Blue	Shapes and Sorting	3 6 7 10 12 13
				Numbers Through 5 and Plane Figures	5 6 8
				Solid Figures	1 3-5
	5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	Full	Blue	Math+Blue Common Core Appendix	12
6. Compose simple shapes to form larger shapes. <i>For example, "Can you join these two triangles with full sides touching to make a rectangle?"</i>	Full	Blue	Solid Figures	8 9	

**Common Core Grade One Math Expectations
Compared to K¹² Math⁺ Green (including supplemental unit)**

Standard/Topic	Common Core Grade 1 Standards	Coverage	Course	K ¹² Unit Title	Lesson #
Operations & Algebraic Thinking	Represent and solve problems involving addition and subtraction.				
	1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Full	Green	Addition or Subtraction Problem Solving	5-15
				Addition or Subtraction More Problem Solving	1-3 5-7
	2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Full	Green	Addition Strategies	5 6
				Addition or Subtraction Problem Solving	14
	Understand and apply properties of operations and the relationship between addition and subtraction.				
	3. Apply properties of operations as strategies to add and subtract. <i>Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.)</i>	Full	Green	Introduction to Addition	2
				Addition Strategies	5
				Subtraction Strategies	1-3
				Subtraction Facts Through 20	2
	4. Understand subtraction as an unknown-addend problem. <i>For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8. Add and subtract within 20.</i>	Full	Green	Addition Facts with Sums Through 20	1-4
				Subtraction Facts Through 20	2-8
	Add and subtract within 20.				
	5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	Full	Green	Addition Strategies	2 4
				Subtraction Strategies	2 3
	6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).	Full	Green	Addition Facts for Sums Through 12	4
				Addition Facts for Sums Through 20	1-4
				Addition Strategies	2-6
Introduction to Subtraction				5	
Subtraction Through 20				6-9	
Addition Number Sentences				1 2	
Subtraction Strategies				2-3	
Place Value Addition and Subtraction	17				
Subtraction Number Sentences	1 2				

Work with addition and subtraction equations.				
7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.	Full	Green	Introduction to Addition	4
			Introduction to Subtraction	3
8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$.	Full	Green	Addition Number Sentences	3
			Subtraction Number Sentences	4
Extend the counting sequence.				
1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	Full	Green	Read, Write, Count and Compare Numbers	1 2 5 6
			Math+ Green Common Core Appendix	1 2
Understand place value.				
2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: - 10 can be thought of as a bundle of ten ones — called a “ten.” - The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. - The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	Full	Green	Place Value Addition and Subtraction	1-5
3. Compare two -digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.	Full	Green	Read, Write, Count and Compare Numbers	10 11
Use place value understanding and properties of operations to add and subtract.				
4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	Full	Green	Place Value Addition and Subtraction	7-9 11 13 17 18
			Addition Strategies	1-6
			Addition or Subtraction Problem Solving	1-3
			Subtraction Strategies	1
5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	Full	Green	Addition Strategies	1
			Subtraction Strategies	1 2
6. Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	Full	Green	Place Value Addition and Subtraction	11 13-17
			Addition or Subtraction Problem Solving	1-3
			Subtraction Strategies	1
Measure lengths indirectly and by iterating length units.				

Number &
Operations in
Base Ten

Measurement & Data	1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.	Full	Green	Money and Measurement	5
				Math+ Green Common Core Appendix	3 4
	2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. <i>Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</i>	Full	Green	Money and Measurement	5
	Tell and write time.				
	3. Tell and write time in hours and half-hours using analog and digital clocks.	Full	Green	Time and Position	1-3
Represent and interpret data.					
4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	Full	Green	Geometric Figures, Data and Attributes	7 8	
Geometry	Reason with shapes and their attributes.				
	1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size) ; build and draw shapes to possess defining attributes.	Full	Green	Geometric Figures, Data and Attributes	1-5
	2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	Full	Green	Geometric Figures, Data and Attributes	2
	3. Partition circles and rectangles into two and four equal shares, describe the shares using the words <i>halves</i> , <i>fourths</i> , and <i>quarters</i> , and use the phrases <i>half of</i> , <i>fourth of</i> , and <i>quarter of</i> . Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	Full	Green	Math+ Green Common Core Appendix	6 7

**Common Core Grade Two Math Expectations
Compared to K¹² Math+ Orange (including supplemental unit)**

Standard/Topic	Common Core Grade 2 Standards	Coverage	Course	K ¹² Unit Title	Lesson #
Operations & Algebraic Thinking	Represent and solve problems involving addition and subtraction.				
	1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Full	Orange	Inverse Operations Add and Subtract	1
				Add or Subtract Problem Solving	5-8 10-13
				Problem Solve Reason and Connect	1 2
				Measurement	5
	Add and subtract within 20.				
	2. Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.	Full	Orange	Embedded throughout, for example:	
				Inverse Operations Add and Subtract	2
				Math+ Orange Common Core Appendix	1 6
	Work with equal groups of objects to gain foundations for multiplication.				
	3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.	Full	Orange	Multiplication and Number Patterns	2 4
				Math+ Orange Common Core Appendix	2
4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	Full	Orange	Multiplication and Number Patterns	2 3	
Understand place value.					
1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: - 100 can be thought of as a bundle of ten tens — called a “hundred.” - The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	Full	Orange	Numbers Through 1000	2	
			Math+ Orange Common Core Appendix	13-17	
2. Count within 1000; skip-count by 5s, 10s, and 100s.	Full	Orange	Multiplication and Number Patterns	4 10-13	
			Math+ Orange Common Core Appendix	10	
3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	Full	Orange	Numbers Through 1000	2-10	
			Math+ Orange Common Core Appendix	14-18	
4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.	Full	Orange	Numbers Through 1000	11	
Use place value understanding and properties of operations to add and subtract.					

Number & Operations in Base Ten	5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	Full	Orange	Add, Subtract Number Compositions	1-10
	6. Add up to four two-digit numbers using strategies based on place value and properties of operations.	Full	Orange	Inverse Operations Add and Subtract	1-3
				Math+ Orange Common Core Appendix	4 5
	7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	Full	Orange	Inverse Operations Add and Subtract	3 4
				Add, Subtract Number Compositions	1 2 4 6
				Add, Subtract Problem Solving	1 2
				Add or Subtract Through 1000	1 2 5
	8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	Full	Orange	Add, Subtract Number Compositions	6 10
				Inverse Operations Add and Subtract	3
	9. Explain why addition and subtraction strategies work, using place value and the properties of operations.	Full	Orange	Add, Subtract Number Compositions	2 3 11
Inverse Operations Add and Subtract				3 4	
Measurement & Data	Measure and estimate lengths in standard units.				
	1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	Full	Orange	Measurement	1 2
	2. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	Full	Orange	Math+ Orange Common Core Appendix	7
	3. Estimate lengths using units of inches, feet, centimeters, and meters.	Full	Orange	Measurement	3 4
				Math+ Orange Common Core Appendix	7
	4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	Full	Orange	Measurement	5 6
	Relate addition and subtraction to length.				
	5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.	Full	Orange	Measurement	5
	6. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.	Full	Orange	Math+ Orange Common Core Appendix	9
	Work with time and money.				
7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	Full	Orange	Time and Money	1-3	
			Math+ Orange Common Core Appendix	3	

	8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?	Full	Orange	Time and Money	9
Represent and interpret data.					
	9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	Full	Orange	Math+ Orange Common Core Appendix	13
	10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems ¹ using information presented in a bar graph.	Full	Orange	Data Representations and Analysis	1
Reason with shapes and their attributes.					
Geometry	1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	Full	Orange	Plane and Solid Figures	1-3
	2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	Full	Orange	Plane and Solid Figures	3
				Math+ Orange Common Core Appendix	11
	3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	Full	Orange	Introduction to Fractions	1 2 4 9 10

**Common Core Grade Three Math Expectations
Compared to K¹² Math+ Purple (including supplemental unit)**

Standard/Topic	Common Core Grade 3 Standards	Coverage	Course	K ¹² Unit Title	Lesson #
Operations & Algebraic Thinking	Represent and solve problems involving multiplication and division.				
	1. Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. <i>For example, describe a context in which a total number of objects can be expressed as 5×7.</i>	Full	Purple	Whole Number Multiplication Sense	1 5
	2. Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. <i>For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.</i>	Full	Purple	Whole Number Division Sense	3
	3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Full	Purple	Whole Number Multiplication Sense	1
				Whole Number Multiplication	1-4 6
				Whole Number Division Sense	1
				Whole Number Division	1 3 4 6
	4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = _ \div 3$, $6 \times 6 = ?$</i>	Full	Purple	Algebra Thinking	7-9
	Understand properties of multiplication and the relationship between multiplication and division.				
	5. Apply properties of operations as strategies to multiply and divide. <i>Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times$</i>	Full	Purple	Whole Number Multiplication Sense	6 13
				Whole Number Division Sense	6
	6. Understand division as an unknown-factor problem. <i>For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.</i>	Full	Purple	Whole Number Division Sense	5
	Multiply and divide within 100.				
	7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.	Full	Purple	Whole Number Multiplication Sense	7-10
				Whole Number Division Sense	2 5 6
Solve problems involving the four operations, and identify and explain patterns in arithmetic.					
8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Full	Purple	Whole Number Addition and Subtraction	3 5	
			Whole Numbers and Multiple Operations	2 3 5	
			Whole Number Division	8	
			Mathematical Reasoning	4-6	
			Whole Number Sense	2	
9. Identify arithmetic patterns (including patterns in the addition table or			Algebra Thinking	11-13	

	multiplication table), and explain them using properties of operations. <i>For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.</i>	Full	Purple	Whole Number Addition and Subtraction	5
Number & Operations in Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic.				
	1. Use place value understanding to round whole numbers to the nearest 10 or 100.	Full	Purple	Whole Number Sense	10
	2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	Full	Purple	Whole Numbers Addition and Subtraction	1-3 5
	3. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	Full	Purple	Whole Number Multiplication Sense	6
Whole Number Multiplication				2	
Number & Operations—Fractions	Develop understanding of fractions as numbers.				
	1. Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.	Full	Purple	Fractions and Probability	1
	2. Understand a fraction as a number on the number line; represent fractions on a number line diagram. - Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line. - Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.	Full	Purple	Fractions and Probability	2 3
3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. - Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. - Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. - Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. - Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.	Full	Purple	Fractions and Probability	1-3	
	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.				
	1. Tell and write time to the nearest minute and measure time intervals in			Measurement Length and Time	6 7

Measurement & Data	minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	Full	Purple	Math+ Purple Common Core Appendix	5
	2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). ¹ Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. ²	Full	Purple	Measurement Capacity and Weight	1 2 5 6
	Represent and interpret data.				
	3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. <i>For example, draw a bar graph in which each square in the bar graph might represent 5 pets.</i>	Full	Purple	Math+ Purple Common Core Appendix	1-3
	4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.	Full	Purple	Measurement Length and Time	1 3
				Math+ Purple Common Core Appendix	4
	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.				
	5. Recognize area as an attribute of plane figures and understand concepts of area measurement. - A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area. - A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.	Full	Purple	Perimeter, Area, and Volume	2
	6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	Full	Purple	Perimeter, Area, and Volume	2 3
	7. Relate area to the operations of multiplication and addition. - Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. - Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. - Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning. - Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	Full	Purple	Perimeter, Area, and Volume	2
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.					
8. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side	Full	Purple	Perimeter, Area, and Volume	1 4	

	length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	Full	Purple	Math+ Purple Common Core Appendix	6 7
	Reason with shapes and their attributes.				
Geometry	1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	Full	Purple	Geometry	2 4
	2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. <i>For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.</i>	Full	Purple	Fractions and Probability	1 3

**Common Core Grade Four Math Expectations
Compared to K¹² Math+ Red (including supplemental unit)**

Standard/Topic	Common Core Grade 4 Standards	Coverage	Course	K ¹² Unit Title	Lesson #
Operations & Algebraic Thinking	Use the four operations with whole numbers to solve problems.				
	1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	Full	Red	Whole Number Operations	5 6
	2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	Full	Red	Applications of Operations	5 6 8 9
	3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Full	Red	Applications of Operations	5 6 8 9
				Whole Number Sense	7
				Whole Number Operations	1-8
				Mathematical Reasoning	1-5 14
	Algebra Thinking	1			
	Gain familiarity with factors and multiples.				
	4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.	Full	Red	Whole Number Operations	9
Math+ Red Common Core Appendix				13	
Generate and analyze patterns.					
5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i>	Full	Red	Algebra Thinking	9 11 12	
Number &	Generalize place value understanding for multi-digit whole numbers.				
	1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.</i>	Full	Red	Whole Number Sense	1
	2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.	Full	Red	Whole Number Sense	2 3 5 6
					3. Use place value understanding to round multi-digit whole numbers to any place.

Number & Operations in Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic.				
	4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.	Full	Red	Whole Number Operations	3 4
	5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two -digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Full	Red	Whole Number Operations	5
				Applications of Operations	3 4
6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Full	Red	Math+ Red Common Core Appendix	1-3	
			Whole Number Operations	7 8	
Number & Operations - Fractions	Extend understanding of fraction equivalence and ordering.				
	1. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	Full	Red	Fraction Sense	1-14
	2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.	Full	Red	Fraction Sense	1-14
	Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.				
	3. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. - Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. - Decompose a fraction into a sum of fractions with the same denominator in	Full	Red	Fraction Sense	2-4 6 7
				Fraction Operations	1
	4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	Full	Red	Fraction Sense	1-4
				Fraction Operations	6-9
	Understand decimal notation for fractions, and compare decimal fractions.				
	5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$.	Full	Red	Decimals and Equality with Fractions	6
				Fraction Operations	2
				Math+ Red Common Core Appendix	14 15
6. Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $62/100$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.	Full	Red	Decimals and Equality with Fractions	6-9	
7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.	Full	Red	Decimals and Equality with Fractions	1 2	
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.					

Measurement & Data	1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i>	Full	Red	Measurement	1-4	
	2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	Full	Red	Applications of Operations	5 6 8 9	
				Measurement	2-4	
				Mathematical Reasoning	1-5	
	3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.	Full	Red	Perimeter and Area Formulas	1-7 9-11	
	Represent and interpret data.					
	4. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. <i>For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.</i>	Full	Red	Math+ Red Common Core Appendix	18 19	
	Geometric measurement: understand concepts of angle and measure angles.					
	5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: - An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles. - An angle that turns through n one-degree angles is said to have an angle measure of n degrees.	Full	Red	Lines, Angles, and Rotations	1 3	
				Math+ Red Common Core Appendix	10 11	
6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	Full	Red	Math+ Red Common Core Appendix	10 11		
7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	Full	Red	Lines, Angles, and Rotations	3		
			Math+ Red Common Core Appendix	12		
Draw and identify lines and angles, and classify shapes by properties of their lines and angles.						
1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	Full	Red	Lines, Angles, and Rotations	1 2		
			Geometry	1-3		

Geometry	perpendicular and parallel lines. Identify these in two-dimensional figures.			Math+ Red Common Core Appendix	10 11
	2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	Full	Red	Geometry	1-3
	3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	Full	Red	Geometry	7

**Common Core Grade Five Math Expectations
Compared to K¹² Math+ Yellow (including supplemental unit)**

Standard/Topic	Common Core Grade 5 Standards	Coverage	Course	K ¹² Unit Title	Lesson #
Operations & Algebraic Thinking	Write and interpret numerical expressions.				
	1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	Full	Yellow	Algebra	3
				Mathematical Reasoning: Methods and Strategies	4
	2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. <i>For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.</i>	Full	Yellow	Mathematical Reasoning: Methods and Strategies	4 6 8
				Mathematical Reasoning: Solutions	6
	Analyze patterns and relationships.				
	3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. <i>For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.</i>	Full	Yellow	Math+ Yellow Common Core Appendix	15
				Algebra	5-9
			Coordinate Planes	1-7	
Number & Operations in Base Ten	Understand the place value system.				
	1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	Full	Yellow	Math+ Yellow Common Core Appendix	3
	2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	Full	Yellow	Decimals: Multiplication and Division	1 2
	3. Read, write, and compare decimals to thousandths. - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$. - Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.	Full	Yellow	Math+ Yellow Common Core Appendix	12-14
	4. Use place value understanding to round decimals to any place.	Full	Yellow	Decimals: Addition and Subtraction	1-3
				Mathematical Reasoning: Methods and Strategies	10
				Decimals: Multiplication and Division	1-3
	Perform operations with multi-digit whole numbers and with decimals to hundredths.				
5. Fluently multiply multi-digit whole numbers using the standard algorithm.	Full	Yellow	Whole Numbers and Powers	5 6	

	6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Full	Yellow	Whole Numbers and Powers	5-7
				Math+ Yellow Common Core Appendix	2
	7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	Full	Yellow	Decimals: Multiplication and Division	4 5 7-10
				Decimals: Addition and Subtraction	5-7
Number & Operations - Fractions	Use equivalent fractions as a strategy to add and subtract fractions.				
	1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. <i>For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)</i>	Full	Yellow	Problems Involving Fractions	5 7
	2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. <i>For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.</i>	Full	Yellow	Problems Involving Fractions	4-7
	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.				
	3. Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. <i>For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?</i>	Full	Yellow	Math+ Yellow Common Core Appendix	9-11
	4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. - Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.) - Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	Full	Yellow	Fractions: Multiplication and Division	1 3-5
				Problems Involving Fractions	1-3
5. Interpret multiplication as scaling (resizing), by:			Fractions: Multiplication and Division	1 3-5	

<p>- Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.</p> <p>- Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.</p>	Full	Yellow	Math+ Yellow Common Core Appendix	8
<p>6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.</p>	Full	Yellow	Fractions: Multiplication and Division	4 5
<p>7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.</p> <p>- Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.</p> <p>- Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.</p> <p>- Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$-cup servings are in 2 cups of raisins?</p>	Full	Yellow	Fractions: Multiplication and Division	2 7-9
			Problems Involving Fractions	2 3
Convert like measurement units within a given measurement system.				
<p>1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.</p>	Full	Yellow	Math+ Yellow Common Core Appendix	17 18
Represent and interpret data.				
<p>2. Make a line plot to display a data set of measurements in fractions of a unit ($1/2, 1/4, 1/8$). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</i></p>	Full	Yellow	Math+ Yellow Common Core Appendix	19 20
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.				

Measurement & Data	<p>3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.</p> <ul style="list-style-type: none"> - A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. - A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. 	Full	Yellow	Perimeter, Area, and Volume	9 10	
	<p>4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.</p>	Full	Yellow	Perimeter, Area, and Volume	9	
				Math+ Yellow Common Core Appendix	15	
<p>5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.</p> <ul style="list-style-type: none"> - Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. - Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. - Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems. 	Full	Yellow	Perimeter, Area, and Volume	9 10		
Graph points on the coordinate plane to solve real-world and mathematical problems.						
Geometry	<p>1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).</p>	Full	Yellow	Coordinate Planes	1 2	
	<p>2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.</p>	Full	Yellow	Coordinate Planes	1 2	
	Classify two-dimensional figures into categories based on their properties.					
	<p>3. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.</p>	Full	Yellow	Geometry	8 9	
Math+ Yellow Common Core Appendix	5-7					

	4. Classify two-dimensional figures in a hierarchy based on properties.	Full	Yellow	Geometry	5 6 8 9
				Math+ Yellow Common Core Appendix	4 5 7

**Common Core Grade Seven Math Expectations
Compared to K¹² MS Pre-Algebra (PA) (including supplemental unit)**

Standard/Topic	Common Core Grade 7 Standards	Coverage	Course	K ¹² Unit Title	Lesson #
Ratios & Proportional Relationships	Analyze proportional relationships and use them to solve real-world and mathematical problems.				
	1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. <i>For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $\frac{1/2}{1/4}$ miles per hour, equivalently 2 miles per hour.</i>	Full	PA	Ratio, Proportion, and Percent	2-5 10
				PA Common Core Appendix	4
				PA Common Core Appendix	12
	2. Recognize and represent proportional relationships between quantities. - Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. - Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. - Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p , the relationship between the total cost and the number of items can be expressed as $t = pn$. - Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.	Full	PA	Ratio, Proportion, and Percent	3-5
				PA Common Core Appendix	6
				PA Common Core Appendix	7
				PA Common Core Appendix	4 5
				PA Common Core Appendix	8 9
	3. Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	Full	PA	Ratio, Proportion, and Percent	12-14
			PA Common Core Appendix	3 7 10 11	
	Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.				
	1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. - Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. - Understand $p + q$ as the number located a distance $ q $ from p , in the positive or			Addition and Subtraction	1-4 7-9 11 12

The Number System	negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. - Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. - Apply properties of operations as strategies to add and subtract rational numbers.	Full	PA	PA Common Core Appendix	1	
	2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. - Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. - Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. - Apply properties of operations as strategies to multiply and divide rational numbers. - Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	Full	PA	Multiplication and Division	1-3 5 6 8-10	
				Fractions	3 4 12	
				Ratio, Proportion, and Percent	8 9	
				Combined Operations	1	
	3. Solve real-world and mathematical problems involving the four operations with rational numbers.	Full	PA	Embedded throughout, for example:		
				Addition and Subtraction	3 4 8 9 11-15	
				Multiplication and Division	1-3 8-10	
	Use properties of operations to generate equivalent expressions.					
	1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	Full	PA	Embedded throughout, for example:		
The Basics				2 3 9		
Addition and Subtraction				13-15		
Combined Operations				1 2 3 5		
Number Properties				2 3		
2. Understand that rewriting an expression in different forms in a problem context			Embedded throughout, for example:			
			The Basics	10		

Expressions & Equations	2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."	Full	PA	Combined Operations	1-3 5
	Solve real-life and mathematical problems using numerical and algebraic expressions and equations.				
	3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional $\frac{1}{10}$ of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.	Full	PA	Embedded throughout, for example:	
				Addition and Subtraction	3 4 8 9 11-15
				Multiplication and Division	1-3 6 8-10
				Fractions	1-4 7-10 12 13
				Ratio, Proportion, and Percent	8 9
	4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. - Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? - Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.	Full	PA	Embedded throughout, for example:	
				The Basics	3 4 10
				Addition and Subtraction	13-15
Multiplication and Division				5 8-10	
Fractions				13	
Draw construct, and describe geometrical figures and describe the relationships between them.					
1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	Full	PA	Ratio, Proportion, and Percent	10	
2. Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	Full	PA	PA Common Core Appendix	2	

Geometry	3. Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	Full	PA	PA Common Core Appendix	13 14
	Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.				
	4. Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	Full	PA	Perimeter and Area	9-12
	5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	Full	PA	Geometry Basics	3 6
	6. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	Full	PA	Perimeter and Area	3 7
Solid Figures				1 3 4 7 10 11	
Use random sampling to draw inferences about a population.					
	1. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	Full	PA	Counting and Probability	7
	2. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. <i>For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.</i>	Full	PA	Counting and Probability	7
Draw informal comparative inferences about two populations.					
	3. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. <i>For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.</i>	Full	PA	PA Common Core Appendix	18
	4. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. <i>For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.</i>	Full	PA	PA Common Core Appendix	19
Investigate chance processes and develop, use, and evaluate probability models.					

Statistics & Probability	5. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	Full	PA	Counting and Probability	5
	6. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. <i>For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.</i>	Full	PA	Counting and Probability	5-7
				PA Common Core Appendix	15 16
	7. Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?	Full	PA	Counting and Probability	5-7
8. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. - Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. - Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event. - Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?	Full	PA	PA Common Core Appendix	17	

**Common Core Grade Eight Math Expectations
Compared to K¹² MS Algebra (ALG) (including supplemental unit)**

Standard/Topic	Common Core Grade 8 Standards	Coverage	Course	K ¹² Unit Title	Lesson #
The Number System	Know that there are numbers that are not rational, and approximate them by rational numbers.				
	1. Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	Full	ALG	Rationals, Irrationals, and Radicals	1 2 6
	2. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). <i>For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.</i>	Full	ALG	Rationals, Irrationals, and Radicals	6-8
Expressions & Equations	Expressions and Equations Work with radicals and integer exponents.				
	1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.	Full	ALG	Factoring Polynomials	2
				Working with Polynomials	3
				ALG Common Core Appendix	6
	2. Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.	Full	ALG	Rationals, Irrationals, and Radicals	3 6 9 12-14
	3. Use numbers expressed in the form of a single digit times a whole-number power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. <i>For example, estimate the population of the United States as 3 times 10^8 and the population of the world as 7 times 10^9, and determine that the world population is more than 20 times larger.</i>	Full	ALG	ALG Common Core Appendix	7
	4. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	Full	ALG	Quadratic Equations	4
				Properties of Real Numbers	5
	Understand the connections between proportional relationships, lines, and linear equations.				
	5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.	Full	ALG	Linear Equations and Inequalities	4 5
ALG Common Core Appendix				2	
Relations and Functions				9 10	
6. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b .	Full	ALG	ALG Common Core Appendix	1	
Analyze and solve linear equations and pairs of simultaneous linear equations.					

	<p>7. Solve linear equations in one variable.</p> <ul style="list-style-type: none"> - Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). - Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. 	Full	ALG	Properties of Real Numbers	7
				Solving Equations	1-3 6 7
	<p>8. Analyze and solve pairs of simultaneous linear equations.</p> <ul style="list-style-type: none"> - Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. - Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6. - Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair. 	Full	ALG	Systems of Equations	1-3 5 6
	Define, evaluate, and compare functions.				
	<p>1. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.¹</p>	Full	ALG	Relations and Functions	3 5
	<p>2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). <i>For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.</i></p>	Full	ALG	ALG Common Core Appendix	3
	<p>3. Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. <i>For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1, 1), (2, 4) and (3, 9), which are not on a straight line.</i></p>	Full	ALG	Linear Equations and Inequalities	7 12
				Relations and Functions	9 10 12 13
	Use functions to model relationships between quantities.				
	<p>4. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or</p>	Full	ALG	Linear Equations and Inequalities	5 8 12
Functions					

	of a relationship or from the (x, y) values), including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.			Relations and Functions	9 10
	5. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	Full	ALG	Relations and Functions	9 10
				Linear Equations and Inequalities	12
	Understand congruence and similarity using physical models, transparencies, or geometry software.				
	1. Verify experimentally the properties of rotations, reflections, and translations: a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines.	Full	ALG	ALG Common Core Appendix	11 12
	2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	Full	ALG	ALG Common Core Appendix	13
	3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	Full	ALG	ALG Common Core Appendix	15
	4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	Full	ALG	ALG Common Core Appendix	13 14
Geometry	5. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. <i>For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</i>	Full	ALG	Measurement and Geometry	1-3 5
	ALG Common Core Appendix			8-10	
	Understand and apply the Pythagorean Theorem.				
	6. Explain a proof of the Pythagorean Theorem and its converse.	Full	ALG	ALG Common Core Appendix	4
	7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	Full	ALG	Rationals, Irrationals, and Radicals	13
	8. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	Full	ALG	ALG Common Core Appendix	5
	Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.				
	9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	Full	ALG	Measurement and Geometry	7
	Investigate patterns of association in bivariate data.				

Statistics & Probability	1. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	Full	ALG	ALG Common Core Appendix	16-18
	2. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	Full	ALG	ALG Common Core Appendix	18
	3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. <i>For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.</i>	Full	ALG	Linear Equations and Inequalities	5 8 12
	4. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. <i>For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?</i>	Full	ALG	ALG Common Core Appendix	19

Common Core High School Math Standards
Compared to K¹² High School Math Courses

Standard/Topic	Performance Indicator	Coverage	MTH112: Pre-Algebra	MTH122: Algebra I	MTH202: Geometry	MTH302: Algebra II	MTH403: Precalculus	MTH413: Probability/Statistics	Comments
The Real Number System N-RN									
Extend the properties of exponents to rational exponents.									
1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define $5^{1/5}$ to be the cube root of 5 because we want $(5^{1/5})^3 = 5^{(1/5) \cdot 3}$ to hold, so $(5^{1/5})^3$ must equal 5.	Full					MTH302B 2.2	MTH403A 4.1		
2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Full					MTH302A 7.3 MTH302B 2.2	MTH403A 4.1		
Use properties of rational and irrational numbers.									
3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	Full			MTH122B 2.7					
Quantities N-Q									
Reason quantitatively and use units to solve problems.									
1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	Full			MTH122A 6.2		MTH302A 8.3		MTH413 1.8	
2. Define appropriate quantities for the purpose of descriptive modeling.	Full			MTH122B 1.9 MTH122B 5.11 MTH122B 5.12	MTH202B 2.2 MTH202B 3.12 - 3.15	MTH302A 8.8 MTH302B 2.5 MTH302B 2.9	MTH403A 2.5 MTH403A 4.2 MTH403B 2.4 MTH403B 3.3		
3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	Full		MTH112A 3.6 MTH112B 3.9 MTH112B 3.11 MTH112B 5.8		MTH202A 5.6 MTH202A 5.7 MTH202B 2.1 - 2.4 MTH202B 2.6 - B 2.9 MTH202B 2.11 - 2.14				
The Complex Number System N-CN									
Perform arithmetic operations with complex numbers.									
1. Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	Full					MTH302A 7.7	MTH403B 6.3		
2. Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	Full					MTH302A 7.7	MTH403B 6.4		
3. (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.	Full						MTH403B 6.4		
Represent complex numbers and their operations on the complex plane.									
4. (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.	Full					MTH302A 7.7	MTH403B 6.1 MTH403B 6.3		
5. (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .	Full						MTH403B 6.4		
6. (+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.	Full					MTH302A 7.7 MTH302B 7.2	MTH403B 6.3		
Use complex numbers in polynomial identities and equations.									
7. Solve quadratic equations with real coefficients that have complex solutions.	Full						MTH403A 2.4		
8. (+) Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.	Full					MTH302B 1.10			
9. (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	Full						MTH403A 3.3		
Vector and Matrix Quantities N-VM									
Represent and model with vector quantities									
1. (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., \mathbf{v} , $ \mathbf{v} $, $\ \mathbf{v}\ $, v).	Full					MTH302B 6.2	MTH403B 5.3		
2. (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.	Full						MTH403B 5.3		
3. (+) Solve problems involving velocity and other quantities that can be represented by vectors.	Full						MTH403B 5.3		
Perform operations on vectors.									
4a. (+) Add and subtract vectors. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.	Full						MTH403B 5.3		
4b. (+) Add and subtract vectors. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.	Full						MTH403B 5.3		
4c. Understand vector subtraction $\mathbf{v} - \mathbf{w}$ as $\mathbf{v} + (-\mathbf{w})$, where $-\mathbf{w}$ is the additive inverse of \mathbf{w} , with the same magnitude as \mathbf{w} and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.	Full						MTH403B 5.3		
5a. (+) Multiply a vector by a scalar. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(\mathbf{v}) = c(v_x, v_y) = (cv_x, cv_y)$.	Full						MTH403B 5.3		
5b. (+) Multiply a vector by a scalar. Compute the magnitude of a scalar multiple $c\mathbf{v}$ using $\ c\mathbf{v}\ = c \mathbf{v}\ $. Compute the direction of $c\mathbf{v}$ knowing that when $ c \neq 0$, the direction of $c\mathbf{v}$ is either along \mathbf{v} (for $c > 0$) or against \mathbf{v} (for $c < 0$).	Full						MTH403B 5.3		
Perform operations on matrices and use matrices in applications.									
6. (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.	Full					MTH302B 6.2 MTH302B 6.3 MTH302B 6.5 MTH302B 6.6			
7. (+) Multiply matrices by scalars to produce new matrices, e.g., as when all the payoffs in a game are doubled.	Full					MTH302B 6.3			
8. (+) Add, subtract, and multiply matrices of appropriate dimensions.	Full					MTH302B 6.3 MTH302B 6.5			

	9. (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.	Full				MTH302B 6.5			
	10. (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.	Full				MTH302B 6.3 MTH302B 6.5			
	11. (+) Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.	Full				MTH302B 6.5 MTH302B 6.7			
	12. (+) Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.	Full				MTH302B 6.7 MTH302B 6.8			
	Seeing Structures in Expressions A-SSE								
	Interpret the structure of expressions								
	1a. Interpret expressions that represent a quantity in terms of its context. ★ Interpret parts of an expression, such as terms, factors, and coefficients.	Full	MTH112A 1.4 MTH112A 1.8	MTH122A 1.2 MTH122A 1.3		MTH302A 1.7	MTH403A 3.1 MTH403A 4.1		
	1b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P .	Full		MTH122A 4.11		MTH302A 5.5 MTH302A 5.6 MTH302A 6.7	MTH403A 2.4 MTH403A 3.1 MTH403A 3.3		
	2. Use the structure of an expression to identify ways to rewrite it. For example, see $x^2 - y^2$ as $(x^2) - (y^2)$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.	Full		MTH122B 4.8 MTH122B 4.10		MTH302A 5.5	MTH403A 2.4 MTH403A 3.3 MTH403A 3.5 MTH403A 4.1		
	Write expressions in equivalent forms to solve problems.								
	3a. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. ★ Factor a quadratic expression to reveal the zeros of the function it defines.	Full		MTH122B 4.12		MTH302A 8.6	MTH403A 2.4		
	3b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	Full		MTH122B 5.3		MTH302A 8.2-4			
	3c. Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.	Full				MTH302B 2.2 MTH302B 2.3 MTH302B 2.5	MTH403A 4.2		
	4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments. ★	Full				MTH302B 3.11	MTH403A 4.3		
	Arithmetic with Polynomial and Rational Expressions A-APR								
	Perform arithmetic operations on polynomials								
	1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	Full		MTH122B 3.2 MTH122B 3.4 MTH122B 3.5 MTH122B 3.7 MTH122B 3.8		MTH302A 5.2 MTH302A 5.3			
	Understand the relationship between zeros and factors of polynomials								
	2. Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	Full				MTH302B 1.6	MTH403A 3.2		
	3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	Full		MTH122B 4.12		MTH302B 1.7 MTH302B 1.9	MTH403A 3.3 MTH403A 3.4		
	Use polynomial identities to solve problems								
	4. Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 - (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.	Full		MTH122B 3.7					
	5. (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.	Full				MTH302A 5.3			
	Rewrite rational expressions								
	6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	Full				MTH302A 6.1-6.4	MTH403A 3.2		
	7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	Full		MTH122B 6.1 - 6.3 MTH122B 6.6		MTH302A 6.3 MTH302A 6.4			
	Creating Equations A-CED								
	Create equations that describe numbers or relationships								
	1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	Full		MTH122A 1.10 MTH122A 2.3 MTH122A 4.1 MTH122A 4.2		MTH302A 1.9 MTH302A 6.7 MTH302A 7.3 MTH302A 8.3			
	2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Full		MTH122A 7.7 MTH122A 7.8 MTH122A 7.12		MTH302A 2.9	MTH403A 2.2 MTH403A 2.5		
	3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	Full		MTH122A 8.2 MTH122A 8.3 MTH122A 8.5		MTH302A 2.9 MTH302A 4.8	MTH403A 1.5		
	4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .	Full	MTH112A 3.10	MTH122A 4.11		MTH302A 1.11			
	Reasoning with Equations and Inequalities A-REI								
	Understand solving equations as a process of reasoning and explain the reasoning								
	1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	Full	MTH112A 1.11 MTH112A 2.14 MTH112A 3.8 MTH112A 5.6	MTH122A 2.8 MTH122B 7.7		MTH302A 1.9			
	2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	Full		MTH122B 2.12 MTH122B 6.1		MTH302A 6.7 MTH302A 7.5			

Algebra

Solve equations and inequalities in one variable							
3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	Full	MTH112A 3.5 MTH112A 3.8 MTH112A 4.13 MTH112A 5.5 MTH112A 5.7	MTH122A 1.5 MTH122A 1.10 MTH122A 4.1 MTH122A 4.2 MTH122A 4.4 MTH122A 4.8 MTH122A 4.10 MTH122A 5.5		MTH302A 1.9 MTH302A 4.2		
4a. Solve quadratic equations in one variable. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.	Full		MTH122B 5.3 MTH122B 5.4		MTH302A 8.7		
4b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a ± bi$ for real numbers a and b .	Full		MTH122B 4.12 MTH122B 5.1 MTH122B 5.3 MTH122B 5.4 MTH122B 5.7		MTH302A 8.6	MTH403A 2.4	
Solve systems of equations							
5. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	Full		MTH122A 8.1 - 8.3 MTH122A 8.5		MTH302A 2.8 MTH302B 6.1	MTH403A 1.6	
6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Full		MTH122A 8.1 - 8.3 MTH122A 8.5		MTH302A 2.8 MTH302A 2.9	MTH403B 1.6	
7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.	Full					MTH403A 5.5	
8. (+) Represent a system of linear equations as a single matrix equation in a vector variable.	Full					MTH403A 1.6	
9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).	Full					MTH403A 1.6	
Represent and solve equations and inequalities graphically							
10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	Full	MTH112B 2.4 MTH112B 2.6	MTH122A 7.3		MTH302A 2.2 MTH302A 8.2	MTH403A 1.2	
11. Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.★	Full				MTH302A 2.8 MTH302B 1.8	MTH403A 1.6 MTH403A 5.5	
12. Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	Full		MTH122A 7.13 MTH122A 8.6		MTH302A 4.7 MTH302A 4.8	MTH403A 1.5 MTH403A 1.6	
Interpreting Functions F-IF							
Understand the concept of a function and use function notation							
1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.	Full	MTH112B 2.11	MTH122B 1.3		MTH302A 3.2	MTH403A 1.2	
2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	Full	MTH112B 2.12	MTH122B 1.4 MTH122B 1.5		MTH302A 3.3	MTH403A 1.1	
3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.	Full				MTH302B 3.3 MTH302B 3.4	MTH403A 1.4 MTH403A 4.3	
Interpreting functions that arise in applications in terms of the context							
4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.★	Full		MTH122B 1.4		MTH302A 5.7 MTH302A 6.9 MTH302A 8.2 MTH302B 1.9	MTH403A 2.2 MTH403A 3.4 MTH403A 4.2 MTH403B 2.1 MTH403B 2.2	
5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.★	Full		MTH122B 1.3		MTH302A 3.4 MTH302A 3.5 MTH302A 3.7 MTH302A 6.9	MTH403A 1.2 MTH403A 3.5	
6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.★	Full		MTH122A 7.4				
Analyze functions using different representations							
7a. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.★ Graph linear and quadratic functions and show intercepts, maxima, and minima.	Full	MTH112B 2.6	MTH122A 7.3 MTH122A 7.7 MTH122B 5.10		MTH302A 2.2 MTH302A 8.2-8.4	MTH403A 1.3 MTH403A 1.5 MTH403A 2.2	
7b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Full		MTH122B 1.8		MTH302A 3.4 MTH302A 3.5 MTH302A 3.7	MTH403A 1.2	
7c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	Full				MTH302B 1.9	MTH403A 3.4	
7d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.	Full				MTH302A 6.9	MTH403A 3.5	

7e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	Full				MTH302B 2.4 MTH302B 2.11	MTH403A 4.2 MTH403A 4.5		
8a. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	Full		MTH122B 4.12 MTH122B 5.3 MTH122B 5.7		MTH302A 8.6 MTH302A 8.7	MTH403A 2.4		
8b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^x$, $y = (0.97)^x$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.	Full				MTH302B 2.5	MTH403A 4.2		
9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.	Full				MTH302A 3.9 - 3.11			
Building Functions F-BF								
Build a function that models a relationship between two quantities								
1a. Write a function that describes a relationship between two quantities. ★ Determine an explicit expression, a recursive process, or steps for calculation from a context.	Full				MTH302A 3.5 MTH302A 3.7 MTH302A 8.8 MTH302B 2.5	MTH403A 2.5 MTH403A 4.2		
1b. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.	Full				MTH302A 3.9	MTH403A 1.7		
1c. (+) Compose functions. For example, if $T(y)$ is the temperature in the atmosphere as a function of height, and $h(t)$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.	Full				MTH302A 3.10	MTH403A 1.7		
2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ★	Full				MTH302B 3.3 MTH302B 3.4 MTH302B 3.7	MTH403A 1.4 MTH403A 4.3		
Build new functions from existing functions								
3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	Full				MTH302A 5.7 MTH302A 6.9 MTH302A 8.2 MTH302A 8.3 MTH302B 2.4 MTH302B 2.11	MTH403A 2.3 MTH403A 4.2 MTH403B 2.3 MTH403B 2.4		
4a. Find inverse functions. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.	Full				MTH302A 3.11	MTH403B 3.1		
4b. (+) Verify by composition that one function is the inverse of another.	Full				MTH302A 3.11			
4c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.	Full					MTH403B 3.1		
4d. (+) Produce an invertible function from a non-invertible function by restricting the domain.	Full				MTH302A 3.11			
5. (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.	Full				MTH302B 2.8 MTH302B 2.9	MTH403A 4.4 MTH403A 4.5		
Linear, Quadratic, and Exponential Models F-LE								
Construct and compare linear, quadratic, and exponential models and solve problems								
1a. Distinguish between situations that can be modeled with linear functions and with exponential functions. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	Full				MTH302A 2.6 MTH302A 2.7 MTH302B 2.5 MTH302B 2.6	MTH403A 1.3 MTH403A 4.2		
1b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	Full		MTH122B 1.9 MTH122B 1.10					
1c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	Full				MTH302B 2.5			
2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	Full		MTH122A 7.10 MTH122A 1.4		MTH302B 3.3 MTH302B 3.4	MTH403A 1.3 MTH403A 1.4 MTH403A 4.2 MTH403A 4.3		
3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	Full				MTH302B 2.4			
4. For exponential models, express as a logarithm the solution to $a_0c^t = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.	Full				MTH302B 2.9	MTH403A 4.4		
Interpret expressions for functions in terms of the situation they model								
5. Interpret the parameters in a linear or exponential function in terms of a context.	Full				MTH302A 2.6 MTH302B 2.5	MTH403A 1.3 MTH403A 4.2		
Trigonometric Functions F-TF								
Extend the domain of trigonometric functions using the unit circle								
1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	Full					MTH403B 1.2		
2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	Full					MTH403B 1.3		
3. (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi - x$, $\pi + x$, and $2\pi - x$ in terms of their values for x , where x is any real number.	Full					MTH403B 2.1 MTH403B 2.4 MTH403B 3.3		
4. (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.	Full					MTH403B 2.1 MTH403B 2.2		

Functions

Model periodic phenomena with trigonometric functions								
5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.★	Full						MTH403B 2.1 MTH403B 2.4 MTH403B 3.3	
6. (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.	Full						MTH403B 3.1	
7. (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.★	Full						MTH403B 3.1	
Prove and apply trigonometric identities								
8. Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.	Full					MTH202B 5.4	MTH403B 4.1	
9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.	Full						MTH403B 4.2	
Congruence G-GO								
Experiments with transformations in the plane								
1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	Full	MTH112A 7.1 - 7.3 MTH112A 7.8				MTH202A 1.2 MTH202A 1.4 MTH202A 1.7 - 1.9 MTH202A 5.6 MTH202B 4.1 MTH202B 4.2	MTH403A 1.3 MTH403A 5.1 MTH403B 1.1	
2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	Full					MTH202A 1.14 MTH202A 1.15 MTH202A 1.17 MTH202B 3.2		
3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	Full					MTH202A 3.2		
4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	Full	MTH112A 7.9				MTH202A 1.14 MTH202A 1.15		
5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	Full	MTH112A 7.9				MTH202A 1.14 MTH202A 1.15 MTH202A 1.17 MTH202A 3.2		
Understand congruence in terms of rigid motions								
6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	Full					MTH202A 1.14 MTH202A 1.15 MTH202A 3.2 MTH202A 4.1 - 4.6 MTH202A 4.8		
7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	Full					MTH202A 4.3 - 4.6 MTH202A 4.8		
8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	Full					MTH202A 4.3 MTH202A 4.4		
Prove geometric theorems								
9. Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.	Full	MTH112A 7.3				MTH202A 1.10 MTH202A 3.5 MTH202A 3.6		
10. Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.	Full	MTH112A 7.6				MTH202A 1.13 MTH202A 3.11 MTH202A 3.12 MTH202A 4.5 MTH202A 4.6 MTH202A 5.14		
11. Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.	Full					MTH202A 4.12		
Make geometric constructions								
12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.	Full					MTH202A 1.4 MTH202A 1.9 MTH202A 1.10 MTH202A 1.13 MTH202A 4.14		
13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	Full					MTH202A 4.16		
Similarity, Right Triangles, and Trigonometry G-SRT								
Understand similarity in terms of similarity transformations								
1a. Verify experimentally the properties of dilations given by a center and a scale factor: A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	Full					MTH202B 3.1 MTH202B 3.2		
1b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	Full					MTH202B 3.1 MTH202B 3.2		
2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	Full	MTH112B 1.10				MTH202B 3.6 MTH202B 3.8		
3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	Full					MTH202B 3.6		
Prove theorems involving similarity								
4. Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	Full					MTH202B 3.8 MTH202B 3.9 MTH202B 3.10		

5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	Full			MTH202B 3.8 - 3.10 MTH202B 3.12 MTH202B 3.13				
Define trigonometric ratios and solve problems involving right triangles								
6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	Full			MTH202A 4.3 - 4.6 MTH202A 4.8 MTH202A 4.9		MTH403B 1.1		
7. Explain and use the relationship between the sine and cosine of complementary angles.	Full			MTH202B 5.4				
8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.★	Full	MTH112B 4.4 MTH112B 4.6	MTH122B 2.13	MTH202B 5.1 - 5.3 MTH202B 5.5 MTH202B 5.6 MTH202B 5.9		MTH403B 1.1		
Apply trigonometry to general triangles								
9. (+) Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	Full			MTH202B 5.3				
10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.	Full			MTH202B 5.7		MTH403B 5.1 MTH403B 5.2		
11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).	Full			MTH202B 5.7		MTH403B 5.1 MTH403B 5.2		
Circles G-C								
Understand and apply theorems about circles								
1. Prove that all circles are similar.	Full			MTH202B 3.3 MTH202B 4.13				
2. Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	Full			MTH202B 4.6 - 4.10 MTH202B 4.12				
3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	Full			MTH202A 1.13 MTH202B 4.7				
4. (+) Construct a tangent line from a point outside a given circle to the circle.	Full			MTH202B 4.3				
Find arc lengths and areas of sectors of circles								
5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	Full			MTH202A 5.7 MTH202B 4.2 MTH202B 4.12				
Expressing Geometric Properties with Equations G-GPE								
Translate between the geometric description and the equation for a conic section								
1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	Full			MTH202B 4.13	MTH302B 7.3	MTH403A 5.1		
2. Derive the equation of a parabola given a focus and directrix.	Full				MTH302B 7.8	MTH403A 5.4		
3. (+) Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.	Full				MTH302B 7.7	MTH403A 5.2 MTH403A 5.3		
Use coordinates to prove simple geometric theorems algebraically								
4. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.	Full			MTH202A 5.15 MTH202B 4.13 MTH202B 4.14				
5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	Full		MTH122B 7.9	MTH202A 3.19	MTH302A 2.4			
6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	Full			MTH202A 1.5				
7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.★	Full	MTH112B 4.7		MTH202A 5.13				
Geometric Measurement and Dimension G-GMD								
Explain volume formulas and use them to solve problems								
1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	Full			MTH202A 5.8 MTH202A 5.7 MTH202A 5.11 MTH202B 2.4 MTH202B 2.7 MTH202B 2.9 MTH202B 2.12				
2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.	Full			MTH202B 2.4 MTH202B 2.7 MTH202B 2.9 MTH202B 2.12 MTH202B 2.13				
3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.★	Full	MTH112B 5.4 MTH112B 5.5 MTH112B 5.7 MTH112B 5.8		MTH202B 2.7 MTH202B 2.9 MTH202B 2.12 MTH202B 2.13				
Visualize relationships between two-dimensional and three-dimensional objects								
4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	Full			MTH202B 1.3	MTH302B 7.2-7.4	MTH403A 5.2-5.4		
Modeling with Geometry G-MG								
Apply geometric concepts in modeling situations								

	1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).★	Full			MTH202B 2.8 MTH202B 2.11 - 2.13			
	2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).★	Full			MTH202B 2.14			
	3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).★	Full			MTH202A 5.11			
Interpreting Categorical and Quantitative Data S-ID								
Summarize, represent, and interpret data on a single count or measurement variable								
	1. Represent data with plots on the real number line (dot plots, histograms, and box plots).	Full	MTH112B 7.6 MTH112B 7.7			MTH302B 5.3 MTH302B 5.8	MTH413 1.6 MTH413 1.9 MTH413 2.3	
	2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	Full				MTH302B 5.2 MTH302B 5.3	MTH413 2.2 MTH413 2.3-2.5 MTH413 2.7-2.9	
	3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	Full	MTH112B 7.2 MTH112B 7.3 MTH112B 7.5 MTH112B 7.7			MTH302B 5.2 MTH302B 5.3 MTH302B 5.9	MTH413 1.6 MTH413 2.2 MTH413 2.3-2.5 MTH413 2.7-2.9	
	4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	Full				MTH302B 5.9	MTH413 4.7 MTH413 4.8 MTH413 4.10-4.13	
Summarize, represent, and interpret data on two categorical and quantitative variables								
	5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	Full					MTH413 1.4 MTH413 1.5 MTH413 1.8 MTH413 1.9 MTH413 3.6 MTH413 3.12 MTH413 7.3-7.5 MTH413 7.7 MTH413 7.8	
	6a. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.	Full	MTH112B 7.2			MTH302A 2.6 MTH302A 8.3 MTH302B 2.4 MTH302B 5.10	MTH413 7.2-7.5 MTH413 7.8	
	6b. Informally assess the fit of a function by plotting and analyzing residuals.	Full					MTH413 7.10	
	6c. Fit a linear function for a scatter plot that suggests a linear association.	Full				MTH302A 2.6 MTH302B 5.10	MTH413 7.4 MTH413 7.5 MTH413 7.7 MTH413 7.8	
Interpret linear models								
	7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	Full		MTH122A 7.4		MTH302A 2.6	MTH413 7.4 MTH413 7.7	
	8. Compute (using technology) and interpret the correlation coefficient of a linear fit.	Full					MTH413 7.4 MTH413 7.5 MTH413 7.7	
	9. Distinguish between correlation and causation.	Full					MTH413 7.4 MTH413 7.11	
Making Inferences and Justifying Conclusions S-IC								
Understand and evaluate random processes underlying statistical experiments								
	1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	Full	MTH112B 6.7 MTH112B 7.2			MTH302B 5.4	MTH413 5.1 MTH413 5.2 MTH413 5.7	
	2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?	Full	MTH112B 6.5			MTH302B 4.5 MTH302B 4.8 MTH302B 4.11	MTH413 3.13 MTH413 5.6	
Make inferences and justify conclusions from sample surveys, experiments, and observational studies								
	3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	Full	MTH112B 6.7			MTH302B 5.4	MTH413 3.13 MTH413 5.3 MTH413 5.6	
	4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	Full					MTH413 5.2 MTH413 5.7 MTH413 5.8	
	5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	Full					MTH413 6.4	
	6. Evaluate reports based on data.	Full					MTH413 7.8	
Conditional Probability and the Rules of Probability S-CP								
Understand independence and conditional probability and use them to interpret data								
	1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").	Full				MTH302B 4.2 MTH302B 4.5 MTH302B 4.9 MTH302B 4.10	MTH413 3.2 MTH413 3.6 MTH413 3.9 MTH413 3.10	
	2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	Full				MTH302B 4.8	MTH413 3.2 MTH413 3.12	
	3. Understand the conditional probability of A given B as $P(A B)$ and $P(B A)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	Full				MTH302B 4.8	MTH413 3.6 MTH413 3.12	

Statistics and Probability

4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.	Full						MTH413 1.5 MTH413 3.12	
5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.	Full				MTH302B 4.8		MTH413 3.6 MTH413 3.12	
Use the rules of probability to compute probabilities of compound events in a uniform probability model								
6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.	Full				MTH302B 4.8		MTH413 3.6 MTH413 3.12	
7. Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.	Full	MTH112B 6.6			MTH302B 4.9		MTH413 3.9 MTH413 3.10	
8. (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.	Full				MTH302B 4.7		MTH413 3.12	
9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.	Full				MTH302B 4.5		MTH413 3.3-3.6	
Using Probability to Make Decisions S-MD								
Calculate expected values and use them to solve problems								
1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.	Full						MTH413 4.2 MTH413 4.3	
2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.	Full						MTH413 4.4	
3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.	Full						MTH413 4.2 MTH413 4.3	
4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?	Full						MTH413 4.2 MTH413 4.3 MTH413 4.7	
Use probability to evaluate outcomes of decisions								
5a. (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.	Full						MTH413 4.4	
5b. Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.	Full						MTH413 4.4	
6. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).	Full						MTH413 4.4 MTH413 5.6 MTH413 5.7	
7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).	Full						MTH413 4.4	

**Common Core High School Math Standards
Compared to K¹² MTH112: Pre-Algebra**

Standard/Topic	Performance Indicator	Coverage	Course, Unit, Lesson	Comments
The Real Number System N-RN				
Extend the properties of exponents to rational exponents.				
	1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Use properties of rational and irrational numbers.				
	3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	None		This concept is addressed in MTH122: Algebra I.
Quantities N-Q				
Reason quantitatively and use units to solve problems.				
	1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	Partial	MTH112B 5.1	This concept is addressed in MTH122: Algebra I, MTH302: Algebra II, and MTH413: Probability and Statistics.
	2. Define appropriate quantities for the purpose of descriptive modeling.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	Full	MTH112A 3.6 MTH112B 3.9 MTH112B 3.11 MTH112B 5.8	
The Complex Number System N-CN				
Perform arithmetic operations with complex numbers.				
	1. Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	2. Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	3. (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Represent complex numbers and their operations on the complex plane.				
	4. (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
	5. (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .	None		This concept is addressed in MTH403: Precalculus/Trigonometry.

Number and Quantity

6. (+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.	None		This concept is addressed in MTH202: Geometry and MTH403: Precalculus/Trigonometry.
Use complex numbers in polynomial identities and equations.			
7. Solve quadratic equations with real coefficients that have complex solutions.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
8. (+) Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Vector and Matrix Quantities N-VM			
Represent and model with vector quantities			
1. (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., v , $ v $, $\ v\ $, v).	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
2. (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
3. (+) Solve problems involving velocity and other quantities that can be represented by vectors.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Perform operations on vectors.			
4a. (+) Add and subtract vectors. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4b. (+) Add and subtract vectors. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4c. Understand vector subtraction $v - w$ as $v + (-w)$, where $-w$ is the additive inverse of w , with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
5a. (+) Multiply a vector by a scalar. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
5b. (+) Multiply a vector by a scalar. Compute the magnitude of a scalar multiple cv using $\ cv\ = c v$. Compute the direction of cv knowing that when $ c v \neq 0$, the direction of cv is either along v (for $c > 0$) or against v (for $c < 0$).	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Perform operations on matrices and use matrices in applications.			
6. (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.	None		This concept is addressed in MTH302: Algebra II.
7. (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.	None		This concept is addressed in MTH302: Algebra II.
8. (+) Add, subtract, and multiply matrices of appropriate dimensions.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.	None		This concept is addressed in MTH302: Algebra II.
10. (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.	None		This concept is addressed in MTH302: Algebra II.

11. (+) Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.	None		This concept is addressed in MTH302: Algebra II.
12. (+) Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.	None		This concept is addressed in MTH302: Algebra II.
Seeing Structures in Expressions A-SSE			
Interpret the structure of expressions			
1a. Interpret expressions that represent a quantity in terms of its context. ★ Interpret parts of an expression, such as terms, factors, and coefficients.	Full	MTH112A 1.4 MTH112A 1.8	
1b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
2. Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Write expressions in equivalent forms to solve problems.			
3a. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. ★ Factor a quadratic expression to reveal the zeros of the function it defines.	None		This concept is addressed in MTH122: Algebra I, MTH302: Algebra II, and MTH403: Precalculus/Trigonometry.
3b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	None		This concept is addressed in MTH302: Algebra II.
3c. Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments. ★	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Arithmetic with Polynomial and Rational Expressions A-APR			
Perform arithmetic operations on polynomials			
1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Understand the relationship between zeros and factors of polynomials			
2. Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Use polynomial identities to solve problems			
4. Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.	None		This concept is addressed in MTH122: Algebra I.

Algebra

5. (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.	None		This concept is addressed in MTH302: Algebra II.
Rewrite rational expressions			
6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	None		This concept is addressed in MTH302: Algebra II.
7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	None		This concept is addressed in MTH302: Algebra II.
Creating Equations A-CED			
Create equations that describe numbers or relationships			
1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	None		This concept is addressed in MTH122: Algebra I.
2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .	Full	MTH112A 3.10	
Reasoning with Equations and Inequalities A-REI			
Understand solving equations as a process of reasoning and explain the reasoning			
1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	Full	MTH112A 1.11 MTH112A 2.14 MTH112A 3.8 MTH112A 5.6	
2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Solve equations and inequalities in one variable			
3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	Full	MTH112A 3.5 MTH112A 3.8 MTH112A 4.13 MTH112A 5.5 MTH112A 5.7	

4a. Solve quadratic equations in one variable. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
4b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Solve systems of equations			
5. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	None		This concept is addressed in MTH122: Algebra I, MTH302: Algebra II, and MTH403: Precalculus/Trigonometry.
7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
8. (+) Represent a system of linear equations as a single matrix equation in a vector variable.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Represent and solve equations and inequalities graphically			
10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	Full	MTH112B 2.4 MTH112B 2.6	
11. Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. ★	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
12. Graph the solutions to a linear inequality in two variables as a halfplane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	None		This concept is addressed in MTH122: Algebra I, MTH302: Algebra II, and MTH403: Precalculus/Trigonometry.
Interpreting Functions F-IF			
Understand the concept of a function and use function notation			

1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.	Partial	MTH112B 2.11	This concept is also addressed in MTH122: Algebra I, MTH302: Algebra II, and MTH403: Precalculus/Trigonometry.
2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	Partial	MTH112B 2.12	This concept is also addressed in MTH122: Algebra I, MTH302: Algebra II, and MTH403: Precalculus/Trigonometry.
3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Interpreting functions that arise in applications in terms of the context			
4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. ★	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function. ★	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. ★	None		This concept is addressed in MTH122: Algebra I.
Analyze functions using different representations			
7a. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. ★ Graph linear and quadratic functions and show intercepts, maxima, and minima.	Partial	MTH112B 2.6	This concept is also addressed in MTH122: Algebra I, MTH302: Algebra II, and MTH403: Precalculus/Trigonometry.
7b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	None		This concept is addressed in MTH302: Algebra II.
7c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
7d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
7e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.

	8a. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	8b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.	None		This concept is addressed in MTH302: Algebra II.
Building Functions F-BF				
Build a function that models a relationship between two quantities				
	1a. Write a function that describes a relationship between two quantities. ★ Determine an explicit expression, a recursive process, or steps for calculation from a context.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	1b. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	1c. (+) Compose functions. For example, if $T(y)$ is the temperature in the atmosphere as a function of height, and $h(t)$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ★	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Build new functions from existing functions				
	3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	4a. Find inverse functions. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	4b. (+) Verify by composition that one function is the inverse of another.	None		This concept is addressed in MTH302: Algebra II.
	4c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	4d. (+) Produce an invertible function from a non-invertible function by restricting the domain.	None		This concept is addressed in MTH302: Algebra II.

Functions

5. (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Linear, Quadratic, and Exponential Models F-LE			
Construct and compare linear, quadratic, and exponential models and solve problems			
1a. Distinguish between situations that can be modeled with linear functions and with exponential functions. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
1b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	None		This concept is addressed in MTH122: Algebra I.
1c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	None		This concept is addressed in MTH302: Algebra II.
2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	None		This concept is addressed in MTH302: Algebra II.
4. For exponential models, express as a logarithm the solution to $a_b c^t = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Interpret expressions for functions in terms of the situation they model			
5. Interpret the parameters in a linear or exponential function in terms of a context.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Trigonometric Functions F-TF			
Extend the domain of trigonometric functions using the unit circle			
1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
3. (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi-x$, $\pi+x$, and $2\pi-x$ in terms of their values for x , where x is any real number.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4. (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Model periodic phenomena with trigonometric functions			
5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline. ★	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
6. (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.

7. (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context. ★	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Prove and apply trigonometric identities			
8. Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Congruence G-CO			
Experiments with transformations in the plane			
1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	Full	MTH112A 7.1 - 7.3 MTH112A 7.8	
2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	None		This concept is addressed in MTH202: Geometry.
3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	None		This concept is addressed in MTH202: Geometry.
4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	Partial	MTH112A 7.9	This concept is also addressed in MTH202: Geometry.
5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	Partial	MTH112A 7.9	This concept is also addressed in MTH202: Geometry.
Understand congruence in terms of rigid motions			
6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	None		This concept is addressed in MTH202: Geometry.
7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	None		This concept is addressed in MTH202: Geometry.
8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	None		This concept is addressed in MTH202: Geometry.
Prove geometric theorems			
9. Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.	Partial	MTH112A 7.3	This concept is also addressed in MTH202: Geometry.
10. Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180° ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.	Partial	MTH112A 7.6	This concept is also addressed in MTH202: Geometry.

	11. Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.	None		This concept is addressed in MTH202: Geometry.
Make geometric constructions				
	12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.	None		This concept is addressed in MTH202: Geometry
	13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	None		This concept is addressed in MTH202: Geometry.
Similarity, Right Triangles, and Trigonometry G-SRT				
Understand similarity in terms of similarity transformations				
	1a. Verify experimentally the properties of dilations given by a center and a scale factor: A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	None		This concept is addressed in MTH202: Geometry
	1b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	None		This concept is addressed in MTH202: Geometry.
	2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	Full	MTH112B 1.10	
	3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	None		This concept is addressed in MTH202: Geometry
Prove theorems involving similarity				
	4. Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	None		This concept is addressed in MTH202: Geometry
	5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	None		This concept is addressed in MTH202: Geometry.
Define trigonometric ratios and solve problems involving right triangles				
	6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	None		This concept is addressed in MTH202: Geometry and MTH403: Precalculus/Trigonometry.
	7. Explain and use the relationship between the sine and cosine of complementary angles.	None		This concept is addressed in MTH202: Geometry.
	8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.★	Partial	MTH112B 4.4 MTH112B 4.6	This concept is also addressed in MTH122: Algebra I, MTH202: Geometry and MTH403: Precalculus/Trigonometry.
Apply trigonometry to general triangles				

Geometry

9. (+) Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	None		This concept is addressed in MTH202: Geometry
10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.	None		This concept is addressed in MTH202: Geometry and MTH403: Precalculus/Trigonometry.
11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).	None		This concept is addressed in MTH202: Geometry and MTH403: Precalculus/Trigonometry.
Circles G-C			
Understand and apply theorems about circles			
1. Prove that all circles are similar.	None		This concept is addressed in MTH202: Geometry.
2. Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	None		This concept is addressed in MTH202: Geometry.
3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	None		This concept is addressed in MTH202: Geometry.
4. (+) Construct a tangent line from a point outside a given circle to the circle.	None		This concept is addressed in MTH202: Geometry.
Find arc lengths and areas of sectors of circles			
5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	None		This concept is addressed in MTH202: Geometry and MTH403: Precalculus/Trigonometry.
Expressing Geometric Properties with Equations G-GPE			
Translate between the geometric description and the equation for a conic section			
1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	None		This concept is addressed in MTH202: Geometry, MTH302: Algebra II, and MTH403: Precalculus/Trigonometry.
2. Derive the equation of a parabola given a focus and directrix.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
3. (+) Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Use coordinates to prove simple geometric theorems algebraically			
4. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.	None		This concept is addressed in MTH202: Geometry.
5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	None		This concept is addressed in MTH202: Geometry and MTH302: Algebra II.
6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	None		This concept is addressed in MTH202: Geometry.

7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. ★	Partial	MTH112B 4.7	This concept is also addressed in MTH202: Geometry.
Geometric Measurement and Dimension G-GMD			
Explain volume formulas and use them to solve problems			
1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	None		This concept is addressed in MTH202:Geometry.
2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.	None		This concept is addressed in MTH202:Geometry.
3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. ★	Partial	MTH112B 5.4 MTH112B 5.5 MTH112B 5.7 MTH112B 5.8	This concept is also addressed in MTH202: Geometry.
Visualize relationships between two-dimensional and three-dimensional objects			
4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Modeling with Geometry G-MG			
Apply geometric concepts in modeling situations			
1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). ★	None		This concept is addressed in MTH202: Geometry.
2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot). ★	None		This concept is addressed in MTH202: Geometry.
3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). ★	None		This concept is addressed in MTH202: Geometry.
Interpreting Categorical and Quantitative Data S-ID			
Summarize, represent, and interpret data on a single count or measurement variable			
1. Represent data with plots on the real number line (dot plots, histograms, and box plots).	Partial	MTH112B 7.6 MTH112B 7.7	This concept is also addressed in MTH302: Algebra II and MTH413: Probability and Statistics.
2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	None		This concept is addressed in MTH302: Algebra II.
3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	Full	MTH112B 7.2 MTH112B 7.3 MTH112B 7.5 MTH112B 7.7	
4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	None		This concept is addressed in MTH302: Algebra II and MTH413: Probability and Statistics.
Summarize, represent, and interpret data on two categorical and quantitative variables			

5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	None		This concept is addressed in MTH413: Probability and Statistics.
6a. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.	Partial	MTH112B 7.2	This concept is also addressed in MTH302: Algebra II and MTH413: Probability and Statistics.
6b. Informally assess the fit of a function by plotting and analyzing residuals.	None		This concept is addressed in MTH413: Probability and Statistics.
6c. Fit a linear function for a scatter plot that suggests a linear association.	None		This concept is covered in MTH302: Algebra II.
Interpret linear models			
7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	None		This concept is covered in MTH122: Algebra I and MTH302: Algebra II.
8. Compute (using technology) and interpret the correlation coefficient of a linear fit.	None		This concept is addressed in MTH413: Probability and Statistics.
9. Distinguish between correlation and causation.	None		This concept is addressed in MTH413: Probability and Statistics.
Making Inferences and Justifying Conclusions S-IC			
Understand and evaluate random processes underlying statistical experiments			
1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	Full	MTH112B 6.7 MTH112B 7.2	
2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?	Full	MTH112B 6.5	
Make inferences and justify conclusions form sample surveys, experiments, and observational studies			
3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	Partial	MTH112B 6.7	This concept is also addressed in MTH302: Algebra II and MTH413: Probability and Statistics.
4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	None		This concept is addressed in MTH413: Probability and Statistics.
5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	None		This concept is addressed in MTH413: Probability and Statistics.

Statistics and Probability

6. Evaluate reports based on data.	None		This concept is addressed in MTH413: Probability and Statistics.
Conditional Probability and the Rules of Probability S-CP			
Understand independence and conditional probability and use them to interpret data			
1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").	None		This concept is addressed in MTH302: Algebra II.
2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	None		This concept is addressed in MTH302: Algebra II.
3. Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	None		This concept is addressed in MTH302: Algebra II.
4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.	None		This concept is addressed in MTH413: Probability and Statistics.
5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.	None		This concept is addressed in MTH302: Algebra II.
Use the rules of probability to compute probabilities of compound events in a uniform probability model			
6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.	None		This concept is addressed in MTH302: Algebra II.
7. Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.	Partial	MTH112B 6.6	This concept is also addressed in MTH302: Algebra II and MTH413: Probability and Statistics.
8. (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.	None		This concept is addressed in MTH302: Algebra II.
Using Probability to Make Decisions S-MD			
Calculate expected values and use them to solve problems			
1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.	None		This concept is addressed in MTH413: Probability and Statistics.
2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.	None		This concept is addressed in MTH413: Probability and Statistics.

3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.	None		This concept is addressed in MTH413: Probability and Statistics.
4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?	None		This concept is addressed in MTH413: Probability and Statistics.
Use probability to evaluate outcomes of decisions			
5a. (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fastfood restaurant.	None		This concept is addressed in MTH413: Probability and Statistics.
5b. Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.	None		This concept is addressed in MTH413: Probability and Statistics.
6. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).	None		This concept is addressed in MTH413: Probability and Statistics.
7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).	None		This concept is addressed in MTH413: Probability and Statistics.

**Common Core High School Math Standards
Compared to K¹² MTH122: Algebra I**

Standard/Topic	Performance Indicator	Coverage	Course, Unit, Lesson	Comments
The Real Number System N-RN				
Extend the properties of exponents to rational exponents.				
	1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Use properties of rational and irrational numbers.				
	3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	Full	MTH122B 2.7	
Quantities N-Q				
Reason quantitatively and use units to solve problems.				
	1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	Full	MTH122A 6.2	
	2. Define appropriate quantities for the purpose of descriptive modeling.	Full	MTH122B 1.9 MTH122B 5.11 MTH122B 5.12	
	3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	None		This concept is addressed in MTH202: Geometry.
The Complex Number System N-CN				
Perform arithmetic operations with complex numbers.				
	1. Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
	2. Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
	3. (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Represent complex numbers and their operations on the complex plane.				
	4. (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
	5. (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
	6. (+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.

Number and Quantity

Use complex numbers in polynomial identities and equations.			
7. Solve quadratic equations with real coefficients that have complex solutions.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
8. (+) Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Vector and Matrix Quantities N-VM			
Represent and model with vector quantities			
1. (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., v , $ v $, $\ v\ $, \vec{v}).	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
2. (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
3. (+) Solve problems involving velocity and other quantities that can be represented by vectors.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Perform operations on vectors.			
4a. (+) Add and subtract vectors. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4b. (+) Add and subtract vectors. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4c. Understand vector subtraction $v - w$ as $v + (-w)$, where $-w$ is the additive inverse of w , with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
5a. (+) Multiply a vector by a scalar. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
5b. (+) Multiply a vector by a scalar. Compute the magnitude of a scalar multiple cv using $\ cv\ = c v$. Compute the direction of cv knowing that when $ c v \neq 0$, the direction of cv is either along v (for $c > 0$) or against v (for $c < 0$).	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Perform operations on matrices and use matrices in applications.			
6. (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.	None		This concept is addressed in MTH302: Algebra II.
7. (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.	None		This concept is addressed in MTH302: Algebra II.
8. (+) Add, subtract, and multiply matrices of appropriate dimensions.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.	None		This concept is addressed in MTH302: Algebra II.
10. (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.	None		This concept is addressed in MTH302: Algebra II.
11. (+) Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.	None		This concept is addressed in MTH302: Algebra II.

12. (+) Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.	None		This concept is addressed in MTH302: Algebra II.
Seeing Structures in Expressions A-SSE			
Interpret the structure of expressions			
1a. Interpret expressions that represent a quantity in terms of its context. ★ Interpret parts of an expression, such as terms, factors, and coefficients.	Full	MTH122A 1.2 MTH122A 1.3	
1b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.	Full	MTH122A 4.11	
2. Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.	Full	MTH122B 4.8 MTH122B 4.10	
Write expressions in equivalent forms to solve problems.			
3a. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. ★ Factor a quadratic expression to reveal the zeros of the function it defines.	Full	MTH122B 4.12	
3b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	Partial	MTH122B 5.3	This concept is also addressed in MTH302: Algebra II.
3c. Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.	None		This concept is addressed in MTH302: Algebra II.
4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments. ★	None		This concept is addressed in MTH302: Algebra II.
Arithmetic with Polynomial and Rational Expressions A-APR			
Perform arithmetic operations on polynomials			
1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	Partial	MTH122B 3.2 MTH122B 3.4 MTH122B 3.5 MTH122B 3.7 MTH122B 3.8	This concept is also addressed in MTH302: Algebra II.
Understand the relationship between zeros and factors of polynomials			
2. Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	Partial	MTH122B 4.12	This concept is also addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Use polynomial identities to solve problems			
4. Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.	Full	MTH122B 3.7	
5. (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.	None		This concept is addressed in MTH302: Algebra II.
Rewrite rational expressions			

Algebra	6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	None		This concept is addressed in MTH302: Algebra II.
	7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	Partial	MTH122B 6.1 - 6.3 MTH122B 6.6	This concept is also addressed in MTH302: Algebra II.
	Creating Equations A-CED			
	Create equations that describe numbers or relationships			
	1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	Partial	MTH122A 1.10 MTH122A 2.3 MTH122A 4.1 MTH122A 4.2 MTH122A 4.4 MTH122A 4.8 MTH122A 4.10 MTH122A 5.2 MTH122A 5.4 MTH122A 5.5	This concept is also addressed in MTH302: Algebra II.
	2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Full	MTH122A 7.7 MTH122A 7.8 MTH122A 7.12	
	3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	Full	MTH122A 8.2 MTH122A 8.3 MTH122A 8.5	
	4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .	Full	MTH122A 4.11	
	Reasoning with Equations and Inequalities A-REI			
	Understand solving equations as a process of reasoning and explain the reasoning			
1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	Full	MTH122A 2.8 MTH122B 7.7		
2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	Partial	MTH122B 2.12 MTH122B 6.1	This concept is also addressed in MTH302: Algebra II.	
Solve equations and inequalities in one variable				

3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	Full	MTH122A 1.5 MTH122A 1.10 MTH122A 4.1 MTH122A 4.2 MTH122A 4.4 MTH122A 4.8 MTH122A 4.10 MTH122A 5.5	
4a. Solve quadratic equations in one variable. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.	Full	MTH122B 5.3 MTH122B 5.4	
4b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .	Partial	MTH122B 4.12 MTH122B 5.1 MTH122B 5.3 MTH122B 5.4 MTH122B 5.7	This concept is addressed in MTH302: Algebra II.
Solve systems of equations			
5. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	Full	MTH122A 8.1 - 8.3 MTH122A 8.5	
6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Full	MTH122A 8.1 - 8.3 MTH122A 8.5	
7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
8. (+) Represent a system of linear equations as a single matrix equation in a vector variable.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Represent and solve equations and inequalities graphically			
10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	Full	MTH122A 7.3	
11. Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. ★	None		This concept is addressed in MTH302: Algebra II.

12. Graph the solutions to a linear inequality in two variables as a halfplane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	Full	MTH122A 7.13 MTH122A 8.6	
Interpreting Functions F-IF			
Understand the concept of a function and use function notation			
1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.	Full	MTH122B 1.3	
2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	Full	MTH122B 1.4 MTH122B 1.5	
3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.	None		This concept is addressed in MTH302: Algebra II.
Interpreting functions that arise in applications in terms of the context			
4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.★	Partial	MTH122B 1.4	This concept is also addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.★	Full	MTH122B 1.3	
6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.★	Full	MTH122A 7.4	
Analyze functions using different representations			
7a. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.★ Graph linear and quadratic functions and show intercepts, maxima, and minima.	Partial	MTH122A 7.3 MTH122A 7.7 MTH122B 5.10	This concept is also addressed in MTH112: Pre-Algebra, MTH302: Algebra II, and MTH403: Precalculus/Trigonometry.
7b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Partial	MTH122B 1.8	This concept is also addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
7c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.

	7d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.	
	7e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.	
	8a. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	Partial	MTH122B 4.12 MTH122B 5.3 MTH122B 5.7	This concept is also addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.	
	8b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.	
	9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.	None		This concept is addressed in MTH302: Algebra II.	
Building Functions F-BF					
Build a function that models a relationship between two quantities					
	1a. Write a function that describes a relationship between two quantities. ★ Determine an explicit expression, a recursive process, or steps for calculation from a context.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.	
	1b. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.	
	1c. (+) Compose functions. For example, if $T(y)$ is the temperature in the atmosphere as a function of height, and $h(t)$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.	
Functions	2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ★	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.	
	Build new functions from existing functions				
	3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	None			This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	4a. Find inverse functions. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.	

4b. (+) Verify by composition that one function is the inverse of another.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
4c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
4d. (+) Produce an invertible function from a non-invertible function by restricting the domain.	None		This concept is addressed in MTH302:Algebra II.
5. (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Linear, Quadratic, and Exponential Models F-LE			
Construct and compare linear, quadratic, and exponential models and solve problems			
1a. Distinguish between situations that can be modeled with linear functions and with exponential functions. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
1b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	Full	MTH122B 1.9 MTH122B 1.10	
1c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	None		This concept is addressed in MTH302: Algebra II.
2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	Partial	MTH122A 7.10 MTH122A 1.4	This concept is also addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	None		This concept is addressed in MTH302: Algebra II.
4. For exponential models, express as a logarithm the solution to $ab^t = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Interpret expressions for functions in terms of the situation they model			
5. Interpret the parameters in a linear or exponential function in terms of a context.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Trigonometric Functions F-TF			
Extend the domain of trigonometric functions using the unit circle			
1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
3. (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi-x$, $\pi+x$, and $2\pi-x$ in terms of their values for x , where x is any real number.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.

4. (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Model periodic phenomena with trigonometric functions			
5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline. ★	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
6. (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
7. (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context. ★	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Prove and apply trigonometric identities			
8. Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Congruence G-CO			
Experiments with transformations in the plane			
1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	None		This concept is addressed in MTH202: Geometry.
2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	None		This concept is addressed in MTH202: Geometry.
3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	None		This concept is addressed in MTH202: Geometry.
4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	None		This concept is addressed in MTH202: Geometry.
5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	None		This concept is addressed in MTH202: Geometry.
Understand congruence in terms of rigid motions			
6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	None		This concept is addressed in MTH202: Geometry.
7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	None		This concept is addressed in MTH202: Geometry.
8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	None		This concept is addressed in MTH202: Geometry.
Prove geometric theorems			

9. Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.	None		This concept is addressed in MTH202: Geometry.
10. Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180° ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.	None		This concept is addressed in MTH202: Geometry.
11. Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.	None		This concept is addressed in MTH202: Geometry.
Make geometric constructions			
12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.	None		This concept is addressed in MTH202: Geometry.
13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	None		This concept is addressed in MTH202: Geometry.
Similarity, Right Triangles, and Trigonometry G-SRT			
Understand similarity in terms of similarity transformations			
1a. Verify experimentally the properties of dilations given by a center and a scale factor: A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	None		This concept is addressed in MTH202: Geometry.
1b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	None		This concept is addressed in MTH202: Geometry.
2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	None		This concept is addressed in MTH202: Geometry.
3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	None		This concept is addressed in MTH202: Geometry.
Prove theorems involving similarity			
4. Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	None		This concept is addressed in MTH202: Geometry.
5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	None		This concept is addressed in MTH202: Geometry.
Define trigonometric ratios and solve problems involving right triangles			

Geometry

6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	None		This concept is addressed in MTH202: Geometry.
7. Explain and use the relationship between the sine and cosine of complementary angles.	None		This concept is addressed in MTH202: Geometry.
8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. ★	Partial	MTH122B 2.13	This concept is more fully addressed in MTH202: Geometry and MTH403: Precalculus/Trigonometry.
Apply trigonometry to general triangles			
9. (+) Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	None		This concept is addressed in MTH202: Geometry
10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.	None		This concept is addressed in MTH202: Geometry.
11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).	None		This concept is addressed in MTH202: Geometry.
Circles G-C			
Understand and apply theorems about circles			
1. Prove that all circles are similar.	None		This concept is addressed in MTH202: Geometry.
2. Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	None		This concept is addressed in MTH202: Geometry.
3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	None		This concept is addressed in MTH202: Geometry.
4. (+) Construct a tangent line from a point outside a given circle to the circle.	None		This concept is addressed in MTH202: Geometry.
Find arc lengths and areas of sectors of circles			
5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	None		This concept is addressed in MTH302: Algebra II.
Expressing Geometric Properties with Equations G-GPE			
Translate between the geometric description and the equation for a conic section			
1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	None		This concept is addressed in MTH202: Geometry.
2. Derive the equation of a parabola given a focus and directrix.	None		This concept is addressed in MTH302: Algebra II.
3. (+) Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.	None		This concept is addressed in MTH302: Algebra II.

Use coordinates to prove simple geometric theorems algebraically			
4. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.	None		This concept is addressed in MTH202: Geometry.
5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	Full	MTH122B 7.9	
6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	None		This concept is addressed in MTH202: Geometry.
7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. ★	None		This concept is addressed in MTH202: Geometry.
Geometric Measurement and Dimension G-GMD			
Explain volume formulas and use them to solve problems			
1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	None		This concept is addressed in MTH202: Geometry.
2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.	None		This concept is addressed in MTH202: Geometry.
3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. ★	None		This concept is addressed in MTH202: Geometry.
Visualize relationships between two-dimensional and three-dimensional objects			
4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	None		This concept is addressed in MTH302: Algebra II.
Modeling with Geometry G-MG			
Apply geometric concepts in modeling situations			
1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). ★	None		This concept is addressed in MTH202: Geometry.
2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot). ★	None		This concept is addressed in MTH202: Geometry.
3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). ★	None		This concept is addressed in MTH202: Geometry.
Interpreting Categorical and Quantitative Data S-ID			
Summarize, represent, and interpret data on a single count or measurement variable			
1. Represent data with plots on the real number line (dot plots, histograms, and box plots).	None		This concept is addressed in MTH302: Algebra II.
2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	None		This concept is addressed in MTH302: Algebra II.
3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	None		This concept is addressed in MTH302: Algebra II.

4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	None		This concept is addressed in MTH302: Algebra II and MTH413: Probability and Statistics.
Summarize, represent, and interpret data on two categorical and quantitative variables			
5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	None		This concept is addressed in MTH413: Probability and Statistics.
6a. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.	None		This concept is addressed in MTH302: Algebra II.
6b. Informally assess the fit of a function by plotting and analyzing residuals.	None		This concept is addressed in MTH413: Probability and Statistics.
6c. Fit a linear function for a scatter plot that suggests a linear association.	None		This concept is addressed in MTH302: Algebra II.
Interpret linear models			
7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	Full	MTH122A 7.4	
8. Compute (using technology) and interpret the correlation coefficient of a linear fit.	None		This concept is addressed in MTH413: Probability and Statistics.
9. Distinguish between correlation and causation.	None		This concept is addressed in MTH413: Probability and Statistics.
Making Inferences and Justifying Conclusions S-IC			
Understand and evaluate random processes underlying statistical experiments			
1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	None		This concept is addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?	None		This concept is addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
Make inferences and justify conclusions form sample surveys, experiments, and observational studies			
3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	None		This concept is addressed in MTH302: Algebra II and MTH413: Probability and Statistics.
4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	None		This concept is addressed in MTH413: Probability and Statistics.
5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	None		This concept is addressed in MTH413: Probability and Statistics.

Statistics and Probability

6. Evaluate reports based on data.	None		This concept is addressed in MTH413: Probability and Statistics.
Conditional Probability and the Rules of Probability S-CP			
Understand independence and conditional probability and use them to interpret data			
1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).	None		This concept is addressed in MTH302: Algebra II.
2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	None		This concept is addressed in MTH302: Algebra II.
3. Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	None		This concept is addressed in MTH302: Algebra II.
4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.	None		This concept is addressed in MTH413: Probability and Statistics.
5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.	None		This concept is addressed in MTH302: Algebra II.
Use the rules of probability to compute probabilities of compound events in a uniform probability model			
6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.	None		This concept is addressed in MTH302: Algebra II.
7. Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.	None		This concept is addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
8. (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.	None		This concept is addressed in MTH302: Algebra II.
Using Probability to Make Decisions S-MD			
Calculate expected values and use them to solve problems			

1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.	None		This concept is addressed in MTH413: Probability and Statistics.
2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.	None		This concept is addressed in MTH413: Probability and Statistics.
3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.	None		This concept is addressed in MTH413: Probability and Statistics.
4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?	None		This concept is addressed in MTH413: Probability and Statistics.
Use probability to evaluate outcomes of decisions			
5a. (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fastfood restaurant.	None		This concept is addressed in MTH413: Probability and Statistics.
5b. Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.	None		This concept is addressed in MTH413: Probability and Statistics.
6. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).	None		This concept is addressed in MTH413: Probability and Statistics.
7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).	None		This concept is addressed in MTH413: Probability and Statistics.

**Common Core High School Math Standards
Compared to K¹² MTH202: Geometry**

Standard/Topic	Performance Indicator	Coverage	Course, Unit, Lesson	Comments
The Real Number System N-RN				
Extend the properties of exponents to rational exponents.				
	1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Use properties of rational and irrational numbers.				
	3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	None		This concept is addressed in MTH122: Algebra I.
Quantities N-Q				
Reason quantitatively and use units to solve problems.				
	1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	None		This concept is addressed in MTH122: Algebra I, MTH302: Algebra II, and MTH413: Probability and Statistics.
	2. Define appropriate quantities for the purpose of descriptive modeling.	Full	MTH202B 2.2 MTH202B 3.12 - 3.15	
	3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	Full	MTH202A 5.6 MTH202A 5.7 MTH202B 2.1 - 2.4 MTH202B 2.6 - B 2.9 MTH202B 2.11 - 2.14	
The Complex Number System N-CN				
Perform arithmetic operations with complex numbers.				
	1. Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	2. Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
	3. (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Represent complex numbers and their operations on the complex plane.				
	4. (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
	5. (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .	None		This concept is addressed in MTH403: Precalculus/Trigonometry.

Number and Quantity

6. (+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Use complex numbers in polynomial identities and equations.			
7. Solve quadratic equations with real coefficients that have complex solutions.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
8. (+) Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Vector and Matrix Quantities N-VM			
Represent and model with vector quantities			
1. (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., v , $ v $, $\ v\ $, \vec{v}).	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
2. (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
3. (+) Solve problems involving velocity and other quantities that can be represented by vectors.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Perform operations on vectors.			
4a. (+) Add and subtract vectors. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4b. (+) Add and subtract vectors. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4c. Understand vector subtraction $v - w$ as $v + (-w)$, where $-w$ is the additive inverse of w , with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
5a. (+) Multiply a vector by a scalar. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
5b. (+) Multiply a vector by a scalar. Compute the magnitude of a scalar multiple cv using $\ cv\ = c v$. Compute the direction of cv knowing that when $ c \neq 0$, the direction of cv is either along v (for $c > 0$) or against v (for $c < 0$).	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Perform operations on matrices and use matrices in applications.			
6. (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.	None		This concept is addressed in MTH302: Algebra II.
7. (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.	None		This concept is addressed in MTH302: Algebra II.
8. (+) Add, subtract, and multiply matrices of appropriate dimensions.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.	None		This concept is addressed in MTH302: Algebra II.

10. (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.	None		This concept is addressed in MTH302: Algebra II.
11. (+) Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.	None		This concept is addressed in MTH302: Algebra II.
12. (+) Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.	None		This concept is addressed in MTH302: Algebra II.
Seeing Structures in Expressions A-SSE			
Interpret the structure of expressions			
1a. Interpret expressions that represent a quantity in terms of its context. ★ Interpret parts of an expression, such as terms, factors, and coefficients.	None		This concept is addressed in MTH302: Algebra II.
1b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.	None		This concept is addressed in MTH302: Algebra II.
2. Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.	None		This concept is addressed in MTH302: Algebra II.
Write expressions in equivalent forms to solve problems.			
3a. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. ★ Factor a quadratic expression to reveal the zeros of the function it defines.	None		This concept is addressed in MTH302: Algebra II.
3b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	None		This concept is addressed in MTH302: Algebra II.
3c. Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.	None		This concept is addressed in MTH302: Algebra II.
4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments. ★	None		This concept is addressed in MTH302: Algebra II.
Arithmetic with Polynomial and Rational Expressions A-APR			
Perform arithmetic operations on polynomials			
1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	None		This concept is addressed in MTH302: Algebra II.
Understand the relationship between zeros and factors of polynomials			
2. Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	None		This concept is addressed in MTH302: Algebra II and MTH403: Precalculus/Trigonometry.
Use polynomial identities to solve problems			

Algebra

4. Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.	None		This concept is addressed in MTH122: Algebra I.
5. (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.	None		This concept is addressed in MTH302: Algebra II.
Rewrite rational expressions			
6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	None		This concept is addressed in MTH302: Algebra II.
7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	None		This concept is addressed in MTH302: Algebra II.
Creating Equations A-CED			
Create equations that describe numbers or relationships			
1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	None		This concept is addressed in MTH302: Algebra II.
2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	None		This concept is addressed in MTH302: Algebra II.
3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	None		This concept is addressed in MTH302: Algebra II.
4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R.	None		This concept is addressed in MTH122: Algebra I.
Reasoning with Equations and Inequalities A-REI			
Understand solving equations as a process of reasoning and explain the reasoning			
1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	None		This concept is addressed in MTH302: Algebra II.
2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	None		This concept is addressed in MTH302: Algebra II.
Solve equations and inequalities in one variable			
3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	None		This concept is addressed in MTH302: Algebra II.

4a. Solve quadratic equations in one variable. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.	None		This concept is addressed in MTH302: Algebra II.
4b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .	None		This concept is addressed in MTH302: Algebra II.
Solve systems of equations			
5. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
8. (+) Represent a system of linear equations as a single matrix equation in a vector variable.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Represent and solve equations and inequalities graphically			
10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	None		This concept is addressed in MTH302: Algebra II.
11. Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. ★	None		This concept is addressed in MTH302: Algebra II.
12. Graph the solutions to a linear inequality in two variables as a halfplane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	None		This concept is addressed in MTH302: Algebra II.
Interpreting Functions F-IF			
Understand the concept of a function and use function notation			
1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.	None		This concept is addressed in MTH122: Algebra I and MTH302: Algebra II.

2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	None		This concept is addressed in MTH122: Algebra I and MTH302: Algebra II.
3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.	None		This concept is addressed in MTH302: Algebra II.
Interpreting functions that arise in applications in terms of the context			
4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. ★	None		This concept is addressed in MTH302: Algebra II.
5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function. ★	None		This concept is addressed in MTH302: Algebra II.
6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. ★	None		This concept is addressed in MTH122: Algebra I.
Analyze functions using different representations			
7a. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. ★ Graph linear and quadratic functions and show intercepts, maxima, and minima.	None		This concept is addressed in MTH302: Algebra II.
7b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	None		This concept is addressed in MTH302: Algebra II.
7c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	None		This concept is addressed in MTH302: Algebra II.
7d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.	None		This concept is addressed in MTH302: Algebra II.
7e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	None		This concept is addressed in MTH302: Algebra II.
8a. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	None		This concept is addressed in MTH302: Algebra II.

	8b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.	None		This concept is addressed in MTH302: Algebra II.
	9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.	None		This concept is addressed in MTH302: Algebra II.
	Building Functions F-BF			
	Build a function that models a relationship between two quantities			
	1a. Write a function that describes a relationship between two quantities. ★ Determine an explicit expression, a recursive process, or steps for calculation from a context.	None		This concept is addressed in MTH302: Algebra II.
	1b. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.	None		This concept is addressed in MTH302: Algebra II.
	1c. (+) Compose functions. For example, if $T(y)$ is the temperature in the atmosphere as a function of height, and $h(t)$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.	None		This concept is addressed in MTH302: Algebra II.
	2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ★	None		This concept is addressed in MTH302: Algebra II.
	Build new functions from existing functions			
	3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	None		This concept is addressed in MTH302: Algebra II.
	4a. Find inverse functions. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.	None		This concept is addressed in MTH302: Algebra II.
	4b. (+) Verify by composition that one function is the inverse of another.	None		This concept is addressed in MTH302: Algebra II.
	4c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
	4d. (+) Produce an invertible function from a non-invertible function by restricting the domain.	None		This concept is addressed in MTH302:Algebra II.
	5. (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.	None		This concept is addressed in MTH302: Algebra II.
	Linear, Quadratic, and Exponential Models F-LE			
	Construct and compare linear, quadratic, and exponential models and solve problems			

Functions

1a. Distinguish between situations that can be modeled with linear functions and with exponential functions. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	None		This concept is addressed in MTH302: Algebra II.
1b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	None		This concept is addressed in MTH122: Algebra I.
1c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	None		This concept is addressed in MTH302: Algebra II.
2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	None		This concept is addressed in MTH302: Algebra II.
3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	None		This concept is addressed in MTH302: Algebra II.
4. For exponential models, express as a logarithm the solution to $a_b c^t = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.	None		This concept is addressed in MTH302: Algebra II.
Interpret expressions for functions in terms of the situation they model			
5. Interpret the parameters in a linear or exponential function in terms of a context.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Trigonometric Functions F-TF			
Extend the domain of trigonometric functions using the unit circle			
1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
3. (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi-x$, $\pi+x$, and $2\pi-x$ in terms of their values for x , where x is any real number.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4. (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Model periodic phenomena with trigonometric functions			
5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline. ★	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
6. (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
7. (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context. ★	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Prove and apply trigonometric identities			

8. Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.	Full	MTH202B 5.4	
9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Congruence G-CO			
Experiments with transformations in the plane			
1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	Full	MTH202A 1.2 MTH202A 1.4 MTH202A 1.7 - 1.9 MTH202A 5.6 MTH202B 4.1 MTH202B 4.2	
2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	Full	MTH202A 1.14 MTH202A 1.15 MTH202A 1.17 MTH202B 3.2	
3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	Full	MTH202A 3.2	
4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	Full	MTH202A 1.14 MTH202A 1.15	
5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	Full	MTH202A 1.14 MTH202A 1.15 MTH202A 1.17 MTH202A 3.2	
Understand congruence in terms of rigid motions			
6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	Full	MTH202A 1.14 MTH202A 1.15 MTH202A 3.2 MTH202A 4.1 - 4.6 MTH202A 4.8	
7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	Full	MTH202A 4.3 - 4.6 MTH202A 4.8	
8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	Full	MTH202A 4.3 MTH202A 4.4	
Prove geometric theorems			
9. Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.	Full	MTH202A 1.10 MTH202A 3.5 MTH202A 3.6	
10. Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180° ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.	Full	MTH202A 1.13 MTH202A 3.11 MTH202A 3.12 MTH202A 4.5 MTH202A 4.6 MTH202A 5.14	

	11. Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.	Full	MTH202A 4.12	
Make geometric constructions				
	12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.	Full	MTH202A 1.4 MTH202A 1.9 MTH202A 1.10 MTH202A 1.13 MTH202A 4.14	
	13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	Full	MTH202A 4.16	
Similarity, Right Triangles, and Trigonometry G-SRT				
Understand similarity in terms of similarity transformations				
	1a. Verify experimentally the properties of dilations given by a center and a scale factor: A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	Full	MTH202B 3.1 MTH202B 3.2	
	1b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	Full	MTH202B 3.1 MTH202B 3.2	
	2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	Full	MTH202B 3.6 MTH202B 3.8	
	3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	Full	MTH202B 3.6	
Prove theorems involving similarity				
	4. Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	Full	MTH202B 3.8-3.10	
	5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	Full	MTH202B 3.8 - 3.10 MTH202B 3.12 MTH202B 3.13	
Define trigonometric ratios and solve problems involving right triangles				
	6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	Full	MTH202A 4.3 - 4.6 MTH202A 4.8 MTH202A 4.9	
Geometry	7. Explain and use the relationship between the sine and cosine of complementary angles.	Full	MTH202B 5.4	
	8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.★	Full	MTH202B 5.1 - 5.3 MTH202B 5.5 MTH202B 5.6 MTH202B 5.9	
Apply trigonometry to general triangles				

9. (+) Derive the formula $A = 1/2 ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	Full	MTH202B 5.3	
10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.	Full	MTH202B 5.7	
11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).	Full	MTH202B 5.7	
Circles G-C			
Understand and apply theorems about circles			
1. Prove that all circles are similar.	Full	MTH202B 3.3 MTH202B 4.13	
2. Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	Full	MTH202B 4.6 - 4.10 MTH202B 4.12	
3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	Full	MTH202A 1.13 MTH202B 4.7	
4. (+) Construct a tangent line from a point outside a given circle to the circle.	Full	MTH202B 4.3	
Find arc lengths and areas of sectors of circles			
5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	Full	MTH202A 5.7 MTH202B 4.2 MTH202B 4.12	
Expressing Geometric Properties with Equations G-GPE			
Translate between the geometric description and the equation for a conic section			
1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	Full	MTH202B 4.13	
2. Derive the equation of a parabola given a focus and directrix.	None		This concept is addressed in MTH302: Algebra II.
3. (+) Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.	None		This concept is addressed in MTH302: Algebra II.
Use coordinates to prove simple geometric theorems algebraically			
4. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.	Full	MTH202A 5.15 MTH202B 4.13 MTH202B 4.14	
5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	Full	MTH202A 3.19	
6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	Full	MTH202A 1.5	
7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. ★	Full	MTH202A 5.13	

Geometric Measurement and Dimension G-GMD			
Explain volume formulas and use them to solve problems			
1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	Full	MTH202A 5.6 MTH202A 5.7 MTH202A 5.11 MTH202B 2.4 MTH202B 2.7 MTH202B 2.9 MTH202B 2.12	
2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.	Full	MTH202B 2.4 MTH202B 2.7 MTH202B 2.9 MTH202B 2.12 MTH202B 2.13	
3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.★	Full	MTH202B 2.7 MTH202B 2.9 MTH202B 2.12 MTH202B 2.13	
Visualize relationships between two-dimensional and three-dimensional objects			
4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	Full	MTH202B 1.3	
Modeling with Geometry G-MG			
Apply geometric concepts in modeling situations			
1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).★	Full	MTH202B 2.8 MTH202B 2.11 - 2.13	
2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).★	Full	MTH202B 2.14	
3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with topographic grid systems based on ratios).★	Full	MTH202A 5.11	
Interpreting Categorical and Quantitative Data S-ID			
Summarize, represent, and interpret data on a single count or measurement variable			
1. Represent data with plots on the real number line (dot plots, histograms, and box plots).	None		This concept is addressed in MTH302: Algebra II.
2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	None		This concept is addressed in MTH302: Algebra II.
3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	None		This concept is addressed in MTH302: Algebra II.
4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	None		This concept is addressed in MTH302: Algebra II and MTH413: Probability and Statistics.
Summarize, represent, and interpret data on two categorical and quantitative variables			

5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	None		This concept is addressed in MTH413: Probability and Statistics.
6a. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.	None		This concept is addressed in MTH302: Algebra II.
6b. Informally assess the fit of a function by plotting and analyzing residuals.	None		This concept is addressed in MTH413: Probability and Statistics.
6c. Fit a linear function for a scatter plot that suggests a linear association.	None		This concept is addressed in MTH302: Algebra II.
Interpret linear models			
7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	None		This concept is addressed in MTH122: Algebra I.
8. Compute (using technology) and interpret the correlation coefficient of a linear fit.	None		This concept is addressed in MTH413: Probability and Statistics.
9. Distinguish between correlation and causation.	None		This concept is addressed in MTH413: Probability and Statistics.
Making Inferences and Justifying Conclusions S-IC			
Understand and evaluate random processes underlying statistical experiments			
1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	None		This concept is addressed in MTH302: Algebra II.
2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?	None		This concept is addressed in MTH302: Algebra II.
Make inferences and justify conclusions from sample surveys, experiments, and observational studies			
3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	None		This concept is addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	None		This concept is addressed in MTH413: Probability and Statistics.
5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	None		This concept is addressed in MTH413: Probability and Statistics.

Statistics and Probability

6. Evaluate reports based on data.	None		This concept is addressed in MTH413: Probability and Statistics.
Conditional Probability and the Rules of Probability S-CP			
Understand independence and conditional probability and use them to interpret data			
1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).	None		This concept is addressed in MTH302: Algebra II.
2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	None		This concept is addressed in MTH302: Algebra II.
3. Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	None		This concept is addressed in MTH302: Algebra II.
4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.	None		This concept is addressed in MTH413: Probability and Statistics.
5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.	None		This concept is addressed in MTH302: Algebra II.
Use the rules of probability to compute probabilities of compound events in a uniform probability model			
6. Find the conditional probability of A given B as the fraction of B’s outcomes that also belong to A, and interpret the answer in terms of the model.	None		This concept is addressed in MTH302: Algebra II.
7. Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.	None		This concept is addressed in MTH302: Algebra II.
8. (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.	None		This concept is addressed in MTH302: Algebra II.
Using Probability to Make Decisions S-MD			
Calculate expected values and use them to solve problems			

1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.	None		This concept is addressed in MTH413: Probability and Statistics.
2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.	None		This concept is addressed in MTH413: Probability and Statistics.
3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.	None		This concept is addressed in MTH413: Probability and Statistics.
4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?	None		This concept is addressed in MTH413: Probability and Statistics.
Use probability to evaluate outcomes of decisions			
5a. (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fastfood restaurant.	None		This concept is addressed in MTH413: Probability and Statistics.
5b. Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.	None		This concept is addressed in MTH413: Probability and Statistics.
6. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).	None		This concept is addressed in MTH413: Probability and Statistics.
7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).	None		This concept is addressed in MTH413: Probability and Statistics.

**Common Core High School Math Standards
Compared to K¹² MTH302: Algebra II**

Standard/Topic	Performance Indicator	Coverage	Course, Unit, Lesson	Comments
The Real Number System N-RN				
Extend the properties of exponents to rational exponents.				
	1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.	Full	MTH302B 2.2	
	2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Full	MTH302A 7.3 MTH302B 2.2	
Use properties of rational and irrational numbers.				
	3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	None		This concept is addressed in MTH122: Algebra I.
Quantities N-Q				
Reason quantitatively and use units to solve problems.				
	1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	Partial	MTH302A 8.3	This concept is addressed in MTH122: Algebra I and MTH413: Probability and Statistics
	2. Define appropriate quantities for the purpose of descriptive modeling.	Full	MTH302A 8.8 MTH302B 2.5 MTH302B 2.9	
	3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	None		This concept is addressed in MTH202: Geometry.
The Complex Number System N-CN				
Perform arithmetic operations with complex numbers.				
	1. Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	Full	MTH302A 7.7	
	2. Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	Partial	MTH302A 7.7	This concept is also addressed in MTH403: Precalculus/Trigonometry.
	3. (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Represent complex numbers and their operations on the complex plane.				
	4. (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.	Partial	MTH302A 7.7	This concept is also addressed in MTH403: Precalculus/Trigonometry.
	5. (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .	None		This concept is addressed in MTH202: Geometry.
	6. (+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.	Full	MTH302A 7.7 MTH302B 7.2	
Use complex numbers in polynomial identities and equations.				

Number and Quantity

7. Solve quadratic equations with real coefficients that have complex solutions.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
8. (+) Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.	Full	MTH302B 1.10	
9. (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Vector and Matrix Quantities N-VM			
Represent and model with vector quantities			
1. (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., v , $ v $, $\ v\ $, v).	Partial	MTH302B 6.2	This concept is also addressed in MTH403: Precalculus/Trigonometry.
2. (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
3. (+) Solve problems involving velocity and other quantities that can be represented by vectors.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Perform operations on vectors.			
4a. (+) Add and subtract vectors. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4b. (+) Add and subtract vectors. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4c. Understand vector subtraction $v - w$ as $v + (-w)$, where $-w$ is the additive inverse of w , with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
5a. (+) Multiply a vector by a scalar. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
5b. (+) Multiply a vector by a scalar. Compute the magnitude of a scalar multiple cv using $\ cv\ = c v$. Compute the direction of cv knowing that when $ c v \neq 0$, the direction of cv is either along v (for $c > 0$) or against v (for $c < 0$).	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Perform operations on matrices and use matrices in applications.			
6. (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.	Full	MTH302B 6.2 MTH302B 6.3 MTH302B 6.5 MTH302B 6.6	
7. (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.	Full	MTH302B 6.3	
8. (+) Add, subtract, and multiply matrices of appropriate dimensions.	Full	MTH302B 6.3 MTH302B 6.5	
9. (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.	Full	MTH302B 6.5	
10. (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.	Full	MTH302B 6.3 MTH302B 6.5	
11. (+) Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.	Full	MTH302B 6.5-6.7	

12. (+) Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.	Full	MTH302B 6.7 MTH302B 6.8	
Seeing Structures in Expressions A-SSE			
Interpret the structure of expressions			
1a. Interpret expressions that represent a quantity in terms of its context. ★ Interpret parts of an expression, such as terms, factors, and coefficients.	Full	MTH302A 1.7	
1b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.	Full	MTH302A 5.5 MTH302A 5.6 MTH302A 6.7	
2. Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.	Full	MTH302A 5.5	
Write expressions in equivalent forms to solve problems.			
3a. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. ★ Factor a quadratic expression to reveal the zeros of the function it defines.	Full	MTH302A 8.6	
3b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	Full	MTH302A 8.3	
3c. Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.	Full	MTH302B 2.2 MTH302B 2.3 MTH302B 2.5	
4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments. ★	Full	MTH302B 3.11	
Arithmetic with Polynomial and Rational Expressions A-APR			
Perform arithmetic operations on polynomials			
1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	Full	MTH302A 5.2 MTH302A 5.3	
Understand the relationship between zeros and factors of polynomials			
2. Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	Full	MTH302B 1.6	
3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	Full	MTH302B 1.7 MTH302B 1.9	
Use polynomial identities to solve problems			
4. Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.	None		This concept is addressed in MTH122: Algebra I.
5. (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.	Full	MTH302A 5.3	
Rewrite rational expressions			

Algebra

6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	Full	MTH302A 6.1-6.4	
7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	Full	MTH302A 6.3 MTH302A 6.4 MTH302B 2.9	
Creating Equations A-CED			
Create equations that describe numbers or relationships			
1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	Full	MTH302A 1.9 MTH302A 6.7 MTH302B 2.9	
2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Full	MTH302A 2.9	
3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	Full	MTH302A 2.9 MTH302A 4.8	
4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .	Full	MTH302A 1.11	
Reasoning with Equations and Inequalities A-REI			
Understand solving equations as a process of reasoning and explain the reasoning			
1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	Full	MTH302A 1.9	
2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	Full	MTH302A 6.7 MTH302A 7.5	
Solve equations and inequalities in one variable			
3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	Full	MTH302A 1.9 MTH302A 4.2	
4a. Solve quadratic equations in one variable. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.	Full	MTH302A 8.7	

4b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .	Full	MTH302A 8.6	
Solve systems of equations			
5. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	Full	MTH302A 2.8 MTH302B 6.1	
6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Full	MTH302A 2.8 MTH302A 2.9	
7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
8. (+) Represent a system of linear equations as a single matrix equation in a vector variable.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Represent and solve equations and inequalities graphically			
10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	Full	MTH302A 2.2 MTH302A 8.2	
11. Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. ★	Full	MTH302A 2.8 MTH302B 1.9	
12. Graph the solutions to a linear inequality in two variables as a halfplane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	Full	MTH302A 4.7 MTH302A 4.8	
Interpreting Functions F-IF			
Understand the concept of a function and use function notation			
1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.	Full	MTH302A 3.2	
2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	Full	MTH302A 3.3	

3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.	Full	MTH302B 3.3 MTH302B 3.4	
Interpreting functions that arise in applications in terms of the context			
4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. ★	Full	MTH302A 5.7 MTH302A 6.9 MTH302A 8.2 MTH302B 1.9	
5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function. ★	Full	MTH302A 3.4 MTH302A 3.5 MTH302A 3.7 MTH302A 6.9	
6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. ★	None		This concept is addressed in MTH122: Algebra I.
Analyze functions using different representations			
7a. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. ★ Graph linear and quadratic functions and show intercepts, maxima, and minima.	Full	MTH302A 2.2 MTH302A 8.2-8.4	
7b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Partial	MTH302A 3.4 MTH302A 3.5 MTH302A 3.7 MTH302A 7.3	
7c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	Full	MTH302B 1.9	
7d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.	Full	MTH302A 6.9	
7e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	Partial	MTH302B 2.4 MTH302B 2.11	This concept is also addressed in MTH403: Precalculus/Trigonometry.
8a. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	Full	MTH302A 8.6 MTH302A 8.7	
8b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.	Full	MTH302B 2.5	

	9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.	Full	MTH302A 3.9-3.11		
Building Functions F-BF					
Build a function that models a relationship between two quantities					
	1a. Write a function that describes a relationship between two quantities. ★ Determine an explicit expression, a recursive process, or steps for calculation from a context.	Full	MTH302A 3.5 MTH302A 3.7 MTH302A 8.8 MTH302B 2.5		
	1b. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.	Full	MTH302A 3.9		
	1c. (+) Compose functions. For example, if $T(y)$ is the temperature in the atmosphere as a function of height, and $h(t)$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.	Full	MTH302A 3.10		
	2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ★	Full	MTH302B 3.3 MTH302B 3.4 MTH302B 3.7		
Build new functions from existing functions					
Functions	3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	Full	MTH302A 5.7 MTH302A 6.9 MTH302A 8.2 MTH302A 8.3 MTH302B 2.4 MTH302B 2.11		
	4a. Find inverse functions. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.	Full	MTH302A 3.11		
	4b. (+) Verify by composition that one function is the inverse of another.	Full	MTH302A 3.11		
	4c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.	
	4d. (+) Produce an invertible function from a non-invertible function by restricting the domain.	Full	MTH302A 3.11		
	5. (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.	Full	MTH302B 2.8 MTH302B 2.9		
	Linear, Quadratic, and Exponential Models F-LE				
	Construct and compare linear, quadratic, and exponential models and solve problems				
	1a. Distinguish between situations that can be modeled with linear functions and with exponential functions. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	Full	MTH302A 2.6 MTH302A 2.7 MTH302B 2.5 MTH302B 2.6		

1b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	None		This concept is addressed in MTH122: Algebra I.
1c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	Full	MTH302B 2.5	
2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	Partial	MTH302B 3.3 MTH302B 3.4	This concept is also addressed in MTH122: Algebra I and MTH403: Precalculus/Trigonometry.
3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	Full	MTH302B 2.4	
4. For exponential models, express as a logarithm the solution to $ab^c = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.	Full	MTH302B 2.9	
Interpret expressions for functions in terms of the situation they model			
5. Interpret the parameters in a linear or exponential function in terms of a context.	Full	MTH302A 2.6 MTH302B 2.5	
Trigonometric Functions F-TF			
Extend the domain of trigonometric functions using the unit circle			
1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
3. (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi-x$, $\pi+x$, and $2\pi-x$ in terms of their values for x , where x is any real number.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
4. (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Model periodic phenomena with trigonometric functions			
5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline. ★	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
6. (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
7. (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context. ★	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Prove and apply trigonometric identities			

8. Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.	None		This concept is addressed in MTH403: Precalculus/Trigonometry.
Congruence G-CO			
Experiments with transformations in the plane			
1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	None		This concept is addressed in MTH202: Geometry.
2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	None		This concept is addressed in MTH202: Geometry.
3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	None		This concept is addressed in MTH202: Geometry.
4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	None		This concept is addressed in MTH202: Geometry.
5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	None		This concept is addressed in MTH202: Geometry.
Understand congruence in terms of rigid motions			
6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	None		This concept is addressed in MTH202: Geometry.
7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	None		This concept is addressed in MTH202: Geometry.
8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	None		This concept is addressed in MTH202: Geometry.
Prove geometric theorems			
9. Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.	None		This concept is addressed in MTH202: Geometry.
10. Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180° ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.	None		This concept is addressed in MTH202: Geometry.
11. Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.	None		This concept is addressed in MTH202: Geometry.
Make geometric constructions			

Geometry	12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.	None		This concept is addressed in MTH202: Geometry.
	13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	None		This concept is addressed in MTH202: Geometry.
	Similarity, Right Triangles, and Trigonometry G-SRT			
	Understand similarity in terms of similarity transformations			
	1a. Verify experimentally the properties of dilations given by a center and a scale factor: A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	None		This concept is addressed in MTH202: Geometry.
	1b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	None		This concept is addressed in MTH202: Geometry.
	2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	None		This concept is addressed in MTH202: Geometry.
	3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	None		This concept is addressed in MTH202: Geometry.
	Prove theorems involving similarity			
	4. Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	None		This concept is addressed in MTH202: Geometry.
	5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	None		This concept is addressed in MTH202: Geometry.
	Define trigonometric ratios and solve problems involving right triangles			
	6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	None		This concept is addressed in MTH202: Geometry.
	7. Explain and use the relationship between the sine and cosine of complementary angles.	None		This concept is addressed in MTH202: Geometry.
	8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. ★	None		This concept is addressed in MTH112: Pre-Algebra, MTH202: Geometry, and MTH403: Precalculus/Trigonometry.
	Apply trigonometry to general triangles			
	9. (+) Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	None		This concept is addressed in MTH202: Geometry
	10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.	None		This concept is addressed in MTH202: Geometry and MTH403: Precalculus/Trigonometry.

11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).	None		This concept is addressed in MTH202: Geometry and MTH403: Precalculus/Trigonometry.
Circles G-C			
Understand and apply theorems about circles			
1. Prove that all circles are similar.	None		This concept is addressed in MTH202: Geometry.
2. Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	None		This concept is addressed in MTH202: Geometry.
3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	None		This concept is addressed in MTH202: Geometry.
4. (+) Construct a tangent line from a point outside a given circle to the circle.	None		This concept is addressed in MTH202: Geometry.
Find arc lengths and areas of sectors of circles			
5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	None		This concept is addressed in MTH202: Geometry and MTH403: Precalculus/Trigonometry.
Expressing Geometric Properties with Equations G-GPE			
Translate between the geometric description and the equation for a conic section			
1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	Full	MTH302B 7.3	
2. Derive the equation of a parabola given a focus and directrix.	Full	MTH302B 7.8	
3. (+) Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.	Full	MTH302B 7.7	
Use coordinates to prove simple geometric theorems algebraically			
4. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.	None		This concept is addressed in MTH202: Geometry.
5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	Full	MTH302A 2.4	
6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	None		This concept is addressed in MTH202: Geometry.
7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. ★	None		This concept is addressed in MTH112: Pre-Algebra and MTH202: Geometry.
Geometric Measurement and Dimension G-GMD			
Explain volume formulas and use them to solve problems			

1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	None		This concept is addressed in MTH202: Geometry.
2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.	None		This concept is addressed in MTH202: Geometry.
3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. ★	None		This concept is addressed in MTH112: Pre-Algebra and MTH202: Geometry.
Visualize relationships between two-dimensional and three-dimensional objects			
4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	Partial	MTH302B 7.2-7.4	This concept is also addressed in MTH202: Geometry and MTH403: Precalculus/Trigonometry.
Modeling with Geometry G-MG			
Apply geometric concepts in modeling situations			
1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). ★	None		This concept is addressed in MTH202: Geometry.
2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot). ★	None		This concept is addressed in MTH202: Geometry.
3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). ★	None		This concept is addressed in MTH202: Geometry.
Interpreting Categorical and Quantitative Data S-ID			
Summarize, represent, and interpret data on a single count or measurement variable			
1. Represent data with plots on the real number line (dot plots, histograms, and box plots).	Partial	MTH302B 5.3 MTH302B 5.8	This concept is also addressed in MTH112: Pre-Algebra and MTH413: Probability and Statistics.
2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	Full	MTH302B 5.2 MTH302B 5.3	
3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	Full	MTH302B 5.2 MTH302B 5.3 MTH302B 5.9	
4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	Partial	MTH302B 5.9	This concept is also addressed in MTH413: Probability and Statistics.
Summarize, represent, and interpret data on two categorical and quantitative variables			
5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	None		This concept is addressed in MTH413: Probability and Statistics.
6a. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.	Partial	MTH302A 2.6 MTH302B 5.10	This concept is also addressed in MTH413: Probability and Statistics.
6b. Informally assess the fit of a function by plotting and analyzing residuals.	None		This concept is addressed in MTH413: Probability and Statistics.

6c. Fit a linear function for a scatter plot that suggests a linear association.	Full	MTH302A 2.6 MTH302B 5.10	
Interpret linear models			
7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	Full	MTH302A 2.6	
8. Compute (using technology) and interpret the correlation coefficient of a linear fit.	None		This concept is addressed in MTH413: Probability and Statistics.
9. Distinguish between correlation and causation.	None		This concept is addressed in MTH413: Probability and Statistics.
Making Inferences and Justifying Conclusions S-IC			
Understand and evaluate random processes underlying statistical experiments			
1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	Full	MTH302B 5.4	
2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?	Full	MTH302B 4.5 MTH302B 4.8 MTH302B 4.11	
Make inferences and justify conclusions form sample surveys, experiments, and observational studies			
3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	Full	MTH302B 5.4	
4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	None		This concept is addressed in MTH413: Probability and Statistics.
5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	None		This concept is addressed in MTH413: Probability and Statistics.
6. Evaluate reports based on data.	None		This concept is addressed in MTH413: Probability and Statistics.
Conditional Probability and the Rules of Probability S-CP			
Understand independence and conditional probability and use them to interpret data			
1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").	Full	MTH302B 4.2 MTH302B 4.5 MTH302B 4.9 MTH302B 4.10	

Statistics and Probability	2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	Full	MTH302B 4.8	
	3. Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	Full	MTH302B 4.8	
	4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.	None		This concept is addressed in MTH413: Probability and Statistics.
	5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.	Full	MTH302B 4.8	
	Use the rules of probability to compute probabilities of compound events in a uniform probability model			
	6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.	Full	MTH302B 4.8	
	7. Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.	Full	MTH302B 4.9	
	8. (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.	Full	MTH302B 4.7	
	9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.	Full	MTH302B 4.5	
	Using Probability to Make Decisions S-MD			
Calculate expected values and use them to solve problems				
1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.	None		This concept is addressed in MTH413: Probability and Statistics.	
2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.	None		This concept is addressed in MTH413: Probability and Statistics.	

<p>3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.</p>	None		This concept is addressed in MTH413: Probability and Statistics.
<p>4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?</p>	None		This concept is addressed in MTH413: Probability and Statistics.
Use probability to evaluate outcomes of decisions			
<p>5a. (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fastfood restaurant.</p>	None		This concept is addressed in MTH413: Probability and Statistics.
<p>5b. Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.</p>	None		This concept is addressed in MTH413: Probability and Statistics.
<p>6. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).</p>	None		This concept is addressed in MTH413: Probability and Statistics.
<p>7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).</p>	None		This concept is addressed in MTH413: Probability and Statistics.

**Common Core High School Math Standards
Compared to K¹² MTH403: Precalculus/Trigonometry**

Standard/Topic	Performance Indicator	Coverage	Course, Unit, Lesson	Comments
The Real Number System N-RN				
Extend the properties of exponents to rational exponents.				
	1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.	Full	MTH403A 4.1	
	2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Full	MTH403A 4.1	
Use properties of rational and irrational numbers.				
	3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	None		This concept is addressed in MTH122: Algebra I.
Quantities N-Q				
Reason quantitatively and use units to solve problems.				
	1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	None		This concept is addressed in MTH122: Algebra I, MTH302: Algebra II, and MTH413: Probability and Statistics.
	2. Define appropriate quantities for the purpose of descriptive modeling.	Full	MTH403A 2.5 MTH403A 4.2 MTH403B 2.4 MTH403B 3.3	
	3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	None		This concept is addressed in MTH112: Pre-Algebra and MTH202: Geometry.
The Complex Number System N-CN				
Perform arithmetic operations with complex numbers.				
	1. Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	Full	MTH403B 6.3	
	2. Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	Full	MTH403B 6.4	
	3. (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.	Full	MTH403B 6.4	
Represent complex numbers and their operations on the complex plane.				
	4. (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.	Full	MTH403B 6.1 MTH403B 6.3	
	5. (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .	Full	MTH403B 6.4	
	6. (+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.	Partial	MTH403B 6.3	This concept is also addressed in MTH302: Algebra II.

Number and Quantity

Use complex numbers in polynomial identities and equations.			
7. Solve quadratic equations with real coefficients that have complex solutions.	Full	MTH403A 2.4	
8. (+) Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	Full	MTH403A 3.3	
Vector and Matrix Quantities N-VM			
Represent and model with vector quantities			
1. (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., v , $ v $, $\ v\ $, v).	Full	MTH403B 5.3	
2. (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.	Full	MTH403B 5.3	
3. (+) Solve problems involving velocity and other quantities that can be represented by vectors.	Full	MTH403B 5.3	
Perform operations on vectors.			
4a. (+) Add and subtract vectors. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.	Full	MTH403B 5.3	
4b. (+) Add and subtract vectors. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.	Full	MTH403B 5.3	
4c. Understand vector subtraction $v - w$ as $v + (-w)$, where $-w$ is the additive inverse of w , with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.	Full	MTH403B 5.3	
5a. (+) Multiply a vector by a scalar. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.	Full	MTH403B 5.3	
5b. (+) Multiply a vector by a scalar. Compute the magnitude of a scalar multiple cv using $\ cv\ = c v$. Compute the direction of cv knowing that when $ c \neq 0$, the direction of cv is either along v (for $c > 0$) or against v (for $c < 0$).	Full	MTH403B 5.3	
Perform operations on matrices and use matrices in applications.			
6. (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.	None		This concept is addressed in MTH302: Algebra II.
7. (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.	None		This concept is addressed in MTH302: Algebra II.
8. (+) Add, subtract, and multiply matrices of appropriate dimensions.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.	None		This concept is addressed in MTH302: Algebra II.
10. (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.	None		This concept is addressed in MTH302: Algebra II.
11. (+) Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.	None		This concept is addressed in MTH302: Algebra II.

12. (+) Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.	None		This concept is addressed in MTH302: Algebra II.
Seeing Structures in Expressions A-SSE			
Interpret the structure of expressions			
1a. Interpret expressions that represent a quantity in terms of its context. ★ Interpret parts of an expression, such as terms, factors, and coefficients.	Full	MTH403A 3.1 MTH403A 4.1	
1b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.	Full	MTH403A 2.4 MTH403A 3.1 MTH403A 3.3	
2. Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.	Full	MTH403A 2.4 MTH403A 3.3 MTH403A 3.5 MTH403A 4.1	
Write expressions in equivalent forms to solve problems.			
3a. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. ★ Factor a quadratic expression to reveal the zeros of the function it defines.	Full	MTH403A 2.4	
3b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	None		This concept is addressed in MTH302: Algebra II.
3c. Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.	Full	MTH403A 4.2	
4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments. ★	Full	MTH403A 4.3	
Arithmetic with Polynomial and Rational Expressions A-APR			
Perform arithmetic operations on polynomials			
1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	None		This concept is addressed in MTH302: Algebra II.
Understand the relationship between zeros and factors of polynomials			
2. Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	Full	MTH403A 3.2	
3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	Full	MTH403A 3.3 MTH403A 3.4	
Use polynomial identities to solve problems			
4. Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.	None		This concept is addressed in MTH122: Algebra I.
5. (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.	None		This concept is addressed in MTH302: Algebra II.
Rewrite rational expressions			

Algebra

6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	Full	MTH403A 3.2	
7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	None		This concept is addressed in MTH302.
Creating Equations A-CED			
Create equations that describe numbers or relationships			
1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	None		This concept is addressed in MTH122: Algebra I and MTH302: Algebra II.
2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Full	MTH403A 2.2 MTH403A 2.5	
3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	Full	MTH403A 1.5	
4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .	None		This concept is addressed in MTH112: Pre-Algebra and MTH122: Algebra I.
Reasoning with Equations and Inequalities A-REI			
Understand solving equations as a process of reasoning and explain the reasoning			
1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	None		This concept is addressed in MTH112: Pre-Algebra and MTH122: Algebra I.
2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	None		This concept is addressed in MTH302: Algebra II.
Solve equations and inequalities in one variable			
3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	None		This concept is addressed in MTH122: Algebra I and MTH302: Algebra II.
4a. Solve quadratic equations in one variable. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.	None		This concept is addressed in MTH302: Algebra II.

4b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .	Partial	MTH403A 2.4	This concept is addressed in MTH122: Algebra I and MTH302: Algebra II.
Solve systems of equations			
5. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	Full	MTH403A 1.6	
6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Full	MTH403B 1.6	
7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.	Full	MTH403A 5.5	
8. (+) Represent a system of linear equations as a single matrix equation in a vector variable.	Full	MTH403A 1.6	
9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).	Full	MTH403A 1.6	
Represent and solve equations and inequalities graphically			
10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	Full	MTH403A 1.2	
11. Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. ★	Partial	MTH403A 1.6 MTH403A 5.5	This concept is also addressed in MTH302: Algebra II.
12. Graph the solutions to a linear inequality in two variables as a halfplane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	Full	MTH403A 1.5 MTH403A 1.6	
Interpreting Functions F-IF			
Understand the concept of a function and use function notation			
1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.	Full	MTH403A 1.2	
2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	Full	MTH403A 1.1	

3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.	Full	MTH403A 1.4 MTH403A 4.3	
Interpreting functions that arise in applications in terms of the context			
4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. ★	Full	MTH403A 2.2 MTH403A 3.4 MTH403A 4.2 MTH403B 2.1 MTH403B 2.2	
5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function. ★	Full	MTH403A 1.2 MTH403A 3.5	
6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. ★	None		This concept is addressed in MTH122: Algebra I.
Analyze functions using different representations			
7a. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. ★ Graph linear and quadratic functions and show intercepts, maxima, and minima.	Full	MTH403A 1.3 MTH403A 1.5 MTH403A 2.2	
7b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Partial	MTH403A 1.2	This concept is also addressed in MTH302: Algebra II.
7c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	Full	MTH403A 3.4	
7d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.	Full	MTH403A 3.5	
7e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	Full	MTH403A 4.2 MTH403A 4.5	
8a. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	Partial	MTH403A 2.4	This concept is also addressed in MTH122: Algebra I and MTH302: Algebra II.
8b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.	Full	MTH403A 4.2	

Functions	9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.	None		This concept is addressed in MTH302: Algebra II.
	Building Functions F-BF			
	Build a function that models a relationship between two quantities			
	1a. Write a function that describes a relationship between two quantities. ★ Determine an explicit expression, a recursive process, or steps for calculation from a context.	Full	MTH403A 2.5 MTH403A 4.2	
	1b. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.	Full	MTH403A 1.7	
	1c. (+) Compose functions. For example, if $T(y)$ is the temperature in the atmosphere as a function of height, and $h(t)$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.	Full	MTH403A 1.7	
	2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ★	Full	MTH403A 1.4 MTH403A 4.3	
	Build new functions from existing functions			
	3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	Full	MTH403A 2.3 MTH403A 4.2 MTH403B 2.3 MTH403B 2.4	
	4a. Find inverse functions. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.	Full	MTH403B 3.1	
	4b. (+) Verify by composition that one function is the inverse of another.	None		This concept is addressed in MTH302: Algebra II.
	4c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.	Full	MTH403B 3.1	
	4d. (+) Produce an invertible function from a non-invertible function by restricting the domain.	None		This concept is addressed in MTH302: Algebra II.
	5. (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.	Full	MTH403A 4.4 MTH403A 4.5	
	Linear, Quadratic, and Exponential Models F-LE			
	Construct and compare linear, quadratic, and exponential models and solve problems			
	1a. Distinguish between situations that can be modeled with linear functions and with exponential functions. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	Full	MTH403A 1.3 MTH403A 4.2	

1b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	None		This concept is addressed in MTH122: Algebra I.
1c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	None		This concept is addressed in MTH302: Algebra II.
2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	Full	MTH403A 1.3 MTH403A 1.4 MTH403A 4.2 MTH403A 4.3	
3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	None		This concept is addressed in MTH302: Algebra II.
4. For exponential models, express as a logarithm the solution to $a_b c^t = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.	Full	MTH403A 4.4	
Interpret expressions for functions in terms of the situation they model			
5. Interpret the parameters in a linear or exponential function in terms of a context.	Full	MTH403A 1.3 MTH403A 4.2	
Trigonometric Functions F-TF			
Extend the domain of trigonometric functions using the unit circle			
1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	Full	MTH403B 1.2	
2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	Full	MTH403B 1.3	
3. (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi-x$, $\pi+x$, and $2\pi-x$ in terms of their values for x , where x is any real number.	Full	MTH403B 2.1 MTH403B 2.4 MTH403B 3.3	
4. (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.	Full	MTH403B 2.1 MTH403B 2.2	
Model periodic phenomena with trigonometric functions			
5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.★	Full	MTH403B 2.1 MTH403B 2.4 MTH403B 3.3	
6. (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.	Full	MTH403B 3.1	
7. (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.★	Full	MTH403B 3.1	
Prove and apply trigonometric identities			
8. Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.	Full	MTH403B 4.1	

9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.	Full	MTH403B 4.2	
Congruence G-CO			
Experiments with transformations in the plane			
1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	Full	MTH403A 1.3 MTH403A 5.1 MTH403B 1.1	
2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	None		This concept is addressed in MTH202: Geometry.
3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	None		This concept is addressed in MTH202: Geometry.
4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	None		This concept is addressed in MTH202: Geometry.
5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	None		This concept is addressed in MTH112: Pre-Algebra and MTH202: Geometry.
Understand congruence in terms of rigid motions			
6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	None		This concept is addressed in MTH202: Geometry.
7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	None		This concept is addressed in MTH202: Geometry.
8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	None		This concept is addressed in MTH202: Geometry.
Prove geometric theorems			
9. Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.	None		This concept is addressed in MTH112: Pre-Algebra and MTH202: Geometry.
10. Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180° ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.	None		This concept is addressed in MTH112: Pre-Algebra and MTH202: Geometry.
11. Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.	None		This concept is addressed in MTH202: Geometry.
Make geometric constructions			

	12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.	None		This concept is addressed in MTH202: Geometry.
	13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	None		This concept is addressed in MTH202: Geometry.
Similarity, Right Triangles, and Trigonometry G-SRT				
Understand similarity in terms of similarity transformations				
	1a. Verify experimentally the properties of dilations given by a center and a scale factor: A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	None		This concept is addressed in MTH202: Geometry.
	1b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	None		This concept is addressed in MTH202: Geometry.
	2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	None		This concept is addressed in MTH202: Geometry.
	3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	None		This concept is addressed in MTH202: Geometry.
Prove theorems involving similarity				
	4. Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	None		This concept is addressed in MTH202: Geometry.
	5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	None		This concept is addressed in MTH202: Geometry.
Define trigonometric ratios and solve problems involving right triangles				
Geometry	6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	Full	MTH403B 1.1	
	7. Explain and use the relationship between the sine and cosine of complementary angles.	None		This concept is addressed in MTH202: Geometry.
	8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. ★	Full	MTH403B 1.1	
	Apply trigonometry to general triangles			
	9. (+) Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	None		This concept is addressed in MTH202: Geometry
	10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.	Full	MTH403B 5.1 MTH403B 5.2	

11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).	Full	MTH403B 5.1 MTH403B 5.2	
Circles G-C			
Understand and apply theorems about circles			
1. Prove that all circles are similar.	None		This concept is addressed in MTH202: Geometry.
2. Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	None		This concept is addressed in MTH202: Geometry.
3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	None		This concept is addressed in MTH202: Geometry.
4. (+) Construct a tangent line from a point outside a given circle to the circle.	None		This concept is addressed in MTH202: Geometry.
Find arc lengths and areas of sectors of circles			
5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	None		This concept is addressed in MTH202: Geometry.
Expressing Geometric Properties with Equations G-GPE			
Translate between the geometric description and the equation for a conic section			
1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	Full	MTH403A 5.1	
2. Derive the equation of a parabola given a focus and directrix.	Full	MTH403A 5.4	
3. (+) Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.	Full	MTH403A 5.2 MTH403A 5.3	
Use coordinates to prove simple geometric theorems algebraically			
4. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.	None		This concept is addressed in MTH202: Geometry.
5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	None		This concept is addressed in MTH202: Geometry.
6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	None		This concept is addressed in MTH202: Geometry.
7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. ★	None		This concept is addressed in MTH202: Geometry.
Geometric Measurement and Dimension G-GMD			
Explain volume formulas and use them to solve problems			
1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	None		This concept is addressed in MTH202: Geometry.

2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.	None		This concept is addressed in MTH202: Geometry.
3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. ★	None		This concept is addressed in MTH112: Pre-Algebra and MTH202: Geometry.
Visualize relationships between two-dimensional and three-dimensional objects			
4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	Partial	MTH403A 5.2-5.4	This concept is also addressed in MTH202: Geometry and MTH302: Algebra II.
Modeling with Geometry G-MG			
Apply geometric concepts in modeling situations			
1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). ★	None		This concept is addressed in MTH202: Geometry.
2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot). ★	None		This concept is addressed in MTH202: Geometry.
3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with topographic grid systems based on ratios). ★	None		This concept is addressed in MTH202: Geometry.
Interpreting Categorical and Quantitative Data S-ID			
Summarize, represent, and interpret data on a single count or measurement variable			
1. Represent data with plots on the real number line (dot plots, histograms, and box plots).	None		This concept is addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	None		This concept is addressed in MTH302: Algebra II.
3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	None		This concept is addressed in MTH302: Algebra II.
4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	None		This concept is addressed in MTH302: Algebra II and MTH413: Probability and Statistics.
Summarize, represent, and interpret data on two categorical and quantitative variables			
5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	None		This concept is addressed in MTH413: Probability and Statistics.
6a. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.	None		This concept is addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
6b. Informally assess the fit of a function by plotting and analyzing residuals.	None		This concept is addressed in MTH413: Probability and Statistics.
6c. Fit a linear function for a scatter plot that suggests a linear association.	None		This concept is addressed in MTH302: Algebra II.

Interpret linear models			
7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	None		This concept is addressed in MTH122: Algebra I and MTH302: Algebra II.
8. Compute (using technology) and interpret the correlation coefficient of a linear fit.	None		This concept is addressed in MTH413: Probability and Statistics.
9. Distinguish between correlation and causation.	None		This concept is addressed in MTH413: Probability and Statistics.
Making Inferences and Justifying Conclusions S-IC			
Understand and evaluate random processes underlying statistical experiments			
1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	None		This concept is addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?	None		This concept is addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
Make inferences and justify conclusions from sample surveys, experiments, and observational studies			
3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	None		This concept is addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	None		This concept is addressed in MTH413: Probability and Statistics.
5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	None		This concept is addressed in MTH413: Probability and Statistics.
6. Evaluate reports based on data.	None		This concept is addressed in MTH413: Probability and Statistics.
Conditional Probability and the Rules of Probability S-CP			
Understand independence and conditional probability and use them to interpret data			
1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).	None		This concept is addressed in MTH302: Algebra II.
2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	None		This concept is addressed in MTH302: Algebra II.
3. Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	None		This concept is addressed in MTH302: Algebra II.

Statistics and Probability

4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.	None		This concept is addressed in MTH413: Probability and Statistics.
5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.	None		This concept is addressed in MTH302: Algebra II.
Use the rules of probability to compute probabilities of compound events in a uniform probability model			
6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.	None		This concept is addressed in MTH302: Algebra II.
7. Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.	None		This concept is addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
8. (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.	None		This concept is addressed in MTH302: Algebra II.
9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.	None		This concept is addressed in MTH302: Algebra II.
Using Probability to Make Decisions S-MD			
Calculate expected values and use them to solve problems			
1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.	None		This concept is addressed in MTH413: Probability and Statistics.
2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.	None		This concept is addressed in MTH413: Probability and Statistics.
3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.	None		This concept is addressed in MTH413: Probability and Statistics.
4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?	None		This concept is addressed in MTH413: Probability and Statistics.
Use probability to evaluate outcomes of decisions			

5a. (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fastfood restaurant.	None		This concept is addressed in MTH413: Probability and Statistics.
5b. Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.	None		This concept is addressed in MTH413: Probability and Statistics.
6. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).	None		This concept is addressed in MTH413: Probability and Statistics.
7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).	None		This concept is addressed in MTH413: Probability and Statistics.

**Common Core High School Probability and Statistics Standards
Compared to K¹² MTH413: Probability and Statistics**

Standard/Topic	Performance Indicator	Coverage	Course, Unit, Lesson	Comments
Interpreting Categorical and Quantitative Data S-ID				
Summarize, represent, and interpret data on a single count or measurement variable				
	1. Represent data with plots on the real number line (dot plots, histograms, and box plots).	Full	MTH413 1.6 MTH413 1.9 MTH413 2.3	
	2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	Full	MTH413 2.2 MTH413 2.3-2.5 MTH413 2.7-2.9	
	3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	Full	MTH413 1.6 MTH413 2.2 MTH413 2.3-2.5 MTH413 2.7-2.9	
	4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	Full	MTH413 4.7 MTH413 4.8 MTH413 4.10-4.13 MTH413 7.8	
Summarize, represent, and interpret data on two categorical and quantitative variables				
	5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	Full	MTH413 1.4 MTH413 1.5 MTH413 1.8 MTH413 1.9 MTH413 3.6 MTH413 7.3-7.5 MTH413 7.7 MTH413 7.8	
	6a. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.	Full	MTH413 7.2-7.5 MTH413 7.8	
	6b. Informally assess the fit of a function by plotting and analyzing residuals.	Full	MTH413 7.10	
	6c. Fit a linear function for a scatter plot that suggests a linear association.	Full	MTH413 7.4 MTH413 7.5 MTH413 7.7 MTH413 7.8	
Interpret linear models				
	7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	Full	MTH413 7.4 MTH413 7.7	
	8. Compute (using technology) and interpret the correlation coefficient of a linear fit.	Full	MTH413 7.4 MTH413 7.5 MTH413 7.7	
	9. Distinguish between correlation and causation.	Full	MTH413 7.4 MTH413 7.11	
Making Inferences and Justifying Conclusions S-IC				
Understand and evaluate random processes underlying statistical experiments				

Statistics and Probability	1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	Full	MTH413 5.1 MTH413 5.2 MTH413 5.7	
	2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?	Full	MTH413 3.13 MTH413 5.6	
	Make inferences and justify conclusions from sample surveys, experiments, and observational studies			
	3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	Partial	MTH413 3.13 MTH413 5.3 MTH413 5.6	This concept is also addressed in MTH112: Pre-Algebra and MTH302: Algebra II.
	4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	Full	MTH413 5.2 MTH413 5.7 MTH413 5.8	
	5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	Full	MTH413 6.4	
	6. Evaluate reports based on data.	Full	MTH413 7.8	
	Conditional Probability and the Rules of Probability S-CP			
	Understand independence and conditional probability and use them to interpret data			
	1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").	Full	MTH413 3.2 MTH413 3.6 MTH413 3.9 MTH413 3.10	
	2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	Full	MTH413 3.2 MTH413 3.12	
	3. Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	Full	MTH413 3.6 MTH413 3.12	
	4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.	Full	MTH413 1.5 MTH413 3.12	
	5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.	Full	MTH413 3.6 MTH413 3.12	
	Use the rules of probability to compute probabilities of compound events in a uniform probability model			
6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.	Full	MTH413 3.6 MTH413 3.12		
7. Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.	Full	MTH413 3.9 MTH413 3.10		
8. (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.	Full	MTH413 3.12		

9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.	Full	MTH413 3.3-3.6	
Using Probability to Make Decisions S-MD			
Calculate expected values and use them to solve problems			
1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.	Full	MTH413 4.2 MTH413 4.3	
2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.	Full	MTH413 4.4	
3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.	Full	MTH413 4.2 MTH413 4.3	
4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?	Full	MTH413 4.2 MTH413 4.3 MTH413 4.7	
Use probability to evaluate outcomes of decisions			
5a. (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fastfood restaurant.	Full	MTH413 4.4	
5b. Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.	Full	MTH413 4.4	
6. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).	Full	MTH413 4.4 MTH413 5.6 MTH413 5.7	
7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).	Full	MTH413 4.4	