Common Core State Standards

for

Mathematics

and

English Language Arts
Grades 6-12

Set up for this booklet ~
Grades 6-8 Mathematics then ELA by grade level.
Grades 9-12 Mathematics by content area then ELA broken up as 9-10 and 11-12.

For more information about the standards, please go to: www.corestandards.org.

MATHEMATICS OVERVIEW ~

Throughout the K-12 Mathematics Standards are also the Mathematical Practice Standards.

The Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Connecting the Standards for Mathematical Practice
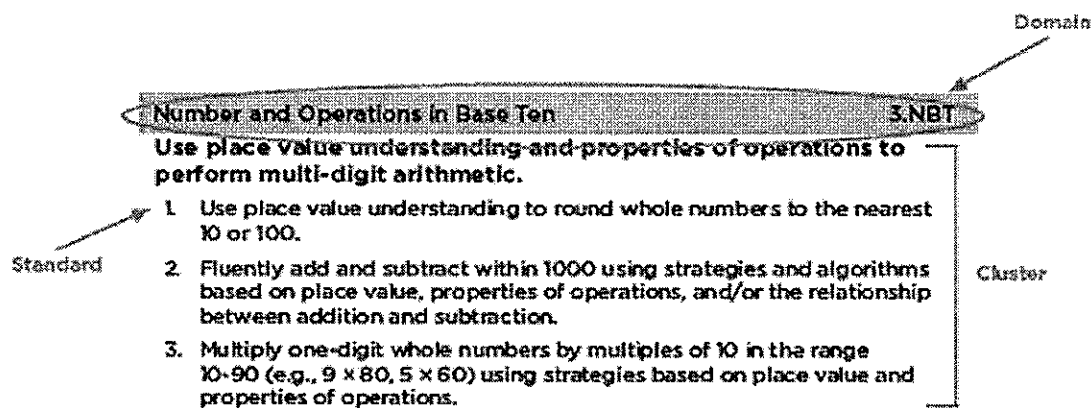
to the Standards for Mathematical Content

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years.

Mathematics » Introduction » How to read the grade level standards

Standards define what students should understand and be able to do.

Clusters summarize groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject.

Domains are larger groups of related standards. Standards from different domains may sometimes be closely related.

Domain

Number and Operations in Base Ten   **3.NBT**

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Standard

1. Use place value understanding to round whole numbers to the nearest 10 or 100.

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.

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.

Cluster

ENGLISH/LANGUAGE ARTS OVERVIEW ~

Key Features of the Standards

K-12 Reading: Text Complexity and the growth of comprehension
  - Key Ideas and Details
  - Craft and Structure
  - Integration of Knowledge and Ideas
  - Range of Reading and Level of Text Complexity

K-12 Writing: Text types, responding to reading and research
  - Text Types and Purposes
  - Production and Distribution of Writing
  - Research to Build and Present Knowledge
  - Range of Writing

K-12 Speaking and Listening: Flexible communication and collaboration
  - Comprehension and Collaboration
  - Presentation of Knowledge and Ideas

K-12 Language: Conventions, effective use, and vocabulary
  - Conventions of Standard English
  - Knowledge of Language
  - Vocabulary Acquisition and Use

A single K–5 section lists standards for reading, writing, speaking, listening, and language across the curriculum, reflecting the fact that most or all of the instruction students in these grades receive comes from one teacher.

Grades 6–12 are covered in two content area–specific sections, the first for the English language arts teacher and the second for teachers of history/social studies, science, and technical subjects.

Standards run for grades K-8, 9-10, and 11-12.

SIXTH GRADE MATHEMATICS STANDARDS

Ratios & Proportional Relationships
Understand ratio concepts and use ratio reasoning to solve problems.
- CCSS.Math.Content.6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *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."*
- CCSS.Math.Content.6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. *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."*[1]
- CCSS.Math.Content.6.RP.A.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.
  - CCSS.Math.Content.6.RP.A.3a 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.
  - CCSS.Math.Content.6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed. *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?*
  - CCSS.Math.Content.6.RP.A.3c 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.
  - CCSS.Math.Content.6.RP.A.3d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

The Number System
Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
- CCSS.Math.Content.6.NS.A.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. *For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (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.
- CCSS.Math.Content.6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm.
- CCSS.Math.Content.6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- CCSS.Math.Content.6.NS.B.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. *For example, express 36 + 8 as 4 (9 + 2).*

Apply and extend previous understandings of numbers to the system of rational numbers.

- CCSS.Math.Content.6.NS.C.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.
- CCSS.Math.Content.6.NS.C.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.
    - CCSS.Math.Content.6.NS.C.6a 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.
    - CCSS.Math.Content.6.NS.C.6b 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.
    - CCSS.Math.Content.6.NS.C.6c 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.
- CCSS.Math.Content.6.NS.C.7 Understand ordering and absolute value of rational numbers.
    - CCSS.Math.Content.6.NS.C.7a 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.*
    - CCSS.Math.Content.6.NS.C.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write $-3\,^{\circ}C > -7\,^{\circ}C$ to express the fact that $-3\,^{\circ}C$ is warmer than $-7\,^{\circ}C$.*
    - CCSS.Math.Content.6.NS.C.7c 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 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.*
    - CCSS.Math.Content.6.NS.C.7d 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.*
- CCSS.Math.Content.6.NS.C.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.

Expressions & Equations

Apply and extend previous understandings of arithmetic to algebraic expressions.

- CCSS.Math.Content.6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.
- CCSS.Math.Content.6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers.
    - CCSS.Math.Content.6.EE.A.2a Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as $5 - y$.*
    - CCSS.Math.Content.6.EE.A.2b 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.*

- o CCSS.Math.Content.6.EE.A.2c 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 $A = 6 s^2$ to find the volume and surface area of a cube with sides of length s = 1/2.*
- CCSS.Math.Content.6.EE.A.3 Apply the properties of operations to generate equivalent expressions. *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.*
- CCSS.Math.Content.6.EE.A.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). *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.

- CCSS.Math.Content.6.EE.B.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.
- CCSS.Math.Content.6.EE.B.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.
- CCSS.Math.Content.6.EE.B.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.
- CCSS.Math.Content.6.EE.B.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.

Represent and analyze quantitative relationships between dependent and independent variables.

- CCSS.Math.Content.6.EE.C.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. 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.

Geometry

Solve real-world and mathematical problems involving area, surface area, and volume.

- CCSS.Math.Content.6.G.A.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.
- CCSS.Math.Content.6.G.A.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 $V = l\,w\,h$ and V

$= b\,h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

- CCSS.Math.Content.6.G.A.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 coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
- CCSS.Math.Content.6.G.A.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.

Statistics & Probability

Develop understanding of statistical variability.

- CCSS.Math.Content.6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *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.*
- CCSS.Math.Content.6.SP.A.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.
- CCSS.Math.Content.6.SP.A.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.

Summarize and describe distributions.

- CCSS.Math.Content.6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
- CCSS.Math.Content.6.SP.B.5 Summarize numerical data sets in relation to their context, such as by:
    - o CCSS.Math.Content.6.SP.B.5a Reporting the number of observations.
    - o CCSS.Math.Content.6.SP.B.5b Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
    - o CCSS.Math.Content.6.SP.B.5c 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.
    - o CCSS.Math.Content.6.SP.B.5d 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.

SIXTH GRADE ENGLISH LANGUAGE ARTS STANDARDS

Reading - Literature
Key Ideas and Details
- CCSS.ELA-Literacy.RL.6.1 Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Craft and Structure
- CCSS.ELA-Literacy.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
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.RL.6.6 Explain how an author develops the point of view of the narrator or speaker in a text.

Integration of Knowledge and Ideas
- CCSS.ELA-Literacy.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.
- (RL.6.8 not applicable to literature)
- CCSS.ELA-Literacy.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.

Range of Reading and Level of Text Complexity
- CCSS.ELA-Literacy.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.

Reading - Informational Texts
Key Ideas and Details
- CCSS.ELA-Literacy.RI.6.1 Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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).

Craft and Structure
- CCSS.ELA-Literacy.RI.6.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.RI.6.6 Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.

Integration of Knowledge and Ideas

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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).

Range of Reading and Level of Text Complexity

- CCSS.ELA-Literacy.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.

Writing

Text Types and Purposes

- CCSS.ELA-Literacy.W.6.1 Write arguments to support claims with clear reasons and relevant evidence.
    - CCSS.ELA-Literacy.W.6.1a Introduce claim(s) and organize the reasons and evidence clearly.
    - CCSS.ELA-Literacy.W.6.1b Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.
    - CCSS.ELA-Literacy.W.6.1c Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.
    - CCSS.ELA-Literacy.W.6.1d Establish and maintain a formal style.
    - CCSS.ELA-Literacy.W.6.1e Provide a concluding statement or section that follows from the argument presented.
- CCSS.ELA-Literacy.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.
    - CCSS.ELA-Literacy.W.6.2a 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.
    - CCSS.ELA-Literacy.W.6.2b Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
    - CCSS.ELA-Literacy.W.6.2c Use appropriate transitions to clarify the relationships among ideas and concepts.
    - CCSS.ELA-Literacy.W.6.2d Use precise language and domain-specific vocabulary to inform about or explain the topic.
    - CCSS.ELA-Literacy.W.6.2e Establish and maintain a formal style.
    - CCSS.ELA-Literacy.W.6.2f Provide a concluding statement or section that follows from the information or explanation presented.
- CCSS.ELA-Literacy.W.6.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
    - CCSS.ELA-Literacy.W.6.3a 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.
    - CCSS.ELA-Literacy.W.6.3b Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.

- o <u>CCSS.ELA-Literacy.W.6.3c</u> Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.
- o <u>CCSS.ELA-Literacy.W.6.3d</u> Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events.
- o <u>CCSS.ELA-Literacy.W.6.3e</u> Provide a conclusion that follows from the narrated experiences or events.

Production and Distribution of Writing
- <u>CCSS.ELA-Literacy.W.6.4</u> 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.)
- <u>CCSS.ELA-Literacy.W.6.5</u> 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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 6 <u>here</u>.)
- <u>CCSS.ELA-Literacy.W.6.6</u> 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.

Research to Build and Present Knowledge
- <u>CCSS.ELA-Literacy.W.6.7</u> Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- <u>CCSS.ELA-Literacy.W.6.8</u> 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.
- <u>CCSS.ELA-Literacy.W.6.9</u> Draw evidence from literary or informational texts to support analysis, reflection, and research.
  - o <u>CCSS.ELA-Literacy.W.6.9a</u> 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").
  - o <u>CCSS.ELA-Literacy.W.6.9b</u> 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").

Range of Writing
- <u>CCSS.ELA-Literacy.W.6.10</u> 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.

Speaking and Listening

Comprehension and Collaboration
- <u>CCSS.ELA-Literacy.SL.6.1</u> 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.
  - o <u>CCSS.ELA-Literacy.SL.6.1a</u> 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.

- o CCSS.ELA-Literacy.SL.6.1b Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- o CCSS.ELA-Literacy.SL.6.1c Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.
- o CCSS.ELA-Literacy.SL.6.1d Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Presentation of Knowledge and Ideas

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.SL.6.5 Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.
- CCSS.ELA-Literacy.SL.6.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 6 Language standards 1 and 3 here for specific expectations.)

Language

Conventions of Standard English

- CCSS.ELA-Literacy.L.6.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
  - o CCSS.ELA-Literacy.L.6.1a Ensure that pronouns are in the proper case (subjective, objective, possessive).
  - o CCSS.ELA-Literacy.L.6.1b Use intensive pronouns (e.g., *myself, ourselves*).
  - o CCSS.ELA-Literacy.L.6.1c Recognize and correct inappropriate shifts in pronoun number and person.*
  - o CCSS.ELA-Literacy.L.6.1d Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).*
  - o CCSS.ELA-Literacy.L.6.1e Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.*
- CCSS.ELA-Literacy.L.6.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
  - o CCSS.ELA-Literacy.L.6.2a Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.*
  - o CCSS.ELA-Literacy.L.6.2b Spell correctly.

Knowledge of Language

- CCSS.ELA-Literacy.L.6.3 Use knowledge of language and its conventions when writing, speaking, reading, or listening.
  - o CCSS.ELA-Literacy.L.6.3a Vary sentence patterns for meaning, reader/listener interest, and style.*
  - o CCSS.ELA-Literacy.L.6.3b Maintain consistency in style and tone.*

Vocabulary Acquisition and Use

- CCSS.ELA-Literacy.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.
    - CCSS.ELA-Literacy.L.6.4a 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.
    - CCSS.ELA-Literacy.L.6.4b Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *audience, auditory, audible*).
    - CCSS.ELA-Literacy.L.6.4c 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.
    - CCSS.ELA-Literacy.L.6.4d 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).
- CCSS.ELA-Literacy.L.6.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
    - CCSS.ELA-Literacy.L.6.5a Interpret figures of speech (e.g., personification) in context.
    - CCSS.ELA-Literacy.L.6.5b Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words.
    - CCSS.ELA-Literacy.L.6.5c Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *stingy, scrimping, economical, unwasteful, thrifty*).
- CCSS.ELA-Literacy.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.

SEVENTH GRADE MATHEMATICS STANDARDS

Ratios & Proportional Relationships
Analyze proportional relationships and use them to solve real-world and mathematical problems.
- CCSS.Math.Content.7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $^{1/2}/_{1/4}$ miles per hour, equivalently 2 miles per hour.*
- CCSS.Math.Content.7.RP.A.2 Recognize and represent proportional relationships between quantities.
    - CCSS.Math.Content.7.RP.A.2a 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.
    - CCSS.Math.Content.7.RP.A.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
    - CCSS.Math.Content.7.RP.A.2c 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.*
    - CCSS.Math.Content.7.RP.A.2d 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.
- CCSS.Math.Content.7.RP.A.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.

The Number System
Apply and extend previous understandings of operations with fractions.
- CCSS.Math.Content.7.NS.A.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.
    - CCSS.Math.Content.7.NS.A.1a 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.*
    - CCSS.Math.Content.7.NS.A.1b Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or 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.
    - CCSS.Math.Content.7.NS.A.1c 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.
    - CCSS.Math.Content.7.NS.A.1d Apply properties of operations as strategies to add and subtract rational numbers.
- CCSS.Math.Content.7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
    - CCSS.Math.Content.7.NS.A.2a 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.

- o CCSS.Math.Content.7.NS.A.2b 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.

- o CCSS.Math.Content.7.NS.A.2c Apply properties of operations as strategies to multiply and divide rational numbers.

- o CCSS.Math.Content.7.NS.A.2d 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.

- CCSS.Math.Content.7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.

Expressions & Equations

Use properties of operations to generate equivalent expressions.

- CCSS.Math.Content.7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

- CCSS.Math.Content.7.EE.A.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."*

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

- CCSS.Math.Content.7.EE.B.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 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 3/4 inches long in the center of a door that is 27 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.*

- CCSS.Math.Content.7.EE.B.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.

    - o CCSS.Math.Content.7.EE.B.4a 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?*

    - o CCSS.Math.Content.7.EE.B.4b 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.*

Geometry

Draw construct, and describe geometrical figures and describe the relationships between them.

- CCSS.Math.Content.7.G.A.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.
- CCSS.Math.Content.7.G.A.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.
- CCSS.Math.Content.7.G.A.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.

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

- CCSS.Math.Content.7.G.B.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.
- CCSS.Math.Content.7.G.B.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.
- CCSS.Math.Content.7.G.B.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.

Statistics & Probability

Use random sampling to draw inferences about a population.

- CCSS.Math.Content.7.SP.A.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.
- CCSS.Math.Content.7.SP.A.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. *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.*

Draw informal comparative inferences about two populations.

- CCSS.Math.Content.7.SP.B.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. *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.*
- CCSS.Math.Content.7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *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.*

Investigate chance processes and develop, use, and evaluate probability models.

- CCSS.Math.Content.7.SP.C.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.
- CCSS.Math.Content.7.SP.C.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. *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.*
- CCSS.Math.Content.7.SP.C.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.
    - o CCSS.Math.Content.7.SP.C.7a 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.*
    - o CCSS.Math.Content.7.SP.C.7b 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?*
- CCSS.Math.Content.7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
    - o CCSS.Math.Content.7.SP.C.8a 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.
    - o CCSS.Math.Content.7.SP.C.8b 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.
    - o CCSS.Math.Content.7.SP.C.8c 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?*

SEVENTH GRADE ENGLISH LANGUAGE ARTS STANDARDS

Reading - Literature
Key Ideas and Details
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.RL.7.3 Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).

Craft and Structure
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.RL.7.5 Analyze how a drama's or poem's form or structure (e.g., soliloquy, sonnet) contributes to its meaning
- CCSS.ELA-Literacy.RL.7.6 Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.

Integration of Knowledge and Ideas
- CCSS.ELA-Literacy.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).
- (RL.7.8 not applicable to literature)
- CCSS.ELA-Literacy.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.

Range of Reading and Level of Text Complexity
- CCSS.ELA-Literacy.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.

Reading - Informational Texts
Key Ideas and Details
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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).

Craft and Structure
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

- CCSS.ELA-Literacy.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.

Integration of Knowledge and Ideas
- CCSS.ELA-Literacy.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).
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Range of Reading and Level of Text Complexity
- CCSS.ELA-Literacy.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.

Writing

Text Types and Purposes
- CCSS.ELA-Literacy.W.7.1 Write arguments to support claims with clear reasons and relevant evidence.
  - CCSS.ELA-Literacy.W.7.1a Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically.
  - CCSS.ELA-Literacy.W.7.1b Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
  - CCSS.ELA-Literacy.W.7.1c Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.
  - CCSS.ELA-Literacy.W.7.1d Establish and maintain a formal style.
  - CCSS.ELA-Literacy.W.7.1e Provide a concluding statement or section that follows from and supports the argument presented.
- CCSS.ELA-Literacy.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.
  - CCSS.ELA-Literacy.W.7.2a 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.
  - CCSS.ELA-Literacy.W.7.2b Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
  - CCSS.ELA-Literacy.W.7.2c Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts.
  - CCSS.ELA-Literacy.W.7.2d Use precise language and domain-specific vocabulary to inform about or explain the topic.
  - CCSS.ELA-Literacy.W.7.2e Establish and maintain a formal style.
  - CCSS.ELA-Literacy.W.7.2f Provide a concluding statement or section that follows from and supports the information or explanation presented.
- CCSS.ELA-Literacy.W.7.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

- o CCSS.ELA-Literacy.W.7.3a 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.
- o CCSS.ELA-Literacy.W.7.3b Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.
- o CCSS.ELA-Literacy.W.7.3c Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.
- o CCSS.ELA-Literacy.W.7.3d Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.
- o CCSS.ELA-Literacy.W.7.3e Provide a conclusion that follows from and reflects on the narrated experiences or events.

Production and Distribution of Writing
- CCSS.ELA-Literacy.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.)
- CCSS.ELA-Literacy.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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 7 here.)
- CCSS.ELA-Literacy.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.

Research to Build and Present Knowledge
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.W.7.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.
  - o CCSS.ELA-Literacy.W.7.9a 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").
  - o CCSS.ELA-Literacy.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").

Range of Writing
- CCSS.ELA-Literacy.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.

Speaking and Listening

Comprehension and Collaboration
- CCSS.ELA-Literacy.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.

- o CCSS.ELA-Literacy.SL.7.1a 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.
        - o CCSS.ELA-Literacy.SL.7.1b Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.
        - o CCSS.ELA-Literacy.SL.7.1c 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.
        - o CCSS.ELA-Literacy.SL.7.1d Acknowledge new information expressed by others and, when warranted, modify their own views.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Presentation of Knowledge and Ideas

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.
- CCSS.ELA-Literacy.SL.7.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 7 Language standards 1 and 3 here for specific expectations.)

Language

Conventions of Standard English

- CCSS.ELA-Literacy.L.7.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
        - o CCSS.ELA-Literacy.L.7.1a Explain the function of phrases and clauses in general and their function in specific sentences.
        - o CCSS.ELA-Literacy.L.7.1b Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas.
        - o CCSS.ELA-Literacy.L.7.1c Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.*
- CCSS.ELA-Literacy.L.7.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
        - o CCSS.ELA-Literacy.L.7.2a Use a comma to separate coordinate adjectives (e.g., *It was a fascinating, enjoyable movie* but not *He wore an old[,] green shirt*).
        - o CCSS.ELA-Literacy.L.7.2b Spell correctly.

Knowledge of Language

- CCSS.ELA-Literacy.L.7.3 Use knowledge of language and its conventions when writing, speaking, reading, or listening.
        - o CCSS.ELA-Literacy.L.7.3a Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.*

Vocabulary Acquisition and Use

- CCSS.ELA-Literacy.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.
    - CCSS.ELA-Literacy.L.7.4a 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.
    - CCSS.ELA-Literacy.L.7.4b Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *belligerent, bellicose, rebel*).
    - CCSS.ELA-Literacy.L.7.4c 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.
    - CCSS.ELA-Literacy.L.7.4d 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).
- CCSS.ELA-Literacy.L.7.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
    - CCSS.ELA-Literacy.L.7.5a Interpret figures of speech (e.g., literary, biblical, and mythological allusions) in context.
    - CCSS.ELA-Literacy.L.7.5b Use the relationship between particular words (e.g., synonym/antonym, analogy) to better understand each of the words.
    - CCSS.ELA-Literacy.L.7.5c Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *refined, respectful, polite, diplomatic, condescending*).
- CCSS.ELA-Literacy.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.

EIGHTH GRADE MATHEMATICS STANDARDS

The Number System

Know that there are numbers that are not rational, and approximate them by rational numbers.

- CCSS.Math.Content.8.NS.A.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.
- CCSS.Math.Content.8.NS.A.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). *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.*

Expressions & Equations

Expressions and Equations Work with radicals and integer exponents.

- CCSS.Math.Content.8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.
- CCSS.Math.Content.8.EE.A.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.
- CCSS.Math.Content.8.EE.A.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *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.*
- CCSS.Math.Content.8.EE.A.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

Understand the connections between proportional relationships, lines, and linear equations.

- CCSS.Math.Content.8.EE.B.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.
- CCSS.Math.Content.8.EE.B.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.

Analyze and solve linear equations and pairs of simultaneous linear equations.

- CCSS.Math.Content.8.EE.C.7 Solve linear equations in one variable.
  - CCSS.Math.Content.8.EE.C.7a 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).
  - CCSS.Math.Content.8.EE.C.7b Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

- <u>CCSS.Math.Content.8.EE.C.8</u> Analyze and solve pairs of simultaneous linear equations.
  - o <u>CCSS.Math.Content.8.EE.C.8a</u> 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.
  - o <u>CCSS.Math.Content.8.EE.C.8b</u> 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.*
  - o <u>CCSS.Math.Content.8.EE.C.8c</u> 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.*

Functions
Define, evaluate, and compare functions.
- <u>CCSS.Math.Content.8.F.A.1</u> 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]
- <u>CCSS.Math.Content.8.F.A.2</u> Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *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.*
- <u>CCSS.Math.Content.8.F.A.3</u> 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. *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.*

Use functions to model relationships between quantities.
- <u>CCSS.Math.Content.8.F.B.4</u> 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 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.
- <u>CCSS.Math.Content.8.F.B.5</u> 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.

Geometry
Understand congruence and similarity using physical models, transparencies, or geometry software.
- <u>CCSS.Math.Content.8.G.A.1</u> Verify experimentally the properties of rotations, reflections, and translations:
  - o <u>CCSS.Math.Content.8.G.A.1a</u> Lines are taken to lines, and line segments to line segments of the same length.
  - o <u>CCSS.Math.Content.8.G.A.1b</u> Angles are taken to angles of the same measure.
  - o <u>CCSS.Math.Content.8.G.A.1c</u> Parallel lines are taken to parallel lines.

- CCSS.Math.Content.8.G.A.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.
- CCSS.Math.Content.8.G.A.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
- CCSS.Math.Content.8.G.A.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.
- CCSS.Math.Content.8.G.A.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. *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.*

Understand and apply the Pythagorean Theorem.
- CCSS.Math.Content.8.G.B.6 Explain a proof of the Pythagorean Theorem and its converse.
- CCSS.Math.Content.8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
- CCSS.Math.Content.8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.
- CCSS.Math.Content.8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Statistics & Probability
Investigate patterns of association in bivariate data.
- CCSS.Math.Content.8.SP.A.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.
- CCSS.Math.Content.8.SP.A.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.
- CCSS.Math.Content.8.SP.A.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *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.*
- CCSS.Math.Content.8.SP.A.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. *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?*

EIGHTH GRADE ENGLISH LANGUAGE ARTS STANDARDS

Reading - Literature
Key Ideas and Details
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Craft and Structure
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Integration of Knowledge and Ideas
- CCSS.ELA-Literacy.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.
- (RL.8.8 not applicable to literature)
- CCSS.ELA-Literacy.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.

Range of Reading and Level of Text Complexity
- CCSS.ELA-Literacy.RL.8.10 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.

Reading - Informational Texts
Key Ideas and Details
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.RI.8.3 Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).

Craft and Structure
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

- CCSS.ELA-Literacy.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.

Integration of Knowledge and Ideas
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Range of Reading and Level of Text Complexity
- CCSS.ELA-Literacy.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.

Writing

Text Types and Purposes
- CCSS.ELA-Literacy.W.8.1 Write arguments to support claims with clear reasons and relevant evidence
  - CCSS.ELA-Literacy.W.8.1a Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
  - CCSS.ELA-Literacy.W.8.1b Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
  - CCSS.ELA-Literacy.W.8.1c Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
  - CCSS.ELA-Literacy.W.8.1d Establish and maintain a formal style.
  - CCSS.ELA-Literacy.W.8.1e Provide a concluding statement or section that follows from and supports the argument presented.
- CCSS.ELA-Literacy.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.
  - CCSS.ELA-Literacy.W.8.2a 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.
  - CCSS.ELA-Literacy.W.8.2b Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
  - CCSS.ELA-Literacy.W.8.2c Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
  - CCSS.ELA-Literacy.W.8.2d Use precise language and domain-specific vocabulary to inform about or explain the topic.
  - CCSS.ELA-Literacy.W.8.2e Establish and maintain a formal style.
  - CCSS.ELA-Literacy.W.8.2f Provide a concluding statement or section that follows from and supports the information or explanation presented.
- CCSS.ELA-Literacy.W.8.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
  - CCSS.ELA-Literacy.W.8.3a 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.

- o CCSS.ELA-Literacy.W.8.3b Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.
- o CCSS.ELA-Literacy.W.8.3c 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.
- o CCSS.ELA-Literacy.W.8.3d Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.
- o CCSS.ELA-Literacy.W.8.3e Provide a conclusion that follows from and reflects on the narrated experiences or events.

Production and Distribution of Writing

- CCSS.ELA-Literacy.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.)
- CCSS.ELA-Literacy.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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 8 here.)
- CCSS.ELA-Literacy.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.

Research to Build and Present Knowledge

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.W.8.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.
  - o CCSS.ELA-Literacy.W.8.9a 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").
  - o CCSS.ELA-Literacy.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").

Range of Writing

- CCSS.ELA-Literacy.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.

Comprehension and Collaboration

- CCSS.ELA-Literacy.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.
    - CCSS.ELA-Literacy.SL.8.1a 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.
    - CCSS.ELA-Literacy.SL.8.1b Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
    - CCSS.ELA-Literacy.SL.8.1c Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
    - CCSS.ELA-Literacy.SL.8.1d Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Presentation of Knowledge and Ideas

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.SL.8.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.
- CCSS.ELA-Literacy.SL.8.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 8 Language standards 1 and 3 here for specific expectations.)

Language

Conventions of Standard English

- CCSS.ELA-Literacy.L.8.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
    - CCSS.ELA-Literacy.L.8.1a Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences.
    - CCSS.ELA-Literacy.L.8.1b Form and use verbs in the active and passive voice.
    - CCSS.ELA-Literacy.L.8.1c Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood.
    - CCSS.ELA-Literacy.L.8.1d Recognize and correct inappropriate shifts in verb voice and mood.*
- CCSS.ELA-Literacy.L.8.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
    - CCSS.ELA-Literacy.L.8.2a Use punctuation (comma, ellipsis, dash) to indicate a pause or break.
    - CCSS.ELA-Literacy.L.8.2b Use an ellipsis to indicate an omission.
    - CCSS.ELA-Literacy.L.8.2c Spell correctly.

Knowledge of Language

- CCSS.ELA-Literacy.L.8.3 Use knowledge of language and its conventions when writing, speaking, reading, or listening.
    - o CCSS.ELA-Literacy.L.8.3a 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).

Vocabulary Acquisition and Use

- CCSS.ELA-Literacy.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.
    - o CCSS.ELA-Literacy.L.8.4a 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.
    - o CCSS.ELA-Literacy.L.8.4b Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *precede, recede, secede*).
    - o CCSS.ELA-Literacy.L.8.4c 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.
    - o CCSS.ELA-Literacy.L.8.4d 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).
- CCSS.ELA-Literacy.L.8.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
    - o CCSS.ELA-Literacy.L.8.5a Interpret figures of speech (e.g. verbal irony, puns) in context.
    - o CCSS.ELA-Literacy.L.8.5b Use the relationship between particular words to better understand each of the words.
    - o CCSS.ELA-Literacy.L.8.5c Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *bullheaded, willful, firm, persistent, resolute*).
- CCSS.ELA-Literacy.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.

Math Standards are broken up for grades 9-12 as

Number and Quantity

Algebra

Functions

Geometry

Statistics & Probability

See below by section.

Modeling Standards

Modeling links classroom mathematics and statistics to everyday life, work, and decision-making. Modeling is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions. Modeling is best interpreted not as a collection of isolated topics but rather in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by a star symbol (★).

NUMBER AND QUANTITY MATHEMATICS STANDARDS

The Real Number System

Extend the properties of exponents to rational exponents.

- CCSS.Math.Content.HSN-RN.A.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.*
- CCSS.Math.Content.HSN-RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.

Use properties of rational and irrational numbers.

- CCSS.Math.Content.HSN-RN.B.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.

Quantities

Reason quantitatively and use units to solve problems.

- CCSS.Math.Content.HSN-Q.A.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.
- CCSS.Math.Content.HSN-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.
- CCSS.Math.Content.HSN-Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

The Complex Number System

Perform arithmetic operations with complex numbers.

- CCSS.Math.Content.HSN-CN.A.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.
- CCSS.Math.Content.HSN-CN.A.2 Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
- CCSS.Math.Content.HSN-CN.A.3 (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.

Represent complex numbers and their operations on the complex plane.

- CCSS.Math.Content.HSN-CN.B.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.
- CCSS.Math.Content.HSN-CN.B.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°.*
- CCSS.Math.Content.HSN-CN.B.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.

Use complex numbers in polynomial identities and equations.

- CCSS.Math.Content.HSN-CN.C.7 Solve quadratic equations with real coefficients that have complex solutions.
- CCSS.Math.Content.HSN-CN.C.8 (+) Extend polynomial identities to the complex numbers. *For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.*

- CCSS.Math.Content.HSN-CN.C.9 (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.

Vector & Matrix Quantities

Represent and model with vector quantities.
- CCSS.Math.Content.HSN-VM.A.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).
- CCSS.Math.Content.HSN-VM.A.2 (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.
- CCSS.Math.Content.HSN-VM.A.3 (+) Solve problems involving velocity and other quantities that can be represented by vectors.

Perform operations on vectors.
- CCSS.Math.Content.HSN-VM.B.4 (+) Add and subtract vectors.
  - CCSS.Math.Content.HSN-VM.B.4a 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.
  - CCSS.Math.Content.HSN-VM.B.4b Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.
  - CCSS.Math.Content.HSN-VM.B.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.
- CCSS.Math.Content.HSN-VM.B.5 (+) Multiply a vector by a scalar.
  - CCSS.Math.Content.HSN-VM.B.5a Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.
  - CCSS.Math.Content.HSN-VM.B.5b 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 $c < 0$).

Perform operations on matrices and use matrices in applications.
- CCSS.Math.Content.HSN-VM.C.6 (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
- CCSS.Math.Content.HSN-VM.C.7 (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.
- CCSS.Math.Content.HSN-VM.C.8 (+) Add, subtract, and multiply matrices of appropriate dimensions.
- CCSS.Math.Content.HSN-VM.C.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.
- CCSS.Math.Content.HSN-VM.C.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.
- CCSS.Math.Content.HSN-VM.C.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.
- CCSS.Math.Content.HSN-VM.C.12 (+) Work with 2 × 2 matrices as a transformations of the plane, and interpret the absolute value of the determinant in terms of area.

ALGEBRA MATHEMATICS STANDARDS

Seeing Structure in Expressions

Interpret the structure of expressions.

- CCSS.Math.Content.HSA-SSE.A.1 Interpret expressions that represent a quantity in terms of its context.★
  - o CCSS.Math.Content.HSA-SSE.A.1a Interpret parts of an expression, such as terms, factors, and coefficients.
  - o CCSS.Math.Content.HSA-SSE.A.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.*
- CCSS.Math.Content.HSA-SSE.A.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 $(x^2 - y^2)(x^2 + y^2)$.*

Write expressions in equivalent forms to solve problems.

- CCSS.Math.Content.HSA-SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.★
  - o CCSS.Math.Content.HSA-SSE.B.3a Factor a quadratic expression to reveal the zeros of the function it defines.
  - o CCSS.Math.Content.HSA-SSE.B.3b Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.
  - o CCSS.Math.Content.HSA-SSE.B.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%.*
- CCSS.Math.Content.HSA-SSE.B.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.*★

Arithmetic with Polynomials & Rational Expressions

Perform arithmetic operations on polynomials.

- CCSS.Math.Content.HSA-APR.A.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.

Understand the relationship between zeros and factors of polynomials.

- CCSS.Math.Content.HSA-APR.B.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 $p(x)$.
- CCSS.Math.Content.HSA-APR.B.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.

Use polynomial identities to solve problems.

- CCSS.Math.Content.HSA-APR.C.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.*

- <u>CCSS.Math.Content.HSA-APR.C.5</u> (+) 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.[1]

Rewrite rational expressions.

- <u>CCSS.Math.Content.HSA-APR.D.6</u> 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.

- <u>CCSS.Math.Content.HSA-APR.D.7</u> (+) 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.

Creating Equations

Create equations that describe numbers or relationships.

- <u>CCSS.Math.Content.HSA-CED.A.1</u> 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.*

- <u>CCSS.Math.Content.HSA-CED.A.2</u> Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

- <u>CCSS.Math.Content.HSA-CED.A.3</u> 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.*

- <u>CCSS.Math.Content.HSA-CED.A.4</u> 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.*

Reasoning with Equations & Inequalities

Understand solving equations as a process of reasoning and explain the reasoning.

- <u>CCSS.Math.Content.HSA-REI.A.1</u> 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.

- <u>CCSS.Math.Content.HSA-REI.A.2</u> Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

Solve equations and inequalities in one variable.

- <u>CCSS.Math.Content.HSA-REI.B.3</u> Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

- <u>CCSS.Math.Content.HSA-REI.B.4</u> Solve quadratic equations in one variable.
  - <u>CCSS.Math.Content.HSA-REI.B.4a</u> 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.
  - <u>CCSS.Math.Content.HSA-REI.B.4b</u> 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.

Solve systems of equations.
- CCSS.Math.Content.HSA-REI.C.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.
- CCSS.Math.Content.HSA-REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
- CCSS.Math.Content.HSA-REI.C.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 $x^2 + y^2 = 3$.
- CCSS.Math.Content.HSA-REI.C.8 (+) Represent a system of linear equations as a single matrix equation in a vector variable.
- CCSS.Math.Content.HSA-REI.C.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).

Represent and solve equations and inequalities graphically.
- CCSS.Math.Content.HSA-REI.D.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).
- CCSS.Math.Content.HSA-REI.D.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.★
- CCSS.Math.Content.HSA-REI.D.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.

FUNCTIONS MATHEMATICS STANDARDS

Interpreting Functions

Understand the concept of a function and use function notation.

- CCSS.Math.Content.HSF-IF.A.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 $y = f(x)$.
- CCSS.Math.Content.HSF-IF.A.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
- CCSS.Math.Content.HSF-IF.A.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 $n \geq 1$.*

Interpret functions that arise in applications in terms of the context.

- CCSS.Math.Content.HSF-IF.B.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.*★
- CCSS.Math.Content.HSF-IF.B.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.*★
- CCSS.Math.Content.HSF-IF.B.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.★

Analyze functions using different representations.

- CCSS.Math.Content.HSF-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.★
    - CCSS.Math.Content.HSF-IF.C.7a Graph linear and quadratic functions and show intercepts, maxima, and minima.
    - CCSS.Math.Content.HSF-IF.C.7b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
    - CCSS.Math.Content.HSF-IF.C.7c Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
    - CCSS.Math.Content.HSF-IF.C.7d (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
    - CCSS.Math.Content.HSF-IF.C.7e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
- CCSS.Math.Content.HSF-IF.C.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.
    - CCSS.Math.Content.HSF-IF.C.8a 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.

- o CCSS.Math.Content.HSF-IF.C.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.
- CCSS.Math.Content.HSF-IF.C.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.*

Building Functions
Build a function that models a relationship between two quantities.
- CCSS.Math.Content.HSF-BF.A.1 Write a function that describes a relationship between two quantities.*
  - o CCSS.Math.Content.HSF-BF.A.1a Determine an explicit expression, a recursive process, or steps for calculation from a context.
  - o CCSS.Math.Content.HSF-BF.A.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.*
  - o CCSS.Math.Content.HSF-BF.A.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.*
- CCSS.Math.Content.HSF-BF.A.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.*

Build new functions from existing functions.
- CCSS.Math.Content.HSF-BF.B.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.
- CCSS.Math.Content.HSF-BF.B.4 Find inverse functions.
  - o CCSS.Math.Content.HSF-BF.B.4a 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) =2 x^3 or f(x) = (x+1)/(x–1) for x ≠ 1.*
  - o CCSS.Math.Content.HSF-BF.B.4b (+) Verify by composition that one function is the inverse of another.
  - o CCSS.Math.Content.HSF-BF.B.4c (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.
  - o CCSS.Math.Content.HSF-BF.B.4d (+) Produce an invertible function from a non-invertible function by restricting the domain.
- CCSS.Math.Content.HSF-BF.B.5 (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

Linear, Quadratic, & Exponential Models
Construct and compare linear, quadratic, and exponential models and solve problems.
- CCSS.Math.Content.HSF-LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.
  - o CCSS.Math.Content.HSF-LE.A.1a Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.

- o CCSS.Math.Content.HSF-LE.A.1b Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.
    - o CCSS.Math.Content.HSF-LE.A.1c Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
- CCSS.Math.Content.HSF-LE.A.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).
- CCSS.Math.Content.HSF-LE.A.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.
- CCSS.Math.Content.HSF-LE.A.4 For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.

Interpret expressions for functions in terms of the situation they model.

- CCSS.Math.Content.HSF-LE.B.5 Interpret the parameters in a linear or exponential function in terms of a context.

Trigonometric Functions

Extend the domain of trigonometric functions using the unit circle.

- CCSS.Math.Content.HSF-TF.A.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.
- CCSS.Math.Content.HSF-TF.A.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.
- CCSS.Math.Content.HSF-TF.A.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 x, $\pi + x$, and $2\pi - x$ in terms of their values for x, where x is any real number.
- CCSS.Math.Content.HSF-TF.A.4 (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.

Model periodic phenomena with trigonometric functions.

- CCSS.Math.Content.HSF-TF.B.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.★
- CCSS.Math.Content.HSF-TF.B.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.
- CCSS.Math.Content.HSF-TF.B.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.★

Prove and apply trigonometric identities.

- CCSS.Math.Content.HSF-TF.C.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.
- CCSS.Math.Content.HSF-TF.C.9 (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

GEOMETRY MATHEMATICS STANDARDS

Congruence

Experiment with transformations in the plane

- CCSS.Math.Content.HSG-CO.A.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.
- CCSS.Math.Content.HSG-CO.A.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).
- CCSS.Math.Content.HSG-CO.A.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
- CCSS.Math.Content.HSG-CO.A.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
- CCSS.Math.Content.HSG-CO.A.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.

Understand congruence in terms of rigid motions

- CCSS.Math.Content.HSG-CO.B.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.
- CCSS.Math.Content.HSG-CO.B.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.
- CCSS.Math.Content.HSG-CO.B.8 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

Prove geometric theorems

- CCSS.Math.Content.HSG-CO.C.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.*
- CCSS.Math.Content.HSG-CO.C.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.*
- CCSS.Math.Content.HSG-CO.C.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.*

Make geometric constructions

- CCSS.Math.Content.HSG-CO.D.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.*

- CCSS.Math.Content.HSG-CO.D.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

Similarity, Right Triangles, & Trigonometry
Understand similarity in terms of similarity transformations
- CCSS.Math.Content.HSG-SRT.A.1 Verify experimentally the properties of dilations given by a center and a scale factor:
  - CCSS.Math.Content.HSG-SRT.A.1a 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.
  - CCSS.Math.Content.HSG-SRT.A.1b The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
- CCSS.Math.Content.HSG-SRT.A.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.
- CCSS.Math.Content.HSG-SRT.A.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

Prove theorems involving similarity
- CCSS.Math.Content.HSG-SRT.B.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.*
- *CCSS.Math.Content.HSG-SRT.B.5* Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Define trigonometric ratios and solve problems involving right triangles
- CCSS.Math.Content.HSG-SRT.C.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.
- CCSS.Math.Content.HSG-SRT.C.7 Explain and use the relationship between the sine and cosine of complementary angles.
- CCSS.Math.Content.HSG-SRT.C.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.★

Apply trigonometry to general triangles
- CCSS.Math.Content.HSG-SRT.D.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.
- CCSS.Math.Content.HSG-SRT.D.10 (+) Prove the Laws of Sines and Cosines and use them to solve problems.
- CCSS.Math.Content.HSG-SRT.D.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).

Circles
Understand and apply theorems about circles
- CCSS.Math.Content.HSG-C.A.1 Prove that all circles are similar.
- CCSS.Math.Content.HSG-C.A.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.*

- *CCSS.Math.Content.HSG-C.A.3* Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
- CCSS.Math.Content.HSG-C.A.4 (+) Construct a tangent line from a point outside a given circle to the circle.

Find arc lengths and areas of sectors of circles

- CCSS.Math.Content.HSG-C.B.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.

Expressing Geometric Properties with Equations

Translate between the geometric description and the equation for a conic section

- CCSS.Math.Content.HSG-GPE.A.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.
- CCSS.Math.Content.HSG-GPE.A.2 Derive the equation of a parabola given a focus and directrix.
- CCSS.Math.Content.HSG-GPE.A.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.

Use coordinates to prove simple geometric theorems algebraically

- CCSS.Math.Content.HSG-GPE.B.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).*
- *CCSS.Math.Content.HSG-GPE.B.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).
- CCSS.Math.Content.HSG-GPE.B.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
- CCSS.Math.Content.HSG-GPE.B.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.[*]

Geometric Measurement & Dimension

Explain volume formulas and use them to solve problems

- CCSS.Math.Content.HSG-GMD.A.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.*
- CCSS.Math.Content.HSG-GMD.A.2 (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.
- CCSS.Math.Content.HSG-GMD.A.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.[*]

Visualize relationships between two-dimensional and three-dimensional objects

- CCSS.Math.Content.HSG-GMD.B.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.

Modeling with Geometry

Apply geometric concepts in modeling situations

- CCSS.Math.Content.HSG-MG.A.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).★
- CCSS.Math.Content.HSG-MG.A.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).★
- CCSS.Math.Content.HSG-MG.A.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).★

STATISTICS & PROBABILITY MATHEMATICS STANDARDS

Interpreting Categorical & Quantitative Data

Summarize, represent, and interpret data on a single count or measurement variable

- CCSS.Math.Content.HSS-ID.A.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).
- CCSS.Math.Content.HSS-ID.A.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.
- CCSS.Math.Content.HSS-ID.A.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
- CCSS.Math.Content.HSS-ID.A.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.

Summarize, represent, and interpret data on two categorical and quantitative variables

- CCSS.Math.Content.HSS-ID.B.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.
- CCSS.Math.Content.HSS-ID.B.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.
    - CCSS.Math.Content.HSS-ID.B.6a 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.
    - CCSS.Math.Content.HSS-ID.B.6b Informally assess the fit of a function by plotting and analyzing residuals.
    - CCSS.Math.Content.HSS-ID.B.6c Fit a linear function for a scatter plot that suggests a linear association.

Interpret linear models

- CCSS.Math.Content.HSS-ID.C.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
- CCSS.Math.Content.HSS-ID.C.8 Compute (using technology) and interpret the correlation coefficient of a linear fit.
- CCSS.Math.Content.HSS-ID.C.9 Distinguish between correlation and causation.

Making Inferences & Justifying Conclusions

Understand and evaluate random processes underlying statistical experiments

- CCSS.Math.Content.HSS-IC.A.1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
- CCSS.Math.Content.HSS-IC.A.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?*

Make inferences and justify conclusions from sample surveys, experiments, and observational studies

- CCSS.Math.Content.HSS-IC.B.3 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

- CCSS.Math.Content.HSS-IC.B.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.
- CCSS.Math.Content.HSS-IC.B.5 Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.
- CCSS.Math.Content.HSS-IC.B.6 Evaluate reports based on data.

Conditional Probability & the Rules of Probability
Understand independence and conditional probability and use them to interpret data
- CCSS.Math.Content.HSS-CP.A.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").
- CCSS.Math.Content.HSS-CP.A.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.
- CCSS.Math.Content.HSS-CP.A.3 Understand the conditional probability of A given B as $P(A$ 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.
- CCSS.Math.Content.HSS-CP.A.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.*
- CCSS.Math.Content.HSS-CP.A.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.*

Use the rules of probability to compute probabilities of compound events.
- CCSS.Math.Content.HSS-CP.B.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.
- CCSS.Math.Content.HSS-CP.B.7 Apply the Addition Rule, $P(A$ or $B) = P(A) + P(B) - P(A$ and $B)$, and interpret the answer in terms of the model.
- CCSS.Math.Content.HSS-CP.B.8 (+) Apply the general Multiplication Rule in a uniform probability model, $P(A$ and $B) = P(A)P(B|A) = P(B)P(A|B)$, and interpret the answer in terms of the model.
- CCSS.Math.Content.HSS-CP.B.9 (+) Use permutations and combinations to compute probabilities of compound events and solve problems.

Using Probability to Make Decisions
Calculate expected values and use them to solve problems
- CCSS.Math.Content.HSS-MD.A.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.
- CCSS.Math.Content.HSS-MD.A.2 (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.

- CCSS.Math.Content.HSS-MD.A.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.*
- CCSS.Math.Content.HSS-MD.A.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?*

Use probability to evaluate outcomes of decisions
- CCSS.Math.Content.HSS-MD.B.5 (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.
    - CCSS.Math.Content.HSS-MD.B.5a 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.*
    - CCSS.Math.Content.HSS-MD.B.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.*
- CCSS.Math.Content.HSS-MD.B.6 (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).
- CCSS.Math.Content.HSS-MD.B.7 (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

ELA Standards are broken up as grades 9-10 and 11-12. See below.

GRADE 9-10 ENGLISH LANGUAGE ARTS STANDARDS

Reading - Literature
Key Ideas and Details
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Craft and Structure
- CCSS.ELA-Literacy.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).
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Integration of Knowledge and Ideas
- CCSS.ELA-Literacy.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).
- (RL.9-10.8 not applicable to literature)
- CCSS.ELA-Literacy.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).

Range of Reading and Level of Text Complexity
- CCSS.ELA-Literacy.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.

By the end of grade 10, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 9-10 text complexity band independently and proficiently.

By the end of grade 10, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 9–10 text complexity band independently and proficiently.

Reading - Informational Texts

Key Ideas and Details

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Craft and Structure

- CCSS.ELA-Literacy.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).
- CCSS.ELA-Literacy.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).
- CCSS.ELA-Literacy.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.

Integration of Knowledge and Ideas

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Range of Reading and Level of Text Complexity

- CCSS.ELA-Literacy.RI.9-10.10

By the end of grade 9, read and comprehend literacy nonfiction in the grades 9-10 text complexity band proficiently, with scaffolding as needed at the high end of the range.

By the end of grade 10, read and comprehend literary nonfiction at the high end of the grades 9-10 text complexity band independently and proficiently.

Writing

Text Types and Purposes

- CCSS.ELA-Literacy.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.
  - CCSS.ELA-Literacy.W.9-10.1a Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence.

- o CCSS.ELA-Literacy.W.9-10.1b 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.
  - o CCSS.ELA-Literacy.W.9-10.1c 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.
  - o CCSS.ELA-Literacy.W.9-10.1d Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
  - o CCSS.ELA-Literacy.W.9-10.1e Provide a concluding statement or section that follows from and supports the argument presented.
- CCSS.ELA-Literacy.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.
  - o CCSS.ELA-Literacy.W.9-10.2a 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.
  - o CCSS.ELA-Literacy.W.9-10.2b 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.
  - o CCSS.ELA-Literacy.W.9-10.2c Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
  - o CCSS.ELA-Literacy.W.9-10.2d Use precise language and domain-specific vocabulary to manage the complexity of the topic.
  - o CCSS.ELA-Literacy.W.9-10.2e Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
  - o CCSS.ELA-Literacy.W.9-10.2f 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).
- CCSS.ELA-Literacy.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.
  - o CCSS.ELA-Literacy.W.9-10.3a 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.
  - o CCSS.ELA-Literacy.W.9-10.3b Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
  - o CCSS.ELA-Literacy.W.9-10.3c Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.
  - o CCSS.ELA-Literacy.W.9-10.3d Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
  - o CCSS.ELA-Literacy.W.9-10.3e Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

Production and Distribution of Writing
- CCSS.ELA-Literacy.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.)

- CCSS.ELA-Literacy.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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10 here.)
- CCSS.ELA-Literacy.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.

Research to Build and Present Knowledge
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.W.9-10.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.
  - CCSS.ELA-Literacy.W.9-10.9a 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]").
  - CCSS.ELA-Literacy.W.9-10.9b 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").

Range of Writing
- CCSS.ELA-Literacy.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.

Speaking and Listening

Comprehension and Collaboration
- CCSS.ELA-Literacy.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.
  - CCSS.ELA-Literacy.SL.9-10.1a 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.
  - CCSS.ELA-Literacy.SL.9-10.1b 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.
  - CCSS.ELA-Literacy.SL.9-10.1c 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.

- o CCSS.ELA-Literacy.SL.9-10.1d 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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Presentation of Knowledge and Ideas
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.SL.9-10.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grades 9–10 Language standards 1 and 3 here for specific expectations.)

Language
Conventions of Standard English
- CCSS.ELA-Literacy.L.9-10.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
    - o CCSS.ELA-Literacy.L.9-10.1a Use parallel structure.*
    - o CCSS.ELA-Literacy.L.9-10.1b 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.
- CCSS.ELA-Literacy.L.9-10.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
    - o CCSS.ELA-Literacy.L.9-10.2a Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
    - o CCSS.ELA-Literacy.L.9-10.2b Use a colon to introduce a list or quotation.
    - o CCSS.ELA-Literacy.L.9-10.2c Spell correctly.

Knowledge of Language
- CCSS.ELA-Literacy.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.
    - o CCSS.ELA-Literacy.L.9-10.3a 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.

Vocabulary Acquisition and Use
- CCSS.ELA-Literacy.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.
    - o CCSS.ELA-Literacy.L.9-10.4a 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.

- o CCSS.ELA-Literacy.L.9-10.4b Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., *analyze, analysis, analytical; advocate, advocacy*).
- o CCSS.ELA-Literacy.L.9-10.4c 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.
- o CCSS.ELA-Literacy.L.9-10.4d 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).
- CCSS.ELA-Literacy.L.9-10.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
  - o CCSS.ELA-Literacy.L.9-10.5a Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text.
  - o CCSS.ELA-Literacy.L.9-10.5b Analyze nuances in the meaning of words with similar denotations.
- CCSS.ELA-Literacy.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.

GRADE 11-12 ENGLISH LANGUAGE ARTS STANDARDS

Reading - Literature
Key Ideas and Details
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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).

Craft and Structure
- CCSS.ELA-Literacy.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.)
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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).

Integration of Knowledge and Ideas
- CCSS.ELA-Literacy.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.)
- (RL.11-12.8 not applicable to literature)
- CCSS.ELA-Literacy.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.

Range of Reading and Level of Text Complexity
- CCSS.ELA-Literacy.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.

By the end of grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 11-CCR text complexity band independently and proficiently.

By the end of grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 11–CCR text complexity band independently and proficiently.

Reading - Informational Texts
Key Ideas and Details
- CCSS.ELA-Literacy.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.

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Craft and Structure

- CCSS.ELA-Literacy.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).
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Integration of Knowledge and Ideas

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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).
- CCSS.ELA-Literacy.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.

Range of Reading and Level of Text Complexity

- CCSS.ELA-Literacy.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.

By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 11-CCR text complexity band independently and proficiently.

Writing

Text Types and Purposes

- CCSS.ELA-Literacy.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.
  - CCSS.ELA-Literacy.W.11-12.1a 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.
  - CCSS.ELA-Literacy.W.11-12.1b 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.

- o CCSS.ELA-Literacy.W.11-12.1c 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.
- o CCSS.ELA-Literacy.W.11-12.1d Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
- o CCSS.ELA-Literacy.W.11-12.1e Provide a concluding statement or section that follows from and supports the argument presented.

- CCSS.ELA-Literacy.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.
  - o CCSS.ELA-Literacy.W.11-12.2a 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.
  - o CCSS.ELA-Literacy.W.11-12.2b 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.
  - o CCSS.ELA-Literacy.W.11-12.2c 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.
  - o CCSS.ELA-Literacy.W.11-12.2d Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
  - o CCSS.ELA-Literacy.W.11-12.2e Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
  - o CCSS.ELA-Literacy.W.11-12.2f 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).

- CCSS.ELA-Literacy.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.
  - o CCSS.ELA-Literacy.W.11-12.3a 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.
  - o CCSS.ELA-Literacy.W.11-12.3b Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
  - o CCSS.ELA-Literacy.W.11-12.3c 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).
  - o CCSS.ELA-Literacy.W.11-12.3d Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
  - o CCSS.ELA-Literacy.W.11-12.3e Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

Production and Distribution of Writing

- CCSS.ELA-Literacy.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.)
- CCSS.ELA-Literacy.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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12 here.)
- CCSS.ELA-Literacy.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.

Research to Build and Present Knowledge

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.W.11-12.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.
  - CCSS.ELA-Literacy.W.11-12.9a 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").
  - CCSS.ELA-Literacy.W.11-12.9b 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]").

Range of Writing

- CCSS.ELA-Literacy.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, and audiences.

Speaking and Listening

Comprehension and Collaboration

- CCSS.ELA-Literacy.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.
  - CCSS.ELA-Literacy.SL.11-12.1a 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.

- - CCSS.ELA-Literacy.SL.11-12.1b Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
  - CCSS.ELA-Literacy.SL.11-12.1c 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.
  - CCSS.ELA-Literacy.SL.11-12.1d 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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.

Presentation of Knowledge and Ideas

- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.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.
- CCSS.ELA-Literacy.SL.11-12.6 Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 here for specific expectations.)

Language
Conventions of Standard English

- CCSS.ELA-Literacy.L.11-12.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
  - CCSS.ELA-Literacy.L.11-12.1a Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.
  - CCSS.ELA-Literacy.L.11-12.1b 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.
- CCSS.ELA-Literacy.L.11-12.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
  - CCSS.ELA-Literacy.L.11-12.2a Observe hyphenation conventions.
  - CCSS.ELA-Literacy.L.11-12.2b Spell correctly.

Knowledge of Language

- CCSS.ELA-Literacy.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.

- o CCSS.ELA-Literacy.L.11-12.3a 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.

Vocabulary Acquisition and Use

- CCSS.ELA-Literacy.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.
  - o CCSS.ELA-Literacy.L.11-12.4a 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.
  - o CCSS.ELA-Literacy.L.11-12.4b Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., *conceive, conception, conceivable*).
  - o CCSS.ELA-Literacy.L.11-12.4c 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.
  - o CCSS.ELA-Literacy.L.11-12.4d 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).
- CCSS.ELA-Literacy.L.11-12.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
  - o CCSS.ELA-Literacy.L.11-12.5a Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.
  - o CCSS.ELA-Literacy.L.11-12.5b Analyze nuances in the meaning of words with similar denotations.
- CCSS.ELA-Literacy.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.