Scope & Sequence: Grades 6-8

Excerpts from: *Leadership Planning Guide, CALIFORNIA: Common Core State Standards and Assessments Implementation*

The CCSS are not a curriculum. Curriculum is the roadmap that teachers use to help students acquire and master the knowledge and skills detailed in the standards. A coherent and specific curriculum is mapped backwards from desired performances. Therefore, deciding what should be taught when is "job number one."

Indeed, E.D. Hirsch has noted that "The single most effective way to enhance teacher effectiveness is to create a more coherent multi-year curriculum, so that teachers at each level will know what students have already been taught."

J.D. Hirsch, Jr., "Why I'm for the Common Core: Teacher Bashing and Common Core Bashing Are Both Uncalled For" at http://www.huffingtonpost.com/e- d-hirsch-jr/why-im-for-the- common-cor_b_3809618. html

The CCSS are sometimes written by grade spans, and decisions need to be made as to what concept should be taught at what grade level. In other words, it is likely work will need to be done on a new or revised scope and sequence before curriculum can be fully developed, and before lesson plans can be extensively designed.

The standards have to be broken apart and their spiraling nature understood (i.e., how the standards build on each other). Then the school and district curriculum needs to be examined and/or mapped, and the gaps or opportunities identified.

Scope & Sequence: ELA Grade 6, 7 & 8

Overarching Theme	Suggested Pacing	Learning Targets Student will be able to:	Standards Addressed	Possible Performance Tasks
Literary: Theme **Universal Themes:** Systems & Structure **Definitions** **Systems:** a set of connected things or parts forming a complex whole, in particular **Defining Structure:** the arrangement of and relations between the parts or elements of something complex.	9 weeks	**Reading Literature** ● State the theme or central idea of a text citing details to support it ● Summarize the story: explain how the plot develops and how the characters respond or change ● Explain the meaning of words and phrases from a text, including figurative and connotative meanings ● 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, plot Compare meaning and style ● Explain how an author develops the point of view of the narrator or speaker in a text **Writing** ● Write responses to literature analyzing themes, literary elements, key terms and author's point of view ● Analyze theme in relation to characters, setting, and plot ● Annotate text and cite sources to support analysis, inference, and reflection ● Compare and contrast the theme, structure and style of two or more texts ● Write narratives to develop real or imagined experiences or events ● Engage and orient a reader by establishing a setting and introducing a narrator and/or characters ● Develop an interesting and engaging plot with logical and sequential events, using precise words, sensory details and figurative language ● Use dialogue and description to develop characters and events ● Shift from scene to scene using transitions ● Write a logical conclusion to the narrative ● With guidance, develop and strengthen writing by planning, revising, editing, rewriting, or trying a new approach **Speaking and Listening** ● Include multimedia and visual components with my presentations ● Adapt speech to a variety of contexts and tasks depending on purpose and audience ● Demonstrate a command of formal English when necessary **Language** Grammar instruction based upon individual student performance	RL 6.2, 7.2, 8.2 RL 6.3, 7.3, 8.3 RL 6.4, 7.4, 8.4 RL 6.5, 7.5, 8.5 RL 6.6, 7.6, 8.6 W.6.3 a-e, 7.3 a-e, 8.3 a-e W.6.5, 7.5, 8.5 SL 6.5, 7.5, 8.5 SL 6.6, 7.6, 8.6 L 6.1-6.6, 7.1-7.6, 8.1-8.6	

Overarching Theme	Suggested Pacing	Learning Targets Student will be able to:	Standards Addressed	Possible Performance Tasks
Research	9 weeks	**Reading Informational Texts** ● Determine the meaning of words and phrases in context ● Analyze how text features fit into overall meaning of text	RI 6.4, 7.4, 8.4 RI 6.5, 7.5, 8.5 RI 6.9, 7.9, 8.9	

		● Identify sources on their topic from print and non-print medium ● Use search engines and search terms to find suitable sources ● Assess the credibility of each source ● Take notes, quote or paraphrase information ● Avoid Plagiarism ● Use standard formation for citation ● Approach two or more texts with conflicting information ● Determine author's point of view or bias to best use sources ● By the end of the year, comprehend level 6-8 nonfiction texts **Writing** ● Identify and choose an appropriate topic for research ● Refine and focus topic chosen appropriately ● Respond to an assigned research topic ● 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. ● Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. ● Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. ● Use precise language and domain-specific vocabulary to inform about or explain the topic. ● Establish and maintain a formal style. ● Provide a concluding statement or section that follows from and supports the information or explanation presented. ● With guidance, use writing process and feedback **Speaking and Listening** ● Interpret information presented in diverse media and formats ● Delineate a speaker's arguments and claims **Language** Grammar instruction based upon individual student performance	RI 6.10, 7.10, 8.10 W.6.7, 7.7, 8.7 W.6.8, 7.8, 8.8 W.6.9, 7.9, 8.9 W.6.2, 7.2, 8.2 W 6.5, 7.5, 8.5 W.6.10, 7.10, 8.10 SL.6.2, 7.2, 8.2 SL 6.3, 7.3, 8.3 L 6.1-6.6, 7.1-7.6, 8.1-8.6	

Overarching Theme	**Suggested Pacing**	**Learning Targets** Student will be able to:	**Standards Addressed**	**Possible Performance Tasks**
Literary: Characterization **Universal Theme:** Change	9 weeks	**Reading Literature** ● Identify the **theme** in fictional works, including short stories, novels, poems and drama ● Understand and apply the use of **plot, episodes,** and **how a character changes** through the story ● C**ite textual evidence** to support analysis and inferences ● Determine the meaning of **vocabulary and figurative language** in fiction ● **Compare and contrast** several fictional texts ● Understand **point of view** of speaker or narrator in a text ● **Analyze live versus literary** productions	RL.6.2, 7.2, 8.2 RL.6.3, 7.3, 8.3 RL.6.1, 7.1, 8.1 RL.6.4**,** 7.4, 8.4 RL.6.6, 7.6, 8.6 RL.6.7, 7.7, 8.7 RL.6.10, 7.10, 8.10	

		● **Comprehend** middle school level texts by the end of the year **Writing** ● Draw evidence from literary text to support analysis and reflection ● Write routinely over longer and shorter periods of time ● Produce clear and coherent writing, developed and organized ● With guidance, use writing process, and properly addressing audience and purpose ● Use technology to produce and publish writing **Speaking and Listening** ● 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 ● Interpret information presented in diverse media and formats **Language** Grammar instruction based upon individual student performance	 W 6.9, 7.9, 8.9 W 6.10, 7.10, 8.10 W 6.4, 7.4, 8.4 W 6.5, 7.5, 8.5 W 6.6, 7.6, 8.6 SL.6.1 (A-D), 7.1 (A-D), 8.1 (A-D) SL 6.2, 7.2, 8.2 L 6.1-6.6, 7.1-7.6, 8.1-8.6	

Overarching Theme	**Suggested Pacing**	**Learning Targets** Student will be able to:	**Standards Addressed**	**Possible Performance Tasks**
Universal theme: Conflict Persuasion and Argument	9 weeks	**Reading Informational Texts** ● use evidence from the text to support my analysis of what the text says ● determine the main idea of a text and explain how it is supported by key details ● summarize informational text while leaving out personal opinion ● determine the figurative, connotative or technical meaning of words in a text ● trace and evaluate arguments, search for sound arguments ● contrast two authors presentation of the same event or topic **Writing** ● write an argument with clear reasons and relevant evidence ● introduce claims and organize the reasons, evidence clearly ● support claims with clear and relevant reasons ● use credible sources and demonstrate understanding of the topic ● use words, phrases, and clauses to clarify relationships among claims and reasons ● establish and maintain a formal style ● provide a concluding statement or section that follows from the presented argument ● produce clear and coherent writing in which the development, organization and style are appropriate for sixth grade tasks, purposes and audiences ● use digital tools to produce and publish my work ● With guidance, use writing process and feedback **Speaking and Listening** ● prepare for a class discussion and participate by referring to my findings ● ask and answer questions during a discussion to elaborate on the remarks of others ● review ideas expressed and demonstrate understanding of multiple perspectives ● present claims and findings by sequencing ideas logically and using important facts and descriptions ● use appropriate eye contact, adequate volume, and clear pronunciation	RI 6.1, 7.1, 8.1 RI 6.2, 7.2, 8.2 RI 6.3, 7.3, 8.3 RI 6.6, 7.6, 8.6 RI 6.8, 7.8, 8.8 RI 6.9, 7.9, 8.9 W 6.1a-e, 7.1a-e, 8.1a-e W 6.4, 7.4, 8.4 W 6.5, 7.5, 8.5 W 6.6, 7.6, 8.6 SL 6.3, 7.3, 8.3 SL 6.4, 7.4, 8.4 SL 6.6, 7.6, 8.6	

		● adapt my speech to a variety of tasks and contexts ● Delineate a speaker's argument and claims **Language** ● Grammar instruction based upon individual student performance	L 6.1-6.6, 7.1-7.6, 8.1-8.6	

Scope & Sequence: 6th Grade Math

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.

Overarching Theme	**Suggested Pacing**	**Learning Targets**	**Standards Addressed**
Think about the standards and group them into big ideas. Each big idea will be listed on a row.	How much time will it take to teach this theme? All the themes should be covered during the span of one school year.	What knowledge and skills will the students be able to do?	List the actual standards.
The Number System	7-8 weeks	**The Students will be able to:** ● 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. ● divide multi-digit numbers using the standard algorithm. ● add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	**The Number System 6.NS** **Apply and extend previous understandings of multiplication and division to divide fractions by fractions.** 6.NS.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

		● 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).* **The Students will be able to:** ● 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	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. 6.NS.2 Fluently divide multi-digit numbers using the standard algorithm. 6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. Compute fluently with multi-digit numbers and find common factors and multiples. 6.NS.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. 6.NS.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

		electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. ● 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. ● a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. ● Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. ● Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ● Understand ordering and absolute value of rational numbers. ● Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right. ● Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write Understand the absolute value of a rational number as its distance from 0 on the number line; interpret	numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. 6.NS.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. 6.NS.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. 6.NS.6.b 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. 6.NS.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. 6.NS.7 Understand ordering and absolute value of rational numbers. 6.NS.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

		absolute value –3°C > –7°C to express the fact that –3°C is warmer than –7°C. ● Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars. ● Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars. ● 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.	statement that –3 is located to the right of –7 on a number line oriented from left to right. 6.NS.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write –3°C > –7°C to express the fact that –3°C is warmer than –7°C. 6.NS.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. 6.NS.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. 6.NS.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.
Ratios and Proportional Relationships	4-5 weeks	**The students will be able to:** ● Understand ratio concepts and use ratio reasoning to solve problems.	**Ratios and Proportional Relationships 6.RP** **Understand ratio concepts and use ratio reasoning to solve problems.**

		● 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.” ● 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. ● 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. ● Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. ● Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, ● plot the pairs of values on the coordinate plane. Use tables to compare ratios. ● Solve unit rate problems including those involving unit pricing and constant speed. 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? ● Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve	6.RP.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.” 6.RP.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.” 6.RP.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. 6.RP.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. 6.RP.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?

		problems involving finding the whole, given a part and the percent. ● Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	6.RP.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. 6.RP.3d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
Expressions and Equations	8-9 weeks	**Students will be able to:** ● write and solve numerical expressions involving whole-number exponents. ● explain what a variable is and how it is used ● write, read, and evaluate expressions containing variables ● convert verbal expressions into written expressions using mathematical notation ● use mathematical terms to identify parts of expressions ● identify and generate equivalent expressions, including use of the Distributive Property	**Expressions and Equations 6.EE** **Apply and extend previous understandings of arithmetic to algebraic expressions.** 6.EE.1 Write and evaluate numerical expressions involving whole-number exponents. 6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers. 6.EE.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. 6.EE.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. 6.EE.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 = s3 and A = 6 s2 to find the volume and surface area of a cube with sides of length s = 1/2. 6.EE.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. 6.EE.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.

Geometry	4-5 weeks	**Students will be able to:** ● 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. ● 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. ● 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. ● 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.	**Geometry 6.G** **Solve real-world and mathematical problems involving area, surface area, and volume.** 6.G.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. 6.G.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. 6.G.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. 6.G.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 and Probability	4-5 weeks	**Students will be able to:** ● identify a statistical question that anticipates variability ● recognize and define the center, spread, and overall shape of the distribution ● plot numerical data on a number line, dot plot, box plot, and histogram ● summarize numerical data including the number of observations and the unit of measurement ● calculate measures of center including mean and median ● calculate measures of variability including interquartile range and mean absolute deviation ● describe overall patterns and/or striking deviations from an overall pattern with reference to the context ● relate measures of center and measures of variability to the shape of the distribution	**Statistics and Probability 6.SP Develop understanding of statistical variability.** 6.SP.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. 6.SP. 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. 6.SP. 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. 6.SP. 4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. 6.SP.5 Summarize numerical data sets in relation to their context, such as by: 6.SP.5a Reporting the number of observations.

			6.SP.5b Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. 6.SP.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. 6.SP.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.

For future consideration:

How will these learning targets be measured? You may want to begin making a suggested list of possible assessments or performance tasks.

Common Assessments

- Traditional pencil-and-paper
- Performance Tasks
- Posters

Suggested Resources:

https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_Grade7_CurriculumMap.pdf
http://www.mathematicsvisionproject.org/
https://www.illustrativemathematics.org/
http://map.mathshell.org/materials/index.php
http://youcubed.org/

JCS Scope & Sequence: 6th Grade Ancient Civilizations

Overarching Theme	**Suggested Pacing**	**Standards Addressed**	**Key Concepts**
Early Humans	3 weeks	6.1 Students describe what is known through archaeological studies of the early physical and cultural development of humankind from the Paleolithic era to the agricultural revolution. 6.1.1 Describe the hunter-gatherer societies, including the development of tools and the use of fire. 6.1.2 Identify the locations of human communities that populated the major regions of the world and describe how humans adapted to a variety of environments. 6.1.3 Discuss the climatic changes and human modifications of the physical environment that gave rise to the domestication of plants and animals and new sources of clothing and shelter.	● Adaptation ● Agricultural revolution ● Ancestors ● Anthropology ● Archeology ● Art ● Artifact ● Hunter/gatherer ● Prehistory
Mesopotamian and Sumer	4 weeks	6.2 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of Mesopotamia, Egypt, and Kush. 6.2.1 Locate and describe the major river systems and discuss the physical settings that supported permanent settlement and early civilizations. 6.2.2 Trace the development of agricultural techniques that permitted the production of economic surplus and the emergence of cities as centers of culture and power. 6.2.3 Understand the relationship between religion and the social and political order in Mesopotamia and Egypt. 6.2.4 Know the significance of Hammurabi’s Code. 6.2.9 Trace the evolution of language and its written forms.	● Authority ● Barter ● City-state ● Invention ● Irrigation ● Myth ● Polytheism ● Slavery ● Trade ● Economic system ● Legal code ● Civilization ● Surplus ● Architecture ● Empire ● Kingdom ● Culture

			• Evolution of language and writing
Ancient Egypt	4 weeks	6.2.1 Locate and describe the major river systems and discuss the physical settings that supported settlement and early civilizations. 6.2.2 Trace the development of agricultural techniques that permitted the production of economic surplus and the emergence of cities as centers of culture and power. 6.2.3 Understand the relationship between religion and the social and political order in Mesopotamia and Egypt. 6.2.5 Discuss the main features of Egyptian art and architecture. 6.2.6 Describe the role of Egyptian trade in the eastern Mediterranean and Nile valley. 6.2.7 Understand the significance of Queen Hatshepsut and Ramses the Great.	• Authority • Barter • City-state • Invention • Irrigation • Myth • Polytheism • Slavery • Trade • Economic system • Legal code • Civilization • Surplus • Architecture • Empire • Kingdom • Culture • Evolution of language and writing
Israel	3 weeks	6.3 Students analyze the geographic, political, economic, religious, and social structures of the Ancient Hebrews. 6.3.1 Describe the origins and significance of Judaism as the first monotheistic religion based on the concept of one God who sets down moral laws for humanity. 6.3.2 Identify the sources of the ethical teachings and central beliefs of Judaism: belief in God, observance of law, practice of the concepts of righteousness and justice, and importance of study; and describe how the ideas of the Hebrew traditions are reflected in the moral and ethical traditions of Western civilization. 6.3.3 Explain the significance of Abraham, Moses, Naomi, Ruth, David, and Yohanan ben Zaccai in the development of the Jewish religion.	• Monotheism • Ethics • Legal code • Judaism • Exodus • Moral codes • Righteousness • Justice • Settlement • Diaspora

		6.3.4 Discuss the locations of the settlements and movements of Hebrew peoples, including the Exodus and their movement to and from Egypt, and outline the significance of the Exodus to the Jewish and other people. 6.3.5 Discuss how Judaism survived and developed despite the continuing dispersion of much of the Jewish population from Jerusalem and the rest of Israel after the destruction of the second Temple in A.D. 70. 6.7.5 Trace the migration of Jews around the Mediterranean region and the effects of their conflict with the Romans, including the Romans' restrictions on their right to live in Jerusalem.	
Ancient India	4 weeks	6.5 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of India. 6.5.1 Locate and describe the major river system and discuss the physical setting that supported the rise of this civilization. 6.5.2 Discuss the significance of the Aryan invasions. 6.5.3 Explain the major beliefs and practices of Brahmanism in India and how they evolved into early Hinduism. 6.5.4 Outline the social structure of the caste system. 6.5.5 Know the life and moral teachings of Buddha and how Buddhism spread in India, Ceylon, and Central Asia. 6.6.6 Describe the growth of the Maurya empire and the political and moral achievements of the emperor Asoka. 6.5.7 Discuss important aesthetic and intellectual traditions.	● Dharma ● Karma ● Non-violence ● Reincarnation ● Social class ● Traditions ● Irrigation ● Empire ● Brahmanism ● Hinduism ● Caste system ● Buddhism ● Maurya Empire
Ancient China	5 weeks	6.6 Students analyze the geographic, political, economic, and religious, and social structures of the early civilizations of China.	● Civil service ● Social class ● Traditions ● Dynasty

		6.6.1 Locate and describe the origins of Chinese civilizations in the Huang-He Valley during the Shang Dynasty. 6.6.2 Explain the geographic features of China that made governance and the spread of ideas and goods difficult and served to isolate the country from the rest of the world. 6.6.3 Know about the life of Confucius and the fundamental teachings of Confucianism and Taoism. 6.6.4 Identify the political and cultural problems prevalent in the time of Confucius and how he sought to solve them. 6.6.5 List the policies and achievements of the emperor Shi Huangdi in unifying northern China under the Qin Dynasty. 6.6.6 Detail the political contributions of the Han Dynasty to the development of the imperial bureaucratic state and the expansion of the empire. 6.6.7 Cite the significance of the trans-Eurasian “silk roads” in the period of the Han Dynasty and Roman Empire and their locations. 6.6.8 Describe the diffusion of Buddhism northward to China during the Han Dynasty.	● Isolation ● Polytheism ● Irrigation ● Trade ● Confucianism ● Emperor ● Huangdi
Ancient Greece	5 weeks	6.4 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of Ancient Greece. 6.4.1 Discuss the connections between geography and the development of city-states in the region of the Aegean Sea, including patterns of trade and commerce among Greek city-states and within the wider Mediterranean region. 6.4.2 Trace the transition from tyranny and oligarchy to early democratic forms of government and back to dictatorship in ancient Greece, including the significance of the invention of the idea of citizenship.	● Myth ● Polytheism ● Education ● Aristocracy ● Classical civilization ● Democracy ● Monarchy ● Oligarchy ● Philosophy ● Tyranny ● Militarism ● Scientific Inquiry ● Ethics

		6.4.3 State the key differences between Athenian, or direct, democracy, and representative democracy. 6.4.4 Explain the significance of Greek mythology to the everyday life of people in the region and how Greek literature continues to permeate out literature and language today, drawing from Greek mythology and epics, such as Homer's Iliad and Odyssey, and from Aesop's Fables. 6.4.6 Compare and contrast life in Athens and Sparta, with emphasis on their roles in the Persian and Peloponnesian Wars. 6.4.7 Trace the rise of Alexander the Great and the spread of Greek culture eastward and into Egypt. 6.4.8 Describe the enduring contributions of important Greek figures in the arts and sciences.	● City-state ● Education ● Citizenship
Ancient Rome	4 weeks	6.7 Students analyze the geographic, political, economic, religious, and social structures during the development of Rome. 6.7.1 Identify the location and describe the rise of the Roman Republic, including the importance of such mythical and historical figures as Aeneas, Romulus and Remus, Cincinnatus, Julius Caesar, and Cicero. 6.7.2 Describe the government of the Roman Republic and its significance. 6.7.3 Identify the location of and the political geographic reasons for the growth of Roman territories and expansion of the empire, including how the empire fostered economic growth through the use of currency and trade routes. 6.7.4 Discuss the influence of Julius Caesar and Augustus in Rome's transition from republic to empire. 6.7.5 Trace the migration of Jews around the Mediterranean region and the effects of their conflict with the Romans, including the Romans' restrictions on their right to live in Jerusalem.	● Autocracy ● Inflation ● Legal code ● Militarism ● Republic ● Social institutions ● Cultural heritage ● Roman Republic ● Roman Law ● Legacy

		6.7.6 Note the origins of Christianity in the Jewish Messianic prophecies, the life and teachings of Jesus of Nazareth as described in the New Testament, and the contribution of St. Paul the Apostle of the definition and spread of Christian beliefs. 6.7.7 Describe the circumstances that led to the spread of Christianity in Europe and other Roman territories. 6.7.8 Discuss the legacies of Roman art and architecture, technology and science, literature, language, and law.	
CCSS: Reading Informational Text	All year	*Cite textual evidence to support analysis of primary and secondary sources *Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions. *Identify key steps in a text's description of a process related to history/social studies. *Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. *Describe how a text presents information. *Identify aspects of a text that reveal an author's point of view of purpose. *Integrate visual information with other information in print and digital texts. *Distinguish among fact, opinion, and reasoned judgment in a text. *Analyze the relationship between a primary and secondary source. *By the end of grade 8, read and comprehend history/social studies texts in the grades 6-8 text complexity band independently and proficiently.	http://www.cde.ca.gov/be/st/ss/documents/finalelaccssstandards.pdf Pages 51-54
CCSS: Writing	All year	*Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. *Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of	http://www.cde.ca.gov/be/st/ss/documents/finalelaccssstandards.pdf Pages 57, 59, 60

		each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. *Draw evidence from informational texts to support analysis reflection, and research.	

How will these learning targets be measured? A suggested list of possible assessments or performance tasks:

Chronological and Spatial Thinking

1. Students explain how major events are related to one another in time.
2. Students construct various time lines of key events, people, and periods of the historical era they are studying.
3. Students use a variety of maps and documents to identify physical and cultural features of neighborhoods, cities, states, and countries and to explain the historical migration of people, expansion and disintegration of empires, and the growth of economic systems.

Research, Evidence, and Point of View

1. Students frame questions that can be answered by historical study and research.
2. Students distinguish fact from opinion in historical narratives and stories.
3. Students distinguish relevant from irrelevant information, essential from incidental information, and verifiable from unverifiable information in historical narratives and stories.
4. Students assess the credibility of primary and secondary sources and draw sound conclusions from them.
5. Students detect the different historical points of view on historical events and determine the context in which the historical statements were made (the questions asked, sources used, author's perspectives).

Historical Interpretation

1. Students explain the central issues and problems from the past, placing people and events in a matrix of time and place.
2. Students understand and distinguish cause, effect, sequence, and correlation in historical events, including the long-and short-term causal relations.

3. Students explain the sources of historical continuity and how the combination of ideas and events explains the emergence of new patterns.
4. Students recognize the role of chance, oversight, and error in history.
5. Students recognize that interpretations of history are subject to change as new information is uncovered.
6. Students interpret basic indicators of economic performance and conduct cost-benefit analyses of economic and political issues.

Scope & Sequence: Integrated Science 6

Overarching Theme	**Suggested Pacing**	**Learning Targets** Patterns; structure and function; systems and system models	**NGSS Performance Standards Addressed**
Think about the standards and group them into big ideas. Each big idea will be listed on a row.	How much time will it take to teach this theme?	What knowledge and skills will the students be able to demonstrate?	List the actual standards.
Cells and Organisms	Semester 1 (16 weeks)	"How do organisms live, grow, respond to their environment, and reproduce? How do the structures of organisms enable life's functions?" Student will . . . ● conduct a lab to prove that living things are composed of cells. ● develop a model to explain basic cellular structure and function in plants and animals (i.e, the cell as a factory, 3D cell model, etc.). ● describe structure and function of human body systems and their interactions. ● compare and contrast systems among different organisms.	**Performance Standards:** LS 1.1: Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. LS 1.2: Develop and use a model to describe the function of a cell as a whole and the ways in which parts of cells contribute to the function. LS 1.3: Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. LS 1.8: Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
Energy	Semester 2 8 weeks	"How is energy transferred and conserved? How is energy transferred between objects or systems?" Student will:	**Performance Standards:** PS 1.4: Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. PS 3.3: Apply scientific principles to design, construct, and test a device that either minimizes

		• define 'pure substance' and draw a model demonstrating increased movement of particles with increased heat. • plan an experiment demonstrating reduction of heat transfer between two substances. For example, compare the heat loss through different insulators. • plan an investigation that demonstrates an increase of temperature depends on mass and type of matter. • compare and contrast thermal energy transfer: convection, conduction and radiation, using the concept of the speed of molecules	or maximizes thermal energy transfer. PS 3.4: Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. PS 3.5: Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.
Weather and climate	8 weeks	How do the properties and movements of water shape Earth's surface and affect its systems? What regulates weather and climate? Student will . . . • create of model of the water cycle. • build and utilize instruments to measure, observe and predict changes in the weather (barometer, sling psychrometer, thermometer, anemometer). • demonstrate how unequal heating of sand and water create convection currents that affects weather. • research the evidence for global temperature rise, and search for evidence of factors that may have contributed.	**Performance Standards:** ESS 2.4: Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. ESS 2.5: Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. ESS 2.6: Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. ESS 3.5: Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.
Human Impact	2 week culminating project	• Student will create a culminating project based on potential catastrophic events, and potential ways to prevent or alleviate the impact.	**Performance Standards:** ESS 3.2: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

Engineering	Integrated throughout both semesters	● Student will understand that the engineering process requires design, trial & error, and redesign.	**Performance Standards:** PS 3.3: Apply scientific principles to design, construct, and test a device that either

For future consideration:

How will these learning targets be measured? You may want to begin making a suggested list of possible assessments or performance tasks.

Scope & Sequence: 7th grade Math

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.

Overarching Theme	Suggested Pacing	Learning Targets	Standards Addressed
Ratios and Proportions	4-5 weeks	Students will be able to: ● find unit rates involving ratios involving fractional quantities. ● divide a pair of quantities to find the unit rate when solving problems with proportional relationships. ● set up an equation with equivalent fractions and use reasoning about equivalent fractions to solve them. ● examine and identify when proportional quantities are represented in a table, and pairs of entries represent equivalent ratios. ● graph a proportional relationship that lies on a straight line and passes through the point (0,0) (indicating that when one quantity is 0, so is the other). ● use reasoning to decide when and why two quantities are actually in a proportional relationship. ● solve unit rates as the amount of increase in y as x increases by 1 unit in a ratio table.	7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. 7.RP.2 Recognize and represent proportional relationships between quantities. 7.RP.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. 7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. 7.RP.2c Represent proportional relationships by equations. 7.RP.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. 7.RP.3 Use proportional relationships to solve multistep ratio and percent problems.

		● explain or show their work using a representation (e.g., numbers, words, pictures, physical objects, or equations) and verify that their answers are reasonable to solve multi-step ratios and percents. ● apply percentages correctly and use percentage reductions correctly.	
The Number System - *Add and Subtract Rational Numbers*	3 weeks	Students will be able to: ● Add and subtract rational numbers through the use of a number line. ● discover and describe real life situations where opposite numbers combine to make zero. ● demonstrate the concept of additive inverses. ● visualize subtraction problems as adding a negative. ● find the distance between two numbers on a number line. ● define and explain the concept of absolute value ● explain why the distance between two numbers on a number line is the absolute value of their difference.	7.NS.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. 7.NS.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.* 7.NS.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. 7.NS.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

		• apply properties of addition and subtraction to combine rational numbers.	absolute value of their difference, and apply this principle in real-world contexts. 7.NS.1d Apply properties of operations as strategies to add and subtract rational numbers.
The Number System - *Multiply and Divide Rational Numbers*	1-2 weeks	Students will be able to: • review prior knowledge to apply to multiplying and dividing rational numbers. • understand and explain how the product of two negative rational numbers results in a positive product. • apply newly acquired multiplication properties to order of operations and distributive property. • visualize and describe how rational numbers can be divided into smaller pieces when the divisor is not zero. • fluently multiply and divide rational numbers. • convert rational numbers to a decimal • understand the decimal form of a rational number eventually repeats or ends in zero. • apply newly acquired properties of rational numbers to applicable real-life situations.	7.NS.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 7.NS.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. 7.NS.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. 7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers. 7.NS.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. 7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.
Expressions and Equations	4 - 5 weeks	Students will be able to: • define the variable within a word problem.	7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

		• formulate expressions and equations in one variable and use these equations to solve real world problems. • understand that the distributive property works “on the right” as well as “on the left,” in addition to “forwards” as well as “backwards.” • combine their understanding of parentheses as denoting single quantities with the standard order of operations. • rewrite expressions in different ways representing real world problems. • solve multi-step problems involving rational numbers presented in various forms (whole numbers, fractions, and decimals). • assess the reasonableness of their answers, to problems that result in basic linear equation or inequality. • make sense of whole numbers and their opposites, and positive and negative fractions as belonging to a single system of rational numbers.	7.EE.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. 7.EE.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. 7.EE.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. 7.EE.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. 7.EE.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.
Statistics and Probability	3 - 4 weeks	Students will be able to • use random sampling to draw inferences about a population. • draw informal comparative inferences about two populations.	7.SP.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

		• investigate chance processes and develop, use, and evaluate probability models.	representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences. MCC7.SP.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. MCC7.SP.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. MCC7.SP.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. MCC7.SP.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.

			MCC7.SP.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. MCC7.SP.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. MCC7.SP.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. MCC7.SP.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? MCC7.SP.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. MCC7.SP.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. MCC7.SP.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.

			MCC7.SP.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?
Geometry - Attributes of Geometrical Figures	1-2 weeks	The students will be able to: ● understand and utilize scale models. ● construct a new scale drawing given a different scale. ● properly use a protractor and compass to construct shapes. ● draw geometric shapes with given conditions using a ruler, protractor, and technological instruments. ● determine how the lengths of triangle sides affect the conditions of a triangle. ● visualize, describe, and draw the two-dimensional figure (cross section) that result from slicing a three-dimensional object.	7.G.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. 7.G.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. 7.G.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.
Geometry - Applying Geometry Concepts	2-3 Weeks	The students will be able to: ● derive the relationship between circumference and area of a circle. ● use and memorize the formula for the area of a circle. ● use and memorize the formula for the circumference of a circle. ● solve problems using area and circumference formulas.	7.G.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. 7.G.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. 7.G.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.

		• define and identify supplementary angles. • define and identify complementary angles. • define and identify vertical angles. • define and identify adjacent angles. • locate and use the properties of angles to solve simple equations for an unknown angle in a figure. • apply formulas for area to two and three dimensional objects. • apply formulas for volume to three dimensional objects. • apply formulas for surface area to three dimensional objects.	

For future consideration:

How will these learning targets be measured? You may want to begin making a suggested list of possible assessments or performance tasks.

Common Assessments

- Traditional pencil-and-paper
- Performance Tasks
- Posters

Suggested Resources:

https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_Grade7_CurriculumMap.pdf
http://www.mathematicsvisionproject.org/
https://www.illustrativemathematics.org/
http://map.mathshell.org/materials/index.php
http://youcubed.org/
http://map.mathshell.org/materials/tests.php
http://www.ccsstoolbox.org/
http://utahmiddleschoolmath.org/7th-grade/7th-student-materials/

JCS Scope & Sequence: 7th Grade Medieval/Early Modern Times

Overarching Theme	Suggested Pacing	Standards Assessed	Key Concepts
Rome	3 weeks	7.1 Students analyze the causes and effects of the vast expansion and ultimate disintegration of the Roman Empire. 7.1.1 Study the early strengths and lasting contributions of Rome and its ultimate internal weaknesses. 7.1.2 Discuss the geographic borders of the empire at its height and the factors that threatened its territorial cohesion. 7.1.3 Describe the establishment by Constantine of the new capital in Constantinople and the development of the Byzantine Empire, with an emphasis on the consequences of the development of two distinct European civilizations, Eastern Orthodox and Roman Catholic, and their two distinct views on church-state relations.	● decline ● internal weakness ● corruption ● urbanization ● citizenship ● empire ● expansion
Islam	3 weeks	7.2 Students analyze the geographic, political, economic, religious, and social structures of civilizations of Islam in the Middle Ages. 7.2.1 Identify the physical features and describe the climate of the Arabian peninsula, its relationship to surrounding bodies of land and water, and nomadic and sedentary ways of life. 7.2.2 Trace the origins of Islam and the life and teachings of Muhammad, including Islamic teachings on the connection with Judaism and Christianity. 7.2.3 Explain the significance of the Qur'an and Sunnah as the primary sources of Islamic beliefs, practice, and law, and their influence in Muslims' daily life. 7.2.4 Discuss the expansion of Muslim rule through military conquests and treaties, emphasizing the cultural blending within Muslim civilization and the spread and acceptance of Islam and the Arabic language. 7.2.5 Describe the growth of cities and the establishment of trade routes among Asia, Africa, and Europe, the products and inventions that traveled along these routes, and the role of merchants in Arab society. 7.2.6 Understand the intellectual exchanges among Muslim scholars of Eurasia and Africa and the contributions Muslim scholars made to later	● cultural diffusion ● climate ● cultural blending ● trade route ● military conquest ● monotheism ● pilgrimage ● commerce ● golden age ● region ● nomads ● scholarship

		civilizations in the area of science, geography, mathematics, philosophy, medicine, art, and literature.	
Africa	3 weeks	7.4 Students analyze the geographic, political, economic, religious, and social structures of the sub-Saharan civilizations of Ghana and Mali in Medieval Africa. 7.4.1 Study the Niger River and the relationship of vegetation zones of forest, savannah, and desert to trade in gold, salt, food, and slaves; and the growth of the Ghana and Mali empires. 7.4.2 Analyze the importance of family, labor specialization, and regional commerce in the development of states and cities in West Africa. 7.4.3 Describe the role of the trans-Saharan caravan trade in the changing religious and cultural characteristics of West Africa and the influence of Islamic beliefs, ethics, and law. 7.4.4 Trace the growth of the Arabic language in government, trade, and Islamic scholarship in West Africa. 7.4.5 Describe the importance of written and oral traditions in the transmission of African history and culture.	● commerce ● kinship ● oral traditions ● region ● slavery ● topography ● tribalism ● empires ● oral history ● labor specialization ● regional commerce ● scholarship ● caravan
China	4 weeks	7.3 Students analyze the geographic, political, economic, religious, and social structures of the civilizations of China in the Middle Ages. 7.3.1 Describe the reunification of China under the Tang Dynasty and reasons for the spread of Buddhism in Tang China, Korea, and Japan. 7.3.2 Describe agricultural, technological, and commercial developments during the Tang and Sung periods. 7.3.3 Analyze the influences of Confucianism and changes in Confucian thought during the Sung and Mongol periods. 7.3.4 Understand the importance of both overland trade and maritime expeditions between China and other civilizations in the Mongol Ascendancy and Ming Dynasty. 7.3.5 Trace the historic influence of such discoveries as tea, the manufacture of paper, wood-block printing, the compass, and gunpowder. 7.3.6 Describe the development of the imperial state and the scholar-official class.	● bureaucracy ● civil service ● ethics ● extended family ● social stability ● traditions ● imperial state ● scholar class
Japan	4 weeks	7.5 Students analyze the geographic, political, economic, religious, and social structures of the civilizations of Medieval Japan.	● hierarchy ● homogeneity

		7.5.1 Describe the significance of Japan's proximity to China and Korea and the intellectual, linguistic, religious, and philosophical influence of those countries on Japan. 7.5.2 Discuss the reign of Prince Shotoku of Japan and the characteristics of Japanese society and family life during his reign. 7.5.3 Describe the values, social customs, and traditions prescribed by the lord-vassal system consisting of shogun, daimyo, and samurai and the lasting influence of the warrior code in the twentieth century. 7.5.4 Trace the development of distinctive forms of Japanese Buddhism. 7.5.5 Study the ninth and tenth centuries' golden age of literature, art, and drama and its lasting effects on culture today, including Murasaki Shikibu's Tale of Genji. 7.5.6 Analyze the rise of a military society in the late twelfth century and the role of the samurai in that society.	● isolation ● bushido ● lord-vassal system ● militarism ● social custom ● cultural exchange and cultural diffusion
Europe	4 weeks	7.6 Students analyze the geographic, political, economic, religious, and social structures of the civilizations of Medieval Europe. 7.6.1 Study the geography of the Europe and the Eurasian land mass, including its location, topography, waterways,vegetation, and climate and their relationship to ways of life in Medieval Europe. 7.6.2 Describe the spread of Christianity north of the Alps and the roles played by the early church and my monasteries in its diffusion after the fall of the western half of the Roman Empire. 7.6.3 Understand the development of feudalism, its role in the medieval European economy, the way in which it was influenced by physical geography, and how feudal relationships provided the foundation of political order. 7.6.4 Demonstrate an understanding of the conflict and cooperation between the Papacy and European monarchs. 7.6.5 Know the significance of developments in medieval English legal and constitutional practices and their importance in the rise of the modern democratic thought and representative institutions. 7.6.6 Discuss the causes and course of the religious Crusades and their effects on the Christian, Muslim, and Jewish populations in Europe, with emphasis on the increasing contact by Europeans with cultures of the Eastern Mediterranean world. 7.6.7 Map the spread of the bubonic plague from Central Asia to China, the Middle East, and Europe and describe impact on global population.	● chivalry ● Crusades ● feudalism ● guild ● manorial system ● self-sufficiency ● aristocracy ● constitution ● natural law ● political order ● epidemic ● hierarchy ● apprenticeship ● monasticism

		7.6.8 Understand the importance of the Catholic church as a political, intellectual, and aesthetic institution. 7.6.9 Know the history of the decline of Muslim rule in the Iberian Peninsula that culminated in the Reconquista and the rise of Spanish and Portuguese kingdoms.	
Meso-American and Andean Civilizations	4 weeks	7.7.1 Study the locations, landforms, and climates of Mexico, Central America, and South America and their effects on Mayan, Aztec, and Incan economies, trade, and development of urban societies. 7.7.2 Study the roles of people in each society, including class structures, family life, warfare, religious beliefs and practices, and slavery. 7.7.3 Explain how and where each empire arose and how the Aztec and Incan empires were defeated by the Spanish. 7.7.4 Describe the artistic and oral traditions and architecture in the three civilizations. 7.7.5 Describe the Meso-American achievements in astronomy and mathematics, including the development of the calendar and the Meso-American knowledge of seasonal changes to the civilizations' agricultural systems.	● urban society ● class structure ● empire ● alliance ● tribute ● sacrifice
Renaissance & Reformation	6 weeks	7.8 Students analyze the origins, accomplishments, and geographic diffusion of the Renaissance. 7.8.1 Describe the way in which the revival of classical learning and the arts fostered a new interest in humanism. 7.8.2 Explain the importance of Florence in the early stages of the Renaissance and the growth of independent trading cities, with emphasis on the cities importance in the spread of Renaissance ideas. 7.8.3 Understand the effects of the reopening of the ancient "Silk Road" between Europe and China, including Marco Polo's travels and location of his routes. 7.8.4 Describe the growth and effects of new ways of disseminating information. 7.8.5 Detail advances made in literature, the arts, science, mathematics, cartography, engineering, and the understanding of human anatomy and astronomy. 7.9 Students analyze the historical developments of the Reformation. 7.9.1 List the causes for the internal turmoil in and weakening of the Catholic church.	● humanism ● individualism ● Renaissance ● revival ● classical ● vernacular ● secular ● nation state ● Reformation ● Counter Reformation ● missionary ● Inquisition ● theology ● theocracy ● self-government ● federalism ● faith ● predestination

		7.9.2 Describe the theological, political, and economic ideas of the major figures during the Reformation. 7.9.3 Explain Protestants' new practices of church self-government and the influence of those practices on the development of democratic practices and ideas of federalism. 7.9.4 Identify and locate the European regions that remained Catholic and those that became Protestant and explain how the division affected the distribution of religions in the New World. 7.9.5 Analyze how the Counter-Reformation revitalized the Catholic church and the forces that fostered the movement. 7.9.6 Understand the institution and impact of missionaries on Christianity and the diffusion of Christianity from Europe to other parts of the world in the medieval and early modern periods; locate missions on a world map. 7.9.7 Describe the Golden Age of cooperation between Jews and Muslims in medieval Spain that promoted creativity in art, literature, and science, including how that cooperation was terminated by the religious persecution of individuals and groups.	
Age of Exploration & Enlightenment	4 weeks	7.11 Students analyze political and economic change in the sixteenth, seventeenth, and eighteenth centuries. 7.11.1 Know the great voyages of discovery, the locations of the routes, and the influence of cartography in the development of a new European worldview. 7.11.2 Discuss the exchanges of plants, animals, technology, culture, and ideas among Europe, Africa, Asia, and the Americas in the fifteenth and sixteenth centuries and the major economic and social effect s on each continent. 7.11.3 Examine the origins of modern capitalism; the influence of mercantilism and cottage industry; the elements and importance of a market economy in the seventeenth-century Europe; the changing international trading and marketing patterns, including their locations on a world map; and the influence of explorers and map makers. 7.11.4 Explain how the main ideas of the Enlightenment can be traced back to such movements as the Renaissance, the Reformation, and the Scientific Revolution and to the Greeks, Romans, Christianity. 7.11.5 Describe how democratic thought and institutions were influenced by Enlightenment thinkers.	● capitalism ● rationalism ● absolute monarchy ● aristocracy ● Enlightenment ● mercantilism ● nationalism ● republic ● market economy

		7.11.6 Discuss how the principles in the Magna Carta were embodied in such documents as the English Bill of Rights and the American Declaration of Independence.	
CCSS: Reading Informational Text	All year	*Cite textual evidence to support analysis of primary and secondary sources *Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions. *Identify key steps in a text's description of a process related to history/social studies. *Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. *Describe how a text presents information. *Identify aspects of a text that reveal an author's point of view of purpose. *Integrate visual information with other information in print and digital texts. *Distinguish among fact, opinion, and reasoned judgment in a text. *Analyze the relationship between a primary and secondary source. *By the end of grade 8, read and comprehend history/social studies texts in the grades 6-8 text complexity band independently and proficiently.	http://www.cde.ca.gov/be/st/ss/documents/finalelaccssstandards.pdf Pages 51-54
CCSS: Writing	All year	*Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. *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. *Draw evidence from informational texts to support analysis reflection, and research.	http://www.cde.ca.gov/be/st/ss/documents/finalelaccssstandards.pdf Pages 57, 59, 60

How will these learning targets be measured? A suggested list of possible assessments or performance tasks:

Chronological and Spatial Thinking

1. Students explain how major events are related to one another in time.
2. Students construct various time lines of key events, people, and periods of the historical era they are studying.
3. Students use a variety of maps and documents to identify physical and cultural features of neighborhoods, cities, states, and countries and to explain the historical migration of people, expansion and disintegration of empires, and the growth of economic systems.

Research, Evidence, and Point of View

1. Students frame questions that can be answered by historical study and research.
2. Students distinguish fact from opinion in historical narratives and stories.
3. Students distinguish relevant from irrelevant information, essential from incidental information, and verifiable from unverifiable information in historical narratives and stories.
4. Students assess the credibility of primary and secondary sources and draw sound conclusions from them.
5. Students detect the different historical points of view on historical events and determine the context in which the historical statements were made (the questions asked, sources used, author's perspectives).

Historical Interpretation

1. Students explain the central issues and problems from the past, placing people and events in a matrix of time and place.
2. Students understand and distinguish cause, effect, sequence, and correlation in historical events, including the long-and short-term causal relations.
3. Students explain the sources of historical continuity and how the combination of ideas and events explains the emergence of new patterns.
4. Students recognize the role of chance, oversight, and error in history.
5. Students recognize that interpretations of history are subject to change as new information is uncovered.
6. Students interpret basic indicators of economic performance and conduct cost-benefit analyses of economic and political issues.

Scope & Sequence: Integrated Science 7

Overarching Theme	**Suggested Pacing**	**Learning Targets**	**Standards Addressed**
Think about the standards and group them into big ideas. Each big idea will be listed on a row.	How much time will it take to teach this theme?	What knowledge and skills will the students be able to demonstrate?	List the actual standards.
Atoms & Molecules	8 weeks	How can one explain the structure and properties of matter? Student will: ● describe atoms and the properties of subatomic particles. ● create a model or diagram to show the basic structure of an atom. ● create models of molecules of varying complexity and use the models to describe how the molecules are the same and different. ● use a Lewis Dot Structure or another model to explain the importance of valence electrons. ● conduct an experiment to understand what occurs when thermal energy is added or removed. ● develop a model or diagram to explain particle motion, temperature, and state when thermal energy is added or removed. ● Engineering Integration: Create a system to reduce thermal energy flow (i.e., insulators)	PS 1.1: Develop models to describe the atomic composition of simple molecules and extended structures. PS 1.4: Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.
Chemical Reactions	8 weeks	How can one explain the interactions of matter to create substances with different properties?	PS 1.2: Analyze and interpret data on the properties of substances before and after the

		Student will: ● experiment with substances to differentiate between a physical and a chemical change. ● identify and explain the signs of a chemical reaction ● compare and contrast covalent bonding, ionic bonding & metallic bonding. ● develop a model/drawing to explain the Law of Conservation of Mass. ● balance a chemical equation. ● compare and contrast endothermic and exothermic reactions. ● create a polymer out of simple ingredients and research the natural resources utilized	substances interact to determine if a chemical reaction has occurred. PS 1.5: Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. PS 1.6: Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes. PS 1.3: Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
Natural Resources	4 weeks	What processes have changed the earth's resources over the years? Student will: ● compare and contrast renewable with nonrenewable resources. ● use charts, graphs and/or a distribution map to explain the location and changes of the resources used by humans. ● create a model or diagram to explain the rock cycle and the energy that drives the rock cycle. ● explain how the processes of melting, crystallization, weathering, deformation, and sedimentation have changed the earth and provide examples of each.	ESS 2.1:Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. ESS 3.1:Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
Ecosystems	10 weeks	How do organisms obtain, use, and cycle matter and energy through an ecosystem? Student will:	LS 2.1: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

		• define the biotic and abiotic factors of an ecosystem and the interactions among them • develop a food web to describe the flow of energy and cycling of matter in an ecosystem • develop a model to explain how plants and animals get energy through photosynthesis and cellular respiration • analyze and interpret data to provide evidence to show that changes in an ecosystem affect the populations • define common interactions found in all ecosystems, such as competitive, predatory, and mutually beneficial	LS 2.2:Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. LS 2.3:Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. LS 2.4:Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. LS 1.5: Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. LS 1.6: Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. LS 1.7:Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.
Human Impact/ Semester capstone project	2-3 weeks	How do humans impact the earth? Student will: • define biodiversity and explain its importance to the health of an ecosystem. • evaluate the ways that humans are attempting to maintain biodiversity • develop a possible solution to maintain biodiversity OR • find evidence for how increases in human population and consumption of natural resources impact the Earth	ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. LS 2.5: Evaluate competing design solutions for maintaining biodiversity and ecosystem services. (Engineering Design)

		● design a method to monitor and minimize the human impact on the environment	
Engineering	Integrated throughout	(Coming Soon-ways to do this in both semesters)	ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Scope & Sequence: 8th Grade Math

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.

Overarching Theme	**Suggested Pacing**	**Learning Targets**	**Standards Addressed**
Think about the standards and group them into big ideas. Each big idea will be listed on a row.	How much time will it take to teach this theme? All the themes should be covered during the span of one school year.	What knowledge and skills will the students be able to do?	List the actual standards.
Expressions and the Number System	6 weeks	● Apply properties of integer exponents ● Simplify exponential expressions ● Find the value of integer powers ● Use properties of integers to write equivalent expressions	8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.
		● Convert numbers between scientific and standard notations ● Compare numbers in scientific notation	8.EE.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 much larger or smaller one is than the other.
		● Add and subtract with scientific notation ● Multiply and divide with scientific notation ● Use scientific notation on a calculator	8.EE.4 Perform operations with numbers expressed in scientific notation, including problems where

			both a decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology.
		● Find the square root of perfect squares and perfect cubes ● Solve equations using square roots and cube roots ● Simplify expressions that contain perfect squares and perfect cubes ● Solve word problems involving perfect squares and perfect cubes	8. EE.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…
		● Convert fractions to decimals ● Convert terminating decimals to fractions ● Convert repeating decimals to fractions ● Compare fractions, decimals, and between fractions and decimals	8.NS.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.
		● Estimate irrational numbers and approximate them on a number line ● Know when a number is rational or irrational ● Compare irrational numbers ● Order irrational numbers	8.NS.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).

			EE.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…
Functions	7 weeks	● Understand number/rule relationships ● Recognize functions ● Graph functions	8.F.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
		● Graph linear functions ● Determine and explain whether relationships are linear	8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. 8.F.3 Interpret the equation y=mx+b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
		● Investigate rates of change ● Use graphs and tables to find rates of change ● Calculate slope	8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional

			relationships represented in different ways.
		● Derive the slope-intercept formula ● Use slope-intercept form to graph a line	8.EE.6 ...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. 8.F.3 Interpret the equation y=mx+b as defining a linear function, whose graph is a straight line.
		● Write an equation for a function from tables, graphs and descriptions.	8.F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x,y) values, including reading these from a table or 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. 8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. 8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
		● Compare tables, graphs, equations,and descriptions	

		● Interpret graphs ● Match graphs to situations ● Sketch a graph to a situation	8. F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x,y) values, including reading these from a table or 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. 8.F.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
Equations	5 weeks	● Solve equations by combining like terms and using the distributive property ● Solve equations with variables on both sides ● Determine the number of solutions to an equation ● Write equations with a given number of solutions	8.EE.7b Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. 8.EE.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).
		● Investigate systems of equations ● Solve systems graphically ● Solve a real-world problem by graphing	8.EE.8a Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersections satisfy both equations simultaneously. EE.8c Solve real-world and mathematical problems leading to two linear equations in two variables.
		● Solve systems algebraically ● Use a graph to estimate the solution to a system ● Problem solve with systems of equations	8.EE.8b Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. EE.8c Solve real-world and mathematical problems leading to two linear equations in two variables.

Geometry: Transformations	5 weeks	● Apply translations, reflections, and rotations on two-dimensional figures using coordinates ● Explore the properties of translations, reflections, and rotations ● Apply a sequence of transformations to a two-dimensional figure ● Identify a sequence of transformations that transforms a figure into another congruent figure ● Calculate dilations - both enlargements and reductions. ● Sketch the image of a two-dimensional figure under a given dilation ● Identify the scale factor of a dilation.	8.G.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. 8.G.1 Verify experimentally the properties of rotations, reflections, and translations 8.G.1.a Lines are taken to lines, and line segments to line segments of the same length. 8.G.1.b Angles are taken to angles of the same measure. 8.G.1.c Parallel lines are taken to parallel lines. 8.G.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. 8.G.3 Describe the effect of dilations on two-dimensional figures using coordinates.

		● Combine transformations with dilations ● Identify a sequence of transformations that will transform a figure to another using transformations and dilations ● Understand that figures are called similar if one can be obtained from the other by a sequence of translations, reflections, rotations, and dilations. They have the same shape but may be different sizes.	8.G.4 Understand that a two-dimensional figure is similar to another if the second figure 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.

Geometry: Two and Three Dimensional Figures	7 weeks	● Explore the angles formed by parallel lines that are cut by a transversal ● Justify angle relationships ● Identify and know the properties of corresponding, alternate interior, alternate exterior, and same-side interior angles ● Find unknown angle measures	8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the triangles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.
		● Find the sum of the angle measures in a triangle. ● Justify the Triangle Sum Theorem and the Exterior Angles and Remote Interior Angles theorem ● Find missing angles in a triangle using the Triangle Sum Theorem ● use the Exterior Angles Theorem to find missing angles	8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the triangles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.
		● Discover Angle-Angle similarity using the Triangle Sum Theorem ● Use the AA Similarity Postulate to explain whether two triangles are similar ● Use proportional side lengths to explain whether two triangles are similar ● Find missing measures in similar triangles	8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the triangles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

		● Investigate slope ● Use similar triangles to explain slope	8.EE.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 b.
		● Learn how to use the pythagorean theorem to solve problems ● Use the Pythagorean Theorem to find the length of a missing side in a right triangle ● Knowing the legs, approximate the length of a hypotenuse of a right triangle without using a calculator	8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. 8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
		● Use area to prove the Pythagorean Theorem ● Test the converse of the Pythagorean Theorem	8.G.6 Explain a proof of the Pythagorean Theorem and its converse.
		● Find the volume of a cylinder, cone, and sphere using volume formulas	8.G.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Statistics and Probability	3 weeks	● Make a scatter plot ● Interpret clusters and outliers ● Determine associations	8.SP.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. 8.SP.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. 8.SP.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting slope and intercept. 8.SP.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

- Draw a trend line
- Find the equation of a trend line
- Make predictions

- Make a two-way table by making calculations with percentages to find frequencies
- Decide whether there is an association between variables

For future consideration:

How will these learning targets be measured? You may want to begin making a suggested list of possible assessments or performance tasks.

Common Assessments

- Traditional pencil-and-paper
- Performance Tasks
- Posters

Suggested Resources:

https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_Grade7_CurriculumMap.pdf

http://www.mathematicsvisionproject.org/

http://utahmiddleschoolmath.org/8th-grade/8th-student-materials/

https://www.illustrativemathematics.org/
http://map.mathshell.org/materials/index.php
http://youcubed.org/

JCS Scope & Sequence: 8th Grade United States History

Overarching Theme	**Suggested Pacing**	**Standards Assessed**	**Standards Addressed**
Colonial Period in America	2 weeks	8.1 Students understand the major events preceding the founding of the nation and relate their significance to the development of American constitutional democracy. 8.1.1 Describe the relationship between the moral and political ideas of the Great Awakening and the development of revolutionary fervor. 8.1.2 Analyze the philosophy of government expressed in the Declaration of Independence, with an emphasis on government as a means of securing individual rights.	● Colonialism ● Enlightenment ● Independence ● Natural rights ● Natural law ● Republic
American Revolution	4 weeks	8.1.3 Analyze how the American Revolution affected other nations, especially France. 8.1.4 Describe the nation's blend of civic republicanism, classical liberal principles, and English parliamentary traditions.	● Revolution ● Social contract ● Sovereignty ● Democracy
US Constitution	4 weeks	8.2 Students analyze the political principles underlying the U.S. Constitution and compare the enumerated implied powers of the federal government. 8.2.1 Discuss the significance of the Magna Carta, the English Bill of Rights, and the Mayflower Compact. 8.2.2 Evaluate the major debates that occurred during the development of the Constitution and their ultimate resolutions in such areas as shared power among institutions, divided state-federal power, slavery, the rights of individuals and states, and the status of American Indian nations under the commerce clause.	● Constitution ● Compromise ● Checks and Balances ● Confederation ● Executive power ● Federalism ● Judicial power ● Limited government ● Legislative power ● Representation ● Republic ● Self-government ● Separation of powers ● States' rights ● Popular sovereignty ● Separation of church and state ● Rule of law

Early Republic-Jefferson	4 weeks	8.3 Students understand the foundation of the American political system and the ways in which citizens participate in it. 8.3.1 Analyze the principles and concepts codified in state constitutions between 1777 and 1781 that created the context out of which American political institutions and ideas developed. 8.3.2 Explain for the ordinances of 1785 and 1787 privatized national resources and transferred federally owned lands into private holdings, townships, and states. 8.3.3 Enumerate the advantages of a common market among the states as foreseen in and protected by the constitution's clauses on interstate commerce, common coinage, and full-faith and credit. 8.3.4 Understand how the conflicts between Thomas Jefferson and Alexander Hamilton resulted in the emergence of two political parties. 8.3.5 Know the significance of domestic resistance movements and ways in which the central government responded to such movements. 8.3.6 Describe the basic law-making process and how the Constitution provides numerous opportunities for citizens to participate in the political process and to monitor and influence government. 8.3.7 Understand the functions and responsibilities of a free press. 8.4 Students analyze the aspirations and ideals of the people of the new nation. 8.4.1 Describe the country's physical landscapes, political divisions, and territorial expansion during the terms of the first four presidents. 8.4.2 Explain the policy significance of famous speeches. 8.4.3 Analyze the rise of capitalism and the economic problems and conflicts that accompanied it. 8.4.4 Discuss daily life, including traditions in art, music, and literature of early national America. 8.5 Students analyze U.S. foreign policy in the early Republic. 8.5.1 Understand the political and economic causes and consequences of the War of 1812 and know the major battles, leaders, and events that led to a final peace.	● Loose construction ● Strict construction ● Tariff ● Federalism ● Judicial review ● Political party ● Capitalism ● Neutrality ● Expansion
Age of Jackson, Manifest Destiny, Women's rights,	4 weeks	8.5.2 Know the changing boundaries of the United States and describe the relationships the country had with its neighbors, and Europe, including the influence of the Monroe Doctrine, and how those relationships influenced westward expansion and the Mexican-American War.	● Manifest Destiny ● Imperialism ● Foreign policy ● Nationalism ● Frontier ● Natural resources

Mexican-American Way, Monroe Doctrine		8.5.3 Outline the major treaties with American Indian nations during the administrations of the first four presidents and the varying outcomes of those treaties. 8.8 Students analyze the divergent paths of the American people in the West from 1800 to the mid-1800s and the challenges they faced. 8.8.1 Discuss the election of Andrew Jackson as president in 1828, the importance of Jacksonian democracy, and his actions as president. 8.8.2 Describe the purpose, challenges, and economic incentives associated with westward expansion, including the concept of Manifest Destiny and the territorial acquisitions that spanned numerous decades. 8.8.3 Describe the role of pioneer women and the new status that western women achieved. 8.8.4 Examine the importance of the great rivers and the struggle over water rights. 8.8.5 Discuss the Mexican settlements and their locations, cultural traditions, attitudes toward slavery, land grant system, and economies. 8.8.6 Describe the Texas War for Independence and the Mexican-American War, including territorial settlements, the aftermath of the wars, and the effects the wars had on the lives of Americans, including Mexican Americans today. 8.6 Students analyze the divergent paths of the American people from 1800 to the mid-1800s and the challenges they faced, with emphasis on the Northeast. 8.6.1 Discuss the influence of industrialization and technological developments on the region, including human modification of the landscape and how physical geography shaped human actions. 8.6.2 Outline the physical obstacles to and the economic and political factors involved in building a network of roads, canals, and railroads. 8.6.3 List the reasons for the wave of immigration from Northern Europe to the United States and describe the growth in the number, size, and spatial arrangements of cities. 8.6.4 Study the lives of the black Americans who gained freedom in the North and founded schools and churches to advance their rights and communities. 8.6.5 Trace the development of the American education system from its earliest roots, including the roles of religious and private schools and Horace Mann's campaign for free public education and its assimilating role in American culture.	● Sectionalism ● Social mobility ● Expansion ● Democracy ● Region ● Spoils system ● Factory system ● Industrial Revolution ● Natural resources ● Reform ● Assimilation ● Immigration ● Suffrage ● Transcendentalism ● Individualism

		8.6.6 Examine the women's suffrage movement. 8.6.7 Identify common themes in American art as well as transcendentalism and individualism.	
Slavery	3 weeks	8.7 Students analyze the divergent paths of the American people in the South from 1800 to the mid-1800s and the challenges they faced. 8.7.1 Describe the development of the agrarian economy in the South, identify the locations of the cotton-producing states, and discuss the significance of the cotton and the cotton gin. 8.7.2 Trace the origins of slavery; its effect on black Americans and on the region's political, social, religious, economic, and cultural development; and identify the strategies that were tried to both overturn and preserve it. 8.7.3 Examine the characteristics of white Southern society and how the physical environment influenced events and conditions prior to the Civil War. 8.7.4 Compare the lives of and opportunities for free blacks in the North with those of free blacks in the South. 8.9 Students analyze the early and steady attempts to abolish slavery and to realize the ideals of the Declaration of Independence. 8.9.1 Describe the leaders of the movement. 8.9.2 Discuss the abolition of slavery in early state constitutions. 8.9.3 Examine the characteristics of white Southern society and how the physical environment influenced events and conditions prior to the Civil War. 8.9.4 Discuss the importance of the slavery issue as raised by the annexation of Texas and California's admission to the union as a free state under the Compromise of 1850. 8.9.5 Analyze the significance of the States' Rights Doctrine, the Missouri compromise (1820), the Wilmot Proviso (1846), the Compromise of 1850, Henry Clay's role in the Missouri Compromise and the Compromise of 1850, the Kansas-Nebraska Act (1854), the Dred Scott v. Sandford decision (1857), and the Lincoln Douglas debates (1858). 8.9.6 Describe the lives of free blacks and the laws that limited their freedom and economic opportunities.	● Agrarian economy ● Cash crops ● Natural resources ● Sectionalism ● Slavery ● Abolition ● Justice ● Freedom ● Compromise ● Equality ● Annexation ● Popular sovereignty
Civil War	4 weeks	8.10 Students analyze the multiple causes, key events, and complex consequences of the Civil War.	● Emancipation ● Civil War

		8.10.1 Compare the conflicting interpretations of state and federal authority as emphasized in the speeches and writings of statesmen such as Daniel Webster and John C. Calhoun. 8.10.2 Trace the boundaries constituting the North and the South, the geographical differences between agrarians and industrialists. 8.10.3 Identify the constitutional issues posed by the doctrine of nullification and secession and the earliest origins of that doctrine. 8.10.4 Discuss Abraham Lincoln's presidency and his significant writings and speeches and their relationship to the Declaration of Independence, such as his "House Divided" speech (1858), Gettysburg Address (1863), Emancipation Proclamation (1863), and inaugural addresses (1861 and 1865). 8.10.5 Study the views and lives of leaders and soldiers on both sides of the war, including those of black soldiers and regiments. 8.10.6 Describe critical developments and events in the war, including the major battles, geographical advantages, and General Lee's surrender at Appomattox. 8.10.7 Explain how the war affected combatants, civilians, the physical environment, and future warfare.	● Nullification ● Secession ● Authority
Reconstruction	3 weeks	8.11 Students analyze the character and lasting consequences of Reconstruction. 8.11.1 LIst the original aims of Reconstruction and describe its effects on the political and social structures of different regions. 8.11.2 Identify the push-pull factors in the movement of former slaves to the cities in the North and to the West and their differing experiences in those regions. 8.11.3 Understand the effects of the Freedmen's Bureau and the restrictions placed on the rights and opportunities of freedmen, including racial segregation and "Jim Crow" laws. 8.11.4 Trace the rise of the Ku Klux Klan and describe the Klan's effects. 8.11.5 Understand the Thirteenth, Fourteenth, and Fifteenth Amendments to the Constitution and analyze their connection to Reconstruction.	● Reconstruction ● Impeachment ● Segregation ● Discrimination ● Civil Rights ● Reconciliation ● Freedom
Growth of the West & Industrialism	4 weeks	8.12 Students analyze the transformation of the American economy and the changing social and political conditions in the United States in response to the Industrial Revolution.	● Labor movement ● Mass production ● "Melting pot"

		8.12.1 Trace patterns of agricultural and industrial development as they relate to climate, use of natural resources, markets, and trade and locate such development on a map. 8.12.2 Identify the reasons for the development of federal Indian policy and the wars with American Indians and their relationship to agricultural development and industrialization. 8.12.3 Explain how states and the federal government encouraged business expansion through tariffs, banking, land grants, and subsidies. 8.12.4 Discuss entrepreneurs, industrialists, and bankers in politics, commerce, and industry. 8.12.5 Examine the location and effects of urbanization, renewed immigration, and industrialization. 8.12.6 Discuss child labor, working conditions, and laissez-faire policies toward big business and examine the labor movement, including its leaders. 8.12.7 Identify the new sources of large-scale immigration and the contributions of immigrants to the building of cities and the economy; explain the ways in which new social and economic patterns encouraged assimilation of newcomers into the mainstream amidst growing cultural diversity; and discuss the new wave of nativism. 8.12.8 Identify the characteristics and impacts of Grangerism and Populism. 8.12.9 Name the significant inventors and their inventions and identify how they improved the quality of life.	● Progressive ● Unionism ● Urbanization ● Economic growth ● Capitalism ● Immigration
CCSS: Reading Informational Text	All year	*Cite textual evidence to support analysis of primary and secondary sources *Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions. *Identify key steps in a text's description of a process related to history/social studies. *Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. *Describe how a text presents information. *Identify aspects of a text that reveal an author's point of view of purpose.	http://www.cde.ca.gov/be/st/ss/documents/finalelaccssstandards.pdf Pages 57, 59, 60

		*Integrate visual information with other information in print and digital texts. *Distinguish among fact, opinion, and reasoned judgment in a text. *Analyze the relationship between a primary and secondary source. *By the end of grade 8, read and comprehend history/social studies texts in the grades 6-8 text complexity band independently and proficiently.	
CCSS: Writing	All year	*Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. *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. *Draw evidence from informational texts to support analysis reflection, and research.	http://www.cde.ca.gov/be/st/ss/documents/finalelaccssstandards.pdf Pages 57, 59, 60

How will these learning targets be measured? A suggested list of possible assessments or performance tasks:

Chronological and Spatial Thinking 1. Students explain how major events are related to one another in time. 2. Students construct various time lines of key events, people, and periods of the historical era they are studying. 3. Students use a variety of maps and documents to identify physical and cultural features of neighborhoods, cities, states, and countries and to explain the historical migration of people, expansion and disintegration of empires, and the growth of economic systems.
Research, Evidence, and Point of View 1. Students frame questions that can be answered by historical study and research. 2. Students distinguish fact from opinion in historical narratives and stories.

3. Students distinguish relevant from irrelevant information, essential from incidental information, and verifiable from unverifiable information in historical narratives and stories.
4. Students assess the credibility of primary and secondary sources and draw sound conclusions from them.
5. Students detect the different historical points of view on historical events and determine the context in which the historical statements were made (the questions asked, sources used, author's perspectives).

Historical Interpretation

1. Students explain the central issues and problems from the past, placing people and events in a matrix of time and place.
2. Students understand and distinguish cause, effect, sequence, and correlation in historical events, including the long-and short-term causal relations.
3. Students explain the sources of historical continuity and how the combination of ideas and events explains the emergence of new patterns.
4. Students recognize the role of chance, oversight, and error in history.
5. Students recognize that interpretations of history are subject to change as new information is uncovered.
6. Students interpret basic indicators of economic performance and conduct cost-benefit analyses of economic and political issues.

Scope & Sequence: Integrated Science 8

Overarching Theme	**Suggested Pacing**	**Learning Targets**	**Standards Addressed**
Think about the standards and group them into big ideas. Each big idea will be listed on a row.	How much time will it take to teach this theme? All the themes should be covered during the span of one school year.	What knowledge and skills will the students be able to demonstrate?	List the actual standards.
Force & Interactions	8 weeks	"How can one describe physical interactions between objects and within systems of objects?" The student will: ● explain how Newton's Third Law describes the motion of two colliding objects. ● identify the forces acting on an object. ● provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. ● illustrate how kinetic energy relates to the mass of an object and to the speed of an object. ● compare and contrast properties of potential and kinetic energy. ● model how the kinetic energy of an object changes when energy is transferred to or from the object in some form (Law of Conservation of Energy).	MS-PS 2-1 Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.* MS-PS 2-2 Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. MS-PS 3-1 Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. MS-PS 3-2 Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. MS-PS 3-5 Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.
Waves & Electro-magnetic Energy	4 weeks	"What are the characteristic properties of waves and how can they be used?" The student will: ● determine factors that affect the strength of electric and magnetic forces.	MS-PS 2-3 Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. MS-PS 2-5 Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on

		● provide examples demonstrating that fields exist between objects exerting forces on each other, even though the objects are not in contact. ● use mathematical representations to explain how the amplitude of a wave is related to the energy in a wave. ● use a model to describe how waves are reflected, absorbed, or transmitted through various materials. ● discuss why digitized signals are a more reliable way to encode and transmit information than analog signals.	each other even though the objects are not in contact. MS-PS 4-1 Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. MS-PS 4-2 Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. MS-PS 4-3 Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.
Space & Solar systems	4 weeks	"What is Earth's place in the Universe?" "What makes up our solar system and how can the motion of Earth explain seasons and eclipses?" The student will: ● explain Earth's place in the solar system, Milky Way galaxy, and other galaxies. ● determine that the solar system consists of the sun, planets, their moons, and asteroids that are held in orbit around the Sun by its gravitational force. ● describe the role of gravity in the motion of objects within galaxies. ● use evidence to show that gravitational interactions depend on the masses of interacting objects. ● use models to demonstrate the patterns of apparent motion of the sun, moon, and stars. ● contrast the Earth's relative position and size to other objects in the solar system, including planets, planetary satellites, comets, and asteroids.	MS-PS 2-4 Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. MS-ESS 1-1 Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. MS-ESS 1-2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. MS-ESS 1-3 Analyze and interpret data to determine scale properties of objects in the solar system.

		● determine the composition and role of the Sun in our solar system. ● describe the appearance, general composition, and motion of objects in the solar system. ● diagram the relative position and motion of the Earth, Sun, and Moon as related to change in seasons and eclipses.	
History of the Earth	4 weeks	“How do people figure out that the Earth and life on Earth have changed over time?” “How does the movement of tectonic plates impact the surface of Earth?” The student will: ● interpret the geologic time scale as a way to organize Earth’s history. ● compile examples of how geologic processes, over long periods of time, have changed Earth’s surface. ● describe how the movement of water, on land and underground, has caused weathering and erosion. ● explain how evidence—such as distribution of fossils, rock types, continental shapes, seafloor spreading, and ancient climatic zones—is used to analyze Earth’s changes over time. ● analyze the effects of major catastrophic events, and changing environmental conditions, on the history of life on Earth. ● examine how movements of Earth's continental and oceanic plates, through time, have affected the past and present distribution of organisms. ● conclude that plate tectonics accounts for important features of Earth's surface and major geologic events.	MS-ESS 1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history. MS-ESS 2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. MS-ESS 2-3 Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

Natural Selection	8 weeks	"How does the environment influence genetic traits in populations over multiple generations?" The student will: ● analyze the fossil record as documentation of the existence, diversity, speciation, mass extinction, and change of many life forms throughout the history of life on Earth. ● infer evolutionary relationships to determine how gradual environmental changes account for anatomical similarities and differences in populations over many generations. ● describe how both genetic variation and environmental factors are causes of evolution, changes in distribution of a population's traits, and diversity of organisms. ● explain why natural selection is considered the mechanism of evolution. ● discuss how new mutations are constantly being generated in a gene pool. ● interpret the use of comparative embryology to show probable evolutionary relationships.	MS-LS 1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. MS-LS 3-1 Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism. MS-LS 4-1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past. MS-LS 4-2 Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships. MS-LS 4-3 Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy. MS-LS 4-4 Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. MS-LS 4-6 Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.
Heredity & Reproduction	3 weeks	"How does genetic variation among organisms in a species affect survival and reproduction?" The student will: ● recall that genetic changes take place in constantly changing environments. ● recognize that genetic variation occurs within a species and explain how it occurs.	MS-LS 1-4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. MS-LS 3-2 Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual

		● explain why genetic diversity increases the likelihood that some members of a species will survive under changed environmental conditions. ● examine how speciation is affected by adaptations passed on to future generations. ● contrast the differences between the life cycles and reproduction methods of sexual and asexual organisms.	reproduction results in offspring with genetic variation.
Human Impact	2 weeks	The student will: ● delineate how to locate and integrate scientific information from reliable sources. ● appraise the influence of humans on genetic outcomes in artificial selection. ● contrast the processes used to produce desired traits in organisms (i.e., genetic modification, animal husbandry, and gene therapy) ● justify the impacts genetically based technologies have on society. ● analyze how human activities (positive and negative) have altered the biosphere.	MS-LS 4-5 Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.

* Engineering standards incorporation

For future consideration:

How will these learning targets be measured? You may want to begin making a suggested list of possible assessments or performance tasks.