Reading Standards for Literature

The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. *Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.*

Key Ideas and Details

1. Cite the relevant textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
2. Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.
3. Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.

Craft and Structure

4. Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
5. Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.
6. Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.

Integration of Knowledge and Ideas

7. Analyze the extent to which non-print media (e.g., film, drama, live production, art) connects to or departs from the text or script, evaluating the choices.
8. (Not applicable to literature)
9. Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or foundational religious works; describe how the material is rendered new.

Range of Reading and Level of Text Complexity

10. By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6–8 text complexity band independently and proficiently.

Reading Standards for Informational Text

Key Ideas and Details

1. Cite the relevant textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
2. Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.
3. Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).

Craft and Structure

4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
5. Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.

6. Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.

Integration of Knowledge and Ideas

7. Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.
8. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.
9. Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.

Range of Reading and Level of Text Complexity

10. By the end of the year, read and comprehend literary nonfiction at the high end of the grades 6–8 text complexity band independently and proficiently.

Writing Standards

The following standards offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. *Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.*

Text Types and Purposes

1. Write arguments to support claims with clear reasons and relevant evidence.
   a. Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
   b. Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
   c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
   d. Establish and maintain a formal style.
   e. Provide a concluding statement or section that follows from and supports the argument presented.
2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
   a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
   b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
   c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
   d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
   e. Establish and maintain a formal style.
   f. Provide a concluding statement or section that follows from and supports the information or explanation presented.

3. Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
   a. Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.
   b. Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.
   c. Use a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another, and show the relationships among experiences and events.
   d. Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.
   e. Provide a conclusion that follows from and reflects on the narrated experiences or events.

Production and Distribution of Writing

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a different approach, focusing on how well purpose and audience have been addressed.
6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.

Research to Build and Present Knowledge

7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
9. Draw relevant evidence from grade-appropriate literary or informational texts to support analysis, reflection, and research.
   a. Apply grade 8 Reading standards to literature (e.g., “Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, historical fiction, or foundational religious works including describing how the material is rendered new”).
   b. Apply grade 8 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced”).

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Speaking and Listening Standards

The following standards offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. *Students advancing through the grades are expected to meet each year’s grade- specific standards and retain or further develop skills and understandings mastered in preceding grades.*

Comprehension and Collaboration

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others’ ideas and expressing their own clearly.

a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
b. Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
c. Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
d. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.

2. Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.
3. Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.

Presentation of Knowledge and Ideas

4. Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
5. Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.
6. Adapt speech to a variety of contexts, audience, and tasks, demonstrating command of formal English when indicated or appropriate.

Language Standards

The following standards for grades offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. *Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.*

Conventions of Standard English

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

Knowledge of Language

3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
   a. Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).

Vocabulary Acquisition and Use

4. Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on *grade 8 reading and content*, choosing flexibly from a range of strategies.
   a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
   b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *precede, recede, secede*).
   c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
   d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
   a. Interpret figures of speech (e.g. verbal irony, puns) in context.
   b. Use the relationship between particular words to better understand each of the words.
   c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *bullheaded, willful, firm, persistent, resolute*).
6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Mathematics | Grade 8

Teachers Companion Documents.zip

Grade Level Overview

(1) Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret components of the relationship (such as slope and y-intercept) in terms of the situation.

Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

(2) Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.

(3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

The Number System 8.NS

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

1. Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers, show that the decimal expansion repeats eventually. Convert a decimal expansion that repeats eventually into a rational number by analyzing repeating patterns.
2. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations to the hundredths place.*

Expressions and Equations 8.EE

A. Work with radicals and integer exponents.

1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.
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 √2 is irrational.
3. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as* 3×10^8 *and the population of the world as* 7×10^9*, and determine that the world population is more than 20 times larger.*
4. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

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

5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*
6. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.

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

7. Solve linear equations in one variable.
   a. 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).
   b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
8. Analyze and solve pairs of simultaneous linear equations.
   a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
   b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example,* $3x + 2y = 5$ *and* $3x + 2y = 6$ *have no solution because* $3x + 2y$ *cannot simultaneously be 5 and 6.*
   c. Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*

Functions 8.F

A. Define, evaluate, and compare functions.

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. (Function notation is not required in this grade level.)
2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*
3. Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; categorize functions as linear or nonlinear when given equations, graphs, or tables. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*

B. Use functions to model relationships between quantities.

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.
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.

Geometry 8.G

A. Understand congruence and similarity using physical models, transparencies, or geometry software.

1. Verify experimentally the properties of rotations, reflections, and translations:
   a. Lines are taken to lines, and line segments to line segments of the same length.
   b. Angles are taken to angles of the same measure.
   c. Parallel lines are taken to parallel lines.
2. Explain 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. (Rotations are only about the origin and reflections are only over the y-axis and x-axis in Grade 8.)
3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. (Rotations are only about the origin, dilations only use the origin as the center of dilation, and reflections are only over the y-axis and x-axis in Grade 8.)
4. Explain that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. (Rotations are only about the origin, dilations only use the origin as the center of dilation, and reflections are only over the y-axis and x-axis in Grade 8.)
5. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*

B. Understand and apply the Pythagorean Theorem.

6. Explain a proof of the Pythagorean Theorem and its converse using the area of squares.
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. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

C. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Statistics and Probability 8.SP

A. Investigate patterns of association in bivariate data.

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.
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.
3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height*.
4. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*

GRADE 8 The United States and Louisiana: Industrial Age Through Modern Era

Beginning with the Second Industrial Revolution, this course offers a chronological study of major events, issues, movements, individuals, and groups of people in the United States from a national and a Louisiana perspective. In this course, students will examine the rise of the United States as an industrial and world power, World War I, the Great Depression, Huey P. Long, The Great Flood of 1927, World War II, the Cold War, the Civil Rights movement, and the modern era.

- 8.1 Explain ideas, events, and developments in the history of the United States of America from 1877 to 2008 and how they progressed, changed, or remained the same over time.
- 8.2 Analyze connections between events and developments in U.S. history within their global context from 1877 to 2008.
- 8.3 Compare and contrast events and developments in U.S. history from 1877 to 2008.
- 8.4 Use geographic representations and historical data to analyze events and developments in U.S. history from 1877 to 2008, including environmental, cultural, economic, and political characteristics and changes.
- 8.5 Use maps to identify absolute location (latitude, and longitude) and describe geographic characteristics of places in Louisiana, North America, and the world.
- 8.6 Use a variety of primary and secondary sources to:
    a. Analyze social studies content.
    b. Evaluate claims, counterclaims, and evidence.
    c. Compare and contrast multiple sources and accounts.
    d. Explain how the availability of sources affects historical interpretations.
- 8.7 Construct and express claims that are supported with relevant evidence from primary and/or secondary sources, social studies content knowledge, and clear reasoning and explanations to:
    a. Demonstrate an understanding of social studies content.
    b. Compare and contrast content and viewpoints.
    c. Analyze causes and effects.
    d. Evaluate counterclaims.
- 8.8 Analyze the causes and effects of technological and industrial advances during the late nineteenth century and the early twentieth century.
    a. Analyze factors that contributed to and effects of the growth of the industrial economy, including capitalism and the growth of free markets, mass production, agricultural advancements, the government's laissez-faire economic policy, and the rise of corporations.
    b. Explain the social and economic effects of innovations in technology, transportation, and communication during the late 1800s and early 1900s, including the expansion of railroads, electricity, and telephone.

c. Explain how industrialists and corporations revolutionized business and influenced the U.S. economy and society, with an emphasis on business practices (vertical and horizontal integration, formation of monopolies/trusts), development of major industries (oil, steel, railroad, banking), and the role of entrepreneurs, including Andrew Carnegie, J.P. Morgan, John D. Rockefeller, Cornelius Vanderbilt, and Madam C.J. Walker.

- 8.9 Analyze the social, political, and economic changes that developed in the United States during the late nineteenth and early twentieth century.
    a. Explain how industrialization influenced the movement of people from rural to urban areas and the effects of urbanization.
    b. Explain the causes and effects of immigration to the United States during the late 1800s and early 1900s, and compare and contrast experiences of immigrants.
    c. Describe the working conditions and struggles experienced by the labor force that led to the labor movement (child labor, hours, safety, wages, standard of living), and evaluate the effectiveness of efforts to improve conditions.
    d. Describe the reasons for and effects of the rise of Populism in the United States and Louisiana during the late 1800s, including the role of the Grange, Farmers' Alliance, and People's Party.
    e. Analyze the causes and outcomes of the Progressive movement and the role of muckrakers, including the Meat Inspection Act, Pure Food and Drug Act, Seventeenth Amendment, Thomas Nast, Ida Tarbell, Upton Sinclair, and Jacob Riis.
    f. Analyze the government's response to the rise of trusts and monopolies, including the passage of the Interstate Commerce Act of 1887, the Sherman Antitrust Act of 1890, and the Clayton Antitrust Act of 1914.
    g. Describe important ideas and events of presidential administrations during the late 1800s and early 1900s, with emphasis on Theodore Roosevelt's administration and his support for trust busting, regulation, consumer protection laws, and conservation.
    h. Explain the origins and development of Louisiana public colleges and universities, including land grant institutions, Historically Black Colleges and Universities, and regional universities.
    i. Analyze the events leading to *Plessy v. Ferguson* (1896) and the consequences of the decision, including changes to the Louisiana Constitution.
    j. Explain the emergence of the Jim Crow system and how it affected Black Americans.
    k. Explain the goals and strategies used by civil rights leaders of the late 1800s and early 1900s, and analyze differing viewpoints of key figures and groups, including W.E.B. DuBois and the Niagara Movement, Booker T. Washington, NAACP, Mary Church Terrell, and Ida B. Wells.
- 8.10 Analyze ideas and events related to the expansion of the United States during the late nineteenth century and early twentieth century.
    a. Explain the motivations for migration to and settlement of the West by various groups, including Exodusters, and how their motivations relate to the American Dream.
    b. Analyze Frederick Turner's "The Significance of the Frontier in American History."
    c. Analyze how lives of Native Americans changed as a result of westward expansion and U.S. policies, including extermination of the buffalo, reservation system, Dawes Act, and assimilation.

d. Analyze the causes and effects of conflict between Native Americans and the U.S. government and settlers during the late nineteenth century and early twentieth century, including the Battle of Little Bighorn and Wounded Knee and subsequent treaties.
e. Analyze the events leading to and effects of the U.S. acquisition of Hawaii.
f. Analyze the ideas and events leading to the Spanish-American War and the short- and long-term outcomes, including the terms of the Treaty of Paris (1898), U.S. acquisition of Spanish territories, and emergence of the United States as a world power.
g. Analyze foreign policy achievements of Theodore Roosevelt, including the construction of the Panama Canal and use of the Great White Fleet.

- 8.11 Analyze the causes, course and consequences of World War I.
  a. Describe the causes of World War I, including militarism, alliances, imperialism, nationalism, and the assassination of Archduke Franz Ferdinand.
  b. Explain the reasons for the initial U.S. policy of neutrality and isolationism.
  c. Analyze the events leading to U.S. involvement in World War I, including German submarine warfare, the sinking of the Lusitania, and the Zimmerman Telegram.
  d. Analyze how the United States mobilized for war and ways the American people contributed to the war effort on the home front and abroad, with an emphasis on military service, role of women and minority groups, liberty bonds, and victory gardens.
  e. Explain how the U.S. government directed public support and responded to dissent during World War I, including through the use of wartime propaganda, Committee on Public Information, Espionage Act, Sedition Act, and *Schenck v. United States* (1919).
  f. Explain how military strategies and advances in technology affected warfare and the course of World War I, including trench warfare, airplanes, machine guns, poison gas, submarines, and tanks.
  g. Describe the goals of leaders at the Paris Peace Conference, comparing Woodrow Wilson's Fourteen Points, and the Treaty of Versailles.
  h. Explain the reaction of the U.S. Senate to the Treaty of Versailles and League of Nations, and describe the return to isolationism after the war.
- 8.12 Analyze the political, social, cultural and economic effects of events and developments during the early twentieth century.
  a. Differentiate between the benefits and detriments of capitalism and communism, and explain how the concepts affected society during the early 1900s, including the Bolshevik Revolution and the first Red Scare.
  b. Describe the causes and consequences of Prohibition and the Eighteenth Amendment, including bootlegging and organized crime, and the repeal with the Twenty-First Amendment.
  c. Explain how advances in transportation, technology, and media during the early twentieth century changed society and culture in the United States, including the automobile, radio, and household appliances.
  d. Explain the importance of the woman's suffrage movement and events leading to the passage of the Nineteenth Amendment, including the role of key figures such as Susan B. Anthony, Lucy Burns, Carrie Chapman Catt, Alice Paul, Elizabeth Cady Stanton, Lucy Stone, and Ida B. Wells.

e. Explain the causes and effects of social and cultural changes of the 1920s and 1930s on the United States, and describe the influence of notable figures of the Harlem Renaissance (Louis Armstrong, Duke Ellington, Ella Fitzgerald, Langston Hughes, Zora Neale Hurston, Sargent Claude Johnson, Augusta Savage) and cultural figures (Amelia Earhart, Ernest Hemingway, Jacob Lawrence, Jesse Owens, and Babe Ruth).
f. Explain how various factors affected Louisiana's economy during the early twentieth century, including booms in the timber, oil, and gas industries.
g. Describe the causes of the Great Mississippi River Flood of 1927, and explain how the disaster and government response affected Louisianans.
h. Analyze Louisiana politics in the early twentieth century, including the role of Huey Long's career in both Louisiana and national politics.
i. Analyze causes and effects of changes to the Louisiana Constitution over time, with emphasis on revisions from 1879 to 1974.
j. Explain the causes and effects of migration and population shifts in the United States during the early twentieth century, including the Great Migration.
k. Analyze factors leading to and consequences of social and economic tensions in the early twentieth century, including the 1918 influenza outbreak, recession and inflation, labor strikes, resurgence of the Ku Klux Klan, Chicago riot of 1919, and the Tulsa Massacre.

- 8.13 Analyze the causes and effects of the Great Depression.
  a. Explain the causes of the Great Depression, with an emphasis on how bank failures, buying stock on margin, overextension of credit, overproduction, high tariffs and protectionism, and the 1929 stock market crash contributed to the economic crisis.
  b. Explain the effects of the Great Depression on people, including rising unemployment, foreclosures, growth of "Hoovervilles," and soup kitchens.
  c. Describe the causes and effects of the Dust Bowl, including agricultural practices, drought, and migration.
  d. Describe the government response to the Great Depression, comparing the reaction of the Hoover and Roosevelt administrations.
  e. Analyze the purpose and effectiveness of the New Deal, including the Civilian Conservation Corps (CCC), Tennessee Valley Authority (TVA), Agricultural Adjustment Act, National Recovery Administration, Public Works Administration, Glass-Steagall Act, Federal Deposit Insurance Corporation (FDIC), Securities Exchange Act (SEC), National Housing Act, Works Progress Administration (WPA), and the Social Security Act (SSA).
- 8.14 Describe the causes, course, and consequences of World War II.
  a. Explain the rise and spread of militarism and totalitarianism internationally, examining the similarities and differences between the ideologies of Imperial Japan, fascist Italy and Nazi Germany, and the communist Soviet Union, as well as the origins and effects of violence and mass murder in the 1930s and 1940s as demonstrated by the Nanjing Massacre, the Holodomor, the Holocaust, and treatment of political opponents and prisoners of war during World War II.

b. Describe the acts of aggression leading to World War II in both Europe and Asia, and explain the effectiveness of policies and reactions, including the policy of appeasement towards Nazi Germany.
c. Describe the causes of World War II, and analyze events that led to U.S. involvement in World War II, with emphasis on the attack on Pearl Harbor.
d. Describe the role of alliances during World War II, including the Allies and Axis Powers.
e. Explain the significance of major military actions and turning points during World War II in the Atlantic Theater (Battle of The Atlantic, Operation Torch, Battle of Normandy/Operation Overlord, Battle of The Bulge, Battle of Berlin) and the Pacific Theater (Battle of Bataan and Bataan Death March, Doolittle Raid, Battle of the Coral Sea, Battle of Midway, Battle of Leyte Gulf, Battle of Iwo Jima, Battle of Okinawa).
f. Describe the roles and importance of key figures of World War II, including leaders from the United States (Franklin D. Roosevelt, Harry S. Truman, Dwight D. Eisenhower, George Patton, Douglas MacArthur), Great Britain (Sir Winston Churchill), France (Charles de Gaulle), the Soviet Union (Joseph Stalin), Germany (Adolf Hitler), Italy (Benito Mussolini), and Japan (Michinomiya Hirohito, Hideki Tojo).
g. Explain the causes and consequences of the Holocaust, including antisemitism, Nuremberg Laws restricting civil rights, resistance efforts, experiences of people including Anne Frank, concentration camp system, liberation of camps by the Allies, and Nuremberg trials.
h. Describe the Tuskegee Study conducted on Black Americans from the 1930s to 1972.
i. Explain the causes and effects of Japanese internment in the United States during World War II.
j. Explain the sacrifices and contributions of U.S. soldiers during World War II such as the Tuskegee Airmen, the 442nd Regimental Combat team, the 101st Airborne, Cajun “Frenchies”, the Women's Army Corps (WAC), and the Navajo Code Talkers.
k. Analyze how Louisiana contributed to the war effort during World War II and the effects of the war on Louisiana, including the role of the Louisiana Maneuvers, Higgins Boats in the success of the Allies, and prisoner of war (POW) camps in Louisiana.
l. Explain how life in the United States changed during and immediately after World War II, with an emphasis on wartime production and the workforce, rationing, conservation, victory gardens, financing through war bonds, propaganda campaigns, and the Servicemen's Readjustment Act (GI Bill).
m. Explain the events that led to, and the conditions of the surrender of the Axis Powers in Europe and Asia, and describe the United States’ critical role in the Allied victory.
n. Describe the importance of the Manhattan Project and development of atomic bombs, and analyze the decision to use them.
o. Explain how key decisions from Allied conferences during World War II, including the Atlantic Charter, Tehran, Yalta, and Potsdam, affected the course of the war and postwar world.

- 8.15 Analyze causes, major events, and key leaders of the Civil Rights Movement from 1954 to 1968.
  a. Analyze events during and immediately after World War II leading to the civil rights movement, including Executive Order 8022 and Executive Order 9981.
  b. Explain the origins and goals of the civil rights movement of the 1950s and 1960s, and how segregation (de jure and de facto) affected African Americans and influenced the movement.
  c. Analyze how the murder of Emmett Till affected support for the civil rights movement.

d. Analyze the importance of the *Brown v. Board of Education* (1954) decision and subsequent efforts to desegregate schools, including those of the Little Rock Nine at Central High School in Arkansas, Ruby Bridges at William Frantz Elementary in Louisiana, and James Meredith at the University of Mississippi.
e. Analyze the cause, course, and outcome of efforts to desegregate transportation, including the Baton Rouge Bus Boycott, Montgomery Bus Boycott, and Freedom Rides.
f. Evaluate the effectiveness of methods (civil disobedience, boycotts, sit-ins, marches, drives) during the civil rights movement, including during the 1960 Greensboro sit-ins, 1963 demonstrations in Birmingham, 1963 March on Washington, 1964 Freedom Summer, and 1965 Selma Marches.
g. Analyze works of civil rights leaders, including Dr. King's "Letter from Birmingham Jail" and his "I Have a Dream" speech, and explain how the ideas expressed in the works influenced the course of the civil rights movement.
h. Explain the role and importance of key individuals and groups of the civil rights movement, including the Congress of Racial Equality (CORE), Dr. Martin Luther King Jr., Rosa Parks, the Southern Christian Leadership Conference (SCLC), the Student Nonviolent Coordinating Committee (SNCC), Medgar Evers, Shirley Chisholm, Fannie Lou Hamer, and Malcolm X.
i. Explain reactions to the civil rights movement by opposing individuals and groups, including George Wallace and Leander Perez.
j. Analyze the role of the Supreme Court in advancing civil rights and freedoms during the 1950s and 1960s, including the court cases of *Brown v. Board of Education* (1954), *Boynton v. Virginia* (1960), and *Bailey v. Patterson* (1962).
k. Evaluate legislation and amendments passed in response to the civil rights movement, including the Twenty-Fourth Amendment, Civil Rights Act of 1964, Voting Rights Act of 1965, and Civil Rights Act of 1968.

- 8.16 Explain the causes, course, and consequences of the Cold War.
  a. Explain how the ideologies of communism in the Soviet Union and capitalism in the United States influenced the Cold War and global tensions from 1945–1989.
  b. Evaluate the effectiveness of U.S. policies, programs, and negotiation efforts in accomplishing their intended goals, including the Marshall Plan, containment and related doctrines, mutual assured destruction, détente, Strategic Arms Limitation Talks (SALT I and II), and Strategic Defense Initiative (Star Wars program).
  c. Analyze Cold War crises and conflicts and how they contributed escalating tensions, including the Berlin Blockade and Airlift, Korean War, Suez Crisis, U-2 Incident, Cuban Missile Crisis, Bay of Pigs Invasion, Berlin Crisis of 1961, and Vietnam War, Soviet-Afghan War.
  d. Describe the role of organizations and alliances during the Cold War, including the United Nations, NATO, and the Warsaw Pact.
  e. Explain how events during the Cold War affected American society, including the Second Red Scare and McCarthyism.
  f. Explain how advances in technology and media during the mid- to late twentieth century changed society and public perception, including newspapers and television, the space race, and the nuclear arms race.

g. Explain events and policies leading to the end of the Cold War and collapse of the Soviet Union under the leadership of President Reagan, including political and economic pressures, policies of glasnost and perestroika, and the fall of the Berlin Wall.

- 8.17 Describe the importance of key ideas, events, and developments of the modern era.
  a. Explain how events and developments of the modern era have affected American society.
  b. Explain how relationships between the United States and Middle East affected events and developments during the modern era, including Persian Gulf Wars, 1993 World Trade Center bombing, terrorist attacks on September 11, 2001, the War on Terrorism, and the establishment of the Department of Homeland Security.
  c. Describe the effects of natural disasters on Louisiana and the United States, including hurricanes Katrina and Rita.
  d. Describe important issues of the 2008 presidential election and the significance of the election of Barack Obama.

MATTER AND ITS INTERACTIONS

Performance Expectation	Develop models to describe the atomic composition of simple molecules and extended structures.
Clarification Statement	Emphasis is on developing models of molecules that vary in complexity. Examples of extended structures could include minerals such as but not limited to halite, agate, calcite, or sapphire. Examples of molecular-level models could include drawings, 3-D models, or computer representations showing different molecules with different types of atoms.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions (for science) and defining problems (for engineering) **2. Developing and using models:** Modeling in 6–8 builds on K–5 experiences and progresses to developing, using and revising models to describe, test, and predict more abstract phenomena and design systems. • Develop and/or use a model to predict and/or describe phenomena. 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**STRUCTURE AND PROPERTIES OF MATTER** Substances are made from different types of atoms, which combine with one another in various ways. Atoms form molecules that range in size from two to thousands of atoms. (MS.PS1A.a) Solids may be formed from molecules, or they may be extended structures with repeating subunits (e.g., crystals). (MS.PS1A.e)	**SCALE, PROPORTION, AND QUANTITY** Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.

MATTER AND ITS INTERACTIONS

Performance Expectation	Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
Clarification Statement	Emphasis is on natural resources that undergo a chemical process to form synthetic materials. These natural resources may or may not be pure substances. Examples of new materials could include new medicine, foods, or alternative fuels, and focus is on qualitative as opposed to quantitative information.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence **8. Obtaining, evaluating, and communicating information:** Obtaining, evaluating, and communicating information in 6–8 builds on K–5 experiences and progresses to evaluating the merit and validity of ideas and methods. • Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence.	**STRUCTURE AND PROPERTIES OF MATTER** Each pure substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) under normal conditions that can be used to identify it. (MS.PS1A.b) **CHEMICAL REACTIONS** Substances react chemically in characteristic ways. In a chemical process, the atoms that make up the original substances are regrouped into different molecules, and these new substances have different properties from those of the reactants. (MS.PS1B.a)	**STRUCTURE AND FUNCTION** Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.

MATTER AND ITS INTERACTIONS

Performance Expectation	Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.
Clarification Statement	Emphasis is on the design, controlling the transfer of energy to the environment, and modification of a device using factors such as type and concentration of a substance. Examples of designs could involve chemical reactions such as dissolving ammonium chloride, calcium chloride or a citric acid and baking soda (sodium bicarbonate) reaction in order to warm or cool an object.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions (for science) and defining problems (for engineering) 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking **6. Constructing explanations and designing solutions:** Constructing explanations and designing solutions in 6–8 builds on K– 5 experiences and progresses to include designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. • Undertake a design project, engaging in the design cycle, to construct and/or implement a solution that meets specific design criteria and constraints. 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**CHEMICAL REACTIONS** Some chemical reactions release energy (exothermic reactions), others store energy (endothermic reactions). (MS.PS1B.c) **OPTIMIZING THE DESIGN SOLUTION** Although one design may not perform the best across all tests, identifying the characteristics of the design that performs best in each test can provide useful information for the redesign process-that is, some of those characteristics may be incorporated into the new design. (MS.ETS 1.C.a)	**ENERGY AND MATTER: FLOWS, CYCLES, AND CONSERVATION** The transfer of energy can be tracked as energy flows through a designed or natural system.

ENERGY

Performance Expectation	Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.
Clarification Statement	Emphasis is on the ability to maximize or minimize thermal energy transfer as it relates to devices used when an area loses electricity after a natural disaster. Examples of devices could include an insulated box or a solar cooker. Testing of the device relies on performance and not direct calculation of the total amount of thermal energy transferred.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions (for science) and defining problems (for engineering) 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking **6. Constructing explanations and designing solutions:** Constructing explanations and designing solutions in 6–8 builds on K– 5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. • Apply scientific ideas, principles, and/or evidence to construct, revise and/or use an explanation for real-world phenomena, examples, or events. 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**DEFINITIONS OF ENERGY** Temperature is a measure of the average kinetic energy; the relationship between the temperature and the total energy of the system depends on the types, states, and amounts of matter present. (MS.PS3A.d) **CONSERVATION OF ENERGY AND ENERGY TRANSFER** Energy is spontaneously transferred out of hotter regions or objects and into colder ones. (MS.PS3B.c) **DEFINING AND DELIMITING AN ENGINEERING PROBLEM** The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that is likely to limit possible solutions.(MS.ETS1A.a) A solution needs to be tested,to prove the validity of the design and then modified on the basis of the test results in order to improve it. There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors. Models of all kinds are important for testing solutions.(MS.ETS1B.a)	**ENERGY AND MATTER: FLOWS, CYCLES, AND CONSERVATION** The transfer of energy can be tracked as energy flows through a designed or natural system.

ENERGY

Performance Expectation	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.
Clarification Statement	Examples of empirical evidence used in arguments could include an inventory or other representation of the energy (i.e. mechanical, thermal, or other forms of energy) before and after the transfer in the form of temperature changes or motion of object. This does not include the quantification of the energy transferred in the system.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions **7. Engaging in argument from evidence:** Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s). • Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. 8. Obtaining, evaluating, and communicating information	**CONSERVATION OF ENERGY AND ENERGY TRANSFER** When the kinetic energy of an object changes, there is inevitably some other change in energy at the same time. (MS.PS3B.a)	**ENERGY AND MATTER** Energy may take different forms (e.g. energy in fields, thermal energy, energy of motion).

EARTH'S PLACE IN THE UNIVERSE

Performance Expectation	Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's geologic history.
Clarification Statement	Emphasis is on analyses of rock formations and fossils they contain to establish relative ages of major events in Earth's history. Major events could include the formation of mountain chains and ocean basins, adaptation and extinction of particular living organisms, volcanic eruptions, periods of massive glaciation, and the development of watersheds and rivers through glaciation and water erosion. The events in Earth's history happened in the past continue today. Scientific explanations can include models.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking **6. Constructing explanations and designing solutions:** Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. • Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**THE HISTORY OF PLANET EARTH** The geologic time scale interpreted from rock strata provides a way to organize Earth's history. Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale. (MS.ESS1C.a) Scientists use data from radioactive dating techniques to estimate the age of Earth's materials. (MS.ESS1C.b)	**SCALE, PROPORTION, AND QUANTITY** Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.

EARTH'S SYSTEMS

Performance Expectation	Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
Clarification Statement	Emphasis is on the processes of melting, crystallization, weathering, deformation, and sedimentation, which act together to form minerals and rocks through the cycling of Earth's materials.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions (for science) and defining problems (for engineering) **2. Developing and using models:** Modeling in 6-8 builds on K-5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. • Develop and/or use a model to predict and/or describe phenomena. 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**EARTH'S MATERIALS AND SYSTEMS** All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the sun and Earth's hot interior. The energy that flows and matter that cycles produce chemical and physical changes in Earth's materials and living organisms. (MS.ESS2A.a)	**STABILITY AND CHANGE** Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and forces at different scales, including the atomic scale.

EARTH'S SYSTEMS

Performance Expectation	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
Clarification Statement	Emphasis is on how processes change Earth's surface at time and spatial scales that can be large (such as slow plate motions or the uplift of a large mountain ranges) or small (such as rapid landslides on microscopic geochemical reactions), and how many geosciences processes usually behave gradually but are punctuated by catastrophic events (such as earthquakes, volcanoes, and meteor impacts). Examples of geoscience processes include surface weathering and deposition by the movements of water, ice, and wind. Emphasis is on geoscience processes that shape local geographic features, where appropriate.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions (for science) and defining problems (for engineering) 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking **6. Constructing explanations and designing solutions:** Constructing explanations and designing solutions in 6–8 builds on K– 5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. • Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**EARTH'S MATERIALS AND SYSTEMS** The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future. (MS.ESS2A.b) **THE ROLE OF WATER IN EARTH'S SURFACE PROCESSES** Water's movements—both on the land and underground—cause weathering and erosion, which change the land's surface features and create underground formations. (MS.ESS2C.e)	**SCALE, PROPORTION, AND QUANTITY** Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.

EARTH'S SYSTEMS

Performance Expectation	Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and sea floor structures to provide evidence of the past plate motions.
Clarification Statement	Examples of data include similarities of rock and fossil types on different continents, the shapes of the continents (including continental shelves), and the locations of ocean structures (such as ridges, fracture zones, and trenches).

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions (for science) and defining problems (for engineering) 2. Developing and using models 3. Planning and carrying out investigations **4. Analyzing and interpreting data:** Analyzing data in 6-8 builds on K-5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. • Analyze and interpret data to provide evidence for phenomena. 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**THE HISTORY OF PLANET EARTH** Tectonic processes continually generate new ocean sea floor at ridges and destroy old sea floor at trenches. (MS.ESS1C.c) **PLATE TECTONICS AND LARGE-SCALE SYSTEM INTERACTIONS** Maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have moved great distances, collided, and spread apart. (MS.ESS2B.a)	**PATTERNS** Patterns in rates of change and other numerical relationships can provide information about natural and human designed systems.

EARTH AND HUMAN ACTIVITY

Performance Expectation	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.
Clarification Statement	Emphasis is on how these resources are limited and typically non-renewable, and how their distributions are significantly changing as a result of removal by humans. Examples of uneven distributions of resources as a result of past processes include but are not limited to petroleum (locations of the burial of organic marine sediments and subsequent geologic traps), metal ores (locations of past volcanic and hydrothermal activity associated with subduction zones), and soil (locations of active weathering and/or deposition of rock).

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions (for science) and defining problems (for engineering) 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking **6. Constructing explanations and designing solutions:** Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. • Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**NATURAL RESOURCES** Humans depend on Earth's land, ocean, atmosphere, and biosphere for many different resources. Minerals, fresh water, and biosphere resources are limited, and many are not renewable or replaceable over human lifetimes. These resources are distributed unevenly around the planet as a result of past geologic processes. (MS.ESS3A.a) **LOUISIANA'S NATURAL RESOURCES** Non-renewable resources such as our state's fossil fuels are vast but limited. (MS.EVS1A.b)	**CAUSE AND EFFECT** Cause and effect relationships may be used to predict phenomena in natural or designed systems.

EARTH AND HUMAN ACTIVITY

Performance Expectation	Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
Clarification Statement	Emphasis is on how some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable. Examples of natural hazards can be taken from interior processes (such as earthquakes and volcanic eruptions), surface processes (such as mass wasting and tsunamis), or severe weather events (such as hurricanes, tornadoes, and floods). Examples of data can include the locations, magnitudes, and frequencies of the natural hazards. Examples of technologies can be global (such as satellite systems to monitor hurricanes or forest fires) or local (such as building basements in tornado-prone regions or reservoirs to mitigate droughts).

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions (for science) and defining problems (for engineering) 2. Developing and using models 3. Planning and carrying out investigations **4. Analyzing and interpreting data:** Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. • Analyze and interpret data to provide evidence for phenomena. 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**NATURAL HAZARDS** Mapping the history of natural hazards in a region, combined with an understanding of related geologic forces can help forecast the locations and likelihoods of future events. (MS.ESS3B.a)	**PATTERNS** Graphs, charts, and images can be used to identify patterns in data.

EARTH AND HUMAN ACTIVITY

Performance Expectation	Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.
Clarification Statement	Examples of the design process may include examining human environmental impacts, assessing the kinds of solutions that are feasible, and designing and evaluating solutions that could reduce that impact. Examples of human impacts may include water usage (such as the withdrawal of water from streams and aquifers or the construction of dams and levees), land usage (such as urban development, agriculture, or the removal of wetlands), and pollution (such as of the air, water, or land).

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions (for science) and defining problems (for engineering) 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking **6. Constructing explanations and designing solutions:** Constructing explanations and designing solutions in 6–8 builds on K– 5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. • Apply scientific ideas or principles to design, construct, and/or test a design of an object, tool, process or system. 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**HUMAN IMPACTS ON EARTH'S SYSTEMS** Human activities, globally and locally, have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things. (MS.ESS3C.a) Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise. (MS.ESS3C.b) **DEVELOPING POSSIBLE SOLUTIONS** A solution needs to be tested to prove the validity of the design and then modified on the basis of the test results in order to improve it. There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors. Models of all kinds are important for testing solutions. (ETS.MS.1B.a)	**CAUSE AND EFFECT** Relationships can be classified as causal or correlational, and correlation does not necessarily imply causation.

FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

Performance Expectation	Construct and use argument(s) based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of survival and successful reproduction of animals and plants respectively.
Clarification Statement	Examples of behaviors that affect the probability of animal reproduction could include nest building to protect young from cold, herding of animals to protect young from predators, or vocalization of animals and colorful plumage to attract mates for breeding. Examples of animal behaviors that affect the probability of plant reproduction could include transferring pollen or seeds or creating conditions for seed germination and growth. Examples of plant structures could include bright flowers attracting butterflies that transfer pollen, flower nectar and odors that attract insects that transfer pollen, or hard shells on nuts that squirrels bury.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions **7. Engaging in argument from evidence:** Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s). • Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. 8. Obtaining, evaluating, and communicating information	**GROWTH AND DEVELOPMENT OF ORGANISMS** Animals engage in characteristic behaviors that increase the odds of reproduction. (MS.LS1B.c) Plants (flowering and non-flowering) reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction. (MS.LS1B.d) Group behavior has evolved because membership can increase the chances of survival for individuals and their genetic relatives. (MS.LS2D.a)	**CAUSE AND EFFECT** Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.

FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

Performance Expectation	Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
Clarification Statement	Examples of local environmental conditions could include availability of food, light, space, and water. Examples of genetic factors could include large breed cattle and species of grass affecting growth of organisms. Examples of evidence could include drought decreasing plant growth, fertilizer increasing plant growth, different varieties of plant seeds growing at different rates in different conditions, or fish growing larger in large ponds than they do in small ponds.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking **6. Constructing explanations and designing solutions:** Constructing explanations (science) and designing solutions (engineering) in 6–8 builds on K– 5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. • Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**GROWTH AND DEVELOPMENT OF ORGANISMS** Genetic factors as well as local conditions affect the growth of the adult plant. (MS.LS1B.e)	**CAUSE AND EFFECT** Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.

HEREDITY: INHERITANCE AND VARIATION OF TRAITS

Performance Expectation	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.
Clarification Statement	Emphasis is on conceptual understanding that changes in genetic material may result in making different proteins. Examples include radiation treated plants, genetically modified organisms (e.g. roundup resistant crops, bioluminescence), or mutations both harmful and beneficial.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems **2. Developing and using models:** Modeling in 6-8 builds on K-5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. • Develop and/or use a model to predict and/or describe phenomena. 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**INHERITANCE OF TRAITS** Genes are located in the chromosomes of cells, with each chromosome pair containing two variants (alleles) of each of many distinct genes. Each distinct gene chiefly controls the production of specific proteins, which in turn affects the traits of the individual. (MS.LS3A.a) Changes (mutations) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits. (MS.LS3A.b) **VARIATION OF TRAITS** In addition to variations that arise from sexual reproduction, genetic information can be altered because of mutations. Though rare, mutations may result in changes to the structure and function of proteins. Some changes are beneficial, others harmful, and some neutral to the organism. (MS.LS3B.b)	**STRUCTURE AND FUNCTION** Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the shapes, composition, and relationships among its parts; therefore, complex natural and designed structures/systems can be analyzed to determine how they function.

BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

Performance Expectation	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.
Clarification Statement	Emphasis is on finding patterns of changes in the level of complexity of anatomical structures in organisms and the chronological order of fossil appearance in the rock layers.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations **4. Analyzing and interpreting data:** Analyzing data in 6-8 builds on K-5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. • Analyze and interpret data to determine similarities and differences in findings. 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**EVIDENCE OF COMMON ANCESTRY AND DIVERSITY** The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found or through radioactive dating) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth. (MS.LS4A.a)	**PATTERNS** Graphs, charts, and images can be used to identify patterns in data.

BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

Performance Expectation	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.
Clarification Statement	Emphasis is on explanations of the evolutionary relationships among organisms in terms of similarity or differences of the gross appearance of anatomical structures.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking **6. Constructing explanations and designing solutions:** Constructing explanations (science) and designing solutions (engineering) in 6–8 builds on K– 5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. • Apply scientific ideas, principles, and/or evidence to construct, revise and/or use an explanation for real-world phenomena, examples, or events. 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**EVIDENCE OF COMMON ANCESTRY AND DIVERSITY** Anatomical similarities and differences between various organisms living today and between them and organisms in the fossil record, enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent. (MS.LS4A.b) Comparison of the embryological development of different species also reveals similarities that show relationships not evident in the fully-formed anatomy. (MS.LS4A.c)	**PATTERNS** Patterns can be used to identify cause and effect relationships.

BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

Performance Expectation	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.
Clarification Statement	Emphasis is on inferring general patterns of relatedness among embryos of different organisms by comparing the macroscopic appearance of diagrams or pictures.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations **4. Analyzing and interpreting data:** Analyzing data in 6-8 builds on K-5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. • Construct, analyze, and/or interpret graphical displays of data and/or large data sets to identify linear and nonlinear relationships. 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**EVIDENCE OF COMMON ANCESTRY AND DIVERSITY** Anatomical similarities and differences between various organisms living today and between them and organisms in the fossil record, enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent. (MS.LS4A.b) Comparison of the embryological development of different species also reveals similarities that show relationships not evident in the fully-formed anatomy. (MS.LS4A.c)	**PATTERNS** Graphs, charts, and images can be used to identify patterns in data.

BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

Performance Expectation	Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations of species over time.
Clarification Statement	Emphasis is on using mathematical models, probability statements, and proportional reasoning to support explanations of trends in changes to populations over time. Students should be able to explain trends in data for the number of individuals with specific traits changing over time.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data **5. Using mathematics and computational thinking:** Mathematical and computational thinking in 6-8 builds on K-5 experiences and progresses to identifying patterns in large data sets and using mathematical concepts to support explanations and arguments. • Use mathematical representations to describe and/or support scientific conclusions and design solutions. 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**ADAPTATION** Adaptation by natural selection acting over generations is one important process by which populations change over time in response to changes in environmental conditions. Traits that support successful survival and reproduction in the new environment tend to become more common; those that do not become less common. Thus, the distribution of traits in a population changes. (MS.LS4C.a)	**CAUSE AND EFFECT** Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.