

# Curriculum Standards

## Fourth Grade

### Reading Standards

- 4R1: Locate and refer to relevant details and evidence when explaining what a text says explicitly/implicitly and make logical inferences.
- 4R2: Determine a theme or central idea of text and explain how it is supported by key details; summarize a text.
- 4R3: In literary texts, describe a character, setting, or event, drawing on specific details in the text. In informational texts, explain events, procedures, ideas, or concepts, including what happened and why, based on specific evidence from the text.
- 4R4: Determine the meaning of words, phrases, figurative language, academic, and content specific words.
- 4R5: In literary texts, identify and analyze structural elements, using terms such as verse, rhythm, meter, characters, settings, dialogue, stage directions. In informational texts, identify the overall structure using terms such as sequence, comparison, cause/effect, and problem/solution.
- 4R6: In literary texts, compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations. In informational texts, compare and contrast a primary and secondary source on the same event or topic.
- 4R7: Identify information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, timelines, animations, illustrations, and explain how the information contributes to an understanding of the text.
- 4R8: Explain how claims in a text are supported by relevant reasons and evidence.
- 4R9: Recognize genres and make connections to other texts, ideas, cultural perspectives, eras, personal events, and situations.

### Foundational Skills

- 4RF3: Know and apply grade-level phonics and word analysis skills in decoding words.
  - 4RF3a: Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

- 4RF3b: Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g. roots, prefixes, and suffixes) to read accurately unfamiliar multisyllabic words in and out of context.
- 4RF4: Read grade-level text with sufficient accuracy and fluency to support comprehension.
  - 4RF4a: Read grade-level text across genres orally with accuracy, appropriate rate, and expression on successive readings.
  - 4RF4b: Use context to confirm or self-correct word recognition and understanding, rereading as necessary

## Writing Standards

- 4W1: Write an argument to support claim(s), using clear reasons and relevant evidence.
  - 4W1a: Introduce a precise claim, supported by well-organized facts and details, and organize the reasons and evidence logically.
  - 4W1b: Use precise language and content-specific vocabulary.
  - 4W1c: Use transitional words and phrases to connect ideas within categories of information.
  - 4W1d: Provide a concluding statement or section related to the argument presented.
- 4W2: Write informative/explanatory texts to explore a topic and convey ideas and information relevant to the subject.
  - 4W2a: Introduce a topic clearly and organize related information in paragraphs and sections.
  - 4W2b: Develop ideas on a topic with facts, definitions, concrete details, or other relevant information; include text features when useful for aiding comprehension.
  - 4W2c: Use precise language and domain-specific vocabulary.
  - 4W2d: Use transitional words and phrases to connect ideas within categories of information.
  - 4W2e: Provide a concluding statement or section related to the information or explanation presented.
- 4W3: Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
  - 4W3a: Establish a situation and introduce a narrator and/or characters.
  - 4W3b: Use dialogue and description of actions, thoughts, and feelings to develop experiences and events or show the responses of characters to situations.
  - 4W3c: Use transitional words and phrases to manage the sequence of events.
  - 4W3d: Use concrete words and phrases and sensory details to convey experiences and events precisely.
  - 4W3e: Provide a conclusion that follows from the narrated experiences or events.

- 4W4: Create a poem, story, play, art work, or other response to a text, author, theme, or personal experience.
- 4W5: Draw evidence from literary or informational texts to respond and support analysis, reflection, and research by applying grade 4 reading standards.
- 4W6: Conduct research to answer questions, including self-generated questions, and to build knowledge through investigating multiple aspects of a topic.
- 4W7: Recall relevant information from experiences or gather relevant information from multiple sources; take notes and categorize information, and provide a list of sources.

## Speaking and Listening

- 4SL1: Engage effectively in a range of collaborative discussions with diverse partners, expressing ideas clearly, and building on those of others.
  - 4SL1a: Come to discussions prepared, having read or studied required material; draw on that preparation and other information known about the topic to explore ideas under discussion.
  - 4SL1b: Follow agreed-upon norms for discussions and carry out assigned roles.
  - 4SL1c: Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
  - 4SL1d: Review the relevant ideas expressed and explain their own ideas and understanding of the discussion.
- 4SL2: Paraphrase portions of information presented in diverse formats (e.g., including visual, quantitative, and oral).
- 4SL3: Identify and evaluate the reasons and evidence a speaker provides to support particular points.
- 4SL4: Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace and volume appropriate for audience.
- 4SL5: Include digital media and/or visual displays in presentations to emphasize main ideas or themes.
- 4SL6: Distinguish between contexts that call for formal English versus/or informal discourse; use formal English when appropriate to task and situation.

## Language Standards

Please note: Language Standards 1 and 2 are organized within grade bands. For the Core Conventions Skills and Core Punctuation and Spelling Skills for Grades 3-5, the student is expected to know and be able to use the skills by the end of Grade 5. The → is included to indicate skills that connect and progress across the band.

### Standard 4L1

Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.

#### Core Conventions Skills for Grades 3-5:

- Produce simple, compound, and complex sentences.
- Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general as well as in particular sentences.
- Use relative pronouns (who, whose, whom, which, that) and relative adverbs (where, when, why)
- Explain the function of conjunctions, prepositions, and interjections in general as well as in particular sentences.
- Form and use regular and irregular plural nouns.
- Use abstract nouns.
- Form and use regular and irregular verbs.
- Form and use the simple verb tenses (e.g., I walked; I walk; I will walk).
- Form and use the progressive verb tenses (e.g., I was walking; I am walking; I will be walking).
- Form and use the perfect verb tenses (e.g., I had walked; I have walked; I will have walked).
- Use verb tense to convey various times, sequences, states, and conditions.
- Recognize and correct inappropriate shifts in verb tense.
- Ensure subject-verb and pronoun-antecedent agreement.
- Use coordinating and subordinating conjunctions
- Use and identify prepositional phrases.
- Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.
- Correctly use frequently confused words (e.g., to, too, two; there, their).

## Standard 4L2

Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing.

#### Core Punctuation and Spelling Skills for Grades 3-5:

Capitalize appropriate words in titles.

- Use correct capitalization.
- Use commas in addresses.
- Use commas and quotation marks in dialogue.
  - Use commas and quotation marks to mark direct speech and quotations from a text.
- Use a comma before a coordinating conjunction in a compound sentence.

- Use a comma to separate an introductory element from the rest of the sentence.
- Use punctuation to separate items in a series.
- Form and use possessives.
- Use conventional spelling for high-frequency and other studied words, and to add suffixes to base words (e.g., sitting, smiled, cries, happiness).
- Use spelling patterns, rules, and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words.
  - Spell grade-appropriate words correctly, consulting references as needed.
- Use quotation marks or italics to indicate titles of works.

## Standard 4L3

Use knowledge of language and its conventions when writing, speaking, reading, or listening.

- 4L3a: Choose words and phrases to convey ideas precisely.
- 4L3b: Choose punctuation for effect
- 4L3c: Distinguish between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).

## Standard 4L4

Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from an array of strategies.

- 4L4a: Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.
- 4L4b: Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph).
- 4L4c: Consult reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation and determine or clarify the precise meaning of keywords and phrases

## Standard 4L5

Demonstrate understanding of word relationships and nuances in word meanings.

- 4L5a: Explain the meaning of simple similes and metaphors in context.
- 4L5b: Recognize and explain the meaning of common idioms, adages, and proverbs.
- 4L5c: Demonstrate understanding of words by relating them to their antonyms and synonyms.

## Standard 3L6

Acquire and accurately use general academic and content-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).

## Math Standards

- Use the four operations with whole numbers to solve problems.
  - 4.OA.A.1. Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. e.g., interpret  $35 = 5 \times 7$  as a statement that 35 is 5 times as many as 7 or 7 times as many as 5.
  - 4.OA.A.2. Multiply or divide to solve word problems involving multiplicative comparison. Use drawings and equations with a symbol for the unknown number to represent the problem; distinguish multiplicative comparison from additive comparison.
  - 4.OA.A.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.
    - \*Note: Multistep problems need not be represented by a single expression or equation.
    - 4.OA.A.3a. Represent these problems using equations or expressions with a letter standing for the unknown quantity.
    - 4.OA.A.3b. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
- Gain familiarity with factors and multiples.
  - 4.OA.B.4. Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.
- Generate and analyze patterns.
  - 4.OA.C.5. Generate a number or shape pattern that follows a given rule. Identify and informally explain apparent features of the pattern that were not explicit in the rule itself. e.g., given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.”
- Generalize place value understanding for multi-digit whole numbers.
  - \*Note: Grade 4 are limited to whole numbers less than or equal to 1,000,000.

- 4.NBT. A.1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its Right. e.g. recognize that  $70 \times 10 = 700$  (and, therefore,  $700 \div 10 = 70$ ) by applying concepts of place value, multiplication, and division.
- 4.NBT. A.2
  - 2a.Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form.
  - 2b.Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons. e.g.,  $50,327 = 50,000 + 300 + 20 + 7$
- 4.NBT. A.3. Use place value understanding to round multi-digit whole numbers to any place.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.
  - \*Note: Grade 4 are limited to whole numbers less than or equal to 1,000,000.
  - 4.NBT. B.4 Fluently add and subtract multi-digit whole numbers using a standard algorithm.
  - 4.NBT. B.5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
  - 4.NBT. B.6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- Extend understanding of fraction equivalence and ordering.
  - Note: Grade 4 are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100
  - 4.NF.A.1. Explain why a fraction  $\frac{a}{b}$  is equivalent to a fraction  $\frac{a \times n}{b \times n}$  by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
  - 4.NF.A.2. Compare two fractions with different numerators and different denominators. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions. e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as  $\frac{1}{2}$ . e.g., justify by using a visual fraction model.
- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
  - \*Note: Grade 4 are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100
  - 4.NF.B.3. Understand a fraction  $\frac{a}{b}$  with  $a > 1$  as a sum of fractions  $\frac{1}{b}$

- 4.NF.B.3a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- 4.NF.B.3b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions. e.g., by using a visual fraction model such as, but not limited to:
- 4.NF.B.3c. Add and subtract mixed numbers with like denominators. e.g., replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
- 4.NF.B.3d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators. e.g., using visual fraction models and equations to represent the problem.
- \*Note: Grade 4 are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100
- 4.NF.B.4 4. Apply and extend previous understandings of multiplication to multiply a whole number by a fraction. This standard refers to  $n$  groups of a fraction (where  $n$  is a whole number).
  - 4.NF.B.4a. Understand a fraction  $\frac{a}{b}$  as a multiple of  $\frac{1}{b}$
  - 4.NF.B.4b. Understand a multiple of  $\frac{a}{b}$  as a multiple of  $\frac{1}{b}$ , and use this understanding to multiply a whole number by a fraction.
  - 4.NF.B.4c. Solve word problems involving multiplication of a whole number by a fraction.
- Understand decimal notation for fractions, and compare decimal fractions.
  - \*Note: Grade 4 are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, 100.
  - 4.NF.C.5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. Students who can generate equivalent fractions can develop strategies for Adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.
  - 4.NF.C.6. Use decimal notation for fractions with denominators 10 or 100.
  - 4.NF.C.7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when two decimals refer to the same whole. Record the results of comparisons with the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions.
- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
  - \*Note: Grade 4 are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, 100.
  - 4.MD.A.1. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit.



- a. Know relative sizes of units: ft., in.; km, m, cm; hr., min., sec.
  - b. Convert units within one system of units when the conversion factor is given.
  - c. Record measurement equivalents in a two column table.
- \*Note: It is important to note that conversions are made from a larger to a smaller unit.
  - a. e.g., kg, g; lb., oz.; l, ml
  - b. e.g., knowing that 1 ft. is 12 times as long as 1 in., express the length of a 4-ft. snake as 48 in.
  - c. e.g., generate a conversion table for feet and inches listing the number pairs (1,12), (2, 24), (3, 36), ...
- 4.MD.A.2. Use the four operations to solve word problems involving distances, intervals of time, liquid, volumes, masses of objects, and money.
  - A. Solve problems involving fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.
  - B. Represent measurement quantities using diagrams that feature a measurement scale, such as number lines.
- 4.MD.A.3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. e.g., find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.
- Represent and interpret data.
  - 4.MD.B.4. Make a line plot to display a data set of measurements in fractions of a unit. Solve problems involving addition and subtraction of fractions by using information presented in line plots. e.g., given measurement data on a line plot, find and interpret the difference in length between the longest and shortest specimens in an insect collection.
- Geometric measurement: understand concepts of angle and measure angles.
  - 4.MD.C 5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
    - 4.MD.C.5a Recognize an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 360 of a circle is called a “one-degree angle,” and can be used to measure angles.
    - 4.MD.C.5b. Recognize an angle that turns through n one degree angles is said to have an angle measure of n degrees.
  - 4.MD.C.6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
  - 4.MD.C.7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction

problems to find unknown angles on a diagram in real world and mathematical problems. e.g., Using an equation with a symbol for the unknown angle measure.

- Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
  - 4.G.A.1.1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
  - 4.G.A.2
    - 2a. Identify and name triangles based on angle size (right, obtuse, acute).
    - 2b. Identify and name all quadrilaterals with four right angles as rectangles.
    - 2c. Identify and name all quadrilaterals with 2 pairs of parallel sides as parallelograms.
  - 4.G.A.3.3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

## Social Studies Standards

### Grade 4: New York State & Local History and Government

Grade 4 Social Studies is focused on New York State and local communities and their change over time, incorporating the study of geography, history, economics, and government. Teachers are encouraged to make and teach local connections throughout the course. The course is divided into seven Key Ideas that span the State's history from before the European colonial era to the modern period. The Key Ideas allow teachers to make connections to present-day New York State and the local community. Teachers should note that some Key Ideas and Concepts may require extra time or attention.

- 4.1 New York State has a diverse geography. Various maps can be used to represent and examine the geography of New York State.
  - 4.1a Physical and thematic maps can be used to explore New York State's diverse geography.
  - 4.1b New York State can be represented using a political map that shows cities, capitals, and boundaries.
- 4.2: Native American groups, chiefly the Haudenosaunee (Iroquois) and Algonquian-speaking groups, inhabited the region that became New York State. These people interacted with the environment and developed unique cultures.
  - 4.2a Geographic factors often influenced locations of early settlements. People made use of the resources and the lands around them to meet their basic needs of food, clothing, and shelter.

- 4.2b Native American groups developed specific patterns of organization and governance to manage their societies.
  - 4.2c Each Native American group developed a unique way of life with a shared set of customs, beliefs, and values.
    - \*For this document, the term “Native American” is used with the understanding that it could say “American Indian.”
- 4.3 European exploration led to the colonization of the region that became New York State. Beginning in the early 1600s, colonial New York was home to people from many different countries. Colonial New York was important during the Revolutionary Period.
  - 4.3a Europeans in search of a route to Asia explored New York’s waterways. Early settlements began as trading posts or missions.
  - 4.3b Colonial New York became home to many different peoples, including European immigrants, and free and enslaved Africans. Colonists developed different lifestyles.
  - 4.3c In the mid-1700s, England and France competed against each other for control of the land and wealth in North America. The English, French, and their Native American allies fought the French and Indian War. Several major battles were fought in New York.
  - 4.3d Growing conflicts between England and the 13 colonies over issues of political and economic rights led to the American Revolution. New York played a significant role during the Revolution, in part due to its geographic location.
- 4.4 There are different levels of government within the United States and New York State. The purpose of government is to protect the rights of citizens and to promote the common good. The government of New York State establishes rights, freedoms, and responsibilities for its citizens.
  - 4.4a After the Revolution, the United States of America established a federal government; colonies established state governments.
  - 4.4b The New York State Constitution establishes the basic structure of government for the state. The government of New York creates laws to protect the people and interests of the state
  - 4.4c Government in New York State is organized into counties, cities, towns, and villages.
  - 4.4d New Yorkers have rights and freedoms that are guaranteed in the United States Constitution, in the New York State Constitution, and by state laws.
  - 4.4e Citizens of the State of New York have responsibilities that help their nation, their state, and their local communities function. Some responsibilities are stated in laws
- 4.5 Different groups of people did not have equal rights and freedoms. People worked to bring about change. The struggle for rights and freedoms was one factor in the division of the United States that resulted in the Civil War.

- 4.5a There were slaves in New York State. People worked to fight against slavery and for change.
- 4.5b Women have not always had the same rights as men in the United States and New York State. They sought to expand their rights and bring about change.
- 4.5c The United States became divided over several issues, including slavery, resulting in the Civil War. New York State supported the Union and played an important role in this war.
- 4.6 New York State played an important role in the growth of the United States. During the 1800s, people traveled west looking for opportunities. Economic activities in New York State are varied and have changed over time, with improvements in transportation and technology.
  - 4.6a After the Revolution, New Yorkers began to move and settle farther west, using roads many of which had begun as Native American Trails.
  - 4.6b In order to connect the Great Lakes with the Atlantic Ocean, the Erie Canal was built. Existing towns expanded and new towns grew along the canal. New York City became the busiest port in the country.
  - 4.6c Improved technology such as the steam engine and the telegraph made transportation and communication faster and easier. Later developments in transportation and communication technology had an effect on communities, the State, and the world.
  - 4.6d Farming, mining, lumbering, and finance are important economic activities associated with New York State.
  - 4.6e Entrepreneurs and inventors associated with New York State have made important contributions to business and technology.
  - 4.6f Between 1865 and 1915, rapid industrialization occurred in New York State. Over time, industries and manufacturing continued to grow.
  - 4.6g As manufacturing moved out of New York State, service industries and high-technology industries have grown.
- 4.7 Many people have immigrated and migrated to New York State contributing to its cultural growth and development.
  - 4.7a Immigrants came to New York State for a variety of reasons. Many immigrants arriving in New York City were greeted by the sight of the Statue of Liberty and were processed through Ellis Island.
  - 4.7b Beginning in the 1890s, large numbers of African Americans migrated to New York City and other northern cities to work in factories.

## Science Standards

### Energy

- Use evidence to construct an explanation relating the speed of an object to the energy of that object.

- Make observations to provide evidence that energy is conserved as it is transferred and/or converted from one form to another.
- Ask questions and predict outcomes about the changes in energy that occur when objects collide.
- Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
- Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment

## **Waves and Information**

- Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.
- Generate and compare multiple solutions that use patterns to transfer information.

## **Structure, Function and Information Processing**

- Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.
- Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
- Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

## **Earth's Systems: Processes that Shape the Earth**

- Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
- Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.
- Analyze and interpret data from maps to describe patterns of Earth's features.
- Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

## **Engineering Design**

- Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

- Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.