South Carolina Alternate Assessments
Performance Level Descriptors

Science

Revised: June 29, 2018

Contents

Standards Reference Number Abbreviations

EARTH SCIENCE: WEATHER AND CLIMATE (E)

PHYSICAL SCIENCE: ENERGY TRANSFER AND CONSERVATION (P)

LIFE SCIENCE: DIVERSITY OF LIFE – PROTISTS, FUNGI AND PLANTS (L)

BIOLOGY:
- **CELLS AS A SYSTEM (H.B)**
- **ENERGY TRANSER (H.B)**
- **HEREDITY (H.B)**
- **ECOSYSTEMS DYNAMICS (H.B)**
- **Biology (B-5)**

Grade 4

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
4.E.2A.2 Water changes form and cycles between Earth's surface and the air. This is done through evaporation, condensation, precipitation, and runoff.	Can identify clouds, rain, and the sun.	Can identify clouds, rain, and the sun as elements in the water cycle.	Can use models to illustrate how water changes as it moves between the atmosphere and Earth's surface during each phase of the water cycle (e.g., evaporation, condensation, precipitation, and runoff).	Can explain how water changes as it moves between the atmosphere and Earth's surface during each phase of the water cycle (e.g., evaporation, condensation, precipitation, and runoff).
4.E.2B1 There are procedures for collecting and measuring weather conditions in order to understand daily weather conditions. Using data collected through daily or long-term observations and measurements, patterns in weather can be seen. Weather predictions are based on qualitative and quantitative data; they are not just guesses.	Can identify a weather tool (e.g., anemometer, weather vane, rain gauge, thermometer).	Can match weather tools (e.g., anemometer, weather vane, rain gauge, thermometer) to the weather conditions that it measures.	Can interpret data from observations, measurements, and simplified weather maps to describe patterns in local weather conditions (e.g., temperature, precipitation, wind speed/direction, and cloud types).	Can analyze and interpret data from observations, measurements, and simplified weather maps to describe patterns in local weather conditions (e.g., temperature, precipitation, wind speed/direction, and cloud types) to predict changes in weather over time.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
4.E.2B.2 Weather conditions associated with severe weather are different for each type of storm. These conditions have different effects, and there are safety concerns associated with each condition. The three types of severe weather include thunderstorms, tornadoes, and hurricanes.	Can identify pictures of severe weather conditions (e.g., thunderstorms, hurricanes, and tornadoes).	Can match severe weather conditions (e.g., thunderstorms, hurricanes, and tornadoes) to their dangerous effects.	Can obtain information to describe severe weather phenomena (e.g., thunderstorms, hurricanes, and tornadoes) to identify ways to reduce the impact (safety precautions) of severe weather phenomena.	Can communicate information about severe weather phenomena (including thunderstorms, hurricanes, and tornadoes) to explain steps humans should take to reduce the impact of severe weather phenomena.
4.E.2B.3 Weather conditions and patterns can be predicted based on weather data collected from various sources. Some of those sources include direct observation and measurement, weather maps, satellites, and radar.	Can identify a picture of a weather condition (e.g. snowing, raining, sunny, etc.)	Can record weather conditions and describe weather patterns over time.	Can create a chart to compare and predict weather conditions across time or place.	Can use data from sources (including direct observation and measurement, weather maps, satellites, or radar) of weather conditions over time to describe regional climate.
4.E.3A.1 Earth is a planet that orbits the sun. Other planets orbit the sun. Some planets are closer to the sun than Earth, and others are farther away. The sun, the moon, and Earth have different properties.	Can identify pictures of the sun and moon.	Can identify the sun, Earth's moon, and Earth in the solar system.	Can locate and order the planets of Earth's solar system and describe the main composition (rock or gas) of the planets.	Can compare or contrast the sun, Earth's moon, and the planets that are found in the solar system.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
4.E.3A.3 Planets in our night sky change positions and are not always visible from Earth as they orbit our sun. Telescopes and compasses are tools that aid in the study of objects in outer space.	Can identify a picture of a telescope or compass.	Can identify instruments that you would use to find a location in space (e.g., telescope, compass).	Can indicate the importance of astronomy in navigation and exploration (including the use of telescopes and compasses).	Can explain how the use of telescopes and compasses help gather data to show how planets and stars in our night sky change positions over time.
4.E.3B.1 The moon reflects light from the sun. Because of the positions of the sun, the moon, and Earth, the moon appears to change shape. The amount of reflected light from the moon that is seen from Earth determines the phase. The changing shapes of the moon are called phases. The moon and Earth pull on each other because of gravity.	Can identify pictures of the moon.	Can identify changes in the appearance of the moon throughout the month.	Can describe patterns from observations in the location, movement, and appearance of the moon throughout the year.	Can explain that the positions of the sun, the moon, and Earth causes the patterns of appearance of the moon throughout the year.
4.E.3B.2 Earth rotates (spins) on its axis and completes one rotation in 24 hours. Because of this rotation, only the side of Earth facing the sun is lit and therefore experiences day; the side of Earth not facing the sun experiences night.	Can understand that Earth turns on its axis.	Can recognize models of Earth rotating on its axis.	Can use models to explain how day and night result from Earth's rotation on its axis.	Can explain why day and night occur every 24 hours in Earth's rotation.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
4.E.3B.3 Objects on Earth cast shadows that help show Earth's rotation. The angle of the sun, low in the sky to higher in the sky, changes the length of the shadow cast behind an object.	Can identify a shadow.	Can identify that the length of shadows changes during the day.	Can use models to identify the time of day by the length of shadows, and use illustrations to identify the sun's locations when shadows are long or short.	Can use observations of shadows throughout the day to explain how the sun appears to move across the sky.
4.E.3B.4 Earth has distinct seasons which result from the tilt of its axis and its revolution around the sun.	Can identify seasons.	Can identify the characteristics of the four seasons in South Carolina.	Can use models to describe the factors (e.g., tilt, revolution, and angle of sunlight) that result in Earth's seasonal changes.	Can develop and use models to describe the factors (including tilt, revolution, and angle of sunlight) that result in Earth's seasonal changes.
4.P.4A.3 An object's visibility is dependent on the amount of light given off, or reflected, by the object.	Can identify sources of light. (e.g. sun, flashlight, candle).	Can use models to demonstrate that light travels through some objects and not others.	Can use data and models to explain how the visibility of an object is related to light.	Can obtain and communicate information to explain how the visibility of an object is related to light.
4.P.4A.5 Light behaves differently when it strikes different materials. Transparent materials allow light to pass through, while translucent materials only allow some light to pass through them. Opaque materials do not allow any light to pass through them.	Can observe light going through a transparent material (e.g. glass, clear plastic).	Can identify transparent materials from observations.	Can investigate and use models to describe how light behaves when it strikes transparent (water, air), translucent (waxed paper), and opaque materials (construction paper, wood).	Can plan and conduct scientific investigations to explain how light behaves when it strikes transparent, translucent, and opaque materials.

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4.P.4B.1 Sounds can have different pitches and volumes.	Can understand that some sounds are loud and some are soft.	Can use models to identify the difference between loud and soft sounds.	Can investigate and use models to identify ways different variables (e.g., with different thickness, length, tension, force, distance) affect properties of sound (e.g., pitch and volume).	Can plan and conduct scientific investigations to test how different variables affect the properties of sound (including pitch and volume).
4.P.4B.2 Changes in vibration alter the pitch and volume of a sound.	Can understand that sound is produced by vibrations.	Can identify sounds by pitch and volume.	Can interpret data from observations and measurements to describe how a change in vibration affects the pitch and volume of a sound.	Can conduct investigations independently to gather data (observations and measurements) to describe how changes in vibration affects the pitch and volume of sound.
4.L.5A.1 There are many different types of plants and animals, which can be divided into different groups based on their characteristics (i.e. flowering and nonflowering, vertebrate and invertebrates).	Can understand the difference between plants and animals.	Can use pictures to identify major groups of plants (flowering vs. nonflowering) and animals (vertebrates vs. invertebrates).	Can obtain and compare information about the characteristics (e.g., cones, fruits, seeds, bones, hair, feathers, scales, gills) of plants and animals to classify plants as flowering (e.g., daisies, apple trees) or nonflowering (e.g., ferns, pine trees), and animals as vertebrate (e.g., mammals, fish, amphibians, reptiles, birds) or invertebrate with hard shells (e.g., insects, spiders, clams, snails).	Can classify plants as flowering or nonflowering and animals as vertebrate or invertebrates based on information gathered about the characteristics of plants and animals.

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4.L.5A.2 The lifecycle of a plant defines different stages of plant development.	Can identify that plants grow and change.	Can use pictures to label the stages in the lifecycle of a plant.	Can interpret data from observations and measurements to compare the stages of development of different seed plants (e.g., tomato plants, dandelions, tulips).	Can conduct investigations and gather data through observations and measurements to compare the stages of development of different seed plants.
4.L.5A.3 An animal lifecycle varies among species. These differences in development occur from birth through adulthood.	Can recognize different forms of animal life (e.g., human, dog, bird).	Can use pictures to identify a stage of an animal lifecycle (e.g., puppy vs. dog, baby vs. adult human).	Can develop and use models to compare the stages of growth and development in various animals (e.g., mammal, bird, reptile, amphibian, fish).	Can describe the differences in the stages of growth and development in various animals (e.g., mammal, bird, reptile, amphibian, fish).
4.L.5A.4 Characteristics that plants and animals exhibit through their lifecycles are influenced by their parents and the environment.	Can identify a characteristic of an organism.	Can identify characteristics that an animal has inherited from its parents.	Can analyze data to determine which characteristics of organisms are inherited from parents and which ones are influenced by the environment.	Can use evidence to support claims that some characteristics of organisms are inherited from parents and some are influenced by the environment.
4.L.5B.2 Structural changes to plants and animals allow them to better survive in an environment.	Can identify a need of a plant (food, water, sunlight).	Can match structural adaptations of a plant to a survival needs (e.g., thorns–protection, color of flowers–attract animals, leaf shape and size–help a plant make food) in an environment.	Can use observational data and models to explain how structural adaptations (e.g., obtaining resources to make their own food; appearance of fruit and flowers to attract animals; methods for seed dispersal) allow the plant to survive.	Can explain how structural adaptations (such as the types of roots, stems, or leaves; color of flowers; or seed dispersal) allow plants to better survive and reproduce in an environment.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
4.L.5B.3 Structural changes to plants and animals allow them to better survive in an environment.	Can identify a need of animals (food, shelter, air).	Can match a structural adaption to survival needs (e.g., legs for movement), and identify a survival behavior.	Can use observational data and models to explain how structural adaptations (e.g., such as methods for defense, locomotion, obtaining resources, or camouflage) allow animals to survive in their environments.	Can construct explanations for how structural adaptations (such as methods for defense, locomotion, obtaining resources, or camouflage) allow animals to better survive in an environment.

Grade 6

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
6.E.2A.3 The water cycle is the process of water moving between the atmosphere, land, and oceans. The phases of this cycle are aided by gravity and sunlight.	Can identify that rain or snow is an element of the water cycle.	Can use pictures to identify condensation, evaporation, and precipitation (rain or snow).	Can use models to explain the processes involved in the cycling of water through the Earth's system.	Can describe how the sun and gravity are involved in the processes of the water cycle.
6.E.2B.1 Weather predictions are made based on analyzing and interpreting data from observations and a variety of tools.	Can identify a weather condition (e.g., sunny, rainy, snowy, hot, cold).	Can use observations and pictures to identify patterns in local weather conditions.	Can analyze and interpret data from weather conditions and simplified weather maps to predict local weather patterns and conditions.	Can analyze and interpret data from weather conditions (including wind speed and direction, air temperature), simplified weather maps, satellites, and radar to predict local weather patterns and conditions.
6.E.2B.2 Thunderstorms, hurricanes, and tornados are caused by air changes in a climate.	Can identify a storm.	Can use pictures or simple models to identify thunderstorms, hurricanes, and tornadoes.	Can predict storms that might come, given certain conditions.	Can explain that thunderstorms, hurricanes, and tornados are caused by air changes in a climate.
6.E.2B.4 Climate in regions is affected by many factors.	Can identify a characteristic of climate (e.g., hot, cold, dry, wet).	Can match climate to an area or region.	Can interpret data and use models to explain how the climate is determined in an area (e.g., latitude, elevation, shape of land, distance from water, global winds).	Can explain how coastal climate is influenced by ocean currents.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
6.P.3A.1 There are many forms of energy, including mechanical, electrical, chemical, radiant, and thermal.	Can understand that the sun gives off heat energy.	Can match a type of energy (heat, solar, and electrical) with its source (fire, sun, and battery).	Can describe the properties and sources of energy (e.g., heat—rubbing things together, solar—the sun, and electrical—circuits).	Can compare the properties and sources of energy (e.g., heat, solar, and electrical).
6.P.3A.3 Energy is transferred and transformed in electrical circuits. An electrical circuit must be an unbroken path through which electricity flows.	Can identify the source of energy (battery) in a circuit.	Can identify a complete circuit.	Can explain how energy is conserved and transformed through a circuit.	Can construct and use a complete electrical circuit to explain how energy is transferred and transformed.
6.P.3A.5 Develop and use models to describe and compare the directional transfer of heat through convection, radiation, and conduction.	Can identify sources of heat (e.g., hot water, fire, stove, sun).	Can investigate to identify conduction has occurred from one object to another (e.g., feel a metal spoon, dip spoon in hot water, feel spoon again; consider whether the spoon feels the same or different, hotter or colder).	Can use models to describe and compare the transfer of heat through the process of conduction through objects that are conductors compared to objects that are insulators (convection, radiation, and conduction).	Can develop and use models to describe and compare the directional transfer of heat through convection (rice boiling), radiation, and conduction (touch).
6.P.3B.1 Energy can also be transferred through the use of simple machines.	Can understand that a push or pull (force) moves an object.	Can use pictures of actual objects and photographs to identify a simple machine (e.g., levers, pulleys, inclined planes).	Can investigate and use models to describe how the design of simple machines (e.g., levers, pulleys, inclined planes) helps transfer energy by reducing the amount of force required to do work.	Can investigate and use models to describe which simple machine (e.g., levers, pulleys, inclined planes) best reduces the amount of force required to do work given a certain task.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
6.P.3B.2 How a simple machine is used determines how much energy must be exerted to complete an action.	Can understand that a simple machine makes work easier.	Can use models or pictures to identify the difference between two simple machines.	Can use models or illustrations to identify which simple machine required more force to move an object.	Can conduct investigations independently to identify which simple machine required more force (energy) to move an object.
6.L.4A.1 All living organisms obtain and use resources for energy, respond to stimuli, reproduce, and grow and develop.	Can understand that all organisms need food for energy.	Can identify that organisms need air and food to grow and develop.	Can explain the characteristics and processes that all organisms share (e.g., responding to stimuli, reproducing, using food for energy, growing, and developing).	Can obtain and communicate information to support claims about the processes common to all organisms (e.g., obtaining and using food for energy, responding to stimuli, reproducing, and growing and developing).
6.L.4A.2 Organisms can be classified according to their structure.	Can identify organisms as either living or nonliving.	Can identify organisms as either plants or animals.	Can describe the common structures in species classified in the plant and animal kingdoms.	Can develop and use models to compare the common structures in species to classify them in the plant or animal kingdoms.
6.L.4B.1 Animals are divided into two groups, vertebrates and invertebrates, based on internal and external physical characteristics.	Can identify a plant or animal.	Can sort pictures of organisms.	Can compare/contrast characteristics of vertebrate and invertebrate groups.	Can describe the common internal and external physical characteristics shared by animals that are classified as either vertebrates or invertebrates.
6.L.4B.2 Animals have special structures that allow them to survive in their environments. These structures allow them to defend themselves, to move, and to obtain resources.	Can use pictures to identify the structures of animals.	Can use pictures to identify the structures of animals that allow them to move (e.g., legs, wings) or to obtain resources (e.g., beaks, teeth, pincers, claws).	Can use models and observations to classify the structures of animals on the basis of their functions (e.g., feet and legs for movement, claws and horns for defense).	Can use information obtained to explain how the structural adaptations and processes of animals allow for defense, movement, or resource obtainment.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
6.L.4B.3 Animals respond to environmental stimuli through a variety of behaviors, including hibernation, migration, and defensive behavior.	Can identify some animal behaviors (e.g., eating, walking, running, flying, hunting).	Can identify an animal's behavioral response to environmental changes.	Can classify the behavioral responses of animals (e.g., hibernation, migration, defensive behavior) to environmental stimuli (e.g., cold temperatures, lack of food, threats from other animals).	Can summarize how an animal's behavioral response to environmental changes (e.g., why do birds migrate, why do some bears hibernate) allows it to survive and reproduce.
6.L.5B.1 Plants can also be classified into two major groups, vascular and nonvascular, based on their internal structures.	Can identify the parts of a plant (roots, stems, and leaves).	Can identify the function of the parts of a plant (e.g., roots, stems, and leaves) that transport food and water.)	Can classify plants into two groups (vascular and nonvascular) based on the internal structures used to transport food and water.	Can explain the difference between vascular and nonvascular plants based on the internal structures used to transport food and water.
6.L.5B.2 Plants must perform the processes of photosynthesis and respiration in order to survive.	Can understand that plants need light and water to survive.	Can identify that light and water are necessary for green plants' survival to make food (photosynthesis).	Can interpret a model of the processes of photosynthesis and respiration (getting energy for growth), which are necessary for plant survival.	Can explain how the processes of photosynthesis and respiration work together to meet the needs of plants.
6.L.5B.3 Flowering plants use different structural adaptations for survival, defense, and reproduction.	Can identify a plant.	Can identify the structures of plants (e.g., roots, stems, leaves).	Can identify the structural adaptations and processes that flowering plants use for defense (thorns), survival (the stem supports the plant and also transports water from the roots to the leaves), and reproduction (seeds).	Can describe how the structural adaptations and processes that flowering plants use for defense (thorns) and survival (the stem supports the plant and also transports water from the roots to the leaves) enable the plants to survive and produce seeds.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
6.L.5B.4 Plants need certain amounts of resources to survive and grow. Too much or too little of a needed resource can affect a plant's life cycle.	Can identify a flowering plant.	Can understand that all flowering plants need air, water, light, minerals, and space.	Can predict how air, water, light, minerals, and space affect the growth and development of flowering plants.	Can conduct investigations to predict how changes in environmental factors (such as air, water, light, minerals, or space) affect the growth and development of flowering plants.
6.L.5B.5 Plants respond to changes in their environments. These responses vary depending on the specific environmental stimulus.	Can understand that plants need light to grow.	Can use pictures to identify that plants grow towards the light.	Can interpret data to summarize ways that plants respond to the factors in their environment (e.g., temperature, light, water, gravity).	Can analyze and interpret data to describe how plants respond to the factors in their environment (e.g., temperature, light, touch, water, and gravity).

Grade 8

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
8.P.2A.1 The motion of an object (speed and direction) is determined by many factors.	Can recognize that objects require force to move them.	Can identify which objects require more force to move based on mass.	Can conduct scientific investigations to test how varying the amount of force or mass of an object affects the motion (speed and distance) of an object.	Can plan and conduct scientific investigations to test how varying the amount of force or mass of an object affects the motion (speed and distance) of an object.
8.P.2A.5 Forces, including gravity and friction, can affect the speed and direction of an object.	Can recognize that objects fall downward when released.	Can use models to demonstrate that gravity makes objects fall downward when they are released.	Can analyze and interpret data to describe and predict the effects of forces (including gravity and friction) on the speed and direction of an object.	Can analyze and interpret sets of data to describe, predict, and compare the effects of forces (including gravity and friction) on the speed and direction of an object.
8.P.2A.6 Motion occurs when there is a change in position of an object with respect to a referenced starting point.	Can recognize when an object has changed position.	Can understand that force makes an object change position over time.	Can identify speed and slope graphs.	Can conduct an investigation to compare speed and slope of two graphs.
8.E.4B.1 Objects in the solar system have a variety of characteristics based on their surface features. These objects move in a variety of ways.	Can recognize the sun and the moon.	Can identify objects in our solar system (sun, planets, moon, and comets).	Can use models to summarize and compare the characteristics and movements of objects in our solar system (including planets, moons, asteroids, comets, and meteors).	Can obtain and communicate information to model and compare the characteristics and movements of objects in the solar system (including planets, moons, asteroids, comets, and meteors).

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
8.E.4B.3 The sun is the center of the universe. All planets orbit the sun. Earth rotates at an angle on its axis, resulting in seasonal changes.	Can recognize the seasons.	Can match Earth's seasons to temperature changes.	Can use models to explain the relationship between the seasons and the length of day.	Can develop and use models to explain how seasons, caused by the tilt of Earth's axis as it orbits the sun, affects the length of the day and temperature on Earth's surface.
8.E.4B.4 Tides and the orbit of planets are affected by the pull of gravity. All objects in the solar system are in constant motion. On Earth, this constant movement results in days and years.	Can understand that the moon's appearance changes.	Can understand that the moon's appearance changes (based on its revolution around the Earth).	Can use models to explain how motions within the sun-Earth-moon system result in the Earth's day (24 hours) and year, and the moon phases.	Can develop models that demonstrate how motions within the sun-Earth-moon system cause Earth phenomena (including day and year and moon phases).
8.E.4B.5 Astronomers use telescopes and satellites to collect data about objects inside the solar system.	Can identify a picture of a telescope and/or a satellite.	Can use pictures to identify tools that are used to study space (e.g., telescope and satellite).	Can describe how data from technologies (e.g., telescopes, and satellites) provide information about objects in our solar system and the universe.	Can obtain and communicate information to describe how data from technologies (e.g., telescopes, satellites, and space probes) provide information about objects in our solar system and the universe.
8.E.5A.1 Weathering, erosion, and deposition are the processes that act together to wear down and build up Earth's surface.	Can recognize that surface features change in the environment.	Can match a process of weathering and deposition to changing surface features in the environment.	Can describe how the processes of weathering, erosion, and deposition change surface features in the environment.	Can use models to explain how the processes of weathering, erosion, and deposition change surface features in the environment.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
8.E.5A.3 Earth has layers that have specific conditions and composition.	Can recognize that Earth is made of layers.	Can identify the position of the Earth's layers (crust, mantle, and core).	Can explain the composition of Earth's layers.	Can obtain and communicate information about the relative position, density, and composition of Earth's layers to describe the crust, mantle, and core.
8.E.5A.4 Earth was once one large land mass. As a result of plates moving throughout history, Earth's land mass has divided into continents, and oceans were formed.	Can recognize that Earth's surface moves.	Can understand that Earth's crust is divided into plates.	Can use models to illustrate the movements of Earth's plates to form continents, oceans, mountains, and volcanoes.	Can explain how the theory of plate tectonics accounts for (1) the motion of Earth's plates, (2) earthquake, volcanic, and mountain building activity at plate boundaries, and (3) the changes in land over time.
8.E.5B.2 Earthquakes and volcanic eruptions occur in specific areas along plate boundaries.	Can identify descriptions of natural events such as earthquakes or structures like volcanos.	Can observe locations and patterns of earthquakes and volcanic events.	Can obtain data and use models to describe how forces inside Earth result in earthquakes and the development of volcanoes.	Can construct explanations of how forces inside Earth result in earthquakes and volcanoes.
8.E.5C.1 Earth's resources have properties that make them useful.	Can identify fossil fuels.	Can identify Earth's resources (e.g., minerals, ores, and fossil fuels).	Can obtain information regarding the physical and chemical properties of minerals, ores, and fossil fuels to describe their importance as the Earth's resources.	Can obtain and communicate information regarding the physical and chemical properties of minerals, ores, and fossil fuels to describe their importance as Earth's resources.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
8.E.6A.4 Construct and analyze scientific arguments to support claims that different types of fossils provide evidence of (1) the diversity of life that has been present on Earth, (2) relationships between past and existing life forms, and (3) environmental changes that have occurred during Earth's history.	Can recognize a fossil.	Can match the fossil to the organism that created it.	Can use fossils to provide evidence of (1) the diversity of life that has been present on Earth, (2) relationships between past and existing life forms, and (3) environmental changes that have occurred during the Earth's history.	Can construct and analyze scientific arguments to support claims that different types of fossils provide evidence of (1) the diversity of life that has been present on Earth, (2) relationships between past and existing life forms, and (3) environmental changes that have occurred during Earth's history.

Grade 11

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
H.B.2A.1 All organisms are composed of organic molecules.	Can identify a molecule.	Can understand that all organisms are composed of molecules.	Can identify the functions of carbohydrates, lipids, proteins, and nucleic acids.	Can describe the functions of organic molecules (carbohydrates, lipids, proteins, and nucleic acids.)
H.B.2B.2 Plant, animal, and bacteria cells have different characteristics such as size, shape and structures.	Can identify a plant or animal cell.	Can match plant, animal, and bacteria cells.	Can categorize cells as plant, animal, or bacteria.	Can compare the characteristics of plant, animal, and bacteria cells based on size, shape and structures.
H.B.2C.3 Water needs to be able to move into and out of a cell.	Can identify a cell that has changed shape.	Can identify a cell that has had water move into and out of it.	Can describe what happens when water moves into and out of a cell (into the cell—swells; out of the cell—shrivels).	Can interpret data to explain the movement of molecules (including water) across a membrane.
H.B.2D.1 When cells divide in multicellular organisms, they take on specific roles (for example, blood, muscle, bone, nerve).	Can understand that cells divide.	Can identify a model of cell division.	Can explain what happens in cell differentiation (cells take on different roles) or describe the results of cell differentiation (cells turning into specialized cells, taking on specialized roles).	Can construct models to explain how the processes of cell division and cell differentiation produce and maintain complex multicellular organisms.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
H.B.3A.2 All organisms need a constant source of energy to survive. The ultimate source of energy for most life on the Earth is the sun. Through photosynthesis, plants transform this light energy into stored chemical energy.	Can understand that plants make their own food.	Can recognize why photosynthesis is important.	Can summarize the overall process of photosynthesis, using words or pictures, and explain why it is important to the plant.	Can develop models to describe how photosynthesis transforms light energy into stored chemical energy.
H.B.3A.4 Cellular respiration is a process that transforms the stored chemical energy in food into energy that organisms can use for life processes.	Can understand that organisms consume food.	Can identify food as a source of energy for organisms.	Can understand that food is transformed into waste energy in the cells.	Can develop models of the major inputs and outputs of cellular respiration.
H.B.4A.1 DNA is a set of directions for organisms' traits. We get our DNA from our parents.	Can understand that organisms have traits.	Can sort organisms with similar traits.	Can identify DNA as a code for our traits.	Can use models to explain how DNA provides the instructions for characteristic traits transferred from parent to offspring.
H.B.4B.2 Scientists can change DNA so that it produces beneficial traits in organisms.	Can understand that some traits are beneficial.	Can identify which traits are beneficial.	Can describe how changes to DNA (directions) benefit society.	Can describe how changes to DNA may be used in the fields of medicine, agriculture, and forensic science.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
B-5.1 Biological evolution is the framework that explains why traits change frequency within a population over time. Traits that continue through generations are ones that tend to help plants and animals survive. The concept that plants and animals with the traits best suited for survival are the ones that live and go on to reproduce is called natural selection.	Can identify a trait that helps an organism.	Can identify a trait that would give an organism a better chance of survival (e.g., bright colors in flowers, echolocation in bats, white fur in polar bears).	Can understand that over time, populations become better adapted.	Can summarize the process of how, over time, populations can become better adapted to their environment.
B-5.3 Within a species, variability of traits leads to diversity among individuals.	Can identify a trait of a species.	Can identify a trait that helps a species survive (e.g., runs fast, has camouflage).	Can understand that when the environment changes, one variation of a trait may be favored.	Can understand that diversity within a species increases the chances of its survival.
B-5.5 Many fields of science have contributed to the understanding of evolution. One way to understand how species evolved is through the study of fossils by paleontologists.	Can distinguish a fossil from other rocks.	Can identify a fossil as an organism that lived a long time ago.	Can compare the differences between organisms found as fossils and those that are alive today.	Can analyze evidence of fossils to show connections between organisms that lived long ago and those that are alive today.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
B-5.7 Organisms can be classified based on their physical characteristics.	Can identify a characteristic of an organism.	Can identify similar characteristics of two types of organisms (e.g., alligators and dogs both have four legs, or eagles and robins both have feathers).	Can indicate that groups of organisms with similar characteristics are related (e.g., elect two species from an array that are most closely related, for example, lion, tiger, and deer; lions and tigers are more closely related to each other than they are to a deer).	Can identify similar characteristics among different group of organisms.
H.B.6A.1 A population is a group of organisms belonging to the same species that live in a particular area. The size of a population is affected by many factors.	Can identify one factor that may affect a population.	Can identify multiple factors that can impact the survival of a population.	Can describe how a habitat changes when a population changes (availability of resources).	Can analyze data that show possible relationships between the changes in the nonliving components and the living components of the environment.
H.B.6B.1 Plants and animals rely on each other through the exchange of oxygen and carbon dioxide.	Can understand that plants produce oxygen.	Can recognize that plants produce oxygen, and animals produce carbon dioxide.	Can identify plants and animals that use cellular respiration that produces carbon dioxide, and/or plants that use photosynthesis when producing oxygen.	Can produce models of the carbon cycle, which include the interactions between photosynthesis and cellular respiration.

Prioritized Standard	Level 1: Foundational	Level 2: Emerging	Level 3: Meets Standard	Level 4: Exceeds Standard
H.B.6C.1 Homeostasis of an ecosystem is the ecosystem's ability to remain unchanged over time in spite of biotic (living) and abiotic (nonliving or chemical) factors. While homeostasis is possible, ecosystems often change over time as a result of these biotic and abiotic factors.	Can identify nonliving factors in an environment.	Can identify a nonliving environmental factor (e.g., water) that could change (e.g., flooding) and affect a population (e.g., organisms would have to seek a new environment).	Can summarize how a change in a nonliving factor can affect the environment and can, in turn, affect the populations living in an environment.	Can construct scientific arguments to support claims that the changes in the living and nonliving components of an ecosystem over time affect populations in the ecosystem.
H.B.6D.1 Ecosystems can also be affected by human activities. These activities can have a positive or a negative effect on the Earth.	Can understand that humans can help or harm the Earth.	Can identify human activities that can affect the Earth (e.g., cutting trees can eliminate habitats; recycling can save resources).	Can categorize human activities as positive or negative on the basis of their effect on the Earth.	Can construct ideas to reduce the impact of human activity on the health of an ecosystem.