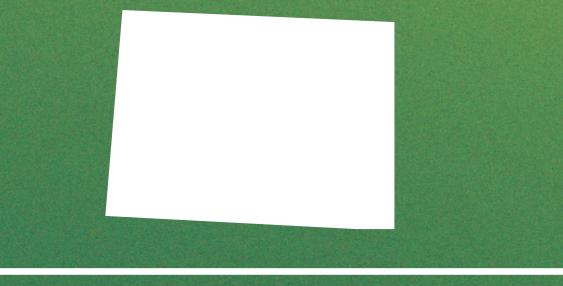# PLTW Launch Standards Guide

Colorado Academic Standards for Science

PLTW Launch (PreK-5) is designed to support your science learning needs. The modules are developed to ensure an unmatched experience, combining three-dimensional learning; unique, problem-based instructional approach; real-world applied learning; as well as Spanish language options — all in one program.

This Standards Guide shows how each PLTW Launch module supports Colorado Academic Standards for Science. Because schools need the flexibility to implement the curriculum in the way that best meets their students' needs, PLTW Launch is designed to support a wide range of implementations. Whether the modules are offered in all classrooms, as a specials rotation, as grade level rotations, as an after-school program, or even as a summer learning implementation, PLTW Launch offers the flexibility to meet your needs.

Use this Standards Guide in combination with the Module Descriptions PDF as planning tools to explore how you can implement PLTW Launch as your elementary learning solution.

LAUNCH

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
1	Physical Science	SC.K.1.1	1. Pushes and pulls can have different strengths and directions, and can change the speed or direction of an object's motion or start or stop it.	a. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. (K-PS2-1) (Clarification Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball and two objects colliding and pushing on each other.) (Boundary: Limited to different relative strengths or different directions, but not both at the same time. Does not include non-contact pushes or pulls such as those produced by magnets.)	Pushes and Pulls
				b. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. (K-PS2-2)(Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.)(Boundary: Does not include friction as a mechanism for change in speed.)	Pushes and Pulls
1	Physical Science	SC.K.1.2	2. Sunlight affects the Earth's surface.	a. Make observations to determine the effect of sunlight on Earth's surface.(K-PS3-1) (Clarification Statement: Examples of Earth's surface could include sand, soil, rocks and water) (Boundary: Temperature is limited to relative measures such as warmer/cooler.)	Sunlight and Weather
				b. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. (K-PS3- 2) (Clarification Statement: Examples of structures could include umbrellas, canopies and tents that minimize the warming effect of the sun.)	Sunlight and Weather
2	Life Science	SC.K.2.1	1. To live and grow, animals obtain food they need from plants or other animals, and plants need water and light.	a. Use observations to describe patterns of what plants and animals (including humans) need to survive. (K-LS1-1) (Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not;the different kinds of food needed by different types of animals; the requirement of plants to have light; and that all living things need water.)	Living Things: Needs and Impacts
3	Earth and Space Science	SC.K.3.1	1. Patterns are observed when measuring the local weather, including how humans and other organisms impact their environment.	a. Use and share observations of local weather conditions to describe patterns over time. (K-ESS2-1) (Clarification Statement: Examples of qualitative observations could include descriptions of the weather [such as sunny,cloudy, rainy, and warm]; examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.) (Boundary: Quantitative observations limited to whole numbers and relative measures such as warmer/cooler.)	Sunlight and Weather
				b. Construct an argument supported by evidence for how plants and animals(including humans) can change the environment to meet their needs. (K-ESS2-2) (Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.)	Living Things: Needs and Impact

Kindergarten

Kindergarten

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
1	Earth and Space Science	SC.K.3.2	2. Plants and animals meet their needs in their habitats and impact one another; people can prepare for severe weather.	a. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. (K-ESS3-1)(Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.)	Living Things: Needs and Impacts
				b. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. (K-ESS3-2)(Clarification Statement: Emphasis is on local forms of severe weather.)	Sunlight and Weather
				c. Communicate solutions that will reduce the impact of humans on the land, water, air and/or other living things in the local environment. (K-ESS3-3)(Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.)	Living Things: Needs and Impacts

First Grade

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
1	Physical Science	SC.1.1.1	1. Sound can make matter vibrate and vibrating matter can make sound.	a. Plan and conduct investigations to provide evidence that vibrating materials can make a sound and that sound can make materials vibrate. (1-PS4-1)(Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.)	Light and Sound
				b. Make observations to construct an evidence-based account that objects can be seen only when illuminated. (1-PS4-2) (Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.)	Light and Sound
				c. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. (1-PS4-3)(Clarification Statement: Examples of materials could include those that are transparent [such as clear plastic], translucent [such as wax paper], opaque[such as cardboard] and reflective [such as a mirror].)	Light and Sound
				d. Use tools and materials to design and build a device that used light or sound to solve the problem of communicating over a distance. (1-PS4-4)(Clarification Statement: This performance expectation integrates transitional science content with engineering through a practice or disciplinary core idea.)	Light and Sound
2	Life Science	SC.1.2.1	1. All organisms have external parts that they use to perform daily functions.	a. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow and meet their needs. (1-LS1-1) (Clarification Statement: Examples of human problems that can be solved could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and detecting intruders by mimicking eyes and ears.)	Designs Inspired by Nature Animal Adaptations
				b. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. (1-LS1-2) (Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make [such as crying, cheeping and other vocalizations] and the responses of the parents [such as feeding, comforting and protecting the offspring].)	Designs Inspired by Nature

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
2	Life Science	SC.1.2.2	2. Young organisms are very much, but not exactly, like their parents, and also resemble other organisms of the same kind.	a. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. (1-LS3-1)(Clarification Statement: Examples of patterns could include features that plants or animals share. Examples of observations could include leaves from the same kind of plant that are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same. This performance expectation integrates traditional science content with engineering through a practice or disciplinary core idea.)	Designs Inspired by Nature
3	Earth and Space Science	SC.1.3.1	1. Patterns of movement of the sun, moon and stars as seen from Earth can be observed, described and predicted.	a. Use observations of the sun, moon, and stars to describe patterns that can be predicted. (1-ESS1-1) (Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky,move across the sky and set; and stars other than our sun are visible at night but not during the day.)	Light: Observing the Sun Moon and Stars
				b. Make observations at different times of year to relate the amount of daylight to the time of year. (1-ESS1-2) (Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.) (Boundary Statement: Limited to relative amounts of daylight, not quantifying the hours or time of daylight.)	Light: Observing the Sun Moon and Stars

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
1	Physical Science	SC.2.1.1	1. Matter exists as different substances that have observable different properties.	a. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. (2-PS1-1) (Clarification Statement: Observations could include color, texture, hardness and flexibility. Patterns could include the similar properties that different materials share.)	Materials Science: Properties of Matter
				b. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.(2-PS1-2) (Clarification Statement: Examples of properties could include,strength, flexibility, hardness, texture and absorbency.) (Boundary Statement: Quantitative measurement is limited to length.)	Materials Science: Properties of Matter Materials Science: Form and Function
				c. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into anew object. (2-PS1-3) (Clarification Statement: Examples of pieces could include blocks, building bricks or other assorted small objects.)	Materials Science: Properties of Matter Materials Science: Form and Function
				d. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. (2-PS1-4) (Clarification Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf and heating paper.)	Materials Science: Properties of Matter

Third Grade

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
1	Physical Science	SC.3.1.2	2. Objects in contact exert forces on each other; electric and magnetic forces between a pair of objects do not require contact.	a. Ask questions to determine cause - and - effect relationships of electric or magnetic interactions between two objects not in contact with each other.(3-PS2-3) (Clarification Statement: Examples of an electric force could include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets,the force between an electromagnet and steel paperclips and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause - and - effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.) (Boundary Statement: Limited to forces produced by objects that can be manipulated by students, and electrical interactions are limited to static electricity.)	Stability and Motion: Forces and Interactions
				b. Define a simple design problem that can be solved by applying scientific ideas about magnets. (3-PS2-4)(Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.)	Stability and Motion: Forces and Interactions
2	Life Science	SC.3.2.1	1. Organisms have unique and diverse life cycles.	a. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction and death. (3-LS1-1) (Clarification Statement: Changes organisms go through during their life form a pattern.) (Boundary Statement: Limited to those of flowering plants and does not include details of human reproduction.)	Life Cycles and Survival
2	Life Science	SC.3.2.2	2. Being part of a group helps animals obtain food, defend themselves and cope with changes.	a. Construct an argument that some animals form groups that help members survive. (3-LS2-1)	Life Cycles and Survival
2	Life Science	SC.3.2.3	3. Different organisms vary in how they look and function because they have different inherited information; the environment also affects the traits that an organism develops.	a. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. (3-LS3-1) (Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.)(Boundary Statement: Does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.)	Variation of Traits
				b. Use evidence to support the explanation that traits can be influenced by the environment. (3-LS3-2) (Clarification Statement: Examples of the environment affecting a trait could that include normally tall plants grown with insufficient water are stunted; and a pet dog that is given too much food and little exercise may become overweight.)	Variation of Traits
2	Life Science	SC.3.2.4	4. Some living organisms resemble organisms that once lived on Earth.	a. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. (3-LS4-1)(Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas and fossils of extinct organisms.) (Boundary Statement: Does not include identification of specific fossils or present plants and animals and is limited to major fossil types and relative ages.)	Environmental Changes
				b. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates and reproducing. (3-LS4-2) (Clarification Statement: Examples of cause - and - effect relationships could be that plants that have larger thorns than other plants may be less likely to be eaten by predators; and animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.)	Variation of Traits

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
2	Life Science	SC.3.2.5	5. Sometimes differences in characteristics between individuals of the same species provide advantages in survival and reproduction.	a. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well and some cannot survive at all. (3-LS4-3) (Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.)	Environmental Changes
				b. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. (3-LS4-4) (Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution,temperature, food and other organisms.) (Boundary Statement: Limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.)	Environmental Changes
3	Earth and Space Science	SC.3.3.1	1. Climate describes patterns of typical weather conditions over different scales and variations; historical weather patterns can be analyzed.	a. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. (3-ESS2-1) (Clarification Statement: Examples of data could include average temperature,precipitation, and wind direction. Obtain and combine information to describe climates in different regions of the world.) (Boundary Statement: Graphical displays are limited to pictographs and bar graphs. Does not include climate change.)	Weather: Factors and Hazards
				b. Obtain and combine information to describe climates in different regions of the world. (3-ESS2-2)	Weather: Factors and Hazards
3	Earth and Space Science	SC.3.3.2	2. A variety of weather hazards result from natural process; humans cannot eliminate weather-related hazards but can reduce their impacts.	a. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. (3-ESS3-1) (Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs and lightning rods.)	Weather: Factors and Hazards

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
1	Physical Science	SC.4.1.1.	1. The faster an object moves the more energy it has.	a. Use evidence to construct an explanation relating the speed of an object to the energy of that object. (4-PS3-1) (Clarification Statement: Examples of evidence relating speed and energy could include change of shape on impact or other results of collisions.) (Boundary Statement: Does not include quantitative measures of changes in speed of an object or on any precise or quantitative definition of energy.)	Energy: Collisions
1	Physical Science	SC.4.1.2	2. Energy can be moved from place to place.	a. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat and electric currents. (4-PS3-2)(Boundary Statement: Does not include quantitative measurement of energy.)	Energy: Conversion
1	Physical Science	SC.4.1.3	3. When objects collide contact forces transfer so as to change objects' motion.	a. Ask questions and predict outcomes about the changes in energy that occur when objects collide. (4-PS3-3) (Clarification Statement: Emphasis is on the change in the energy due to the change in speed, not on the forces, as objects interact.) (Boundary Statement: Does not include quantitative measures of energy.)	Energy: Collisions

Fourth Grade

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
1	Physical Science	SC.4.1.4	4. Energy can be produced, used or released by converting stored energy.	a. Apply scientific ideas to design, test and refine a device that converts energy from one form to another. (4-PS3-4) (Clarification Statement: Examples of evidence relating speed and energy could include change of shape on impact or other results of collisions.) (Boundary Statement: Does not include quantitative measures of changes in speed of an object or on any precise or quantitative definition of energy.)	Energy: Collisions
1	Physical Science	SC.4.1.5	5. Waves are regular patterns of motion.	a. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. (4-PS4-1)(Clarification Statement: Examples of models could include diagrams,analogies and physical models using wire to illustrate wavelength and amplitude of waves.) (Boundary Statement: Does not include interference effects, electromagnetic waves, non-periodic waves or quantitative models of amplitude and wavelength.)	Waves and the Properties of Light
1	Physical Science	SC.4.1.6	6. An object can be seen when light reflected from its surface enters the eyes.	a. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. (4-PS4-2) (Boundary Statement: Does not include knowledge of specific colors reflected and seen, the cellular mechanisms of vision or how the retina works.)	Waves and the Properties of Light
1	Physical Science	SC.4.1.7	7. Patterns can encode, send, receive and decode information.	a. Generate and compare multiple solutions that use patterns to transfer information. (4-PS4-3) (Clarification Statement: Examples of solutions could include drums sending coded information through sound waves, using a grid of 1s and 0s representing black and white to send information about a picture and using Morse code to send text.)	Input/Output: Computer Systems
2	Life Science	SC.4.2.1	1. Organisms have both internal and external structures that serve various functions.	a. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior and reproduction. (4-LS1-1) (Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lungs,brain and skin.) (Boundary Statement: Stress at this level is on understanding the macro scale systems and their functions, not the microscopic scale.)	Organisms: Structure and Function Input/Output: Human Brain
2	Life Science	SC.4.2.1	1. Organisms have both internal and external structures that serve various functions.	b. 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. (4-LS1-2) (Clarification Statement: Emphasis is on systems information transfer.) (Boundary Statement: Does not include the mechanisms by which the brain stores and recalls information or the mechanism of how sensory receptors function.)	Organisms: Structure and Function
3	Earth and Space Science	SC.4.3.1	1. Earth has changed over time.	a. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. (4-ESS1-1)(Clarification Statement: Examples of evidence from patterns could include rock layers with shell fossils above rock layers with plant fossils and no shells, indicating a change from water to land over time; and a canyon with different rock layers in the walls and a river in the bottom, indicating that over time a river cut through the rock.) (Boundary Statement: Does not include specific knowledge of the mechanism of rock formation or memorization of specific rock formations and layers, and should only include relative time.)	Earth: Past, Present, and Future
3	Earth and Space Science	SC.4.3.2	2. Four major earth systems interact.	a. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. (4-ESS2-1) (Clarification Statement: Examples of variables to test could include angle of slope in the downhill movement of water, amount of vegetation, speed of wind, relative rate of deposition, cycles of freezing and thawing of water, cycles of heating and cooling and volume of water flow.)(Boundary Statement: Limited to a single form of weathering or erosion.)	Earth: Past, Present, and Future

Fourth Grade

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
3	Earth and Space Science	SC.4.3.3	3. Earth's physical features occur in patterns.	a. Analyze and interpret data from maps to describe patterns of Earth's features. (4-ESS2-2) (Clarification Statement: Maps can include topographic maps of Earth's land and ocean floor, as well as maps of the locations of mountains, continental boundaries, volcanoes and earthquakes.)	Earth: Past, Present, and Future
3	Earth and Space Science	SC.4.3.4	4. Energy and fuels that humans use are derived from natural sources and their use affects the environment in multiple ways.	a. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. (4-ESS3-1) (Clarification Statement: Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; non-renewable energy resources are fossil fuels and fissile materials. Examples of environmental effects could include loss of habitat due to dams, loss of habitat due to surface mining, and air pollution from burning of fossil fuels.)	Earth: Human Impact and Natural Disasters
3	Earth and Space Science	SC.4.3.5	5. A variety of hazards result from natural process; humans cannot eliminate natural hazards but can reduce their impacts' effect.	a. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. (4-ESS3-2) (Clarification Statement: Examples of solutions could include designing an earthquake resistant building and improving monitoring of volcanic activity.)(Boundary: Limited to earthquakes, floods, tsunamis, and volcanic eruptions.)	Earth: Human Impact and Natural Disasters

Fifth Grade

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
1	Physical Science	SC.5.1.1	1. Matter exists as particles that are too small to be seen; measurements of a variety of observable properties can be used to identify particular materials.	a. Develop a model to describe that matter is made of particles too small to be seen. (5-PS1-1) (Clarification Statement: Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water and evaporating salt water. Does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.)	Matter: Properties and Reactions
1	Physical Science	SC.5.1.1		b. Make observations and measurements to identify materials based on their properties. (5-PS1-3) (Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals and liquids. Examples of properties could include color, hardness, reflectivity,electrical conductivity, thermal conductivity, response to magnetic forces and solubility; density is not intended as an identifiable property. Does not include density or distinguishing mass and weight.) (Boundary Statement: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.)	Matter: Properties and Reactions
1	Physical Science	SC.5.1.2	2. Chemical Reactions that occur when substances are mixed can be identified by the emergence of substances with different properties; the total mass remains the same.	a. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling or mixing substances, the total weight of matter is conserved. (5-PS1-1) (Clarification Statement: Examples of reactions or changes could include phase changes, dissolving and mixing that form new substances. Does not include distinguishing mass and weight.) (Boundary Statement: Mass and weight are not distinguished at this grade level.)	Matter: Properties and Reactions
1	Physical Science	SC.5.1.2		b. Conduct an investigation to determine whether the mixing of two or more substances results in new substances. (5-PS1-4)	Matter: Properties and Reactions
1	Physical Science	SC.5.1.3	3. The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.	a. Support an argument that the gravitational force exerted by Earth on objects is directed down. (5-PS2-1) (Clarification Statement: "Down" is a local description of the direction that points toward the center of the spherical Earth.) (Boundary Statement: Does not include mathematical representation of gravitational force).	Earth's Water and Interconnected Systems

Standard	Category	GLE Code	Grade Level Expectation	Evidence Outcome	Module Tiles
1	Physical Science	SC.5.1.4	4. The energy released from food was once energy from the sun.	a. Use models to describe that energy in animals' food (used for body repair,growth and motion and to maintain body warmth) was once energy from the sun. (5-PS3-1) (Clarification Statement: Examples of models could include diagrams and flowcharts.)	Ecosystems: Flow of Matter and Energy
2	Life Science	SC.5.2.1	1. Plants acquire their material from growth chiefly from air and water.	a. Support an argument that plants get the materials they need for growth chiefly from air and water. (5-LS1-1) (Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.)	Ecosystems: Flow of Matter and Energy
2	Life Science	SC.5.2.2	2. Matter cycles between air and soil and among plants, animals and microbes as these organisms live and die.	a. Develop a model to describe the movement of matter among plants,animals, decomposers, and the environment. (5-LS2-1) (Clarification Statement: Emphasis is on the idea that matter that is not food [air, water,decomposed materials in soil] is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.)(Boundary Statement: Does not include molecular explanations.)	Ecosystems: Flow of Matter and Energy
3	Earth and Space Science	SC.5.3.1	1. Stars range greatly in size and distance from Earth, and this can explain their relative brightness.	a. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. (5-ESS1-1) (Clarification Statement: Limited to relative distances, not sizes, of stars. Does not include other factors that affect apparent brightness [such as stellar masses, age and stage].)	Patterns in the Universe
3	Earth and Space Science	SC.5.3.2	2. Earth's orbit and rotation and the orbit of the moon around earth cause observable patterns.	a. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling or mixing substances, the total weight of matter is conserved. (5-PS1-1) (Clarification Statement: Examples of reactions or changes could include phase changes, dissolving and mixing that form new substances. Does not include distinguishing mass and weight.) (Boundary Statement: Mass and weight are not distinguished at this grade level.)	Patterns in the Universe
3	Earth and Space Science	SC.5.3.3	3. Earth's major systems interact in multiple ways to affect Earth's surface materials and processes.	a. Develop a model using an example to describe ways the geosphere,biosphere, hydrosphere and/or atmosphere interact. (5-ESS2-1)(Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate;and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.) (Boundary Statement: Limited to the interactions of two systems at a time.)	Earth's Water and Interconnected Systems
3	Earth and Space Science	SC.5.3.4	4. Most of Earth's water is in the ocean and much of Earth's freshwater in glaciers or underground.	a. Describe and graph the amounts and percentages of saltwater and freshwater in various reservoirs to provide evidence about the distribution of water on Earth. (5-ESS2-2) (Boundary Statement: Limited to oceans,lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.)	Earth's Water and Interconnected Systems
3	Earth and Space Science	SC.5.3.5	5. Societal activities have had major effects on land, ocean, atmosphere and even outer space	a. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (5-ESS3-1)	Earth's Water and Interconnected Systems

Fifth Grade