1st Grade Science

Instructional Focus: Based on Inquiry and Process Skills

- Form questions about the surrounding world based on scientific information and observations.
- Scientific investigations begin with a question.
- Scientists use different methods to study the world.
- Make observations and share orally or in writing.
- Record observations and data through pictures, numbers, and graphs.
- Use evidence from investigations to express reasonable answers to "How do you know?" questions.
- Use appropriate tools to observe, measure, and collect data (e.g. rulers, magnifiers, thermometers, and anemometer).
- Make a verbal or written prediction about a scientific experiment.
- Solve problems through trial and error.

Physical Sciences

Cross Cutting:

- Gathering evidence to support a cause

Standard	Objective	Examples
1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	Students will: • Understand that sound can make matter vibrate. • Understand that vibrating matter can make sound.	Examples of vibrating materials that make sound include: tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate include: holding a piece of paper near a speaker and holding an object near a vibrating tuning fork.
1-PS4-2. Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated.	Students will: • Discover objects can be seen if light is available to illuminate them. • Observe objects can be seen if they give off their own light.	Examples of observations include looking around a completely dark room to observe what objects are illuminated. Examples of illumination include introducing a flashlight, candle, lantern, sunshine. Illumination could be from an external light source or by an object giving off its own light.
1-PS4-3. Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light.	Students will: • Understand some materials allow light to pass through them, others allow only some light through, and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. • Understand mirrors can be used to redirect a light beam.	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).
1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	Students will: • Understand people also use a variety of devices to communicate (send and receive information) over long distances.	Examples of devices include: a light source to send signals, paper cup and string "telephones," and/or a pattern of drum beats.

Life Sciences: From Molecules to Organisms, Structures and Processes		
Cross Cutting: • Using patterns as evidence to make predictions.		
Standard	**Objective**	**Examples**
1-LS1-1. 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.	Students will: • Understand all organisms have external parts. • Identify how animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and take in food, water and air. • Discover plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.	Examples of human problems that can be solved by mimicking plant or animal solutions 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.
1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.	Students will: • Understand many animal parents and offspring engage in behaviors that help the offspring to survive.	Examples of behaviors include: the signals offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).
1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	Students will: • Understand young animals and plants are very much, but not exactly like, their parents. • Observe individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.	Examples of patterns include: leaves from the same kind of plant 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.
Earth Sciences: Earth's Place in the Universe		
Cross Cutting: • Cause and Effect – Events have causes that generate observable patterns.		
Standard	**Objective**	**Examples**
1-ESS1-1. Use observations of the sun, moon, and stars to describe patterns that can be predicted.	Students will: • Identify patterns of the motion of the sun, moon and stars in the sky which can be observed, described and predicted.	Examples of patterns include: 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.
1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.	Students will: • Understand that seasonal patterns of sunrise and sunset can be observed, described and predicted.	Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall. Comparing and contrasting different cultural stories and how they explain changes in daylight and seasons.
Engineering: Engineering Design		
Cross Cutting: Structure and Function		
Standard	**Objective**	**Examples**
K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	Students will: • Define a situation that people want to change and approach it as a problem to be solved through engineering. • Ask questions, make observations, and gather information that can be helpful in thinking about problems. • Design a solution after clearly understanding the problem.	Examples include: brainstorming and asking questions about current problems in the classroom (catching a loose rodent) and gathering information to help them design a tool to solve the problem.

K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	Students will: • Express designs can be conveyed through sketches, drawings, or physical models. • Understand these representations are useful in communicating ideas for a problem's solutions to others.	Examples include: drawing, sketching or creating a physical model to solve a problem (trap a loose rodent).
K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	Students will: • Understand there is always more than one possible solution to a problem; it is useful to compare and test designs.	Examples include: creating models to solve a problem (rodent trap) and test to compare weaknesses and strengths. Vote on appropriate model for solving the problem.