Kindergarten Science

Instructional Focus:

- Raise questions about the world around them based on observations.
- Observe and describe through words or pictures how a common object looks, smells, feels and sounds (taste- when applicable).
- Observe and describe how two objects are the same or different.
- Collect data by counting and recording objects (e.g. tally marks, numbers, pictures)
- Use scientific tools such as a magnifying glass, eye droppers, and measuring cups.
- Make a verbal prediction about a scientific experiment.

Physical Science: Energy

Cross Cutting:

- Cause and Effect, Events have causes that generate observable patterns.

Standard	Objective	Examples
K-PS2-1. 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.	Students will: • Understand that pushes and pulls can have different strengths and directions. • Understand that pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. • Understand that when objects touch or collide, they push on one another and can change motion. • Understand that a bigger push or pull makes things speed up or slow down more quickly.	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.
K-PS2-2. 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.	Students will: • Understand that pushes and pulls can have different strengths and directions. • Understand that pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. • Understand that a situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions.	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.

Life Science: From Molecules to Organisms: Structures and Processes

Cross Cutting:

- Patterns in the natural and human designed world can be observed and used as evidence.

Standard	Objective	Examples
K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.	Students will: • Distinguish between living and non-living things. • Understand that all animals need food in order to live and grow. • Understand that animals obtain their food from plants or from other animals. • Understand that plants need water and light to live and grow.	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.
K-LS-2. Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.	Students will: • Understand that living things need water, air, and resources from the land. • Understand that the places animals live have the things they need to survive.	Examples of relationships could include that moose eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight so they often grow in meadows. Plants, animals,

	• Understand that humans use natural resources for everything they do.	and their surroundings make up a system.
Earth Science: Earth and Human Activity		
Cross Cutting: • Systems and System Models, Cause and Effect, Interdependence of Science, Engineering and Technology, Influence of Engineering, Technology, and Science on Society and the Natural World		
Standard	**Objective**	**Examples**
K-ESS3-1. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severs weather.	Students will: • Understand that some kinds of severe weather are more likely than others in a given region. • Understand that weather scientists forecast severe weather so that the communities can prepare for and respond to these events. • Understand that asking questions, making observations, and gathering information are helpful in thinking about problems.	Emphasis is on local forms of severe weather and natural hazards (ex: earthquakes, high winds, blizzards, and tsunamis).
K-ESS3-2. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.	Students will: • Understand that things people do to live comfortably can affect the world around them. • Understand that people can make choices that reduce their impacts on the land, water, air, and other living things. • Understand that designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.	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.
Earth and Space Science: Earth's Systems		
Cross Cutting: • Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. • Systems in the natural and designed world have parts that work together.		
Standard	**Objective**	**Examples**
K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.	Students will: • Understand that weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. • Understand that people measure weather conditions to describe and record the weather and to notice patterns over time.	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.
K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.	Students will: • Understand that plants and animals can change their environment. • Understand that things people do to live comfortably can affect the world around them. • Understand that people can make choices that reduce their impacts on the land, water, air, and other living things.	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. Examples of conserving energy/resources could include turning off lights when leaving a room, wearing a sweater and turning the thermostat down, or turning off the water when actually brushing your teeth.

Engineering and Technology: Engineering Design		
Cross Cutting: • Structure and Function		
Standard	**Objective**	**Examples**
K-ETS1-1. Ask questions, make observations, and gather information about a simple problem that can be solved through the development of a new or improved object or tool.	Students will: • Understand that a situation that people want to change or create can be approached as a problem to be solved through engineering. • Understand that asking questions, making observations, and gathering information are helpful in thinking about problems. • Understand that before beginning to design a solution, it is important to clearly understand the problem.	Examples of determining the problem and creating a solution could include looking at and creating shelter to withstand the environment for animals or humans.
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: • Understand that designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.	Examples of conveying design ideas through sketches or drawings could include creating a sketch of a parachute to drop and determine which shape will function more efficiently.
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 that because there is always more than one possible solution to a problem, it is useful to compare and test designs.	Examples of creating a possible solution and comparing results could include designing and creating a marshmallow and toothpick structure for height and comparing strengths and weaknesses in the design.