

2nd Grade Science

Instructional Focus:

- Form questions about the world around them based on scientific information and observations. (Scientific Method)
- Describe observed objects as accurately as possible verbally and through drawing and writing.
- Compare observations with those of peers.
- Use evidence from investigations to express reasonable answers to "How do you know?" questions.
- Write or draw descriptions of a sequence of steps or events.
- Record observations and data with pictures, numbers, written statements, and graphs.
- Use appropriate tools to measure length, weight, temperature, and liquid volume (e.g. ruler, screens, thermometer)
- Make verbal and written prediction based on observed patterns and not random guessing.

Physical Science: Matter and Its Interactions

Cross Cutting:

- Patterns in the natural and human designed world can be observed.
- Simple tests can be designed to gather evidence to support or refute student ideas about causes.
- Objects may break into smaller pieces and be put together into larger pieces, or change shapes.
- Events have causes that generate observable patterns.

Standard	Objective	Examples
2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.	Students will: <ul style="list-style-type: none"> • Be able to describe and classify matter as solid or liquid based on observable properties. • Be able to explain how temperature can affect states of matter. • Construct an argument with evidence that some temperature changes are reversible and some are permanent. 	Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share. 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.
2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Students will: <ul style="list-style-type: none"> • Differentiate that different properties are suited to different purposes. 	Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.
2-PS1-3. 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 a new object.	Students will: <ul style="list-style-type: none"> • Recognize that objects can be broken apart and reconstructed to create a new object. • Demonstrate the ability to create a new object from a disassembled object. 	Examples of pieces could include blocks, building bricks, or other assorted small objects.
2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	Students will: <ul style="list-style-type: none"> • Understand the different causes of heating or cooling an object. • Identify which changes can be reversed and which cannot. 	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.

Life Science		
Ecosystems: Interactions, Energy, and Dynamics		
Cross Cutting:		
<ul style="list-style-type: none"> • Events have causes that generate observable patterns. • The shape and stability of structures of natural and designed objects are related to their function(s). 		
Standard	Objective	Examples
2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.	Students will: <ul style="list-style-type: none"> • Understand that plants depend on water and light to grow. 	Conduct experiments using plants. Assessment is limited to testing one variable at a time.
2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	Students will: <ul style="list-style-type: none"> • Recognize that plants depend on animals for pollination or to move their seeds around. 	Have students' role play the pollination process.
Life Science: Biological Evolution: Unity and Diversity		
Standard	Objective	Examples
2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.	Students will: <ul style="list-style-type: none"> • Identify the characteristics of different habitats. • Explain why certain habitats are suitable to certain living things. 	Emphasis is on the diversity of living things in each of a variety of different habitats. Why is a polar bear suited to the arctic? Assessment does not include specific animal and plant names in specific habitats.
Earth and Space Science: Earth's Systems and Place in the Universe		
Cross Cutting:		
<ul style="list-style-type: none"> • Things may change slowly or rapidly. • Developing and using technology has impacts on the natural world. • Scientists study the natural and material world. • Patterns in the natural world can be observed. 		
Standard	Objective	Examples
2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	Students will: <ul style="list-style-type: none"> • Compare and contrast events. Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. 	Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and erosion of rocks, which occurs slowly. Assessment does not include quantitative measurements of timescales.
2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.	Students will: <ul style="list-style-type: none"> • Understand that wind and water can change the shape of the land. • Design and demonstrate solutions to erosion. • Compare multiple solutions. 	Examples of solutions could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land.
2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.	Students will: <ul style="list-style-type: none"> • Recognize that maps show where things are located. • Create a map to show the kinds of land and water in any area. 	Create a map that highlights various landforms and bodies of water.
2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid.	Students will: <ul style="list-style-type: none"> • Identify different types and bodies of water. Water is found in the ocean, rivers, lakes, and ponds. Understand that water exists as solid ice and in liquid form. 	Use maps to show rivers, lakes, and oceans. Use glaciers as an example of ice and liquid form of water.

Engineering and Technology: Engineering Design**Cross Cutting:**

- The shape and stability of structures of natural and designed objects are related to their function(s).

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: <ul style="list-style-type: none">• Understand that engineering can be used to solve problems.• Ask questions, make observations, and gather information about an identified problem. Before beginning to design a solution, it is important to clearly understand the problem.	Reference 2-ESS2-1. Create a house that is supposed to survive a natural disaster. (A fan can be a windstorm)
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: <ul style="list-style-type: none">• Engineer and create a new or improved object or tool to solve the problem.• 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.	Create a house that is supposed to survive a natural disaster. (A fan can be a windstorm)
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: <ul style="list-style-type: none">• Compare and contrast designs because there is always more than one possible solution to a problem.	Create a house that is supposed to survive a natural disaster. (A fan can be a windstorm)