

New York State Science Learning Standards Space Adventure to the Moon

Kindergarten

Performance Expectations:

Matter and its Interactions

- **K-PS1-1.** Plan and conduct an investigation to test the claim that different types of matter exist as either solid or liquid, depending on temperature.

Forces and Interactions: Pushes and Pulls

- **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.
- **K-PS2-1.** Make observations to determine the effect of sunlight on Earth's surface.

Weather and Climate

- **K-ESS2-1.** Use and share observations of local weather conditions to describe patterns over time.
- **K-PS3-1.** Make observations to determine the effect of sunlight on Earth's surface.

Disciplinary Core Ideas:

PS1.A: Structure and Properties of Matter

- Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.

PS2.A: Forces and Motion

- Pushes and pulls can have different strengths and directions.
- Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it.

PS3.C: Relationship Between Energy and Forces

- A bigger push or pull makes things speed up or slow down more quickly.

ESS3.A: Natural Resources

- Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.

PS3.B: Conservation of Energy and Energy Transfer

- Sunlight warms Earth's surface.

ESS2.D: Weather and Climate

- Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time.



Cross-cutting Concepts:

Cause and Effect

- Simple tests can be designed to gather evidence to support or refute student ideas about causes.
- Events have causes that generate observable patterns.

Patterns

- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.

Systems and System Models

- Systems in the natural and designed world have parts that work together.

1st Grade

Performance Expectations:

Waves: Light and Sound

- **1-PS4-2.** Make observations (firsthand or from media) to construct an evidence-based account that objects can be seen only when illuminated.
- **1-PS4-3.** Plan and conduct an investigation to determine the effect of placing objects made of different materials in the path of a beam of light.

Space Systems: Patterns and Cycles

- **1-ESS1-1.** Use observations of the Sun, Moon, and stars to describe patterns that can be predicted.
- **1-ESS1-2.** Make observations at different times of year to relate the amount of daylight to the time of year.

Disciplinary Core Ideas:

PS4.B: Electromagnetic Radiation

- Objects can be seen if light is available to illuminate them or if they give off their own light.
- 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. Mirrors can be used to redirect a light beam.

ESS1.A: The Universe and its Stars

- Patterns of the motion of the Sun, Moon, and stars in the sky can be observed, described, and predicted.

ESS1.B: Earth and the Solar System

- Seasonal patterns of sunrise and sunset can be observed, described, and predicted.

Cross-cutting Concepts:

Cause and Effect

- Simple tests can be designed to gather evidence to support or refute student ideas about causes.

Patterns

- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.



Scientific Knowledge Assumes an Order and Consistency in Natural Systems

- Science assumes natural events happen today as they happened in the past.
- Many events are repeated.

2nd Grade

Performance Expectations:

Structure and Properties of Matter

- **2-PS1-4.** Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

Earth's Systems: Processes that Shape the Earth

- **2-ESS1-1.** Use information from several sources to provide information that Earth events can occur quickly or slowly.
- **2-ESS2-3.** Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Disciplinary Core Ideas:

PS1.A: Structure and Properties of Matter

- Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.

PS1.B: Chemical Reactions

- Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.

ESS1.C: The History of Planet Earth

- Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.

ESS2.A: Earth Materials and Systems

- Wind and water can change the shape of the land.

ESS2.C: The Roles of Water in Earth's Surface Processes

- Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.

Cross-cutting Concepts:

Patterns

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

Cause and Effect

- Events have causes that generate observable patterns.
- Simple tests can be designed to gather evidence to support or refute student ideas about causes.

Stability and Change

- Things may change slowly or rapidly.

Science Addresses Questions About the Natural and Material World

- Scientists study the natural and material world.

3rd Grade

Performance Expectations:

Forces and Interactions

- **3-PS2-1.** Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.



Weather and Climate

- **3-ESS2-3.** Plan and conduct an investigation to determine connections between weather and water processes in Earth systems.

Disciplinary Core Ideas:

PS2.A: Forces and Motion

- Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion.
- The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it.

PS2.B: Types of Interactions

- Electric and magnetic [and gravitational] forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart [...].

ESS2.D: Weather and Climate

- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.
- Earth's processes continuously cycle water, contributing to weather and climate.

Cross-cutting Concepts:

Patterns

- Patterns of change can be used to make predictions.

Cause and Effect

- Cause and effect relationships are routinely identified, tested, and used to explain change.

Scale, Proportion, and Quantity

- Observable phenomena exist from very short to very long time periods.

Systems and System Models

- A system can be described in terms of its components and their interactions.

Scientific Knowledge Assumes an Order and Consistency in Natural Systems

- Science assumes consistent patterns in natural systems.

Science is a Human Endeavor

- Science affects everyday life.