



SCIENCE STANDARDS, K-5

Kindergarten

- **Science Process Skills**
 - Makes logical predictions.
 - Draws conclusions based on results.
 - Tests predictions.

- **Physical Science**
 - Plan and carry out an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
 - Make observations to determine the effect of sunlight on Earth's surface.
 - Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.

Grade 1

- **Life Science**
 - Demonstrates understanding that there are a variety of living things.
 - Demonstrates understanding that living things have similar basic needs.

- **Earth Science**
 - Demonstrates an understanding of local weather patterns.
 - Demonstrates an understanding of ways to measure and/or determine the weather.

- **Physical Science**
 - Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
 - Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.
 - Generate multiple solutions to a design problem and create a simple sketch, drawing, or physical model to illustrate one or more solutions.

Grade 2

- **Life Science**
 - Describes the life cycle of a butterfly.
 - Shows an understanding of basic needs for growth in plants and animals.

- **Earth Science**
 - Demonstrates knowledge of soil origin and soil components.
 - Shows an understanding of the soil type that is best for plant growth.

- **Physical Science**

- Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
- Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.
- 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.

Grade 3

➤ **Life Science**

- Recognizes that plants go through predictable life cycles.
- Identifies the structures of a plant and gives their specific function.
- Demonstrates understanding of plants as part of a food chain.
- Recognizes reasons for plant behaviors (i.e., a stem growing towards the light).

➤ **Earth Science**

- Identifies the way an organism's habitat provides for its basic needs.
- Can give examples of ways organisms adapt to their habitat.
- Understands the interdependency of organisms within their habitat.

➤ **Physical Science**

- Ask questions to determine cause and effect relationships of electric and magnetic interactions between two objects not in contact with each other.
- Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
- Define a simple design problem that can be solved by applying scientific ideas about magnets.
- Research and design multiple solutions to protect a fragile object from the effects of gravitational force exerted by earth upon the object.

Grade 4

➤ **General Practice**

- Define problems within scientific investigations that may change the results of the investigation and problem solve for improved accurate results.

➤ **Life Science**

- Demonstrates knowledge of fossils and their role in our understanding of history.

➤ **Earth Science**

- Demonstrates knowledge of different minerals and their properties.
- Demonstrates knowledge of the three categories of rocks.
- Gives examples of how the surface of the earth changes due to processes like erosion, weathering, landslides, volcanic eruption, and earthquakes.

- Recognizes that the earth is part of the solar system and describes the relationship between earth, moon, and sun.

➤ **Physical Science**

- Ask questions and predict outcomes about the changes in energy that occur when objects collide.
- Develop a model to represent understanding of physical science concept of waves (wavelength, amplitude, reflection, illumination).
- Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
- Generate and compare multiple solutions that use patterns to transfer information.
- Construct an explanation supported by evidence relating the speed of an object to the energy of that object.

Grade 5

➤ **General Practice**

- Define problems within scientific investigations that may change the results of the investigation and problem solve for improved accuracy in results.

➤ **Life Science**

- Recognizes and gives examples of adaptations of living things.
- Describes how energy from the sun is transferred through a food chain.

➤ **Earth Science**

- Explains weather concepts and the difference between weather and climate.
- Describes the process of the water cycle Recognizes and discusses the different properties of soil and how water affects land.

➤ **Physical Science**

- Develop a model to describe that matter is made of particles too small to be seen.
- Make observations and measurements to identify materials based on their properties.
- Conduct an investigation to determine whether the mixing of two or more substances results in new substances.
- 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.
- Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. Use models to describe the energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.