

# Third Grade Science Standards and Benchmarks

## Standard #1: Scientific Thinking and Practice

**Definition I:** Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

<b>Benchmark #1:</b>  Use scientific methods to observe, collect, record, analyze, predict, interpret, and determine reasonableness of data.	Performance Objective 1	<input type="checkbox"/> Make new observations when discrepancies exist between two descriptions of the same object or phenomenon to improve accuracy.
	Performance Objective 2	<input type="checkbox"/> Recognize the difference between data and opinion.
	Performance Objective 3	<input type="checkbox"/> Use numerical data in describing and comparing objects, events, and measurements.
	Performance Objective 4	<input type="checkbox"/> Collect data in an investigation and analyze those data.
	Performance Objective 5	<input type="checkbox"/> Know that the same scientific laws govern investigations in different times and places (e.g., gravity, growing plants).
<b>Benchmark #2:</b>  Use scientific thinking and knowledge and communicate findings.	Performance Objective 1	<input type="checkbox"/> Use a variety of methods to display data and present findings.
	Performance Objective 2	<input type="checkbox"/> Understand that predictions are based on observations, measurements, and cause-and-effect relationships.
<b>Benchmark #3:</b>  Use mathematical skills and vocabulary to analyze data, understand patterns and relationships, and communicate findings.	Performance Objective 1	<input type="checkbox"/> Use numerical data in describing and comparing objects, events, and measurements.
	Performance Objective 2	<input type="checkbox"/> Pose a question of interest and present observation and measurements with accuracy.
	Performance Objective 3	<input type="checkbox"/> Use various methods to display data and present findings and communicate results in accurate mathematical language.

**Standard #2: Content of Science****Definition I (Physical Science):** Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.

<u>Benchmark #1:</u>  Recognize that matter has different forms and properties.	Performance Objective 1	<input type="checkbox"/> Identify and compare properties of pure substances and mixtures (e.g., sugar, fruit juice).
	Performance Objective 2	<input type="checkbox"/> Separate mixtures based on properties ( e.g., by size or by substance; rocks and sand, iron filings and sand, salt and sand).
<u>Benchmark #2:</u>  Know that energy is needed to get things done and that energy has different forms.	Performance Objective 1	<input type="checkbox"/> Understand that light is a form of energy and can travel through a vacuum.
	Performance Objective 2	<input type="checkbox"/> Know that light travels in a straight line until it strikes an object and then it is reflected, refracted, or absorbed.
	Performance Objective 3	<input type="checkbox"/> Measure energy and energy changes (e.g., temperature changes).
	Performance Objective 4	<input type="checkbox"/> Construct charts or diagrams that relate variables associated with energy changes (e.g., melting of ice over time).
<u>Benchmark #3:</u>  Identify forces and describe the motion of objects.	Performance Objective 1	<input type="checkbox"/> Recognize that magnets can produce motion by attracting some materials (e.g., steel) and have no effect on others (e.g., plastics).
	Performance Objective 2	<input type="checkbox"/> Describe how magnets have poles (N and S) and that like poles repel each other while unlike poles attract.
	Performance Objective 3	<input type="checkbox"/> Observe that some forces produce motion without objects touching (e.g., magnetic force on nails).
	Performance Objective 4	<input type="checkbox"/> Describe motion on different time scales (e.g., the slow motion of a plant toward light, the fast motion of a tuning fork).

**Standard #2: Content of Science****Definition II (Life Science):** Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.

<u>Benchmark #1:</u>  Know that living things have diverse forms, structures, functions, and habitats.	Performance Objective 1	<input type="checkbox"/> Know that an adaptation in physical structure or behavior can improve an organism's chance for survival (e.g., horned toads, chameleons, cacti, mushrooms).
	Performance Objective 2	<input type="checkbox"/> Observe that plants and animals have structures that serve different functions (e.g., shape of animals' teeth).
	Performance Objective 3	<input type="checkbox"/> Classify common animals according to their observable characteristics (e.g., body coverings, structure).
	Performance Objective 4	<input type="checkbox"/> Classify plants according to their characteristics (e.g., tree leaves, flowers, seeds).
<u>Benchmark #2:</u>  Know that living things have similarities and differences and that living things change over time.	Performance Objective 1	<input type="checkbox"/> Identify how living things cause changes to the environments in which they live, and that some of these changes are detrimental to the organism and some are beneficial.
	Performance Objective 2	<input type="checkbox"/> Know that some kinds of organisms that once lived on Earth have become extinct (e.g., dinosaurs) and that others resemble those that are alive today (e.g., alligators, sharks).
<u>Benchmark #3:</u>  Know the parts of the human body and their functions.	Performance Objective 1	<input type="checkbox"/> Know that bacteria and viruses are germs that affect the human body.
	Performance Objective 2	<input type="checkbox"/> Describe the nutrients needed by the human body.

**Standard #2: Content of Science**

**Definition III (Earth and Space Science):** Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.

<u>Benchmark #1:</u>  Know the structure of the solar system and the objects in the universe.	Performance Objective 1	<input type="checkbox"/> Describe the objects in the solar system (e.g., sun, Earth and other planets, moon) and their features (e.g., size, temperature).
	Performance Objective 2	<input type="checkbox"/> Describe the relationships among the objects in the solar system (e.g., relative distances, orbital motions).
	Performance Objective 3	<input type="checkbox"/> Observe that the pattern of stars stays the same as they appear to move across the sky nightly.
	Performance Objective 4	<input type="checkbox"/> Observe that different constellations can be seen in different seasons.
	Performance Objective 5	<input type="checkbox"/> Know that telescopes enhance the appearance of some distant objects in the sky (e.g., the moon, planet).
<u>Benchmark #2:</u>  Know the structure and formation of Earth and its atmosphere and the processes that shape them.	Performance Objective 1	<input type="checkbox"/> Know that Earth's features are constantly changed by a combination of slow and rapid processes that include the action of volcanoes, earthquakes, mountain building, biological changes, erosion, and weathering.
	Performance Objective 2	<input type="checkbox"/> Know that fossils are evidence of earlier life and provide data about plants and animals that lived long ago.
	Performance Objective 3	<input type="checkbox"/> Know that air takes up space, is colorless, tasteless, and odorless, and exerts a force.
	Performance Objective 4	<input type="checkbox"/> Identify how water exists in the air in different forms (e.g., in clouds and fog as tiny droplets; in rain, snow, and hail) and changes from one form to another through various processes (e.g., freezing/condensation, precipitation, and evaporation).

**Standard #3: Science and Society**

**Definition I:** Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.

<u>Benchmark #1:</u>  Describe how science influences decisions made by individuals and societies.	Performance Objective 1	<input type="checkbox"/> Describe how food packaging (e.g., airtight containers, date) and preparation (heating, cooling, salting, and smoking, drying) extend food life and the safety of foods (e.g., elimination of bacteria).
	Performance Objective 2	<input type="checkbox"/> Know that science produces information for the manufacture and recycling of materials (e.g., materials that can be recycled [aluminum, paper, plastic] and others that cannot [gasoline]).
	Performance Objective 3	<input type="checkbox"/> Know that naturally occurring materials (e.g., wood, clay, cotton, animal skins) may be processed or combined with other materials to change their properties.
	Performance Objective 4	<input type="checkbox"/> Know that using poisons can reduce the damage to crops caused by rodents, weeds, and insects, but their use may ham other plants, animals, or the environment.