

# First 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.

<p><u>Benchmark #1:</u></p> <p>Use scientific methods to observe, collect, record, analyze, predict, interpret, and determine reasonableness of data.</p>	<p>Performance Objective 1</p>	<p><input type="checkbox"/> Make observations, develop simple questions, and make comparisons of familiar situations (e.g., What does the seed look like when it starts to grow?).</p>
	<p>Performance Objective 2</p>	<p><input type="checkbox"/> Describe relationships between objects (e.g., above, next to, below)) and predict the results of changing the relationships (e.g., When that block moves, what will happen to the one next to it?).</p>
<p><u>Benchmark #2:</u></p> <p>Use scientific thinking and knowledge and communicate findings.</p>	<p>Performance Objective 1</p>	<p><input type="checkbox"/> Know that simple investigations do not always turn out as planned.</p>
<p><u>Benchmark #3:</u></p> <p>Use mathematical skills and vocabulary to analyze data, understand patterns and relationships, and communicate findings.</p>	<p>Performance Objective 1</p>	<p><input type="checkbox"/> Use numbers and mathematical language (e.g., “addition” instead of “add to,” “subtraction” instead of “take away”) to describe phenomena.</p>

**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"/> Observe that the three states of matter (i.e., solids, liquids, and gases) have different properties (e.g., water can be liquid, ice, or steam).
	Performance Objective 2	<input type="checkbox"/> Describe simple properties of matter (e.g., hardness, flexibility, transparency).
<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"/> Observe and describe how energy produces changes (e.g., heat melts ice, gas makes car go uphill, electricity makes TV work).
<u>Benchmark #3:</u>  Identify forces and describe the motion of objects.	Performance Objective 1	<input type="checkbox"/> Describe ways to make things move, what cause them to stop, and what causes a change of speed, or change of direction.
	Performance Objective 2	<input type="checkbox"/> Observe that gravity makes things fall to the ground unless something holds them up.

**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 living organisms (e.g., plants, animals) have needs (e.g., water, air, food, sunlight).
	Performance Objective 2	<input type="checkbox"/> Know that living organisms (e.g., plants, animals) inhabit various environments and have various external features to help them satisfy their needs (e.g., leaves, legs, claws).
	Performance Objective 3	<input type="checkbox"/> Describe the difference and similarities among living organisms (e.g., plants, animals).
	Performance Objective 4	<input type="checkbox"/> Observe that living organisms (e.g., plants, animals) have predictable but varied life cycles.
<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 differences between living and nonliving things.
	Performance Objective 2	<input type="checkbox"/> Recognize the differences between mature and immature plants and animals (e.g., trees/seedling, dogs/puppies, cat/kittens).
<u>Benchmark #3:</u>  Know the parts of the human body and their functions.	Performance Objective 1	<input type="checkbox"/> Describe simple body functions (e.g., breathing, eating).
	Performance Objective 2	<input type="checkbox"/> Describe the basic food requirements for humans
	Performance Objective 3	<input type="checkbox"/> Describe how some parts of human bodies differ from similar parts of other animals (e.g., hands and feet/paws; ears).

<b>Standard #2: Content of Science</b>		
<b>Definition III (Earth and Space Science):</b> 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"/> Observe the changes that occur in the sky as day changes into night and night into day.
	Performance Objective 2	<input type="checkbox"/> Describe the basic patterns of objects as they move through the sky: <input type="checkbox"/> Sun appears in the day <input type="checkbox"/> Moon appears at night but can sometimes be seen during the day <input type="checkbox"/> Sun and moon appear to move across the sky <input type="checkbox"/> Moon appears to change shape over the course of a month
	Performance Objective 3	<input type="checkbox"/> Recognize that the sun, moon, and stars all appear to move slowly across the sky.
<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 simple tools can be used to measure weather conditions (e.g., thermometer, wind sock, hand held, anemometer, rain gauge) and that measurements can be recorded from day to day and across seasons.
	Performance Objective 2	<input type="checkbox"/> Know that there are different climates (e.g., desert, arctic, rainforest).
<b>Standard #3: Science and Society</b>		
<b>Definition I:</b> 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"/> Know that germs can be transmitted by touching, breathing, and coughing, and that washing hands helps prevent the spread of germs.
	Performance Objective 2	<input type="checkbox"/> Describe how science has assisted in creating tools (e.g., plows, knives, telephones, cell phones, computers) to make life easier and more efficient.
	Performance Objective 3	<input type="checkbox"/> Describe how tools and machines can be helpful, harmful, or both (e.g., bicycles, cars, scissors, stoves).
	Performance Objective 4	<input type="checkbox"/> Know that men and women of all ethnic and social backgrounds practice science and technology.