

# Grade 3

## Overview

Science in grade three focuses on students’ conducting investigations in which they collect and analyze data and communicate their findings. Learning to observe and analyze through hands-on experiments, students gain new insights into how scientists understand our world. Third-grade students explore the life, earth, and physical sciences within the framework of the following topics: “Habitats and Adaptations” (physical and behavioral adaptations); “Earth’s Materials and Changes” (rocks, soil, water, fossils); “Heat and Changes in Matter” (sources of heat, solids, liquids, gases); and “Motion and Sound” (position, effects of force, vibrations, and pitch).

The science standards for grade three provide for a rich variety of learning experiences, materials, and instructional strategies to accommodate a broad range of students’ individual differences. Students are actively engaged in their learning by observing, interacting with materials and with people, and asking questions as they examine new concepts and expand their understanding.

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## Science Standards: Grade 3

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### Scientific Inquiry

The skills of scientific inquiry, including knowledge and use of tools, are not taught as separate skills in science, but are embedded throughout because these process skills are fundamental to all science instruction and content. A table of the PK–12 of scientific inquiry standards and Indicators: is provided in appendix A.

**Standard:**     **3Sa:**           **The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.**

- Indicators:**   **3Sa.1:**           Classify objects by two of their properties (attributes).
- 3Sa.2:**           Classify objects or events in sequential order.
- 3Sa.3:**           Generate questions such as “what if?” or “how?” about objects, organisms, and events in the environment and use those questions to conduct a simple scientific investigation.
- 3Sa.4:**           Predict the outcome of a simple investigation and compare the result with the prediction.
- 3Sa.5:**           Use tools (including beakers, meter tapes and sticks, forceps/tweezers, tuning forks, graduated cylinders, and graduated syringes) safely, accurately, and appropriately when gathering specific data.
- 3Sa.6:**           Infer meaning from data communicated in graphs, tables, and diagrams.
- 3Sa.7:**           Explain why similar investigations might produce different results.
- 3Sa.8:**           Use appropriate safety procedures when conducting investigations.

### Habitats and Adaptations

**Standard:**     **3Sb:**           **The student will demonstrate an understanding of the structures, characteristics, and adaptations of organisms that allow them to function and survive within their habitats. (Life Science)**

- Indicators:**   **3Sb.1:**           Illustrate the life cycles of seed plants and various animals and summarize how they grow and are adapted to conditions within their habitats.
- 3Sb.2:**           Explain how physical and behavioral adaptations allow organisms to survive (including hibernation, defense, locomotion, movement, food obtainment, and camouflage for animals and seed dispersal, color, and response to light for plants).
- 3Sb.3:**           Recall the characteristics of an organism’s habitat that allow the organism to survive there.
- 3Sb.4:**           Explain how changes in the habitats of plants and animals affect their survival.
- 3Sb.5:**           Summarize the organization of simple food chains (including the roles of producers, consumers, and decomposers).

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## Science Standards: Grade 3

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### Earth's Materials and Changes

- Standard:**     **3Sc:**     **The student will demonstrate an understanding of Earth's composition and the changes that occur to the features of Earth's surface. (Earth Science)**
- Indicators:**   **3Sc.1:**   Classify rocks (including sedimentary, igneous, and metamorphic) and soils (including humus, clay, sand, and silt) on the basis of their properties.
- 3Sc.2:**   Identify common minerals on the basis of their properties by using a minerals identification key.
- 3Sc.3:**   Recognize types of fossils (including molds, casts, and preserved parts of plants and animals).
- 3Sc.4:**   Infer ideas about Earth's early environments from fossils of plants and animals that lived long ago.
- 3Sc.5:**   Illustrate Earth's saltwater and freshwater features (including oceans, seas, rivers, lakes, ponds, streams, and glaciers).
- 3Sc.6:**   Illustrate Earth's land features (including volcanoes, mountains, valleys, canyons, caverns, and islands) by using models, pictures, diagrams, and maps.
- 3Sc.7:**   Exemplify Earth materials that are used as fuel, as a resource for building materials, and as a medium for growing plants.
- 3Sc.8:**   Illustrate changes in Earth's surface that are due to slow processes (including weathering, erosion, and deposition) and changes that are due to rapid processes (including landslides, volcanic eruptions, floods, and earthquakes).

### Heat and Changes in Matter

- Standard:**     **3Sd:**     **The student will demonstrate an understanding of the changes in matter that are caused by heat.**
- Indicators:**   **3Sd.1:**   Classify different forms of matter (including solids, liquids, and gases) according to their observable and measurable properties.
- 3Sd.2:**   Explain how water and other substances change from one state to another (including melting, freezing, condensing, boiling, and evaporating).
- 3Sd.3:**   Explain how heat moves easily from one object to another through direct contact in some materials (called conductors) and not so easily through other materials (called insulators).
- 3Sd.4:**   Identify sources of heat and exemplify ways that heat can be produced (including rubbing, burning, and using electricity).

### Motion and Sound

- Standard:**     **3Se:**     **The student will demonstrate an understanding of how motion and sound are affected by a push or pull on an object and the vibration of an object. (Physical Science)**

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## Science Standards: Grade 3

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- Indicators:**
- 3Se.1:** Identify the position of an object relative to a reference point by using position terms such as “above,” “below,” “inside of,” “underneath,” or “on top of” and a distance scale or measurement.
  - 3Se.2:** Compare the motion of common objects in terms of speed and direction.
  - 3Se.3:** Explain how the motion of an object is affected by the strength of a push or pull and the mass of the object.
  - 3Se.4:** Explain the relationship between the motion of an object and the pull of gravity.
  - 3Se.5:** Recall that vibrating objects produce sound and that vibrations can be transferred from one material to another.
  - 3Se.6:** Compare the pitch and volume of different sounds.
  - 3Se.7:** Recognize ways to change the volume of sounds.
  - 3Se.8:** Explain how the vibration of an object affects pitch.