

GRADE 4 SCIENCE

The Fourth Grade science program provides students with opportunities to develop and apply their understanding of science to a new situation. Student science investigations include developing a testable question, a hypothesis/prediction, a well-designed procedure, forming a conclusion, and communicating results. Students develop content knowledge in biology, chemistry, physics, earth/space, and environmental science. Science teaching and learning is challenging and rigorous for all students.

The Fourth Grade units are:

Earth Materials

Unit Summary: Children investigate synthetic rocks and apply the techniques for identifying characteristics to real rocks and minerals. *Earth Materials* was developed at the Lawrence Hall of Science as part of their Full Option Science System (FOSS) with support of a National Science Foundation grant. The unit is published by *Encyclopaedia Britannica* and has been enhanced by the Montgomery County Public Schools, Department of Curriculum and Instruction.

Major knowledge, skills, and concepts:

- Identify the physical properties of minerals
- Describe the formation of different types of rocks
- Examine, describe, and measure the effects of erosion on earth materials
- Ask questions that can be answered through scientific investigation

Ecosystems

Unit Summary: Children construct and observe their own mini-ecosystems, and observe, discuss, and read about land and water ecosystems. They develop an awareness of living things and their basic needs. The unit concludes with a series of activities related to the Chesapeake Bay. *Ecosystems* was developed by the National Science Resources Center with support from the National Academy of Sciences and the Smithsonian Institution.

Major knowledge, skills, and concepts:

- Construct, observe, discuss, and read about ecosystems
- Explain that ecosystems are made up of populations of producers, consumers, and decomposers
- Understand the impact of humans on ecosystems
- Investigate a local problem and research potential solutions

Electric Circuits

Unit Summary: Children investigate electricity and circuits. They explore parts of a light bulb, conductors, insulators, single circuit diagrams, switches, and diodes. The unit culminates with students constructing and wiring a cardboard house of their own design. *Electric Circuits* was developed by the National Science Resources Center with support from the National Academy of Sciences and the Smithsonian Institution

Major knowledge, skills, and concepts:

- Investigate the properties of electricity
- Investigate conductors, insulators, and circuits
- Construct and wire a cardboard house of their own design
- Compare series and parallel circuits
- Describe to others how scientific information was used to develop a design or solve a problem