

Grade 3 Expectations in Science and Technology/Engineering

Learning standards are taken from both the 1999 and May 2001 MA Science and Technology/Engineering Curriculum Frameworks. The numbers correspond to the numbers in the 2001 document. . All students are expected to master all grade level expectations.

INQUIRY AND EXPERIMENTATION

Scientific inquiry and experimentation should not be taught or tested as separate, stand-alone skills. Rather, opportunities for inquiry and experimentation should arise within a well-planned curriculum in the domains of science. They should be assessed through examples drawn from the life, physical, and earth and space science standards so that it is clear to students that in science, *what* is known does not stand separate from *how* it is known.

In grade three scientific investigations can center on student questions, observations, and communication about what they observe.

Curriculum Framework Learning Standard	Resources
Ask questions and make predictions that can be tested.	
Select and use appropriate tools and technology (e.g. calculators, computers, balances, scales, meter sticks, graduated cylinders) in order to extend observations.	
Keep accurate records while conducting simple investigations or experiments.	
Conduct multiple trials to test a prediction. Compare the result of an investigation or experiment with the prediction.	
Recognize simple patterns in data and use data to create a reasonable explanation for the results of an investigation or experiment.	
Record data and communicate findings to others using graphs, charts, maps, models and oral and written reports.	

**Strand 1: DOMAINS OF SCIENCE
EARTH and SPACE SCIENCE**

Curriculum Framework Learning Standard	Resources
Earth materials	
1. Give a simple explanation of what a mineral is and some examples, e.g., quartz, mica.	Earth Materials FOSS • Investigation 1,
2. Identify the physical properties of minerals (hardness, color, luster , cleavage, and streak), and explain how minerals can be tested for these different physical properties.	Earth Materials FOSS • Investigation 2, 3, 4
3. Identify the three categories of rocks (metamorphic, igneous, and sedimentary) based on how they are formed, and explain the natural and physical processes that create these rocks.	Earth Materials FOSS • District developed Unit
Solar System	
13. Recognize that the earth is part of a system called the “solar system” that includes the sun (a star), planets, and many moons. The earth is the third planet from the sun in our solar system.	Solar System District Developed Unit
14. Recognize that the earth revolves around (orbits) the sun in a year’s time and that the earth rotates on its axis once approximately every 24 hours. Make connections between rotation of the earth and day/night, and the apparent movement of the sun, moon, and stars across the sky.	Solar System District Developed Unit
15. Describe the changes that occur in the observable shape of the moon over the course of a month.	Solar System District Developed Unit

Strand 2: DOMAINS OF SCIENCE
LIFE SCIENCE

Curriculum Framework Learning Standard	Resources
Characteristics of Organisms	
1. Classify plants and animals according to the physical characteristics that they share.	Flora and Fauna District Developed Unit
2. Identify the structures in plants (leaves, roots, flowers, stem, bark, wood) that are responsible for food production, support, water transport, reproduction, growth, and protection.	Flora and Fauna District Developed Unit
Life Cycles and Heredity	
3. Recognize that plants and animals to through predictable life cycles Understand that plants and animals go through predictable life cycles that include birth, growth, development, reproduction, and death.	Flora and Fauna District Developed Unit
4. Describe the major stages that characterize the life cycle of the frog and butterfly as they go through metamorphosis.	Flora and Fauna District Developed Unit
Organisms and Environments	
7. Give examples of how changes in the environment (drought, cold) have caused some plants and animals to die or move to new locations (migration).	Flora and Fauna District Developed Unit
9. Recognize plant behaviors; such as the way seedlings’ stems grow toward light and their roots grow downward in response to gravity. Recognize that many plants and animals can survive harsh environments because of seasonal behaviors, e.g., in winter, some trees shed leaves, some animals hibernate, and other animals migrate).	Flora and Fauna District Developed Unit
**This standard is new in the May 2001 frameworks— 11. Describe how energy derived from the sun is, used by plants to produce sugars (photosynthesis).	Flora and Fauna District Developed Unit

**Strand 3: DOMAINS OF SCIENCE
THE PHYSICAL SCIENCES**

Curriculum Framework Learning Standard	Resources
Sound and Motion of Objects	
11. Recognize that sound is produced by vibrating objects and require a medium through which to travel. Relate the rate of vibration to the pitch of the sound. Understand that loudness and pitch are the main characteristics of sound and that pitch is related to the speed of the vibration while loudness is related to the size of the vibration.	Physics of Sound FOSS • Investigations 2, 3, 4