Geology Lab

Grades 6-8
Educational Program Guide

PASS

Grade 6 Science Process 1.1, 1.2, 2.2, 3.1, 4.3, 5.1 | Earth-Space Science 5.1

Grade 7 Science Process 1.1, 1.2, 2.2, 3.1, 4.3, 5.1

Grade 8 Science Process 1.1, 1.2, 2.2, 3.1, 4.3, 5.1 | Earth-Space Science 4.1, 4.2

OAS

MS-ESS2-1 | Science Practices 1, 2, 3, 4, 6, 8

Program Overview

Did you know you that you could experience the rock cycle in minutes rather than eons? In this laboratory, students will investigate the rock cycle by "making" sedimentary, igneous and metamorphic rocks, and then experience the process of erosion, sedimentation and soil formation. Students will also identify a variety of rocks and minerals through observations and tests.

Objectives

After participating in this program, students will be able to:

- Understand the difference between minerals and rocks;
- Identify minerals by testing hardness and streak;
- Understand how an igneous rock is formed;
- Explain the process of forming a sedimentary rock;
- Explain the process of forming a metamorphic rock;
- Compare and test the permeability of soils.

Background

Geologists study the Earth to predict potential major and minor changes in the Earth, to understand the best uses of certain rocks and minerals, and to understand how the Earth has changed over time. Rocks are constantly being formed, broken down and reformed. The "rock cycle" is a concept that describes how the three main rock types, sedimentary, metamorphic and igneous, are related to each other and how they transition from one form to another over time. By understanding the conditions by which rocks and minerals are formed, it is possible to understand the past, present and future of the Earth.

At the Museum

Hall of Ancient Life

As your class visits this gallery, find the display of the cross-section of the earth at the entrance of the gallery. To the left is a case highlighting the variety of rocks and minerals found within the earth and an interactive exhibit featuring information about how the earth changes over time. Discuss with students how they think the changes in the geology of an area might affect the types of plants and animals living in the area.

Paleontology is the study of ancient life. Paleontologists use geology to help locate and study fossils, as fossils are often found in sedimentary rock. Using the panels and exhibits as resources, ask your students to develop an idea why Oklahoma has so many fossils. Discuss how Oklahoma may have looked in the distant past and how it has changed over time.

Hall of Natural Wonders

Explore this gallery together and challenge your students to find an example of a sedimentary rock. After students have found the Limestone Cave, discuss what kinds of erosion might have caused caves like it to form in Oklahoma.

Vocabulary

Erosion	the process that breaks down the surface of the earth and transports the materials to another location
Geology	the study of the Earth and how it changes over time
Hardness	how easily the surface of the mineral can be scratched. Hardness is a characteristic used to identify minerals.
Igneous Rock	a rock that is formed by the cooling and solidification of magma or lava
Mineral	solid, naturally occurring, chemical substances found in the Earth's crust; each has a definite chemical makeup and structure

Vocabulary (cont.)

Metamorphic Rock	a rock that is formed through the process of metamorphism. During this process, heat and pressure act on an existing rock, causing significant physical and chemical changes
Natural Resources	something of value that people get from the environment
Permeability	the ability of soil to allow water to pass through it
Rock	two or more minerals that have been combined using heat and pressure from the Earth; they cannot be defined by a definite chemical makeup
Sedimentary Rock	a rock that is formed by sediment (small grains of minerals, rocks or organic material deposited by water
Streak	the color of a mineral substance when it has been ground to a fine powder. Streak is a characteristic used to identify minerals.