

Learning Objectives

- 1) Understand that rocks are the non-living solid materials that make up the earth. In addition, understand that rocks are made of minerals.
- 2) Know that rocks are found everywhere on the surface of the earth; however most rocks are located under the surface in the crust.
- 3) Realize that rocks are used in the making of many important products, including roads, walkways, statues, and pottery.
- 4) Understand that one can distinguish between different minerals by observing their different properties. For example, some minerals are shiny, while others are dull; some minerals are smooth, however, some minerals are rough; many minerals are hard, but some break apart easily; some minerals are very colorful, while others have little color.
- 5) Know the characteristics of the three layers of earth.
 - a) The crust is the outer layer of the earth that covers the entire earth; it is around 25-30 miles deep.
 - b) The mantle is just below the crust; it is composed of melted rock.
 - c) The core is the center layer of the earth; it has two parts: a liquid outside and a solid interior.
- 6) Understand that three main types of rocks exist, and know the characteristics of each type.
 - a) Sedimentary rock, like limestone, is made when creeks and rivers sweep small pieces of sediment (sand and mud) into lakes and oceans. The layers of the sediment then settle on top of each other and press together into solid rock by the weight of more layers of sediment.

- b) Igneous rock, which includes tuff, basalt, and scoria, forms when magma and hot ash come to the surface of the earth through volcanoes and cool to form solid rock.
- c) Rocks like granite or marble form when either a sedimentary or an igneous rock is forced down underground, where it is heated to high temperatures and squeezed by other rocks to form metamorphic rock.
- 7) Realize that rocks are broken down by a process called weathering; wind, rain, and ice break rocks down into smaller sizes. After weathering, wind and flowing water carry these small rocks away in a process known as erosion.
- 8) Understand that names are given to rocks based on their size. In decreasing order by size, the names of rocks are: boulders, pebbles, gravel, sand, silt, and clay.

Suggested Activities

- 1) **Before viewing the video:**
 - a) Put several different kinds of rocks in a box. Let each student hold and shake the box. Have the class guess what is inside. Rocks may be a likely guess. Let the students pass the rocks around and then tell what they have discovered about them from observing and touching the rocks. Make a board list of all the ways we use rocks. Learn more about rocks by watching the video.
- 2) **After viewing the video:**
 - a) Rock Collecting and Identifying: Discuss some of the interesting things from the video. Get 5 small paper bags with different sizes and kinds of rocks. The class may work in small groups or on an individual basis. On index cards, write the following: hard/soft, easily scratched, easily broken, color, size, same kind, shiny/dull, rough/smooth; for older students: igneous,

sedimentary, and metamorphic. Show a card to indicate how the students are to sort the rocks. Check their efforts before they are mixed up for another sorting.

- b) Making Geologists Hats: Make geologists' hats when the study is completed. Get one medium-sized paper bag at the grocery store for each student. Cut each one five inches from the bottom to make hats. Give each student a 3" square of black paper and a 2 1/2" square of yellow. Have the students cut circles from the papers. Then they should paste the yellow on the black and proceed to attach this "light" to the front of the hat. Older students might wish to print "Junior Geologist" on their hats.

Vocabulary

Clay – Rock particles that are extremely fine

Erosion – The process in which broken down rock is removed from an area

Glacier – A large body of ice spreading over the land or flowing down a mountain slope

Igneous – Made from fire

Metamorphic – Changed

Minerals – The materials that compose rocks

Silt – Small particles of rock that can be seen as a cloudy substance that appears when the water in rivers or lakes is disturbed

