

Glossary

Core: The layer of the earth that consists of hot, dense, solid metal surrounded by liquid rock.

Crust: The rigid and rocky layer of the earth.

Fossil: The remains or trace of a plant or animal from a past page, preserved in the earth's crust.

Geologist: A scientist who studies the history of the earth and planets, especially as recorded in rocks.

Hydrogeologist: A scientist who studies water and rocks in unison. An hydrogeologist looks at chemical reactions, contamination and pollution in our water.

Igneous Rocks: Rocks formed from the cooling of molten rocks underneath the earth and on the earth's surface.

Kilauea: An active volcano in Hawaii.

Lava: Magma that has reached the surface of the earth.

Magma: Hot liquid rock which pushes up through the mantle and then squeezes through the crust of the earth.

Mantle: The mostly solid and molted layer of the earth.

Metamorphic Rock: Rock that has been changed within the earth; this usually occurs through great heat and pressure.

Mining: Digging a pit or tunnel in the earth to obtain mineral substances.

Moon Rocks: Rocks from the moon. In the United States, these rocks are under national security; scientists from NASA study them.

Paleontologist: A scientist who traces life in the past, excavates and studies fossils.

Recycling: When plastic, glass, cans and other items are re-processed in order to regain for use.

Rock Cycle: Layers of sedimentary rock can be changed into metamorphic rock. These and other rocks may be reheated and converted to molten rock, which may become igneous rock again.

Rock Types: Igneous, sedimentary, metamorphic.

Sediments: Materials such as stones and sand; these are deposited by water, wind or glaciers.

Solidify: To make or become solid, compact or hard.

Weathering: When chemical and physical forces break rock into pieces, changing its shape and appearance.

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2321 Abbot Kinney Blvd., Venice, CA 90291

(310) 577-8581 Fax (310) 574-0886

Email: sale@tmwmedia.com

Web: www.tmwmedia.com

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Science in Action

Rocks & Minerals

Teachers Resource Guide

Suggested Teaching Strategies: Investigations & Experiments

- 1) Start a Rock Collection
 - a) Identify the types of rocks you have collected.
 - b) Are they igneous, sedimentary or metamorphic?
 - c) Is there anything special you have noticed about each rock?
- 2) Collect ten different rocks
 - a) Describe how you think they were formed.
 - b) Now write a story about your ten rocks.
- 3) Have you ever seen the inside of a cave or cavern?
 - a) If so, what was it like inside?
 - b) What kinds of rocks did you see? Were they igneous, sedimentary or metamorphic?
 - c) If you have not visited a cave or cavern, would you like to visit one soon?
- 4) Have you visited the Grand Canyon or a canyon similar to it?
 - a) If so, describe some of the rock formations you saw while you were there. Were they igneous, sedimentary or metamorphic?
 - b) If you have not visited a large canyon, would you like to explore one now?
- 5) Design and build a rock garden.
 - a) Collect rocks of various sizes and shapes.
 - b) Choose a special place in your yard.
 - c) Construct the rock garden according to your design.
- 6) Colas Canyon is one of the earth's deepest canyons.
 - a) Research this Peruvian canyon.
 - b) What makes it special and why does it attract so many people to it?
 - c) Describe the canyon's granite rock formations. How large are they?
 - d) There are many interesting caves in this canyon. How large are most of them? What are they like inside?
 - e) What types of animals live in the canyon? Describe as many kinds as possible.
- 7) Research Volcanoes
 - a) Describe two volcanoes that are active today.
 - b) Where are the volcanoes located?
 - c) How long have they been active?
 - d) Describe the measurements of the volcanoes tephra (the solid material ejected by volcanoes).
 - e) Why do scientists study the tephra?

Questions for Thought, Discussion and Further Study

- 1) Why are the grains of sand on a beach so small?
- 2) How is the polishing of rocks in a rock shop similar to what happens in nature?
- 3) Would you ever want to go in-person to see a volcano erupt?
- 4) Imagine if rocks could talk. What stories might a rock tell?
- 5) How is being a paleontologist or geologist like being a detective?
- 6) What clues do geologists use in their work?
- 7) How are geologists important to society?
- 8) Would you enjoy a career working with rocks, minerals or fossils?
- 9) What rocks and minerals are important in your daily life?
- 10) Why do you think it takes so much energy to mine rocks and minerals?
- 11) How do you think people could reduce the need for mining or making mining less damaging to the environment?
- 12) Do you think it would be desirable to do away with the use of rocks and minerals entirely?