



Geology Detectives

A Pre-Visit Information Guide for Teachers

Meets Next Generation Science Standards: 2-PS1-1; 2-ESS1-1

Can you pick granite out of a rock lineup? Become a geology detective! Learn about the three types of rocks and how they form. Then use your detective skills to identify rocks, minerals, and fossils using their unique characteristics in this hands-on workshop packed with fantastic geology specimens. Students will come away amazed and convinced why geology rocks!

OBJECTIVES

- **Rocks vs. Minerals:**
What is a mineral, and how is it different from a rock? Both are non-living solid objects found in nature. Rocks are made up of minerals, but minerals are not made up of rocks. Students will observe a rock (granite) and the minerals of which it is composed (mica, feldspar and quartz). Students will create a paper 'granite sample' out of its component 'minerals' to take home.
- **Characteristics of Rocks:**
Students will use their senses to observe and describe different rocks, noting the similarities and differences between them and the characteristics we might use to identify them. Students will discover the basics of how rocks form, learning about igneous, metamorphic and sedimentary rocks in the process.
- **Rock, Mineral and Fossil Identification Stations:**
Students will become geology detectives at a series of testing stations, using clues to identify different rocks, minerals and fossils based on characteristics like color, weight, texture, luster, magnetism and more. Students will be amazed by the fantastic geology specimens, including magnetic minerals, rocks that float in water, and cool crystals!

ACTIVITIES

Teachers are encouraged to conduct pre-visit and post-visit classroom discussions and activities with their classes to make the most of their experience. Spark your students' interest in rocks and minerals by encouraging students to collect rocks to bring to class and identify through mineral testing. Start a class rock and mineral collection, or create a mineral exhibit in your classroom:

http://smithsonianeducation.org/educators/lesson_plans/minerals/lesson1_main.html. Rocks are like cookies – you can make all different kinds depending on what

you put in them and how you bake them. This website explains the rock cycle and links to different recipes for igneous, metamorphic and sedimentary snacks:
<http://igs.indiana.edu/Geology/rocks/rockcycleactivities/index.cfm>.

HELPFUL VOCABULARY

Mineral – A naturally occurring solid with a specific chemical composition and characteristic physical properties.

Rock – A naturally occurring aggregate of minerals.

Crystal – A solid in which the atoms are packed in a regularly ordered, repeating three-dimensional pattern.

Igneous – Rocks that form by the solidification of molten magma or lava.

Metamorphic – Rocks that form from other rocks as they undergo heat and pressure.

Sedimentary – Rocks that form from the compaction of sediment.

WEBSITES:

US Geological Survey:
<http://education.usgs.gov/>

The Mineral and Gemstone Kingdom: Complete Information Guide to Rocks, Minerals and Gemstones:
<http://www.minerals.net/>