

# ROCK COLLECTING



## Getting Started:

- Brainstorm a list of places in your neighborhood or community where you can safely and legally collect rocks.
- Prepare to collect rocks by gathering the materials you will need. These include a strong bag such as an old backpack. You'll also need paper or index cards, a pencil, and re-sealable plastic sandwich bags for individual rock samples. A rock collector needs to wear gloves, too.
- Collect rock samples at neighborhood locations or other places agreed upon by you and a parent or guardian. Be sure to get permission before collecting on private property. Keep a good record as you collect. Index cards will help you in this task.
- Bring your rock samples home or to a club meeting where you can examine them closely and perform tests to help you classify and identify them. You will also need to use a field guide for rocks and minerals. You can find these books at a library or bookstore. You can also find plenty of photographs of rocks and minerals online.
- Create a display of your rock collection that shows off your best rock samples. Use your best effort for classification and identification. Make a numbered chart or list that describes each specimen as required for the project. Take your time; if your display is sloppy, the judge may think you didn't take your time (and therefore probably didn't learn much)!
- Be prepared to tell the judge more about how you prepared your collection and how you identified the specimens.

## Project Hints:

- The best places to hunt for rocks are places where many rocks are exposed. These include dry stream beds, road cuts, and farm fields. Such places can be dangerous, though. Never go rock hunting alone, take someone with you such as an adult family member or a friend. Be careful when collecting in places where loose rocks might fall.
- For many places, you need to get permission to collect rocks. This is especially true for national and state parks, as well as private property. Go to the rangers or other authorities and explain your project. If permission is denied, find other locations.
- When you go rock collecting, you should wear heavy shoes as well as long pants. Be prepared to hunt for rocks in places you might not normally walk.
- Sometimes rock samples are too big to display easily or are dirty or dull. Breaking apart such rocks provides smaller samples as well as cleaner surfaces for identification purposes. Always wear goggles when breaking up rocks and minerals.
- Examine each rock with a magnifying glass. Notice its texture. Do a scratch test. Note its color and luster. Try to identify the minerals in it. Determine the rock's density (is it as heavy or as light as you expected it to be?). In other words, do everything you can to correctly classify and identify the rocks you collect.
- As you begin to create your rock display, think of how you've seen other sorts of collections displayed.
- You can create your own simple collection box using a low, flat box (like the top from a copy paper box), then make smaller boxes to fit inside it. Templates for making rock-sized boxes and a photo of how this would look can be found at <http://www.allysion.org/rocks/minerals.html>.
- No matter what kind of display you make, put each rock in a separate compartment and number each rock. You might glue on numbers, paint on white-out and write the numbers on the white-out, or write with a white paint pen.
- Finally, create a numbered list or chart to write the details for each specimen. Mount the list or chart neatly on a piece of poster board.

# Classifying Rocks into Major Groups

Classifying rocks into the three major groups is not always easy—for some rocks it can be difficult for anyone except a geologist. But for many rocks, you can determine their classification if you know the important characteristics of each major group. Study the characteristics below for each major group of rocks. Then examine the rocks you collect and use these characteristics to help you classify the rocks.

## Characteristics of Igneous Rocks:

- Igneous rocks are the result of volcanic activity. They often contain grains that can be seen with the naked eye. See Figure 1.
- Some igneous rocks have no visible grain and appear glassy. See Figure 2.
- Igneous rocks may be found in many different colors and often show different colored grains that aren't in the bands.
- Lava rocks, pumice and obsidian are all igneous.
- See <http://www.gc.maricopa.edu/earthsci/imagearchive/igenous.htm> for more details.

## Characteristics of Sedimentary Rocks:

- Sedimentary rocks are made up of fragments of other rocks that were broken up and joined together because of weathering and erosion. They look very much like rocks or particles cemented together. Some sedimentary rocks have a range of grain sizes, while others consist mainly of one grain size. See Figure 3.
- Organic sedimentary rocks are made up of plant and animal products or remains. Such rocks may contain fossils. See Figure 4.
- Sedimentary rocks often have distinct parallel layers. See Figure 5.
- Many sedimentary rocks appear dull or earthy.
- Shale, rock salt, and gypsum are all sedimentary.
- See <http://www.gc.maricopa.edu/earthsci/imagearchive/sedimentary.htm> for more details.

## Characteristics of Metamorphic Rocks:

- Metamorphic rocks started out as other kinds of rocks, then heat and pressure changed them to metamorphic. They often look like igneous rocks except that they are foliated, showing layers of different mineral grains. See Figure 6.
- Metamorphic rocks may show signs of bending or distortion. See Figure 7.
- The grains in metamorphic rocks generally appear to be flattened.
- Slate and marble are both metamorphic.
- See <http://www.gc.maricopa.edu/earthsci/imagearchive/metamorphic.htm> for more details.

