

ROCKS OF NEW YORK STATE

Introduction

The minerals that you studied previously usually combine to form "mixtures" called **rocks**. The kinds of rocks found in any location depend on many factors that form the "geologic history" of the region. These factors can include the kinds of chemical elements that were present when the molecules in the minerals formed, the ways in which the minerals were created, events that changed them later, whether the area was covered by glaciers during the Ice Ages, and other processes.

Rocks may break off from the solid **bedrock** that lies beneath loose soil, or they may have been carried into the region by glaciers, streams, or human activities (such as landscaping.)

The two main purposes of this investigation are:

- to learn how to identify major rock types through their characteristic properties, especially through the Earth Science Reference Table identification charts
- to understand how to find out what types of rocks can be found in New York State (or elsewhere) using **geologic maps**, especially the one in the Earth Science Reference Table.

Procedure

Use the sample sets of **IGNEOUS**, **METAMORPHIC** and **SEDIMENTARY** rocks to learn how to identify the major types. In the spaces provided for each type of rock, write the key characteristics that would help you identify each of these. Also, find and copy an image of each from the "Volcano World" slide show:

<http://volcano.und.nodak.edu/vwdocs/vwlessons/lessons/Slideshow/Slideindex.html>

When you are using actual specimens, be sure that you are learning to identify samples based on the *general characteristics of any sample of that rock* and not just through the *specific characteristics of a particular sample*.

Finally, answer the questions at the end of this activity.

Of special value in these activities are the following pages of the New York State *Earth Science Reference Tables*: "Rock Cycle" and "Scheme for Igneous Rock Identification" (p. 6); "Scheme for Sedimentary Rock Identification" and "Scheme for Metamorphic Rock Identification" (p. 7); "Generalized Bedrock Geology Map" (p. 3), and "Generalized Landscape" map (p. 2).

You can find help on the Internet at many of the same sites listed in the "Minerals" lab.

Suggested Internet sites:

<http://mii.org>

<http://www.minerals.net/mineral/index.htm>

<http://www.usgs.gov>

<http://sterlinghill.org>

<http://mineral.galleries.com/minerals/>

IGNEOUS ROCKS

BASALT

GRANITE

GABBRO

OBSIDIAN

PUMICE

SEDIMENTARY ROCKS

CONGLOMERATE/BRECCIA

LIMESTONE

SANDSTONE

SHALE

ROCK SALT/HALITE

METAMORPHIC ROCKS

GNEISS

MARBLE

QUARTZITE

SCHIST

SLATE

COAL

Answer the following questions as completely as possible.

1. What are the major features that help you identify an igneous rock?
2. What are the major features that help you identify a sedimentary rock?
3. What are the major features that help you identify a metamorphic rock?
4. Make a drawing of the "Rock Cycle" and explain it.
5. What are the three most common kinds of bedrock found in White Plains?
6. What are some other rock types that might be collected in White Plains. How did they get here?
7. Which major rock type covers most of the land surface?
8. What kinds of bedrocks are found in the Adirondack region of New York State? in the Catskills region? in the western part of the state?
9. Where are igneous rocks found in New York State? What event produced these?
10. In which types of rocks are caves usually formed? Why?