

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Block: \_\_\_\_\_

### Classifying Rocks Mini-Lab

**Task 1:** There are six samples at your lab table. As a group, identify which is/are rock(s) and which is/are mineral(s). Circle the appropriate answer for each sample and explain why.

# \_\_\_\_\_ : rock mineral Why? \_\_\_\_\_

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# \_\_\_\_\_ : rock mineral Why? \_\_\_\_\_

# \_\_\_\_\_ : rock mineral Why? \_\_\_\_\_

**Task 2:** After you've identified which samples are rocks, use the information sheet at your station to classify the rocks into major groups. Give evidence of your decision. For the sample that is a mineral, write "mineral" on the line.

# \_\_\_\_\_ : igneous metamorphic sedimentary  
Why? \_\_\_\_\_

# \_\_\_\_\_ : igneous metamorphic sedimentary  
Why? \_\_\_\_\_

# \_\_\_\_\_ : igneous metamorphic sedimentary  
Why? \_\_\_\_\_

# \_\_\_\_\_ : igneous metamorphic sedimentary  
Why? \_\_\_\_\_

# \_\_\_\_\_ : igneous metamorphic sedimentary  
Why? \_\_\_\_\_

# \_\_\_\_\_ : igneous metamorphic sedimentary  
Why? \_\_\_\_\_

**Task 3:** Use the information sheet at your station to identify each of the rocks by name. For the sample that is a mineral, write "mineral" on the line.

# \_\_\_\_\_ : Rock name \_\_\_\_\_

# \_\_\_\_\_ : Rock name \_\_\_\_\_

# \_\_\_\_\_ : Rock name \_\_\_\_\_

# \_\_\_\_\_ : Rock name \_\_\_\_\_

# \_\_\_\_\_ : Rock name \_\_\_\_\_

# \_\_\_\_\_ : Rock name \_\_\_\_\_

# 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 but 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 often contain grains that can be seen with the unaided 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 are not in bands.

Magnified section

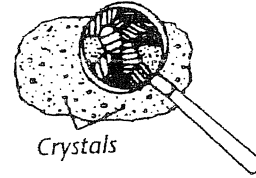


Figure 1

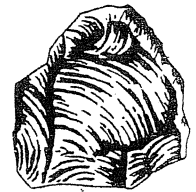


Figure 2

## Characteristics of Sedimentary Rocks

- ◆ Clastic sedimentary rocks are made up of fragments of other rocks and 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.

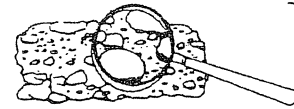


Figure 3

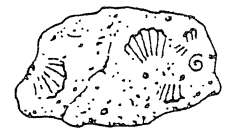


Figure 4

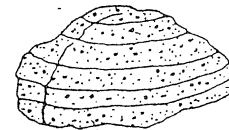


Figure 5

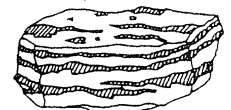


Figure 6

## Characteristics of Metamorphic Rocks

- ◆ Metamorphic rocks often look like igneous rocks except that they are foliated, showing bands 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.

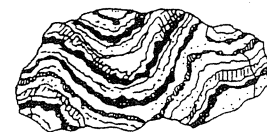


Figure 7

## Common Rocks

### Metamorphic:

Gneiss- visible grains arranged in parallel bands of alternating color, often black/gray and white; formed when granite is subjected to heat and pressure, flattening the mineral crystals into bands.

Slate- fine grains that are not visible to the unaided eye, grains are arranged in thin foliated layers causing rock to split easily into layers; formed when shale is subjected to heat and pressure causing new minerals like mica to form in the rock.

### Sedimentary:

Conglomerate- larger sediment particles like sand and rounded pebbles cemented together; formed when rounded rock fragments are compacted and cemented together.

Breccia- jagged rock fragments of various sizes cemented together; formed when sharp, jagged rock fragments are compacted and cemented together.

Fossil limestone- shell imprints or other fossil remains cemented together with the mineral calcite; formed when skeletons and shells of organisms that once lived in the sea become fossilized.

### Igneous:

Pumice- visible coarse grains along with pores or tunnels made by escaping gases during the cooling process; formed when magma escaped to Earth's surface and quickly cooled.

Granite- large, coarse grains of different shapes, sizes, and colors; formed when magma cooled slowly underground.