Name **Date** **Class**

Identifying Metamorphic Rocks

Metamorphic rocks are those, which have been changed by heat, pressure, fluids, and chemical activity beneath Earth's surface. Each metamorphic rock can be identified and classified by its composition and texture. Foliated metamorphic rocks have a sheet like or layering orientation of their minerals. Nonfoliated metamorphic rocks are composed of mineral grains that don't form layers. In this activity, you will examine and identify samples of both types of metamorphic rocks.

Strategy

You will describe the physical properties of various metamorphic rocks.
You will use a key to identify metamorphic rock samples.
You will group rocks into foliated and nonfoliated samples.

Materials

Numbered rock samples: gneiss, hornfels, marble, phyllite, quartzite, schist, slate, and soapstone
magnifying lens
colored pencils

Procedure

1. Arrange your rock samples in numerical order. Begin by examining rock sample 1. In the table in the Data and Observations section, ***make a sketch of the rock sample. Use colored pencils to make your sketch as realistic as possible.***
2. Next observe the rock's physical properties, such as the color and the size and arrangement of crystals. Write a description of the rock in the data table.
3. Use the identification key in Figure 1 to identify the name of the rock sample. Write the name in the data table.
4. Based on your observations and what you know about metamorphic rocks, classify the rock sample as foliated or nonfoliated. Record your classification in the data table.
5. Repeat steps 1 through 4 with rock samples 2 through 8.

Figure 1

Rock	Description
Gneiss	Alternating bands of light and dark minerals; bands may or may not be bent; often visible crystals; may contain thin, dark streaks
Hornfels	Usually dark in color, but may be pink, brown, violet, or green; fine-grained, dense, hard rock
Marble	Can be white, brown, red, green, or yellow; can be scratched with a nail; texture can be smooth or sugary; large interlocking cystals
Phyllite	Fine-grained rock; has a frosted sheen resembling frosted eye shadow
Quartzite	Made of interlocking quartz crystals; pure quartzite is white, but other minerals may color it gray or even black; scratches glass
Schist	Medium-grained rock; may have long, stretched crystals; may shimmer or look flaky
Slate	Usually gray or black; very fine-grained rock; individual grains difficult to see with hand lens; has obvious layers
Soapstone	Soft, easily carved rock; slippery feel; color varies from very pale to dark green

Data and Observations

Sample Number	Drawing	Description	Rock Name	Foliated or Nonfoliated
1				
2				
3				
4				
5				
6				
7				
8				

Questions and Conclusions

1. Which rock samples were the most difficult to identify?

2. Suggest why two samples of the same type of metamorphic rock might look different from each other.

Conclusion:

In 2-3 Sentences, what did you learn about metamorphic rocks?