

Classifying Metamorphic Rocks

Problem

What are the characteristics of metamorphic rocks?

Materials

- Six metamorphic rocks: slate, phyllite, schist, gneiss, quartzite, and marble
- Magnifying glass

Procedure

- Texture: Examine each rock sample. Determine the texture of the mineral crystals. The crystals can be fine, fine-to-medium and medium-to-coarse. List the grain size in the Data Table.
- Using the reference tables, fill in the rest of the chart below.

Conclusions

- Use information provided by the teacher and page 7 of your ESRTs, list the identities of the rock samples.
- Once you have identified the rock samples, list the minerals present in each sample.

Data Table

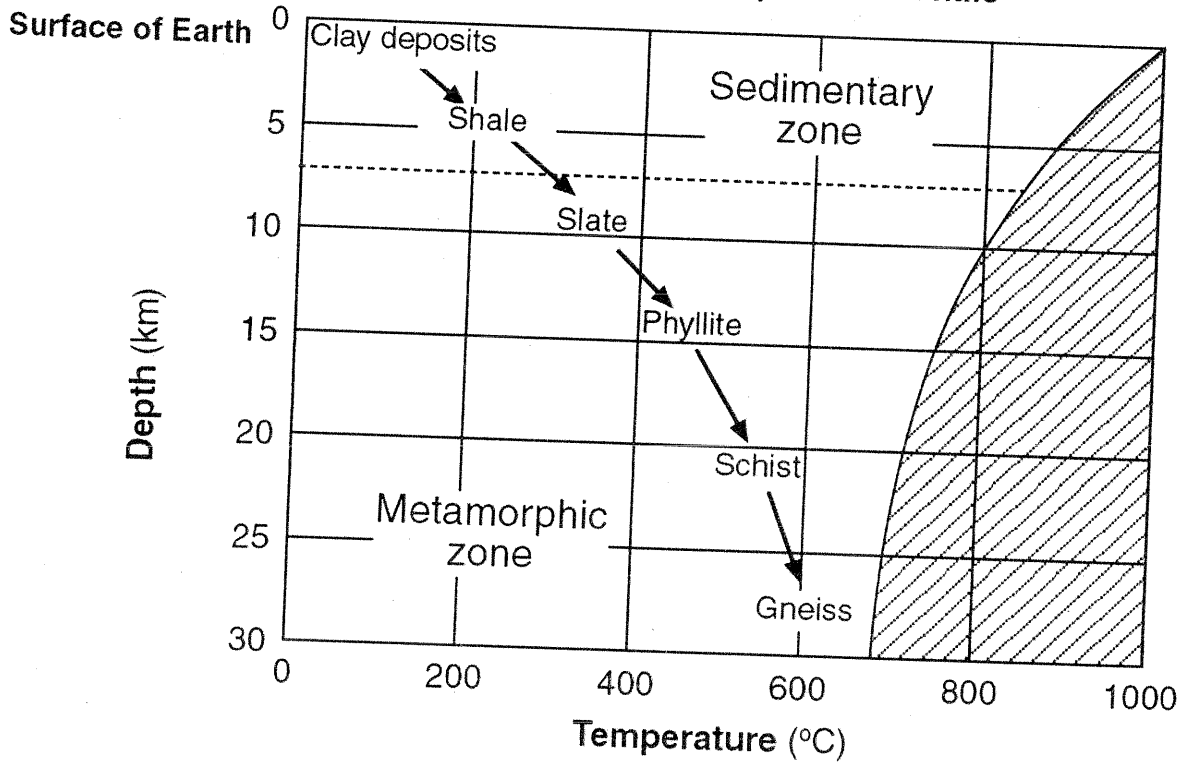
Rock #	Rock Name	Grain Size	Foliated or Nonfoliated	Banding? (y/n)	Type of Metamorphism	Minerals Present
1						
2						
3						
4						
5						
6						



Name: _____ Date: _____ Period: _____

Critical Thinking and Application

1. What two conditions are necessary for the formation of a metamorphic rock?
2. What is the difference between regional and contact metamorphism?
3. Which metamorphic rock forms from sandstone? _____
from limestone? _____
from bituminous coal? _____
4. Which is the rock formed only from contact metamorphism?
5. From where does metaconglomerate get its name?
6. Using the top portion of the Scheme for Metamorphic Rock Identification, list the steps involved in slate turning into gneiss (name the rocks in order).
7. List the four rocks that may occur with contact metamorphism.
 - a. _____
 - b. _____
 - c. _____
 - d. _____Why are they nonfoliated?
8. List the minerals in slate.
9. List the minerals in gneiss.

Inferred Metamorphism of Shale



Key	
	At these temperatures rock melts
	Boundary between sedimentary zone and metamorphic zone

1. At what depth will Shale become Slate? _____
2. At what temperature will Schist form? _____
3. At what depth and temperature will Gneiss form? _____
4. What will happen to Gneiss if it's temperature reaches 900 degrees? _____
5. Will Gneiss still be Metamorphic? _____ If not, what type of rock? _____
6. How are Metamorphic rocks classified? _____
7. What are the two types of textures of Metamorphic Rocks? _____
8. What does Foliation mean? _____
9. What 2 processes make a Metamorphic Rock? _____

