Chapter 10 Review

Key Terms

- batholith (180)
- breccia (182)
- cementation (182)
- chemical sedimentary rock (182)
- clastic sedimentary rock (182)
- compaction (182)
- concretion (186)
- conglomerate (182)
- contact metamorphism (187)
- dike (181)
- evaporites (183)
- extrusive igneous rocks (178)
- foliated (187)
- fossil (186)
- igneous rock (175)
- intrusive igneous rocks (178)
- laccolith (181)
- lava plateau (181)
- metamorphic rock (176)
- metamorphism (187)
- organic sedimentary rock (182)
- porphyry (178)
- regional metamorphism (187)
- rock cycle (176)
- sediment (175)
- sedimentary rock (175)
- sill (181)
- stock (181)
- stratification (185)
- unfoliated (187)
- volcanic neck (181)

Key Concepts

Rocks are classified into three major types based on how they form. These types are igneous rock, sedimentary rock, and metamorphic rock. **See pages 175–176.**

In the rock cycle, rocks change from one type into another. **See page 176.**

The rate at which magma and lava cools determines the crystal size of igneous rock. **See page 178.**

Igneous rocks are classified into three families based on their mineral composition. These families are granite, basalt, and diorite. **See page 179.**

Igneous rock structures take two basic forms. They are intrusions and extrusions. **See pages 180–181.**

Sedimentary rock forms in one of three ways. It may form from rock fragments, from minerals once dissolved in water, or from the remains of organisms. **See page 182.**

Sedimentary rocks have a number of identifiable features, including stratification, ripple marks, mud cracks, fossils, and concretions. **See page 184.**

Metamorphic rock is formed by heat and pressure caused by hot magma or tectonic plate movement. See **page 187.**

Metamorphic rocks can have a foliated or unfoliated structure. **See page 187.**

Review

On your own paper, write the letter of the term that best completes each of the following statements.

1. Rock that is formed from magma is called
   a. igneous.
   b. metamorphic.
   c. sedimentary.
   d. clastic.
2. The process in which rock changes from one type to another and back again is called
   a. a rock family.
   b. the rock cycle.
   c. contact metamorphism.
   d. foliation.
3. Intrusive igneous rocks are characterized by a coarse-grained texture because they contain
   a. heavy elements.
   b. small crystals.
   c. large crystals.
   d. fragments of different sizes and shapes.
4. Light-colored igneous rocks are part of the family called
   a. basalt.
   b. hornblende.
   c. granite.
   d. diorite.

5. Magma that solidifies underground forms rock masses that are known as
   a. extrusions. b. volcanic cones.
   c. lava plateaus. d. intrusions.
6. One example of an extrusion is a
   a. stock. b. dike.
   c. batholith. d. lava plateau.
7. Sedimentary rock formed from rock fragments is called
   a. organic. b. chemical.
   c. clastic. d. granite.
8. One example of a chemical sedimentary rock is
   a. evaporites. b. coal.
   c. gneiss. d. breccia.
9. Contact metamorphism is a result of
   a. plate movement. b. hot magma.
   c. sedimentation. d. lava flows.
10. Regional metamorphism is a result of
   a. plate movement. b. hot magma.
   c. cementation. d. compaction.
11. The splitting of slate into flat layers illustrates its
   a. contact metamorphism. b. formation.
   c. sedimentation. d. foliation.

Critical Thinking

On your own paper, write answers to the following questions.

1. What type of rock will be formed from a sedimentary rock that comes under extreme pressure and heat but does not melt? Explain your answer.
2. Explain how metamorphic rock can change into either of the other two types of rocks through the rock cycle.
3. A certain rock is made up mostly of plagioclase feldspar and augite. It also includes olivine, biotite, and hornblende. Will the rock have a light or dark coloring? Explain your answer.
4. Some of the powdery rock found on the moon serves as the cementing agent for sedimentary moon rocks. What type of sedimentary rocks are these? How do you know?
5. Imagine that you have found a piece of limestone, a sedimentary rock, with strange-shaped lumps on it. Will the lumps have the same composition as the limestone? Explain your answer.
6. Which would be easier to break, the foliated rock slate or the unfoliated rock quartzite? Explain your answer.

Application

1. Suppose you found an igneous rock with a coarse texture. Would the magma that formed the rock have cooled slowly or quickly? Explain how you know.
2. There is a huge batholith in the northwestern part of Idaho. What can you say about the landscape in that area? Explain your answer.
3. If you know that a certain area in South Dakota has a number of laccoliths, what might you expect the landscape to look like?
4. The western part of California is located on a boundary between two tectonic plates. Would most of the metamorphic rock in that area occur in small patches or wide regions? How do you know?

Extension

1. Imagine that you have decided to start a rock collection. List the first 10 kinds of rocks you would like to acquire. Use the encyclopedia entry "Rocks" for help. Include on your list a method for classifying the rocks in your collection. Explain your system of classification to the class.
2. Find out what types of rock are most abundant in your state. Draw a chart of the rock cycle, and indicate where on the chart the rocks fall. Present your findings to the class.