Chapter 5 Review

Key Terms

- anticline (85)
- compression (84)
- deformation (83)
- dome mountain (93)
- fault (86)
- fault plane (86)
- fault-block mountain (92)
- folded mountain (90)
- folding (85)
- footwall (86)
- fracture (86)
- graben (92)
- hanging wall (86)
- isostasy (83)
- isostatic adjustment (83)
- monocline (85)
- mountain belt (88)
- mountain range (88)
- mountain system (88)
- normal fault (86)
- plateau (91)
- reverse fault (86)
- shearing (84)
- strain (84)
- stress (84)
- strike-slip fault (87)
- syncline (85)
- tension (84)
- thrust fault (86)
- volcanic mountain (92)

Key Concepts

The movements of lithospheric plates and isostatic adjustments are sources of stress that cause deformation in crustal rock. **See page 83.**

Stress can squeeze rocks together, pull them apart, and bend and twist them. **See page 84.**

Rock responds to stress by bending into folds and by fracturing or faulting. **See page 85.**

Four major types of faults occur in rock: normal faults, reverse faults, thrust faults, and strike-slip faults. **See page 86.**

Mountain building is often the result of the collision of lithospheric plates. **See page 88.**

Mountains are classified according to the way in which the crust was deformed and shaped by mountain-building forces. **See page 90.**

Review

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

1. The state of balance between the thickness of the crust and the depth at which it rides on the asthenosphere is called
   a. stress. b. isostasy.
   c. strain. d. shearing.
2. The increasing weight of mountains causes the crust to
   a. sink. b. fold.
   c. rise. d. fracture.
3. The force that changes the shape and volume of rocks is
   a. footwall. b. isostasy.
   c. rising. d. stress.
4. The type of stress that squeezes rock together is
   a. compression. b. tension.
   c. shearing. d. faulting.
5. The type of stress that pulls rocks apart, making them thinner, is
   a. folding. b. compression.
   c. tension. d. isostasy.
6. Shearing
   a. bends, twists, or breaks rocks.
   b. squeezes rock together.
   c. causes rock to melt.
   d. pulls rock apart.
7. High pressure and high temperature will cause rocks to
   a. fracture. b. adjust. c. plateau. d. deform.

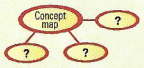
8. Upcurved folds in rock are called
   a. anticlines. b. monoclines.
   c. geosynclines. d. synclines.
9. Downcurved folds in rock are called
   a. geosynclines. b. monoclines.
   c. anticlines. d. synclines.
10. Gently dipping bends in rock formations with horizontal layers are called
    a. monoclines. b. geosynclines.
    c. synclines. d. anticlines.
11. When no movement occurs along the sides of a break in a rock structure, the break is called a
    a. normal fault. b. fracture.
    c. fold. d. hanging wall.
12. The rock above the fault plane makes up the
    a. tension. b. footwall.
    c. hanging wall. d. compression.
13. A nearly vertical fault in which the rock on either side of the fault plane moves horizontally is called a
    a. normal fault. b. reverse fault.
    c. strike-slip fault. d. thrust fault.
14. The largest mountain systems are part of still larger systems called
    a. continental margins. b. ranges.
    c. belts. d. synclines.
15. Mount St. Helens in Washington State is an example of a
    a. folded mountain. b. volcanic mountain.
    c. fault-block mountain. d. dome mountain.

Critical Thinking

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

1. Suppose glaciers, which are vast fields of slow-moving ice, were to cover much of the earth's surface once again. What would you expect to happen to those parts of the continents that were covered by ice? Explain.
2. When the Indian plate collided with the Eurasian plate, producing the Himalaya Mountains, which type of stress most likely occurred? Which type of stress is most likely occurring along the Mid-Atlantic Ridge? Which type of stress would you expect to find along the San Andreas fault? Use your knowledge of stress and plate tectonics to explain your answers.
3. If the force that is causing a rock to be slightly deformed begins to ease, what might happen to the rock? What would happen if the force causing the deformation became greater?
4. Why do you suppose dome mountains do not become volcanic mountains?

Application

1. Suppose that a new highway is being planned. This proposed road would intersect a transform fault boundary. What would happen to the highway if a strike-slip fault occurred along the boundary? Why?
2. A geologist discovers that part of a mountain range along the west coast of the United States contains the fossil remains of animals that do not match any other fossils from North America. What is the most likely explanation for this phenomenon?
3. 

Construct a **concept map** that illustrates the relationship between crustal deformation and types of mountains.

Extension

1. Using modeling clay to represent crustal rock, create examples of rock that have been subjected to the forces of compression, tension, and shearing.
2. Look for examples of folding and faulting in the area where you live. Take photographs of the examples you find. Use your photos, or drawings if you prefer, to create a poster explaining folding and faulting.
3. Do some research about different types of mountains in the United States. On an outline map of the United States, locate the folded, dome, volcanic, and fault-block mountains in this country.