Part A. Vocabulary Review

Directions: Write the correct term in the spaces after each definition. Unscramble the boxed letters to answer question 17.

1. wave that passes through Earth ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
2. small, steep volcano with a cone made of tephra ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
3. vibrations that occur when rocks break due to stress ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
4. seismic sea wave ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
5. magma that has reached the surface of Earth ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
6. number based on seismic wave amplitude ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
7. underground center of an earthquake ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
8. structures that can withstand earthquakes ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
9. bits of rock or solidified lava dropped from the air ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
10. instrument used to record earthquakes ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
11. cone-shaped mountains that spew out lava or gas ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
12. break in Earth’s rocks caused by stress ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
13. long crack where plates diverge ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
14. large rising bodies of magma not at plate boundaries ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
15. point on Earth’s surface directly above the focus ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
16. volcano formed by gentle eruptions of fluid lava ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
17. The name of a type of volcano: _________________________________________________
Chapter Review (continued)

Part B. Concept Review

Directions: Circle the term in parentheses that makes the statement correct.

1. The warm, partly melted layer that carries the tectonic plates is the (asthenosphere, lithosphere, rift zone).
2. Molten rock inside Earth is (lava, magma, tephra).
3. Subduction takes place at a (convergent, divergent, transform) plate boundary.
4. The Richter scale measures (intensity, duration, magnitude).
5. A broad, shallow volcano with lava sides is a (shield, composite, cinder cone) volcano.
6. Tectonic plates are moved around by (seismic waves, nuclear reactions, convection currents).
7. (Primary, Secondary, Surface) waves are the slowest and largest of the seismic waves and cause most of the destruction during an earthquake.
8. Most earthquakes and volcanic eruptions occur (at the center of the plates, near the equator, at plate boundaries).

Directions: Answer the following question on the lines provided.

9. Name the three kinds of faults and describe each of them.

Directions: Use the following table to answer questions 10 and 11.

<table>
<thead>
<tr>
<th></th>
<th>Distance from earthquake to town</th>
<th>Time needed for S-waves to reach town</th>
<th>Time needed for P-waves to reach town</th>
<th>Difference in time between the S- and P-waves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town X</td>
<td>120 km</td>
<td>30 s</td>
<td>20 s</td>
<td>10 s</td>
</tr>
<tr>
<td>Town Y</td>
<td>960 km</td>
<td>240 s</td>
<td>160 s</td>
<td>80 s</td>
</tr>
</tbody>
</table>

10. Why was the difference in time between the arrival of the P- and S-waves so much greater in Town Y than in Town X?

11. Which town probably suffered the greatest earthquake damage? Why?
Earthquakes and Volcanoes

I. Testing Concepts

Directions: Fill in the blanks using the terms below. Some terms will not be used.

1. ______________________________ are cone-shaped mountains that eject lava and other materials.
2. A ______________________________ is the surface of a break in a section of rocks.
3. Another name for earthquake waves is ________________________________.
4. The place inside Earth where the energy in an earthquake is centered is the _________________.
5. The instrument used to record earthquake activity is a _______________________________.
6. The ______________________________ of an earthquake is the point on the surface of Earth directly above the focus.
7. The ______________________________ of an earthquake is based on the amplitude of the seismic waves.
8. An undersea earthquake may produce a ________________________________.
9. Buildings constructed to withstand most earthquakes are said to be ________________________________.
10. ______________________________ is magma that has flowed onto Earth’s surface.
11. The ______________________________ is divided into about 13 major plates.
12. ______________________________ are long cracks produced at divergent plate boundaries.
13. The ______________________________ scale measures the magnitude of an earthquake.
14. The seismic waves that do the most damage to structures and property during an earthquake are ________________________________.
15. An avalanche of glowing rocks flowing on a cushion of hot gases is called a(n) ________________________________.
II. Understanding Concepts

Skill: Interpreting/Labeling Scientific Illustrations

Directions: For each diagram below, draw arrows to show the direction of tectonic plate movement for that type of boundary.

1. Convergent boundary
2. Divergent boundary
3. Transform boundary

Skill: Creating Tables and Charts

Directions: Create the following table about the forms of volcanoes using the terms Cinder cone, Shield, and Composite as row headings and the terms Shape, Type of eruptions, and Type(s) of materials produced as column headings. Then, complete your table using information covered in this chapter.

<table>
<thead>
<tr>
<th>Cinder cone</th>
<th>Shape</th>
<th>Type of eruptions</th>
<th>Type(s) of materials produced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shield</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composite</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter Test (continued)

Skill: Sequencing

Directions: Arrange the following statements about the convection current in the mantle in the correct order, placing the letters A through D in the correct blanks. Letter A is already in place.

19. ______ The hotter, rising mantle material is deflected sideways by the crust and cools.
     ______ Hot, less dense material in the mantle is forced toward the surface.
     ______ Material deep in the mantle is heated by Earth’s core.
     ______ The cooler, more dense material sinks down toward Earth’s core.

III. Applying Concepts

Directions: Answer the following questions on the lines provided.

1. How are tectonic plates related to earthquakes and volcanoes?

2. P-waves can pass through almost all materials, but S-waves cannot pass through liquid. Scientists have noted that when measuring seismic waves from earthquakes on the other side of the planet, only P-waves are recorded in some areas. What could you infer about the center of Earth from these observations?

3. How is stretching a rubber band until it breaks like Earth’s crust during an earthquake?

4. In an aerial view of California, you can trace the San Andreas fault all along the coast of California. What kind of fault is the San Andreas fault?

5. The Hawaiian Islands are formed from a series of volcanoes. The next Hawaiian island, Loihi, is already 3,000 meters above the ocean floor, although it is still nearly 1,000 meters below the surface of the ocean. What tectonic plate feature is forming the new island of Loihi?
Chapter Test (continued)

Directions: Write the letter of the correct category for each item in the space provided.

E—related to earthquakes       V—related to volcanoes       B—related to both earthquakes and volcanoes

6. ash and mudslides
7. seismic safe construction techniques
8. hot spots
9. magnitude
10. elastic rebound
11. rift
12. tsunami
13. tephra
14. tectonic plates

IV. Writing Skills

Directions: Answer the following questions using complete sentences.

1. Describe tectonic plates using the terms crust, upper mantle, lithosphere, asthenosphere, and motion.

2. Name two precautions you should take before an earthquake. Name two precautions you should take after an earthquake.

3. List three ways volcanoes can be damaging to humans and the environment.