Earthquakes

Directions: Complete this table by writing each sentence under the correct heading.

- Surface waves travel more slowly than other waves.
- Risk assessments help engineers design safer buildings.
- Blocks of rock move horizontally past each other.
- Movement occurs along faults.
- Seismic waves travel on and in Earth.
- Primary waves (P-waves) cause particles in the ground to move in a push-pull motion.
- Most damage occurs at the epicenter of an earthquake.
- Secondary waves (S-waves) are slower than P-waves.
- Rocks break and form new faults.
- Ground motion can be described by the Richter magnitude scale.
- There are about ten earthquakes per year with a magnitude greater than 7.0.
- Earthquakes can threaten people’s lives and property.
- One block of rock is uplifted relative to the other.
- Rock deformation causes rock to break and move along a fault.

<table>
<thead>
<tr>
<th>Cause and Location of Earthquakes</th>
<th>Properties of Earthquakes Used in Monitoring</th>
<th>Earthquake Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>6.</td>
<td>11.</td>
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<td>2.</td>
<td>7.</td>
<td>12.</td>
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<td>3.</td>
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<td>5.</td>
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</tbody>
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Earthquakes and Volcanoes 13
Key Concept Builder  

LESSON 1

Earthquakes

Key Concept  What is an earthquake?

Directions: Identify each type of fault by writing normal, reverse, or strike-slip in the space provided.

<table>
<thead>
<tr>
<th>Types of Faults</th>
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<tbody>
<tr>
<td>1.</td>
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<td>2.</td>
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<td>3.</td>
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Directions: On the line before each statement, write T if the statement is true or F if the statement is false. If the statement is false, change the underlined word(s) to make it true. Write your changes on the lines provided.

4. Earthquakes result when forces push tectonic plates along faults in Earth’s lithosphere.

5. The buildup and release of stress along inactive plate boundaries result in earthquakes.

6. The most disastrous earthquakes occur along divergent plate boundaries.

7. The movement of rocks in any direction along a fault results in an earthquake.

8. A normal fault forms where forces cause rocks to slide horizontally.

9. Reverse faults form when forces pull rocks apart along a divergent plate boundary.

10. A strike-slip fault occurs where two blocks of rock are pushed together causing one to move upward.

11. The deepest earthquakes occur along convergent plate boundaries.
**Earthquakes**

**Key Concept** Where do earthquakes occur?

![Map of Earthquakes]

**Directions:** Refer to the map to help you circle the term in parentheses that correctly completes each sentence.

Earthquakes occur in many places throughout the world. Though most earthquakes are (1.) (shallow/deep), some earthquakes occur (2.) (on the surface of/deep inside) Earth. Deep earthquakes occur along convergent boundaries where Earth’s (3.) (tectonic plates/surface layers) collide. These earthquakes occur at depths (4.) (greater/less) than 100 km. When this happens, the denser oceanic plate sinks into the (5.) (mantle/core). These deep earthquakes are typically (6.) (less/more) destructive than earthquakes that occur along (7.) (divergent/convergent) plate boundaries because of the amount of (8.) (lava/energy) released when the plates collide. Earthquakes that occur along divergent plate boundaries are considered to be (9.) (shallow/deep) earthquakes. Here the Earth’s tectonic plates (10.) (push together/pull apart). An example of a divergent plate boundary is the (11.) (mid-ocean/continental) ridge system.

The collision of Earth’s tectonic plates can form large (12.) (coral reef/mountain) ranges, such as the Himalayas in Asia. Most earthquakes, however, do not occur in the middle of continents. Instead, they occur in (13.) (oceans/rivers) and along the (14.) (edges/forests) of continents. These areas have active plate boundaries where earthquakes result from the buildup and release of (15.) (vibrations/stress) as rock pushes against rock.
Earthquakes

Multiple Choice

Directions: On the line before each question or statement, write the letter of the correct answer.

1. Which seismic waves generally cause the most earthquake damage?
   A. surface
   B. primary
   C. secondary

2. In triangulation, scientists locate earthquakes using data from ______ seismometers.
   A. two
   B. only one
   C. at least three

3. The location directly above an earthquake’s focus is its
   A. fault.
   B. plate.
   C. epicenter.

4. A fault where two blocks of rock slide past each other is a
   A. reverse fault.
   B. normal fault.
   C. strike-slip fault.

Matching

Directions: On the line before each definition, write the letter of the term that matches it correctly. Each term is used only once.

5. the point where an earthquake begins
   A. earthquake risk
   B. focus
   C. Mercalli scale
   D. P-waves
   E. Richter scale
   F. S-waves

6. cause particles to move at right angles relative to the direction the wave travels

7. a measure of earthquake magnitude

8. a measure of damage done by an earthquake

9. based partly on the earthquake history of an area

10. first waves felt in an earthquake