Earthquakes

Multiple Choice

Write the letter of the correct answer on the line.

___ 1. A force that acts on rock to change its shape or volume is called
   a. stress.
   b. folding.
   c. faulting.
   d. liquefaction.

___ 2. Which type of seismic wave arrives first at a seismograph?
   a. surface waves
   b. tsunamis
   c. S waves
   d. P waves

___ 3. Anticlines and synclines are two types of
   a. seismic waves.
   b. folds.
   c. faults.
   d. aftershocks.

___ 4. The point beneath Earth’s surface where the crust breaks and triggers an earthquake is called the
   a. epicenter.
   b. fault.
   c. focus.
   d. magnitude.

___ 5. Which stress force pulls on the crust and stretches rock?
   a. shearing
   b. tension
   c. liquefaction
   d. compression

___ 6. A break in the crust where slabs slip past each other is a(n)
   a. fold.
   b. epicenter.
   c. hanging wall.
   d. fault.

___ 7. An instrument used to measure and record ground movements during an earthquake is called a(n)
   a. seismograph.
   b. laser-ranging device.
   c. creep meter.
   d. moment magnitude scale.

___ 8. What process occurs when an earthquake’s shaking turns loose soil into mud?
   a. deformation
   b. shearing
   c. liquefaction
   d. base-isolation

___ 9. What type of fault forms when the hanging wall moves upward past the footwall?
   a. normal fault
   b. fault-block mountain
   c. strike-slip fault
   d. reverse fault

___ 10. The type of stress force that produces a strike-slip fault is
    a. compression.
    b. shearing.
    c. tension.
    d. liquefaction.
Earthquakes · Chapter Test

Completion

Fill in the line to complete each statement.

11. Compression, tension, and shearing are three types of ________________ that cause changes in the crust.

12. A large area of flat land that is elevated high above sea level is known as a(n) ________________.

13. The ________________ is a rating system that estimates the total energy released by an earthquake.

14. The point on Earth’s surface directly above an earthquake’s focus is called the ________________.

15. Water displaced by an undersea earthquake may produce ________________.

True or False

If the statement is true, write true on the line. If it is false, change the underlined word or words to make the statement true.

16. A base-isolated building design increases the amount of energy that reaches the building during an earthquake.

17. The type of stress that pushes masses of rock sideways in opposite directions is tension.

18. S waves arrive at a seismograph after P waves.

19. By drawing circles to show distances from three seismograph stations, geologists can locate the magnitude of an earthquake.

20. Folding of the crust produces anticlines and synclines.

Essay

Write an answer for each of the following on a separate sheet of paper.

21. Name the three stress forces that cause changes in Earth’s crust. Explain how each type of force affects rock. Identify the type of fault that each force produces.

22. Describe what people can do to protect themselves if they are indoors when an earthquake strikes.
Using Science Skills: Applying Concepts

Use the table and graph to answer the questions below.

<table>
<thead>
<tr>
<th>Location of Seismograph</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>City</strong></td>
</tr>
<tr>
<td>Chicago, Illinois</td>
</tr>
<tr>
<td>Savannah, Georgia</td>
</tr>
<tr>
<td>Seattle, Washington</td>
</tr>
</tbody>
</table>

23. What is the difference between P and S wave arrival times in each city?
   - Chicago: _________
   - Savannah: _________
   - Seattle: _________

24. What is each city’s distance from the epicenter?
   - Chicago: _________
   - Savannah: _________
   - Seattle: _________

25. How could you use this information to locate the earthquake’s epicenter?
   ____________________________________________
   ____________________________________________
   ____________________________________________
Using Science Skills

Use this map, the graph on the previous page, and your answers from Question 24 to respond to the following items.

26. Measuring  Draw circles on the map to show the distance from Chicago, Savannah, and Seattle to the earthquake’s epicenter.

27. Interpreting Diagrams  Where was the earthquake’s epicenter located?

Essay

Write your responses to the following items on the back of this sheet.

28. Describe the differences between the Mercalli scale, the Richter scale, and the moment magnitude scale.

29. Name four instruments that geologists use to monitor movements along faults, and explain how each instrument works.

30. Why is it so difficult for geologists to predict earthquakes?