

Chapter 12 Answers

12.1 Section Review

1. Foreshock- small burst of shaking that occurs before a large earthquake; Earthquake - movement of Earth's crust resulting from the release of energy that generates seismic waves; Aftershock - small tremor/s that follow an earthquake.
2. The focus of an earthquake is the point below the surface where it originates. The epicenter is directly above the focus, on Earth's surface.
3. The three conditions for stick-slip motion are: (1) two objects that are touching each other where at least one of the objects can move, (2) a force, or forces, that will cause the movement, (3) friction strong enough to temporarily keep the moving from starting.
4. A lithospheric plate is like a line of moving grocery carts because even though the line of grocery carts move together in line, there are individual grocery carts that move independently of each other, in jolting motions. This is similar to a fault boundary of a lithospheric plate.
5. One earthquake can cause another earthquake because the release of energy by one earthquake can cause a ripple effect along a transform boundary.
6. Body waves travel through the interior of Earth, whereas surface waves travel along Earth's surface.
7. As a seismic wave moves from one material to another, it can increase or decrease in speed, be bent, or reflected.
8. To determine the location of an epicenter, the arrival times of P- and S-waves are measured at seismic stations.
9. At least three seismic stations are needed to find the epicenter of an earthquake.
10. Earthquakes are not the only source of seismic waves. Even intense soccer matches with large groups of fans watching can be the source of seismic waves.
11. A 3.0 magnitude earthquake is ten times stronger than a 2.0 magnitude earthquake on the Richter scale.
12. Answers are: (a) VI (b) 5
13. The west coast of South America is a boundary between two lithospheric plates. Earthquakes tend to occur at plate boundaries.
14. Because the Modified Mercalli scale is based on the damage suffered by buildings, the ground, and people, and because earthquake damage from the same earthquake can be different from place to place, a single earthquake will have different Mercalli scale ratings in different locations.