11. Sample answer: At tectonic plate boundaries, different types of plate motion all cause faulting.

SECTION: EARTHQUAKE MEASUREMENT

1. Sample answer: An epicenter is the point on Earth's surface above the focus. A focus is the point along a fault where an earthquake starts.
2. A seismograph is the instrument used to record seismic waves. A seismogram is the tracing of earthquake motion created by a seismograph.
3. Earthquakes are detected by seismographs located at or near the Earth's surface.
4. Seismologists collect seismograms of an earthquake from at least three seismograph stations and place them on a time-distance graph. The distance of each station from the epicenter can then be found. These distances are used to draw circles around seismograph stations. The radius of each circle is the distance of the seismograph from the earthquake's epicenter. The point of intersection of these circles is the earthquake's epicenter.
5. Because the effects of an earthquake can vary from place to place, an earthquake can have more than one intensity value. Higher intensity values are more likely to be seen near the epicenter of an earthquake.
6. An earthquake of magnitude 7.0 will produce 1,000 times ($10 \times 10 \times 10$) more ground motion than an earthquake of magnitude 4.0.
7. An earthquake of magnitude 6.0 is much more destructive than an earthquake of 5.0 because an earthquake of magnitude 6.0 produces 10 times more ground motion.
8. Answers may vary. Sample answer: Intensity is a more important measure of earthquakes because the damage caused by an earthquake is something people can see.
9. Sample answer: A moderate earthquake might produce high intensity values near the epicenter of the earthquake.

SECTION: EARTHQUAKES AND SOCIETY

1. Sample answer: According to the gap hypothesis, strong earthquakes are likely to occur along sections of active faults that have had relatively few earthquakes. A seismic gap is an area along an active fault where relatively few earthquakes have occurred.
2. C
3. The earthquake hazard level of a particular area is determined by the amount of past and present seismic activity that has occurred in the area.
4. Sample answer: According to the strength and frequency method, earthquake strength is related to how often earthquakes occur. The gap hypothesis predicts an earthquake's strength and location by finding out the parts of an active fault where no earthquakes have recently occurred.
5. Sample answer: A common way of making a home more earthquake resistant is to securely fasten it to its foundation.
6. Answers may vary. Sample answer: Flexible pipes that are able to twist and bend during earthquakes prevent water and gas lines from breaking. A base isolator made of rubber and steel wrapped around lead absorbs seismic waves. A mass damper placed in the roof of a building counteracts the movement of the building during an earthquake. Cross braces placed between floors in a building counteract pressure that pushes and pulls at the side of a building.
7. Answers may vary. Sample answer: nonperishable food, a flashlight, a portable radio, a fire extinguisher, and a first-aid kit
8. $140 \div 420{,}000 \times 100 = .03\%$
9. The hypothesis is not incorrect because there was only a 20% probability an earthquake would fill the seismic gap.
10. Aftershocks follow a large earthquake because the earthquake causes elastically deformed rock along other nearby faults to break.

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