Name _____ Date _____

DYNAMIC EARTH VOCABULARY

inner core	**outer core**	**mantle**	**crust**	**plates**
fault	**subduction**	**lithosphere**	**fault-block**	
folded	**upwarped**	**volcanic**	**isostasy**	

1. The _____ is broken into about 30 sections that move around on the asthenosphere.

2. Because the _____ stops one type of seismic wave and slows another, scientists believe it is a liquid.

3. The pushing forces of two plates moving together causes rocks to buckle, forming _____ mountains.

4. A denser plate sinking under a less dense plate is called _____.

5. As erosion removes material from the tops of mountains and the mass of the mountain decreases, the crust is forced upward because of _____.

6. The _____ is thinnest under the oceans and thickest through the continents.

7. A cone-shaped feature made of layers of lava is a(n) _____ mountain.

8. _____ move so slowly that they can take more than a year to travel a few centimeters.

9. The innermost layer of Earth's interior is the _____.

10. Forces inside Earth sometimes push crust upward, creating _____ mountains.

11. Pulling forces form _____ mountains such as the Teton Range in Wyoming.

12. Even though it is solid, the _____ flows slowly.

13. A large fracture in rock along which movement occurs is called a(n) _____.

_____ 1. sea-floor spreading

_____ 2. mid-ocean ridge

_____ 3. supercontinent

_____ 4. reversed polarity

_____ 5. continental drift

a. magnetic field that points south

b. hypothesis stating large landmass broke up into smaller landmasses to form the continents, which then drifted to their present locations

c. process by which new ocean lithosphere forms

d. single landmass once formed by the continents

_____ 1. asthenosphere

_____ 2. subduction zone

_____ 3. plate tectonics

_____ 4. lithosphere

_____ 5. convection cell

a. outer layer of Earth made up of the upper part of the mantle and the crust

b. cycle in which heated material rises and cooler material sinks

c. solid layer of plastic mantle rock that flows very slowly

d. theory that explains how large pieces of the lithosphere move

e. region along a plate boundary where one plate moves under another plate

_____ 1. Pangaea

_____ 2. terrane

_____ 3. Panthalassa

_____ 4. supercontinent cycle

_____ 5. rifting

a. process by which supercontinents form and break apart over time

b. piece of lithosphere with magnetic properties different from those of its surroundings

c. supercontinent formed about 300 million years ago

d. process by which a continent breaks apart

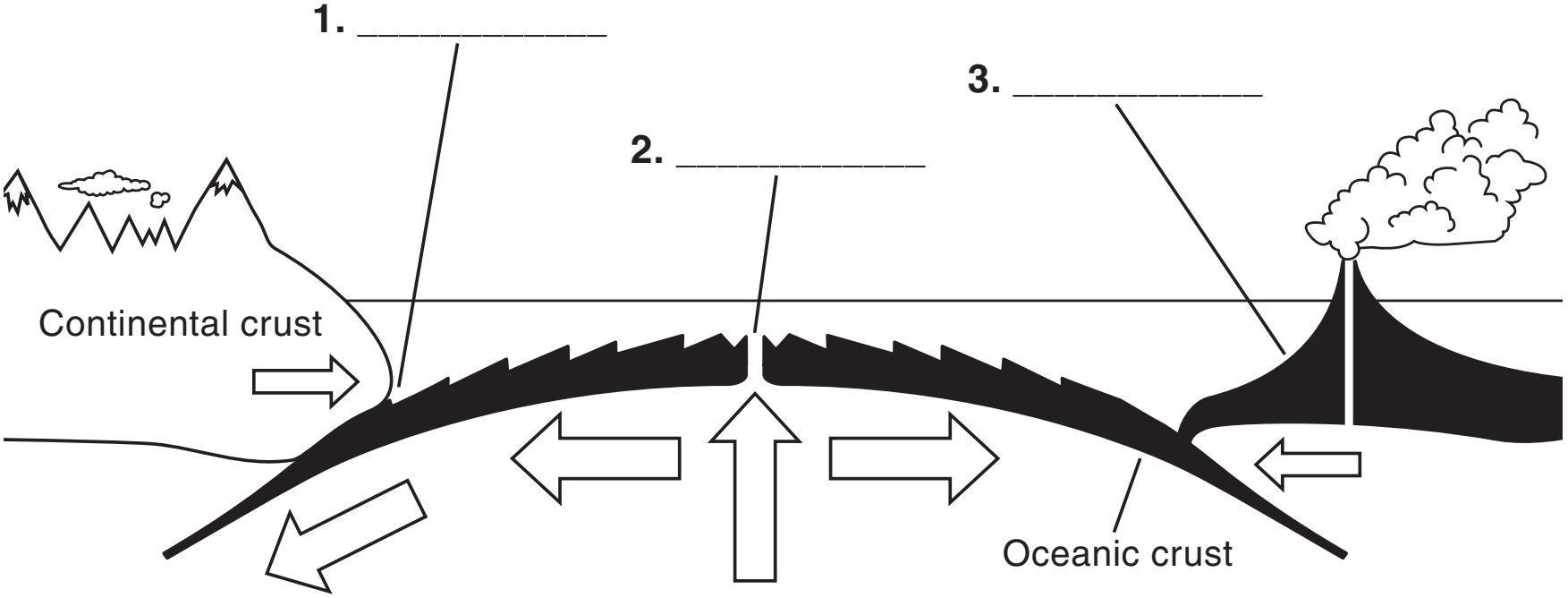
e. single large ocean covering Earth 300 million years ago

Directions: *Study the following diagram. Then label each part with the letter of the correct description below.*

A. A mid-ocean ridge forms whenever diverging plates continue to separate, creating a new ocean basin. As the rising magma cools, it forms new ocean crust.

B. When an oceanic plate converges with a less dense continental plate, the denser oceanic plate sinks under the continental plate.

C. When two oceanic plates converge, the denser plate is forced beneath the other plate and volcanic islands form above the sinking plate.



_____ 1. Pangaea

_____ 2. lithosphere

_____ 3. rift valley

_____ 4. sea-floor spreading

_____ 5. paleomagnetism

_____ 6. terrane

_____ 7. mid-ocean ridge

_____ 8. subduction zone

_____ 9. continental drift

_____ 10. convection cell

a. region along a plate boundary where one plate moves under another

b. piece of lithosphere with a unique geologic history

c. crack in the center of a mid-ocean ridge

d. supercontinent formed about 300 million years ago

e. residual magnetism of rock

f. process by which new sea floor forms

g. layer that forms the thin outer shell of Earth

h. cycle in which heated material rises and cooler material sinks

i. undersea mountain range

j. hypothesis that the continents once formed a single landmass

_____ 1. paleomagnetism

_____ 2. transform boundary

_____ 3. asthenosphere

_____ 4. continental drift

_____ 5. terrane

_____ 6. sea-floor spreading

_____ 7. rifting

_____ 8. convergent boundary

_____ 9. lithosphere

_____ 10. divergent boundary

a. the thin outer shell of Earth that is broken into several blocks

b. boundary that forms where two plates collide

c. process by which new sea floor forms as magma rises through a rift

d. hypothesis that the continents moved to their present positions

e. study of the alignment of magnetic minerals in rock

f. boundary where two plates slide past one another horizontally

g. layer of plastic rock just below the lithosphere

h. forming of cracks in weakened continental or oceanic crust

i. boundary at which two plates move away from each other

j. piece of lithosphere with a unique geologic history

_____ 1. compression

_____ 2. fault

_____ 3. shear stress

_____ 4. tension

_____ 5. fold

a. ductile stress causing rock layers to bend

b. a break in rock along which the surrounding rock moves

c. stress that squeezes and shortens rock

d. stress that distorts rock by pushing parts of it in opposite directions

e. stress that stretches and pulls rock apart

_____ 1. folded mountain

_____ 2. graben

_____ 3. dome mountain

_____ 4. fault-block mountain

_____ 5. volcanic mountain

a. mountain formed when faults break Earth's crust into blocks that tilt and drop

b. valley formed when faults break Earth's crust into blocks that tilt and drop

c. mountain formed when magma pushes rock layers up

d. mountain formed when magma erupts onto Earth's surface

e. mountain formed when rock is squeezed and uplifted

Pangaea	**Arctic**	**rock**
continents	**Africa**	**seafloor spreading**

Alfred Wegener was one of the first people to suggest that all of the **1.** _____ were joined together in the past. He called the one large continent **2.** _____. Evidence exists to support his hypothesis. For example, similar fossils have been found in South America and **3.** _____. Also, fossils of warm weather plants have been found in the **4.** _____. Similar **5.** _____ structures exist in the Appalachian Mountains and in Greenland and western Europe. But until clues on the ocean floor led to Harry Hess's theory of **6.** _____, scientists could not think of how the continents might move.

_____ 1. shear stress

_____ 2. folded mountain

_____ 3. isostasy

_____ 4. fault-block mountain

_____ 5. dome mountain

_____ 6. fault

_____ 7. compression

_____ 8. tension

_____ 9. fold

_____ 10. mountain range

a. stress that stretches and pulls a body of rock apart

b. a series of mountains related in shape and structure

c. a bend in rock layers from stress

d. distorts by pushing parts of the body in opposite directions

e. mountain formed when rock layers are squeezed and uplifted

f. equilibrium in gravity and buoyancy between the asthenosphere and the lithosphere

g. a break in rock along which rock moves

h. stress that squeezes and shortens rock

i. forms where faults break Earth's crust into large blocks that tilt and drop

j. mountain with rock layers sloping from a central point

_____ 1. compression

_____ 2. folded mountain

_____ 3. dome mountain

_____ 4. tension

_____ 5. shear stress

_____ 6. fold

_____ 7. volcanic mountain

_____ 8. fault-block mountain

_____ 9. isostasy

_____ 10. fault

a. type of stress that pulls apart rock

b. a bend in rock layers that results from stress

c. a mountain formed when magma erupts through Earth's surface

d. type of stress that squeezes rock

e. a break along which surrounding rock moves

f. a state in which the asthenosphere and lithosphere are in balance

g. mountain with circular rock layers that gently slope from the center

h. mountain that forms where rock layers are squeezed and bent

i. type of stress that distorts rock by pushing parts of it in opposite directions

j. a mountain that forms where large blocks of Earth's crust tilt and drop along faults relative to other blocks

_____ 1. S wave

_____ 2. elastic rebound

_____ 3. body wave

_____ 4. P wave

_____ 5. surface wave

a. seismic wave that can travel through solids, liquids, and gases

b. seismic wave that travels through solids only

c. seismic wave that travels along the surface of a medium

d. seismic wave that travels through the body of a medium

e. sudden return of deformed rock to its undeformed shape

_____ 1. moment magnitude

_____ 2. seismograph

_____ 3. Richter scale

_____ 4. modified Mercalli scale

_____ 5. seismogram

a. displays earthquake motion recorded by a seismograph

b. measures intensity

c. measures magnitude using ground motion

d. records ground vibrations

e. uses fault size and distance that fault blocks move to measure magnitude

_____ 1. foreshock

_____ 2. seismic gap

_____ 3. tsunami

a. an area where relatively few earthquakes have occurred recently, but where strong earthquakes have occurred in the past

b. a large ocean wave that forms after a volcanic eruption, underwater earthquake, or landslide

c. a small earthquake that precedes a larger one

_____ 1. seismic gap

_____ 2. Richter scale

_____ 3. body wave

_____ 4. tsunami

_____ 5. modified Mercalli scale

_____ 6. surface wave

_____ 7. seismograph

_____ 8. foreshock

_____ 9. elastic rebound

_____ 10. moment magnitude

a. an instrument used for detecting and recording vibrations in the ground

b. a measurement of earthquake strength based in part on the size of the area of the fault that moves

c. a scale used to measure an earthquake's intensity

d. a wave that travels through the body of a medium

e. a scale used to measure ground motion from earthquakes

f. the sudden return of deformed rock to its undeformed state

g. a wave that travels along the surface of a body, not through the middle

h. section of a fault along which few quakes have occurred recently, but along which strong quakes have occurred in the past

i. a smaller earthquake that precedes a larger one

j. a giant wave that can form after an undersea earthquake

_____ 1. seismogram

_____ 2. seismograph

_____ 3. Richter scale

_____ 4. elastic rebound

_____ 5. body wave

_____ 6. moment magnitude

_____ 7. surface wave

_____ 8. modified Mercalli scale

_____ 9. P wave

_____ 10. S wave

a. a magnitude scale based on the size of the fault area that moves, how far fault blocks move, and the rigidity of rocks

b. a scale that measures earthquake intensity

c. a tracing of earthquake motion that is recorded by a seismograph

d. the sudden return of elastically deformed rock to its undeformed shape

e. the fastest seismic wave; can travel through solids, liquids, and gases

f. an instrument that records ground vibrations

g. a seismic wave that travels along the surface of a medium

h. the second-fastest seismic wave; can only travel through solids

i. a seismic wave that travels through the body of a medium

j. a magnitude scale that measures ground motion

_____	1. pluton	a. liquid rock that is produced under Earth's surface
_____	2. volcanism	b. a volcanically active area of Earth's surface, often far from a tectonic plate boundary
_____	3. lava	c. magma that flows onto Earth's surface
_____	4. hot spot	d. igneous rock formations that develop when magma cools and solidifies inside Earth's crust
_____	5. magma	e. any activity that includes the movement of magma toward or onto Earth's surface

_____ 1. caldera

_____ 2. pyroclastic materials

_____ 3. cinder cone

_____ 4. quiet eruption

_____ 5. explosive eruption

a. a volcanic cone, rarely more than a few hundred meters high, with slope angles up to 40°; formed from small explosive eruptions

b. produced by thick, sticky lava with a high viscosity and a high volume of trapped gases

c. volcanic dust, volcanic ash, lapilli, volcanic bombs, and volcanic blocks

d. produced by runny lava with a low viscosity and a low volume of trapped gases

e. a large, circular depression that forms when the magma chamber below a volcano partially empties and causes the ground above to collapse

_____ 1. magma

_____ 2. volcanism

_____ 3. lava

_____ 4. volcano

_____ 5. hot spot

_____ 6. mafic

_____ 7. felsic

_____ 8. pyroclastic material

_____ 9. caldera

_____ 10. cinder cone

a. magma that flows onto Earth's surface; the rock that forms when lava cools and solidifies

b. describes magma or igneous rock that is rich in feldspars and silica, and generally light in color

c. liquid rock that forms under Earth's surface

d. describes magma or igneous rock that is rich in magnesium and iron, and generally dark in color

e. a vent or fissure in Earth's surface through which magma and gases are expelled

f. a volcanically active area of Earth's surface, often far from a tectonic plate boundary

g. any activity that includes the movement of magma toward or onto Earth's surface

h. a large, circular depression that forms when the magma chamber below a volcano partially empties and causes the ground above to collapse

i. a type of volcano made up of pyroclastic material

j. fragments of rock that form during a volcanic eruption

_____ 1. volcanism

_____ 2. hot spot

_____ 3. quiet eruption

_____ 4. igneous rock

_____ 5. magma

_____ 6. explosive eruption

_____ 7. pyroclastic material

_____ 8. lava

_____ 9. lapilli

_____ 10. pluton

a. large rock particles that are less than 64 mm in diameter

b. fragments of rock that form during a volcanic eruption

c. produced by mafic magma, a runny lava with a low viscosity and a low volume of trapped gases

d. produced by felsic magma, a sticky lava with a high viscosity and a high volume of trapped gases

e. any activity that includes the movement of magma toward or onto Earth's surface

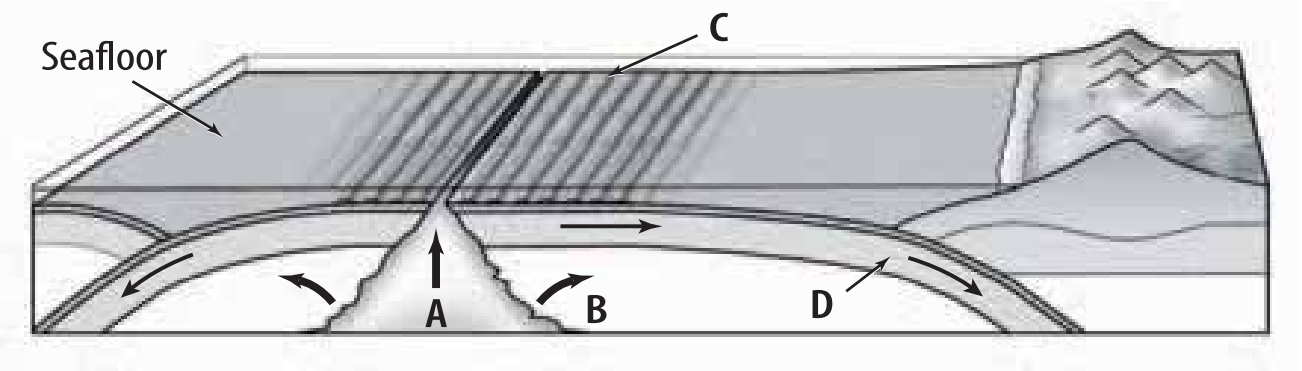
f. a volcanically active area of Earth's surface, commonly far from a tectonic plate boundary

g. a type of rock that forms when magma cools and solidifies

h. magma that cools and solidifies before it reaches Earth's surface

i. magma that flows onto Earth's surface; the rock that forms when lava cools and solidifies

j. liquid rock that is produced under Earth's surface



_____ **7.** Molten rock flows onto the seafloor and hardens as it cools.

_____ **8.** Hot, molten rock is forced upward toward the seafloor at a mid-ocean ridge.

_____ **9.** New seafloor moves away from the ridge, cools, becomes denser, and sinks.

_____ **10.** Molten rock pushes sideways in both directions as it rises, moving the mantle with it.

asthenosphere **convection**

lithosphere **plates** **faults**

1. Shearing causes areas between plates that are sliding past one another to form _____ and experience earthquakes.
2. Sections of Earth's crust and upper mantle, called _____, move around on part of the mantle.
3. The crust and upper mantle are called the _____.
4. Beneath this layer is the plasticlike _____.
5. Uneven heating of the upper mantle can cause differences in density, or _____; this could be one cause of plate movement.

_____ **1.** Earth's crust and upper mantle are broken into sections called _____

a. lava. **b.** plates.

_____ **2.** The collision of one continental plate with another may produce _____

a. oceans. **b.** mountains.

_____ **3.** New ocean crust is formed at a _____

a. rift valley. **b.** mid-ocean ridge.

_____ **4.** A rift valley can form where two continental plates are _____

a. moving apart. **b.** colliding.

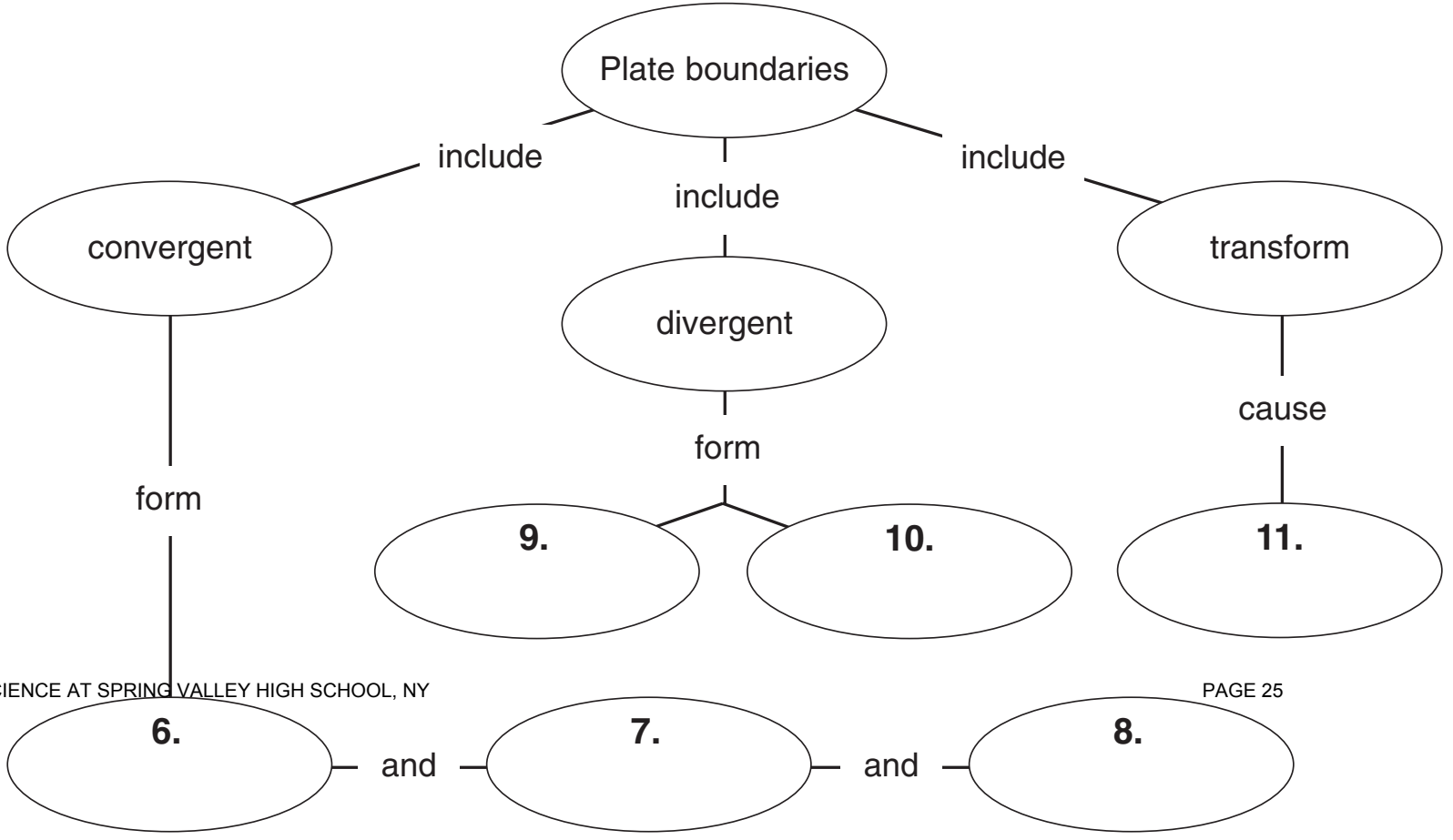
_____ **5.** Where Earth's plates move, they may slide alongside one another, pull apart, or _____

a. collide. **b.** divide.

mid-ocean ridges
rift valleys

volcanic islands
deep-sea trenches

major earthquakes
volcanic mountains



Column I

_____ **1.** reptile fossil found in South America and Africa

_____ **2.** fossil plant found in Africa, Australia, India, South America, and Antarctica

_____ **3.** clues that support continental drift

_____ **4.** mountains similar to those in Greenland and western Europe

_____ **5.** Wegener's name for one large landmass

_____ **6.** slow movement of continents

_____ **7.** evidence that Africa was once cold

Column II

a. Pangaea

b. Appalachians

c. continental drift

d. glacial deposits

e. *Glossopteris*

f. *Mesosaurus*

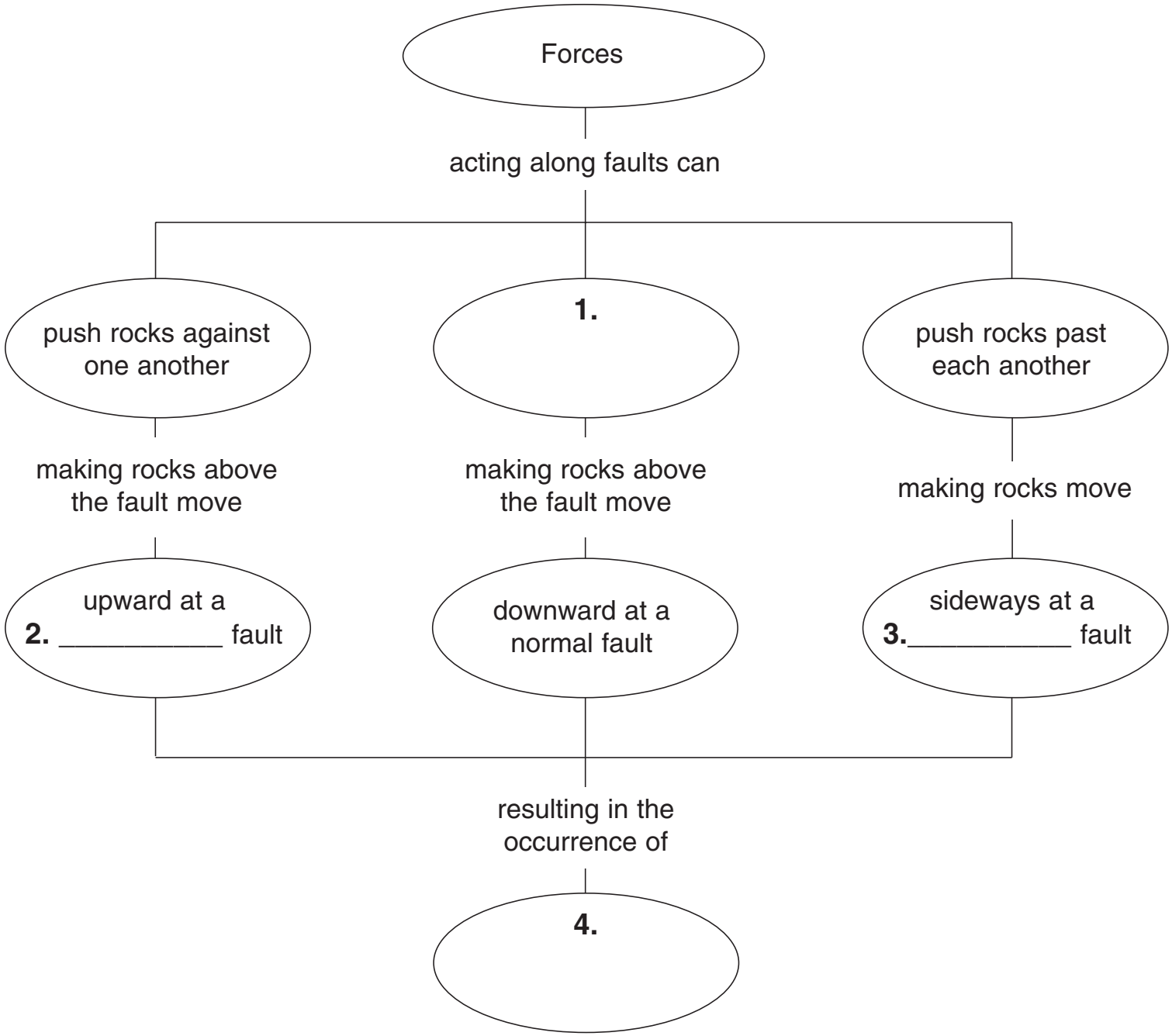
g. fossil, climate, and rock

asthenosphere **lithosphere** **plate tectonics**

convection **plates**

1. The theory of _____ states that Earth's crust and upper mantle are broken into sections.
2. These sections, called _____, are composed of the crust and a part of the upper mantle.
3. The crust and upper mantle together are called the _____.
4. Beneath this layer is the plasticlike _____.
5. Scientists suggest that differences in density cause hot, plasticlike rock to be forced upward toward the surface, cool, and sink. This cycle is called a _____ current.

reverse **strike-slip** **earthquakes** **pull rocks apart**



Directions: *Unscramble the terms in italics to complete the sentences below. Write the terms on the lines provided.*

_____ **1.** Forces cause sections of Earth's surface, called *petals*, to move.

_____ **2.** When rocks break, they move along surfaces called *stufla*.

_____ **3.** To relieve the *srests* caused by plate movement, rocks tend to bend, compress, or stretch.

_____ **4.** When rocks are stressed beyond their *staleci* limit they break, move along the fault, and return to their original shapes.

_____ **5.** An *akquethera* is the vibrations produced by the breaking of rock.

_____ **6.** At a *roamnl* fault, tension pulls rocks apart.

_____ **7.** At a *riskte-pils* fault, rocks move past each other.

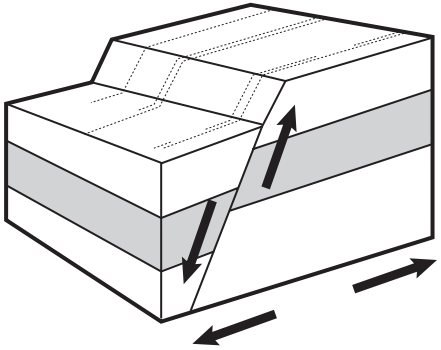
_____ **8.** At a normal fault, rock above the fault surface moves *ddwwoanr* in relation to rock below the fault surface.

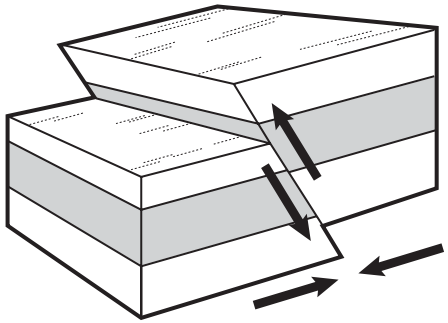
_____ **9.** At a *rreeesv* fault, rocks above the fault surface move up and over the rocks below the fault surface.

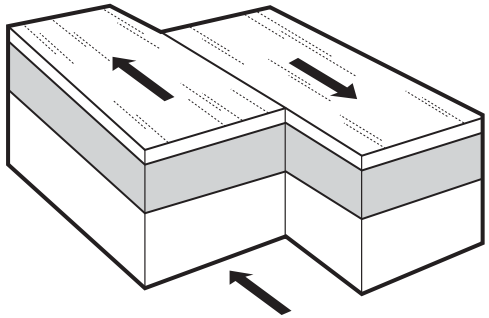
_____ **10.** At a reverse fault, *mnopsericos* forces pushes on rocks from opposite directions.

_____ **11.** *earsh* forces can cause strike-slip faults.

Directions: *Identify the faults shown below as* **reverse**, **normal,** *or* **strike-slip.**







12. _____ **13.** _____ **14.** _____

_____ **1.** When an earthquake occurs, energy is released in the form of _____.

a. seismic waves **b.** faults

_____ **2.** What kind of waves cause particles in rocks to move at right angles to the direction of the wave?

a. primary waves **b.** secondary waves

_____ **3.** What kind of waves cause particles in rocks to move back and forth in the same direction?

a. primary waves **b.** faults

_____ **4.** An earthquake's _____ is the point on Earth's surface directly above the earthquake focus.

a. elastic limit **b.** epicenter

_____ **5.** _____ waves cause the most destruction.

a. Secondary **b.** Surface

_____ **6.** _____ waves are the fastest.

a. Primary **b.** Secondary

_____ **7.** At the very center of Earth is a _____.

a. liquid layer of minerals **b.** solid, dense inner core

_____ **8.** Earth's largest layer is the _____.

a. mantle **b.** crust

_____ **9.** The Richter scale measures the _____ of an earthquake.

a. magnitude **b.** intensity

_____ **10.** An earthquake that measured X on the modified Mercalli scale would cause _____ damage.

a. very little **b.** considerable

_____ **11.** Suppose water along a shoreline moves rapidly toward the sea, exposing a large portion of land that is usually under the water. This is a clue that a _____ might strike.

a. tsunami **b.** liquefaction

_____ **1.** melted rock formed by heat and pressure deep inside Earth		**a.** magma
_____ **2.** area between mantle and core where hot rock is forced into the crust		**b.** crater
_____ **3.** places where most volcanoes occur		**c.** vent
_____ **4.** opening in Earth's surface through which magma flows		**d.** volcano
_____ **5.** steep-walled depression around a volcano's vent		**e.** hot spot
_____ **6.** an opening in Earth's surface that often forms a mountain when layers of lava and volcanic ash erupt		**f.** heat and pressure
_____ **7.** cause rocks to melt and form magma		**g.** plate boundaries

acid rain	**lava flow**	**pyroclastic flow**	**volcano**
falling ash	**magma**	**rise**	**volcanologists**
igneous rock	**plates**	**vent**	

Earth's crust is formed from (**1**)_____ that are constantly moving. Pressure between these shifting plates causes rock deep within Earth to melt, forming liquid rock called (**2**)_____. Because it is less dense than the surrounding rock, this molten rock begins to (**3**)_____ to the surface and escape through a (**4**)_____. As the lava cools, it builds up in layers which become (**5**)_____. Spewing gases, ash, and lava around the opening creates a (**6**)_____.

Volcanoes can have dramatic effects on people's lives and their property. Volcanic ash and debris may pour down a mountain side as (**7**)_____ crushing crops, villages, forests, and wildlife. (**8**)_____ forms when gases mix with water vapor raining down and killing plants. Entire villages may be buried below (**9**)_____ as in Herculaneum. A (**10**)_____ destroys everything in its path. These eruptions can be violent and unpredictable, but volcano scientists, also known as (**11**)_____, still find them beautiful, exciting, and intriguing to study.

combine	**stronger**	**isochron**	**lower**	**magnetic field**
normal polarity	**older**	**cancel**	**reversed polarity**	**younger**

Earth's **(17)** _____ has changed over time. A field with the same orientation as today's field is said to have **(18)** _____. A field that is opposite the present field has **(19)** _____. Magnetometers have been used to measure the ocean floor's magnetic field. When the ocean floor's magnetic readings match the present field, the two fields **(20)** _____. This produces a(n) **(21)** _____ than normal reading. When the magnetic readings of the ocean floor are reversed compared to today's field, the two fields partially **(22)** _____ to produce a(n) **(23)** _____ than normal reading. Magnetic data of the ocean floor has been used to generate **(24)** _____ maps, which have shown that the ocean floor is **(25)** _____ near ocean ridges and **(26)** _____ near deep-sea trenches.

Column A	Column B
_____ **27.** Device that can detect small changes in magnetic fields	**a.** isochron
_____ **28.** Minerals containing this act like small compass needles and record the orientation of Earth's magnetic field at the time of their formation	**b.** iron
_____ **29.** Was constructed from data gathered from continental basalt flows	**c.** geomagnetic time scale
_____ **30.** This type of line connects points on a map that have the same age	**d.** new ocean crust
_____ **31.** Each cycle of spreading and magma intrusion along an ocean ridge results in the formation of this	**e.** magnetometer

Hawaiian Islands	**crust**	**divergent**	**flood basalts**	**hot spots**
Iceland	**mantle**	**volcanoes**	**plateau**	**ocean ridges**
Circum-Pacific Belt	**western**	**convergent**		

Most of the world's volcanoes form along **(25)** _____ plate boundaries. Slabs of oceanic crust descend into the **(26)** _____ and melt. The magma that forms is forced upward through the overlying plate and forms **(27)** _____ when it reaches Earth's surface. The **(28)** _____ marks the locations of most convergent boundary volcanoes. It stretches along the **(29)** _____ coasts of North and South America and down the eastern coast of Asia.

At **(30)** _____ plate boundaries, magma is forced upward into fractures and faults that form as plates separate or spread apart. Most of the volcanoes that form along divergent boundaries are located underwater along **(31)** _____. This type of volcanic activity can be observed above sea level in **(32)** _____, which sits atop the Mid-Atlantic Ridge.

Some volcanoes that form far from plate boundaries form over **(33)** _____, which are unusually hot regions of Earth's mantle. At hot spots, high-temperature plumes melt rock. The magma that forms moves upward toward the **(34)** _____ and melts the crust to form a volcano. As a tectonic plate moves over a hot spot, a string of volcanoes forms. The **(35)** _____ are forming as the result of a hot spot. Hot spots can also result in the formation of **(36)** _____, which erupt from fissures to form a flat plain or a **(37)** _____ rather than volcanic mountains.

Column A		Column B
_____	**9.** Fracture that forms as a result of horizontal compression	**a.** fault
_____	**10.** Fracture caused by horizontal shear	**b.** fault plane
_____	**11.** Famous California strike-slip fault	**c.** normal fault
_____	**12.** Fracture caused by horizontal tension	**d.** reverse fault
_____	**13.** Fracture along which movement occurs	**e.** San Andreas
_____	**14.** Fault surface along which movement takes place	**f.** strike-slip fault

mass **seismometer** **seismogram** **frame**

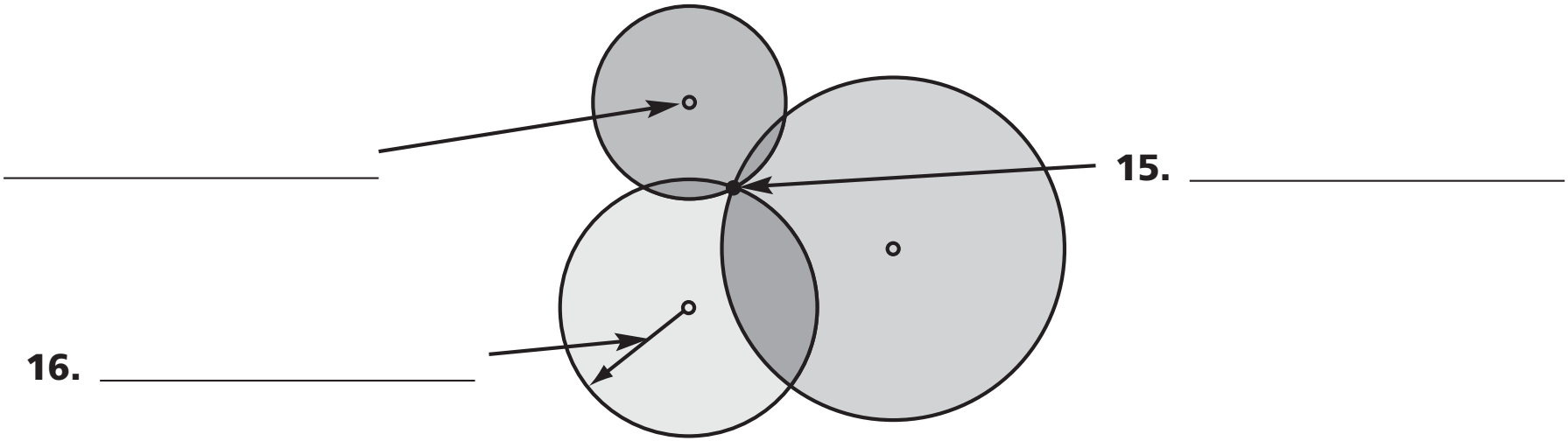
1. A _____ is an instrument that records earthquake vibrations.

2. All seismometers include a _____ suspended from a wire.

3. A paper or computer record of earthquake vibrations is called a _____.

4. All seismometers include a _____ that is anchored to the ground and vibrates during an earthquake.

Label the diagram below. Choose from the following: *epicenter, epicentral distance, seismic station.*

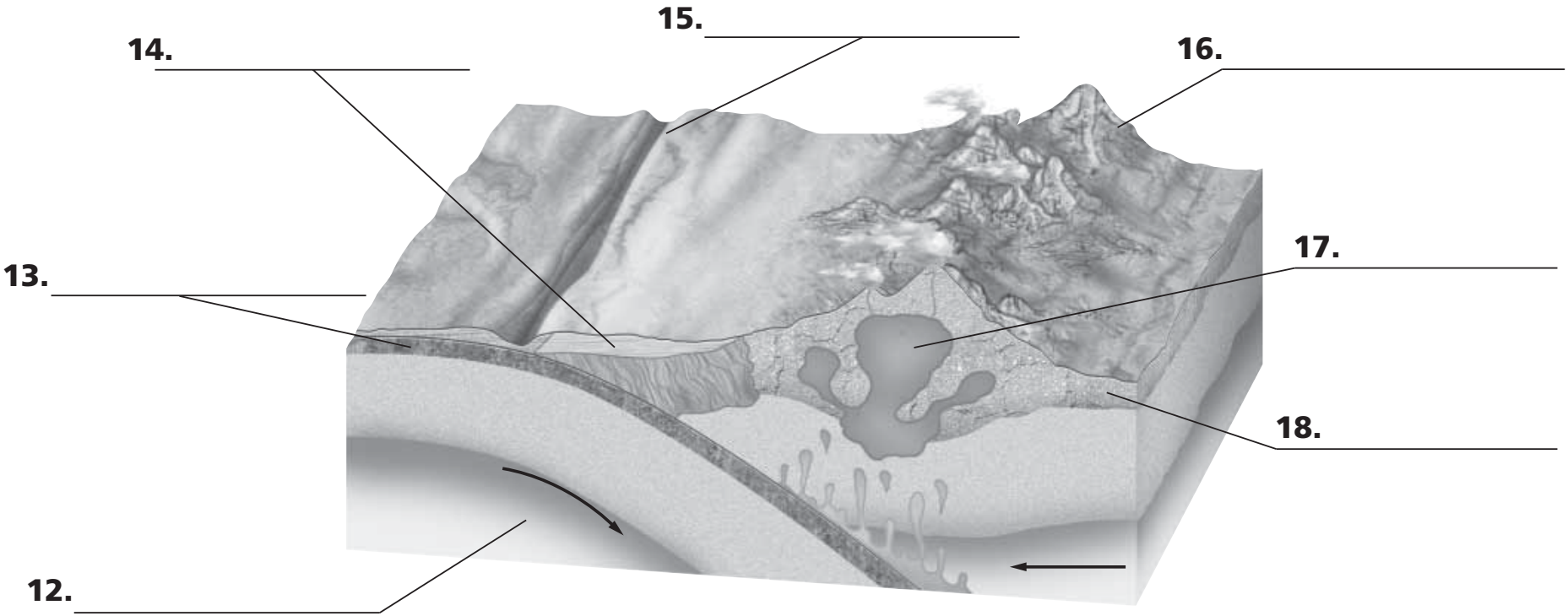


Circum-Pacific Belt	**boundaries**	**tectonic plates**
Mediterranean-Asian Belt	**ocean ridges**	**seismic belts**

Most earthquakes occur in narrow **(19)** _____ that lie between large regions with little or no seismic activity. Seismic activity in seismic belts is a result of movements among Earth's **(20)** _____. Most earthquakes occur near the **(21)** _____ of tectonic plates. Nearly 80 percent of earthquakes occur in the seismic belt known as the **(22)** _____. About 15 percent of all earthquakes occur in the **(23)** _____, which stretches across Europe and Asia.

Most other earthquakes occur on the crests of **(24)** _____.

continental crust	trench	magma	oceanic crust
sediments	subducting plate	volcanic mountains	



convection currents	**faults**	**hot spot**
magnetic patterns	**modified-Mercalli scale**	**volcanoes**

6. Evidence of seafloor spreading is provided by symmetric _____ of ocean-floor rocks.

7. Plate movements are related to _____ in Earth's mantle that cause warm matter to rise and cool matter to sink.

8. Cinder-cone, shield, and composite are three types of _____.

9. Earthquakes occur when stress in rock is released at breaks in Earth's crust called _____.

10. An earthquake's intensity, or the amount of damage it causes, is measured on the _____.

11. A solitary volcanic peak may form when a plate moves over a _____ in Earth's mantle.

magma **divergent** **mantle** **hot spots** **tectonic** **energy**

Volcanoes often occur at **6.** _____ and convergent plate boundaries. They also occur at **7.** _____ where large, rising bodies of **8.** _____ can force their way through Earth's **9.** _____ and crust.

Like volcanoes, earthquakes also occur at **10.** _____ plate boundaries. They are caused by the **11.** _____ generated by the plates' movement.

	Description	Earthquake Feature
_____	**2.** Earth vibration caused by rapid energy release	a. epicenter
_____	**3.** energy that radiates in all directions from the earthquake origin	b. focus
_____	**4.**  fracture where movement has occurred	c. seismic wave
_____	**5.** surface location directly above where an earthquake originates	d. fault
_____	**6.** location within Earth where an earthquake originates	e. earthquake

	Description	Term
_____	**9.** derived from the amount of displacement that occurs along a fault zone	a. intensity
_____	**10.** based on the amplitude of the largest seismic wave recorded on a seismogram	b. magnitude
_____	**11.** measure of the size of seismic waves or amount of energy released at the earthquake source	c. Richter scale
_____	**12.** measure of the amount of earthquake shaking at a location based on damage	d. moment magnitude scale

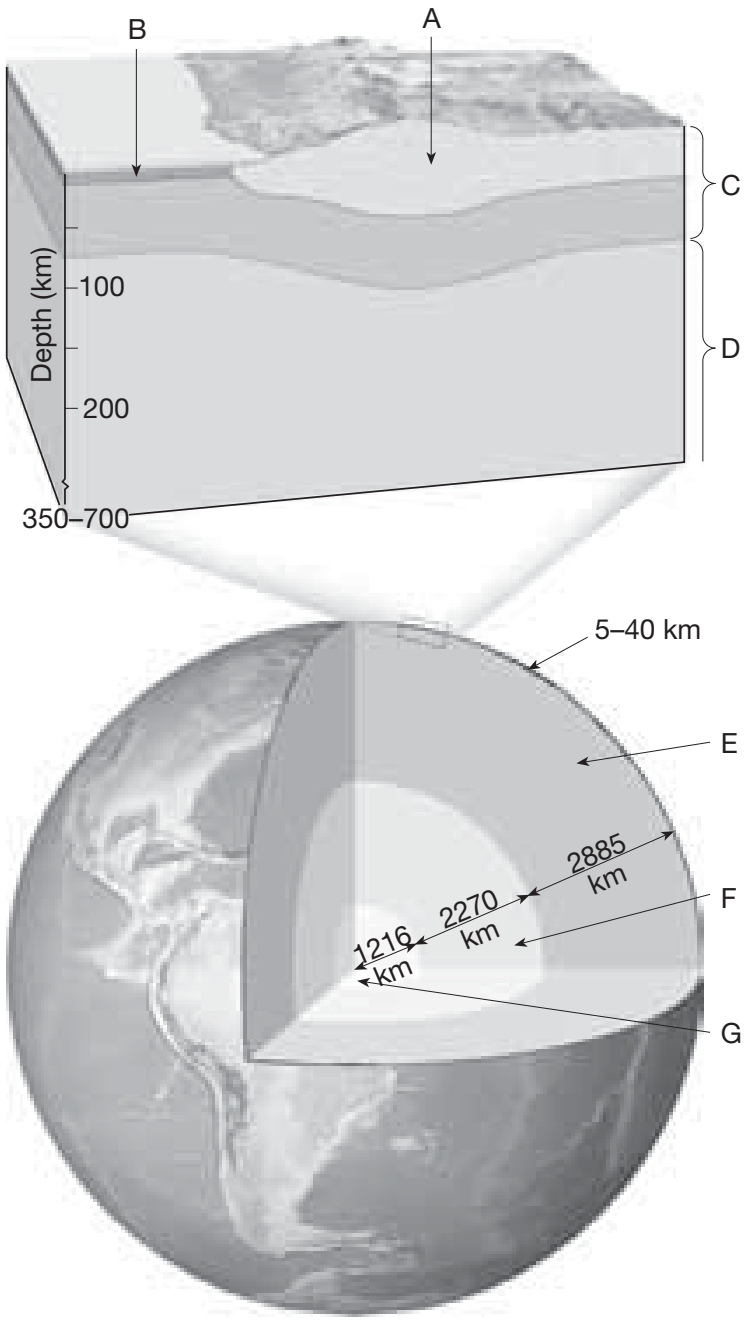
Use the figure of Earth's structure to write the letter(s) that represents each of the following layers.

mantle _____

continental crust _____

oceanic crust _____

core _____



	Description	Earth Layer
_____	**3.** soft, weak rock with some melting	a. asthenosphere
_____	**4.** liquid iron-nickel alloy that generates Earth's magnetic field	b. inner core
_____	**5.** cool, rigid crust and uppermost mantle	c. outer core
_____	**6.** solid iron-nickel alloy	d. lithosphere

Composition		Earth Layer
_____ **10.**	basaltic rock	a. continental crust
_____ **11.**	granitic rock	b. oceanic crust
_____ **12.**	similar to stony meteorites	c. core
_____ **13.**	similar to metallic meteorites	d. mantle

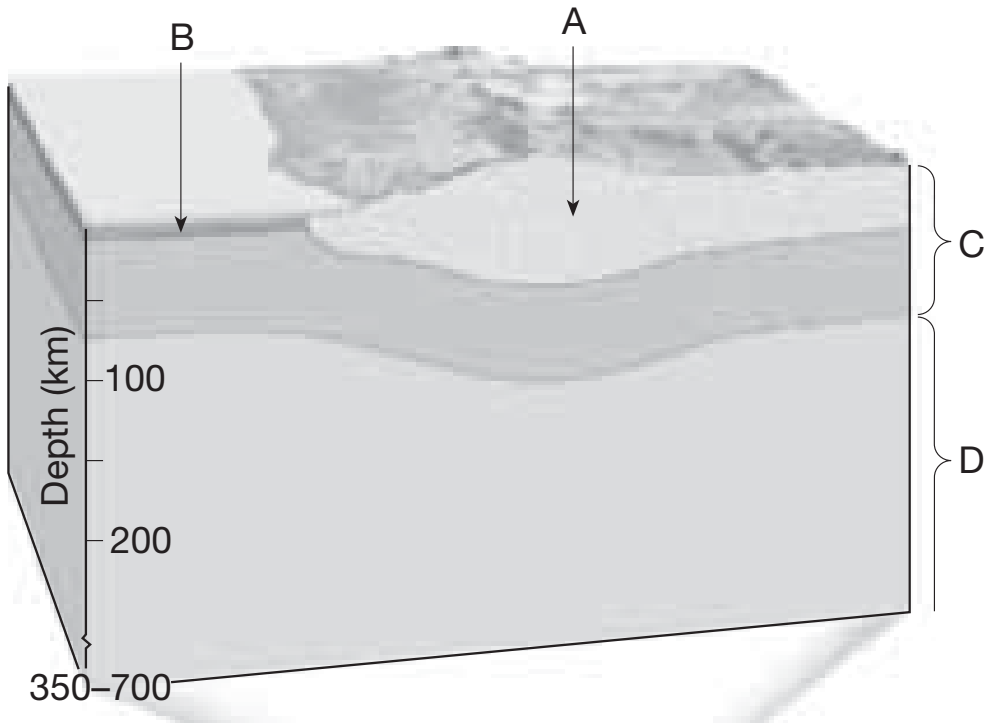
Use the figure of Earth's structure to write the letter(s) that represents each of the following layers.

asthenosphere _____

continental crust _____

oceanic crust _____

lithosphere _____



Example

Evidence for Continental Drift

_____ **2.** Similar mountain chains run through eastern North America and the British Isles.

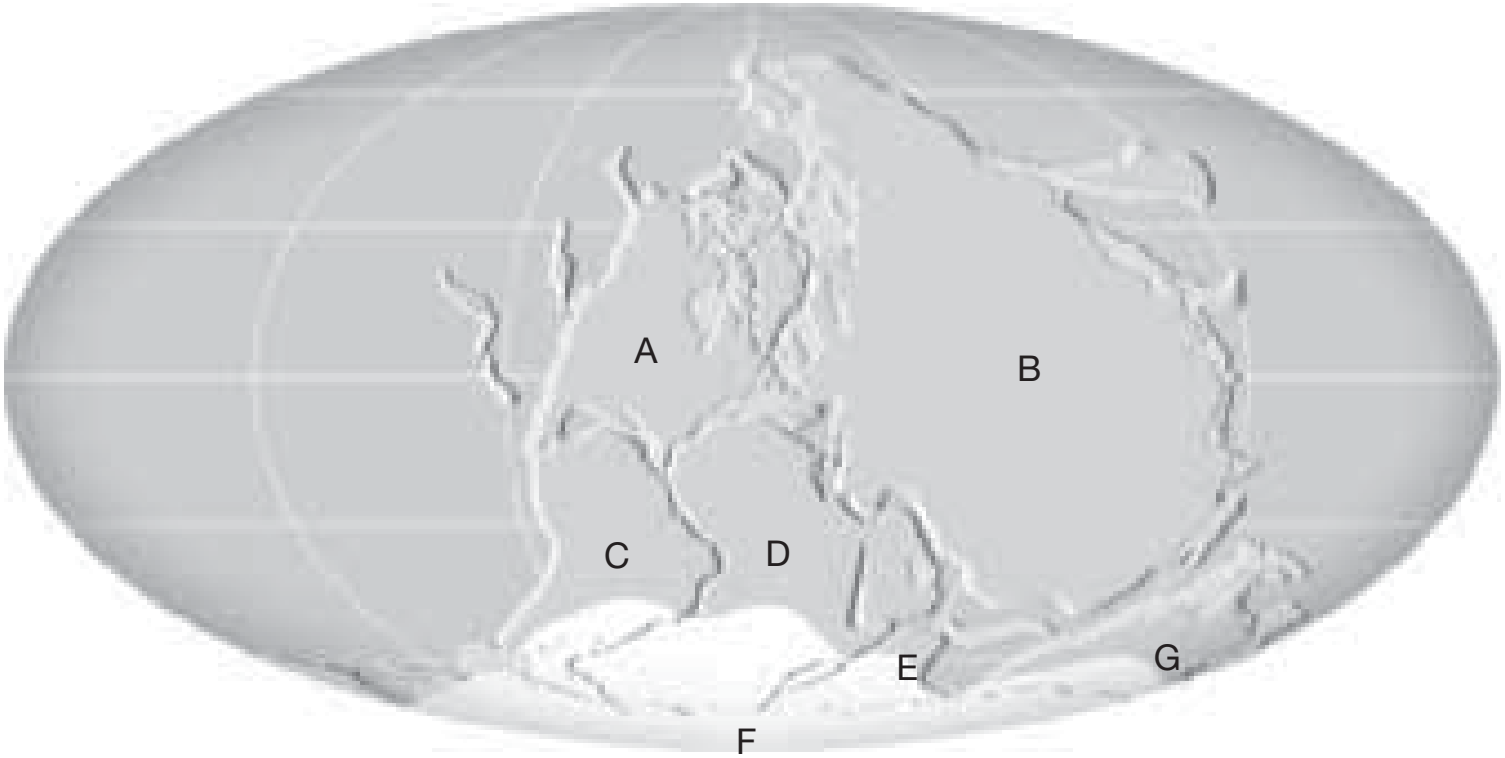
_____ **3.** Land areas that show evidence of ancient glaciation are now located near the equator.

_____ **4.** The Atlantic coastlines of South America and Africa fit together.

_____ **5.** Remains of Mesosaurus are limited to eastern South America and southern Africa.

a. rock types and structures
b. matching fossils
c. continental puzzle
d. ancient climates

The figure shows Earth's ancient supercontinent as it appeared about 300 million years ago, according to Alfred Wegener. Write the letter that represents each of the following present-day continents.



_____ Antarctica
_____ Europe and Asia
_____ South America
_____ India
_____ North America
_____ Africa
_____ Australia

	Definition	Term
_____	**1.** weaker region in the mantle over which Earth's outer shell lies	a. lithosphere
_____	**2.** segments of the lithosphere that move and change shape	b. plates
_____	**3.** rigid layer of the uppermost mantle and crust	c. plate tectonics
_____	**4.** theory that states that the lithosphere is divided into plates that move	d. asthenosphere

Definition

_____ **1.** system that uses sound waves to calculate the distance to an object

_____ **2.** deep faulted structure found along a divergent boundary

_____ **3.** a long chain of mountains extending through Earth's oceans

Term

a. sonar

b. rift valley

c. mid-ocean ridge

fault	**rift**	**tsunami**	**seismic wave**
hot spot	**seismic safe**	**lava**	**focus**
shield volcano	**seismograph**		**composite volcano**
epicenter	**cinder cone volcano**		**magnitude**

_____ **1.** broad volcano with gently sloping sides

_____ **2.** long crack that forms as two tectonic plates move apart

_____ **3.** magma that reaches Earth's surface

_____ **4.** point inside Earth where earthquake movement first occurs

_____ **5.** small volcano formed from tephra

_____ **6.** the surface of a break in a section of rock

_____ **7.** powerful sea wave caused by an earthquake

_____ **8.** steep-sided volcano formed from layers of lava and tephra

_____ **9.** point on Earth's surface directly above the focus of an earthquake

_____ **10.** rising magma that may force its way through Earth's crust, not at a plate boundary

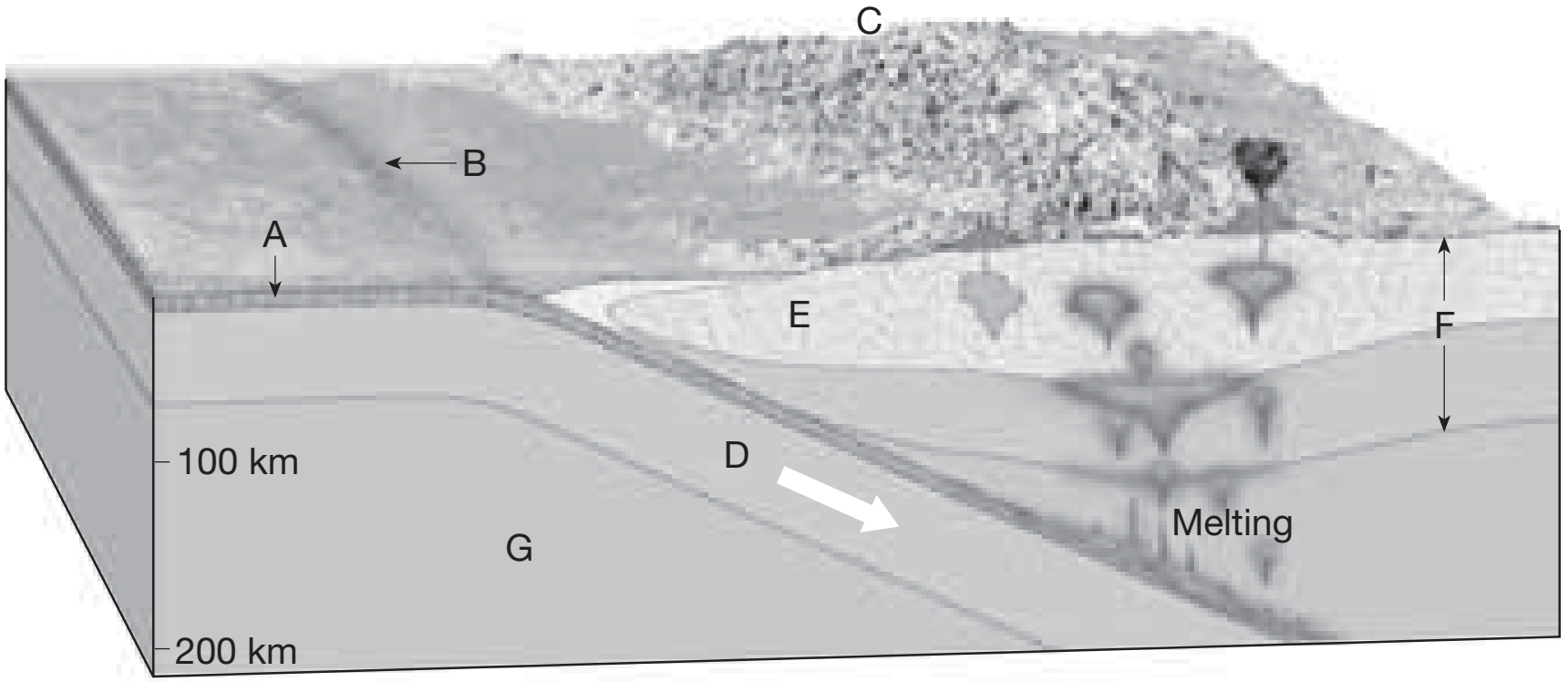
_____ **11.** type of building structure that can withstand earthquake vibrations

_____ **12.** waves generated by an earthquake and measured using the Richter scale

_____ **13.** the instrument scientists use to record the measurements in question 12

_____ **14.** the height of the lines recorded on a seismograph, or the amount of energy released by an earthquake

	Definition	Term
_____	**3.** process by which plate tectonics produces new oceanic lithosphere	a. seafloor spreading
_____	**4.** deep faulted structure found along a divergent boundary	b. rift valley
_____	**5.** elevated seafloor along a divergent boundary	c. oceanic ridge



_____ Sinking oceanic lithosphere

_____ Oceanic crust

_____ Trench

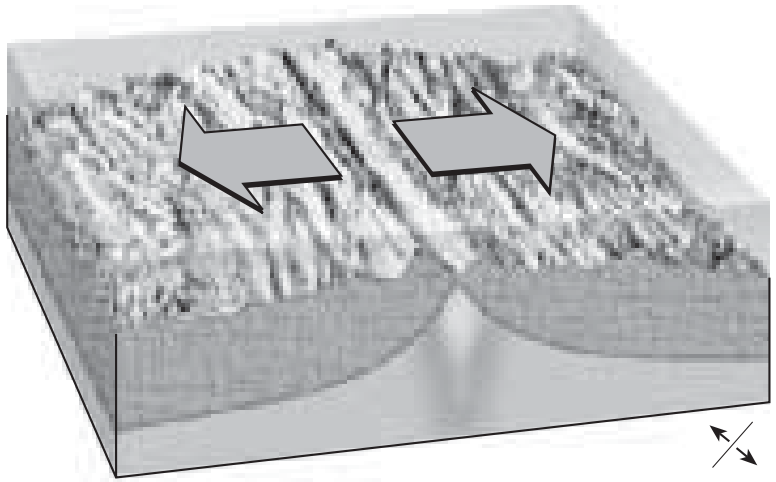
_____ Continental volcanic arc

_____ Continental lithosphere

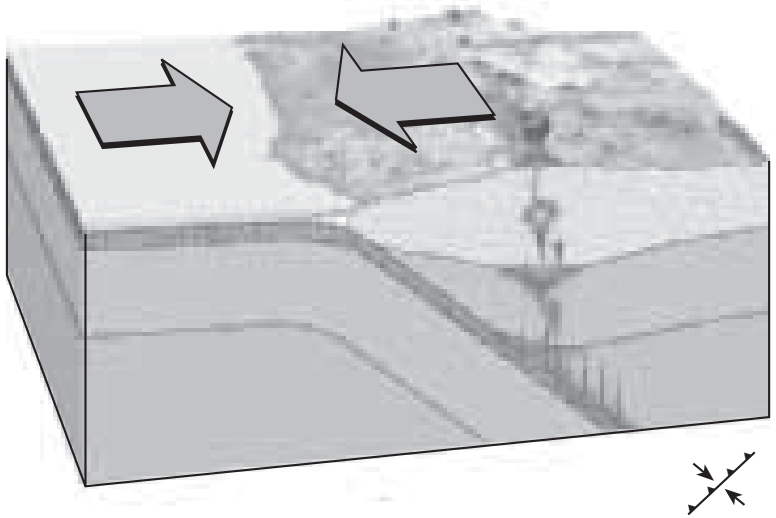
_____ Continental crust

_____ Asthenosphere

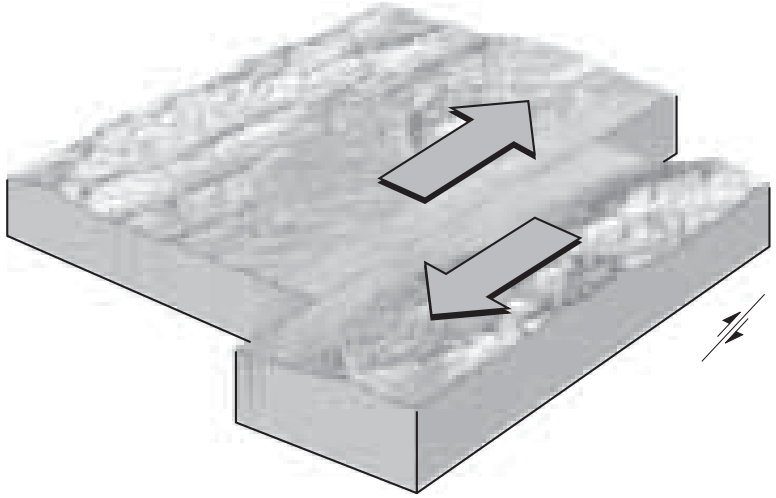
convergent	divergent	transform fault



A. _____

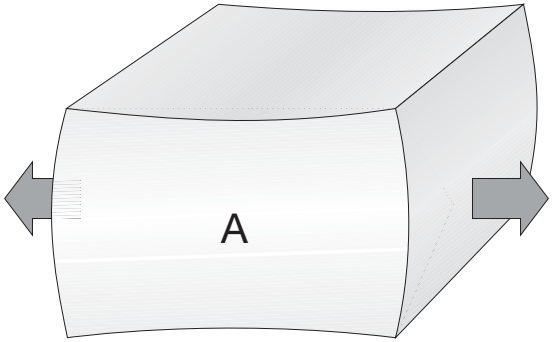


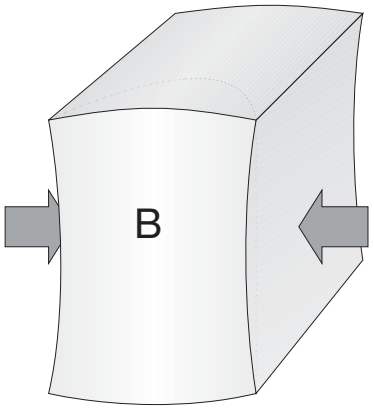
B. _____

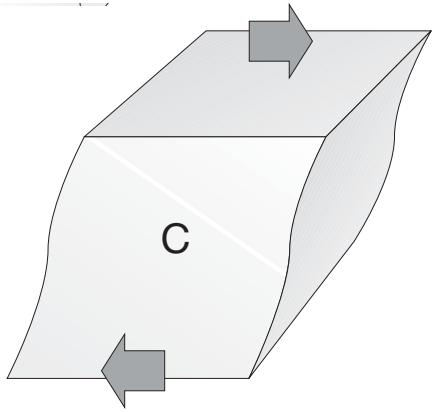


C. _____

compressional stress	shear stress	tensional stress







A. _____ **B.** _____ **C.** _____

fault	seismic waves	seismograph	tsunami
stress	focus	aftershock	
earthquake	epicenter	liquefaction	

A. WORD PUZZLE

Complete each word puzzle with the correct vocabulary word. When the puzzle is complete, the letters in the boxes will spell out a word.

1. The point on Earth's surface directly above the focus.

   __ __ __ [__] __ __ __ __ __

2. A shaking of the ground caused by the sudden movement of large blocks of rock along a fault.

   __ [__] __ __ __ __ __ __ __ __

3. A fracture or break in Earth's lithosphere along which blocks of rock move past each other.

   __ __ __ [__] __

4. Energy travels through these vibrations caused by earthquakes.

   __ __ __ __ __ [__] __ __ __ __ __ __

5. A process in which shaking causes soil to act like a liquid.

   __ __ __ __ __ [__] __ __ __ __ __ __

6. The point underground where rocks first being to move.

   __ [__] __ __ __

7. The force exerted when an object presses on, pulls on, or pushes against another object.

   __ __ [__] __ __ __

8. A water wave triggered by an earthquake, volcanic eruption, or landslide.

   __ __ __ [__] __ __ __

9. An instrument that constantly records ground movements.

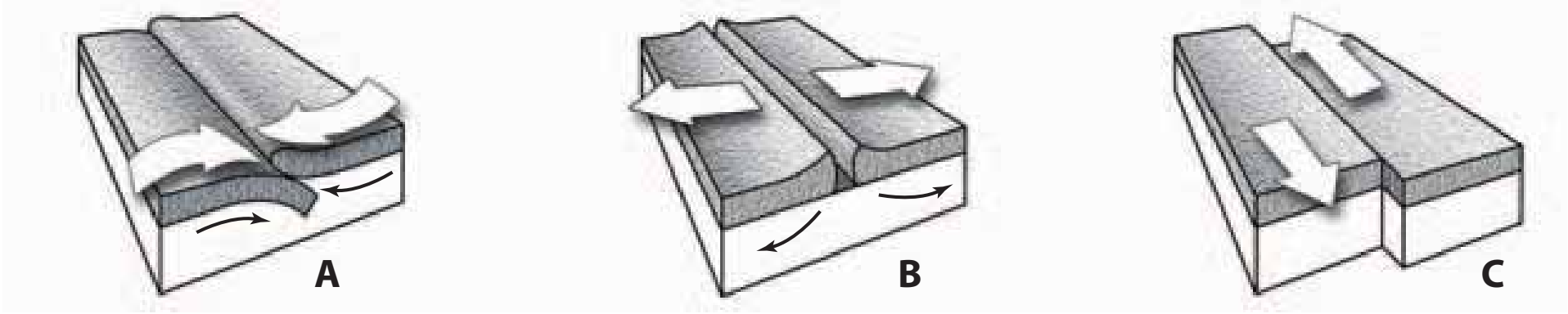
   __ __ [__] __ __ __ __ __ __ __ __

10. A smaller earthquake that follows a more powerful earthquake in the same area.

    [__] __ __ __ __ __ __ __ __ __

BONUS WORD Write the bonus word on the line and tell how the word relates to earthquakes.

_____



7. transform boundary _____

8. convergent boundary _____

9. divergent boundary _____