

Movers &

The first slide will ask you for your school, team and team members. 1 person should submit answers for the team. Once the section gets to 0:00, the test moves on but DOES record the answers you have clicked.



Quiz

Section 1

Which of the following is a good model for the layers of the Earth?

- ☐ A hard boiled egg with the shell on
- ☒ A hardboiled egg with a cracked shell
- ☐ A sandwich with meat & cheese
- ☐ An orange

a. Drilling to the center of the Earth How do scientists know what layers make up Earth's interior?

- ☐ Drilling to the center of the Earth
- ☐ Taking an x-ray of Earth from space
- ☐ Studying changes in the speed of seismic waves
- ☐ Using a submersible vehicle inside volcanoes

What is Earth's crust made of?

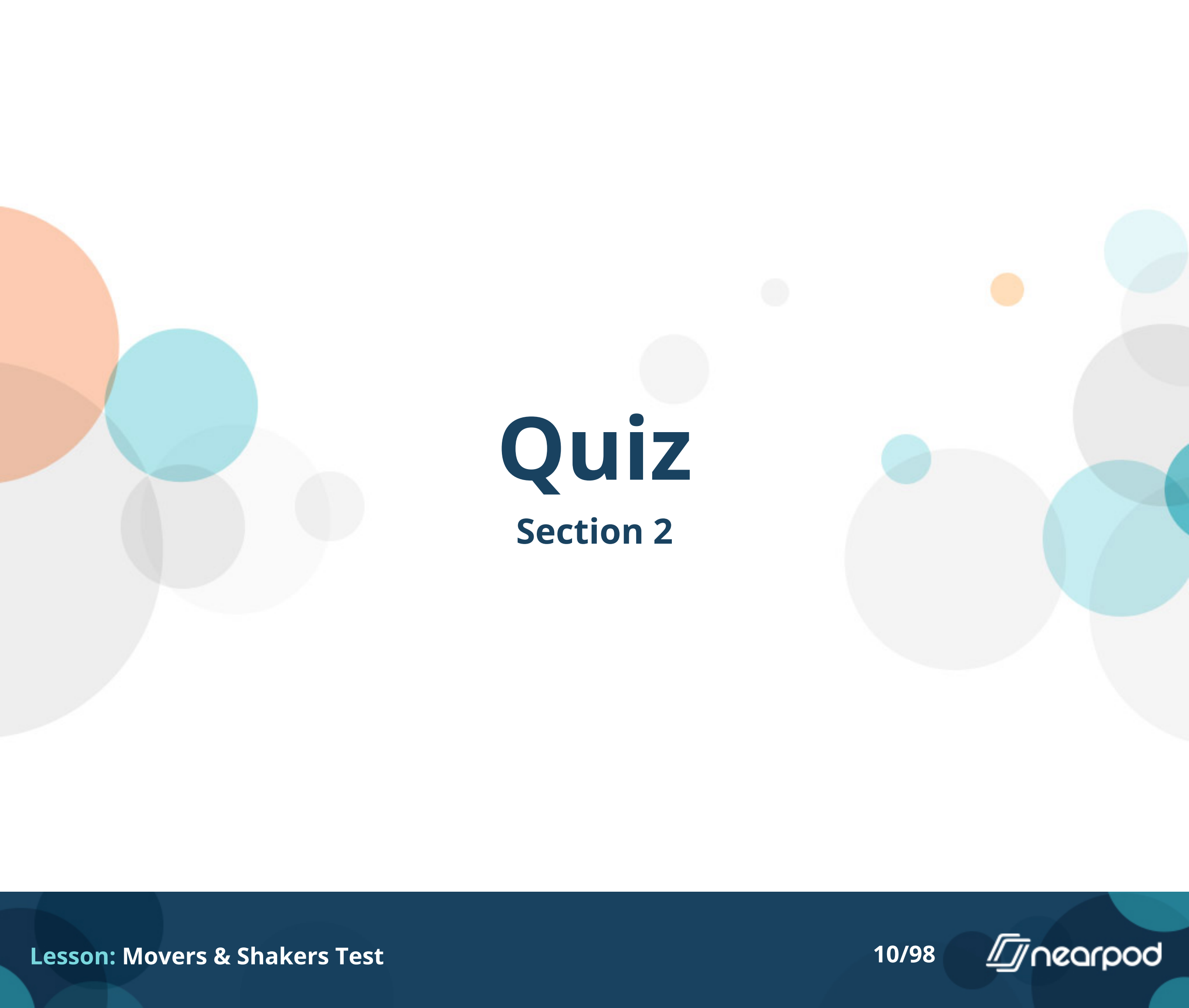
- ☐ Water
- ☐ Wax
- ☐ Molten (liquid) rock
- ☐ Solid rock

What is Earth's mantle made of?

- ☐ Water
- ☐ Wax
- ☐ Molten (liquid) rock
- ☐ Solid rock

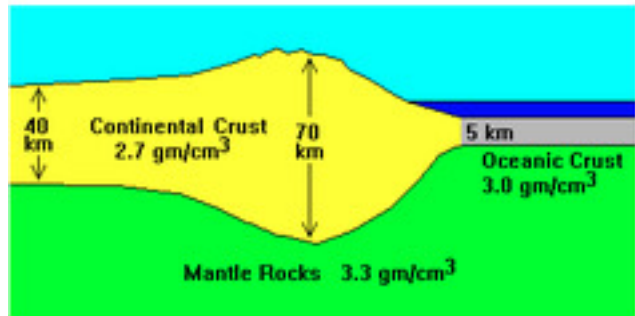
What is the temperature like on the inside of the Earth?

- ☐ Colder than ice, below -1000 degrees Celsius.
- ☐ Cold like ice, 0 degrees Celsius
- ☐ Hot like boiling water, 100 degrees Celsius
- ☐ Hotter than boiling water, 2000 degrees Celsius



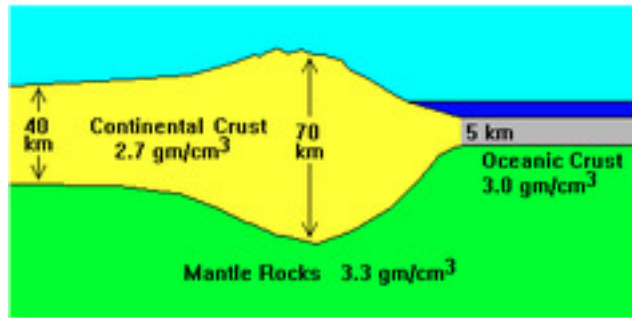
Quiz

Section 2



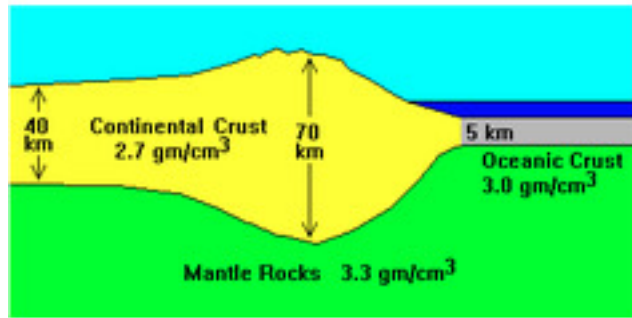
Use the diagram to help you answer these questions. You can click it to make it bigger. Earth's crust is divided up into pieces called

- ☒ Tectonic Plates
- ☐ Seismic Plates
- ☐ Metal Plates
- ☐ Rock Plates



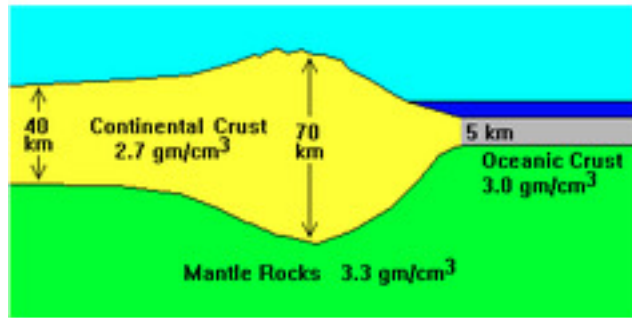
There are two types of crust, oceanic and continental. Which is thicker?

- ☐ Oceanic crust
- ☒ Continental Crust



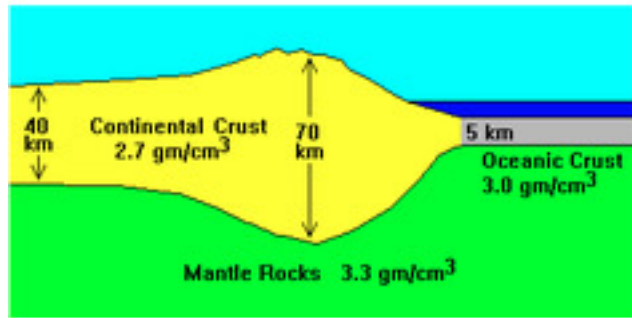
There are two types of crust, which is denser?

- ☒ Oceanic crust
- ☐ Continental Crust



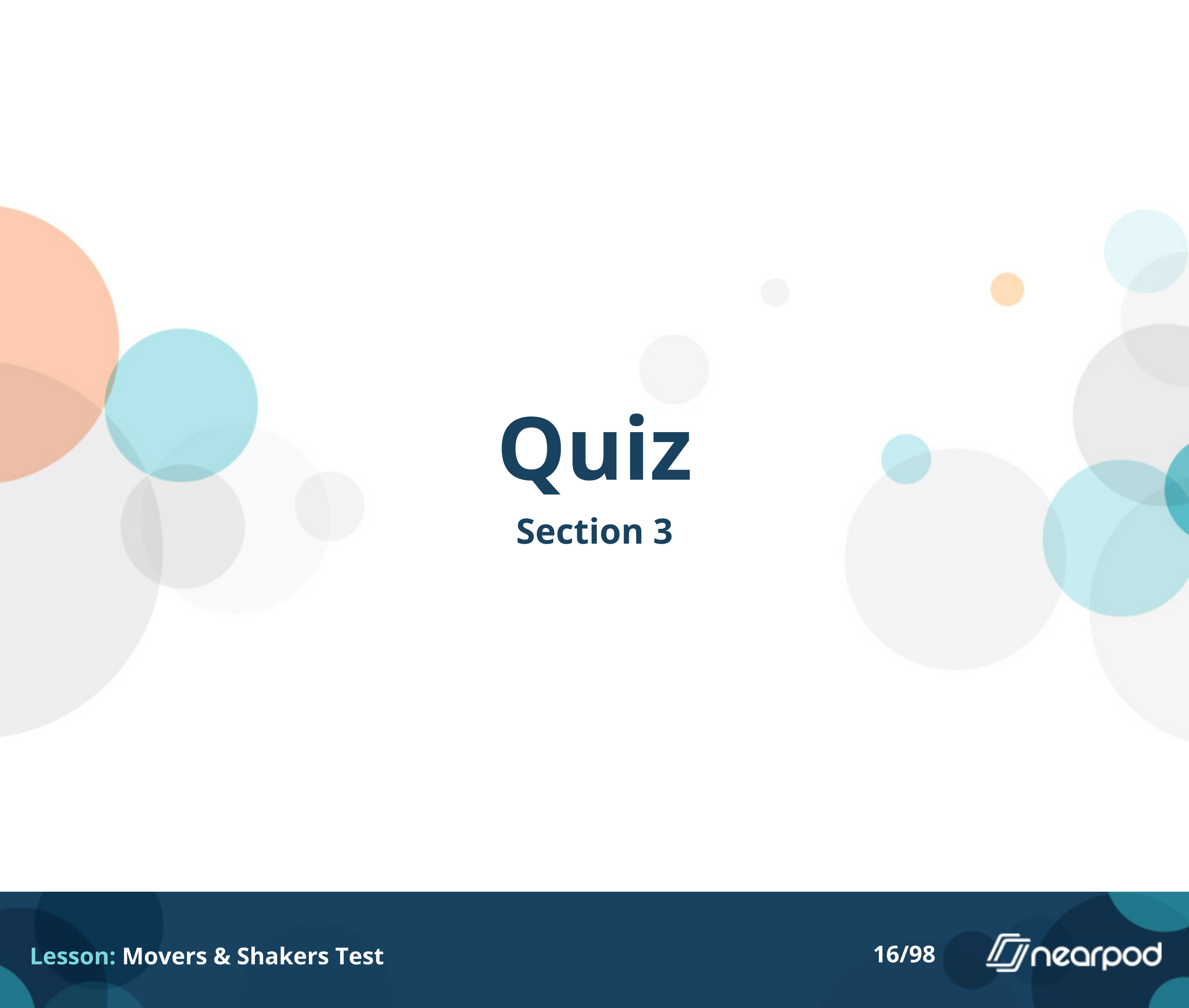
What type of rocks mostly make up oceanic crust?

- ☐ Granite type rocks
- ☒ Basalt type rocks



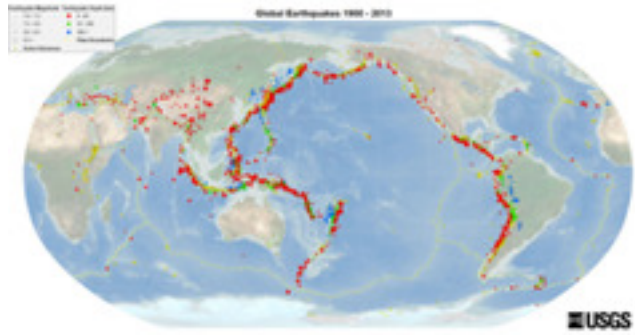
What type of rocks mostly make up continental crust?

- ☒ Granite type rocks
- ☐ Basalt type rocks



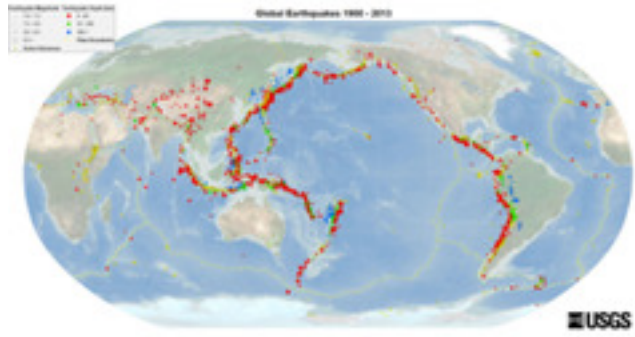
Quiz

Section 3



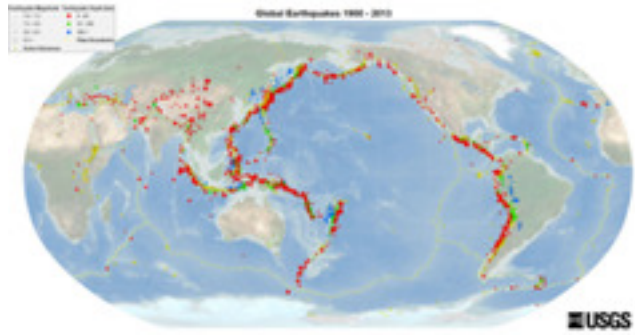
How did the Pacific Ring of Fire get its name?

- It is a circular shaped plate with volcano and earthquake hotspots around its edges.
- It is named only after the ocean it contains
- It is a circle of many wildfires
- It is a fashionable piece of jewelry worn on the finger with a hot gemstone.



Which US state along the edge of the Ring of Fire has a long chain of active volcanoes?

- ☐ North Carolina
- ☐ Florida
- ☒ Alaska
- ☐ Texas



In which region of the United States do you find many active volcanoes?

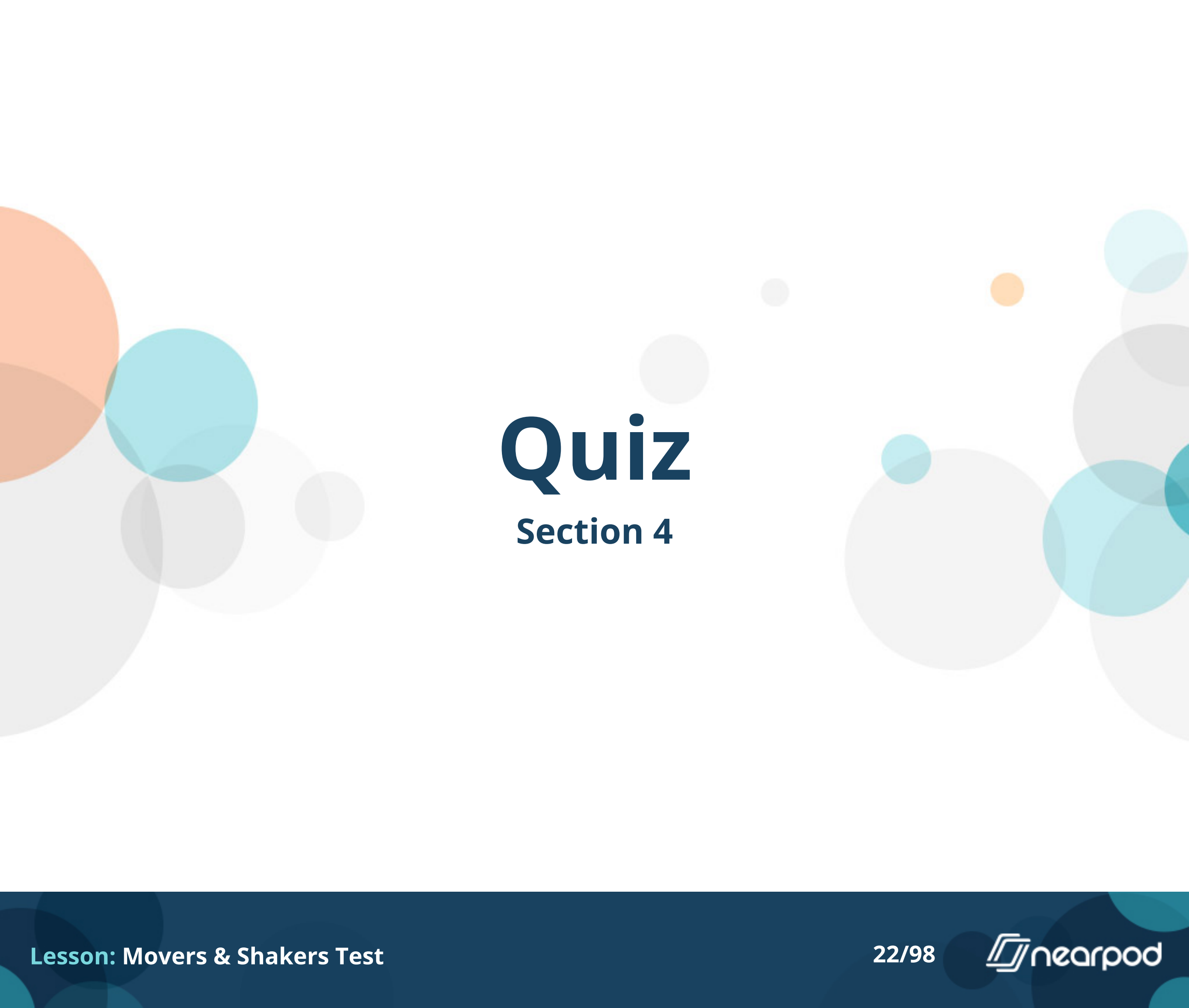
- ☐ North
- ☐ South
- ☐ East
- ☒ West

What scale is used to measure the magnitude of an earthquake?

- ☐ Mercalli
- ☒ Richter
- ☐ Wagner
- ☐ Seismic

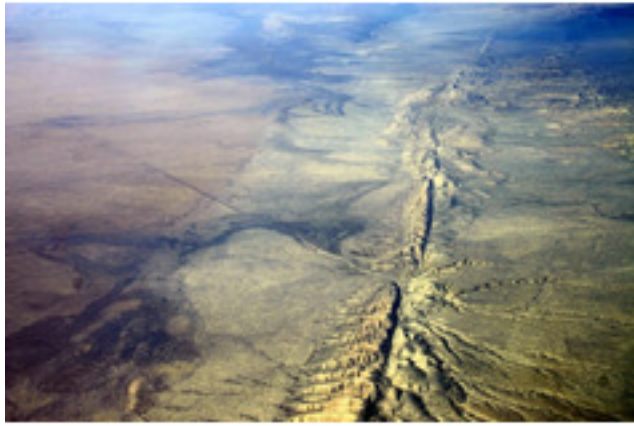
Where are you safer in an earthquake?

- ☐ In a house.
- ☐ In an open area away from buildings.



Quiz

Section 4



Smaller earthquakes that happen in a series before the main earthquake.

- ☐ After shock
- ☐ Earthquake
- ☐ Epicenter
- ☐ **Foreshock**

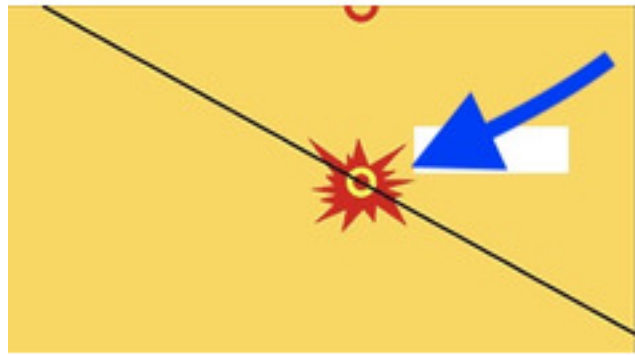
Smaller earthquakes that happen in a series after the main earthquake.

- ☐ After shock
- ☐ Earthquake
- ☐ Epicenter
- ☐ Foreshock



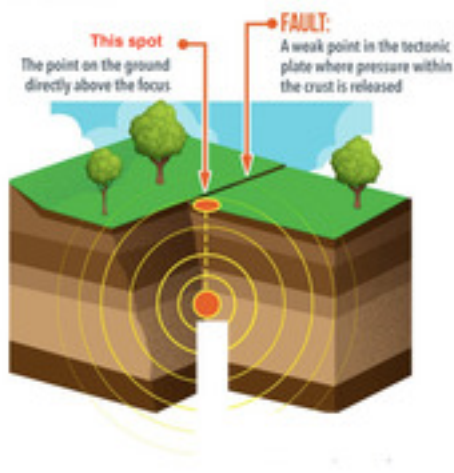
When two parts of Earth's crust suddenly slip past each other releasing energy that transfers through the Earth.

- ☐ After shock
- ☒ Earthquake
- ☐ Epicenter
- ☐ Foreshock



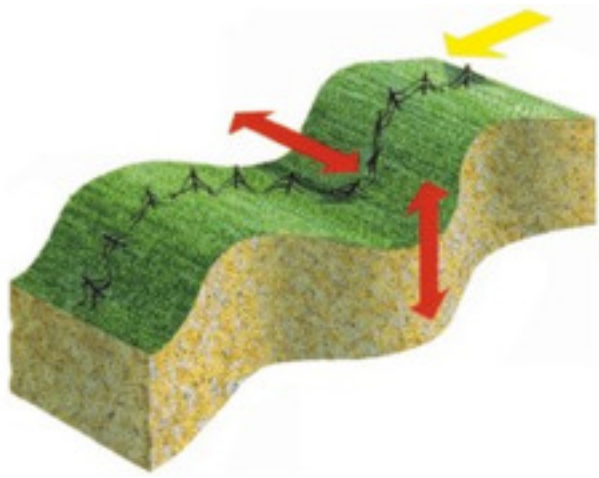
The location of an earthquake below Earth's surface where the movement of blocks of Earth actually occurred.

- ☐ Epicenter
- ☒ Focus (or hypocenter)
- ☐ P-wave
- ☐ S-wave



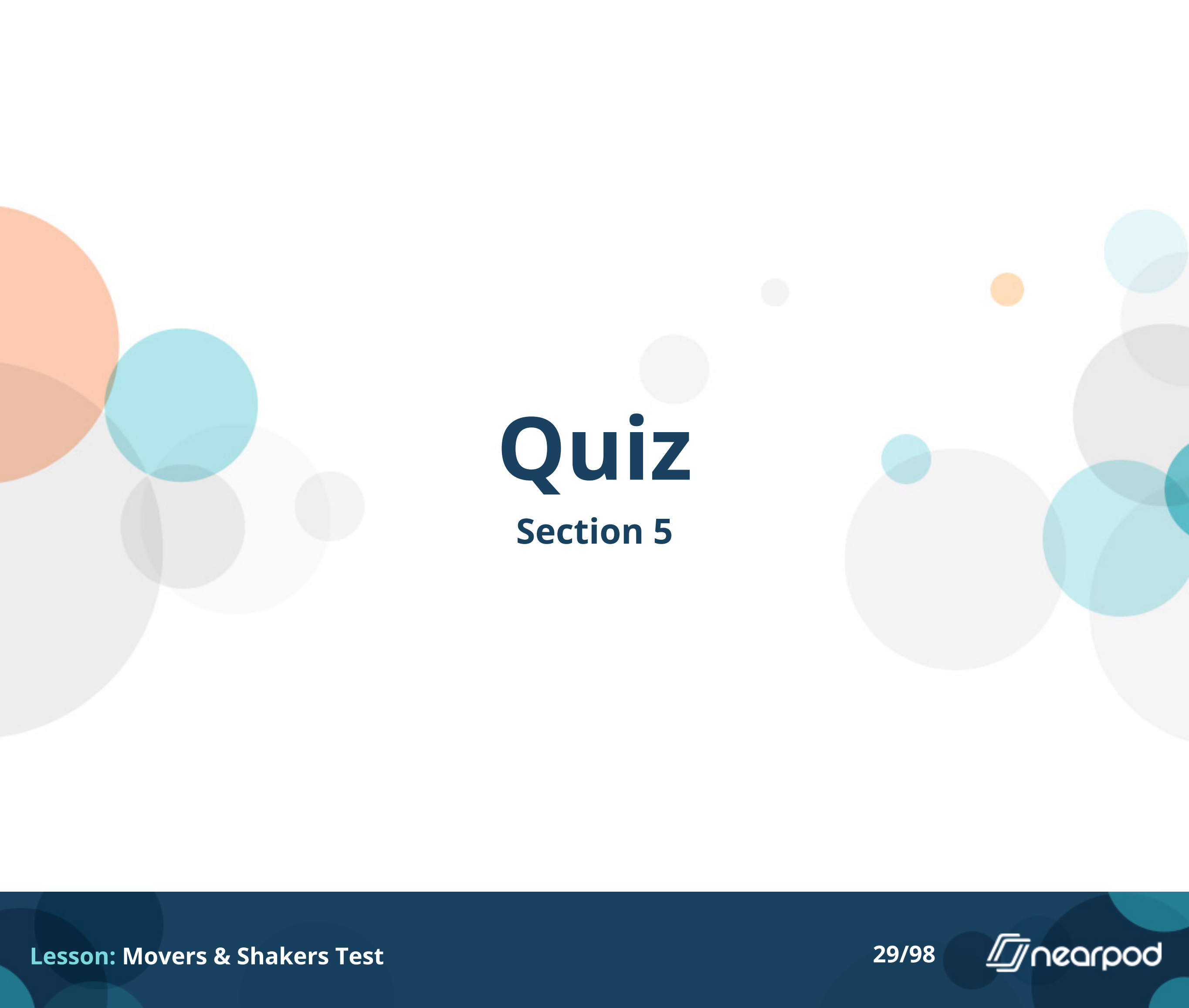
The location of an earthquake on the Earth's surface directly above where the movement happened underground.

- ☐ Epicenter
- ☐ Focus (or hypocenter)
- ☐ P-wave
- ☐ S-wave



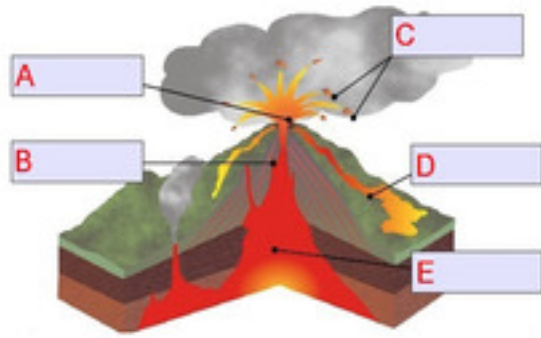
A shear wave of energy, or body wave, that shakes the ground back and forth perpendicular to the direction the wave is moving.

- ☐ Epicenter
- ☐ Focus (or hypocenter)
- ☐ P-wave
- ☐ S-wave



Quiz

Section 5



Match the parts of a volcano with the right letter in the diagram. Which letter shows the CRATER?

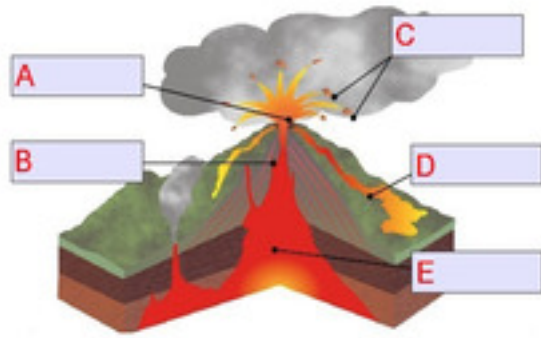
☒ A

☐ B

☐ C

☐ D

☐ E



Match the parts of a volcano with the right letter in the diagram. Which letter shows the LAVA FLOW?

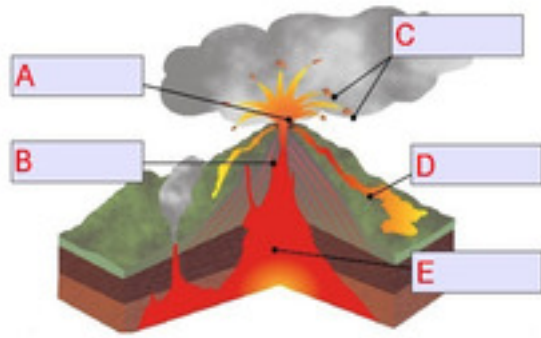
☐ A

☐ B

☐ C

☒ D

☐ E



Match the parts of a volcano with the right letter in the diagram. Which letter shows the PYROCLASTIC MATERIAL?

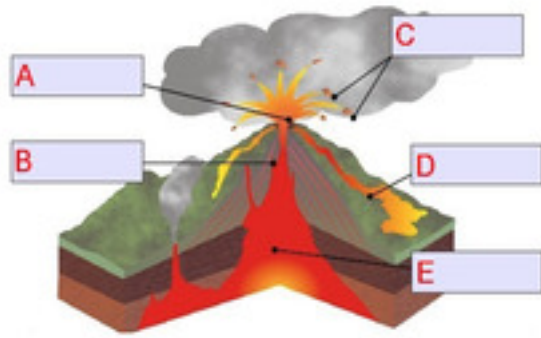
☐ A

☐ B

☒ C

☐ D

☐ E



Match the parts of a volcano with the right letter in the diagram. Which letter shows the VENT?

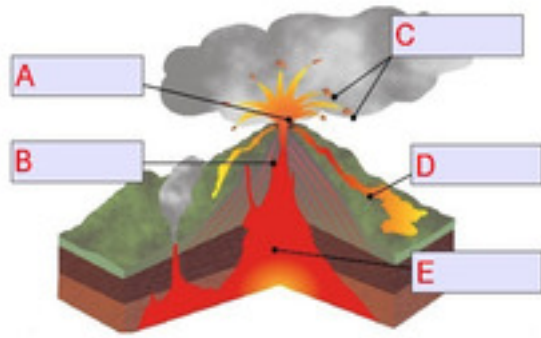
☐ A

☒ B

☐ C

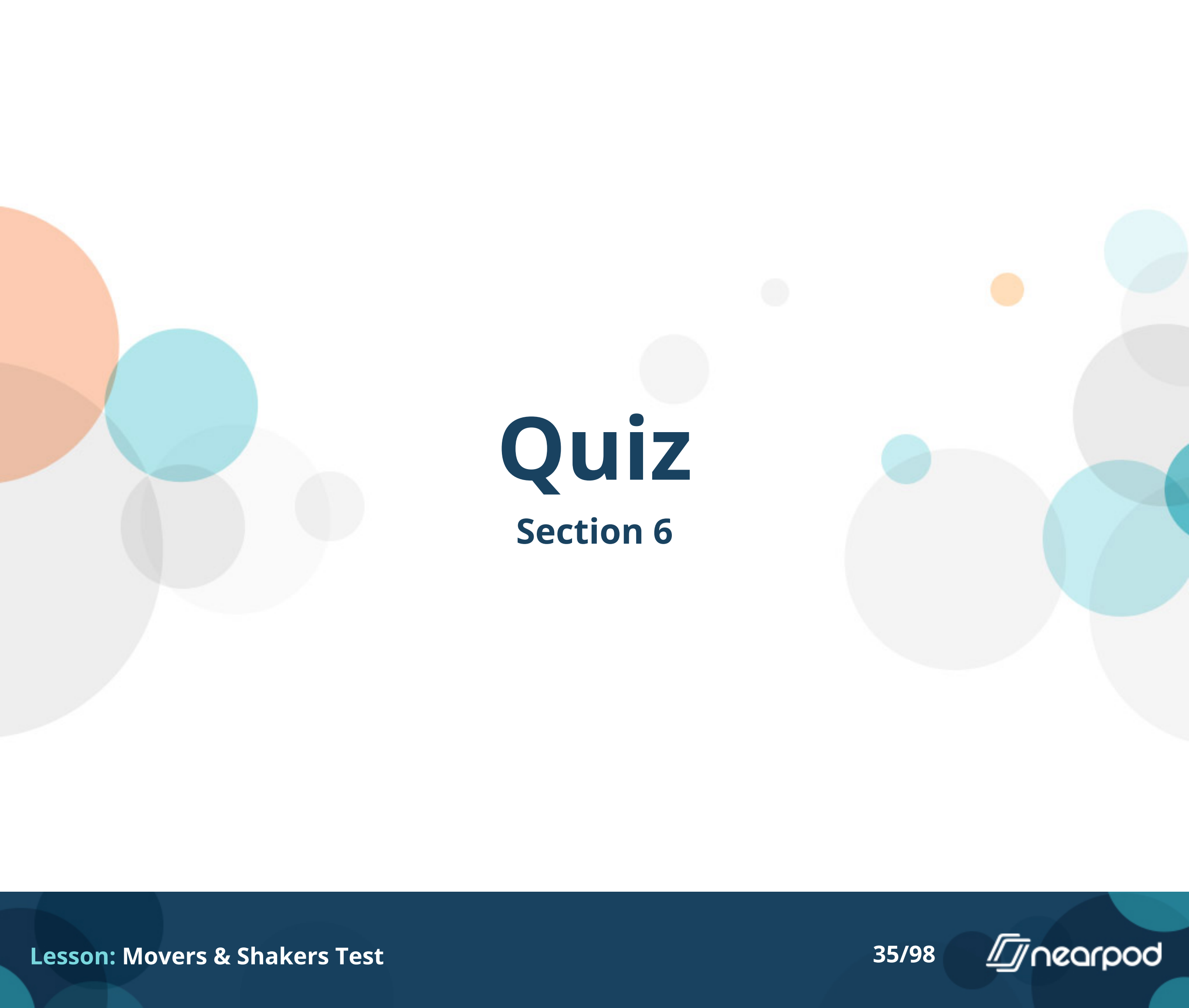
☐ D

☐ E



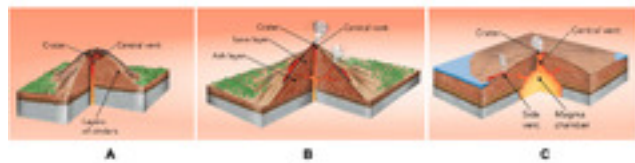
Match the parts of a volcano with the right letter in the diagram. Which letter shows the MAGMA?

- ☐ A
- ☐ B
- ☐ C
- ☐ D
- ☒ E



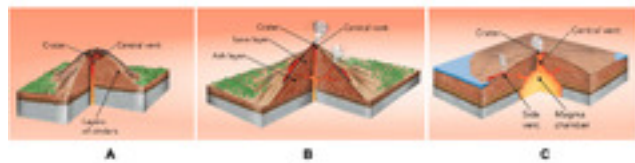
Quiz

Section 6



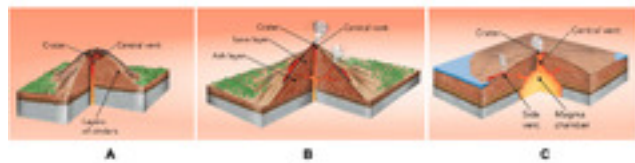
You can click the picture to make it bigger. What type of volcano is picture A?

- ☒ Cinder Cone
- ☐ Composite (Strato)
- ☐ Shield



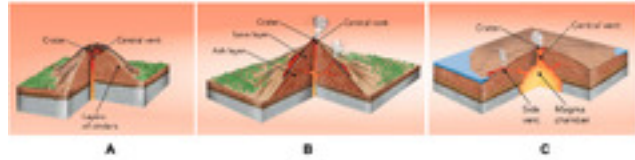
You can click the picture to make it bigger. What type of volcano is picture B?

- ☐ Cinder Cone
- ☒ Composite (Strato)
- ☐ Shield



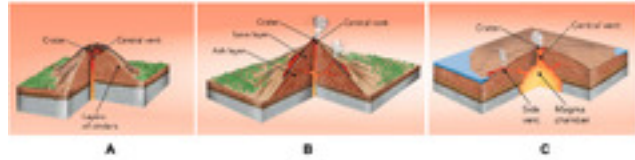
You can click the picture to make it bigger. What type of volcano is picture C?

- ☐ Cinder Cone
- ☐ Composite (Strato)
- ☒ Shield



You can click the picture to make it bigger. Which volcano is a real example of picture B?

- ☐ Hawaiian Islands
- ☒ Mount St. Helens
- ☐ Yellowstone Caldera

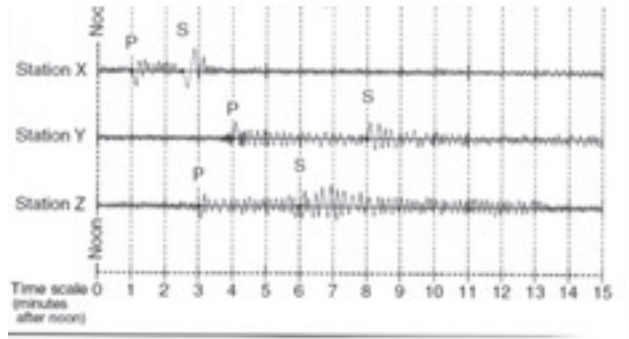


You can click the picture to make it bigger. Which volcano is a real example of picture C?

- ☒ Hawaiian Islands
- ☐ Mount St. Helens
- ☐ Yellowstone Caldera

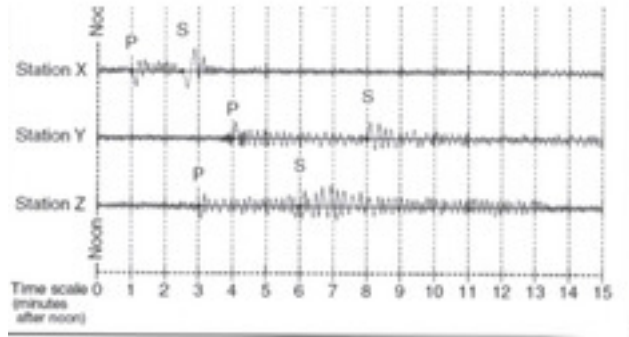
Quiz

Section 7



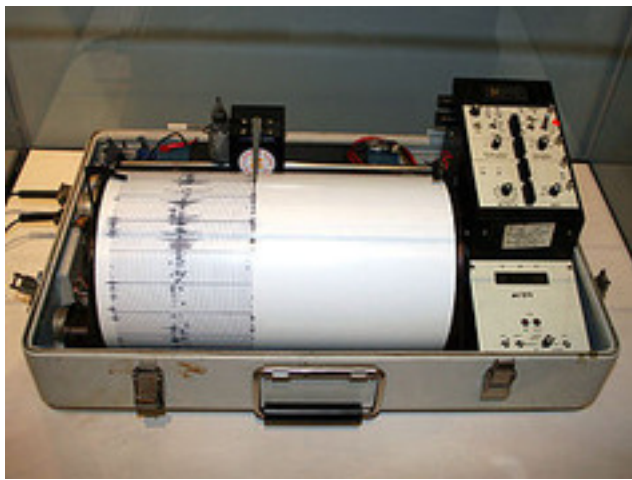
This picture shows data collected during an earthquake in the United States. What is the name of the printout?

- ☒ Seismogram
- ☐ Seismoscope
- ☐ Accelerograph
- ☐ Seismograph



Click on the picture to make it bigger. The earthquake happened closest to which station?

- ☒ Station X
- ☐ Station Y
- ☐ Station Z



What is the name of the machine that collected this data?

- ☐ Seismogram
- ☐ Seismoscope
- ☐ Accelerograph
- ☐ **Seismograph**

Which waves travel through the earth's crust the fastest?

- ☐ L-waves
- ☒ P-waves
- ☐ R-waves
- ☐ S-waves

How many recording stations are necessary to find the location of an earthquake?

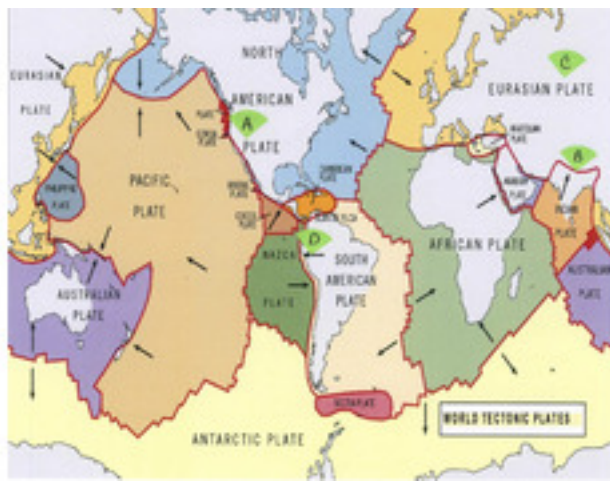
- ☐ 1
- ☐ 2
- ☒ 3
- ☐ 4

As the distance between an observer and an earthquake INCREASES, the difference in the arrival times of P and S waves:

- ☒ **increases**
- ☐ decreases
- ☐ stays the same
- ☐ distance does not affect arrival times

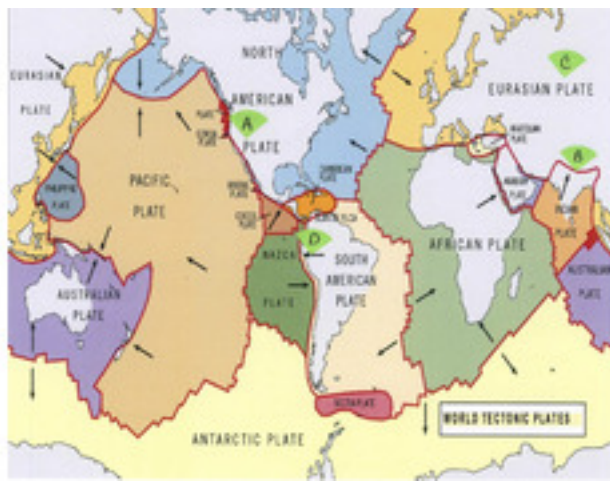
Quiz

Section 8



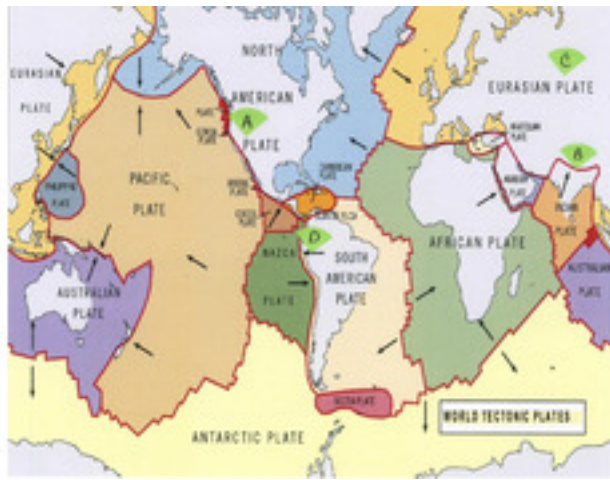
Use the World Tectonic Plates Map to answer these questions. You can click it to make it bigger. What tectonic plate is North Carolina on?

- ☐ Atlantic
- ☒ North American
- ☐ Pacific
- ☐ South American



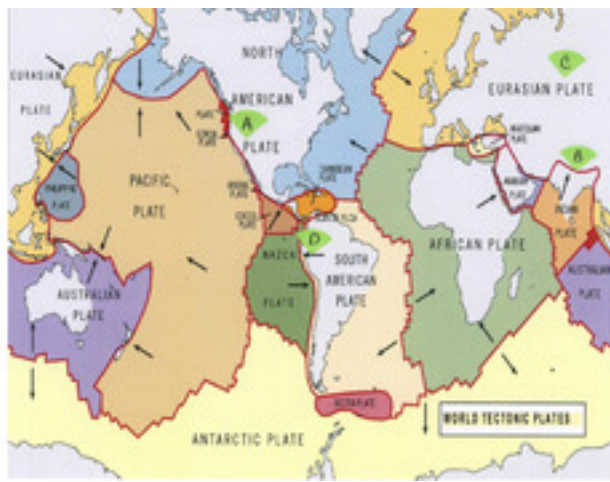
Use the World Tectonic Plates Map to answer these questions. You can click it to make it bigger. What type of plate boundary occurs at the western edge of the Nazca Plate where oceanic crust is moving under continental crust of the South American plate causing earthquakes and volcanic activity?

- ☒ Convergent
- ☐ Divergent
- ☐ Transform



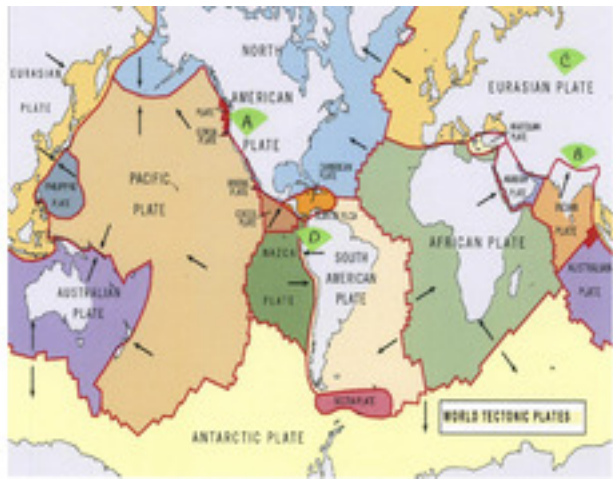
Use the World Tectonic Plates Map to answer these questions. You can click it to make it bigger. What type of plate boundary occurs at the western edge of the North American plate slides past a piece of the Pacific Plate?

- ☐ Convergent
- ☐ Divergent
- ☒ Transform



Use the World Tectonic Plates Map to answer these questions. You can click it to make it bigger. What type of plate boundary occurs in the Atlantic Ocean where the South American Plate and African Plate are moving away from each other?

- ☐ Convergent
- ☒ Divergent
- ☐ Transform



Use the World Tectonic Plates Map to answer these questions. You can click it to make it bigger. There are green letters on the map. Which letter on the map is LEAST likely to experience an earthquake or volcano?

- ☐ A
- ☐ B
- ☒ C
- ☐ D



Quiz

Section 9



Molten rock inside the Earth is called _____. Once it breaks through to the Earth's surface, it is called _____.

- ☐ Lava, magma
- ☐ Molten rock, igneous rock
- ☐ Quartz, granite
- ☐ Magma, lava

If 2 oceanic plates collide, what will happen?

- ☒ One will subduct under the other
- ☐ They will both push up to form a volcanic mountain
- ☐ Their edges will melt and fuse together
- ☐ They will form a hotspot volcano

When Oceanic and Continental crust collide, which one always subducts?

- ☒ Oceanic crust
- ☐ Continental Crust

New crust forms along a(n):

- ☐ Convergent boundary
- ☒ Divergent boundary
- ☐ Transform boundary



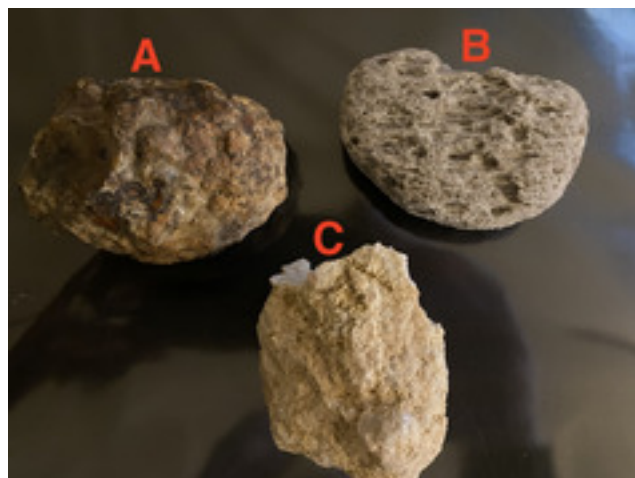
This is Iceland's Bardarbunga volcano which last erupted in February of 2015. A large glacier covers part of this system. If the magma stored under the glacier were to erupt, it could rapidly melt the ice there and cause what kind of natural disaster often linked to volcanic eruptions?

- ☐ earthquake
- ☐ geyser
- ☒ **mudslide**
- ☐ pyroclastic flow



Quiz

Section 10



Look at the rock samples in the picture. Which one is pumice?

☐ A

☒ B

☐ C



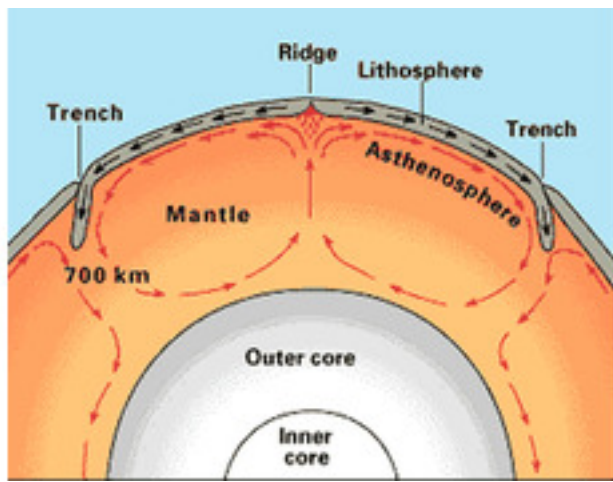
What is the name of the giant supercontinent in the picture?

- ☐ Laurasia
- ☐ Gondwanaland
- ☐ North America
- ☒ Pangaea



Which scientist is credited with the continental drift hypothesis?

- ☐ Hess
- ☐ Morgan
- ☐ Wilson
- ☒ **Wegener**



What is the name of the 'conveyer' belt motion that moves the plates around?

- ☐ Conduction
- ☒ Convection
- ☐ Subduction
- ☐ Subvection

True or False. Tectonic plates are still moving and eventually the continents will rejoin into a super landmass.

☒ True

☐ False



Quiz

Section 11



This picture was taken at Yellowstone National Park. Volcanic activity that is not near a plate boundary is called a:

- ☐ Caldera
- ☒ Hot Spot
- ☐ Ridge
- ☐ Trench



Which letter on the map is closest to the Yellowstone Caldera?

☐ A

☐ B

☐ C

☒ D



Yellowstone has many geysers, hot springs and mud pots, but no lava flows on to the surface. Is this volcano still active?

- ☐ Yes
- ☒ No
- ☐ You can't tell from this information



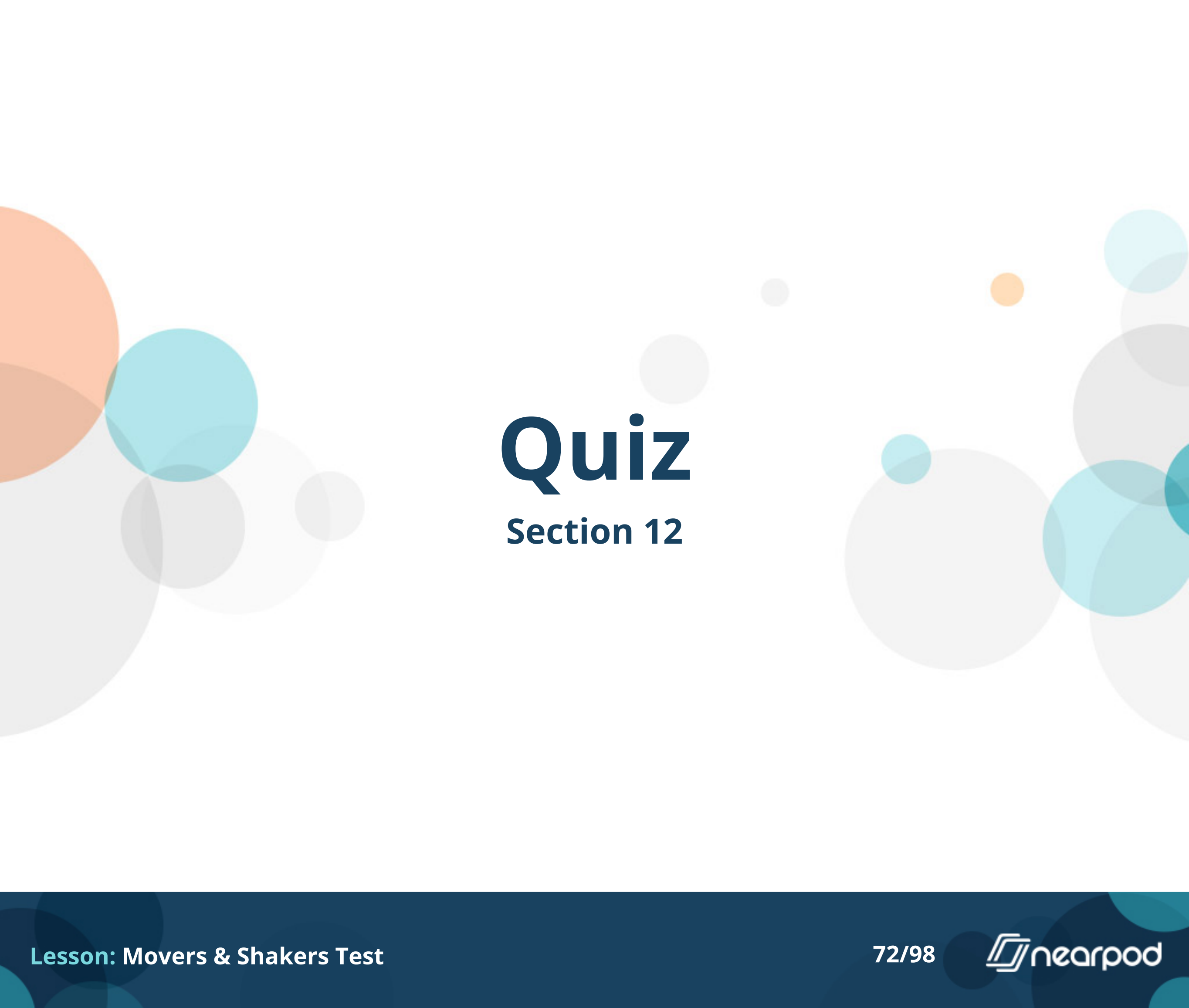
This formation in Yellowstone shoots hot water up about once an hour. What is this type of formation called?

- ☒ Geyser
- ☐ Hot spring
- ☐ Mud pot
- ☐ Pyroclastic flow



This formation in Yellowstone is called Morning Glory. Those colors are real and caused by the bacteria that live in the warm water in the hole. What is this type of formation called?

- ☐ Geyser
- ☒ Hot spring
- ☐ Mud pot
- ☐ Pyroclastic flow



Quiz

Section 12



True or False. All volcanic eruptions are explosive.

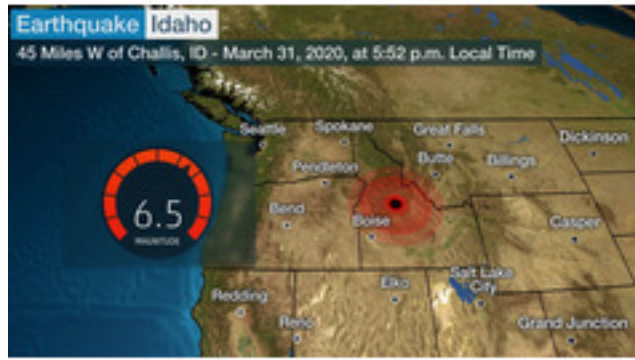
☐ True

☒ False



True or False. A large volcanic eruption may be preceded by small earthquakes.

- ☒ True
- ☐ False



True or False. Usually, the mainshock of an earthquake tends to last about 3-4 hours.

☐ True

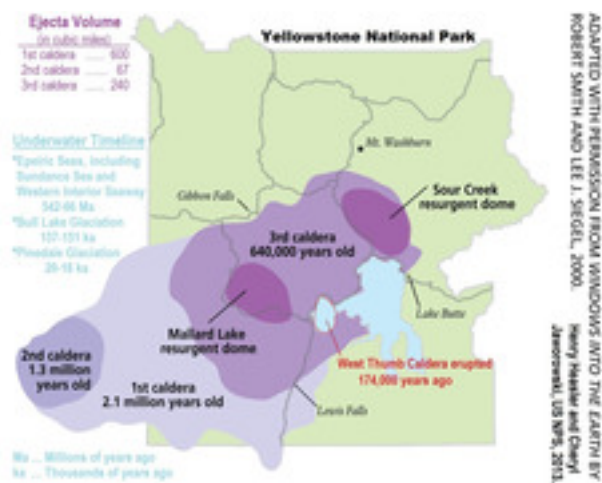
☒ False



True or False. A volcano is extinct if the magma chamber has cooled and solidified, but it will erupt again someday.

☐ True

☒ False

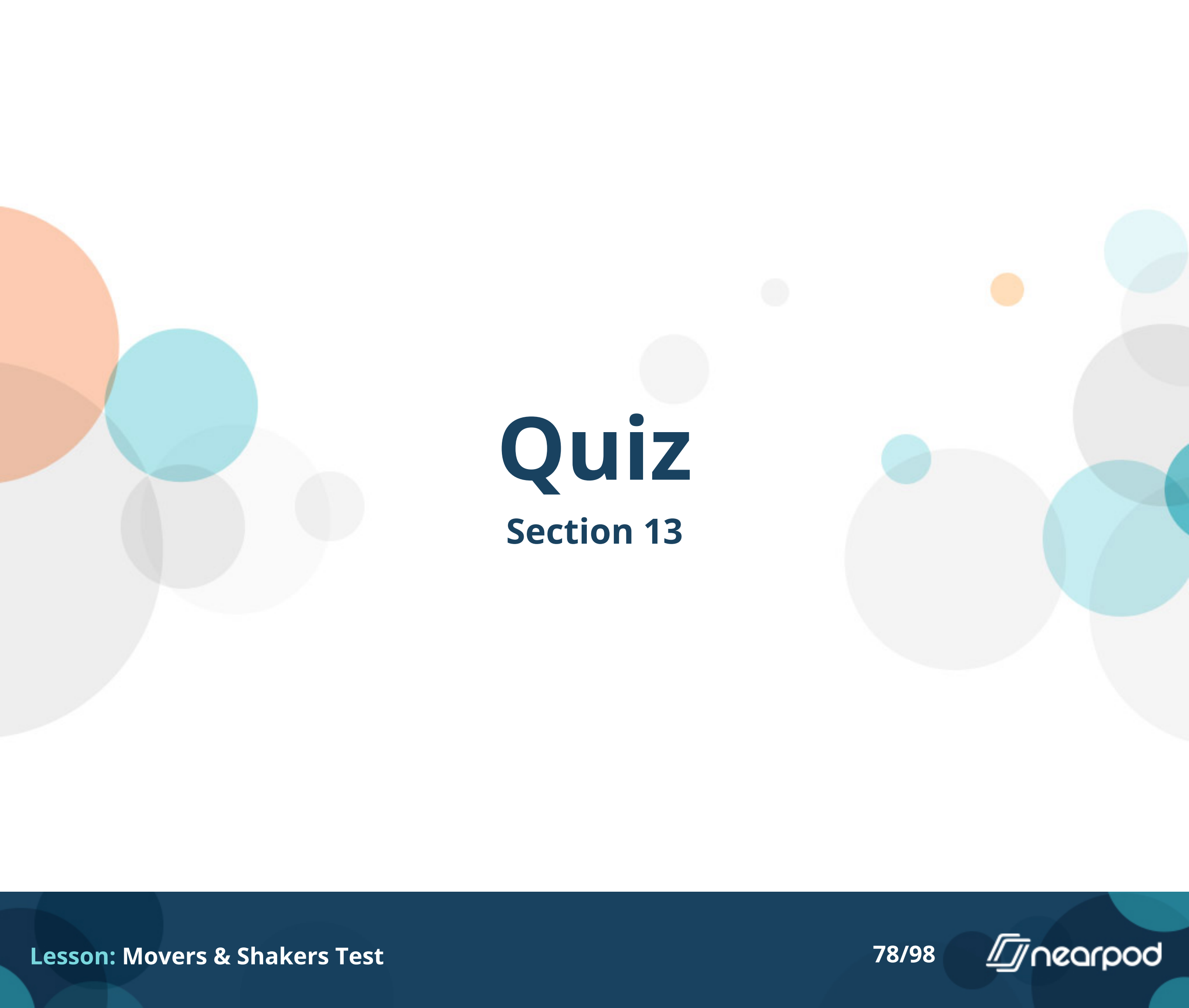


True or False. The Yellowstone Caldera is extinct and will not erupt again.

☐ True

☒ False

☒ False



Quiz

Section 13

Worldwide Earthquakes 2000–2016

12/6

Magnitude	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
8.0+	1	1	0	1	2	1	2	4	0	1	1
7-7.9	14	15	13	14	14	10	9	14	12	16	23
6-6.9	146	121	117	140	141	140	142	178	168	144	150
5-5.9	1144	1234	1201	1208	1315	1403	1712	2074	1768	1896	2309
Estimated Deaths	231	21,917	1685	33819	294101	879512	6005	798	88708	1790	226050

Use the data table to answer these questions. Remember to click the table to make it bigger. Which year had the most total earthquakes worldwide?

- ☐ 2000
- ☐ 2001
- ☐ 2002
- ☐ 2003
- ☐ 2004
- ☐ 2005
- ☐ 2006
- ☐ 2007
- ☐ 2008
- ☐ 2009
- ☒ 2010

Worldwide Earthquakes 2000–2016

12/6

Magnitude	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
8.0+	1	1	0	1	2	1	2	4	0	1	1
7-7.9	14	15	13	14	14	10	9	14	12	16	23
6-6.9	146	121	117	140	141	140	142	178	168	144	150
5-5.9	1144	1234	1201	1208	1315	1403	1712	2074	1768	1896	2309
Estimated Deaths	231	21,917	1685	33819	294101	879512	6005	798	88708	1790	226050

Use the data table to answer these questions. Remember to click the table to make it bigger. Which year had the most large scale earthquakes?

- ☐ 2000
- ☐ 2001
- ☐ 2002
- ☐ 2003
- ☐ 2004
- ☐ 2005
- ☐ 2006
- ☒ 2007
- ☐ 2008
- ☐ 2009
- ☐ 2010

Worldwide Earthquakes 2000–2016

12/6

Magnitude	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
8.0+	1	1	0	1	2	1	2	4	0	1	1
7-7.9	14	15	13	14	14	10	9	14	12	16	23
6-6.9	146	121	117	140	141	140	142	178	168	144	150
5-5.9	1144	1234	1201	1208	1315	1893	1712	2074	1768	1896	2309
Estimated Deaths	231	21357	1685	33819	298101	879512	6005	708	88708	1790	226050

Use the data table to answer these questions. Remember to click the table to make it bigger. Which year has the least estimated deaths from earthquakes?

- ☒ 2000
- ☐ 2001
- ☐ 2002
- ☐ 2003
- ☐ 2004
- ☐ 2005
- ☐ 2006
- ☐ 2007
- ☐ 2008
- ☐ 2009
- ☐ 2010

United States Earthquakes 2000–2012

Magnitude	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
8+	0	0	0	0	0	0	0	0	0	0	0
7-7.9	0	1	1	2	0	1	0	1	0	0	1
6-6.9	6	5	4	7	2	4	7	9	9	4	8
5-5.9	63	41	63	54	25	47	52	72	85	58	89
Estimated Deaths	0	0	0	2	0	0	0	0	0	0	0

2007 had 4 earthquakes over an 8. Were any of those in the US?

- ☐ Yes
- ☒ No
- ☐ There is not enough data to answer that question

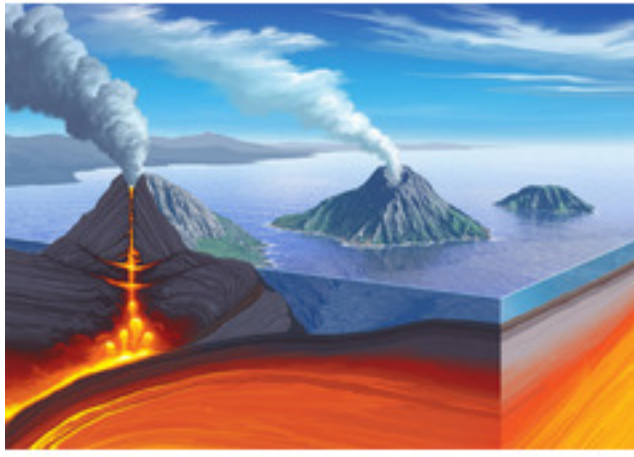
2007 had 4 very large earthquakes, but relatively few deaths. Why might that be true?

- ☐ The earthquakes occurred in areas with very sturdy buildings
- ☐ The earthquakes did not last very long, so they didn't cause much damage
- ☐ **The earthquakes occurred in areas without people**
- ☐ The earthquakes caused tsunamis and that doesn't get counted in the total deaths



Quiz

Section 14

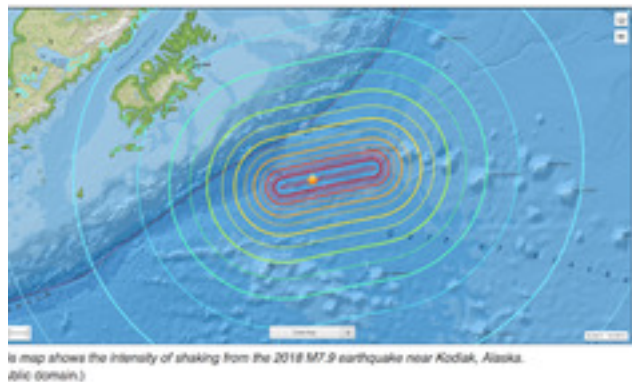


Island Arcs, like the islands of Japan, form when two:

- ☐ Oceanic plates converge
- ☐ Oceanic plates scrape past each other
- ☐ Continental plates scrape past each other
- ☐ Continental plates converge

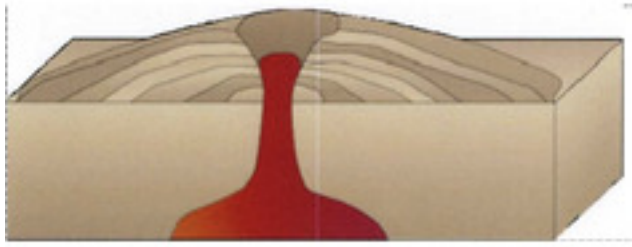
A tectonic plate is a slab of Earth's:

- ☐ Asthenosphere
- ☐ Inner core
- ☒ Lithosphere
- ☐ Outer core



This map shows the location of a recent earthquake in the ocean. What would people living near the coast have to be on alert for?

- ☐ mudslides
- ☐ rip currents
- ☒ tsunamis
- ☐ volcanoes



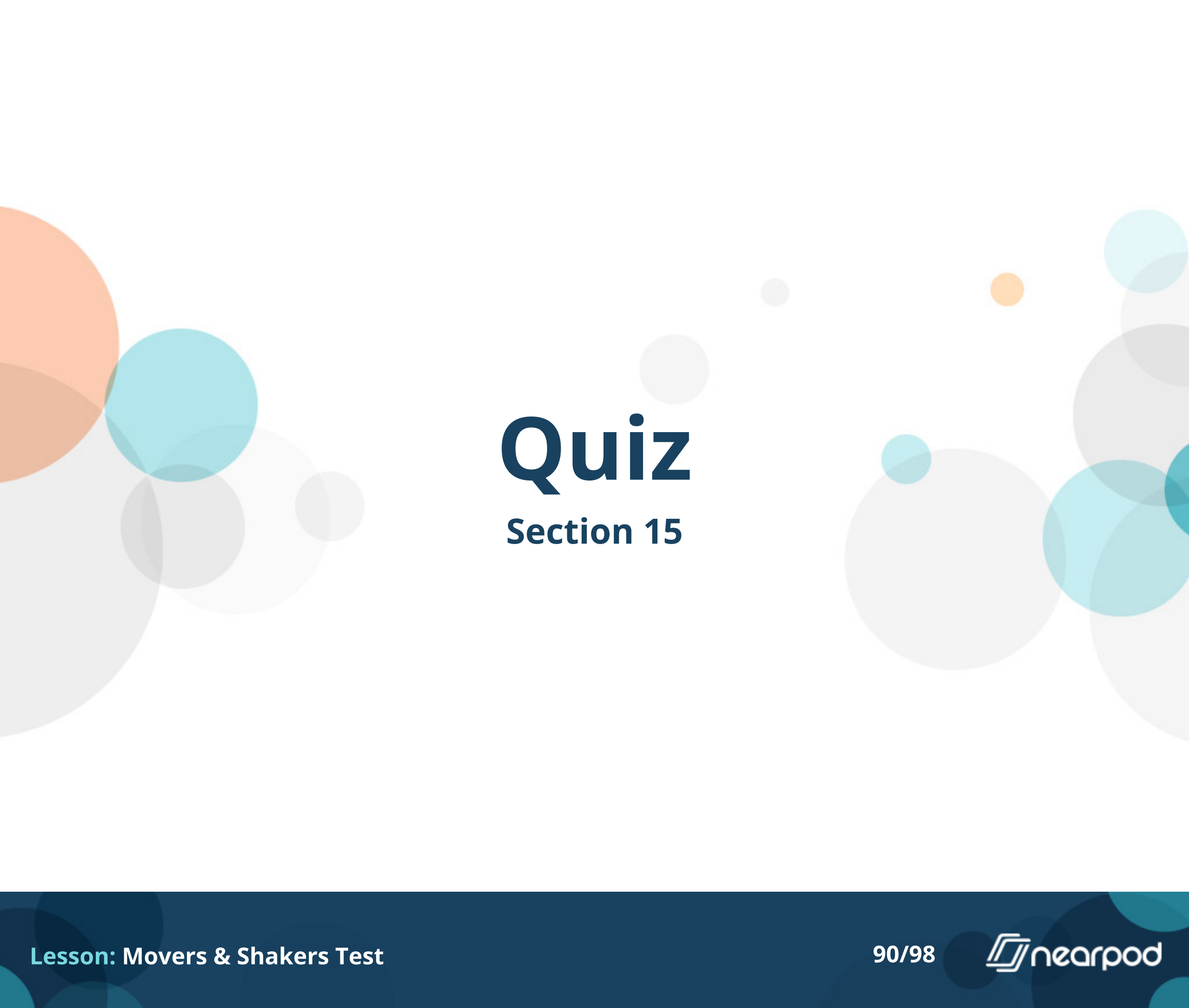
This volcano shows layers of ash and then lava stacked up on top of each other. What type of volcano is it?

- ☐ Cinder Cone
- ☒ Composite Cone (Stratovolcano)
- ☐ Shield Cone



This type of volcano has little to no lava, but often explodes violently and blows its top off. What type of volcano is it?

- ☒ **Cinder Cone**
- ☐ Composite Cone (Stratovolcano)
- ☐ Shield Cone



Quiz

Section 15

Plate Boundaries		
Plate	Number of convergent boundaries	Number of divergent boundaries
African	1	4
Antarctic	1	2
Indo-Australian	4	2
Eurasian	4	1
North American	2	1
Pacific	6	2
South American	2	1

Which plate has the most spreading boundaries?

- ☒ African
- ☐ Antarctic
- ☐ Indo-Australian
- ☐ Eurasian
- ☐ North American
- ☐ Pacific
- ☐ South American

Plate Boundaries		
Plate	Number of convergent boundaries	Number of divergent boundaries
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Indo-Australian	4	2
Eurasian	4	1
North American	2	1
Pacific	6	2
South American	2	1

If composite volcanoes form along convergent plate boundaries, which plate should be surrounded by the most composite volcanoes?

- ☐ African
- ☐ Antarctic
- ☐ Indo-Australian
- ☐ Eurasian
- ☐ North American
- ☒ Pacific
- ☐ South American



The Hawaiian Islands formed over time from a hot spot under the Pacific Plate. The red dots show the volcanoes that are still active. In which direction is the Pacific Plate moving?

- ☒ North-northwest
- ☐ North-northeast
- ☐ South-southwest
- ☐ South-southeast



Which of the islands is the oldest?

- ☐ Hawaii
- ☒ Kauai
- ☐ Molokai
- ☐ Oahu

Volcanoes are associated with all of the following EXCEPT:

- ☐ rift zones
- ☐ epicenters
- ☐ subduction zones
- ☐ hot spots