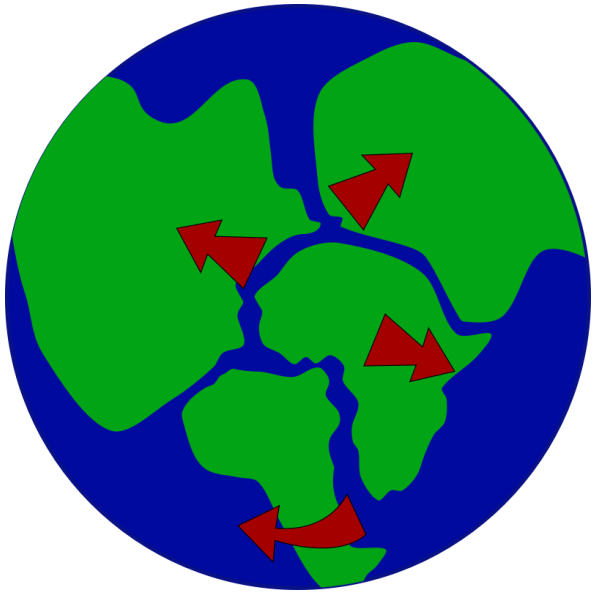
Pangea, Continental Drift, Plate Tectonics & Boundaries

Convergent, Divergent, & Transform



Created by Marie at thehomeschooldaily.com

Who is Alfred Wegener?

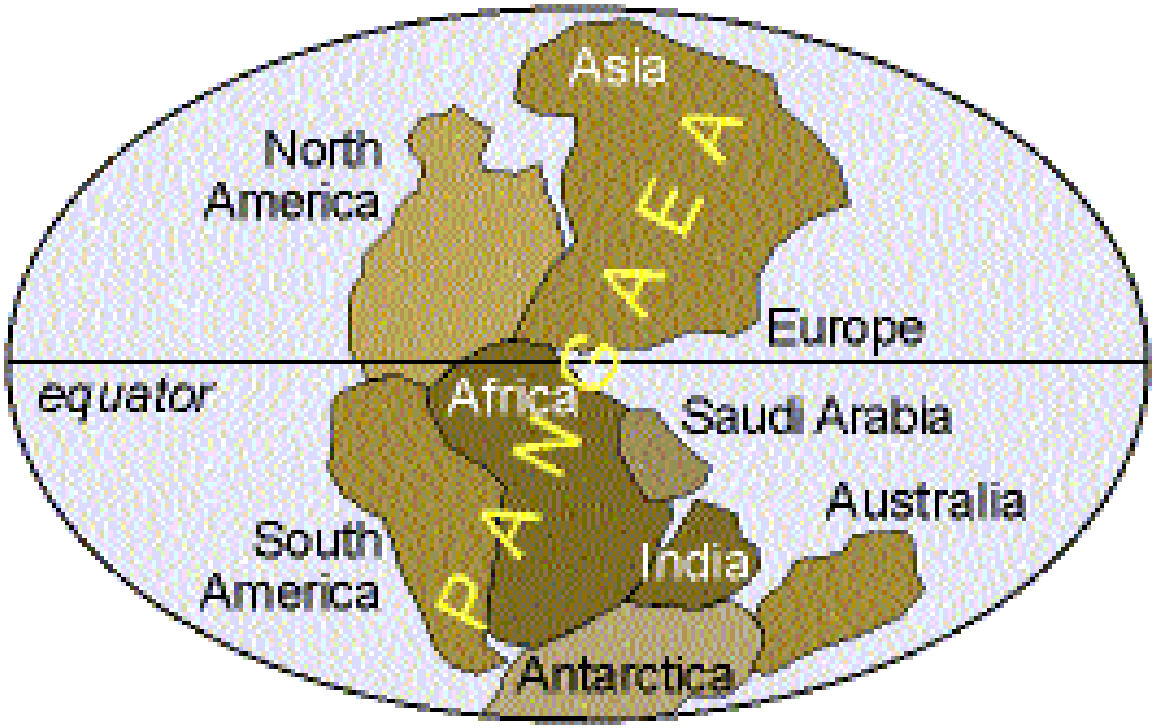
A scientist by the name of Alfred Wegener is known as "the Father of Plate Tectonics." He first presented his theories in 1912. The theory of plate tectonics is also connected to two other well-known theories: Pangaea and the Continental Drift Theory.

What is a theory?

A theory is not a fact, but an idea that explains something. Is a theory true? It could be, but then again it could not be.

What is Pangaea?

Wegener proposed that all the lands were once joined together in one supercontinent. This supercontinent became known as Pangaea.

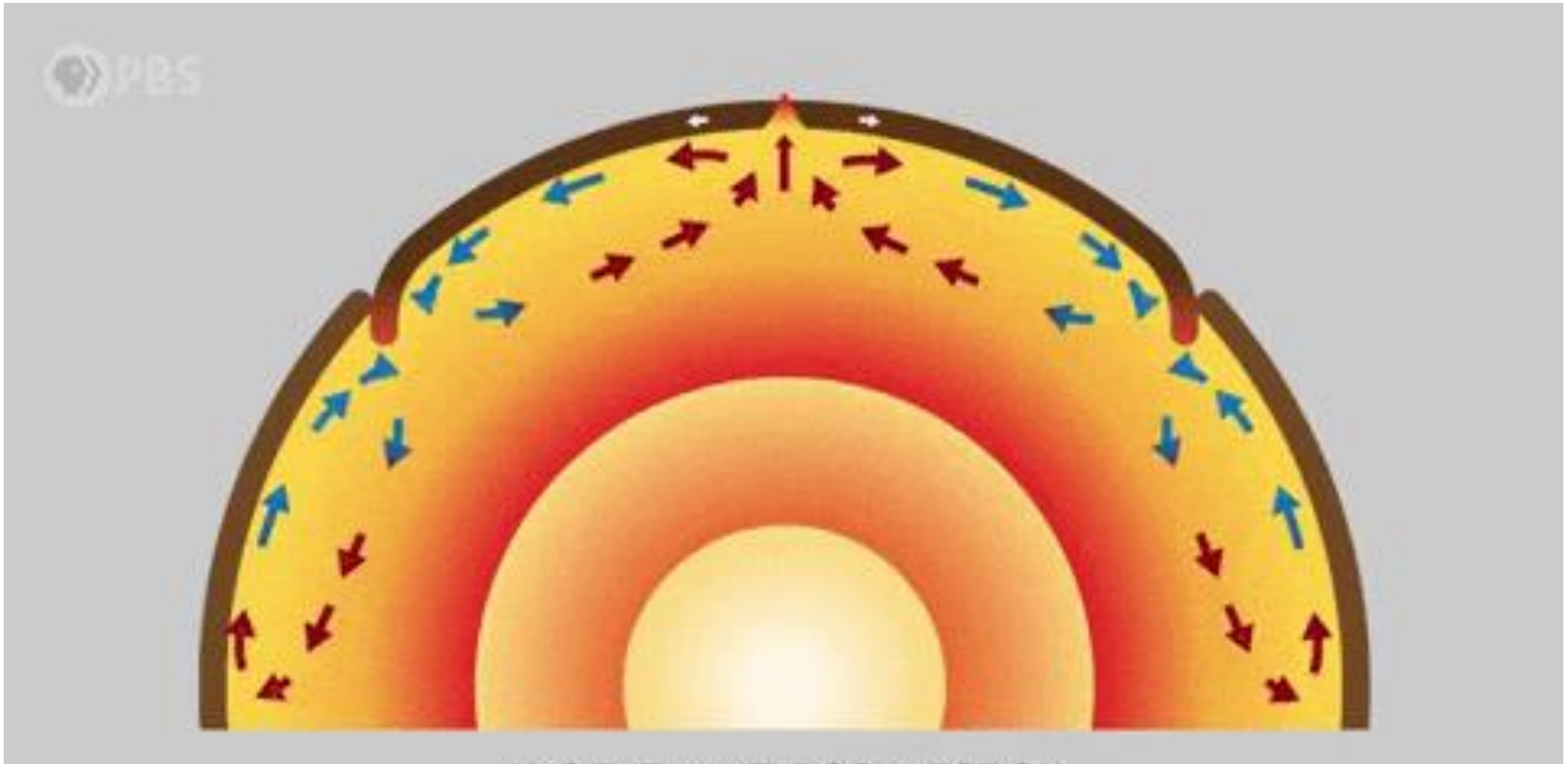


What is the Continental Drift Theory?

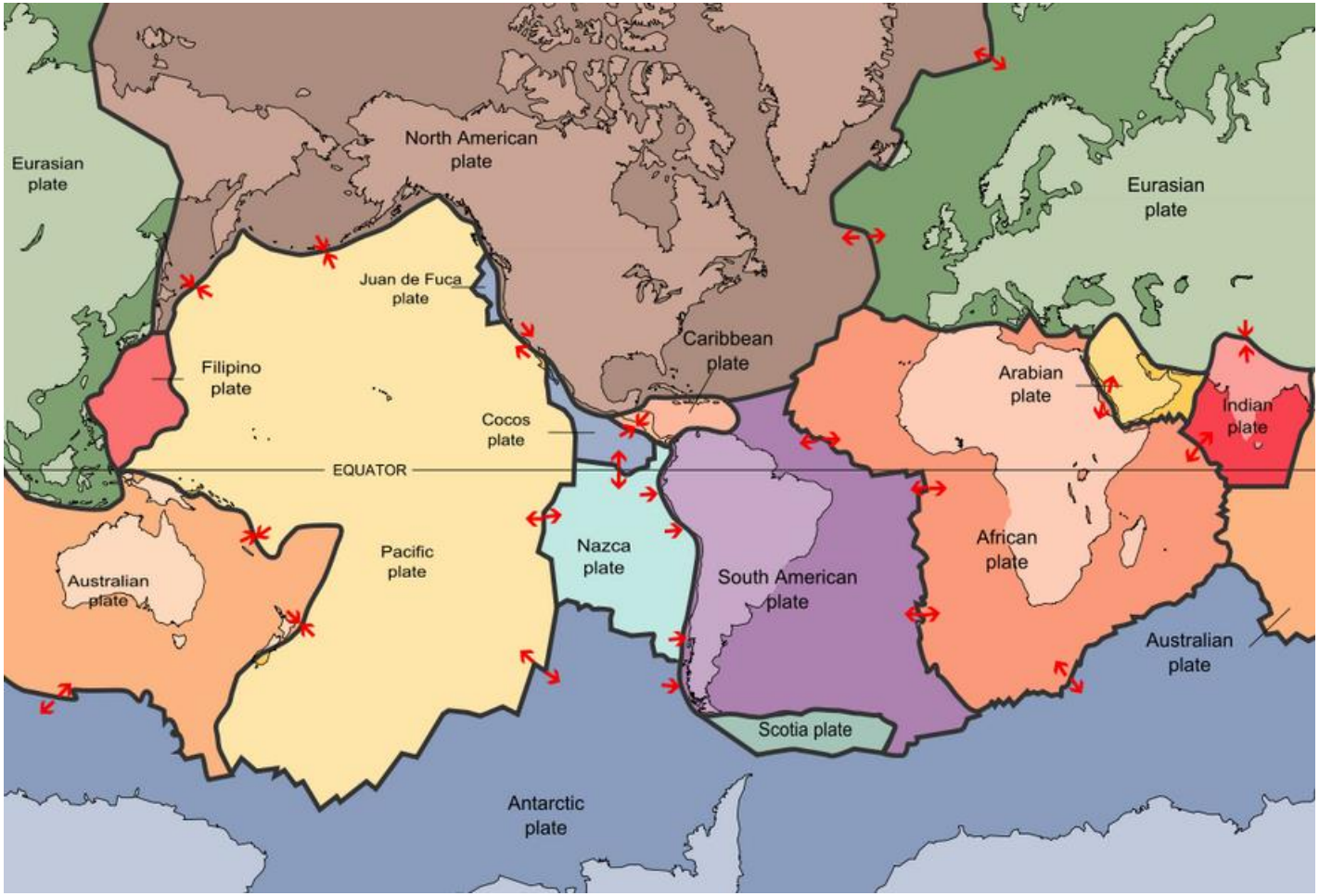
This theory states that the one large mass of land (Pangaea) spread apart and drifted into their current positions.

What is plate tectonics?

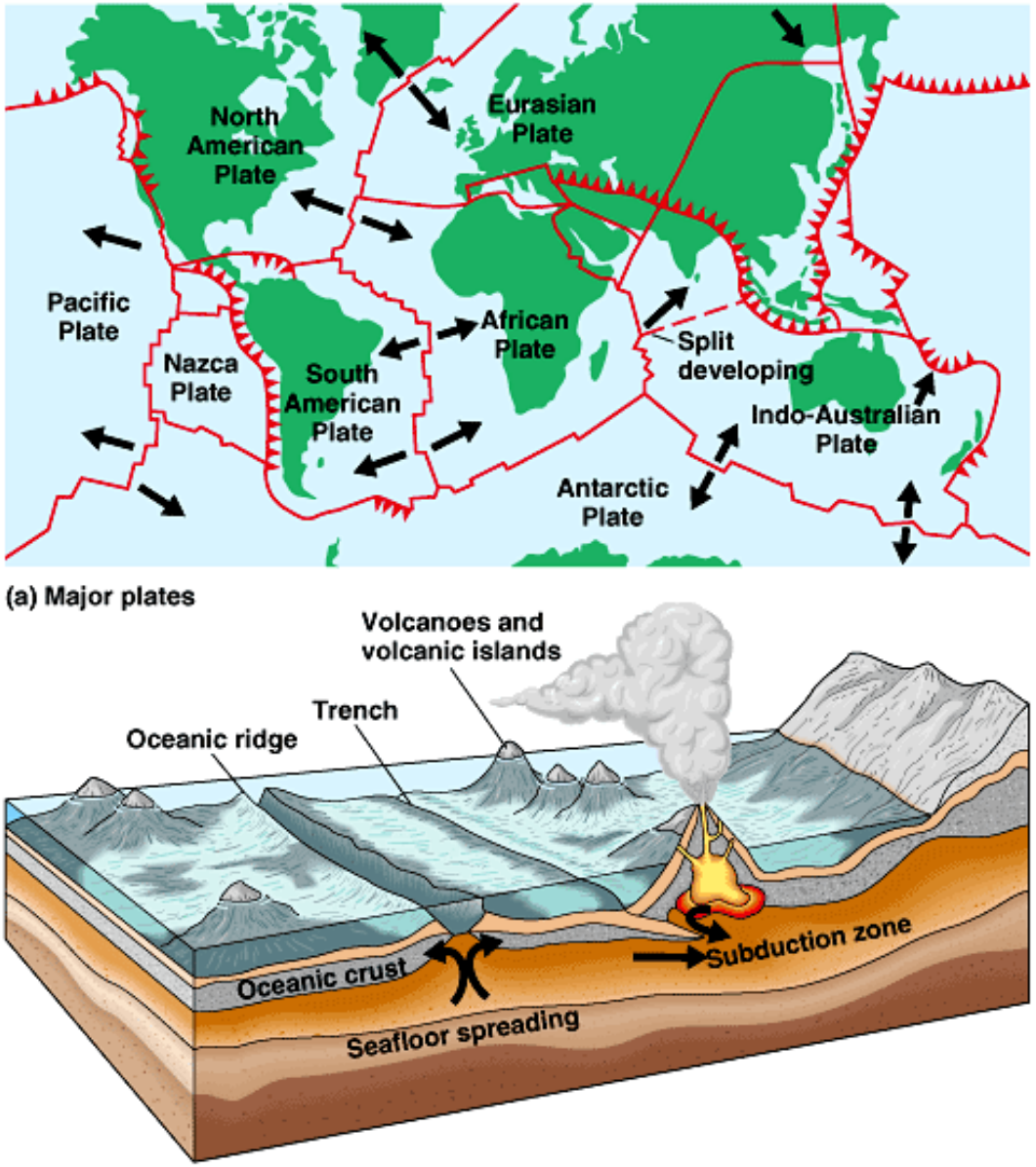
The theory of Plate tectonics states that pieces of Earth's lithosphere are in slow, constant motion, *driven by convection currents in the mantle*.



The seven major plates are the African, Antarctic, Eurasian, North American, South American, India-Australian, and the Pacific plates. There are several minor plates too.

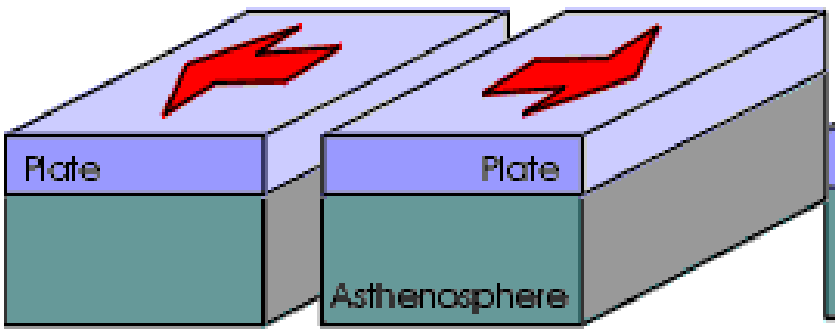


The theory of plate tectonics explains the formation, movement, and subduction of Earth's plates. The movement of tectonic plates is most evident at the boundaries between the plates.

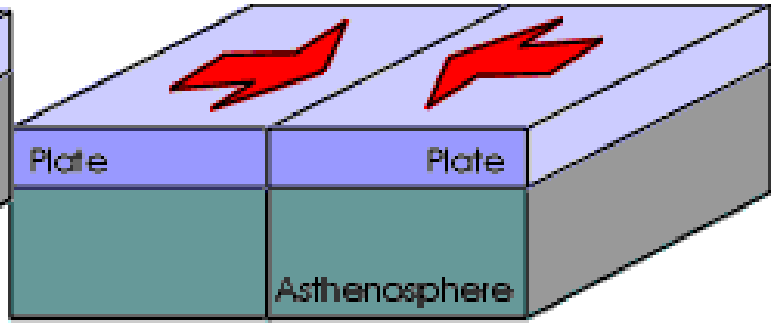


What are the 3 boundaries?

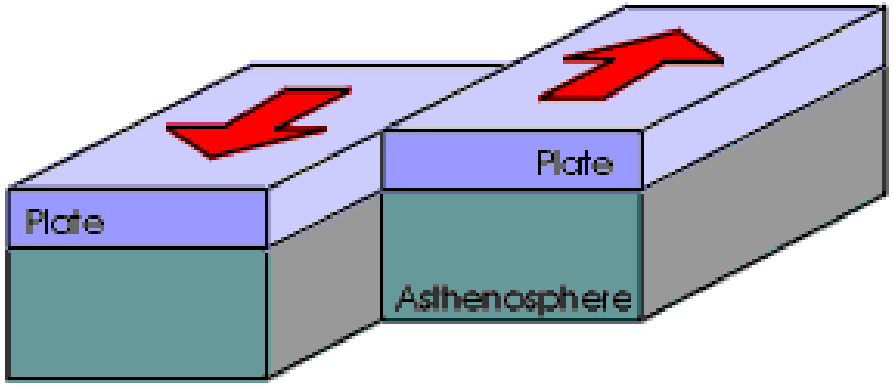
Convergent, Divergent, and Transform



Divergent



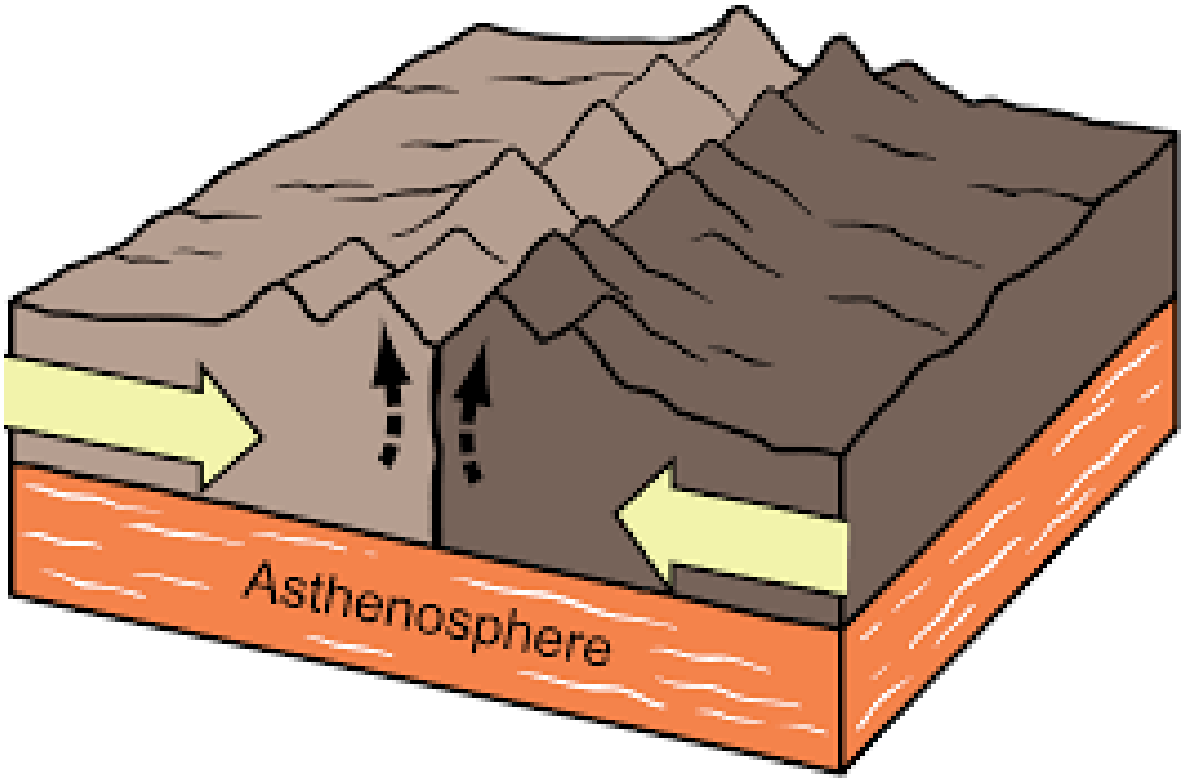
Convergent



Transform

What is a Convergent Boundary?

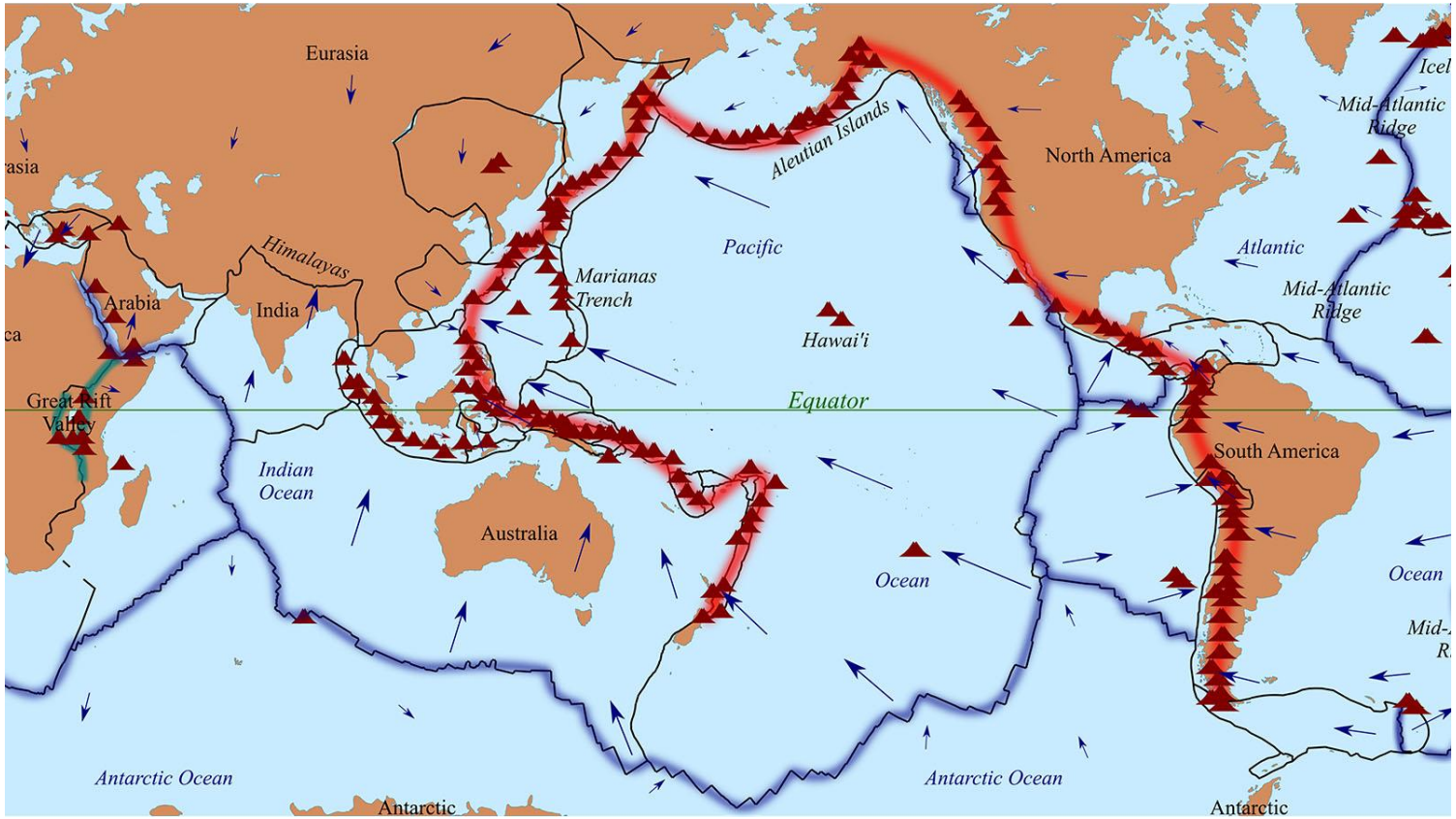
Convergent plate boundaries are locations where plates are moving towards one another.



Convergent plate boundaries produce earthquakes, volcanic activity, and crustal deformation. Most of Earth's seismic activity and active volcanoes happen in the Ring of Fire.

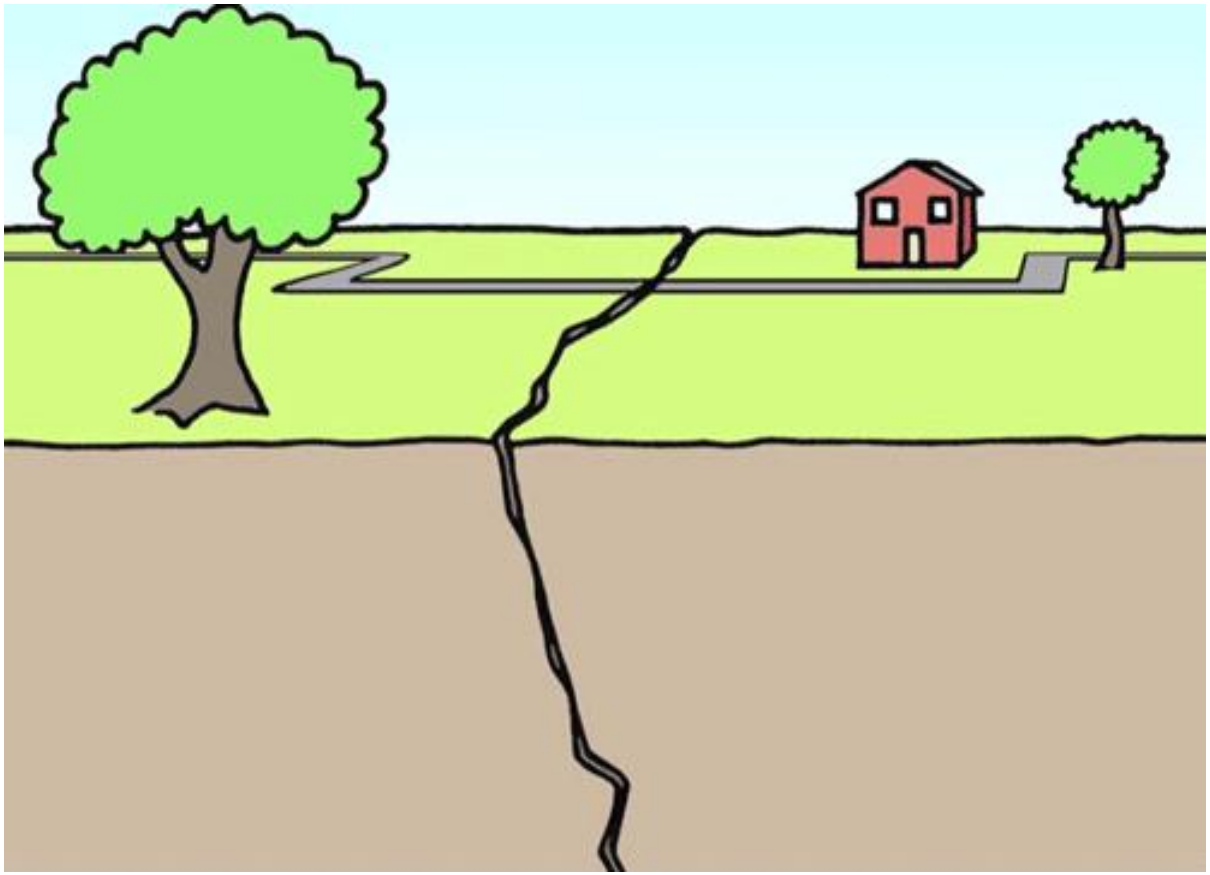
What is the Ring of Fire?

It is a region in the Pacific Ocean where 90% of the Earth's earthquakes and 75% of all active volcanoes reside. The Ring of Fire is said to be caused primarily by convergence.



What is an earthquake?

The shaking that results from the movement of rock beneath the Earth's surface at a fault.

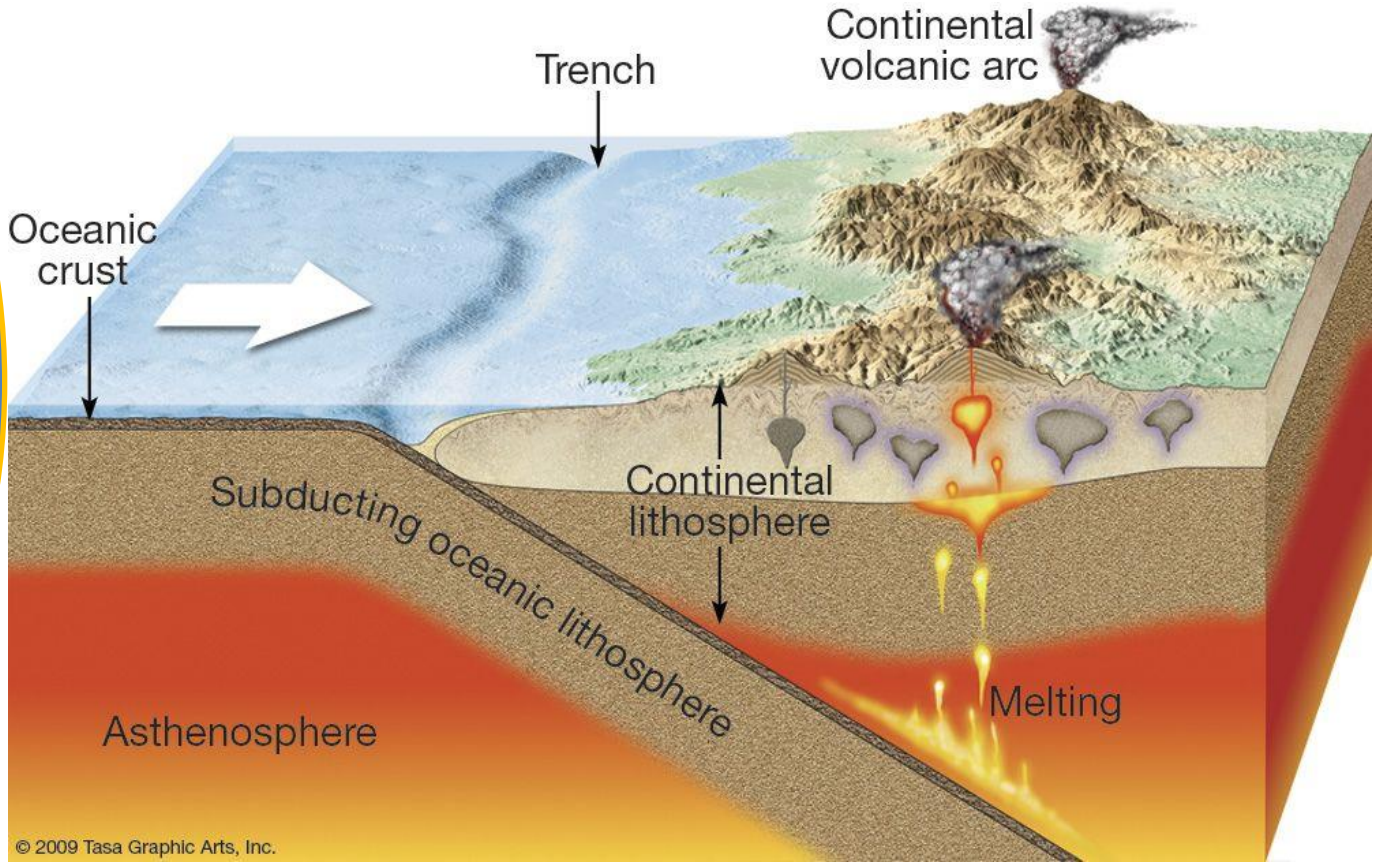


A fault is a break or crack in the Earth's crust along which rock moves.

What is a volcano?

A mountain that develops when magma pushes up through the Earth's surface.

Magma is molten rock. When it hits the surface of the Earth, magma becomes lava.

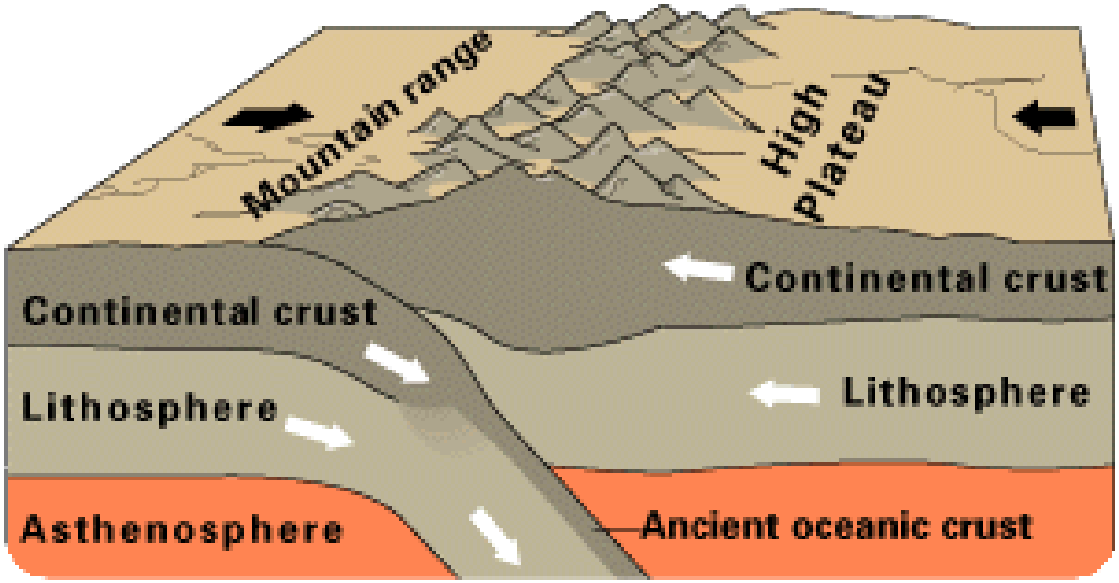


Convergent Boundary

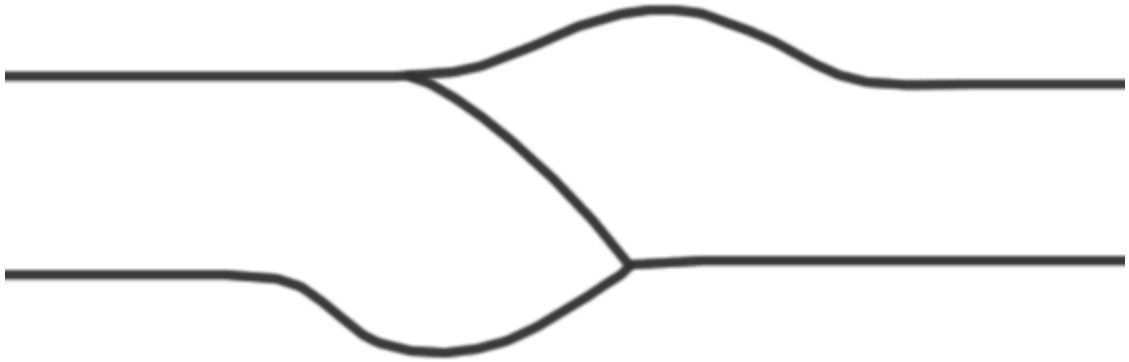
Continental & Continental Crust

When 2 continental plates collide, they form mountains.

An example is the Himalayan Mountains.



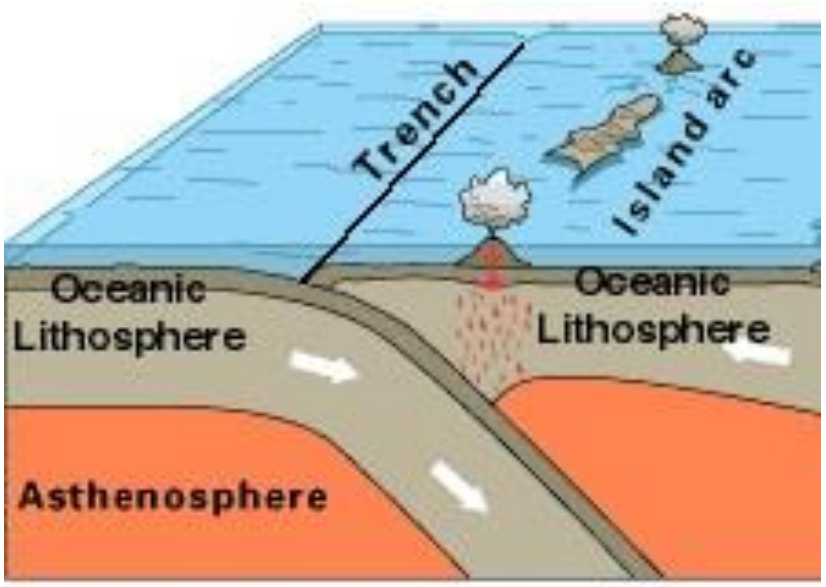
Continental-continental convergence



Convergent Boundary

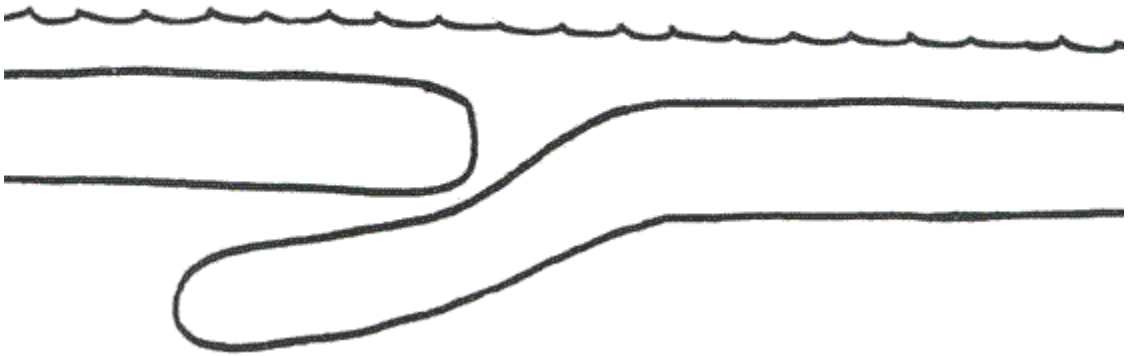
Oceanic & Oceanic Crust

When 2 oceanic plates collide, they can form a trench and a chain of islands called an island arc.



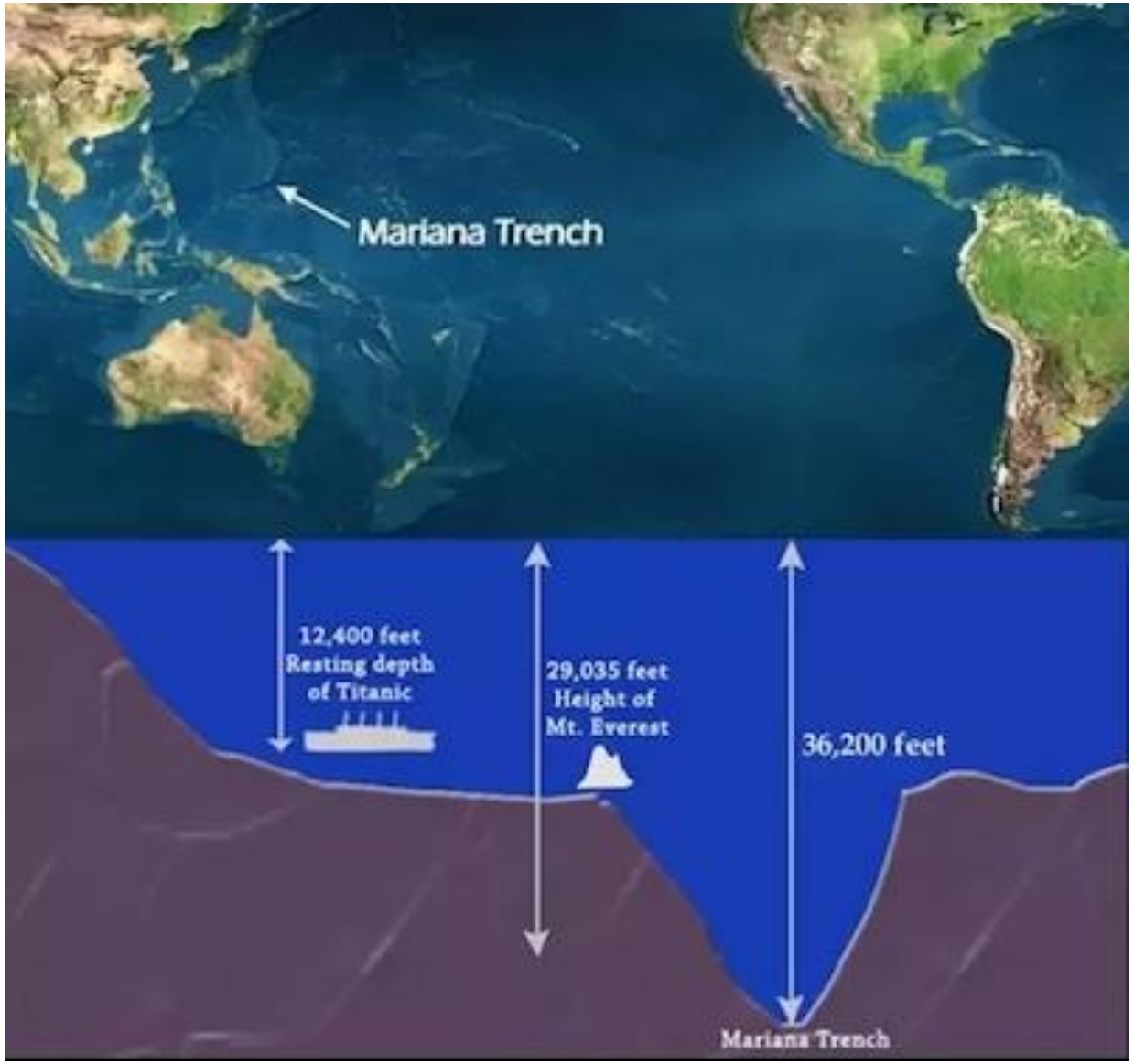
Oceanic-oceanic convergence

An example is the Marianas Trench and the Aleutian Islands.

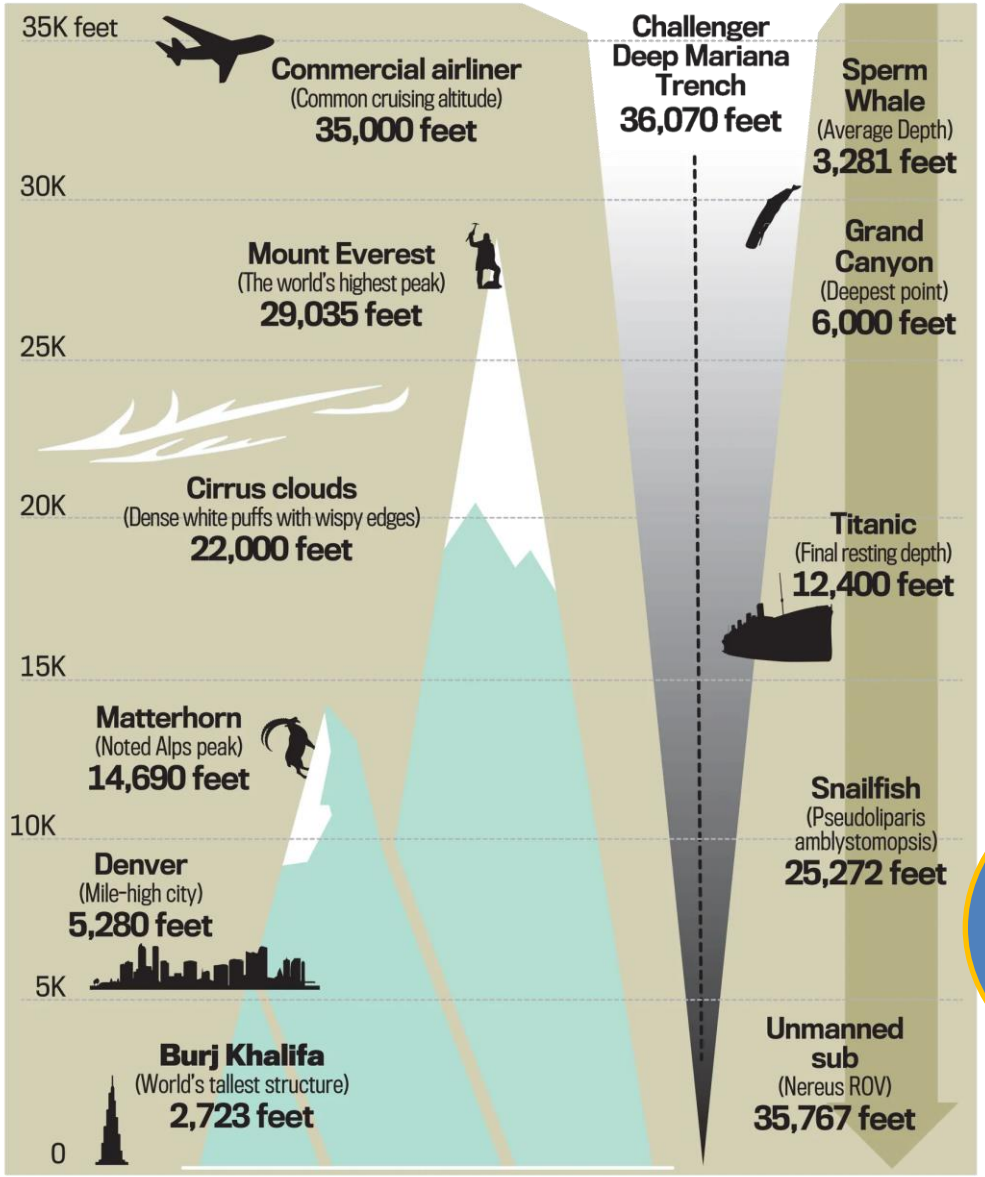


What is a trench?

A deep underwater canyon that is created from 2 converging plates.



What is the Mariana Trench?



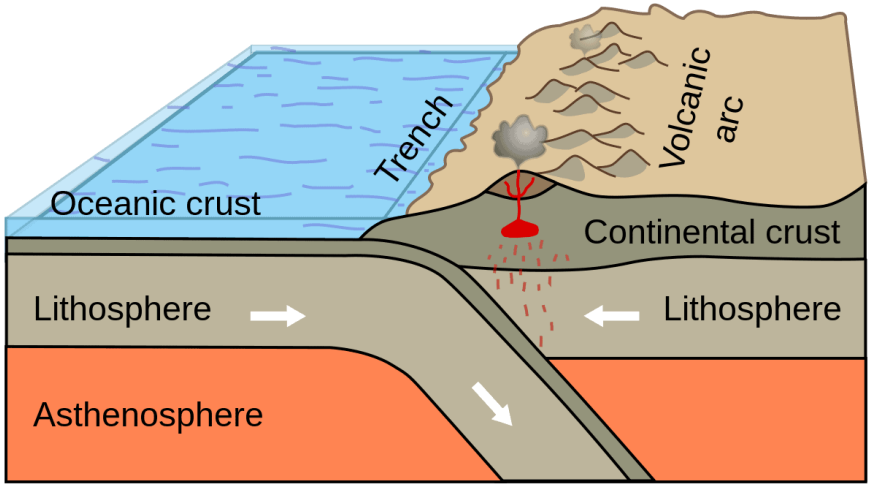
The Mariana Trench is the deepest trench on Earth. It is in the western Pacific Ocean. It is over 36,000 feet deep!

Mount Everest could fit upside down into the Mariana Trench and still not touch the bottom!

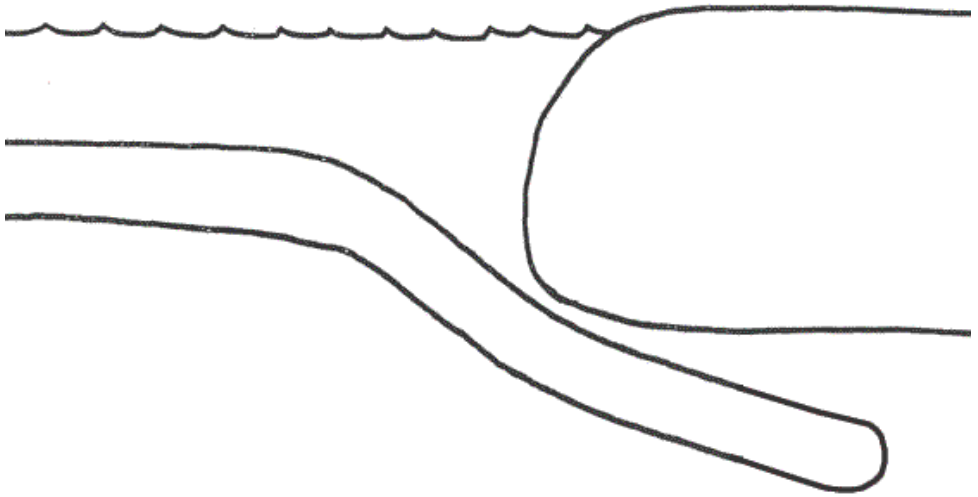
Convergent Boundary

Oceanic & Continental Crust

When an oceanic and a continental plate collide, they can form a trench and volcanoes.

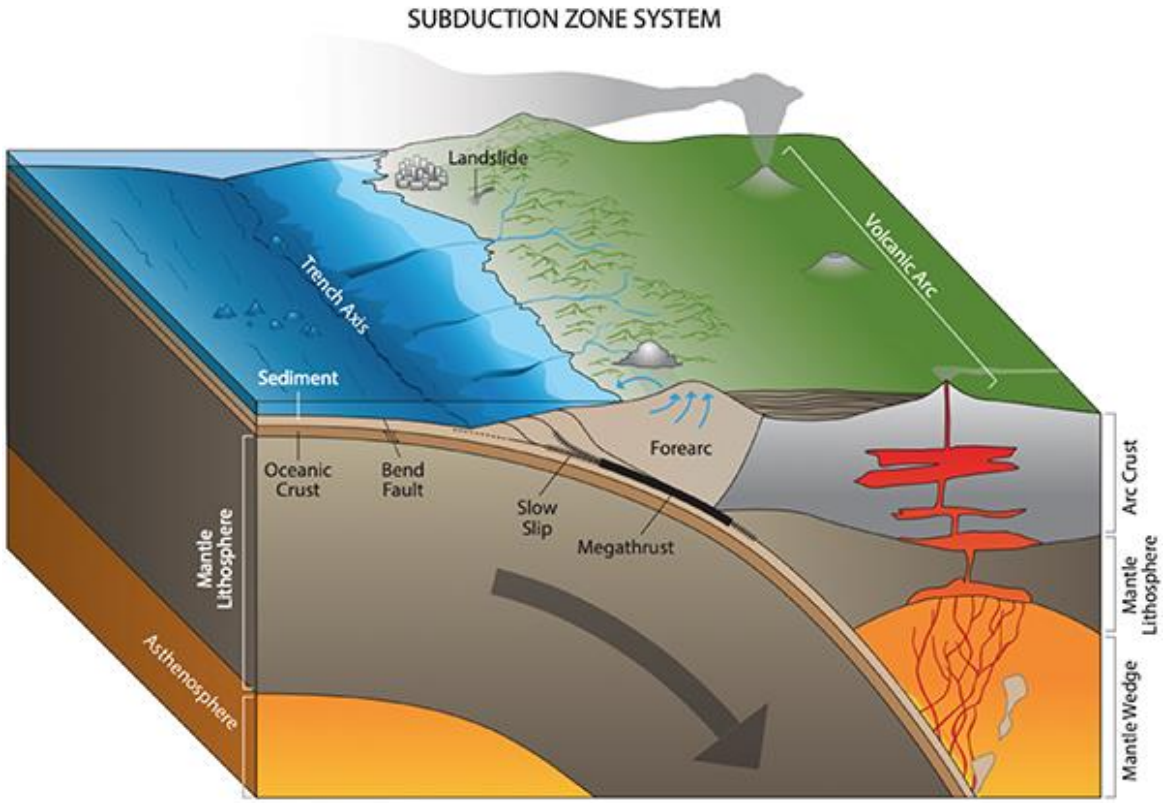


An example is the Cascade Mountain Range.



What is subduction?

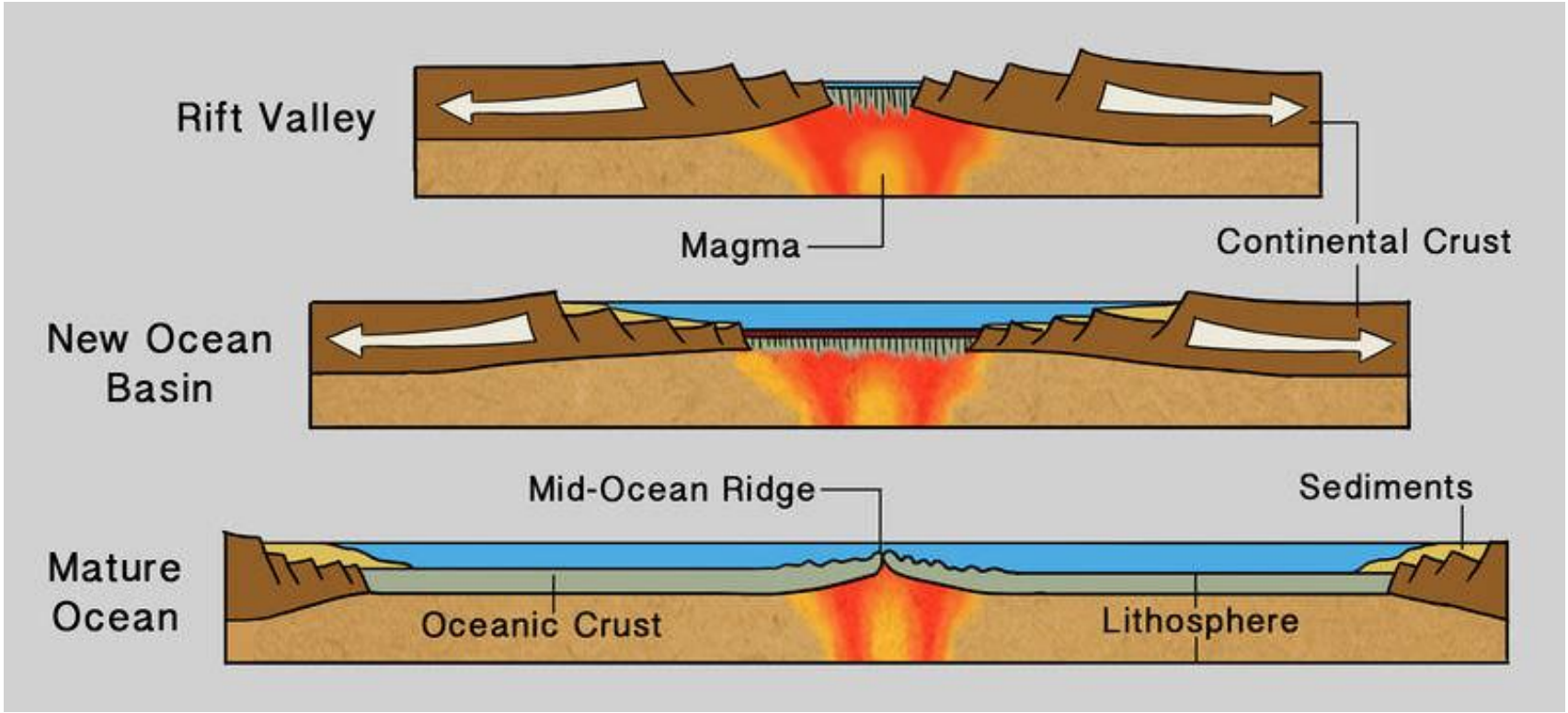
The process by which oceanic crust sinks under the colliding continental plate and back into the mantle.



Oceanic crust is denser, thinner, and more compact when compared to continental.

What is a Divergent Boundary?

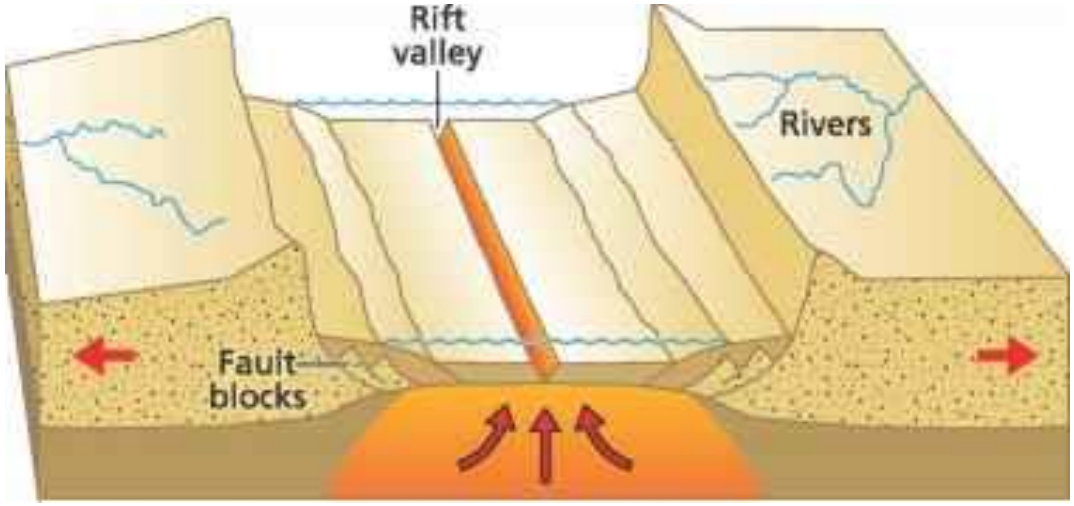
Divergent plate boundaries are areas where plates are moving away from one another. This is the opposite of convergence, and it causes big gaps.

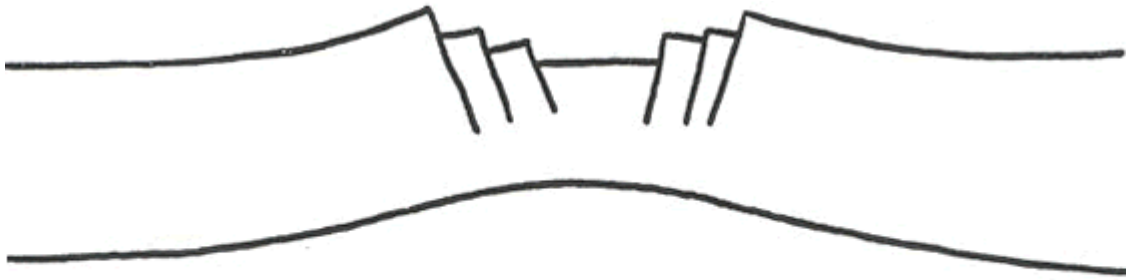


Divergent Boundary

Continental & Continental Crust

When 2 continental plates diverge, they create big gaps called rifts or rift valleys.



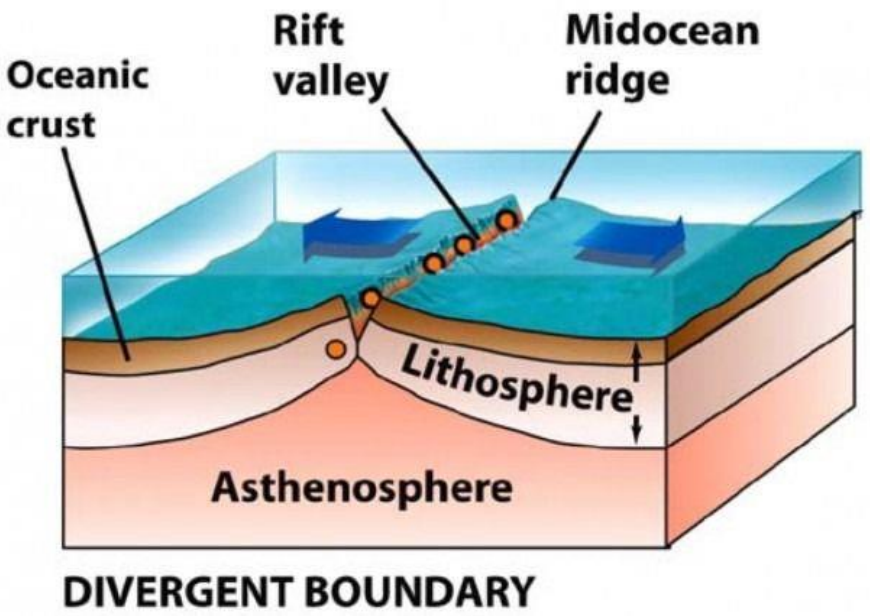


An example of this is the Eastern African Rift.

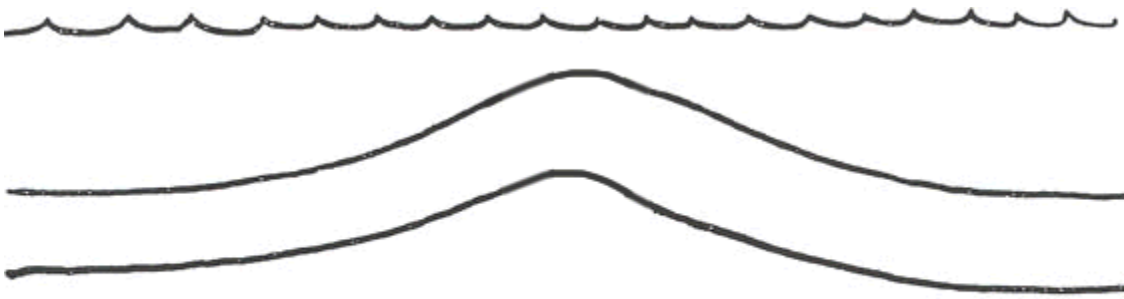
Divergent Boundary

Oceanic & Oceanic Crust

When 2 oceanic plates diverge, they form mountains. As the plate is pulled apart, magma rises to the surface creating new crust.



An example is the Mid-Ocean Ridge.

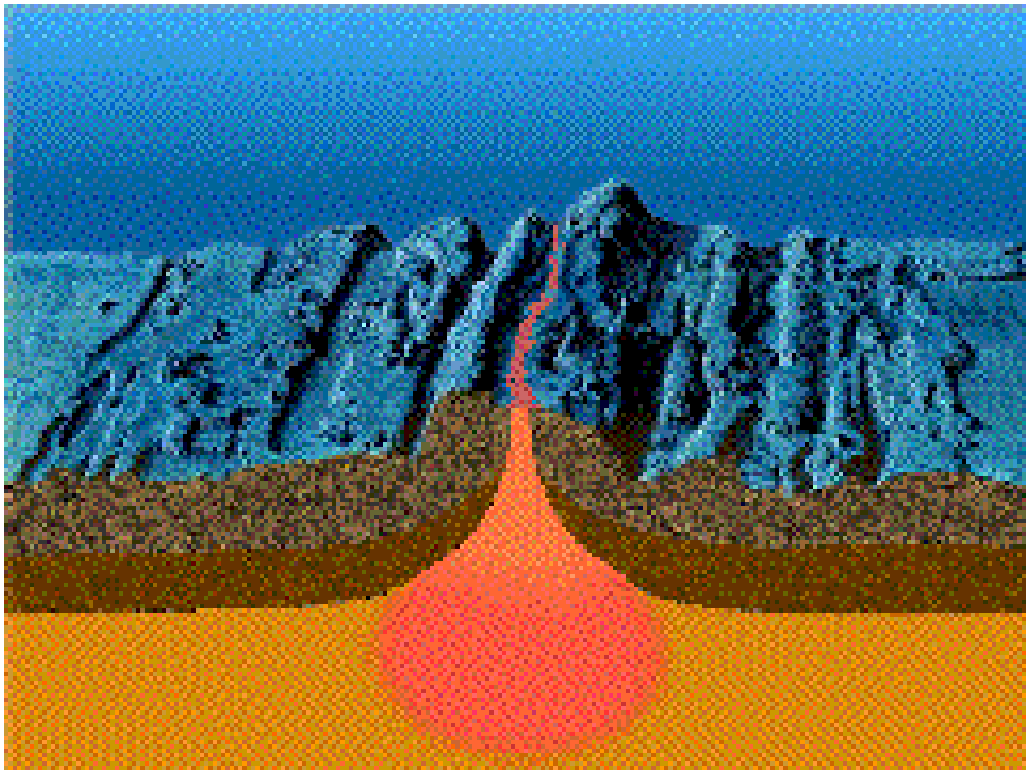


What is the Mid-Ocean Ridge?

It is the longest mountain chain on Earth. The Mid-Ocean Ridge is 40,000 miles long! 90% of it is found under the water in the ocean.

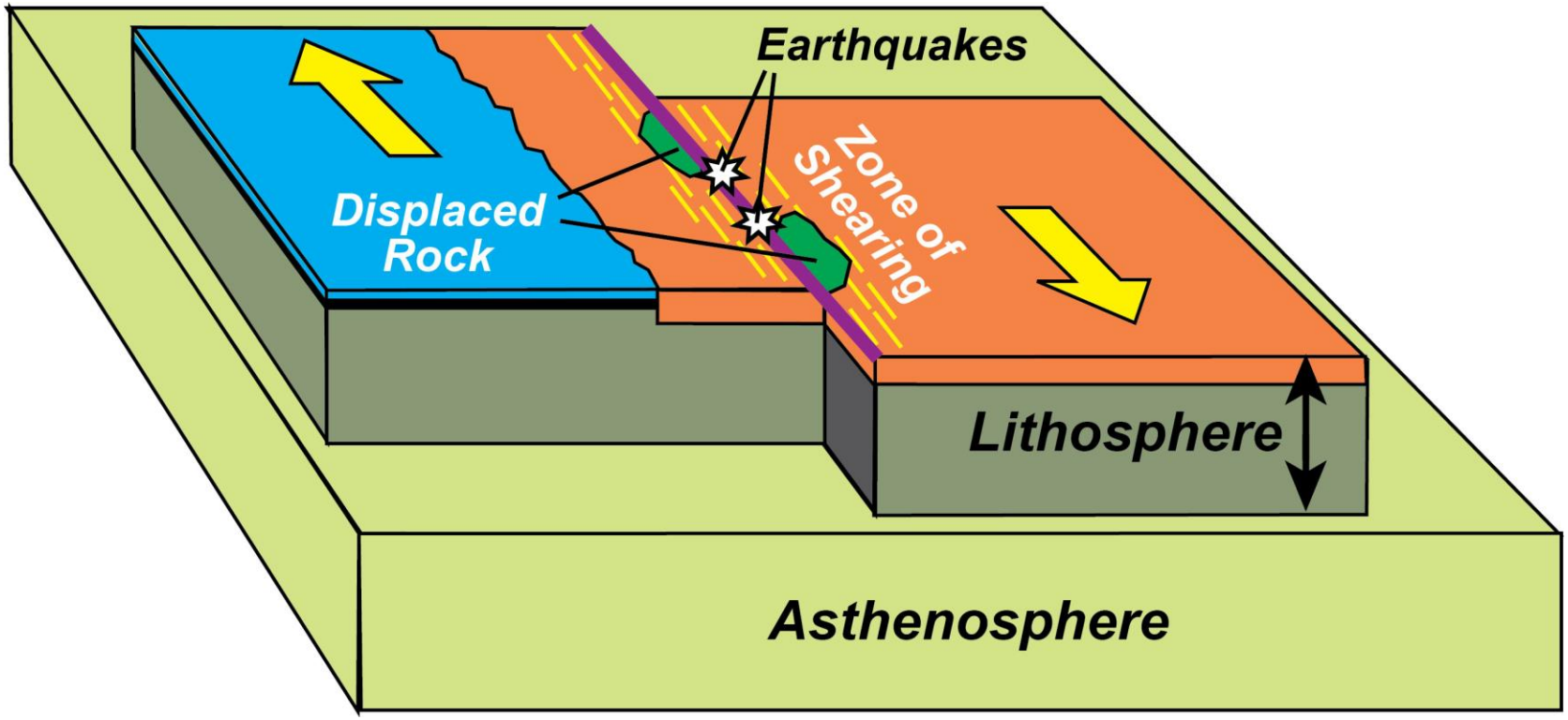
What is Sea Floor Spreading?

When two oceanic plates diverge, the size of the ocean increases since new magma rises to the surface creating new crust. The older crust gets pushed away from the new crust.



What is a Transform Boundary?

Transform plate boundaries are areas where plates are slipping past each other. This motion creates shearing and rubbing.



Transform Boundary

When 2 plates slip past each other, they create earthquakes.

An example of a transform boundary is the San Andreas Fault.

Earthquake	*The shaking that results from the movement of rock beneath the Earth's surface at a fault.*
Subduction	*The process by which oceanic crust sinks beneath a deep ocean trench and back into the mantle.*
Divergent Boundary	*A boundary between two plates moving away from each other.*
Oceanic Trench	*A deep canyon in the ocean floor. An example of a convergent boundary.*
Convergent Boundary	*A boundary where two plates move toward each other.*
Mid-ocean Ridge	*Undersea mountain chain where new ocean floor is made. Example of a divergent boundary.*
Transform Boundary	*The boundary where two plates move past each other in opposite directions.*
Volcano	*A mountain that develops when magma pushes up through the Earth's surface.*
Fault	*A break or crack in the Earth's crust along which rocks move.*
Plate Tectonics	*The theory that the earth's surface is divided into plates that constantly move along the plastic like layer of the mantle.*

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