

Plate Boundary Analysis Activity

What did you discover from the Plate Boundary Analysis Activity?

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Volcanoes and Earthquakes form along tectonic plate boundaries? But Why?

When plates move, they can interact in several ways:

- They can move toward each other
- They can pull apart from each other
- They can slide alongside one another

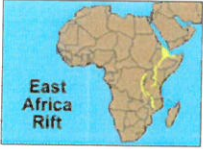

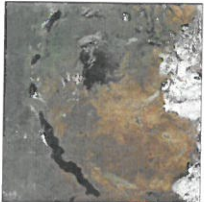
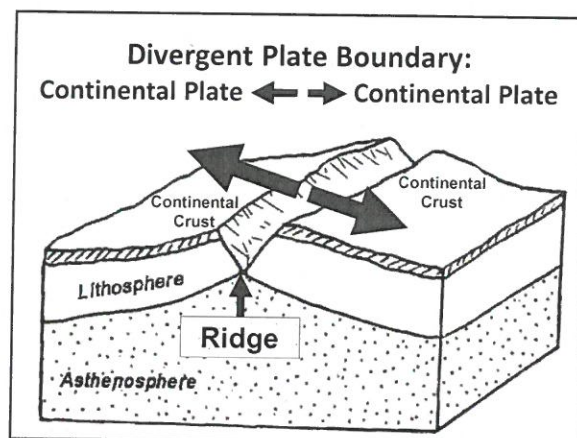
The result of plate movement can be seen at plate boundaries.

Divergent Plate Boundary: two plates are moving apart and new crust is created

Divergent Plate Boundary:
Continental Plate ← → Continental Plate
When two continental plates spread apart rifts (cracks) begin. Magma can rise and squeeze between the cracks sometimes forming volcanoes.

Divergent Boundary in Iceland

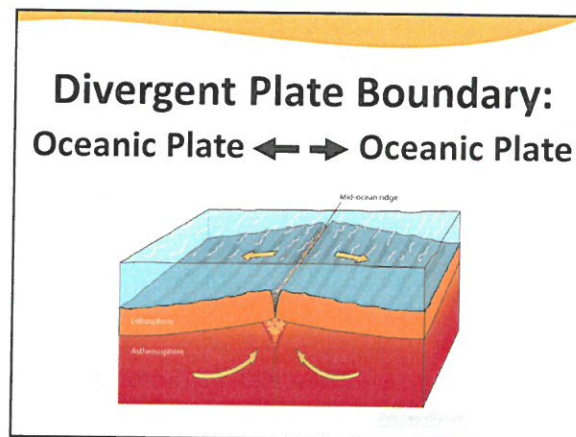
Divergent Boundary in Africa



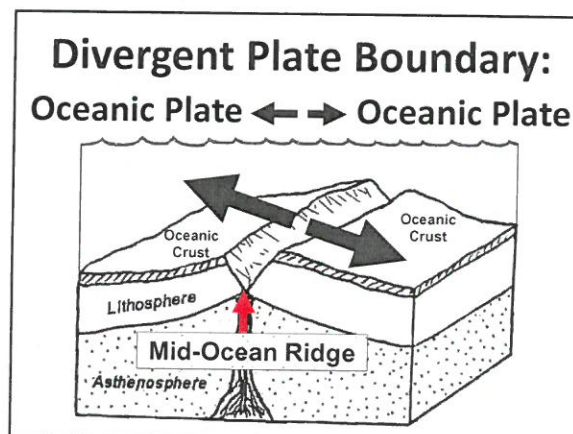
Divergent Plate Boundary: Oceanic Plate ← → Oceanic Plate

When two oceanic plates spread apart magma is forced upward pushing the older seafloor away in opposite directions forming a ridge.

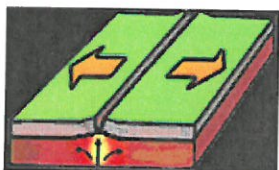
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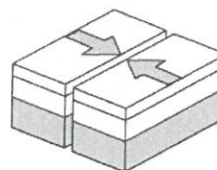
Divergent Boundary: Mid-Atlantic Ridge

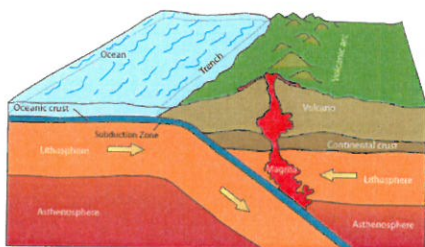
Turn to a seat partner and discuss the cause, effects, and importance of divergent boundaries.



Convergent Plate Boundary: two plates collide



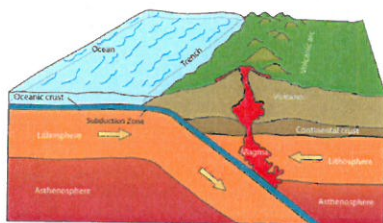
Convergent Plate Boundary: Oceanic → ← Continental



Convergent Plate Boundary: Oceanic → ← Continental

- The denser oceanic plate subducts (goes down), under the continental plate into the mantle.
- A deep sea trench is created where one plate bends and sinks.
- High temperatures cause rock to melt around the subducting plate as it goes under the other plate
- Newly formed magma is forced upward along these plate boundaries, forming volcanoes.

Convergent Plate Boundary: Oceanic → ← Continental



http://www.classzone.com/books/earth_science/terc/content/visualizations/es0902/es0902page01.cfm?chapter_no=visualization

Model a Convergent Boundary with subduction:

- Place your hands in front of you with your palms facing the floor as shown in the picture.
- Push your left hand slightly under your right hand.
- This motion demonstrates what happens when one plate slides under the other.



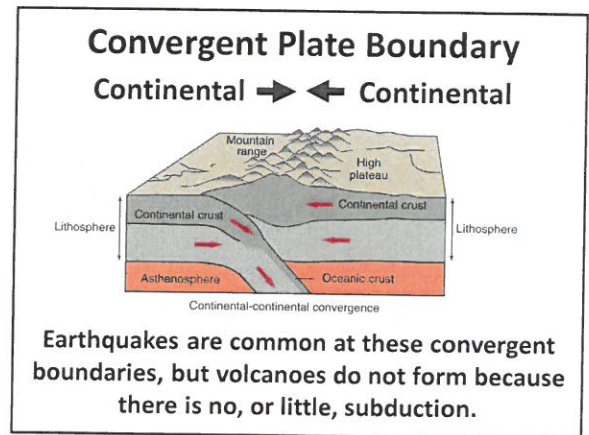
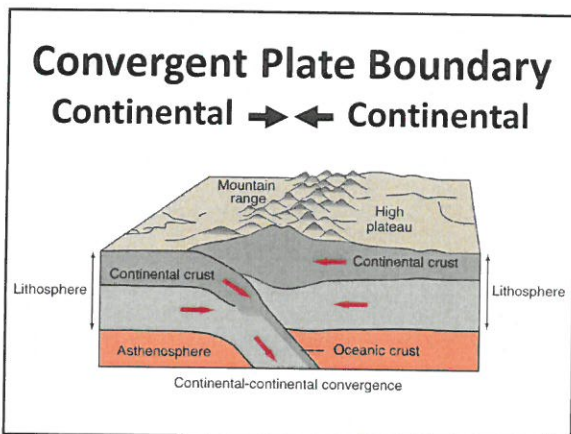
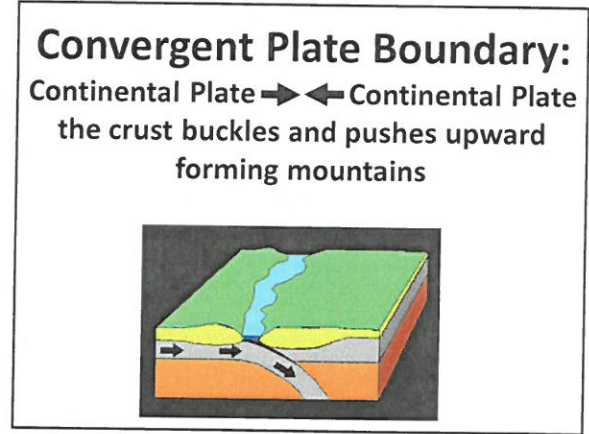
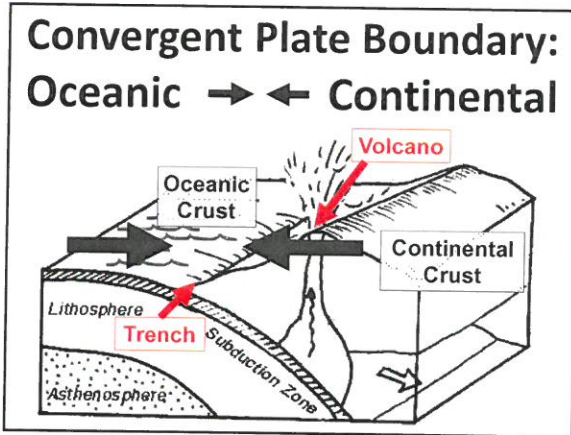
Convergent Boundary

Andes Mountains

Andes Mountains

New crust is added at divergent boundaries while it disappears below the surface at the subduction zones of convergent boundaries.

<https://www.youtube.com/watch?v=ryrXAGY1dmE>



Model a Convergent Boundary

[see resources for simple models or demonstrations]

Convergent Plate Boundary Continental → ← Continental Himalayan Mountains

http://www.classzone.com/books/earth_science/enc/content/visualizations/es1105/es1105page01.cfm?chapter_no=visualization

Convergent Plate Boundary Continental → ← Continental

Why no volcanoes?

Convergent Plate Boundary: Oceanic → ← Oceanic

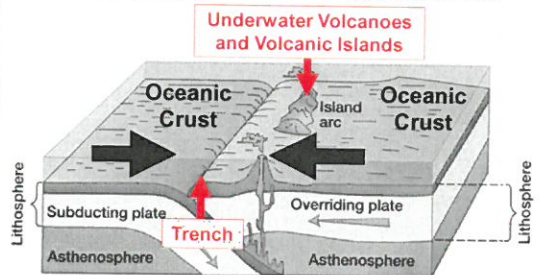
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Convergent Plate Boundary: Oceanic → ← Oceanic

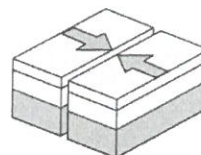
- A colder, older, denser oceanic plate subducts (goes down), under another oceanic plate into the mantle.
- A deep sea trench is created where one plate bends and sinks.
- High temperatures cause rock to melt around the subducting plate as it goes under the other plate
- Newly formed magma is forced upward along these plate boundaries, forming volcanoes.
- Over millions of years, erupted lava piles up until it rises above sea level to form volcanic islands.

Convergent Plate Boundary: Oceanic → ← Oceanic

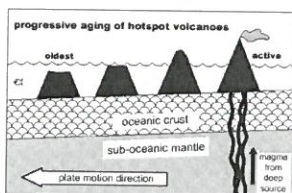
Convergent Plate Boundary: Oceanic → ← Oceanic



Turn to a seat partner and discuss the cause, effect, and importance of convergent boundaries.



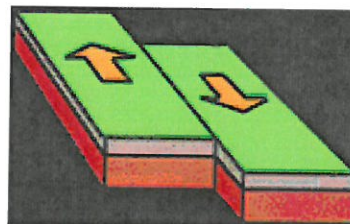
Sometimes volcanic islands form due to the movement of lithospheric plates over hot spots.



http://www.classzone.com/books/earth_science/terc/content/visualizations/es0904/es0904page01.cfm?chapter_no=visualization

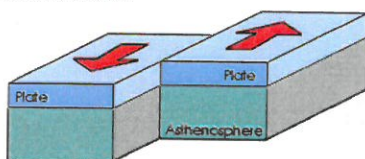
https://www.youtube.com/watch?v=6Z4as_imJfM
[video summary of the formation of volcanoes 4:48]

Transform Plate Boundary: Plates Slide Past Each Other

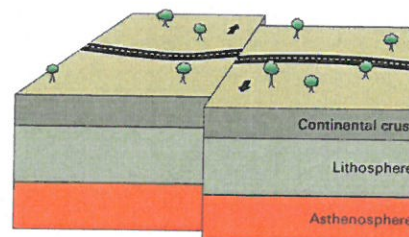


Transform Boundary

- Plates move in opposite directions or in the same direction at different rates
- When one plate slips past another plate suddenly, earthquakes occur
- These plate boundaries do not destroy or build up Earth's crust.



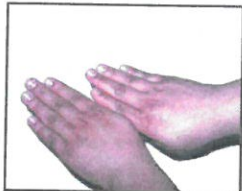
Transform Boundary



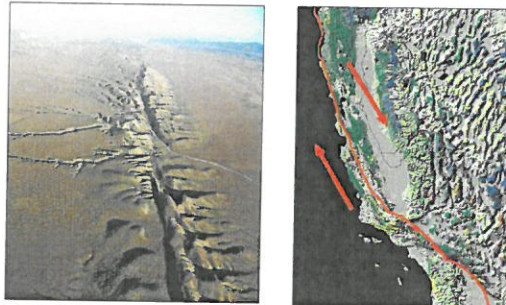
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Model a Transform Boundary:

- Place your hands in front of you, side by side, with your palms facing the floor as shown in the picture.
- Move your right hand forward and your left hand backward.
- This type of movement occurs along the California coast at a transform boundary.



Transform Boundary: San Andreas Fault in California



Transform Boundary

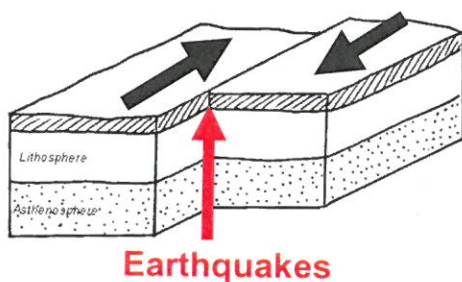


Plate Boundary Activities

- Push Those Plates Activity
- Milky Way Plate Tectonics
- Ore Plate Tectonics
- Plate Boundary Cootie Catcher
- Plate Tectonics Vocabulary Match
- Meet the Boundary Activity
- Types of Plate Boundaries Map Identification – more for extension

[Crust is in Pieces Song](#)

[Plate Tectonics Song](#)