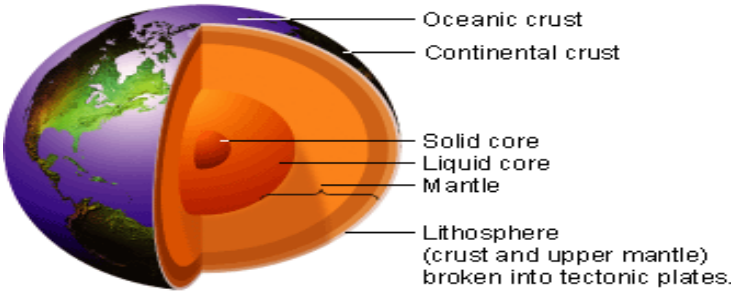
# Plate Tectonic Notes

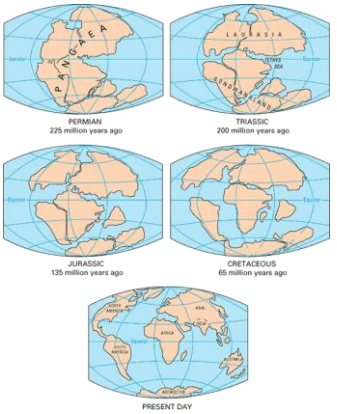
- **Earth's Layers:**
- **Crust**
- **Mantle**
- **Core**




## Crust (lithosphere) Plate Movement

The crust is broken into plates that move.

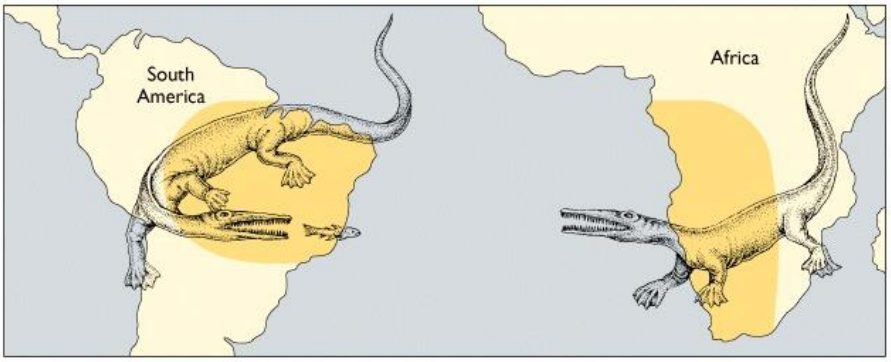
- Lithosphere is divided into plates that slide around on top of the slowly moving mesosphere (tectonic plates)
- It occurred after the break-up of Pangaea, and since then the continents have drifted apart



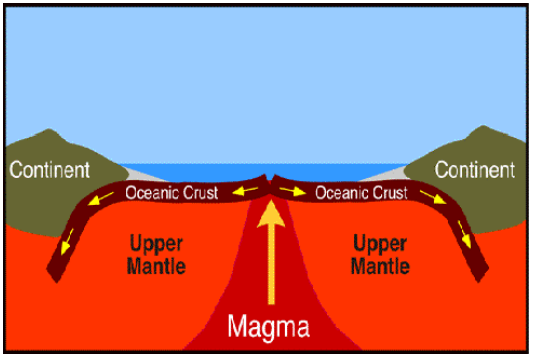

The pictures show Continental Drift theory from 225 million years to present.

- **Theory of Continental Drift**
  Proposed by Alfred Wegener in 1912, but not widely accepted until seafloor spreading was discovered in 1960.

Evidence to support Continental Drift Theory:

- Similar plant and animal fossils on the shores of distant continents
- All land on earth fits together like a jigsaw puzzle.
- Glacier deposits
- Mountain ranges from different continents align and are composed of the same materials.
- 

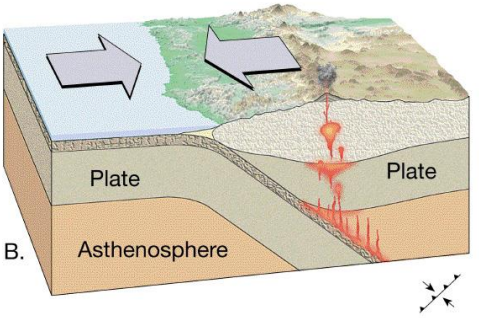

**Continental drift** became widely accepted when **Dr. Harry Hess** discovered **seafloor spreading** in 1960**. Seafloor Spreading** occurs at divergent plate boundaries which subsequently create mid-ocean ridges. New oceanic crust is formed through magma rising through the gap and cooling. As plates move, the new crust gradually moves away from the ridge. **Seafloor spreading** helps explain continental drift in the theory of plate tectonics.




**How does continental drift work?**

- Plates collide = convergent boundary
- Plates separate = divergent boundary
- Plates slide past one another  horizontally = transform boundary
- Subduction zone = one plate slides under another

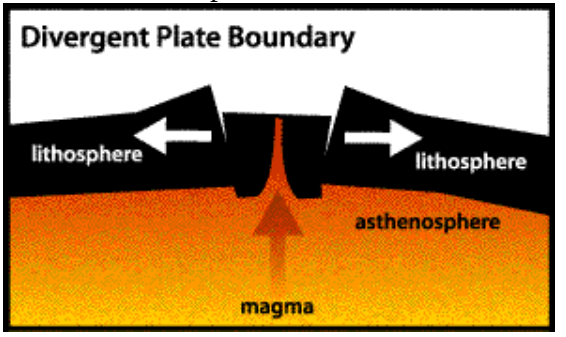
Convergent Boundary/subduction zone




- When both are continental plates, the plates push against each other, **<u>creating mountain ranges.</u>**

Divergent Boundary

- Plates separate




New crust is formed at Divergent Boundaries.

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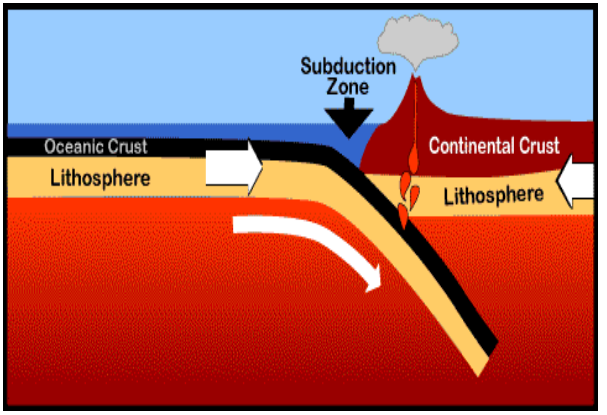
**Transform Boundary**


Plates slide past one another horizontally

What happens when earthquakes happen in the ocean?
TSUNAMI wave that brings lots of water to the continents and causes major flooding!

Subduction Zone

- one plate slides under another




Oceanic trench forms at the subduction zone. Volcanoes may form along this type of boundary.

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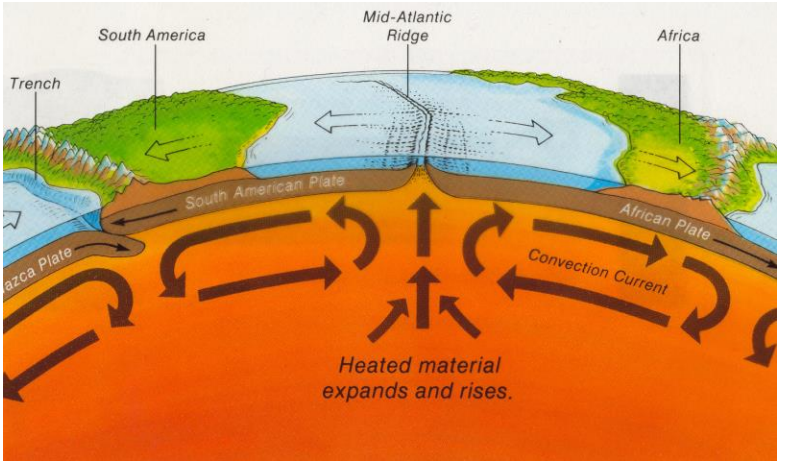
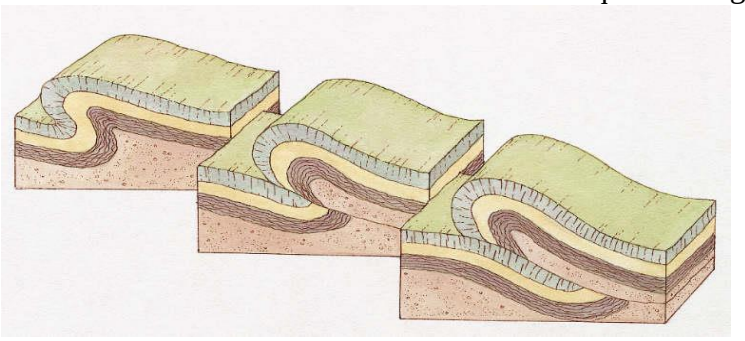
Driving force of Plate tectonics: <u>CONVECTION CURRENTS</u>



Rock does two things when stress is placed on it. It can fold or fault (break). When plates push against one another, they form MOUNTAINS.

- **Folded Mountains** – made when rock is squeezed together and pushed upward



**Fault –** broken rock layers resulting from stress

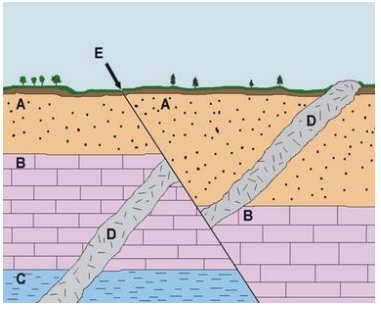
**Volcanic Mountains form along broken rock layers at convergent boundaries (continental and oceanic crust)** – molten rock erupts to form new material on earth's surface (Ring of Fire)

Nicholas Steno – **Law of Superposition**

Rock layers on the top layer of sedimentary rock are younger than the rock layers on the bottoms. Fossils on the bottom of sedimentary rock are older than fossils on the top layer.

James Hutton – **Law of Crosscutting**

A geologic feature that cuts another is younger in age than the surrounding rock.




Section D of rock would be younger than the surrounding rock.