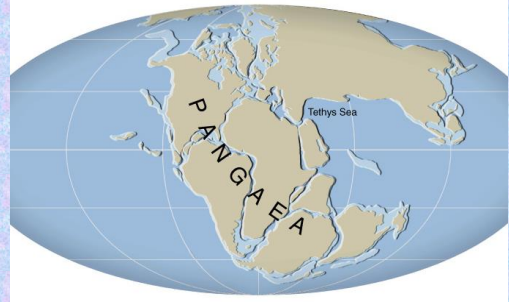
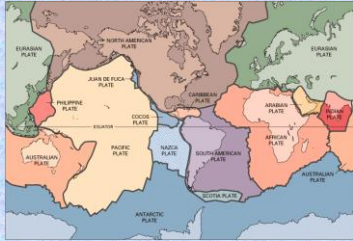


PLATE TECTONICS



Alfred Wegener thought that the landmasses fit together like a jigsaw puzzle. He called the land mass "Pangaea". Meaning "all land"

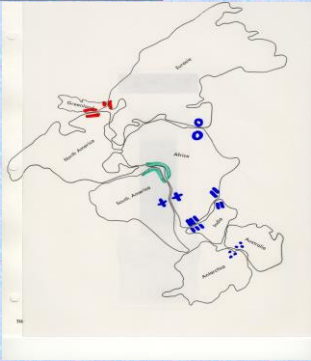
Continental Drift

Wegener theory first coining the word - Pangaea.

He didn't yet know how they moved.

This was supported by:

- Glaciers
- Mountain ranges
- fossil evidence
- rock strata evidence
- matching of coastline shapes.



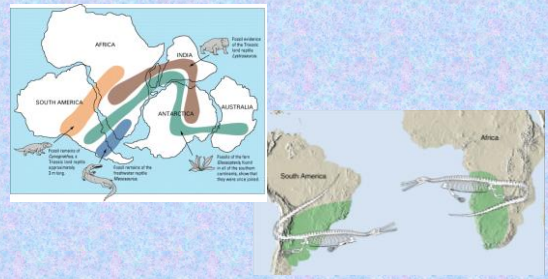
1. Investigations of glaciers also indicated that the land masses on Earth were once a supercontinent.



2. Mountain ranges in North America (Appalachians), in Europe (Caledonians), matched or lined up



3. Wegener found matching reptilian fossils on either side of the Atlantic Ocean.
*This is the most convincing evidence.



4. Rock strata – “strata” = layers. Similar Rock layers found on continents

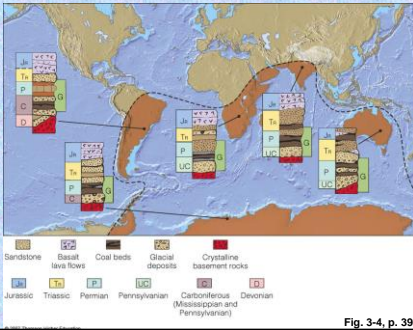
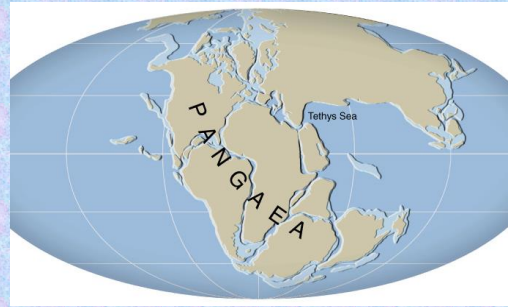


Fig. 3-4, p. 39

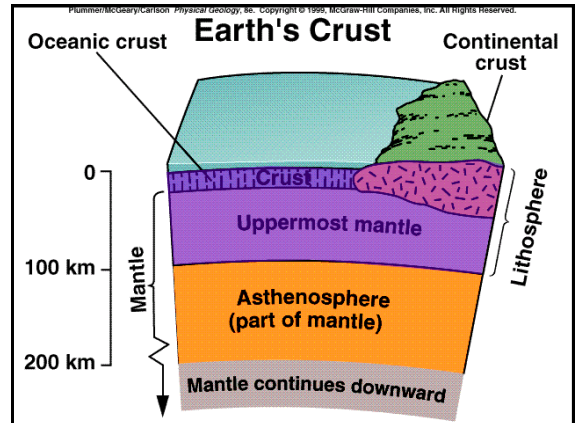
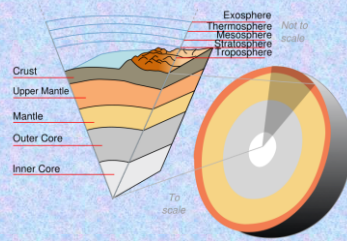
5. Coast lines are similar and look like they “match up” like a jigsaw puzzle.



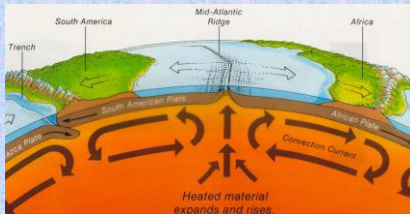
What are tectonic plates made of?

- Plates are made of rigid **lithosphere**.

The lithosphere is made up of the crust and the upper part of the mantle.



Seafloor Spreading



Harry Hess's theory (which came after Wegner's) Convection Currents in the middle mantle are responsible for plate movement.

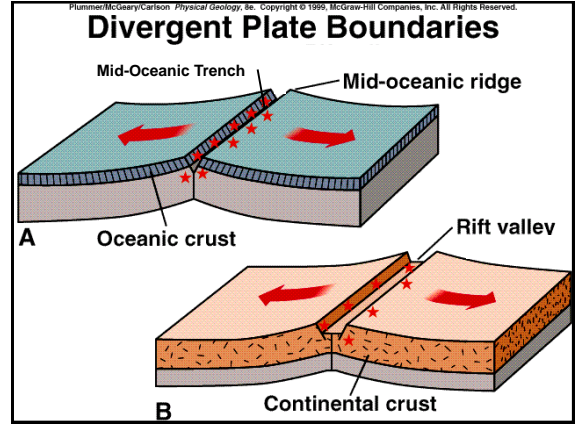
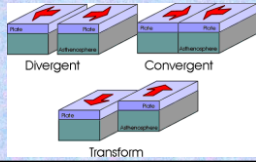
SO TO REVIEW

Plate Tectonics

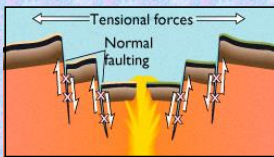
- **Continental Drift** – Wegener's theory that all the continents were joined together called “Pangaea” -
 - Evidence exists;
 - **Fossils**, mountains, glaciers, coastlines, and rock types.
- **Seafloor Spreading** – Hess' theory that explains convection currents move the plates.

Types of Plate Boundaries

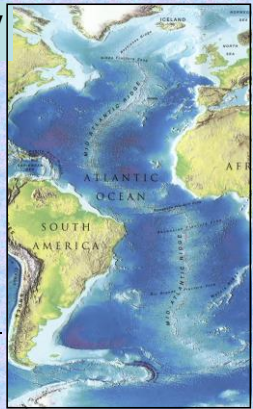
- Divergent – (Tensional Force)
- Transform – (Sliding)
- Convergent – (Compression Force)
 - Collision & Subduction



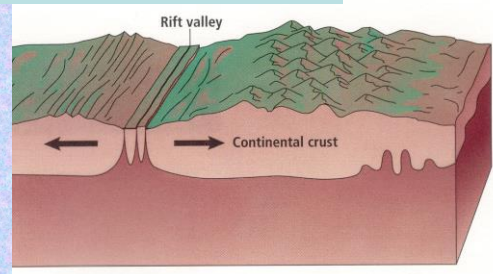
Oceanic Divergent Boundary Example 1: Mid-Atlantic Ridge



Creates trenches and ridges as well as new seafloors

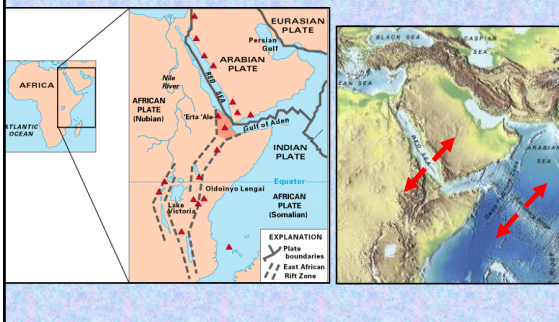


Continental Divergent Boundary

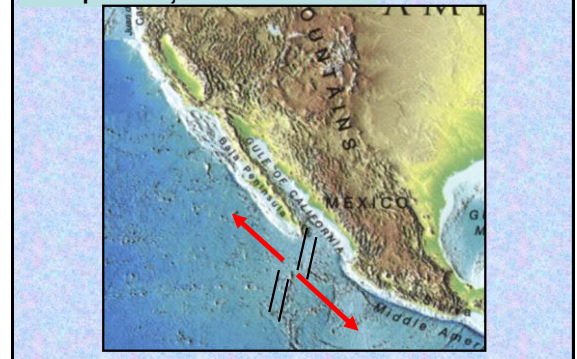


Divergent boundary of two continental plates.
Creates a rift valley and sometimes new bodies of water.

Continental Divergent Boundary Example 2: Red Sea / E. African Rift



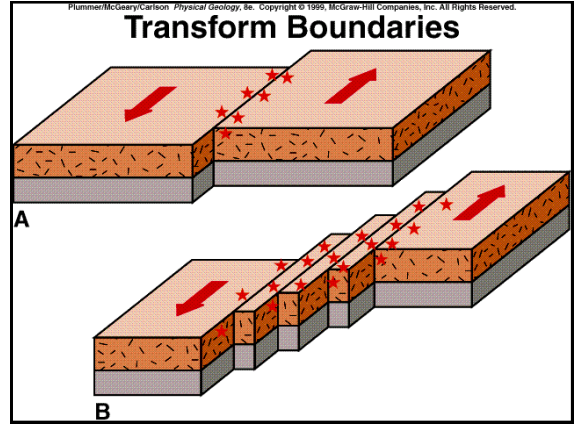
Continental Divergent Boundary Example 3: Baja California



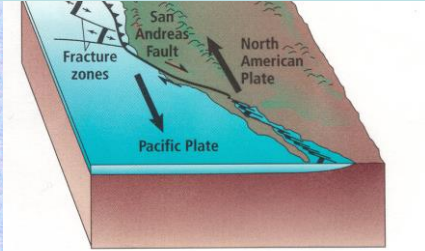
SO TO REVIEW

Divergence Types

- Oceanic-Oceanic
 - Rift Valley, mid-oceanic trenches and ridges, new sea floor, Mid-Atlantic Ridge
 - Newest rocks in the Mid-Ocean Trenches.
- Continental-Continental
 - Rift Valley, New shallower land, sometimes underwater, Red Sea



Transform/Fault Boundary – Sliding Boundary



Transform-fault boundary where the North American and Pacific plates are sliding against each other create Faults & once the plates break - Earthquakes.

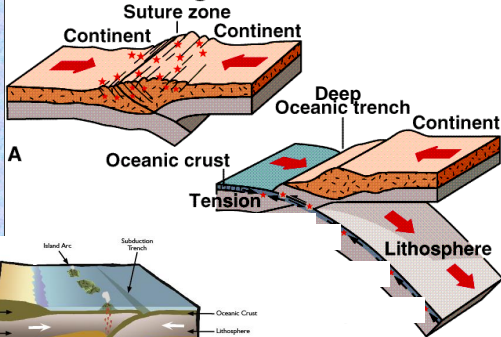
Example: San Andreas Fault

SO TO REVIEW

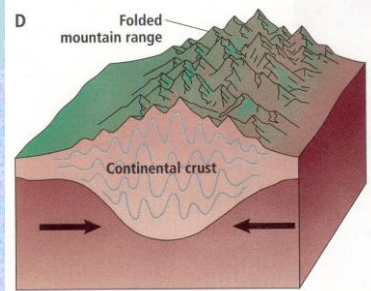
Transform/Sliding Boundaries

- Faults– earthquakes
- Biggest Transformation Fault line in California – San Andreas Fault

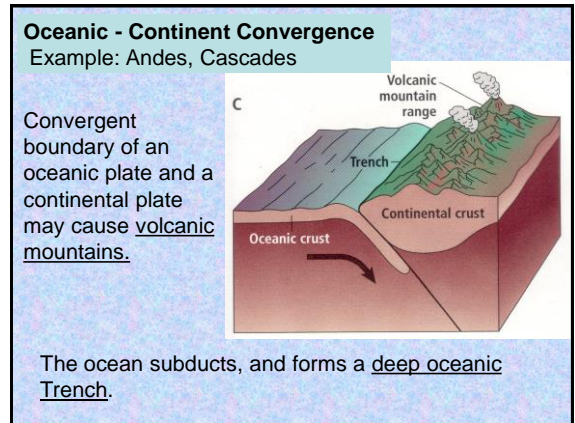
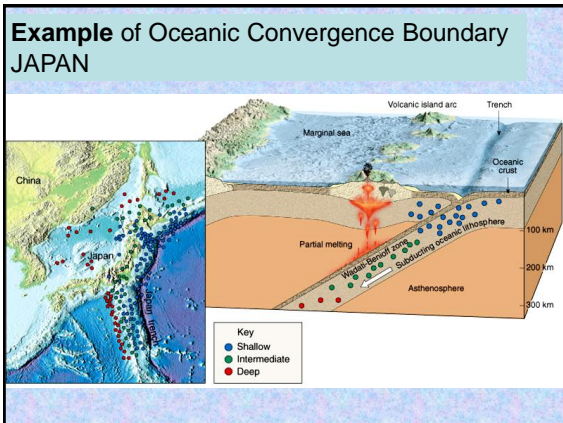
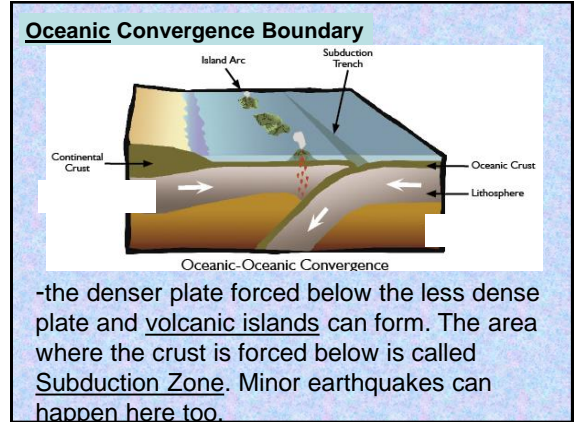
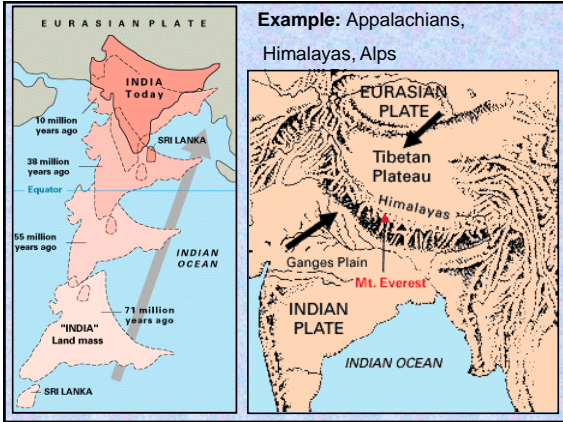
Convergent Boundaries



Continental Convergence



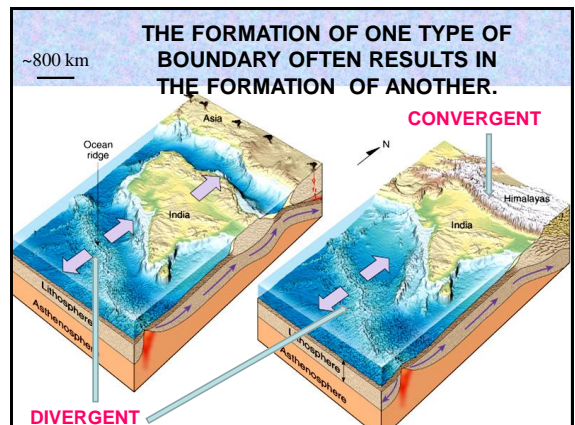
Convergent boundary of two continental plates create folding mountains (non-volcanic mountains).

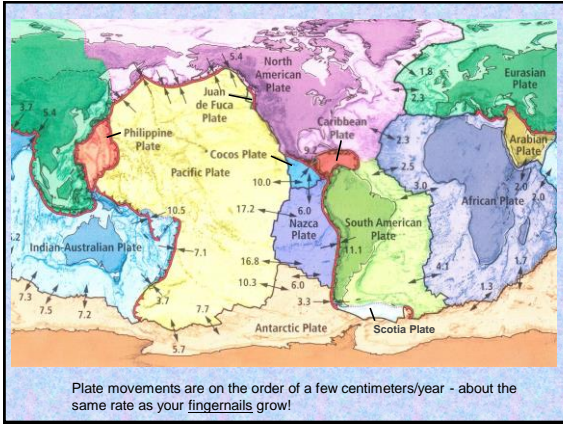


SO TO REVIEW

Convergence Types

- **Continental-Continental**
– No Submersion, non-volcanic mountains
- **Oceanic-Oceanic**
– Subduction, volcanic islands, ocean trenches
- **Oceanic-Continental**
– Subduction, volcanic mountains, ocean trenches





Tension vs. Compression

- A **tension** force is one that pulls materials apart. (divergent)
- A **compression** force is one that squeezes material together. (convergent)

tension

compression

Tension

Compression

PANGAEA

when the continents were cuddling.

THERE'S JUST TOO MUCH FRICTION BETWEEN US.

IT'S NOT MY FAULT!

TECTONIC RELATIONSHIPS