

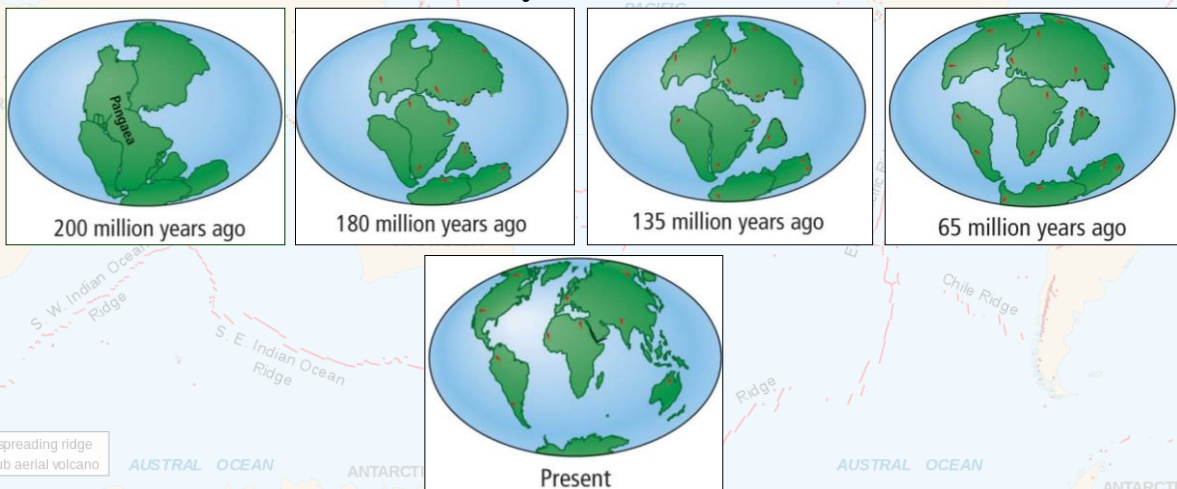
Evidence for Continental Drift

PowerPoint 12.1

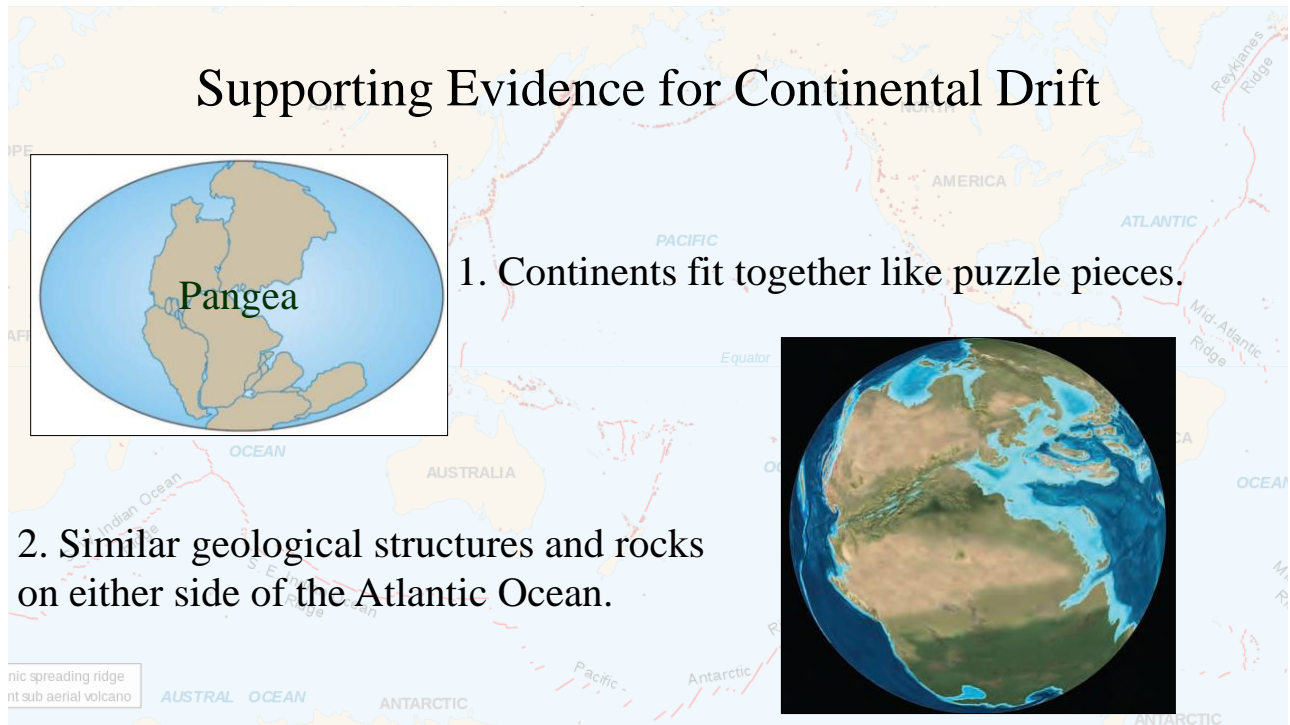


What is the Continental Drift Theory?

Continents have not always been in their present locations but have “drifted” there over millions of years.



Supporting Evidence for Continental Drift



Supporting Evidence for Continental Drift



Supporting Evidence for Continental Drift

4. Climatic evidence

- ***Paleoglaciation*** indicates that tropical regions once contained glaciers.
- Coal deposits in Antarctica indicate that this continent was once inhabited by living organisms.

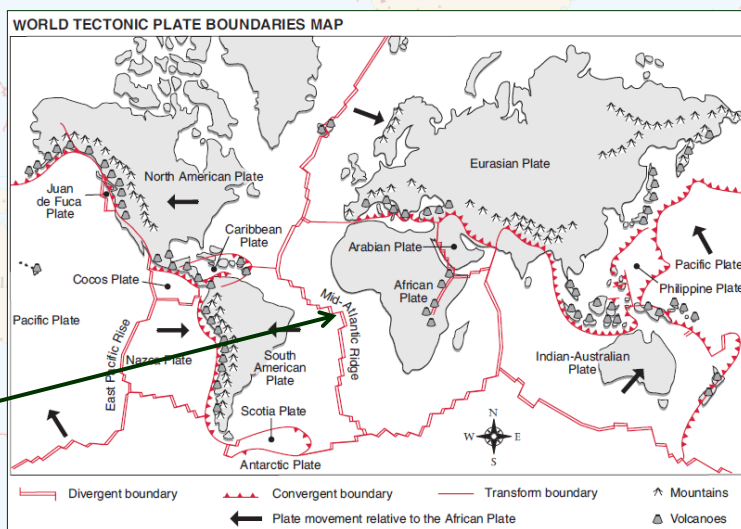


The Earth's crust is divided in large slabs of rock called ***tectonic plates***.

These plates spread apart and collide with another over millions of years.

Notice the ***Mid-Atlantic Ridge***.

How Do Continents "Drift"?



Mid-Atlantic Ridge



Mid-Atlantic Ridge on land in Iceland

Sea-Floor Spreading

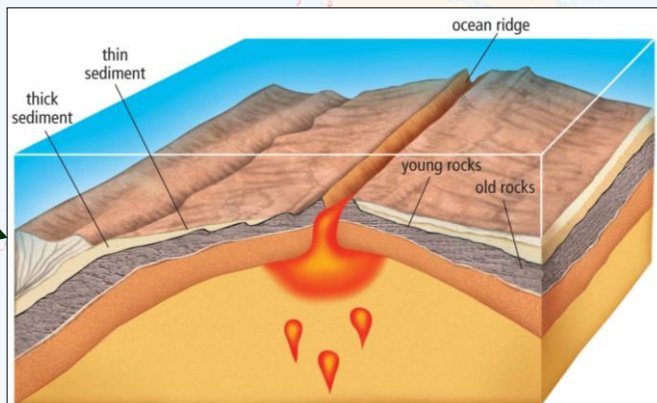
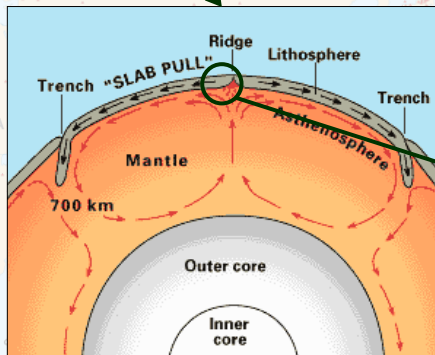
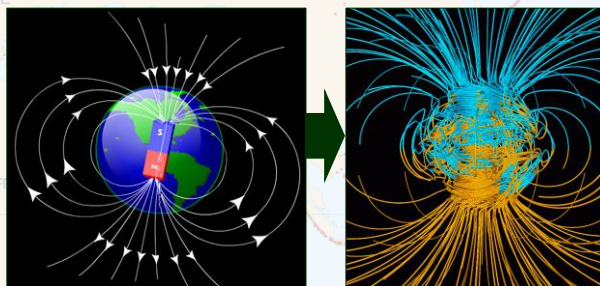


Figure 12.8 With increasing distance from the centre of a ridge, rocks on the sea floor are older and the ocean sediment is thicker.

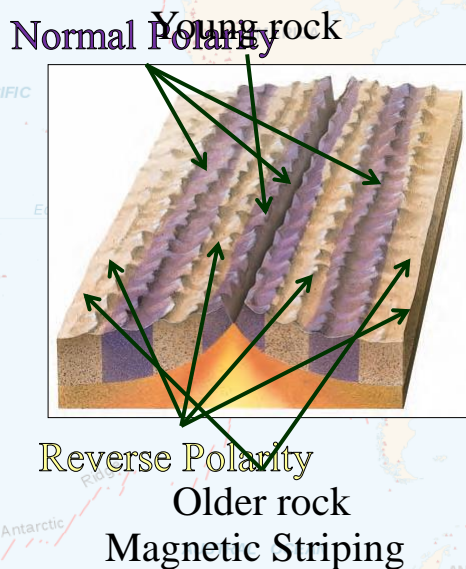
Convection currents are produced as magma which is less dense than its surroundings, wells up within the mantle.

Paleomagnetism



The reversals of Earth's magnetic poles is captured in the iron-rich sea floor on either side of the Mid-Atlantic Ridge.

Discovered utilizing a magnetometer.



Evidence and Consequences of Plate Tectonic Theory

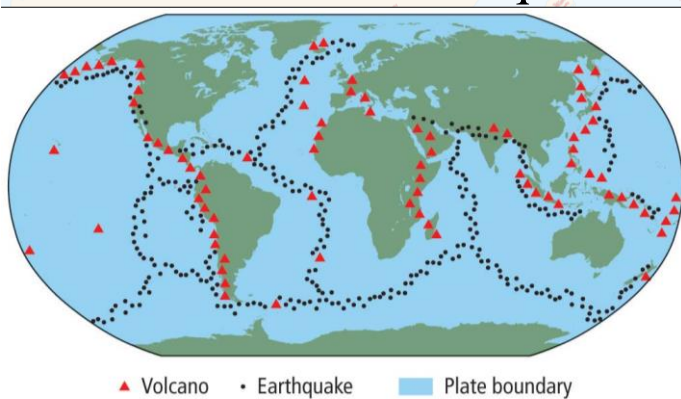
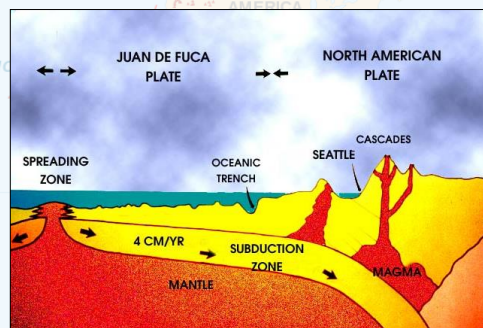


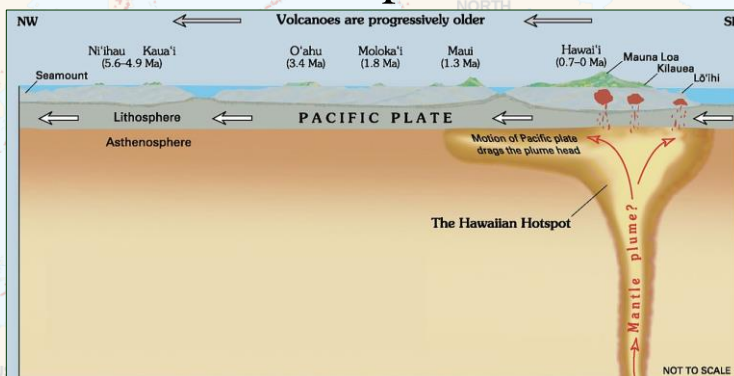
Figure 12.6 Earthquakes and volcanoes occur most often at the boundaries between tectonic plates.



Volcanoes and earthquakes often occur at plate boundaries due to friction and collisions between plates.

The "Ring of Fire" on Pacific coastlines is so named due to this phenomenon.

Volcanoes and Hot Spots



Volcanoes can also occur over hot spots as is the case of the Hawaiian Islands.

Scientists think that the Hawaiian Islands formed as the Pacific Plate moved toward the north-west over a hot spot.

Summary

- The Earth's crust is divided into tectonic plates that move around on top of a molten layer.
- Plate Tectonic Theory (formerly known as Continental Drift Theory) is supported by several factors
 - Physical shape of continents
 - Geological and rock similarities
 - Fossil similarities
 - Climatic similarities
- The Mid-Atlantic Ridge is a divergent oceanic-oceanic plate boundary at which new rock surfaces, solidifies, and pushes older rock to either side.
 - Magnetic striping supports this principle.