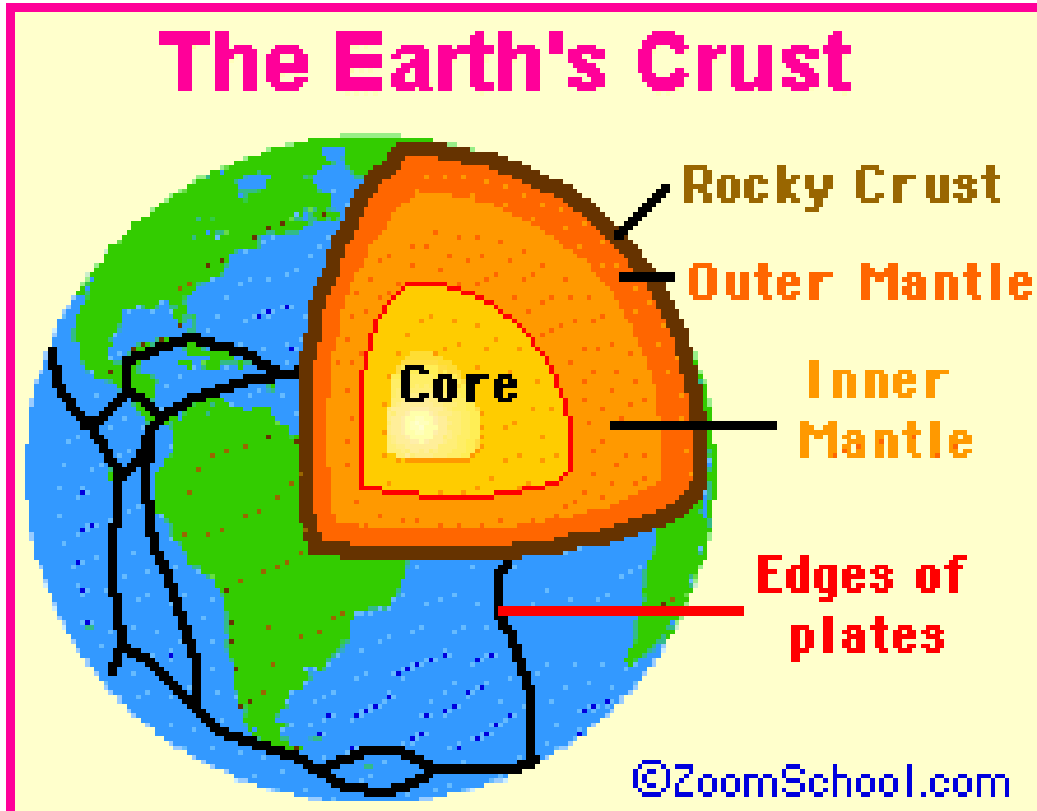




Plate Tectonics

Liz LaRosa for use with my 5th Grade Science Class
<http://www.middleschoolscience.com> 2009

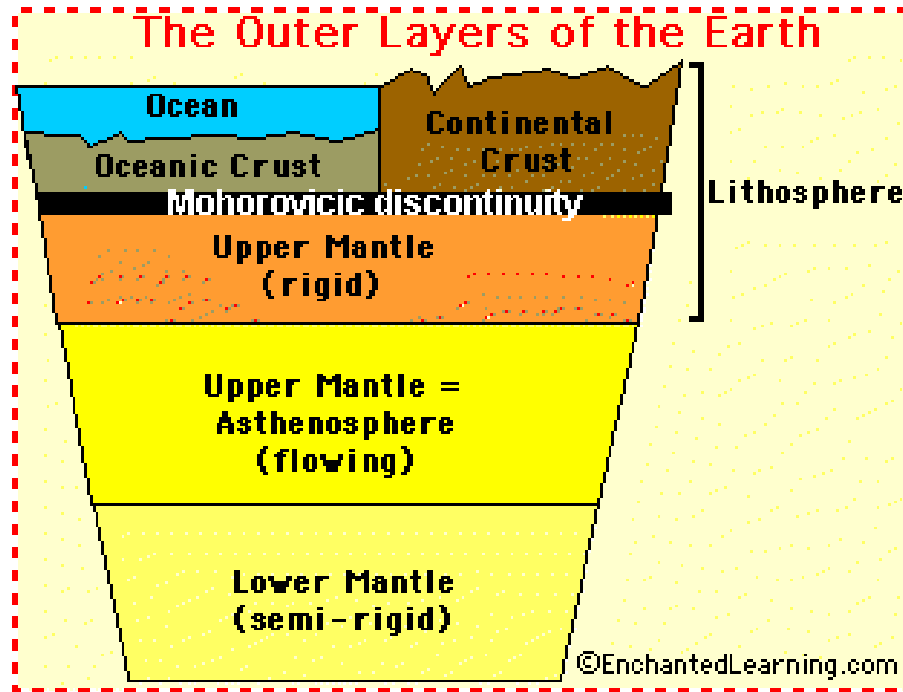
Earth's Layers



The Earth's rocky outer crust solidified billions of years ago, soon after the Earth formed.

This crust is not a solid shell; it is broken up into huge, thick plates that drift atop the soft, underlying mantle.

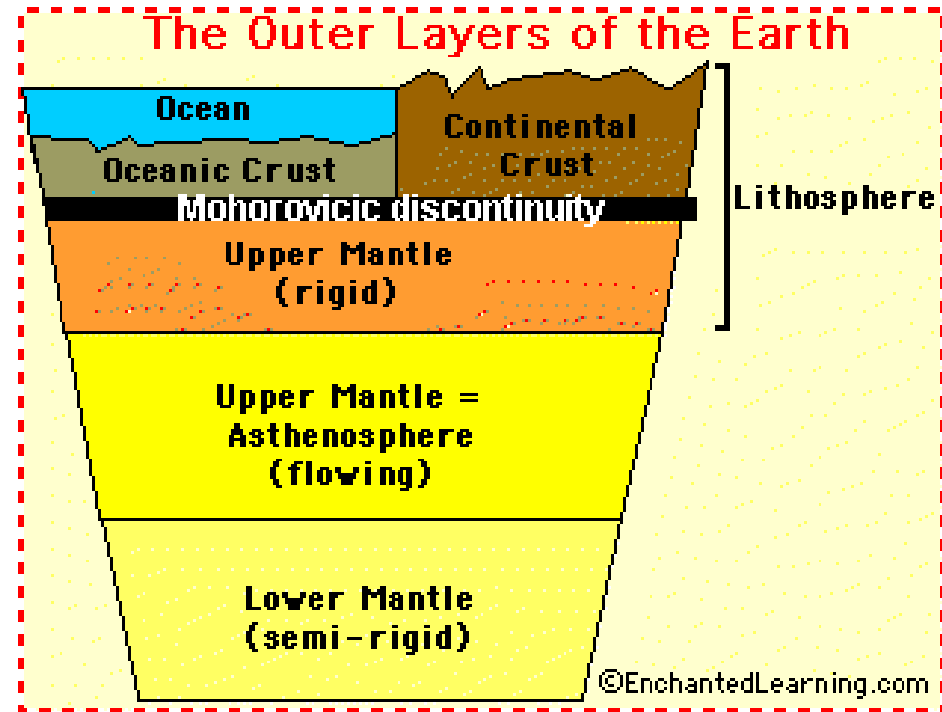
The Crust



- Outermost layer
- 5 – 100 km thick
- Made of Oxygen, Silicon, Aluminum

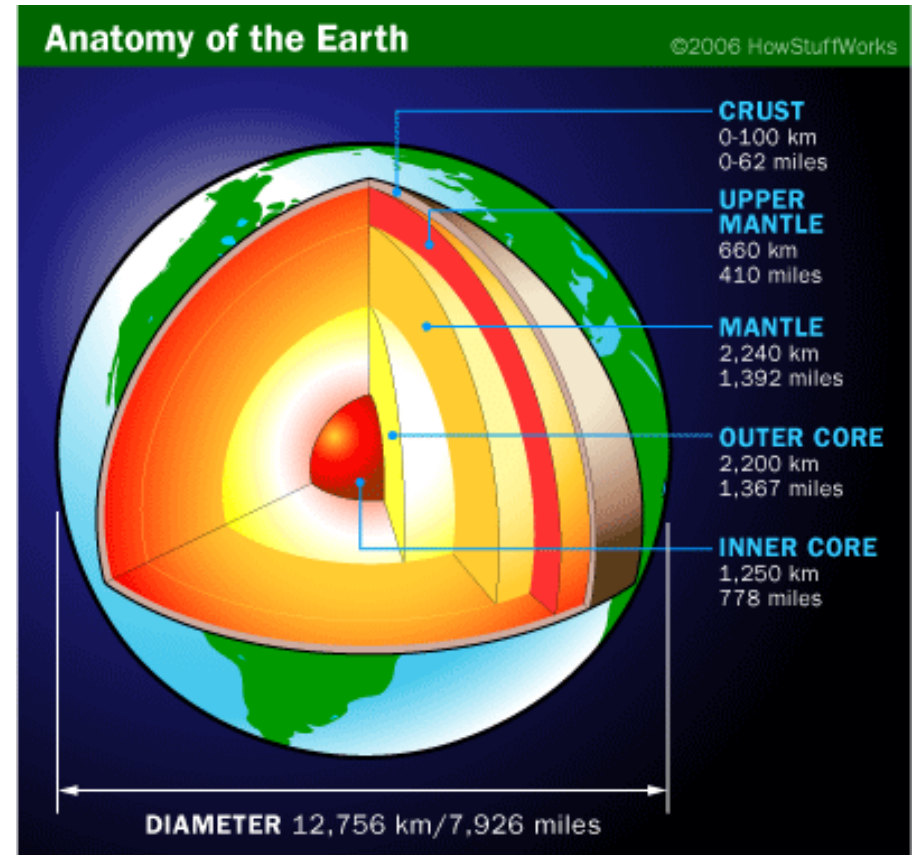
The Mantle

- Layer of Earth between the crust and the core
- Contains most of the Earth's mass
- Has more magnesium and less aluminum and silicon than the crust
- Is denser than the crust



The Core

- Below the mantle and to the center of the Earth
- Believed to be mostly Iron, smaller amounts of Nickel, almost no Oxygen, Silicon, Aluminum, or Magnesium



Tectonic Plates

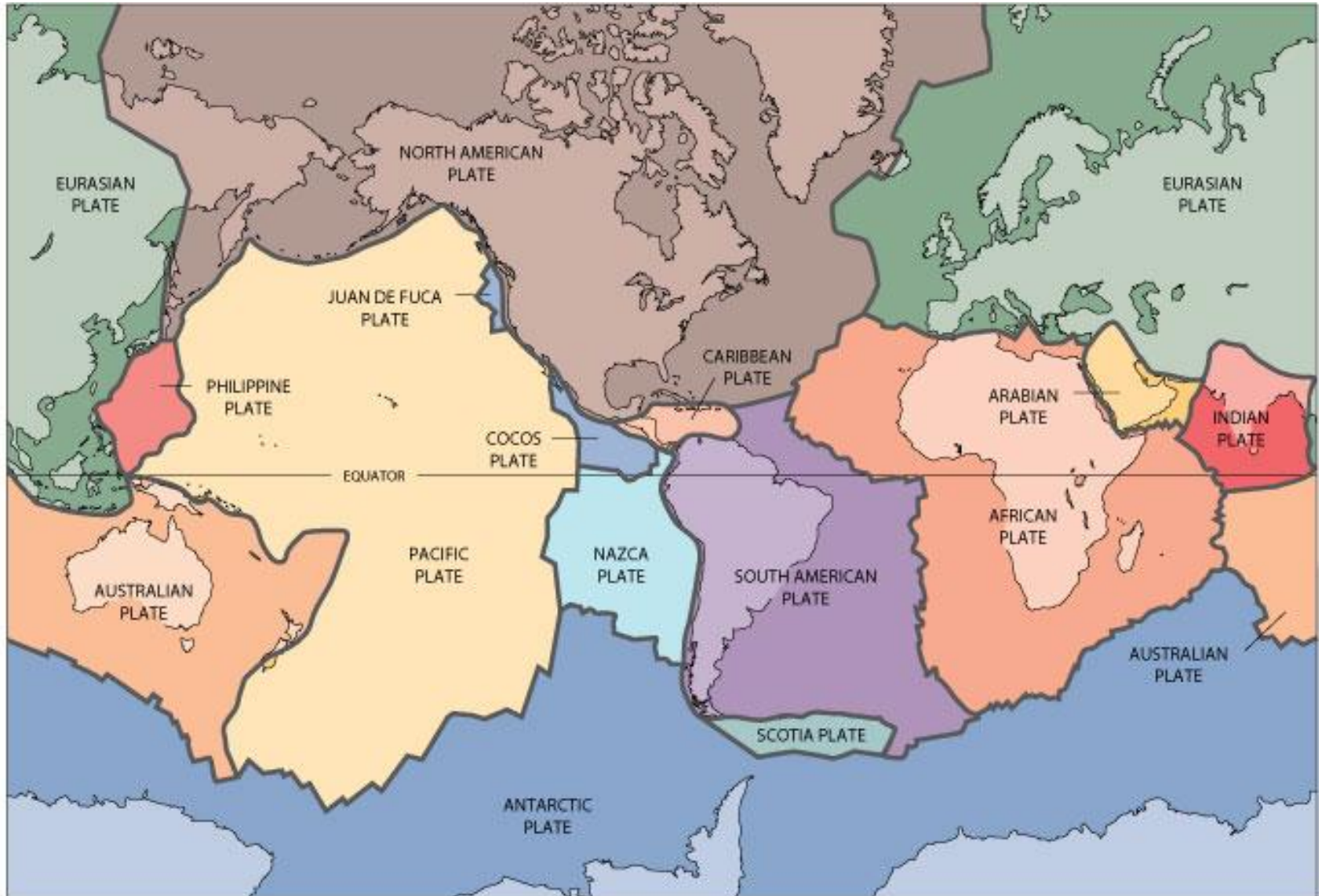


Plate Tectonics

- Greek – “tektonikos” of a builder
- Pieces of the lithosphere that move around
- Each plate has a name
- Fit together like jigsaw puzzles
- Float on top of mantle similar to ice cubes in a bowl of water

Continental Drift

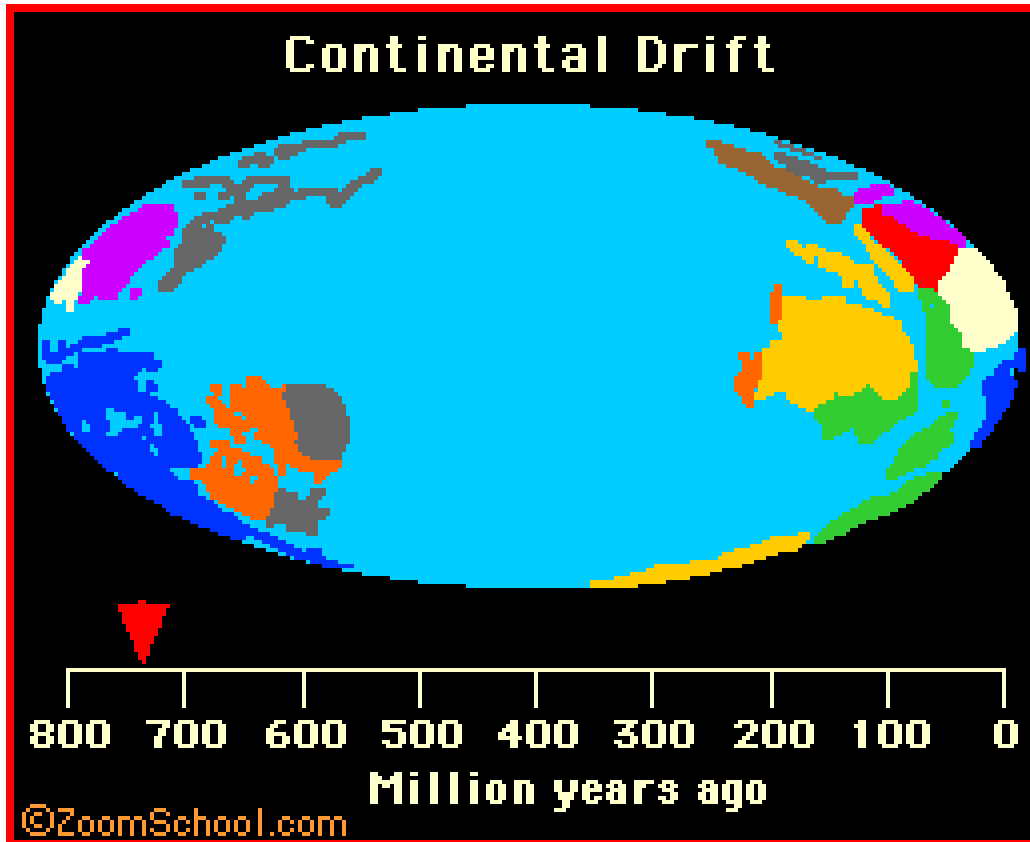
Alfred Wegener 1900's
Continents were once a single
land mass that drifted apart.

Fossils of the same plants and
animals are found on different
continents

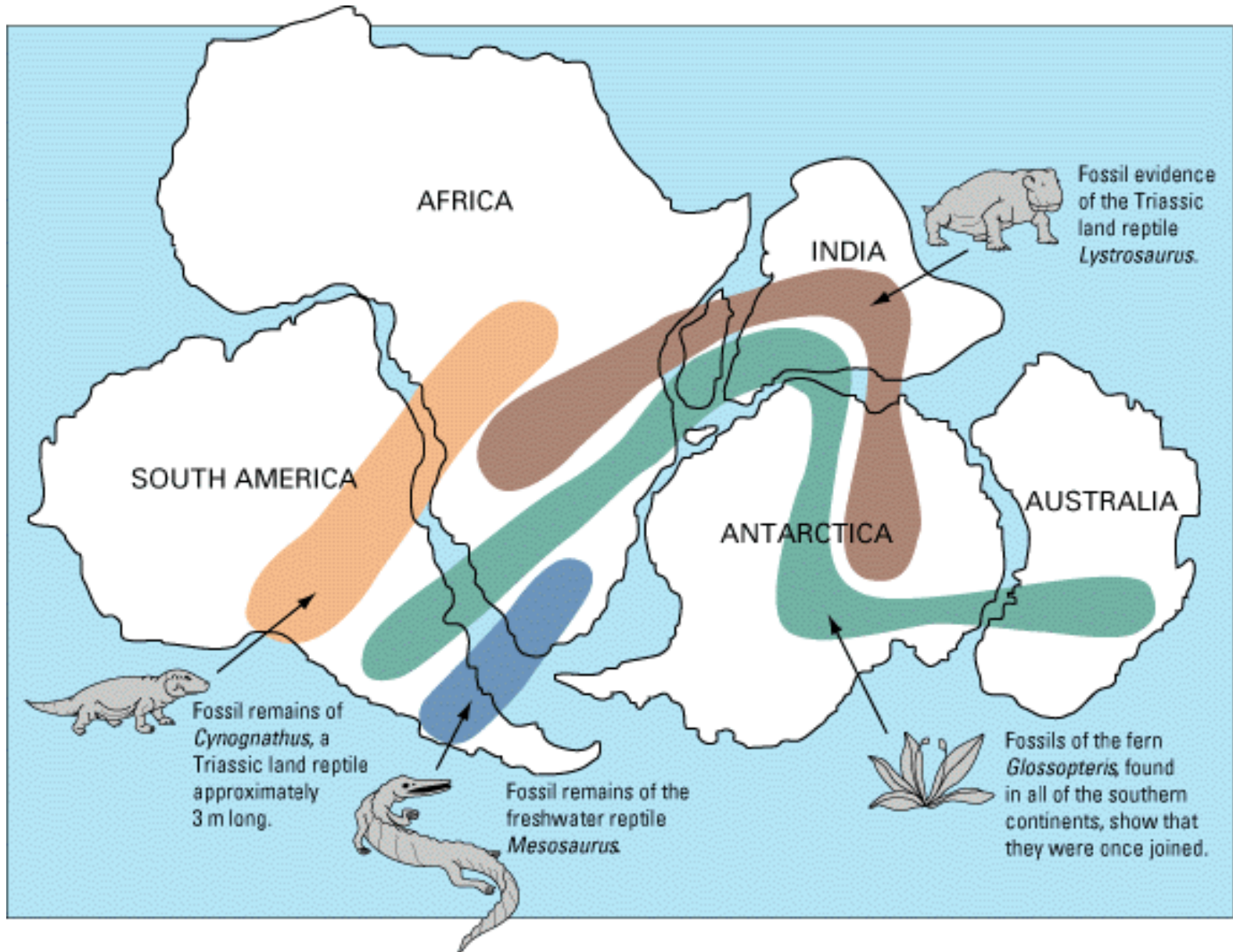
Called this supercontinent
Pangea, Greek for "all Earth"

245 Million years ago

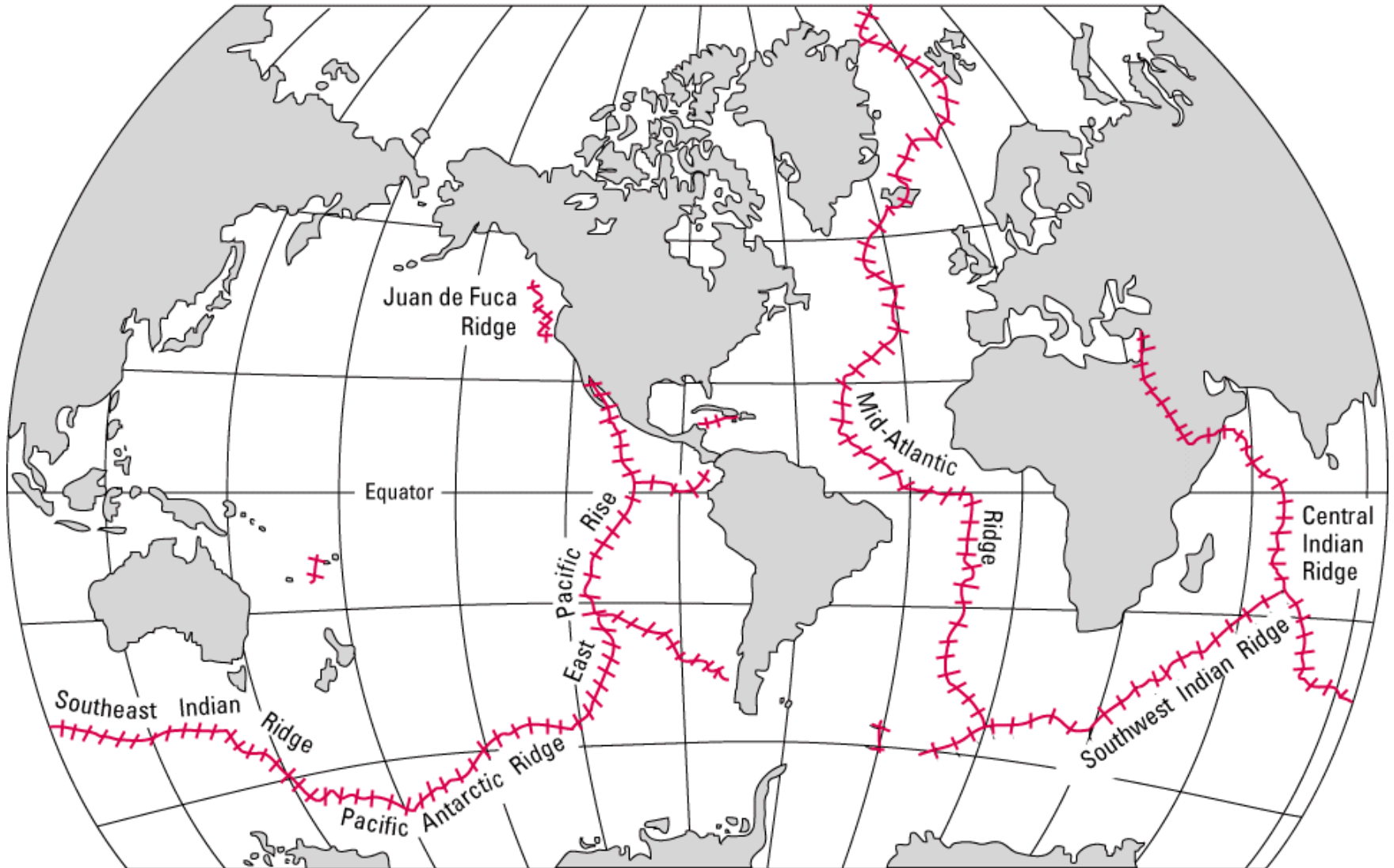
Split again – Laurasia &
Gondwana 180 million years
ago



Evidence of Pangea

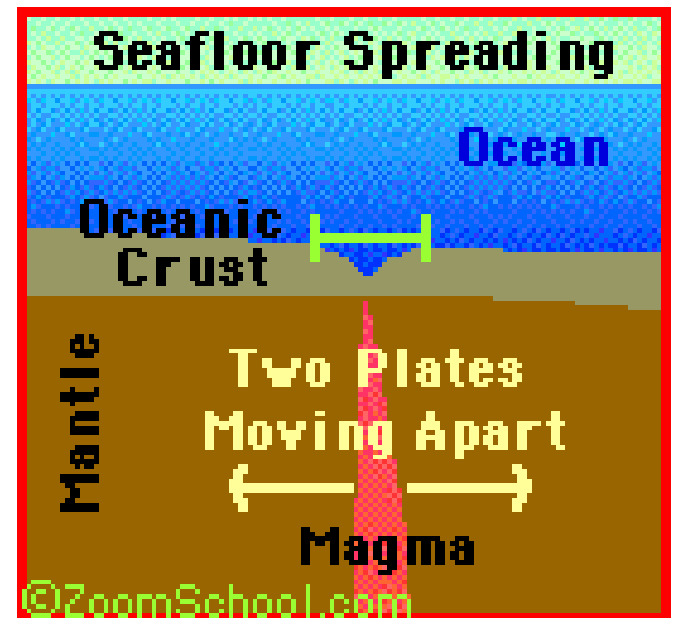


Sea Floor Spreading

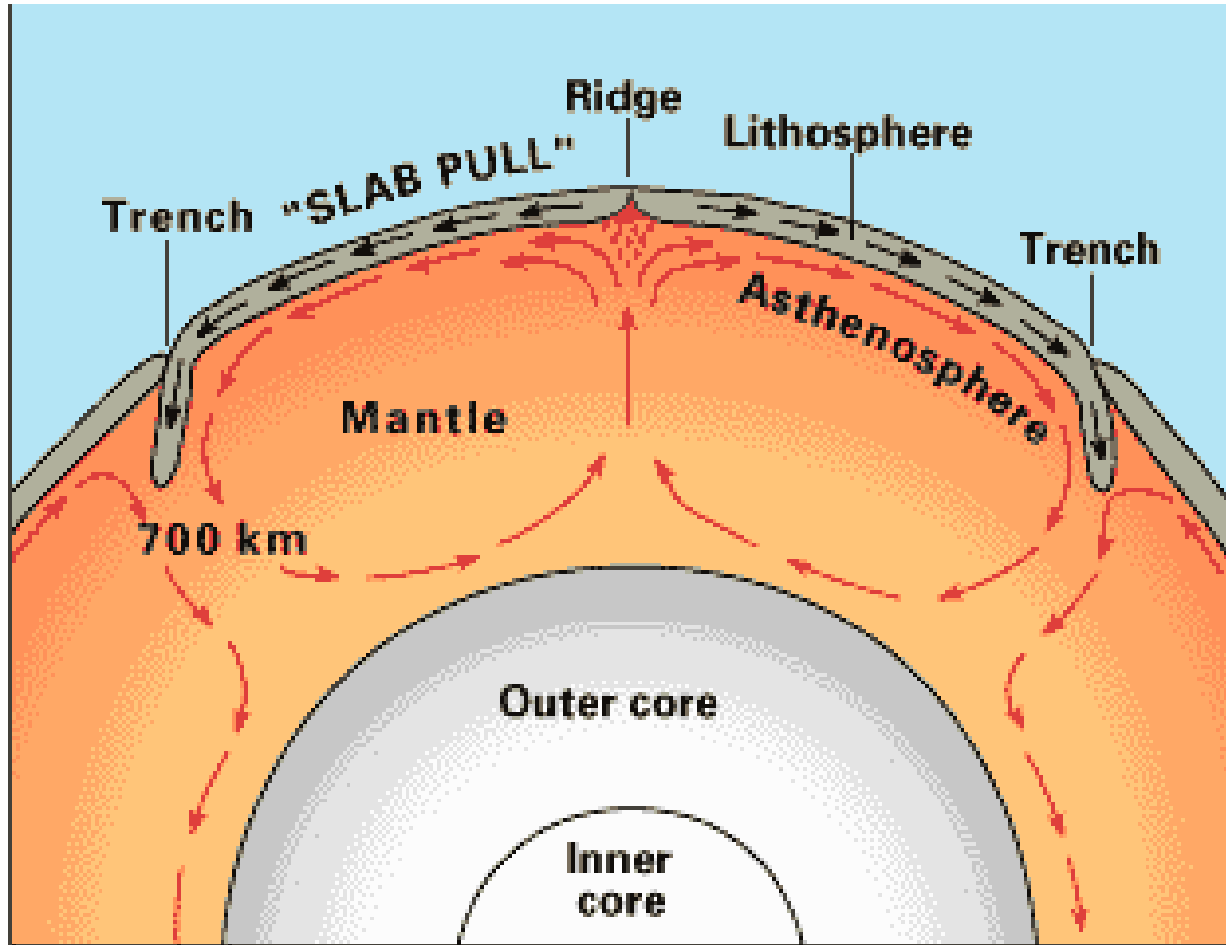


Sea Floor Spreading

- Mid Ocean Ridges – underwater mountain chains that run through the Earth's Basins
- Magma rises to the surface and solidifies and new crust forms
- Older Crust is pushed farther away from the ridge

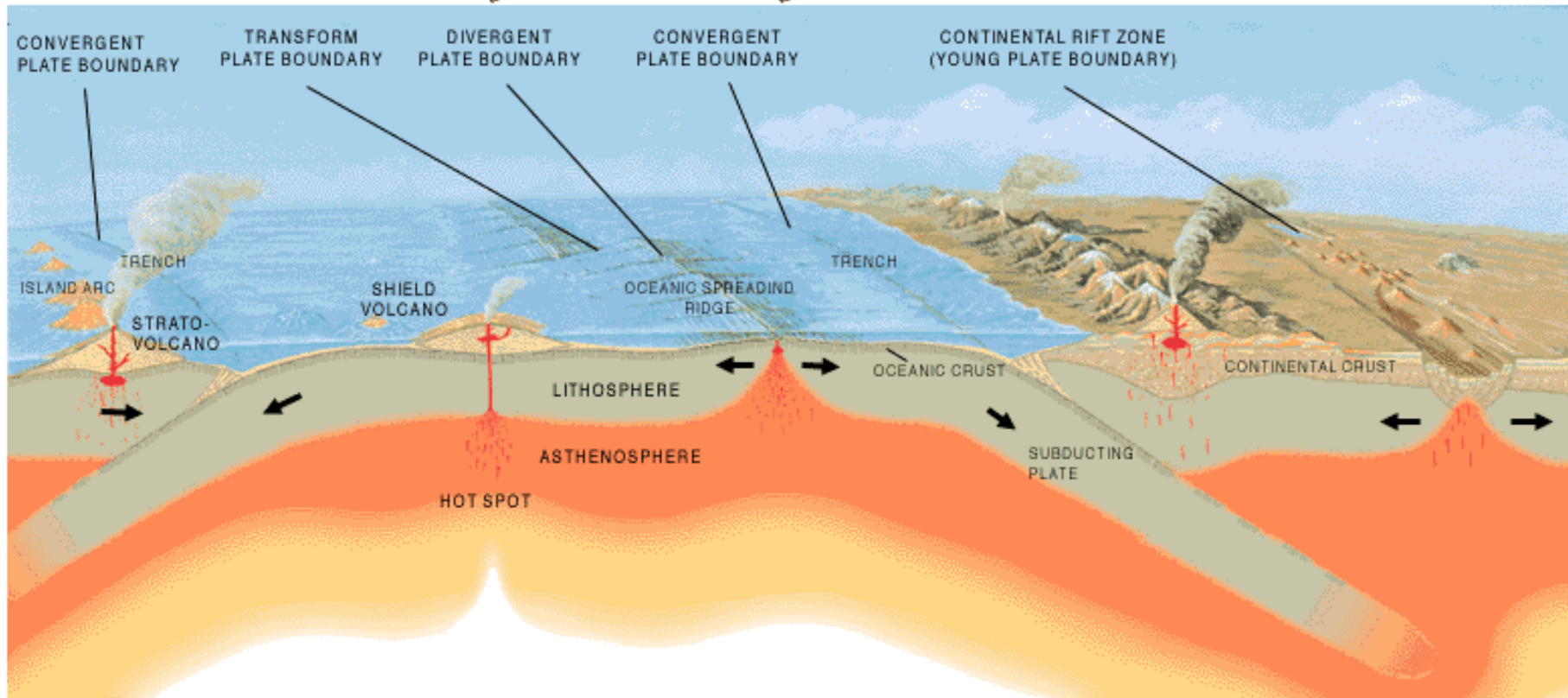
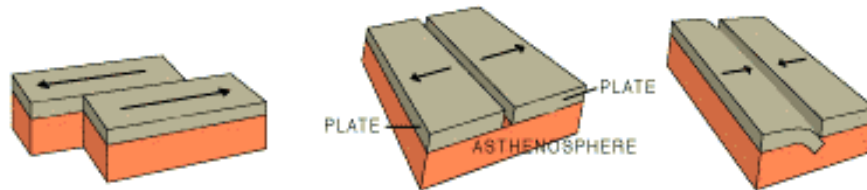


How Plates Move

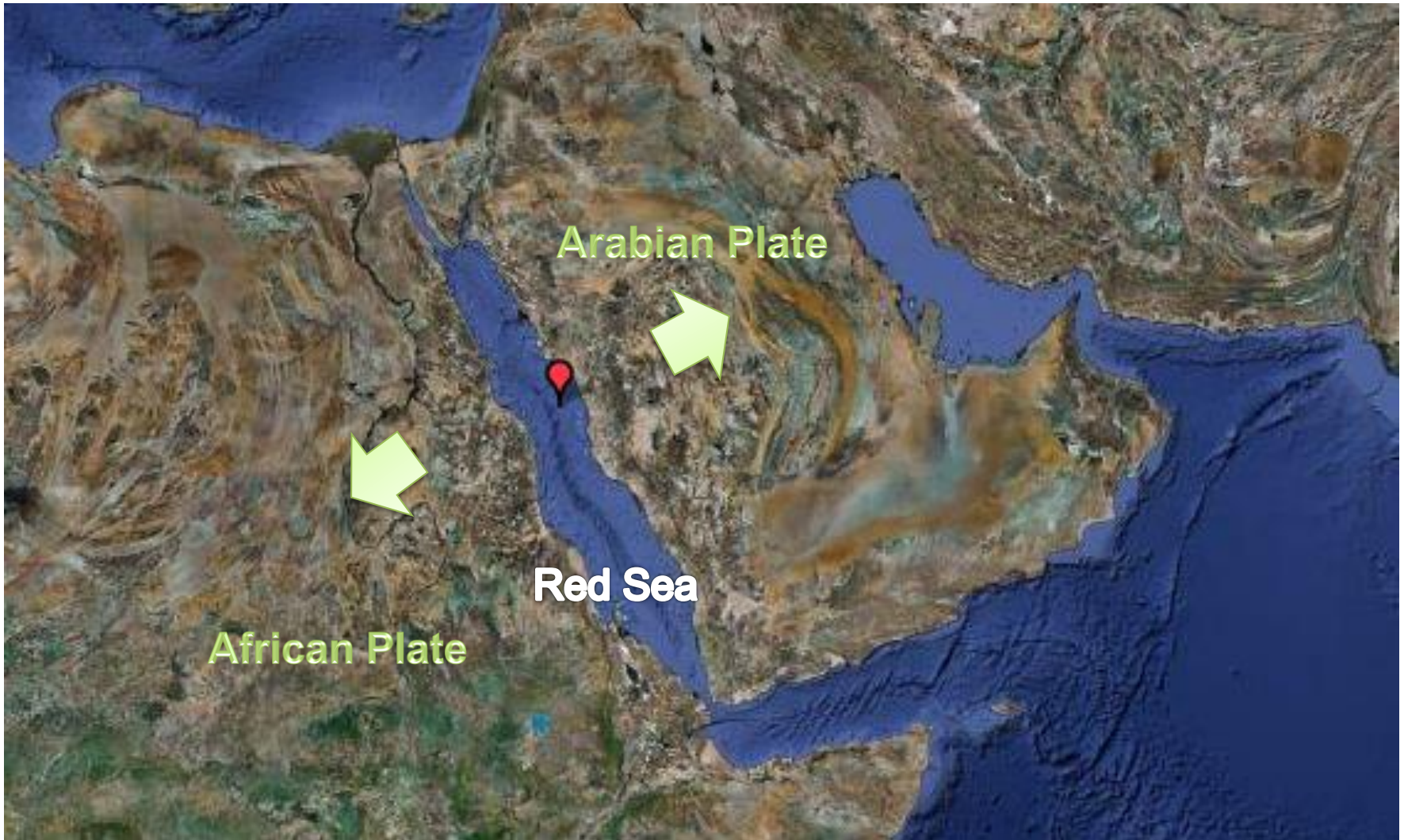


<http://pubs.usgs.gov/gip/dynamic/unanswered.html>

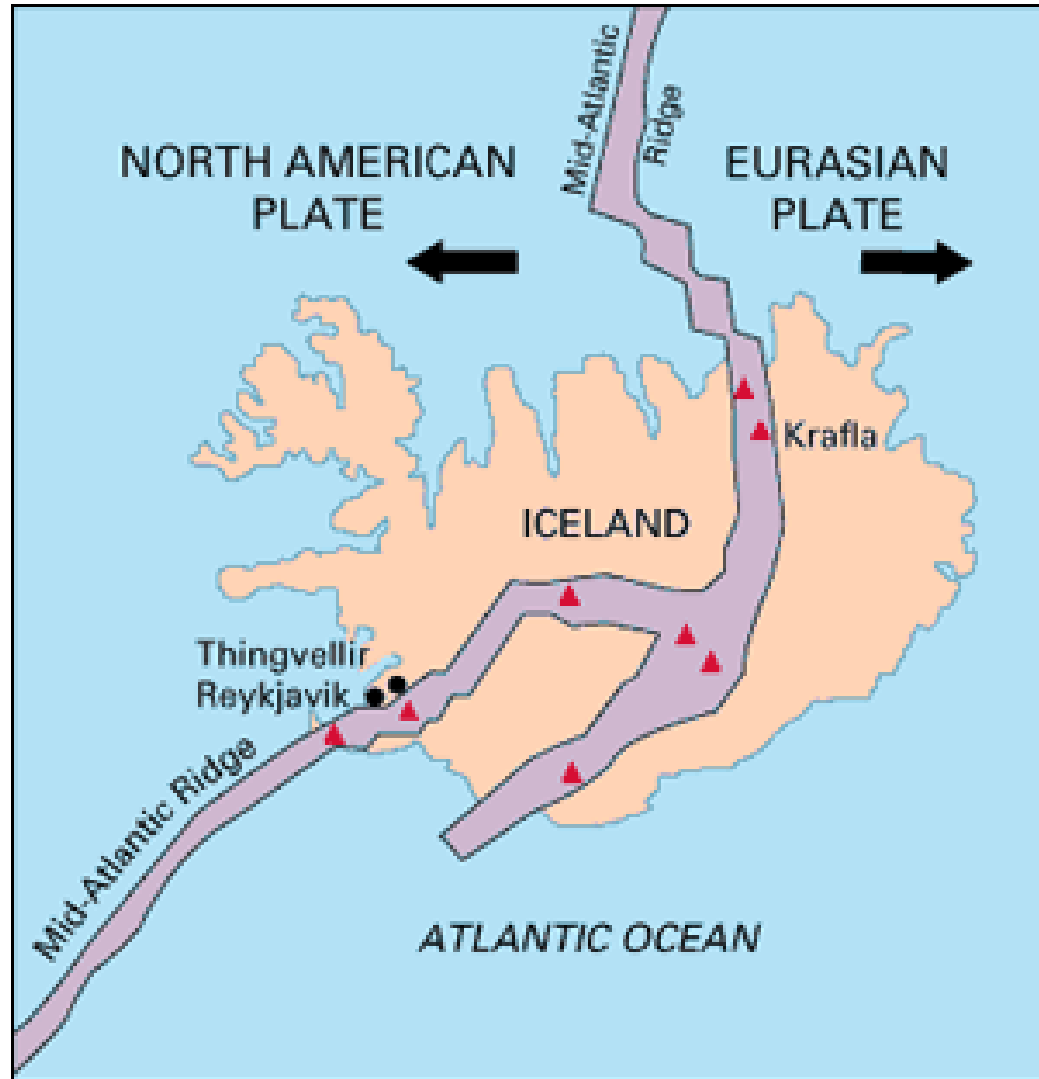
Different Types of Boundaries



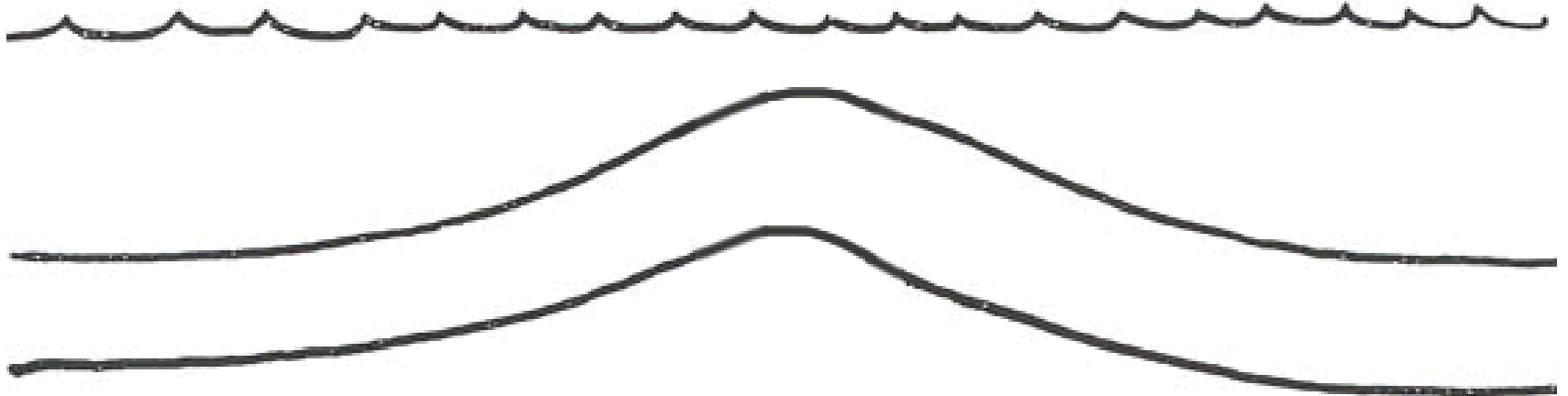
Divergent Boundary – Arabian and African Plates



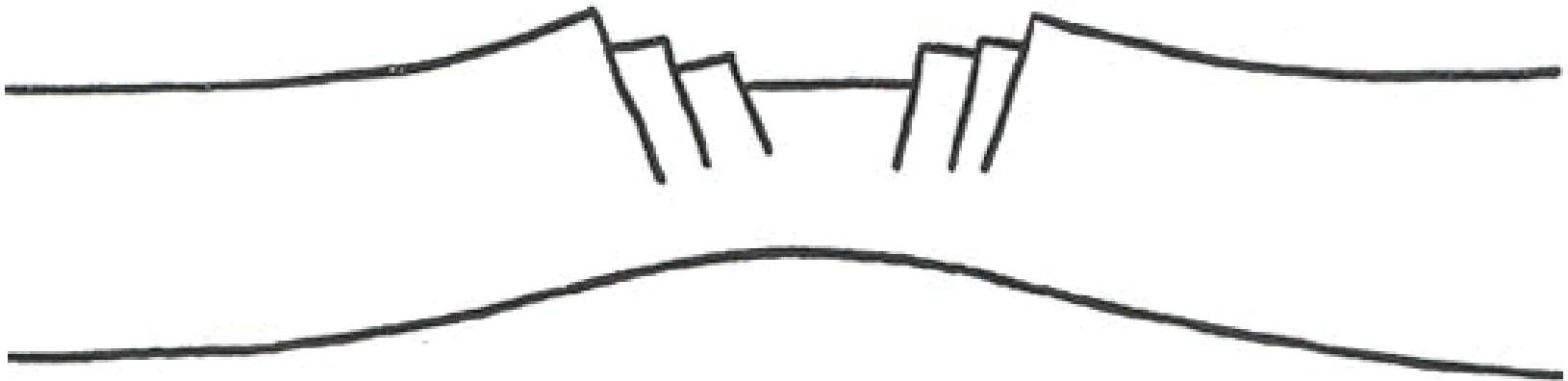
Divergent Boundary – Iceland



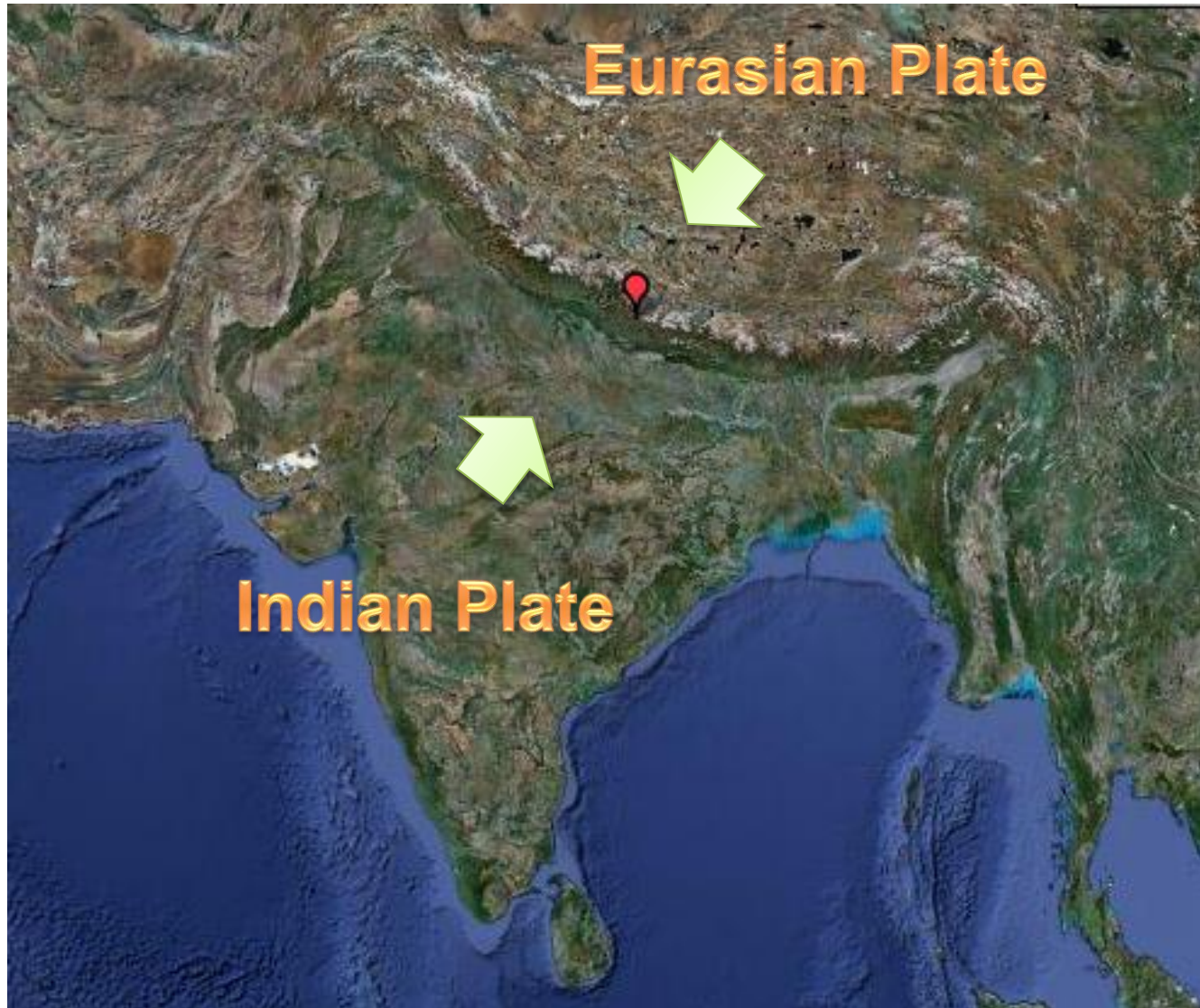
Divergent Boundary - Oceanic



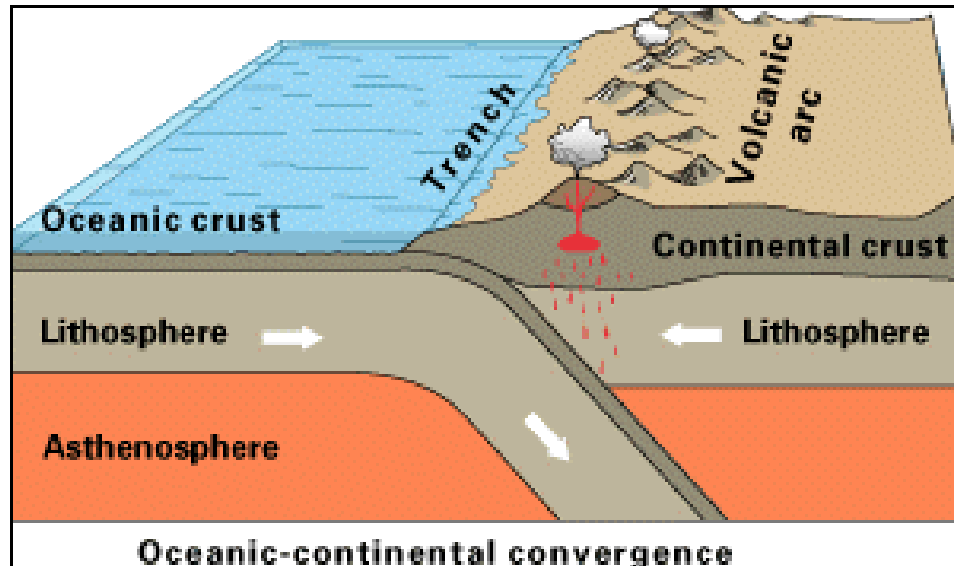
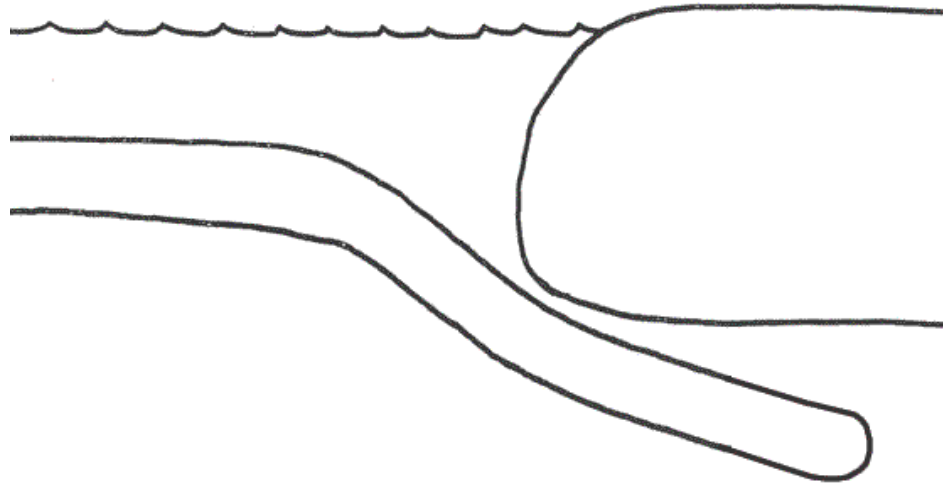
Divergent Boundary - Continental



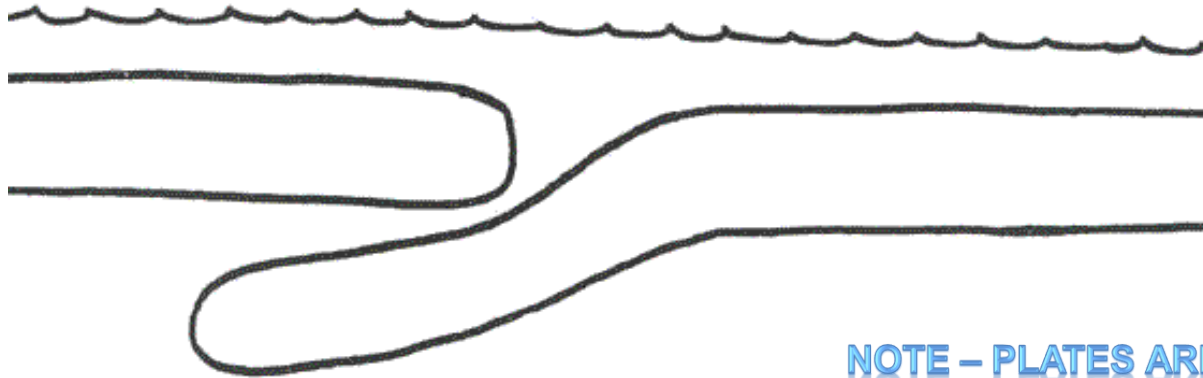
Convergent Boundary – Indian and Eurasian Plates



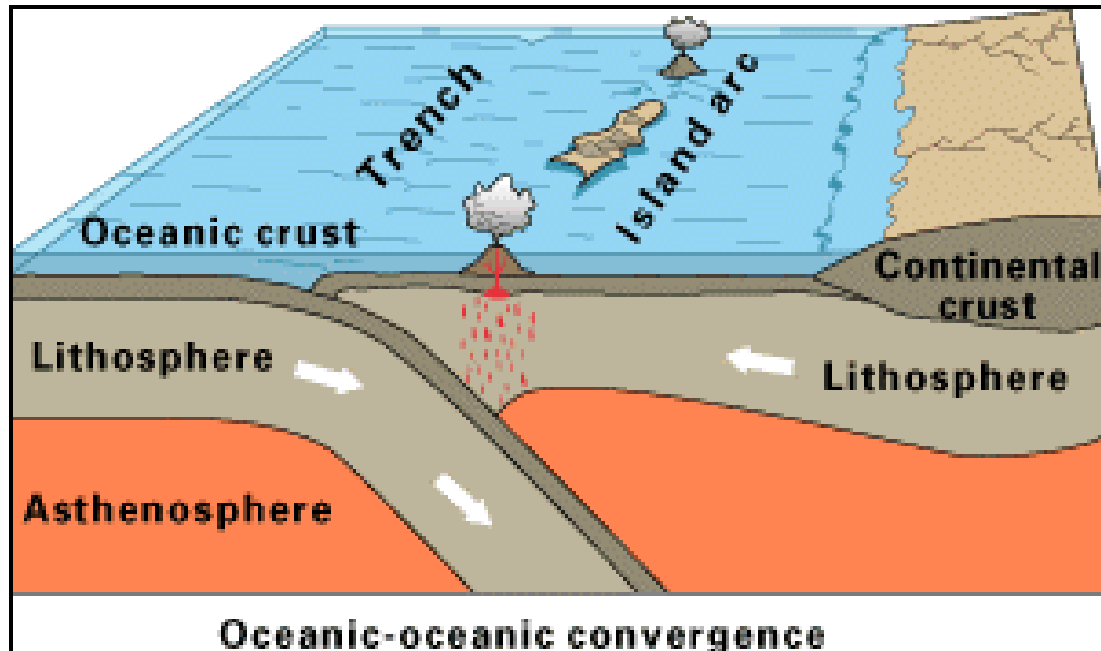
Convergent Boundary – Oceanic & Continental



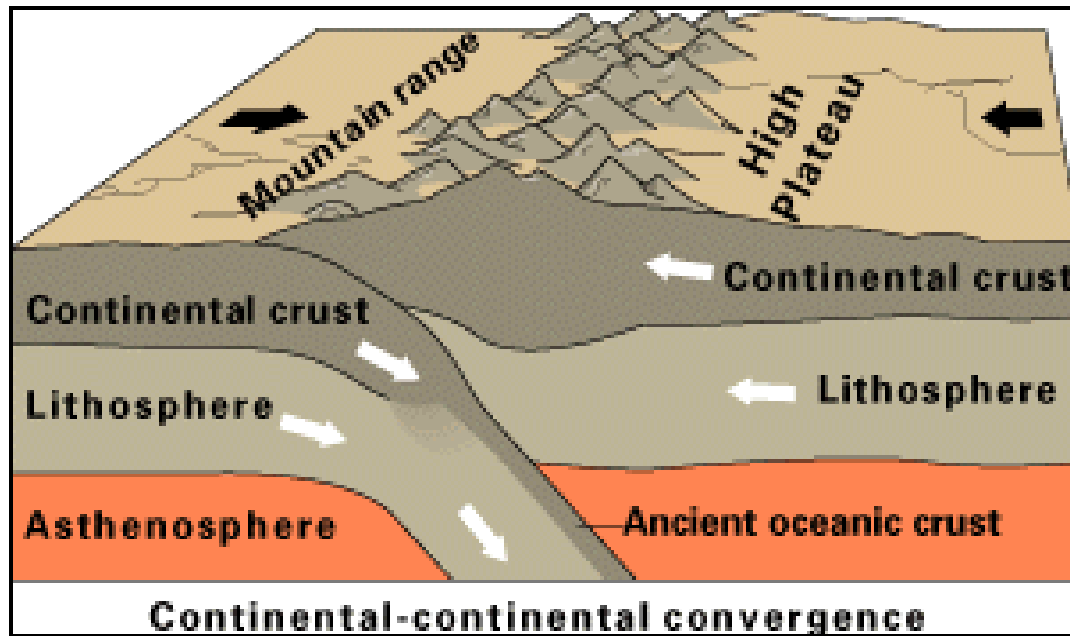
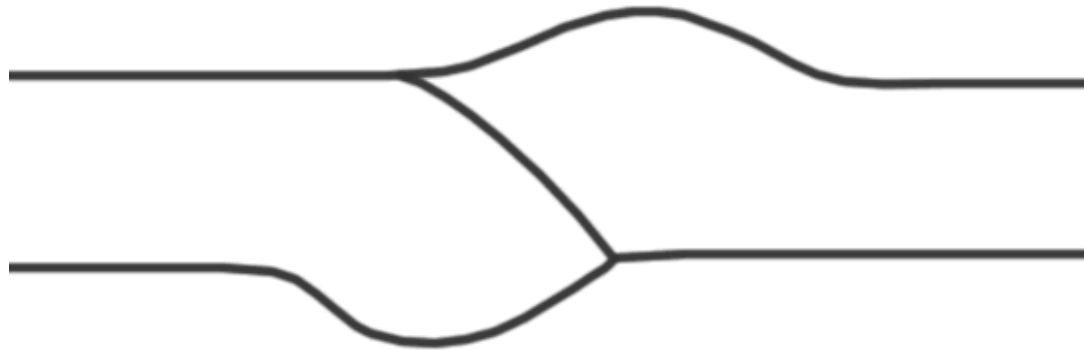
Convergent Boundary – Oceanic & Oceanic



NOTE – PLATES ARE REVERSED



Convergent Boundaries - Continental



Transform Boundary – San Andreas Fault



Review

- Name the 3 main layers of the Earth
- What is a tectonic plate?
- What was Pangea?
- What is Sea-Floor spreading?
- Name the three different types of plate boundaries and one location on Earth for each one