Daily Routine

- Sit in your appropriate seat quietly
- Have all necessary materials out
- All back packs on the floor
- All cell phones on silent and away in backpacks
- All IPods off and headphones out of your ears
- No food or drink except for water

Bellwork

- How does earthquake depth show the relationship of subduction?

- Describe subduction in your own words.

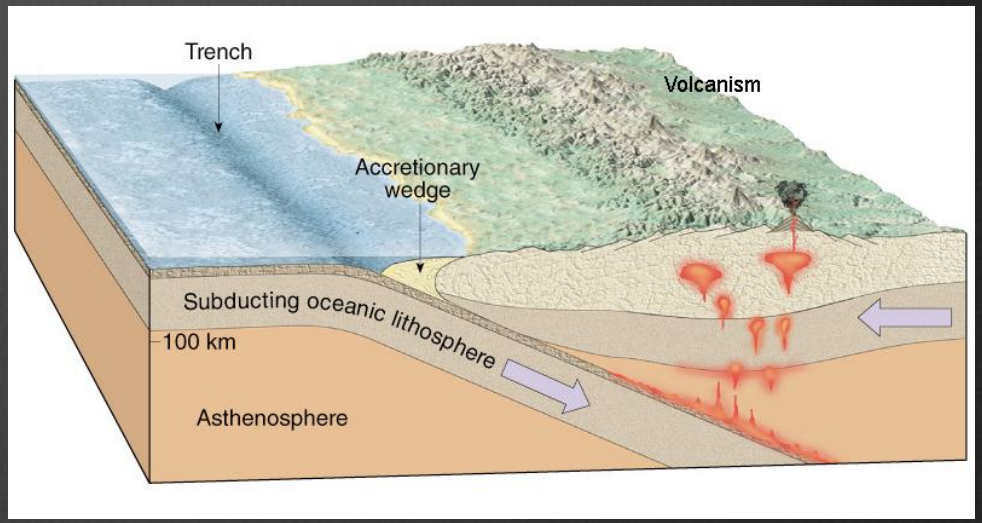
Plate Tectonics: Plate Boundaries

I will be able to…

- Explain how the modern Theory of Plate Tectonics came about with Hess' and Wegener's lines of evidence
- Elaborate about the similarities and differences of oceanic and continental crust
- Describe the movement of each plate boundary
- Diagram the three types of plate boundaries

What is subduction?

- Subduction is recycling of Earth's crust
- Known as slab pull
- One tectonic plate slide under and down underneath another tectonic plate
- Caused by density differences
- Denser plate sinks or subducts under the less dense plate



Earth's Crust

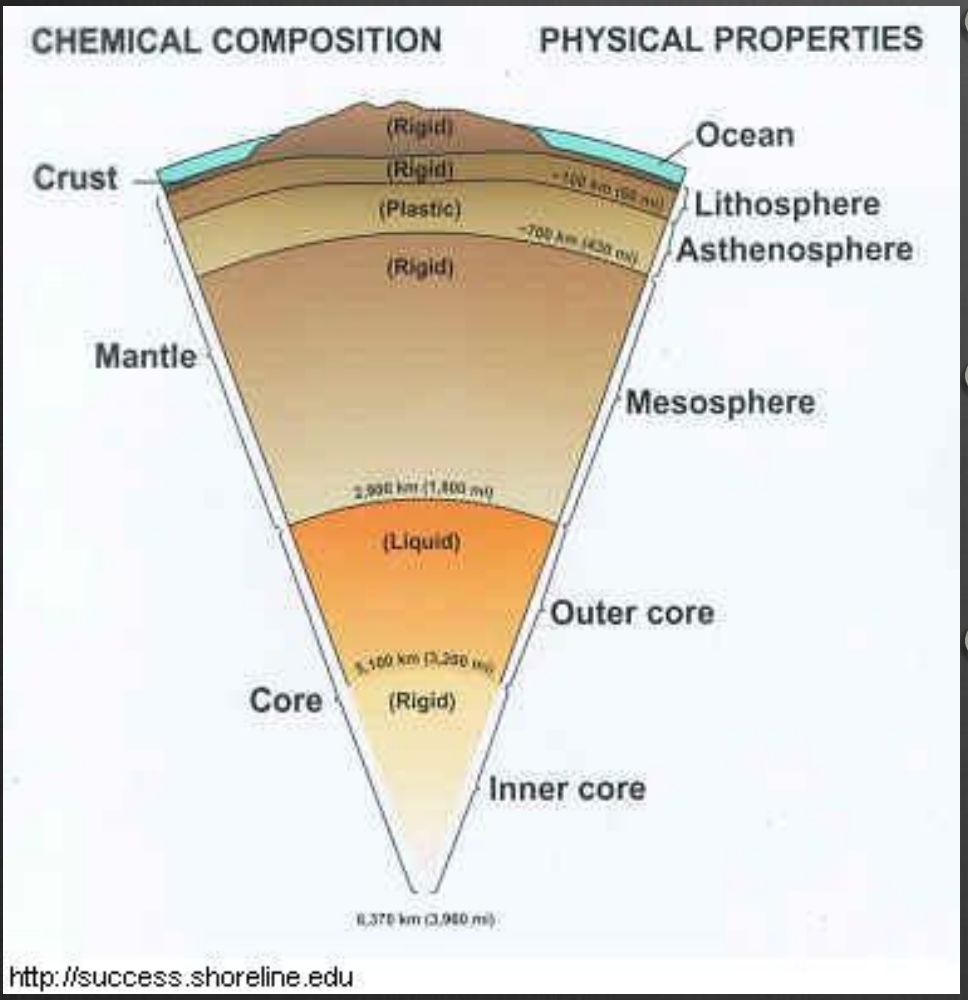
Oceanic

- Makes up the ocean floor
- Composed of pillow basalts (rock type)
- Thin – 5 km thick
- Density – 3.0 g/mL

Continental

- Makes up the land/continents on Earth
- Composed of mostly Granites
- Thick – 20-70 km thick
- Density – 2.7 g/mL

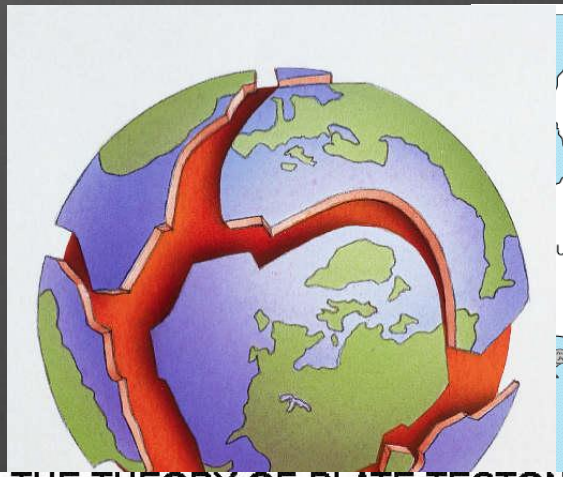
Important Layers for Plate Tectonics

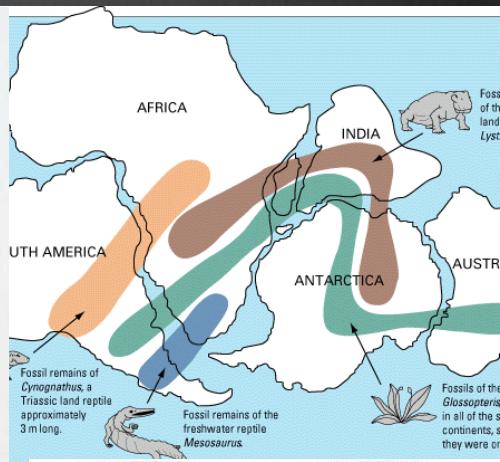


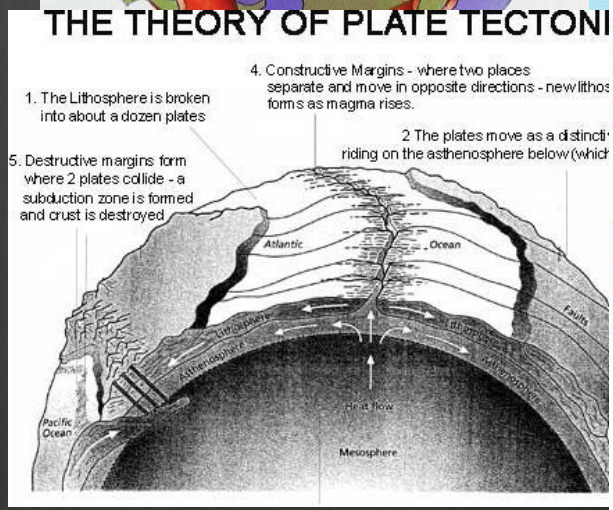
- Two sub-layers that drive plate tectonics:
  - Lithosphere
  - Asthenosphere
- Lithosphere: Crust and rigid upper most part of the mantle = tectonic plate
- Asthenosphere: plastic layer within the upper mantle that contains the mechanisms to cause plate movement

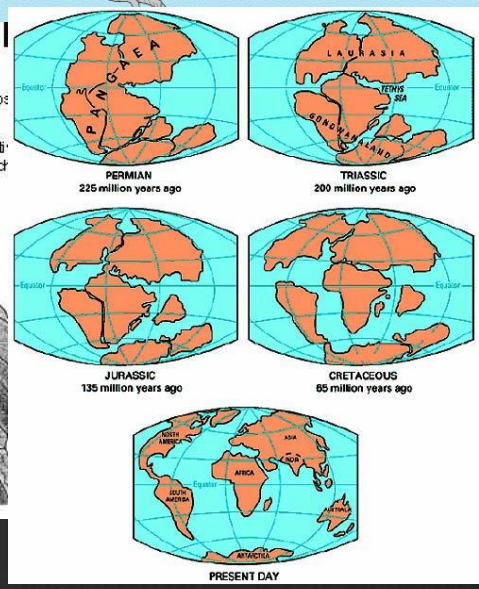
How did the Theory of Plate Tectonics come about?

- Merger of all evidence:
  - Wegener's continental drift hypothesis evidence
  - Hess' sonar scans, core sample ages, paleomagentism to form sea floor spreading
  - Geographic evidence: mountain ranges, volcanoes, island arcs, trenches, MOR's
  - Earthquake data









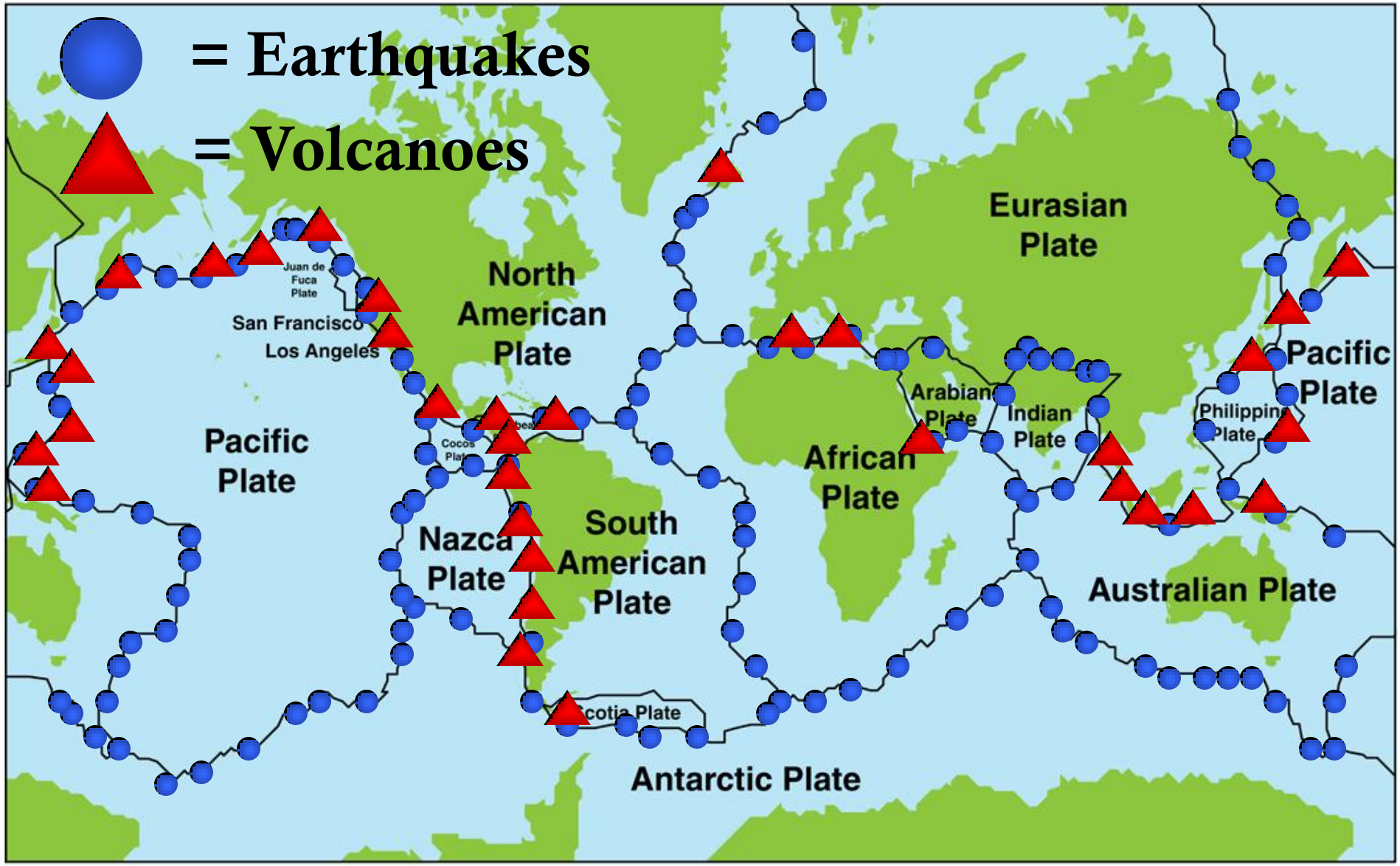
Scientists started plotting the location of earthquakes around the world

Next, Scientists began plotting the location of volcanoes around the world

As they did this, a pattern began to emerge that showed

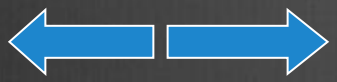
Once again, a pattern emerged

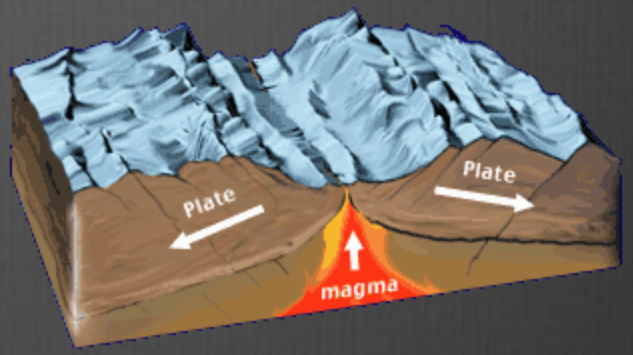
cracks in the earth's crust, revealing plate boundaries locations



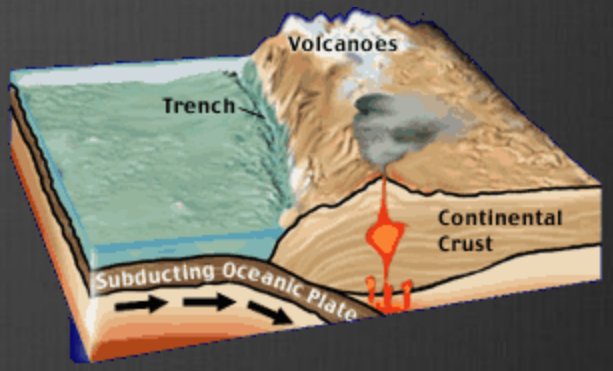
The 3 Plate Boundaries

- Divergent-plates are pulled apart

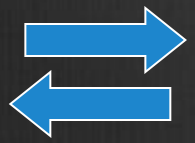




- Convergent-plates collide



- Transform-plates slide past each other



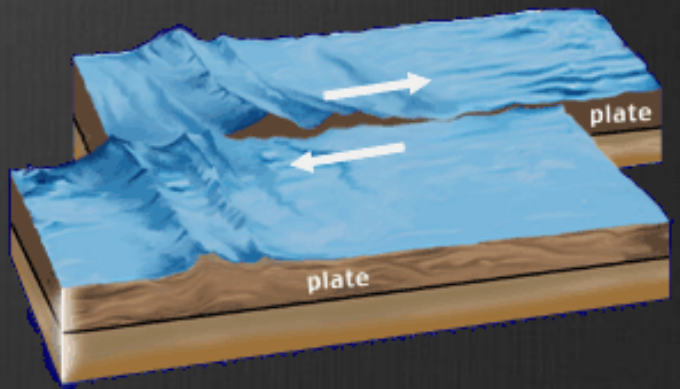
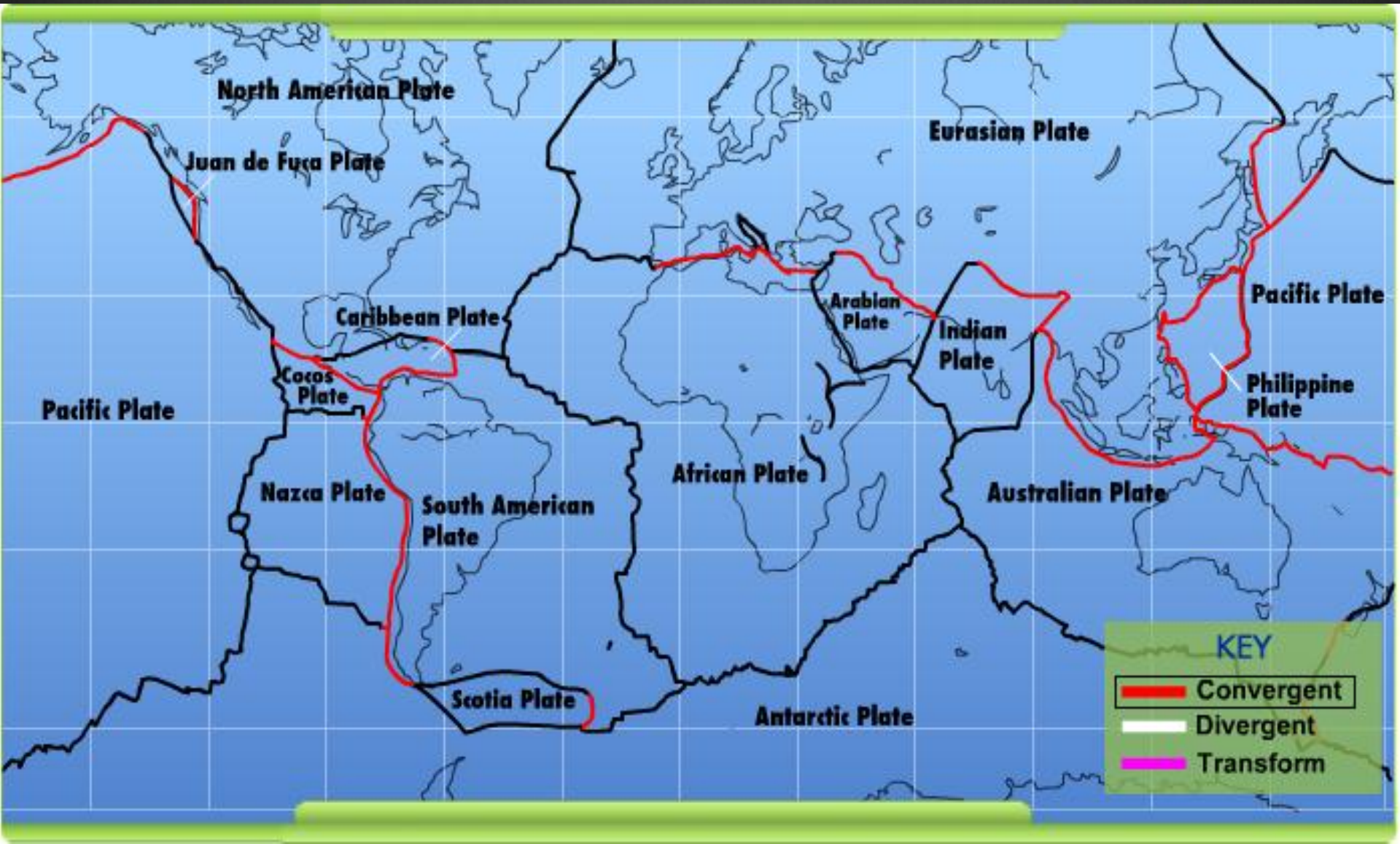


Plate Boundary Types

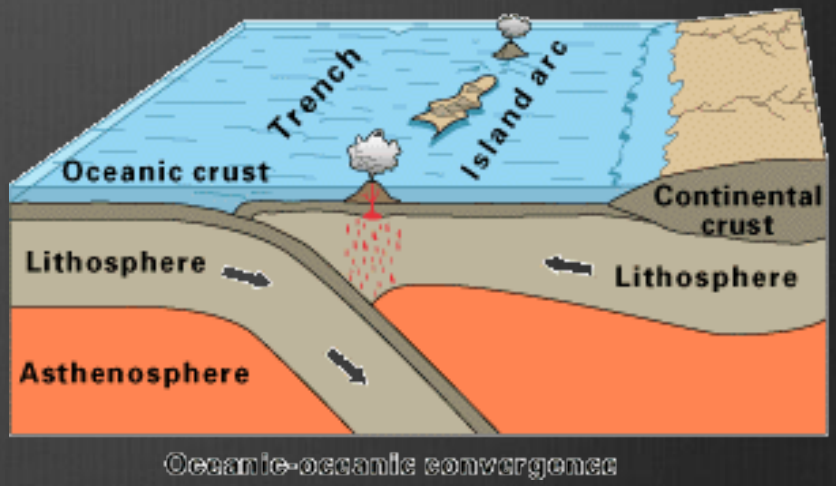
- On the worksheet perform the following tasks:
- Diagram the types of plate boundaries
- Describe the motion of the plate boundaries
- Describe the types of crust involved with the plate boundaries
- Identify what features (geographic) form due to the different plate boundaries
- Identify at least two real-life examples of the plate boundaries

Convergent Boundary



Oceanic – Oceanic Subduction

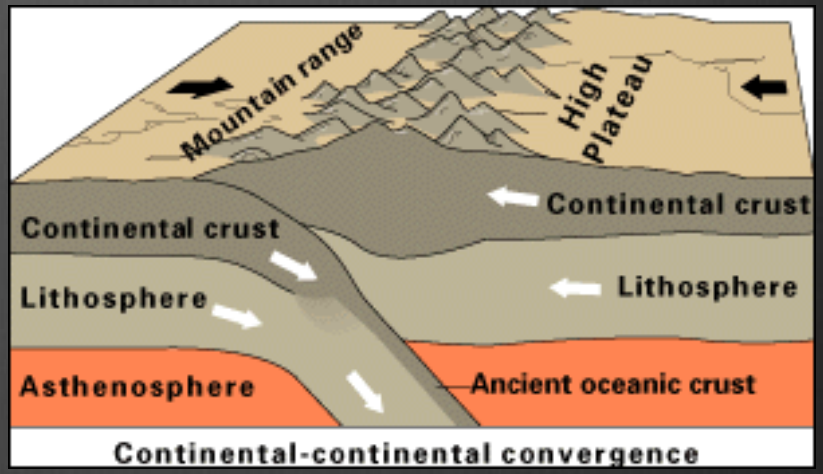
- Subduction of two oceanic plates
- Denser older oceanic plate subducts under younger less dense
- Lots of volcanism and earthquakes
- Island Arc and deepest trenches are formed



Examples: Aleutian Islands and Japan

Continental – Continental Collision

- When two continental plates/crust collide
- Both plates have similar densities
- Land buckles and pushes up
- Push up motion of land = uplift
- Lots of heat and pressure change the rocks



•Forms mountain ranges and many Earthquakes
•Example: Himalayas