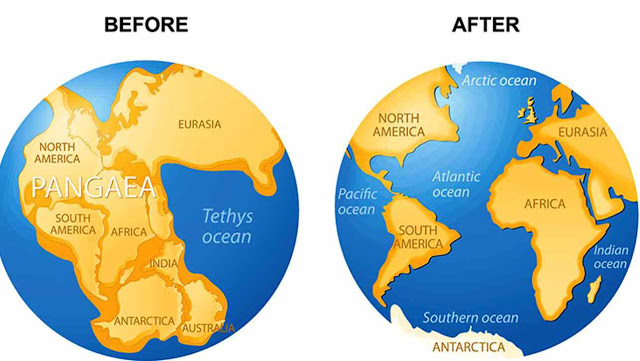
8th Grade Science- Uddo Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Plate Tectonics Guided Notes

**Continental Drift**

Alfred Wegener (1910)

* Hypothesized that all the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ were once joined

together in a single landmass called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and have

since drifted (like \_\_\_\_\_\_\_\_\_\_ \_\_\_ \_\_\_\_\_\_\_\_\_\_\_)

* + This became known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- supercontinent

(existed 350-200 million years ago)

* + (Pangaea means “all lands” in latin)
  + Others had similar ideas, however Wegener was the first to have scientific

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to support this idea

**Evidence for Continental drift**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ features
   * + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of some continents seemed to fit together like a \_\_\_\_\_\_ \_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
     + Mountain ranges in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ line up with those in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



2.) **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-**- any trace of an ancient organism that is preserved in rock

* + - *Glossopteris*- fern like \_\_\_\_\_\_\_\_\_\_ with leaves the shape of a tongue, lived 250 million years ago
      * Found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_, South America, Australia, \_\_\_\_\_\_\_\_\_\_ and Antarctica
      * These land masses are now separated by oceans indicating that\_\_\_\_\_\_\_\_\_\_\_\_ once existed
    - *Mesosaurus* and *Lystrosaurus*- **fresh** water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Fossils found in places separated by \_\_\_\_\_\_\_\_\_\_\_\_\_
        + Neither reptile could have swum that great of

a distance in salt water

* + - * + Explanation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Fossils of \_\_\_\_\_\_\_\_\_\_\_\_\_l plants found on an island in the arctic ocean
* Scratches in rocks made by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ found in South Africa
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ fields in Europe and North America lined up
  + - Coal only forms in \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_ areas

\*\*\*\*When \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ move, north or south, they take the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and rocks that formed in the past with them

Continental Drift—\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + Wegener provided supporting \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the continental drift theory

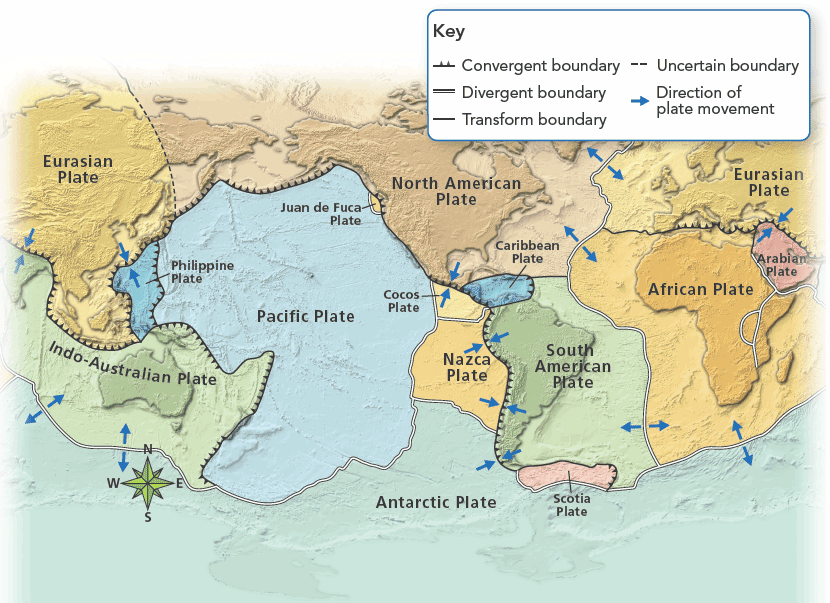
BUT….

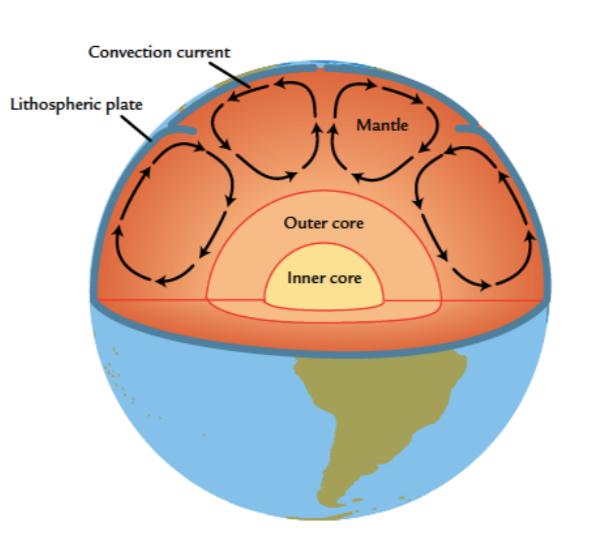
Could not identify the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that cause the plates to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (the force that caused the push or pull) because of this, most geologist rejected his theory

Eventually, continental drift EVOLVES into \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**The Theory of Plate Tectonics**

* Plate- A section of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that slowly moves over the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, carrying pieces of continental and oceanic crust
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-breaks in the Earth’s crust where rocks have slipped past each other, form along these boundaries
* Theory of Plate Tectonics- Earth’s plates are in slow, constant motion, driven by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the mantle.
* Convection current –A flow of material caused by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ differences



Convection Currents

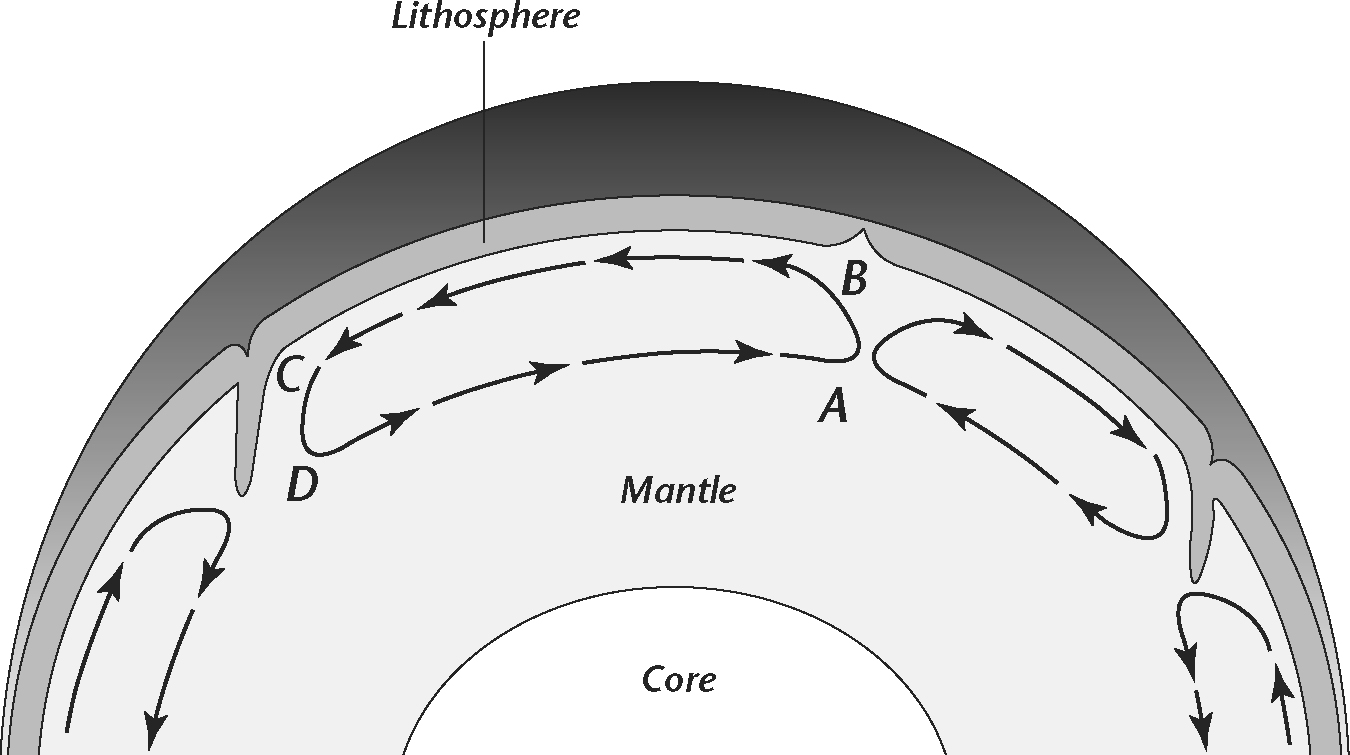
* Occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the mantle

**How Convection Works:**

* Heat from Earth’s core causes the material of the mantle to become a

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ solid (it can stretch and “flow”)

* Once heated the material becomes less \_\_\_\_\_\_\_\_\_\_\_\_\_\_ so it rises toward the Lithosphere
* At the rigid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it cannot move upward any more so it moves to the right or the left
* As it moves, it drags the lithospheric \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with it and cools.
  + The material becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dense and it sinks back toward the core
* The above process is repeated.



Convection Current Practice- Use the diagram to the right to answer the

following questions

1. Where is the temperature of the mantle material

greater, at point A or point B? Explain why. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Where is the density of the material greater, at point B or

point C? Explain why. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What causes the convection cell to turn to the left at point B? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What happens to the temperature and density of the material between point B and C? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What force causes the convection cell to turn at point C? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What happens to the temperature and density of the material between points D and A? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What causes the convection cell to turn up at point A? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. How do you think this convection cell might affect the crustal material above it? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What would happen to convection if the heat source was removed? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Measurement of plate motion over time**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are used to measure plate motion precisely.
  + Plates move constantly and slowly - between 1-12 cm per year
    - North American and Eurasian plate move about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * FOR SCALE : This is about the same speed in which your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ grow
    - Although very slow, the plates have been moving for hundreds of millions of years so they have moved \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Since the breakup of Pangaea, the continents have taken about \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ to move to their present location.

200 million years ago 115 million years ago Earth Today



* As the plates move, they create *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, volcanoes, mountain ranges* and *\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

**3 Types of Plate Boundaries**

1.) Divergent Boundaries-two plates slowly move \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from each other

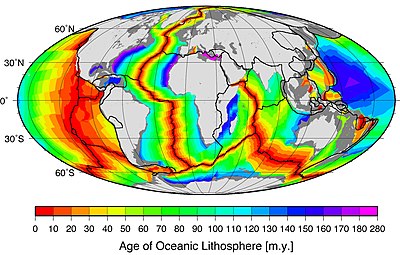
* + In the ocean = \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
    - Underwater \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ranges
    - new crust is added during process of \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * ex. Mid Atlantic Ridge, Atlantic Ocean
  + On land = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - * ex. East \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Rift System, Africa

Sea Floor Spreading- the process by which molten material adds \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ crust to the ocean floor at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + This occurs at \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

**How sea floor spreading works:**

* + MOR forms a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the oceanic crust, called central valley
  + Along the ridge, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ material from inside Earth which is HOT- rises, erupts, cools and hardens to form a solid strip of rock which is new oceanic crust
    - Sea Floor spreading adds more crust to the \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Older, colder, more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ crust moves outward from either side of the ridge

Evidence of Sea Floor Spreading

1.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + Scientists drilled into the ocean floor
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_ away the sample was

taken from the MOR, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_

the rock was

* + - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rocks were found at

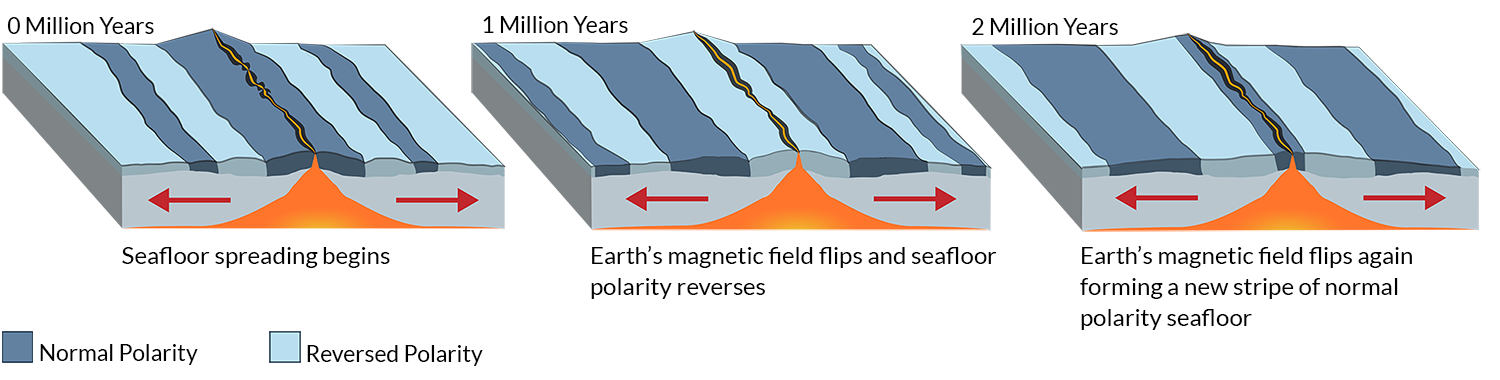
the center of the\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + - The rocks age shows that \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs

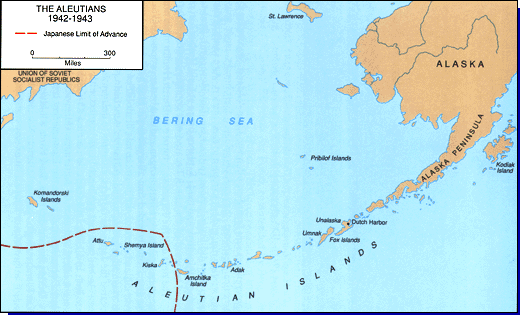
\*\*As distance from the ridge\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_ increases

2.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + Lava contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Iron is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (points to magnetic north)
  + When the lava \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the iron will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the direction of the magnetic north at the time of the eruption
  + Direction of the iron at the seafloor is \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_.
  + The patterns are \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on either side
  + Width of stripe indicates \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the pole was in the normal or reversed position
    - Wider = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



2.) Convergent Boundary-boundary where two plates collide or come together

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of plates determine which one comes out on top
* Subduction- the process by which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ crust sinks beneath a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ and back into the mantle at a convergent boundary
  + New crust is \_\_\_\_\_\_\_\_\_\_ —less \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Old crust is \_\_\_\_\_\_\_\_\_\_\_\_ —more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-A deep valley along the ocean floor beneath which oceanic crust slowly sinks toward the mantle
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pulls the older, more dense oceanic crust down beneath the \_\_\_\_\_\_\_\_\_\_ into the mantle

**Three types of convergent boundaries**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. the plate that is more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will subduct (sink)

beneath the one that is less dense

* 1. often forms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_which

erupt through the overriding plate as the descending plate

melts below it

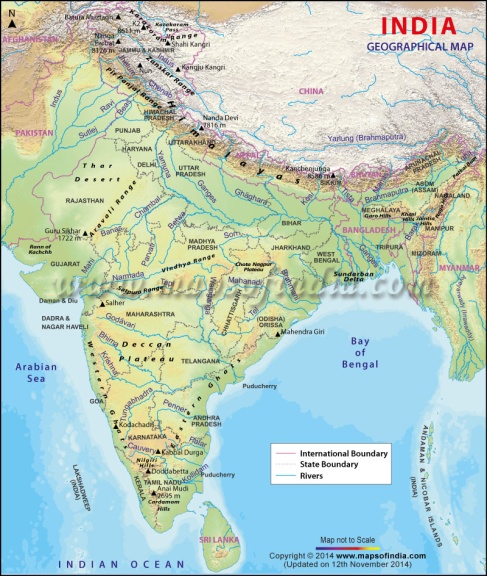
* + 1. Ex. Aleutian Islands of Alaska

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ crust is more dense so it

will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ below continental

* 1. Mountains and volcanoes can form-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*\*\*\*\*Water leaves sinking crust, rises into wedge of mantle above it, the water lowers the

melting point of the mantle, mantle partially melts and volcano forms

* + 1. Ex. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*\*\*Deep Ocean Trenches generally run \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to volcanic island

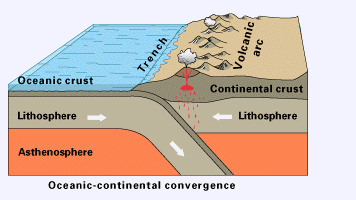
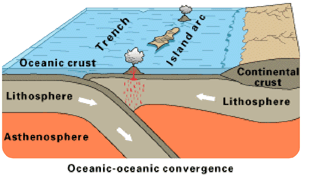
arc’s and mountain ranges

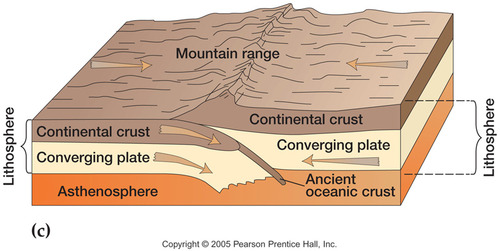
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-neither is dense enough to sink into

mantle, no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, mountains form

* + - * Ex Indian Plate and Eurasian plate collide to form

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

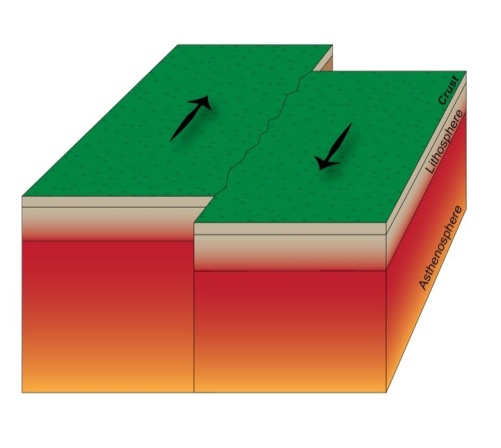
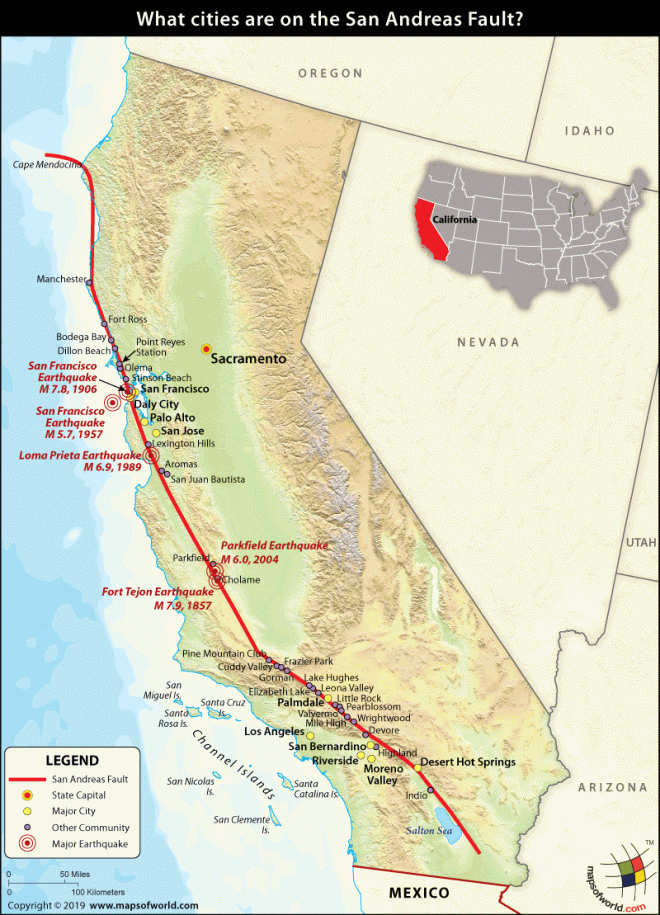


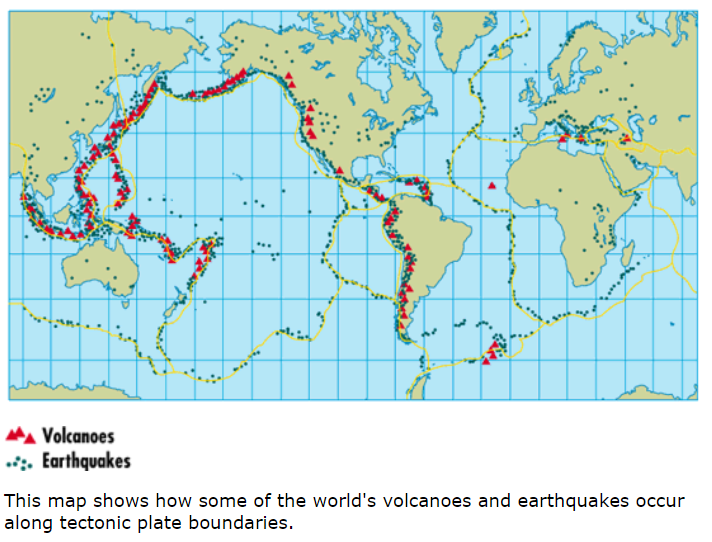


Sea Floor spreading and subduction:

* + - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - change the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the oceans
    - They move the ocean floor like a large \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
      * Size determined by how fast \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is being created and old crust being s\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Ocean surrounded by many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—may shrink
      * Ocean with few trenches—will probably grow \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3.) Transform Boundary**-place where two plates slip past each other, moving in opposite directions.

* + Plates are rocky and jagged, and get “stuck”, forces inside Earth cause plates to become “unstuck”, sudden release of energy in the form of an earthquake
    - Crust is neither created nor destroyed.
    - Ex. San Andreas Fault in California

****

**Earthquake and Volcanic Activity**

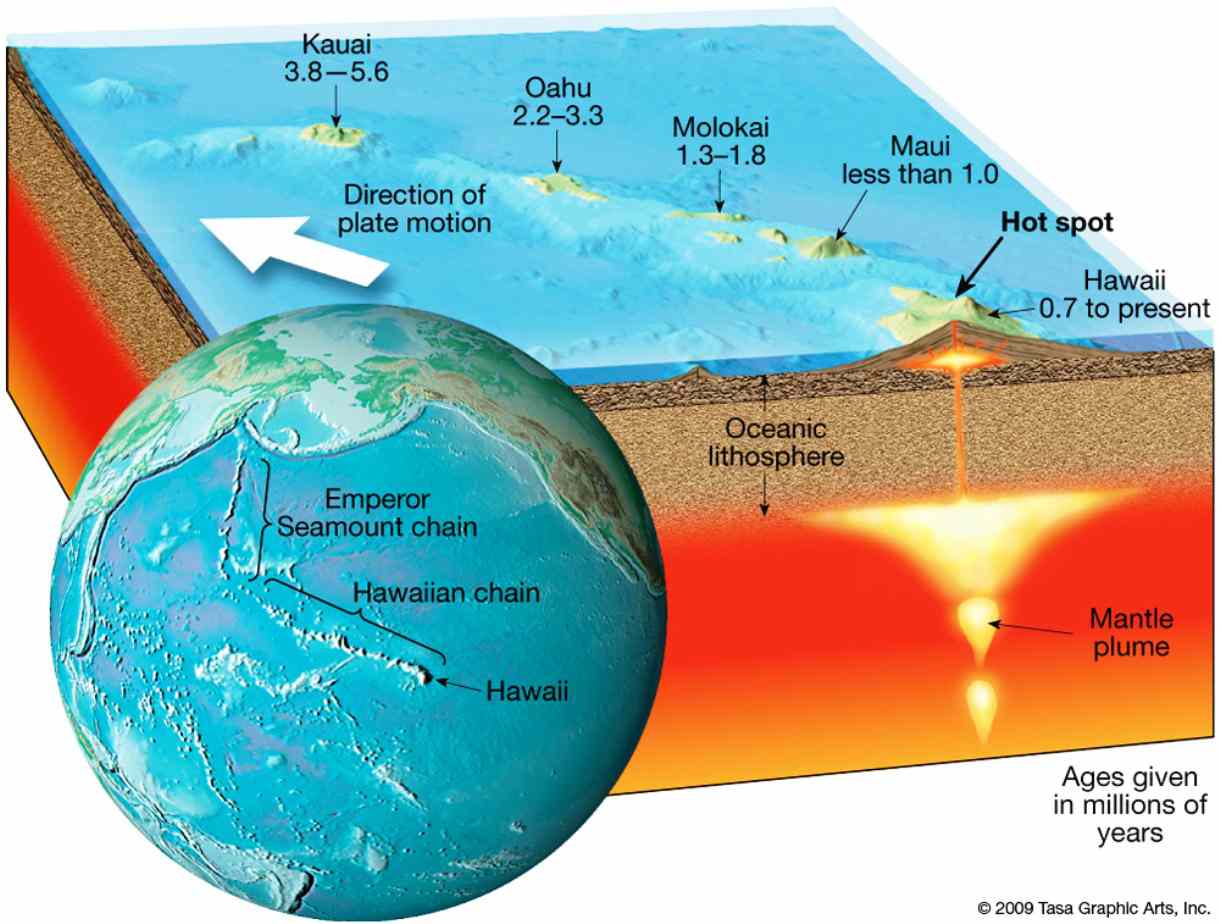
* Most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occur because of the

movement of the plates, especially as plates interact at their edges or

boundaries.

* Volcanoes often form where two plates \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Hot Spots**

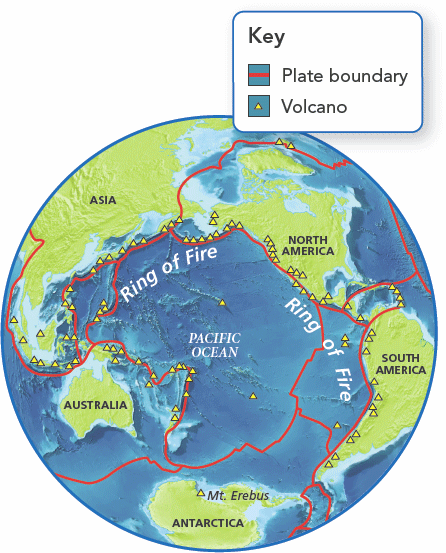


* Sometimes, volcanoes do not occur at plate boundaries

BUT in the middle \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + - This is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Yellowstone Hot Spot
  + The island over the mantle plume is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and
  + the island farthest from the mantle

plume is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**The Ring of Fire**

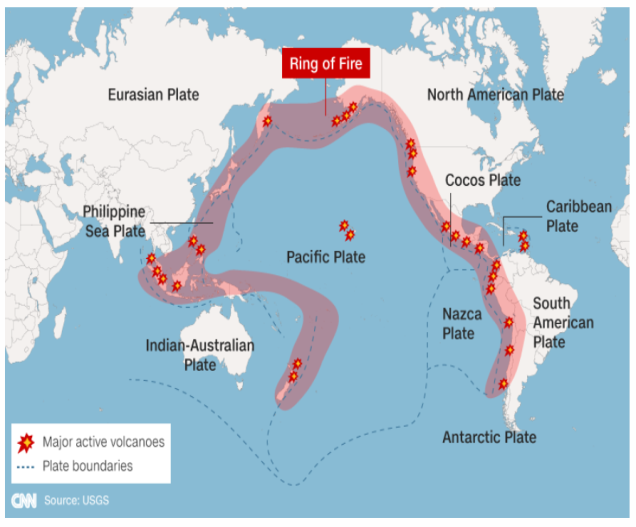
* The world's most active volcanoes lie along what's called

the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Lines the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The "ring" stretches along a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-mile (40,000-kilometer)

arc from the boundary of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, to smaller

plates such as the Philippine Sea plate, to the Cocos and Nazca Plates

* Results in 90% of the world’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
*  Home to 75% of the planets \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_