

## STUDY GUIDE: EARTH LAYERS & TECTONIC PLATES

Name: Key Date: \_\_\_\_\_ Core: \_\_\_\_\_

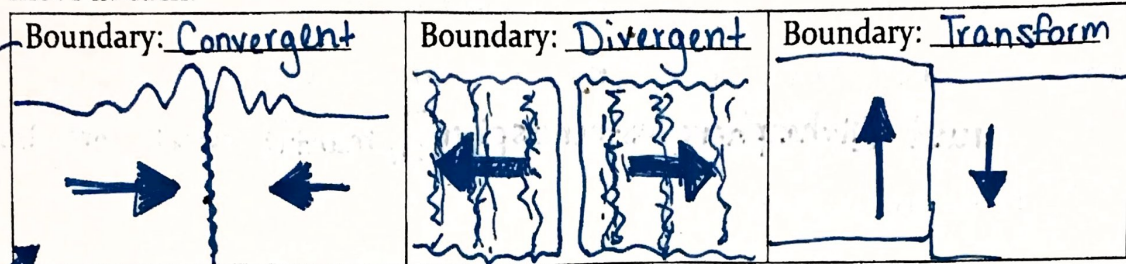
6.E.2.1: Summarize the structure of the earth, including the layers, the mantle and core based on the relative position, composition and density.

- ✓ 1. What are the different layers of the Earth? From where you stand to the center of the Earth, what is their order?  
crust [lithosphere, asthenosphere], mantle, outer core, inner core
- ✓ 2. Which two layers are actually sub-layers?  
lithosphere, asthenosphere
- ✓ 3. What is the outer core made of?  
liquid iron & nickel
- ✓ 4. What is the inner core made of?  
Solid iron & nickel
- ✓ 5. What is the crust made of?  
thin, cool, rigid rock; soil; organic matter
- ✓ 6. What is the mantle made of?  
molten rock
- ✓ 7. What layer do you see every day?  
Crust
- ✓ 8. Why is the inner core a solid?  
From all of the pressure of the layers above it compressing it into a solid
- ✓ 9. What is a convection current? List two places within the Earth where it occurs.  
the heat transfer cycle of hot air rising and cool air sinking (or other material). In the mantle & outer core
- ✓ 10. How is Earth's magnetic field created?  
by the convection currents in the outer core
- ✓ 11. Which layer is the densest? The least dense?  
inner core ←                      → outer core



6.E.2.2: Explain how crustal plates and ocean basins are formed, move and interact using earthquakes, heat flow and volcanoes to reflect forces within the earth.

- ✓ Draw the three different types of plate boundaries and show which way the plates move in each:



(Pictured is continental-continental)

- ✓ 2. How is new crust formed? What boundary forms new crust?  
In a divergent boundary, the plates spread apart and magma rises, cools, and hardens to form new crust.
- ✓ 3. What process in the mantle makes the plates move?  
Convection currents
- ✓ 4. How are volcanoes formed? ① In a convergent boundary where oceanic plates subduct and melt under continental plates, or ② as a tectonic plate moves over a Hot Spot
- ✓ 5. What caused the Hawaiian Islands to form? An oceanic plate moved slowly over a Hot Spot. Magma broke through the surface and cooled/hardened over and over again until it reached the surface of the ocean and formed the volcanic islands.
- ✓ 6. How is a tsunami formed?  
When an earthquake occurs in the ocean and the water is displaced. Needs to be relatively shallow.
- ✓ 7. What causes an earthquake?  
Sometimes the plates get stuck as they slide by each other and tension builds. Eventually the plates can no longer take the pressure & shift suddenly.
- ✓ 8. Which boundary creates new crust? Destroys it? Neither?  
Creates - Divergent | Destroys - Convergent | Neither - Transform
- ✓ 9. Why does magma rise to the surface of the Earth?  
As any material is heated, the volume increases and its density decreases. Less dense things float, so the magma rises to the surface.
- ✓ 10. Who is Alfred Wegener and what was his theory? What evidence did he use to support it? (Name at least 3.)  
A scientist who studied the Earth and developed the theory of continental drift. He noticed that South America and Africa looked as if they had once fit together and proposed the super-continent Pangaea. He then found very old fossils and rocks that were on the coasts of both continents to support his theory that they were once together.
- ✓ 11. What is the difference between a mid-ocean ridge and a rift valley?  
Mid-ocean ridges are the mountains formed by rising magma as it forms new crust, rift valleys are the gaps in the ridges formed as the crust spreads apart in the divergent boundary