Study Guide: Plate tectonics TEST 1 /Heat/Earthquakes and volcanoes **KEY**

**Know & Understand Heat Energy**:

1. What is heat? How does energy transfer as heat? **Energy hot to cold, conduction, convection, and radiation.**
2. What is density? **The amount of matter in a given space- heavy for its volume**
3. What is equilibrium and what does it have to do with heat? **Temperature is balanced, same. Heat will transfer until the temperature is the same.**
4. What are the three ways that energy moves as heat? **Conduction, convection, radiation**
5. How does convection make our plates move? (include the term density) **Convection occurs in the mantle. As magma heats it becomes less dense and rises. As it cools nears the surface it becomes denser and sinks. This creates a circular convection current. This moving current drags the plates with it.**
6. If you put an ice cube in the refrigerator, it will melt. In which direction is heat moving? **Hot to cold, from the refrigerator to the ice**
7. If you touch a cold metal flagpole, in which direction will heat move? **Hot to cold, from your hand to the flagpole.**

**Plate Tectonics:**

1. What is the lithosphere? **Crust and upper mantle**
2. What is a tectonic plate? **Piece of the lithosphere**
3. What is a volcano? **An opening in the crust where lava, gas, steam, fragments, and ash come out.**
4. What is magma? Molten rock beneath Earth’s surface.
5. What is an earthquake? **The shaking of the earth’s surface caused by the release of tension and stress from within the earth**.
6. What is the epicenter and focus of an earthquake? **Focus is the point underground where the earthquake originates, epicenter is the point at the surface of the earth directly above the focus.**
7. What is a fault? **A crack in the crust where there is movement**
8. What is a seismic wave? **The vibrations caused by an earthquake**.
9. The lithosphere is broken into what? **Tectonic plates**
10. Can you list the earth layers and describe each one? **Crust- thin, cooled rock- least dense layer. Lithosphere- layer of hard rigid rock- makes up tectonic plates. Asthenospere- hot rock close to melting. Mantle- thickest layer. Outer core- layer of molten iron and nickel. Inner Core- solid ball of iron and nickel- densest layer.**
11. What are the theories of Continental Drift & Plate Tectonics? **The earth’s crust is cracked into plates that move, the earth was once one supercontinent called pangaea**.
12. List 3 pieces of evidence that prove our tectonic plates move. **Fossils-similar fossils in Africa and South America, geology- same rocks in Scotland and Appalachian Mountains, climate- scratches on rocks in South Africa from glaciers and they found fossils of tropical plants in Greenland, age of seafloor**
13. Who was Wegener? **German scientist who proposed the theory of continental drift**
14. Where and why do most earthquakes and volcanoes occur? **They occur at plate boundaries because that is where stress builds up.**
15. What are smaller earthquakes that occur shortly after a larger earthquake? **Aftershocks**
16. What do we find in areas with tectonic activity? **Earthquakes**
17. Which kind of earthquake wave causes the most damage? **Surface wave**
18. How do scientists know what the inside of the Earth looks like? **They examine how seismic** **waves move through the earth.**

**In each situation, choose which of the three types of heat transfer is being illustrated.**

1. Getting sunburn while playing volleyball at the beach**.- radiation**
2. The circling current of heat in a pot of boiling water.- **convection**
3. Placing a shovel in a pile of red hot coals.- **conduction**