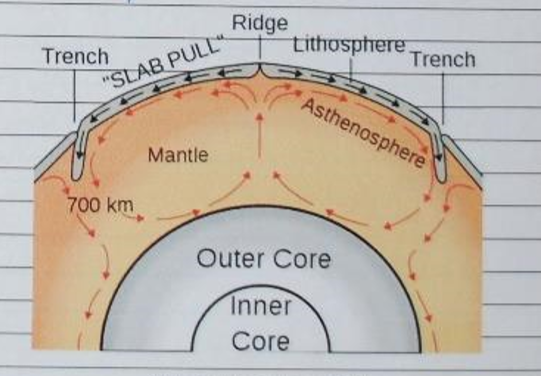
**Ch. 10 Motions within the Earth**

**Notes**

1. Convection in the mantle
   1. 3 types of heat transfer
      1. Radiation – heat energy transfer through empty space
      2. Conduction – heat energy transfer through touching
      3. Convection – transfer of heat energy by the movement of a heated fluid (liquids and gases)
         1. Caused by differences in temperature and density in a fluid
         2. Ex: Water heating on a stove: as water on bottom gets hot, it expands, becomes less dense and rises, when the surface of water starts cooling it becomes denser and moves to the bottom causing a convention current, or the flow that transfers heat.
   2. Convection currents in the mantle
      1. Heat source is the Earth’s core and mantle
      2. Act as a conveyor belt moving the lithosphere
      3. Going on for 4 billion years

How it happens:

* + - * + Density of lower mantle material is less than the dense than the mantle material around it and begins to rise
        + The rising mantle material hits the lithosphere and cannot go up any more
        + The force of gravity pulls down the risen mantle material that has now cooled and that material sinks
        + Heat from the core causes the temperature of mantle material to rise, decreasing density
        + The mantle material rises again.