Earth Science Chapter 1: Plate Tectonics

Section 2: Convection Currents and the Mantle

Essential Questions:

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| How is heat transferred? | There are three types of heat transfer: radiation, conduction, and convection. |
| What causes convection currents? | The heating and cooling of the fluid, changes in the fluid’s density, and the force of gravity combine to set convection currents in motion. |
| Key Terms |  |
| Heat transfer | The movement of heat from a warmer object to a cooler object is called heat transfer. |
| Radiation | The transfer of heat through empty space.  Sunlight is radiation that warms the Earth’s surface. It takes place with no direct contact between a heat source and an object. |
| Conduction | The direct transfer of heat in solid materials.  The heat of the flame is transferred to the soup, which heats the spoon, which burns your hand. Molecular motion and thermodynamics are important here! |
| Convection | Here we have the most important factor in forces inside the Earth.  Convection is heat transfer by the movement of fluid. During convection, heated particles of fluid begin to flow, transferring heat energy from one part of the fluid to another. |
| Density | Is a measure of how much mass there is in a volume of a substance. |
| Convection Current | Is the flow that transfers heat within a fluid |
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