Three Types of Heat Transfer

Heat can move between objects and spaces. The three main types of heat transfer are: _____ , _____ , and _____ .

Conduction

_____ is the direct transfer of heat from one object to another (through touching).

- An example of this is a hot coffee mug warming your hand when you touch it.

Conductors vs. Insulators

Different types of materials transfer heat at different rates.

_____ are substances that conduct heat well.

- Ex. Metal, Tile

_____ are substances that are very bad at transferring heat.

- Ex. Wood, Air, rock wool, fiberglass
- Insulators don't actually _____ the flow of heat, just _____ the transfer considerably.

Convection

Both _____ (like air) and _____ (like water) are considered _____ because of the way they move (or flow).

_____ is when heat is transferred by currents in a fluid.

- Convection occurs in _____ fluids.
- Examples of fluids: air, water, magma

Heating a fluid: molecules at the bottom gain _____ and begin to move _____ . The molecules _____ _____ , making the fluid less _____ . Warmer molecules move _____ and cooler, _____ fluid sinks. This cycle continues as long as there is a _____ source.

Radiation

_____ when heat is transferred by electromagnetic waves.

- All objects both _____ and _____ radiant energy – even you!
- Some objects and substances are much better at absorbing and emitting radiant energy than others.
- Objects that are good at _____ radiant energy are also very good at _____ it.

_____ _____ is radiant energy emitted by the earth.

- Makes life on Earth possible!
- _____ in the atmosphere _____ terrestrial radiation on Earth and keep it warm.

Unlike conduction and convection, radiation happens even when there is no _____ for the heat to travel through.

- Ex. Sun's rays travelling through space to get to Earth.

Lesson Summary

Heat likes to *move*, *transfer*, and *travel* by _____ , _____ , and _____ .