

# Heat Transfer

- Thermal energy flows between materials that have different temperatures.
- Think about stepping into a warm bath. Your body gets warmer. Think about holding an ice cube. Your hands get colder.

Thermal energy naturally flows from **WARMER** substances to **COOLER** ones. When people refer to the transfer of thermal energy, they often use the word **HEAT**.


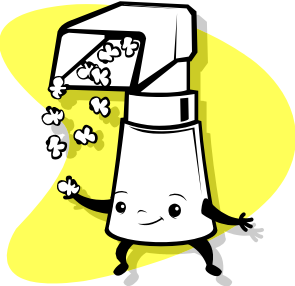
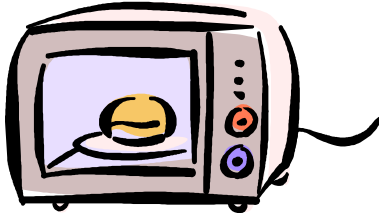
There are three main ways that heat can move:

- *Conduction*
- *Convection*
- *Radiation*

**When something increases its temperature, its particles increase their kinetic energy.** Some of this kinetic energy can be passed on to other particles.

Kinetic energy of the fast-moving particles in the warmer object transfers some of their energy to the slower-moving particles of the cooler object. The temperature of the warm object decreases↓ as the temperature of the cool object increases↑

**THE HEAT OR THERMAL ENERGY FLOWS UNTIL THE OBJECTS HAVE THE SAME TEMPERATURE.**

Conduction	Convection	Radiation
The flow of heat of heat between objects that are touching.	The movement of warm liquids or gases to cooler areas.	Movement of energy by electromagnetic waves.
Heat from a stove warms a pan.	Warm water currents heat other water in the fish tank.	Radiation from the sun heats a greenhouse or solar panels.
 Popcorn	 Popcorn	 Popcorn