

Thermal Energy

Picture Vocabulary

Force, Motion, and Energy

Thermal Energy



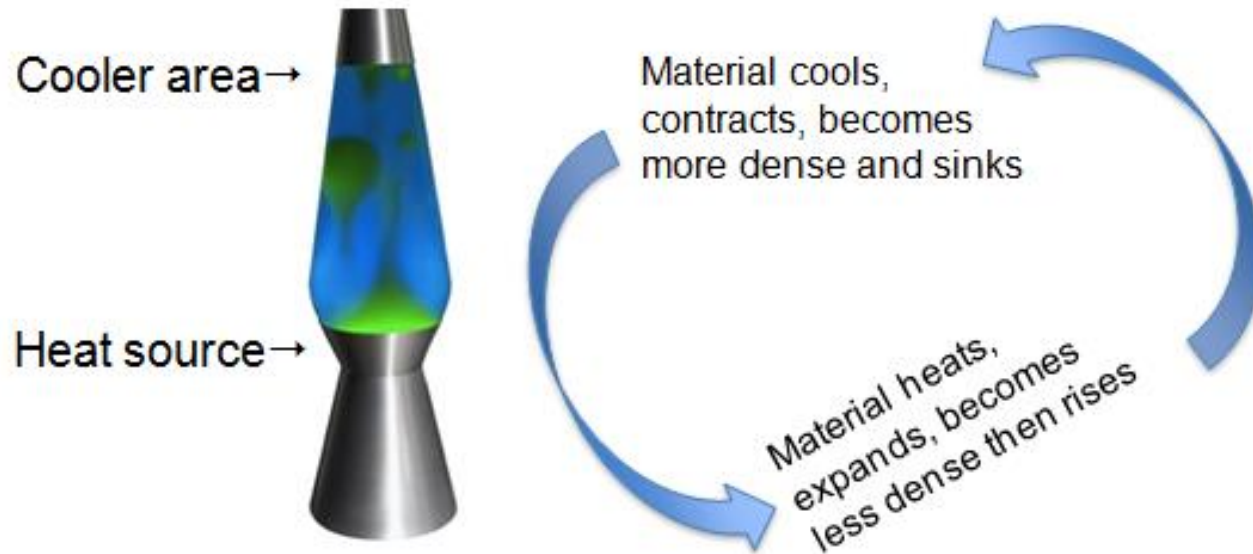
Thermal energy is the total kinetic (motion) energy of the tiny particles that make up matter. The faster the particles move, the warmer the matter becomes.

Conduction



Transfer of thermal energy that occurs in solids, liquids, and gases when two substances of different temperatures touch.

Convection



Transfer of thermal energy from one place to another by the movement of fluids; occurs on a large scale in atmospheric gases, oceans, and Earth's mantle.

Radiation



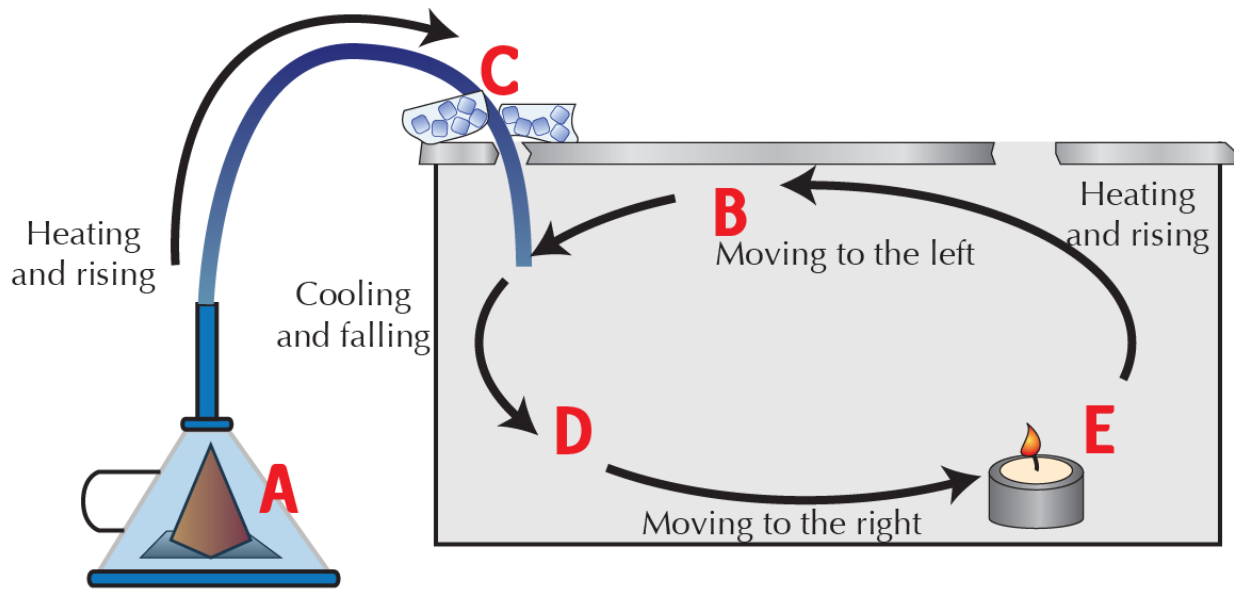
The transfer of energy by electromagnetic rays; may occur in empty space; matter need not be in direct contact or be present for the transfer of energy to occur.

Heat



Heat is the energy transferred between two objects of different temperatures; energy will continue to move in a predictable pattern from warmer site to cooler site until all sites have reached the same temperature.

Convection Current



A cyclical motion occurs because the density of a fluid is related to its temperature. Heated lower regions of the fluid are less dense than their cooler counterparts. The less dense fluid rises and the denser fluid sinks due to gravity. The combined motions form a circular pattern.

Law of Conservation of Energy



Energy can neither be created nor destroyed;
energy just changes form.

Temperature



Average kinetic energy of all the particles in a material, measured by a thermometer in degrees (usually Celsius or Fahrenheit).