

Conduction is the transfer of energy through matter by direct contact of particles.

Energy is transferred when particles moving at different speeds bump into each other.

Conduction can take place in solids, liquids, and gases. Because their particles are packed closer together, solids usually conduct heat better than liquids or gases.

Good conductors- Metals copper, silver and aluminum.

Poor conductors- wood, plastic, glass, and fiberglass.

Any material that can flow is a fluid. (liquid, gas).

The most important way thermal energy is transferred in fluids is by convection.

Convection is the transfer of energy by the movement of matter.

When fluids are heated the particles move farther apart. (expand)

Cooler, denser water at the top of the beaker sinks and pushes the hot water upward.

As the hot water rises, it cools by conduction, becomes more dense, and sinks, forcing warmer water to rise. This movement creates convection currents. These currents transfer thermal energy from warmer to cooler parts of the fluids.

Radiation is the transfer of energy in forms of waves.

This type of heat transfer does not require matter.

Energy that travels by radiation is often called ~~radiant~~ radiant energy.

Shiny materials reflect radiant energy; dull materials absorb it.

Good conductors are materials that allow heat to move easily through them.

Good insulators do not allow heat to move easily through them. (Air, Gases, Plastic foam, fiberglass, treated paper.)

R value resistance to heat flow.