Heat Test Study Guide

1. **thermal energy** - the energy of moving particles in matter
2. **heat** - the flow of thermal energy from warmer objects to cooler objects
3. **friction** - a force that occurs when one object rubs against another object
4. **temperature** - a measure of how hot or cold something is
5. **thermometer** - a tool that is used to measure temperature
6. **radiation** - the movement of energy in waves
7. **conduction** - the movement of heat within a solid or from one solid to another
8. **convection** - the way heat moves through liquids and gases
9. **conductor** - any material that allows heat to move through it easily
10. **insulator** - any material that does not allow heat to pass through it easily
11. **solar energy** - energy from the sun

*All matter has particles that are constantly moving. The faster the particles are moving, the hotter it is. The slower the particles are moving, the colder it is. We feel the movement of thermal energy as heat.

*Thermal Energy ALWAYS moves from HOT to COLD.

4 Ways to Produce Heat:
- **Friction (Rubbing)** - examples include: rubbing hands, brakes on the road
- **Electricity** - examples include: hair dryers, lamps, electric ovens
- **Mixing Matter** (can cause chemical change) - examples: heat packs/hand warmers; steel wool & vinegar
- **Burning Fuels** - examples of fuels are gas and wood

*Temperature is the measure of how hot or cold something is. We use a thermometer to measure temperature.
*We measure heat in two different scales: Fahrenheit and Celsius.

Heat on the Move
*Heat moves through conduction, convection, or radiation. Conduction is the transfer of heat in SOLIDS. Convection is the movement of heat through liquids and gases. Radiation is the movement of energy by waves (ex.-waves of heat from the sun; campfire).

Conductor Vs. Insulator:
*Conductor - any material that allows heat to move easily through it (aluminum, glass, steel)
*Insulator - any material that does NOT allow heat to pass through it easily (plastic foam, rubber, wool)
Insulators can be used to keep things warmer longer, or colder longer.

Different materials and colors absorb/reflect heat differently. Shiny or light colored materials reflect heat waves, while darker colors absorb them easily.