**Thermal Energy**

**Solar Energy**

\* heat or energy from the sun

\* works best in areas that have a regular supply of sun

**Heat**

\*the energy of moving molecules

\* travels best by conduction, convection and radiation

**Thermal Energy**

\*the scientific name for heat energy

**Geothermal Energy**

\*heat that occurs naturally from under the earth’s surface

\*volcanoes, hot springs, geysers

**Expansion**

\*the enlargement of a substance because of the faster motion of molecules

\*caused by increased temperatures

**Contraction**

\*the shrinking of a substance because of the slower motion of molecules

\*caused by decreased temperatures

**Temperatures**

\*degree of hotness of coldness

**Thermometer**

\*used to measure temperatures

\***alcohol** used for very **LOW** temperatures

\***mercury** used for very **HIGH** temperatures

**Degree**

\*unit of measurement for temperature

\*lines on the thermometer

**Celsius Scale**

\*water freezes at 0 and boils at 100

\*body temperature is 37

\*room temperature is around 20

**Fahrenheit Scale**

\*water freezes at 32 and boils at 212

\*body temperature is at 98.6

\*room temp is around 70

**Melting Point**

\*the point (temperature) when a solid changes to a liquid

**Boiling Point**

\*the point (temperature) when a liquid changes into a gas

**Freezing Point**

\*the point (temperature) when a liquid changes into a solid

**Evaporation**

\*process by which fast moving molecules escape from a liquid and become a gas

**Condensation**

\*changing of a gas to a liquid

\*happens when warm air touches a cold surface

\*EX: shower – mirror - oven – glasses – freezer - jet flying

**Calorie (Joule)**

\*unit of measurement of heat

**Insulation**

\*material used to slow the transfer of heat

\*wood, plastic, trapped, vacuum, insulation

**Conduction**

\*the transfer of energy by direct contact between atoms ormolecules of a substance

\*must have amedium to travel through

\* examples: metal frying pan baking

**Convection**

\*heat transfer in liquids and gases as molecules circulate in currents

\*examples: heating homes, heating hot chocolate, hot air balloons

**Radiation**

\*heat transfer in the form of infrared waves which strike and excite molecules. Only way for heat to travel through space (a vacuum)

\*examples: ice cream melting, feeling the sun, body heat

**Thermostat**

\*an instrument that maintains a constant temp in a room by turning heat on and off

**Thermogram**

\*an image of an object made by measuring the infrared (heat) it gives off

**Using Heat Efficiently**

\*Insulate attic and walls

\*Use double pane windows

\*Turn down thermostat

\*Use caulk or weather stripping

\*Wash full loads of clothes/dishes

\*cover pans when cooking