

Ch 5

HW:RC Notes; Sec 5.1

Sec 5.1

obj: What is the difference between thermal energy and heat?

Kinetic Theory of Matter

- All objects are made-up of tiny particles that are in constant motion.
 - * These particles have kinetic energy as well as potential energy.
- The sum of the potential & kinetic energy of all the particles is the Thermal Energy of the object.
 - * Thermal Energy depends on the particles in the object.
- The more mass an object has the more thermal energy it has.

Temperature

- Temperature does not measure Thermal energy.
- Temperature is a measure of the average kinetic energy of the particles in an object.
- 2 Temperature scales
 - 1) Kelvin Temperature
 - * Based on the Average Kinetic energy of the particles.
 - * Uses Absolute Zero as its starting point.
 - * Temperature where the average kinetic energy equals zero.
 - 2) Celsius Temperature.
 - Temperature based on the freezing and boiling of water.
- * Kelvin & Celsius Temperatures are connected.

$$^{\circ}\text{C} = \text{K} - 273$$

$$\text{K} = ^{\circ}\text{C} + 273$$

Heat

- Heat is a transfer of thermal energy from High to Low temperatures.
- * Very similar to Work.
- * They both transfer energy.