

Name: _____

Science 7

Date: 2/14/19

Thermal Energy and Heat (NOTES)

Aim: I can describe the motion of the particles in an object when the temperature is hot and cold.

Do Now:

Solids - tightly packed (most dense)

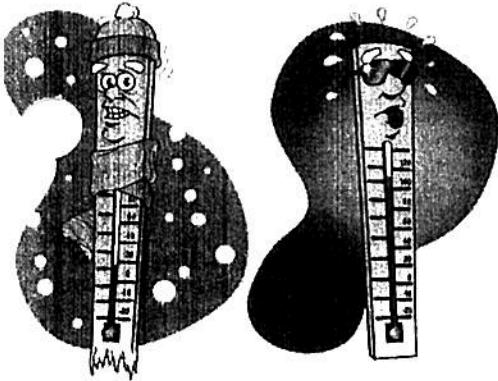
Liquids - flow and pass each other

Gases - very far apart (least dense)

Notes:

Temperature

- Hot and Cold
- The measure of the average kinetic energy of the particles in the sample of matter.



Thermal Energy

- The total energy of the particles in a material (kinetic and potential).
- Greater Temperature = Greater Thermal Energy
- Lower Temperature = Lower Thermal Energy

Factors that Effect Thermal Energy are:

- The temperature of the object.
- The number of particles in the object.

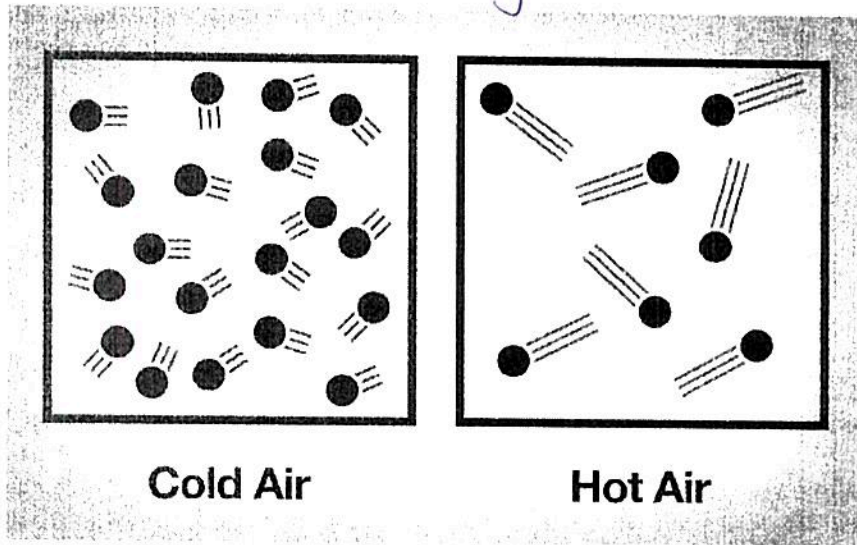
Heat

- The thermal energy that flows from something with a higher temperature to something with a lower temperature.



Thermometer

- Used for measuring temperature
- Tube filled with a fluid such as mercury or alcohol



Temperature Scales

- Fahrenheit Scale: Used in the United States.
- Celsius Scale: Used in most other countries and scientists.
- Kelvin Scale: Used by scientists.

Converting from Celsius to Kelvin

$$K = ^\circ C + 273$$

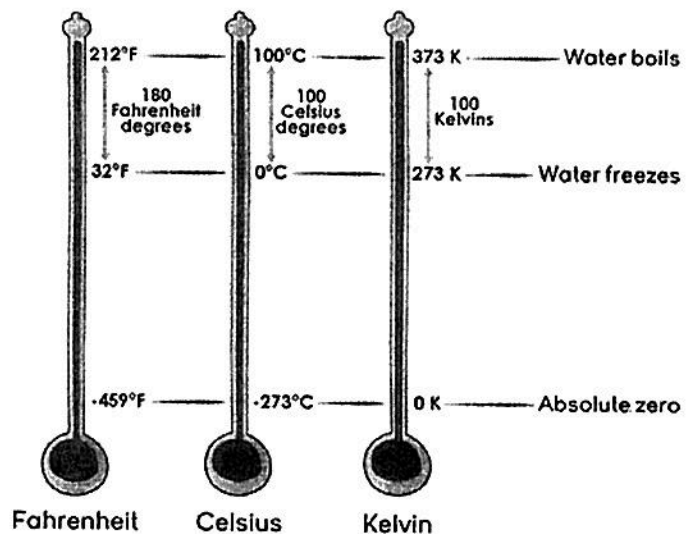
$$^\circ C = K - 273$$

$$26^\circ C = \underline{299} \text{ K}$$

$$0^\circ C = \underline{273} \text{ K}$$

$$370 \text{ K} = \underline{97}^\circ C$$

$$540 \text{ K} = \underline{276}^\circ C$$



Absolute Zero

- Coldest possible temperature when all molecular motion stops.