Name: _____ Date: 3/1/19

Science 7 Thermal Energy and Heat

.n: I can explain how particles of matter expand and contract in response to temperature.

Do Now:

_____

_____

_____

Notes:

Thermal Expansion

- Expansion (increase in size) of a substance caused by heat.
- Faster particles- average kinetic energy increased (temperature increased)
- Slower particles- Average kinetic energy decreased (temperature decreased)

Ball and Ring Experiment

- When both the ball and ring are at room temperature, the ball fits through the ring.
- When the ball is heated, it no longer fits due to thermal expansion.

- Water is the exception to the rule!!!!!!
- Water expands when it freezes.

How do we measure thermal energy?

- Specific Heat: the amount of energy it takes to raise the temperature of 1 Kg of the material 1 Kelvin.
- Measured in J/kg x K
- Materials with higher specific heats are harder to heat and cool down.

Thermal Pollution: Where does it come from?

- Occurs when Waste heat significantly changes the temperature of the environment.
- Factories use water as a cooling method and release it back into bodies of water.

Effects of Thermal Pollution

- Increased water temperature
- Decrease in dissolved oxygen in water
- Increase in water pH
- Toxins
- Loss of biodiversity and Ecological Impacts
- Migration