

Unit 11: Ch 16 – Flow of Energy & Specific Heat

THERMOCHEMISTRY:

- **DEFINITION** - Study of _____ (heat) changes in _____ reactions and _____.

HEAT:

- **DEFINITION** - *Transfer* of _____ between _____ and _____ due to _____ *differences*.
 - **SYMBOL:** _____
 - Heat flows from _____ → _____

ENDOTHERMIC REACTIONS:

- The **system** _____ heat energy **FROM** the _____.
 - The **system** _____ energy as the **surrounding** _____.

EXOTHERMIC REACTIONS:

- The **system** _____ heat energy **TO** the _____.
 - The **system** _____ energy and the **surrounding** _____ up.

HEAT CALORIE:

- **DEFINITION** - _____ of heat needed to raise the _____ of _____ of pure _____ by _____.
 - _____ = SI unit of heat where _____ = _____

HEAT CAPACITY:

- **DEFINITION** - _____ of heat needed to raise the _____ of _____ object by _____.
 - Depends on the _____ and chemical _____.

SPECIFIC HEAT CAPACITY:

- **DEFINITION** - _____ of heat needed to raise the _____ of _____ of _____ object by _____.

CALCULATING HEAT ENERGY:

- **FORMULA:** _____
- $q =$ _____ \rightarrow Joules (*J*), kiloJoules (*kJ*), calories (*cal*)
 - $m =$ _____ \rightarrow grams
 - $C_p =$ _____ \rightarrow $J/g^{\circ}C$ **OR** $cal/g^{\circ}C$
 - $\Delta T =$ _____ \rightarrow ($\Delta T = T_f - T_i$)

PRACTICE PROBLEMS:

- 1) How much heat (J) is required to reduce temperature of 5.50 grams of water from 45.0 °C to 15.0 °C?

- 2) What is specific heat of a metal that absorbs 205 J when 15.0 grams increases from 25.0 °C to 60.0 °C?
What is the identity of the metal?

- 3) If 850. calories of heat are applied to 250. grams of water, what is the change in temperature?
($C_{\text{water}} = 1.00 \text{ cal/g}^{\circ}C$)