**CP Chemistry Unit 10 Thermodynamics-Test Plan**

**Essential Vocabulary:**

* Work
* Heat
* System
* Surroundings
* Internal energy
* Specific heat
* Calorimeter
* Joule
* Celsius
* Enthalpy of reaction (ΔHrxn)
* Heat of formation (ΔHf)
* Hess’ Law

**Essential Outcomes:**

* Know the sign convention for heat and work entering or exiting the system.
* Be able to calculate the internal energy of a system (ΔE = q + w)
* Be able to relate the change in temperature of a substance to the heat absorbed or released (q = mCΔT)
* Be able to calculate the specific heat capacity of a metal using calorimetry.
* Be able to measure the ΔHrxn using calorimetry
* Be able to convert joules to kilojoules
* Be able to calculate the enthalpy of reaction for different gram amounts of a reactant or product.
* Be able to predict the change in enthalpy when a reaction is reversed or the stoichiometry is changed.
* Be able to apply Hess’ Law.
* Be able draw a reaction that represents the heat of formation of a compound.
* Be able to use heats of formation to determine the ΔHrxn of a reaction. (∑ΔHproducts- ∑ΔHreactants)
* Be able to identify the thermodynamics of a reaction from a reaction coordinate (energy diagram)
* For common qualitative experiences (such as the melting of ice), be able to identify the situation as exothermic or endothermic and be explain why.