**Unit 8: Thermochemistry Review Sheet**

Things you need to know:

* Heating & Cooling Curves (diagrams on back)
	+ Phases of matter at each interval
	+ Energy changes at each (potential/kinetic energy)
		- Remember:
			* Only one energy can change at a time
			* Law of Conservation of Energy – energy cannot be transferred or destroyed – it just changes forms
	+ The higher the boiling point, the stronger the intermolecular forces
		- Solids have stronger IMF compared to gases at the same temperature
		- Melting and boiling points can be found on Table S
		- Melting temperature = freezing temperature
			* Melting = heat added & freezing = heat removed
		- Boiling temperature = condensation temperature
			* Boiling = heat added & condensation = heat removed
* Heat Flow
	+ Heat moves from the warmer system to the cooler system
* Heat Calculations (3 equations all of which are on Table T)
	+ q = mcΔT
		- Used when temperature changes (a slant on a heating or cooling curve)
		- q = heat [unit = joules (J) or kilojoules (kJ)]
			* a positive q = heat was absorbed (endothermic)
			* a negative q = heat was released (exothermic)
		- m = mass [unit = grams (g)]
		- c = specific heat [unit = J/gC] (joules per gram degree)
			* The energy needed to raise 1 gram of a substance 1 degree Celcius
			* The value for water is 4.18 J/gC (found on Table B)
		- ΔT = change in temperature (Tfinal = Tinitial = ΔT)
			* It is ok to have a negative temperature, that means the substance was cooled
	+ q = mHf
		- Used when going from solid to liquid of vice versa
			* Hints to use this equation:
				+ Melt, freeze, goes from solid to liquid, goes from liquid to solid
		- q = heat [unit = joules (J) or kilojoules (kJ)]
		- Hf = heat of fusion
			* The value for water is 334 J/g (joules per gram)
	+ q = mHv
		- Used when going from liquid to gas of vice versa
			* Hints to use this equation:
				+ Boil, vaporize, condense, gas to liquid, liquid to gas
		- q = heat [unit = joules (J) of kilojoules (kJ)]
		- Hv = heat of vaporization
			* The value for water is 2260 J/g (joules per gram)

* Particle Diagrams
	+ A = pure solid
	+ B = melting/freezing – mix between liquid and water
	+ C = pure liquid
	+ D = vaporization/condensation = mix between liquid and gas
	+ E = pure gas



A B C D E

* Sample Heating/Cooling Curves

