Study Guide or: How I Learned to Stop Worrying and Love Thermochem

First: determine what you're being asked to find: **ΔH_{rxn} or something else?**

1. **Asked to find ΔH_{rxn}?** 3 Options!

Given?	Asked to find?	Use:
1. A lot of bond energies 2. A reaction **without** ΔH_{rxn}	ΔH_{rxn}	1. Draw the Lewis structures. 2. Use the following: $\Delta H_{rxn} = \Sigma(BE_{reactants}) - \Sigma(BE_{products})$
1. A lot of heats of formation (ΔH_f) 2. A reaction **without** ΔH_{rxn}	ΔH_{rxn}	$\Delta H_{rxn} = \Sigma \Delta H_f\,(products) - \Sigma \Delta H_f\,(reactants)$
1. Multiple reactions **with** ΔH 2. A goal reaction **without** ΔH_{rxn}	ΔH_{rxn}	**Hess's Law!** Rearrange the equations to make the goal equation, then combine your new ΔH's (remember, what you do to an equation you must do to ΔH!)
1. info to calculate q (using $mC\Delta T$ or $nC\Delta T$) 2. Moles/grams of a chemical	ΔH_{rxn}	$\Delta H_{rxn} = \frac{q}{mol_{rxn}}$

2. **Asked to find something else?** 3 Options!

Given?	Asked to find?	Use:
1. A reaction **with** ΔH_{rxn} 2. **Either**: a. g or mol of a substance b. energy change (J or kJ)	1. **Either**: a. g or mol of a substance b. energy change (J or kJ)	**Stoich!** Don't forget to convert between moles of your substance and $moles_{rxn}$
1. A phase change (vaporizing, condensing, freezing or melting) 2. ΔH_{vap} or ΔH_{fus}	Energy change (heat absorbed or released)	$q = n\Delta H$
1. A temperature change 2. Mass or moles of a substance 3. Heat capacity ($\frac{J}{g\,℃}$ or $\frac{J}{mol\,℃}$)	Energy change (heat absorbed or released)	$q = mC\Delta T$