Enthalpy changes

change in formation	1 mole of compound formed from its elements in its std. state, under std. condition (applies to all)
change of combustion	1 mole of compound in its std. state fully burnt in excess oxygen
ionization energy	energy required to remove one electron from one mole of gaseous atoms(to form ion with charge +1...etc)
electron affinity	energy required for 1 mole gaseous atom to gain one electron (to form ion with charge -1...etc)
bond energy	energy to break 1 mole of bond in 1 mol gaseous atoms
change of atomisation	1 mol of gaseous atoms formed from its element
change of lattice	1 mol of solid crystal formed from its gaseous atoms
change of hydration	1 mole of gaseous atoms fully dissolved in water to become infinitely diluted
change of solution	1 mole of ionic compound fully dissolve in water

Factors affecting EA (to be more exo)

1) charge - higher

2) distance/radii - smaller

3) shielding - less

*stronger attractive force = more exo

Eg. Across period- charge increase, shielding and radii same, so more exo

Eg. Down period- shielding increases, so less exo

*except fluorine- electron density is high so more repulsion thus lower EA than chlorine

Entropy

Increases when there is change of state/ increase in number of molecules of product/ more disorderliness

*complex substance > simple

*mixtures > pure substance

High entropy means that the reaction is spontaneous and feasible

*change of entropy/formation = product - reactant

*change of combustion/B.E = reactant - product

Gibbs Free

change of gibbs free = change of enthalpy - temperature in K(entropy change)

*entropy divide by 1000 , J to kJ

For reaction to be feasible gibbs free must be negative(G=0 for temp feasible)

Enthalpy change of solution

exothermic = soluble (change of hyd is big)

change of solution = -lattice E. + change of hydration