Topic 4 – Energetics (both Papers)

**for skills development**

* I can describe reactions can be endothermic or exothermic
* I can define enthalpy change (Δ*H*) as the heat energy change measured under conditions of constant pressure
* I can describe standard enthalpy changes as referring to standard conditions ie 100 kPa and a stated temperature (eg Δ*H*298 Ɵ)
* I can define standard enthalpy of combustion (Δc*H*Ɵ) and standard enthalpy of formation (Δf*H*Ɵ
* I can describe the heat change, *q*, in a reaction as given by the equation *q* = *mc*Δ*T* where *m* is the mass of the substance that has a temperature change Δ*T* and a specific heat capacity *c*
* I can use this equation to calculate the molar enthalpy change for a reaction
* I can use this equation in related calculations
* I can define Hess’ Law and use it to perform calculations, including calculation of enthalpy changes for reactions from enthalpies of combustion or from enthalpies of formation
* I can define the term mean bond enthalpy
* I can use mean bond enthalpies to calculate an approximate value of Δ*H* for reactions in the gaseous phase
* I can explain why values from mean bond enthalpy calculations differ from those determined using Hess’s law
* I can carry out an experiment to measure an enthalpy change (**Required Practical 2**)