	Statement	Guidance
5.1.U1	Heat is a form of energy	
5.1.U2	Temperature is a measure of the average kinetic energy of the particles.	
5.1.U3	Total energy is conserved in chemical reactions	
5.1.U4	Chemical reactions that involve transfer of heat between the system and the surroundings are described as endothermic or exothermic.	
5.1.U5	The enthalpy change (ΔH) for chemical reactions is indicated in kJ mol^{-1}	
5.1.U6	ΔH values are usually expressed under standard conditions, given by ΔH°,including standard states	
5.2.U7	The enthalpy change for a reaction that is carried out in a series of steps is equal to the sum of the enthalpy changes for the individual steps.	An application of Hess's Law is ΔH reaction =Σ(ΔH_f products) - Σ(ΔH_f reactants)
5.3.U8	Bond-forming releases energy and bond-breaking requires energy	
5.3.U9	Average bond enthalpy is the energy needed to break one mol of a bond in a gaseous molecule averaged over similar compounds	
15.1.U10	Representative equations (eg $M^+(g)$ ---> $M^+(aq)$) can be used for enthalpy/energy of hydration, ionization, atomization, electron affinity, lattice, covalent bond and solution.	
15.1.U11	Enthalpy of solution, hydration enthalpy and lattice enthalpy are related in an energy cycle	
15.2.U13	Entropy (*S*) refers to the distribution of available energy among the particles. The more ways the energy can be distributed the higher the entropy.	
15.2.U14	Gibbs free energy (*G*) relates the energy that can be obtained from a chemical reaction to the change in enthalpy (*ΔH*), change in entropy (*ΔS*), and absolute temperature (*T*).	
15.2.U15	Entropy of gas>liquid>solid under same conditions.	