14. **Lattice Energy:** Heat evolved when 1 mole of pure solid is formed from its constituent gaseous ions
15. **LE = ΔH_{hyd} - ΔH_{sol}**
16. **$\Delta H_r^{\ominus}$ =** $\sum n\Delta Hc^{\ominus}\ (reactants) - \sum m\Delta Hc^{\ominus}\ (products)$
17. **$\Delta H_r^{\ominus}$ =** $\sum m\Delta Hf^{\ominus}\ (products) - \sum n\Delta Hf^{\ominus}\ (reactants)$
18. **Bond dissociation energy:** The energy required to break 1 mole of a specified covalent bond in a specified compound in the gaseous state
19. **Bond energy:** Average energy required to break 1 mole of covalent bond in the gaseous state
20. **Factors affecting bond energy:**
    a. Bond order
    b. Effectiveness of bond overlap
    c. Bond polarity
21. **1st Electron Affinity:** The enthalpy change when 1 mole of electrons is added to 1 mole of gaseous atoms to form 1 mole of singly charged gaseous anions
22. **Bond Haber Cycle:** An extension of Hess's Law to ionic compounds. It can be used to determine the LE of ionic compounds
23. **Entropy:** S is a thermodynamic quantity related to the number of ways the energy of a system can be dispersed through the motions of its particles
24. **2nd Law of Thermodynamics:** The total entropy of the universe always tends to increase
25. **ΔS>0:** greater disorder/more no. of ways energy can be dispersed in a system
26. **ΔS<0:** more ordered state/less no. of ways energy can be dispersed in a system
27. **Factors affecting entropy of a system:**
    a. Change in temperature
    b. Change in phase
    c. Mixing of particles
    d. Expansion of a gas
    e. Change in number of particles
    f. Dissolution of an ionic solution
28. **Gibbs free energy:** $\Delta G = \Delta H - T\Delta S$
29. **ΔG<0:** Reaction is feasible and can take place spontaneously (reaction is **exergonic**)
30. **ΔG=0:** Reaction is at equilibrium. There is no net change (during melting and boiling)
31. **ΔG>0:** Reaction is not feasible and cannot take place spontaneously (reaction is **endergonic**, and spontaneous if in reverse direction)

	ΔS<0	**ΔS>0**
ΔH<0	Feasible at low temperatures	Feasible at all temperatures