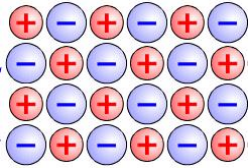
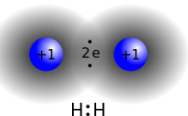
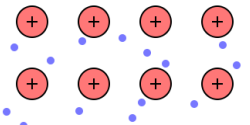
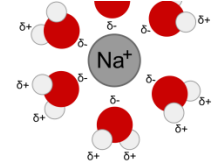
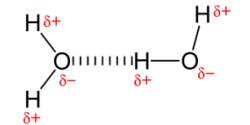
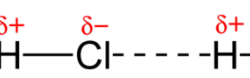
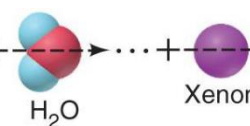
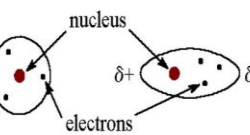


Intermolecular and Intramolecular Forces (SC2. a, b, SC5. b)

Force	Model	Basis of attraction	Energy (kj/mol)	Example
<u>Intramolecular</u> Ionic		Cation -- anion	400-4000	NaCl
Covalent		Nuclei share electron pair	150-1100	H-H (H ₂)
Metallic		Cations – delocalized electrons	75-1000	Iron (Fe)
<u>Intermolecular</u> Ion-Dipole		Ion charge – dipole charge	40-600	Na ⁺ and H ₂ O
H-Bonding		Polar bond H- dipole (FON-H)	10-40	Water molecules
Dipole - Dipole		Dipole charges (no FON-H)	5-25	HCl - HCl
Ion/Dipole Induced Dipoles		Ion-polarizable electron cloud or Dipole-polarizable electron cloud	2-15	Fe ²⁺ - O ₂ HCl - Cl ₂
London Dispersion Force (LDF)		Polarizable electron clouds	0.05 - 40	F ₂ - F ₂