Bonding

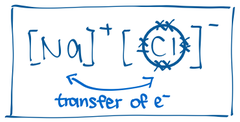
1 What is a bond?

- Strong electrostatic force ∵ positively & negatively charged species
  ↳静电引力 ↳物质

2 Ionic bond

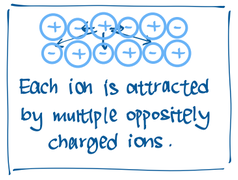
组成的物质

- Grp I-III w/ Grp IV-VII // cation & anion → simple / polyatomic ion, eg. $NaNO_3$ (both element, eg. NaCl)
- +ve : cation
  -ve : anion



DIRECTIONALITY

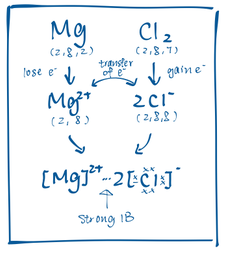
- non-directional



FORMATION ($MgCl_2$)

- 1 Mg atom loses 2 outermost shell e^- → Mg^{2+}
- 2 Cl atoms of each accept 1 e^- to its outermost shell → Cl^-

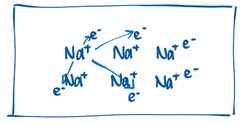
⇒ transfer of e^-
→ strong IB ∵ them



3 Metallic bond

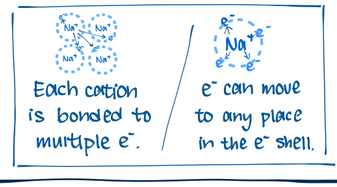
组成的物质

- Grp I-III 自己一个人
- +ve : metal ion (还是被 ion 吸引着，不是"free")
  -ve : delocalised e^-



DIRECTIONALITY

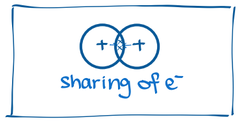
- non-directional



4 Covalent bond

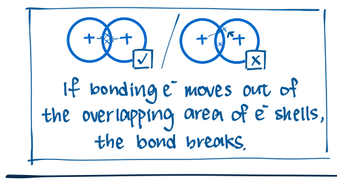
组成的物质

- Grp IV-VII 自然组合
- +ve : nucleus
  -ve : bonding e^-



DIRECTIONALITY

- directional



FORMATION (CH_4)

- 1 C atom has 4 outermost shell e^-, of each shares 1 e^- from H atom

⇒ strong CB ∵ them