

Atoms

1 What are atoms?

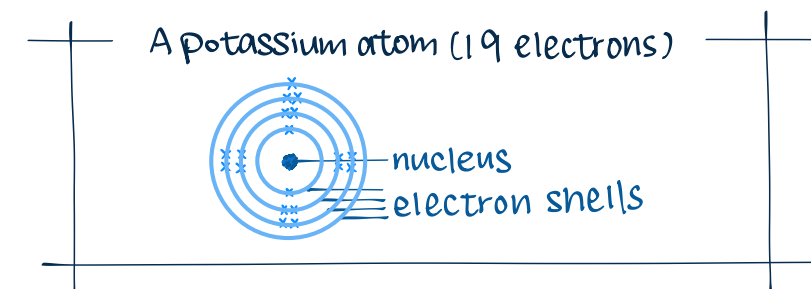
- small particles making up everything
- very tiny & lightweight
- different atoms have different sizes/weights

2 Structure of atoms

PARTICLES

	name	symbol	relative mass	charge
(atoms) same no. ↓ overall neutral	- Proton	p	1	+1
	- Neutron	n	1	0
	- Electron	e ⁻	0 (negligible)	-1

STRUCTURE



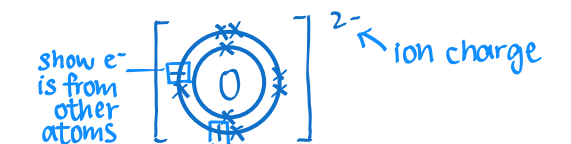
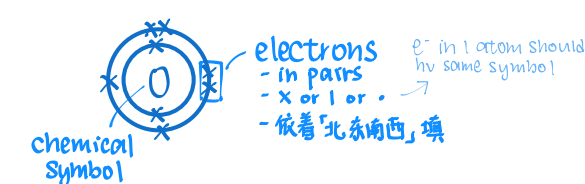
- Nucleus**
- contains protons & neutrons
 - ↳ positively charged
 - tiny & extremely dense (diameter = $\frac{1}{50000}$ of atom diameter)

- Electron shells**
- certain fixed orbits surrounding nucleus which electrons move in
 - max number of e⁻ a shell holds = $2n^2$ → $2 \Rightarrow 8 \Rightarrow 18 \Rightarrow 32$
 - ★ 壳不一定要被填满

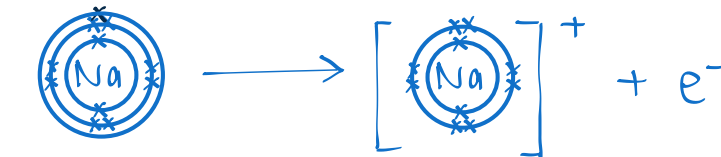
Electronic arrangement

- Represented by numbers
- eg. $_{13}\text{Al} \rightarrow 2, 8, 3$

- Represented by electron diagrams
- eg. oxygen atom



- Octet rule
- All atoms tend to attain stable electronic arrangement (duplet/octet) by gaining/losing e⁻ → ions
- eg. Na loses 1 outermost shell e⁻ → octet arrangement → Na⁺ ion



3 Representing atoms

FULL ATOMIC SYMBOL

