

Matter

Ions & Isotopes

Ions

- A neutral atom has the same number of protons as electrons
- An ion is different because it has either lost or gained electrons and is now a charged particle

Ions

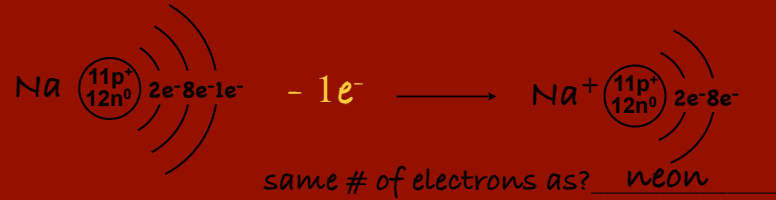
- An atom that has gained electrons is called an anion and has a negative charge
- An atom that has lost electrons is called an cation and has a positive charge

Ions

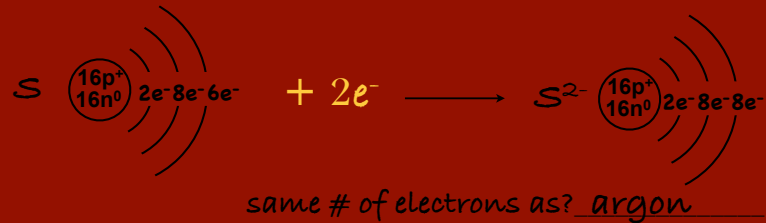
- Non-metals tend to gain electrons
- Metals tend to lose electrons
- Bonus: metals and non-metals form this kind of bond: ionic

Examples

Sodium (metal)



Sulfur (non-metal)



Practice

Draw the elements nitrogen & beryllium as they lose/gain electrons going from atom to ion

Isotopes

- Isotopes are atoms of an element that have the same number of protons but a different number of neutrons
- Since they have the same number of protons and electrons they have similar chemical properties
- Isotopes have different masses

Isotopes

- oxygen has three naturally occurring isotopes:

$^{16}_8\text{O}$ is also called oxygen-16
of neutrons = 8

$^{17}_8\text{O}$ is also called oxygen-17
of neutrons = 9

$^{18}_8\text{O}$ is also called oxygen-18
of neutrons = 10