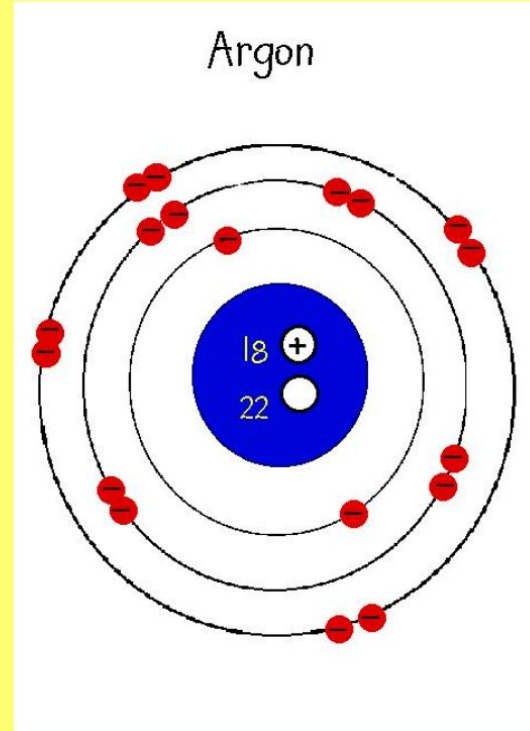


Electron Configurations

- These are a shorthand way of writing orbital diagrams.
- eg Argon's electron configuration is:
Ar : 2,8,8.

The periodic table is set up in shells.

You can read orbital diagrams and electron configurations directly from the periodic table.



Use the periodic table to help you write the electron configurations for the following elements:

- Nitrogen
- Calcium
- Hydrogen
- Oxygen
- Magnesium
- Beryllium

Answers

- Nitrogen N: 2,5
- Calcium Ca: 2,8,8,2
- Hydrogen H: 1
- Oxygen O: 2,6
- Magnesium Mg: 2,8,2
- Beryllium Be: 2,2

Ions

- Ions are atoms that have ***lost or gained electrons***.
- This means they have a ***positive or negative charge***.
eg: H⁺
F⁻
Mg²⁺
Al³⁺

How atoms become ions

An atom has the same number of protons as it has electrons and has a zero charge. (No. of protons = No. of electrons)

An atom loses, gains or shares electrons because it wants a **full outer orbital**. They are stable when the outer orbit is full.

⊕ *If an atom loses electrons it becomes a positive ion.*

⊕ *If an atom gains electrons it becomes a negative ion.*

Example: sodium

A sodium atom has 11 protons and 11 electrons.

Its electron arrangement is 2,8,1 which means it has one electron in its outer shell.

To become stable, sodium loses its outer or valence electron.

i.e. The Na atom loses one electron to form a sodium ion.

<u>sodium atom:</u>	<u>sodium ion:</u>
11 protons (+)	11 protons (+)
11 electrons (-)	10 electrons (-)
overall charge = 0	overall charge = 1+

We write the sodium ion as **Na⁺** showing it has a charge of 1+
The electron arrangement of the sodium ion is now 2,8.