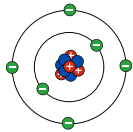


ATOMIC STRUCTURE

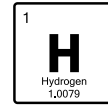


THE SCIENCE ACADEMY

Sub Atomic Particles

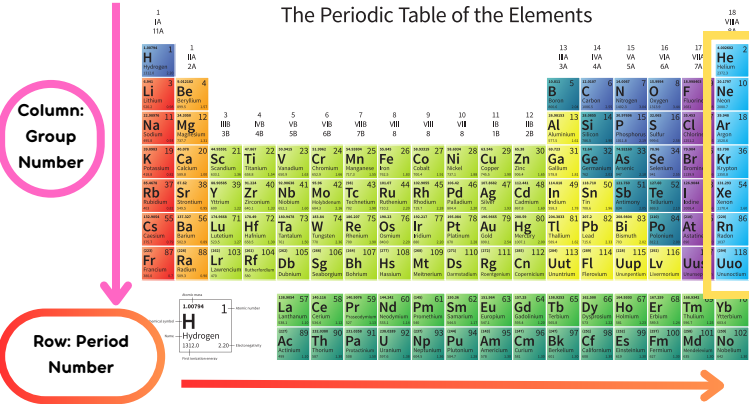


Particle	Relative Mass	Relative Charge	Location
Proton	1	Positive (+)	Nucleus
Electron	Relative Mass	Negative (-)	Electron Shell
Neutron	1	Neutral (~)	Nucleus



Hydrogen is the ONLY element in the periodic table that DOES NOT have Neutrons

The Periodic Table of the Elements



Noble gases in group VIII/O DO NOT gain or lose electron(s) as they exist as stable electronic configurations.

Isotopes



The same element with the SAME number of Protons but DIFFERENT number of Neutrons

Element

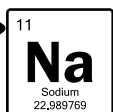
In an Atom/Element: Number of Protons ALWAYS equals to the Number of Electrons

Therefore all elements are electrically NEUTRAL

Valence Electron: Electron(s) in outer most shell = Group Number Number of Shell(s)=Period Number

Valency is the number of electron(s) lost or gained to achieve a stable electronic configuration

Atomic/Atomic Mass Number



Relative Mass/Nucleon Number

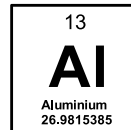
Electronic Configuration: 2.8.1
1 Valence Electron = Group 1
3 Shells= Period 3

IONS

- Elements gain and lose electrons to achieve a **stable duplet/octet structure**
- Elements that **lose electron(s)**, lose negative charge hence **form positive ions called CATIONS**
- Elements that **gain electron(s)**, gain negative charge hence **form negative ions called ANIONS**
- Decision if an element loses or gains electron(s):
determine if it is easier to gain or lose to achieve a stable electronic configuration.

Cation

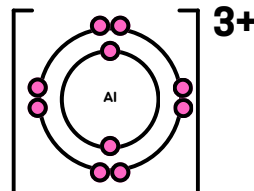
First Shell: Maximum 2 electrons
Second Shell Onwards: Maximum 8 electrons



Electronic Configuration: 2.8.3
3 Valence Electrons = Group 3
3 Shells= Period 3

Aluminium will lose 3 electrons
Thus it loses negative charge and becomes a positive CATION.

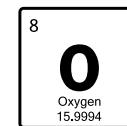
Dot and Cross



Ion Formation



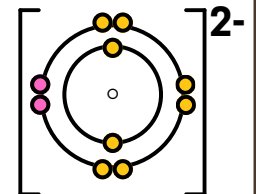
Anion



Electronic Configuration: 2.6
6 Valence Electron = Group 6
2 Shells= Period 2

Oxygen will gain 2 electrons
Thus it gains negative charge and becomes a negative ANION.

Dot and Cross



Ion Formation

