

# Trends in Modern Periodic table

## 1. Valency:

Valency of an element measures its ability to combine with other elements.

It is determined by the number of  $e^-$  in outermost shell of each atom of an element.

Elements combine to achieve stability.

Li (1)	Be (2)	B (3)	C (4)	N (3)	O (2)	F (1)	Ne (0)
2, 1 (1)	2, 2 (2)	2, 3 (3)	2, 4 (4)	2, 5 (3)	2, 6 (2)	2, 7 (1)	2, 8 (0)
Na (1)	Mg (2)	Al (3)	Si (4)	P (3)	S (2)	Cl (1)	Ar (0)
2, 8, 1 (1)	2, 8, 2 (2)	2, 8, 3	2, 8, 4	2, 8, 5	2, 8, 6	2, 8, 7	2, 8, 8
K	Ca						
2, 8, 8, 1	2, 8, 8, 2						

→ Across a period <sup>from left to right</sup> valency increases then decreases

→ In a group valency is same.

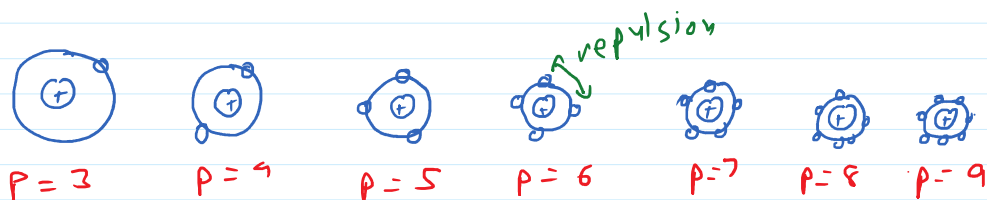
## 2. Atomic size

The term atomic size refers to the radius of an atom.

The atomic size may be visualised as the distance between the centre of the nucleus and the outermost shell of an isolated atom.

Across a period from left to right, number of shells remain same. Number of electrons increase with increases inter electronic repulsions, this factor contributes towards increase in size. Number protons also increase, this increases nuclear pull upon electrons, this factor contributes towards decrease in size.

Net result is size decreases from left to right across a period.



Down the group atomic radius increase because number of shells increase.