

Diagonal Relationship.

Certain elements of 2nd period show similarity with their diagonal elements in the 3rd period as shown below:

Group 1	Group 2	Group 13	Group 14			
2 nd period	Li	Be	B	C		
3 rd period	Na	Mg	Al	Si		

Thus, Li resembles Mg, Be resembles Al and B resembles Si. This is called diagonal relationship and is due to the reason that these pairs of element have almost identical ionic radii and polarizing power (i.e. charge/size ratio). Element of second period are known as bridge elements.

Anomalous behaviour of the first elements of a group: The first element of a group differs considerably from its congeners (i.e. the rest of the element of its group).

This is due to

(i) small size

(ii) high electronegativity and (iii) non-availability of d-orbitals for bonding. Anomalous behavior is observed among the second row elements (i.e. Li to F).