Chemistry Study Materials for Class 10

(Based on: Periodic Classification of Elements)

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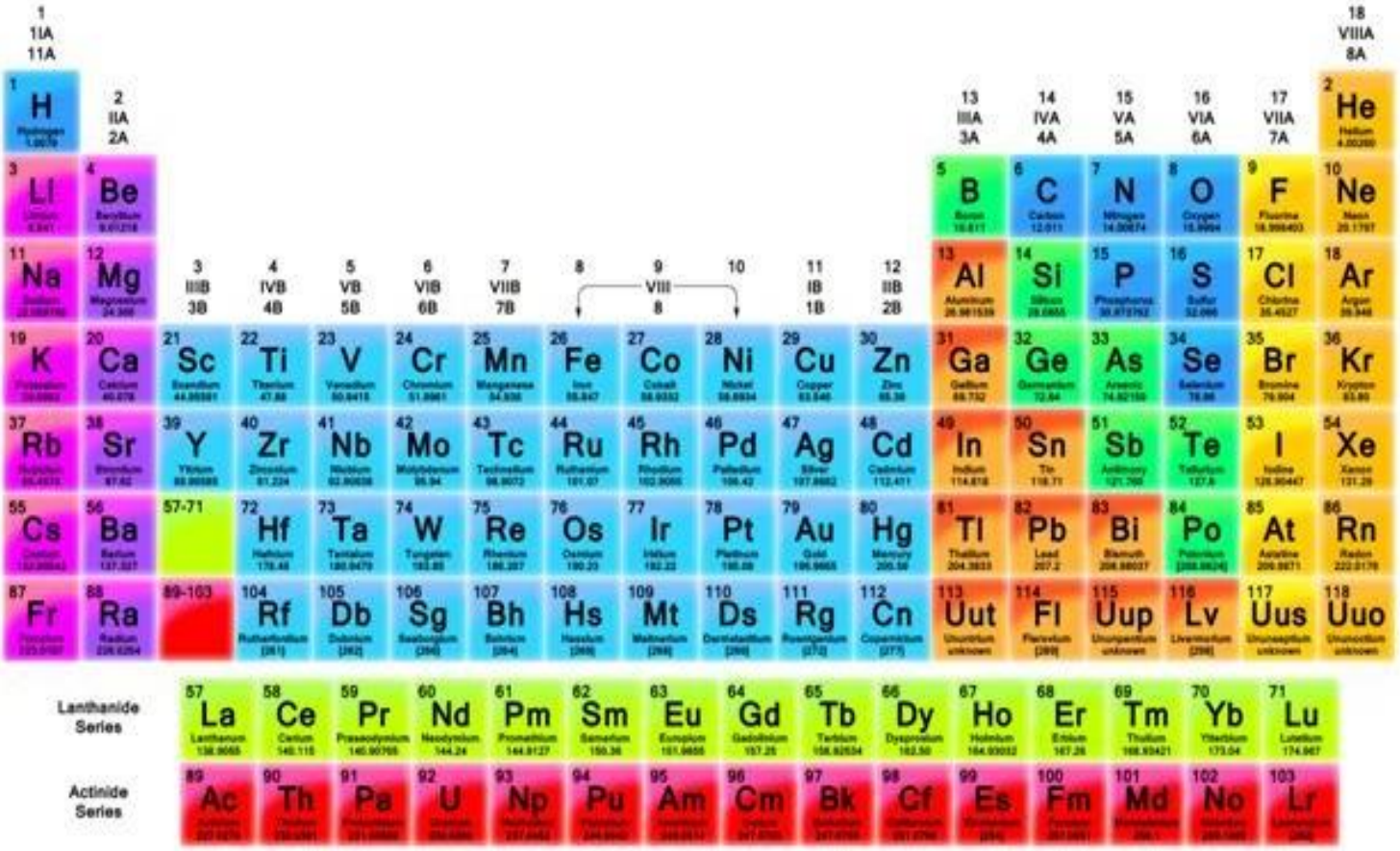
Modern Periodic Table

In 1913, Henry Moseley proved that the atomic number is the fundamental property rather than its atomic mass.

Modern Periodic Law: Properties of elements are a periodic function of their atomic numbers.

The periodic table, based on the Modern Periodic Law is called the Modern Periodic Table.



Modern Periodic Table

Position of Elements in the Periodic Table

Periods

1. The horizontal rows in the Modern Periodic Table are called periods.
2. The Modern Periodic Table consists of seven periods which are numbered from 1 to 7.
3. In each period, a new shell starts filling up. The period number is also the number of shell which starts filling up.
4. The elements in a period have consecutive atomic numbers, and the number of elements in each period is given below

- First period contains 2 elements and is called a very short period.
- Second and third periods contain 8 elements and are called as short periods.
- Fourth and fifth periods are long periods and contain 18 elements each.
- Sixth period is the longest and contains 32 elements.
- Seventh period is an incomplete period.

The number of elements present in each period is given in the following table.

Period	Valence shell	Type of period	No of elements	Atomic No of the elements
1st Period	n = 1	Short period	2	Atomic number 1 and 2
2nd Period	n = 2	Short period	8	Atomic number 3 to 10
3rd Period	n = 3	Long period	8	Atomic number 11 to 18
4th Period	n = 4	Long period	18	Atomic number 19 to 36
5th Period	n = 5	Long period	18	Atomic number 37 to 54
6th Period	n = 6	Long period	32	Atomic number 55 to 86
7th Period	n = 7	Incomplete	23	Atomic number 87 to 109

The number of elements in these periods is based on the way electrons are filled into various shells. The maximum number of electrons that can be accommodated in a shell depends on the formula $2n^2$ where 'n' is the number of the given shell from the nucleus.

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