

TENDER HEART HIGH SCHOOL, SEC-33B, CHD

CLASS - VII

SUBJECT - CHEMISTRY

CHAPTER - 4

TEACHER - ANAMIKA

Good morning to all the students!

Students this lesson is for class-VII for the subject of chemistry, 'Topic' - 'Relationship between valency of elements and periodic table' which is covered in chapter-4. 'Atoms, Molecules And Radicals' starting on page no-52 of your textbook titled - 'Concise Chemistry' by Selina Publication and is being submitted to you on 14 October 2024

The voice is of Anamika Thakur

All students may now please open page no-52 of your notebook in front of you.

All students are ready then let us start with this chapter. All students may now please listen carefully.

As you know, that valency is the combining capacity of an atom of an element with the atoms of other elements.

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Let us study the table given below in which symbols and valency of first twenty elements of the periodic table are given

Table:- Name, symbol and valency of first twenty elements

	Name of the element	Symbol	Valency
1	Hydrogen	H	1
2	Helium	He	0
3	Lithium	Li	1
4	Beryllium	Be	2
5	Boron	B	3
6	Carbon	C	4
7	Nitrogen	N	3
8	Oxygen	O	2
9	Fluorine	F	1
10	Neon	Ne	0
11	Sodium	Na	1
12	Magnesium	Mg	2
13	Aluminium	Al	3
14	Silicon	Si	4
15	Phosphorus	P	3
16	Sulphur	S	2
17	Chlorine	Cl	1
18	Argon	Ar	0
19	Potassium	K	1
20	Calcium	Ca	2

It is noticed that valency [combining capacity] of elements increases from 1 to 4 and then again decreases to 1. For some of the elements like He, Ne & Ar the combining capacity is zero because they are inert gases.

- Example :- Both Li & Na have same valency one. Both are metals.
- Sodium & Chlorine also have valency one. But sodium is a metal while chlorine is a non-metal.

To understand this more clearly it is necessary to know about the Periodic Table.

"Periodic table is a tabular arrangement of elements in vertical (column) and horizontal rows indicating the regular trends in the properties of elements."

There are 118 elements known to us. In order to study these elements in an organised manner, they need to be classified.

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- The horizontal rows of the table are called periods.
- The vertical columns are called groups.

Let us see the first twenty elements in the periodic table below.

Groups

	↓ IA	IIA	IIIA	IVA	VA	VIA	VIIA	Zero	
	1	H						He	
	2	Li	Be	B	C	N	O	F	Ne
Periods →	3	Na	Mg	Al	Si	P	S	Cl	Ar
	4	K	Ca						

A part of periodic table showing first 20 elements.

The groups are numbered in Roman numerals as IA, IIA, IIIA, IVA, VA, VIA, VIIA and zero group.

The periods are numbered in Arabic numerals as 1, 2, 3, 4, 5, 6, 7.

You will notice that, elements present in the same group have same valency (combining capacity) and it also corresponds to the group number upto IV.

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Examples:- Group IA has Lithium, sodium and potassium. They are all reactive metals with valency one. Group IVA has carbon and silicon with valency 4.

Valency of elements present in groups V, VI and VII are 3, 2, 1 respectively. Group zero contains inert gases with zero combining capacity.

The above arrangement makes it very clear that, metals with same valency show similar properties and so do the non-metals.

Instructions:-

You all are required to revise all the topics which we have cover today.

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