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# ELEMENTS, COMPOUNDS, SYMBOLS AND FORMULAE

SUBJECT-CHEMISTRY

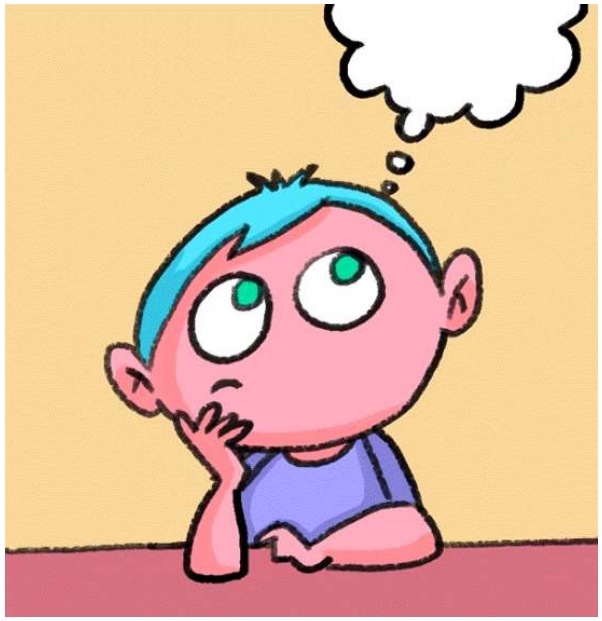
CHAPTER NO- 4

**Elements and Its Types(Metals, Non-Metals ,Metalloids &Noble Gases)**

PERIOD-2

# LEARNING OBJECTIVE

- Students will be able to
- Sensitize that what are elements and its types
- Know the examples of elements
- Know the classification of elements based on their properties
- Understand the properties and examples of metals, non metals , metalloids and noble or inert gases.



# WARM UP

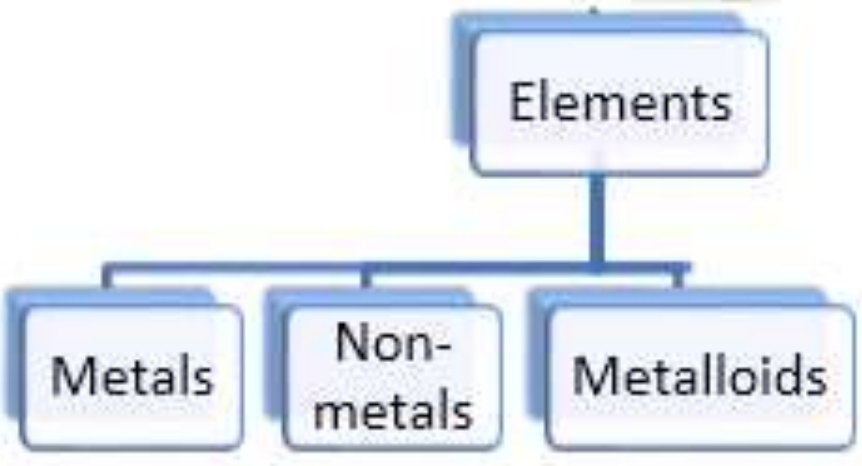
- Recapitulation of the previous topic by asking following questions to the students
- Define pure substances
- Give some examples of pure substances

# ELEMENTS AND ITS TYPES

## Elements:

Pure substances which are made up of only one kind of atoms are known as

- elements.
- They cannot be split up into two or more simpler substances by any of the usual chemical methods.
- For example, Iron, gold, silver, carbon, oxygen, nitrogen and sodium etc.

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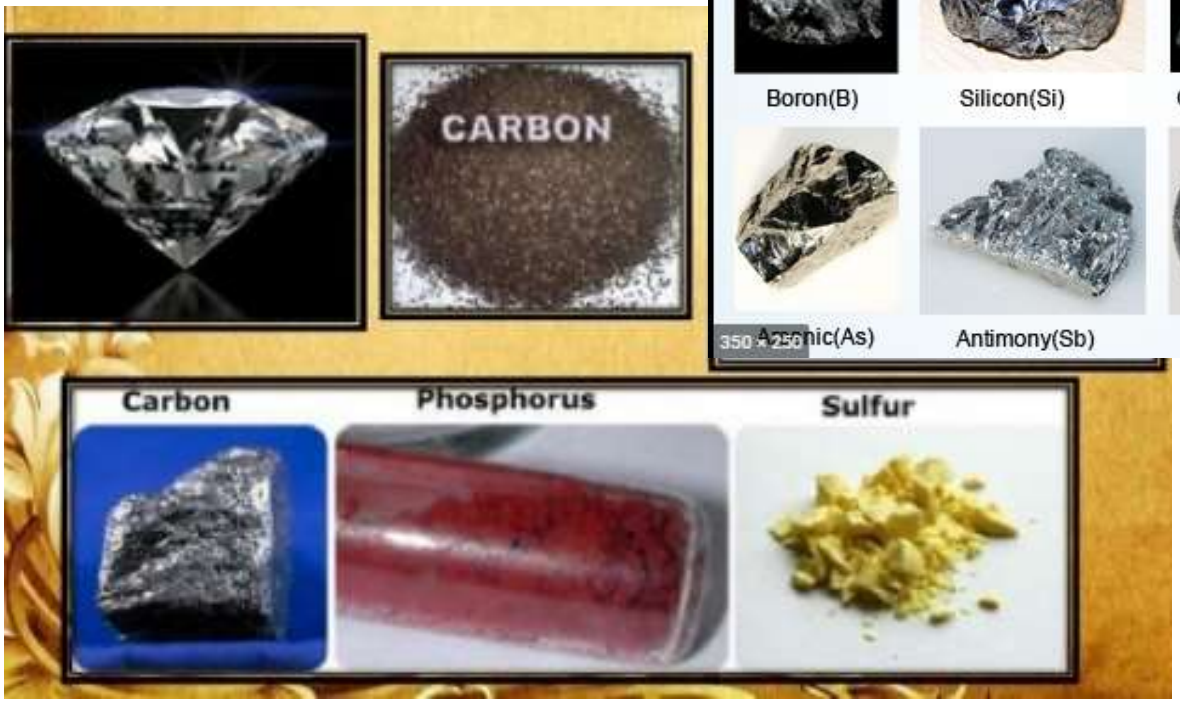
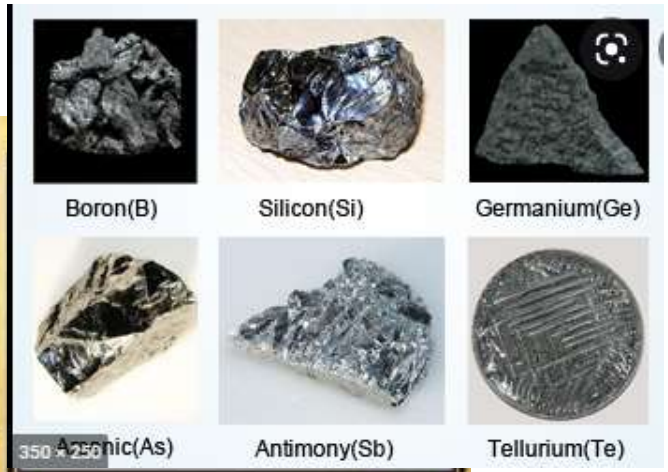
- Elements are further grouped into the following three categories:

(i) Metals, for example: Iron, copper, gold, sodium, silver, mercury, etc.

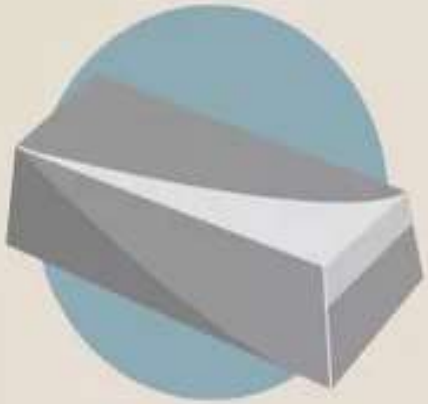
(ii) Non – metals, for example: Carbon, oxygen, sulphur, nitrogen, oxygen, hydrogen, etc.

(iii) Metalloids: Boron, silicon, germanium, etc.



# Metals vs. Nonmetals: Physical Properties

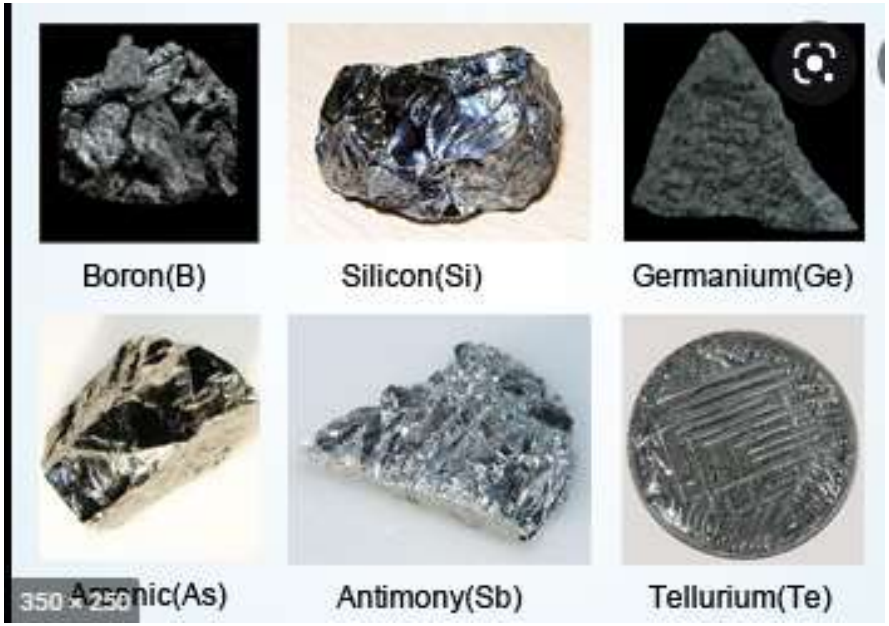


- Lustrous
- Good conductors
- High melting point
- High density
- Malleable
- Ductile (can be drawn into wires)
- Usually solid at room temperature
- Opaque as a thin sheet
- Sonorous

- Dull
- Poor conductors
- Nonductile
- Brittle
- May be solids, liquids or gases at room temperature
- Transparent as a thin sheet
- Not sonorous

# Metalloids

- Metalloids can be defined as chemical elements whose physical and chemical properties fall in between the metal and the non metal categories



# Activity 1

- Discussion of activity 1 of the text book.
- Identification of metals

# Exceptions

| Property | Metals | Non-Metals |
|---|---|---|
| **Lustre** (metallic shine) | All metals have lustre | Have no lustre (except Iodine and Graphite) |
| **Hardness** | Very hard (except sodium and potassium) | Not hard (except Diamond- hardest substance) |
| **Malleability** (property due to which a substance can be beaten into sheets) | Highly malleable (except Zinc, ) | Non malleable |
| **Ductility** (property by which a substance can be drawn into wire) | Ductile (except Zinc, ) | Non ductile (except Carbon fiber) |
| **Conductivity** | Good conductor of heat and electricity (except Tungsten) | Bad conductor of heat and electricity. (except Graphite and gas carbon) |
| **State** | Solid (except Mercury and Gallium) | Solid, liquid or gas |
| **Density** | High density (except sodium and potassium) | Low density (except diamond) |

Bromine is the only liquid non metal

# NOBLE GASES

## INERT OR NOBLE GASES

These Elements do not react chemically with other elements or compounds, so they are known as noble or inert gases.

- They are found in air in traces.

They are six in number—— Helium, Neon, Argon, Krypton, Xenon, Radon

# HOME ASSIGNMENT

Exercise-I Q 5,6,7

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# THANKING YOU

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