

# ELEMENTS, COMPOUNDS AND MIXTURES

INTRODUCTION

SUBJECT-CHEMISTRY

CHAPTER-03

CHAPTER NAME-ELEMENTS, COMPOUNDS AND MIXTURES

PERIOD-1

**CHANGING YOUR TOMORROW**



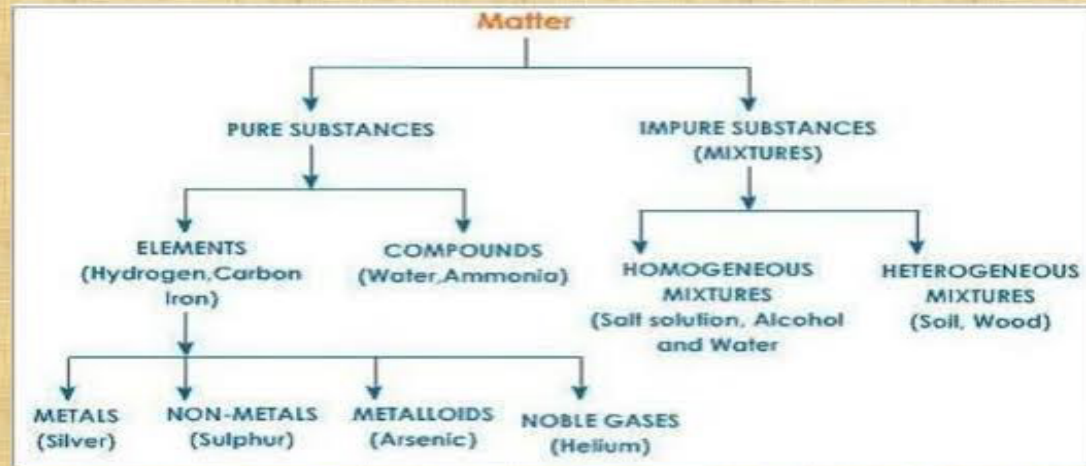
## LEARNING OBJECTIVE

- You will be able to know about the classification of substances or matter.
- You will be able to know about the pure and impure substances or matter.
- You will come to know of the concept of elements along with examples.
- You will be able to know about the concept of compounds.
- You will be able to know about the classification of elements as well as their examples.



# CLASSIFICATION OF SUBSTANCES OR MATTER

## Classification of Matter



# PURE AND IMPURE SUBSTANCES

## SUBSTANCE

- It is of two types:
  1. Pure Substance
  2. Impure substance
- 1. **Pure Substance:** It may be defined as a material which contains only one kind of atoms or molecules and have uniform composition and properties.  
Pure substances are again of two types:
  - (a) Elements (b) Compounds
- 2. **Impure Substance:**
  - (a) It may be defined as a material which contains more than one kind of atoms or molecules and do not have uniform composition and properties throughout.

It is also named as mixture



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# 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.

## 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.
- ☒ (iv) Noble Gases : Helium, Neon, Argon, Krypton, Xenon, Radon



# METALS AND NON-METALS

## Properties of Metals:

- These are lustrous (shine).
- They conduct heat and electricity.
- All metals are malleable and ductile.
- They are sonorous.
- All metals are hard except sodium and potassium.
- All metals are solids at room temperature except mercury which is a liquid.

## Properties of Non-metals:

- Non- Metals are dull.
- They are poor conductors of heat and electricity except diamond which is a good conductor of heat and graphite which is a good conductor of electricity.
- They are neither malleable nor ductile.
- They are generally soft except diamond which is the hardest natural substance known.
- They may be solids, liquids, or gases at room temperature.



# METALLOIDS

## **Metalloids:**

- ⊠ The elements that have properties intermediate between those of metals and non-metals, are called metalloids.
- ⊠ They are hard solids
- ⊠ Example: - Boron, Silicon, Germanium, Arsenic, Antimony, Tellurium and Polonium etc



# 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





# COMPOUNDS

## Compounds:

- It is a form of matter formed by combining two or more elements in a definite ratio by mass.
- It Can be decomposed into its constituent elements by suitable chemical methods.
- For example: Water ( $\text{H}_2\text{O}$ ), oxygen ( $\text{O}_2$ ), Nitrogen dioxide ( $\text{NO}_2$ ), etc.



## VIDEO TIME

<https://youtu.be/QleFd7j7zEY>

WATCH THE ABOVE VIDEO



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# HOME ASSIGNMENT

- ⊠ Exercise-1 Q 1, Q2 & Q 7
- ⊠ Justify the statement “ Water is a Compound”
- ⊠ Differentiate between pure and impure substances.
- ⊠ What do you mean by metalloid? Give some examples.
- ⊠ Differentiate between Metals and Non-Metals.
- ⊠ Draw the Classification Chart of Matter or Substance.
- ⊠ Define Element. Give Example
- ⊠ Define Compound. Give Example.



THANKING YOU

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