

7. Atoms and Molecules

Learning Objectives

At the end of the lesson the students will be able to:

- ❑ Acquire the ability to learn about the atoms and molecules.
- ❑ Comprehend atomic mass and molecular mass.
- ❑ Have information about gram atomic mass and gram molecular mass.
- ❑ Perceive the intended meaning of Avogadro's hypothesis of gases.
- ❑ Interpret the application of Avogadro's hypothesis.
- ❑ Determine the atomicity of a molecule.
- ❑ Interpret the relation between vapour density and relative molecular mass.
- ❑ Have the facts about the relationship between the volume of a gas and the number of molecules present in it.
- ❑ Grasp the idea of mole concept and solve many problems using it.
- ❑ Calculate the percentage of composition of a compound.

Key Points and Results

- ❖ Relative Atomic Mass is only a ratio, so it has no unit. If the atomic mass of an element is expressed in grams, it is called as **Gram Atomic Mass**
- ❖ Gram Atomic Mass of hydrogen = 1 g
- ❖ Gram Atomic Mass of carbon = 12 g
- ❖ Gram Atomic Mass of nitrogen = 14 g
- ❖ Gram Atomic Mass of oxygen = 16 g

- ❖ Relative Molecular Mass is only a ratio. So, it has no unit. If the molecular mass of a compound is expressed in grams, it is called ***Gram Molecular Mass***.
- ❖ Gram Molecular Mass of water = 18 g
- ❖ Gram Molecular Mass of carbon dioxide = 44 g
- ❖ Gram Molecular Mass of ammonia = 17 g
- ❖ Gram Molecular Mass of HCl = 36.5 g