

MATTER AROUND US



Learning Objectives

After completing this lesson, students will be able to

- classify substances as elements, compounds and mixtures based on their chemical composition.
- group mixtures as homogeneous and heterogeneous.
- identify suitable method to separate components of a mixture.
- classify solutions based on the size of the solute particles and compare the true solutions, colloids and suspensions based on their properties.
- differentiate colloids based on the nature of dispersed phase and dispersion medium.
- compare o/w and w/o emulsions.
- discuss some important examples and uses of colloids.

Introduction

We use the term **matter** to cover all substances and materials from which the universe is composed. Matter is everything around us. The air we breathe, the food we eat, the pen we write, clouds, stones, plants, animals, a drop of water or a grain of sand everything is matter. Samples of any of these materials have two properties in common. They have mass and they occupy space.



Figure 10.1 Examples to show Matter has mass



Figure 10.2 Examples to show Matter occupies space

Thus, we say that **matter** is anything that has mass and occupies space.

10.1 Classification of Matter

In class VIII, You have studied the classification of matter on the basis of their physical states. Now let us see how we can classify matter on the basis of chemical composition. Broadly speaking, it has been classified into pure substances and mixtures. From the point of view of chemistry, pure substances are those which contain only one kind of particles whereas impure substances (mixtures) contain more than one kind of particles.



The flow chart given below will help us to understand the chemical classification of matter in detail.



Not all things that we see or feel are matter. For example, sunlight, sound, force and energy neither occupy space nor have any mass. They are not matter.