

UNIT

4

HEAT



Learning Objectives

After the completion of this lesson students will be able to:

- ◆ understand the effects of heat.
- ◆ explain the transfer of heat.
- ◆ know about calorimetry.
- ◆ calculate heat capacity and specific heat capacity of substances.
- ◆ list out the functions of thermostat.
- ◆ know about the working of thermos flask.



Introduction

All the substances in our surrounding are made up of atoms and molecules. These atoms and molecules are always at vibratory motion. Due to this motion, substances have an energy known as heat energy. This energy flows from hot substances to cold substances or from hot region to cold region of a substance. When heat energy is supplied to any substance it increases the energy of the atoms and molecules in it and so they start to vibrate. These atoms and molecules which vibrate make other atoms and molecules to vibrate. Thus, heat energy is transferred from one part of the substance to other part. We can see this heat energy transfer in our daily life also. Heat energy brings about lot of changes. You will learn about them in this lesson. You will also study about transfer of heat and measurement of heat change.

4.1 Effects of Heat

When heat energy is supplied to any substance, it brings about many changes. There are three important changes that we can see in our daily life. They are:

- Expansion
- Increase in temperature
- Change in state

4.1.1 Expansion



Activity 1

Take a metal ball and a metal ring of suitable diameter. Pass the metal ball through the ring. You can observe that the metal ball can easily go through it. Now heat the metal ball and then try to pass it through the ring. It will not pass through the ring. Keep the metal ball on the ring for some time. In few minutes, it will fall through the ring.

