

UNIT

5

ELECTRICITY



Learning Objectives



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

- ◆ know about the basic properties of electric charges.
- ◆ explain the transfer of charges between two objects.
- ◆ understand the working of electroscope.
- ◆ recognise the effects of electric current.
- ◆ assemble different electric circuits.
- ◆ list out the applications of electricity.

Introduction

All things we use in our life are made up of elements. Each element is made up of atoms which is the smallest unit. John Dalton, the scientist considered that atoms cannot be divided further. But, it was found out later through Rutherford's gold foil experiment that atoms are made up of particles like proton, electron and neutron. Movement of electrons in a material constitutes electric current and generates an energy called electric energy or electricity. We use this energy in our life for various needs. Electric bulbs, fans, electric iron box, washing machines and refrigerators are some of the appliances which work with the help of electricity. In this lesson we will study about electric charges and how they are transferred. This lesson will also cover electric circuits and the effects of electric current.

5.1 Atom

An atom consists of proton, electron and neutron which are called sub-atomic

particles. Proton and neutron are found inside the nucleus which is at the centre of an atom. Electrons revolve around the nucleus in different paths called orbits. In an atom, the number of protons and the number of electrons will be equal. There is a force of attraction between the protons in the nucleus and the electrons in the orbits. Electrons in the inner orbits are strongly attracted by the protons and they cannot be removed from the atom easily. But, the electrons in the outermost orbits are loosely bound and they can be easily removed from the atom.

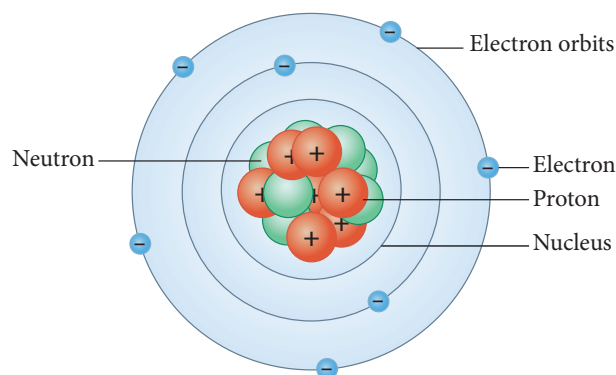


Figure 5.1 Atom model