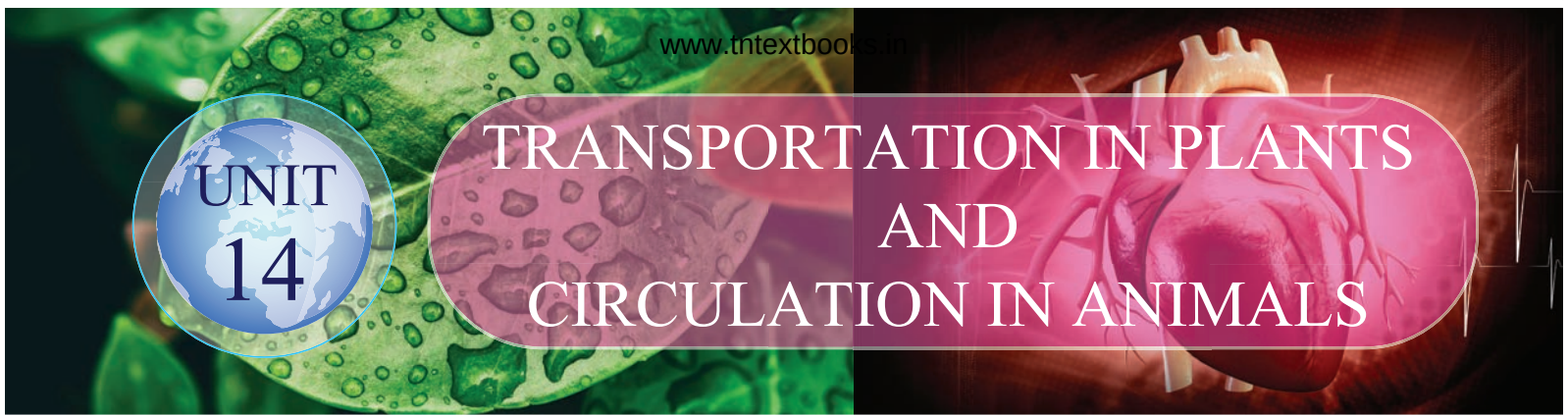




Learning Objectives



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

- ◆ Learn how the water and minerals move from soil to the plant.
- ◆ Learn how prepared food by the leaf is translocated to various parts of the plant.
- ◆ Understand the role of osmosis and transpiration.
- ◆ Understand the composition of blood.
- ◆ Identify and explain the structure of heart and associated blood vessels.
- ◆ Understand systemic, pulmonary and coronary circulation.
- ◆ Differentiate the events of the cardiac cycle.
- ◆ Know about blood pressure and heart beat.
- ◆ Understand the use of stethoscope and sphygmomanometer.
- ◆ Identify the different blood groups.
- ◆ Understand the role of lymphatic system.

Introduction

Multicellular organisms possess millions of cells in their body. Every cell needs a constant supply of essential substances like nutrients and oxygen to maintain life and survival. Food is the only source of energy and every cell gets its energy by the breakdown of glucose. The cells utilise this energy and govern various vital activities of life.

Have you ever wondered how water and nutrients absorbed by the root are transported to the leaves? How is the food prepared by the leaves carried to the other parts of the plant? Do you know how water reaches the top of tall plants inspite of not having a circulatory system like animals? Water absorbed by the roots have to reach entire plant and the food synthesised by the leaves have to be distributed to all the parts

of the plant. To understand this we need to recall the anatomy of the plants. Water and mineral salts absorbed by the roots reach all parts of the plant through the xylem. The food synthesised by the leaves are translocated to all parts of the plant through the phloem. The bulk movement of substances through the vascular tissue is called Translocation.

‘Transport’ means to carry things from one place to another. Have you ever wondered how in animals the useful substances are transported to other cells and toxic substances are removed? In larger organisms transport of nutrients, salts, oxygen, hormones and waste products around the body are performed by the ‘**Circulatory system**’. The circulatory system consists of the circulating fluids, **the blood and lymph** and **the heart and blood vessels** which form the collecting and transporting system.

