

5

CHAPTER

TRANSPORT



**1. IMPORTANCE OF NUTRIENT
TRANSPORT**

2. INTERNAL STRUCTURE OF STEM

3. INTERNAL STRUCTURE OF ROOT

4. XYLEM AND PHLOEM

5. CIRCULATORY SYSTEM

WHY STUDY TRANSPORT

In order for plants to survive, nutrients must be delivered to the roots, and water must be delivered to the leaves through the roots. Plants have special transport organs for the delivery of nutrients. The method of growing plants shown in the picture is called hydroponics. In this method, the plant is grown in nutrient-rich water instead of soil. Growing plants by hydroponics can save water and land.

YOU ALREADY KNOW

- transport of nutrients in the body

5.1

Importance of nutrient transport



You will:

- explain the importance of transport of nutrients in living organisms.



Key terms

Nutrient - any substance that is consumed by an organism and provides energy, enables growth, and repair of the body



Facts

Giant sequoia grows to an average height of 70–85 m and 5–7 m in diameter.



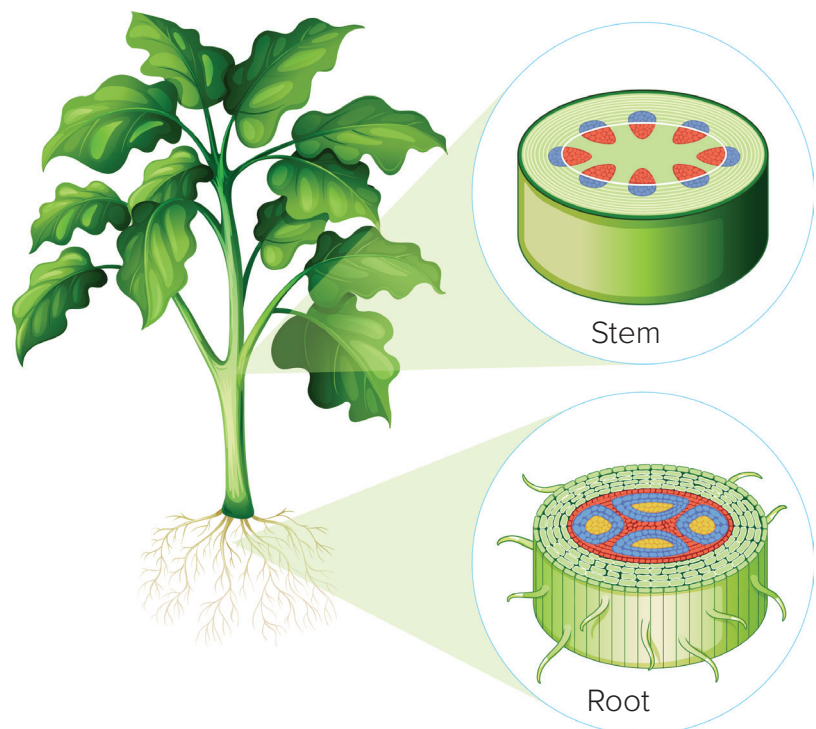
How do nutrients reach every cell in your body?

All living things need food. Protein, fat, carbohydrates, vitamins and minerals, water and oxygen are all nutrients. Nutrients are needed for energy, growth and reproduction. They are transported to the cells in our body.

Unicellular organisms do not need transport system. Because they receive nutrients directly from the environment. However, because the cells of multicellular organisms are far away from the surface, it takes a long time for nutrients to be transported. Plants and animals have different transport systems to transport nutrients to the body.

Plant transport organs

In plants, transportation takes place through the stems and roots (Figure 5.1.1). Roots absorb water and minerals from the soil and deliver them to the leaves through the stems. Leaves produce nutrients through photosynthesis and transport them to the fruit and roots through the stem. The stem also serves as a support and connects the leaves and roots.



5.1.1 Figure. Plant organs

Animal transport organs

In animals, nutrients are transported in body fluids. For example, in vertebrates, this fluid is called blood. The blood in the human body moves through the blood vessels. Blood vessels carry nutrients to every organ, tissue and cell. The heart is the main organ of the circulatory system. Blood, blood vessels and the heart make up the circulatory system in the human body (Figure 5.1.2).

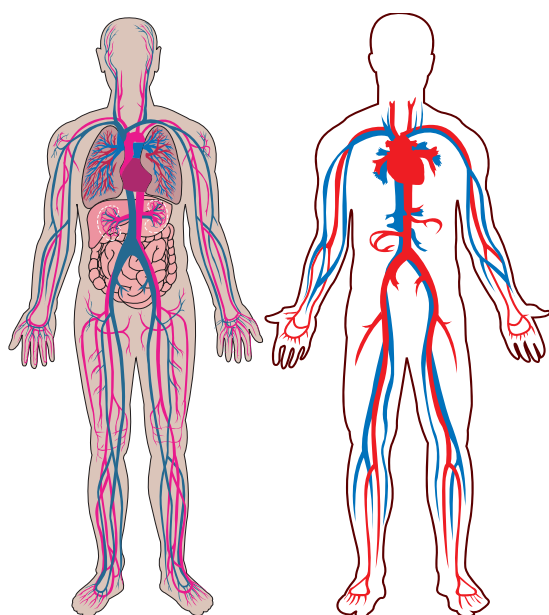


Figure 5.1.2 Human circulatory system

Research time

Non-vascular plants

Unlike other plants mosses do not have transport system. Find out how water and minerals are transported in mosses.



Activity

The function of the transport system in plants can be visualized. To do this, you need a white flowering plant and food colouring. Pour warm water into a glass and mix with food colouring.

After a few hours, you will notice that the colour of the flower changes to the colour of the dye.



Literacy

1. What are the functions of the root?
2. What is the best way to give nutrients to the plant?
3. Why some plants have large leaves?

Terminology

- blood vessel** - қан тамыры - кровеносный сосуд
- environment** - қоршаған орта - окружающая среда
- exchange** - алмасу - обмен
- heart** - жүрек - сердце
- leaf** - жапырақ - лист
- nutrients** - қоректік заттар - питательные вещества
- reproduction** - көбею / размножение
- root** - тамыр - корень
- stem** - сабақ - стебель

