



# SCIENCE



Written by :  
Ritu Jain

4.

**New Edition**

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# Preface

Today's children will spend their adult lives in a multitasking, multifaceted, technology driven, diverse vibrant world, and thus they must arrive equipped to do so effectively.

This new edition of 'Science' has been completely prepared in accordance with National Curriculum framework. The most important aim of this series is to develop scientific attitude in children rather than providing information.

To fulfill our aim, the books are produced in large format, in full colour with attractive illustrations to enhance visual appeal. We hope that our attempt has been successful and a small step towards imparting necessary quality education to our children. Change is a way of life and our endeavour is to continue to evolve the series into a better product. Suggestions and comments are encouraged.

—Publisher



# WALKTHROUGH

## ACTIVITY

Various activities given in between text to strengthen the knowledge of the concept learned by the student.

**FUNCTIONS OF ROOT**

1. Root holds the plant firmly in the ground

**Activity 1**

Look at the roots of a plant through a microscope. You shall find tiny root hair around branch roots; branch roots meet in the main root. This root system holds the plant firmly in the ground.



2. Roots Absorb Water and Minerals

**Activity 2**

Take two plants. Wash the roots carefully with water. Put them in two jars. Pour equal amount of water in the jars. Put some red colour in a jar. Only the roots should remain in water. Observe both the plants after two hours. You see that the plant in plain water has no colour. The plant in the coloured water has coloured stem and leaves. Roots have absorbed colour along with the water.

**3. Roots Store Food**

Some roots like radish and carrot store food. We eat those roots which store food as these have all the nutrition in them.

**Do You Know?**

Some roots store food in them. They are usually large and swollen. The sweet potato, carrot, radish, beet root and turnip plants store food in their roots. We use these roots as vegetable.



3. **Twining Stems** : The weak stem of morning glory twines around stick for support. Tendrils help to support the cucumber plant.

4. **Creeping Stems** : The stems of creeping plants creep on the ground. They cannot stand.

**STORAGE OF FOOD**

In some plants, such as ginger, potato and onion plants, food is stored in the stems. We eat these stems.



**Do You Know?**

Onion plants do not have leaves. They have stems which are green. In colour, their stems prepare the food.

**FUNCTIONS OF LEAVES**

**Food-making**

Leaves make food for the plant. Green leaves have a green substance called chlorophyll. It is through this substance that green leaves make food for the plants. For this purpose, the plant draws water from the soil takes carbon-di-oxide from the atmosphere.



These are changed into food or sugar. Leaves get from the sun their energy for making food. Hence, leaves require water, carbon-di-oxide, chlorophyll and sunlight to make food. This process of making food by the sunlight is called photosynthesis.


## DO YOU KNOW?

Extra information to the concept related.

## TEST YOUR SELF

Questions based on the matter to strengthen the knowledge.

have hooks and spines. They stick to men and animals and get dispersed. When men, animals and birds eat fruits, they drop the seeds far away from the parent plant.



**Non-green Plants**

Mushroom and moulds are non-green plants. In the absence of chlorophyll, they cannot make their food. They get their food from the decaying plants. Plants like cactus do not have leaves. Their soft green stems make their food. Crotan plant has dark red leaves. Under the red colour is hidden the green colour of chlorophyll.

**Test your Self**

I. Make a list of food items you ate yesterday and classify them as given below :

In breakfast :

a. Bread-wheat-plant      b. Butter-milk-animals

c. Jam(mixed fruit)-fruits-plants

In Lunch :

a. \_\_\_\_\_      b. \_\_\_\_\_      c. \_\_\_\_\_

In Dinner :

a. \_\_\_\_\_      b. \_\_\_\_\_      c. \_\_\_\_\_

**ENERGY-FLOW IN LIVING THINGS**

Plants make food with sunlight, water and carbon-di-oxide. This food is used by men and animals. By food they get energy to work and grow. Men and animals give out carbon-di-oxide. Carbon-di-oxide is absorbed by the plants. Plants, in their turn, give

## EXERCISE TIME

Objective and subjective questions included under various segments.

**EXERCISE TIME**

A. Multiple choice questions (MCQs).  
Tick (✓) the correct option :

- The leaves contain a green pigment called \_\_\_\_\_  
a. Chlorophyll    b. Pollination    c. Fertilization
- Plants produce their own food in \_\_\_\_\_  
a. Flowers    b. Green leaves    c. Roots
- The stem carries the prepared food from the leaves to different parts of the plant. This is called \_\_\_\_\_  
a. Transportation    b. Conduction    c. Fruits
- Petals of a flower attract insects and bees for :  
a. Pollination    b. Fertilization    c. Conduction

B. Tick (✓) the correct and cross (X) the incorrect ones :

- Roots are green.
- Roots hair act like sponges.
- Leaves do not breathe oxygen.
- Sugar is stored only in fruits.
- Flowers are of no use of the plant.

C. Fill in the blanks :

- The root \_\_\_\_\_ absorb water and minerals from the soil.
- The \_\_\_\_\_ carry food from leaves to other parts of the plant.
- A plant cannot live without \_\_\_\_\_ of food.
- Some stems act as \_\_\_\_\_ of food.
- Tiny openings in the leaf are called \_\_\_\_\_.

D. Explain the meaning of the following :

- Conduction
- Transportation
- Photosynthesis
- Pollination
- Fertilization

## KNOW THE KEYWORDS

Detail meaning about some difficult words.

out oxygen which is used by men and animals. Thus the cycle of using sun's energy goes on throughout all living things.

**BALANCE IN NATURE**

Therefore, a balance is required in the number of trees and plants on the one hand and animals and human beings on the other hand. Plant and animal life should be protected. There should be a check on human population growth. A balance in Nature has to be maintained.

**Know the Keywords :**

Chlorophyll	Green pigment in leaves.
Photosynthesis	The process by which green plants make food with the help of chlorophyll, water, sunlight and carbon-dioxide.
Stomata	Small pores on the surface of leaves.
Green plants	Plants that have chlorophyll in their leaves.

**Point to Remember**

- Plants are necessary for life in world.
- Plants make their own food with the help of chlorophyll, water, sunlight and carbon-dioxide. This process is called photosynthesis.
- Plants produce their own food in green leaves.
- Leaves are known as the food factories of plants.
- The leaves contain a green pigment called chlorophyll.
- The food made in plant stored in the leaves, stems or roots.
- Plants maintain balance in nature.

**Know the Keywords :**

Adaptation	The process of adjustment to surroundings by animals and plants.
Aquatic Plants	Plants that grow in water.
Terrestrial Plants	Plants that grow on land.
Insectivorous Plants	Plants which eat insects.
Parasitic Plants	Non-green plants which absorb food from other plants.

**Point to Remember**

- Plants are found all over the earth on mountains, in deserts, in coastal areas, in plains and in water.
- According to the habitat they live in, plants are classified as Terrestrial and Aquatic.
- Plants adapt themselves to live in their surroundings.
- Plants on mountains have needle-like leaves. Plants in plains have lots of leaves, while plants in deserts have thorn-like leaves. Plants in marshy areas have breathing roots.
- Aquatic plants are of three types : Fixed, Floating and Underwater.
- Insectivorous plants trap and eat insects.

**EXERCISE TIME**

A. Multiple choice questions (MCQs).  
Tick (✓) the correct option :

- Plants growing on land are called :  
a. Arboreal  b. Terrestrial  c. Underwater
- Which of the following plants float on water?  
a. Hyacinth  b. Tape-grass  c. Hydrilla
- Plants of deserts are called :  
a. Xerophytes  b. Terrestrial  c. Mangroves
- Plants of marshy areas are called :  
a. Terrestrial  b. Xerophytes  c. Mangroves
- Plants having leaves without pores are :  
a. Pond-weeds  b. Mushrooms  c. Water-lilies

## POINT TO REMEMBER

Consolidated concepts of the chapter.

## ACTIVITY TIME

Various activities to strengthen the knowledge of the concepts learnt by the student.

- What do you mean by natural things? Give examples.
- What do you mean by man-made things? Give examples.

**Activity Time**

Colour the circle blue if it is a living thing and red if it is a non-living thing.

**Creative Work**

Draw a picture of a tree in the given box :

E. Answer the following questions :

- From what does a plant prepare its food?
- Why is leaf called a sugar factory?
- How do seeds get dispersed?
- How does a flower help a plant?
- Why does green grass turn yellow when covered with a board?

F. Name two of the following which store food and which are eaten :

- Roots : a. \_\_\_\_\_ b. \_\_\_\_\_
- Stems : a. \_\_\_\_\_ b. \_\_\_\_\_
- Leaves : a. \_\_\_\_\_ b. \_\_\_\_\_
- Fruits : a. \_\_\_\_\_ b. \_\_\_\_\_

**Creative Work**

Add a drop of iodine solution to the following. Tick (✓) the ones that turn blue-black :

Label the diagrams with the given words :  
vein, sunlight, midrib, carbon-di-oxide, water, oxygen.

Some creative work to increase the creativity of the student.

## CREATIVE WORK



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