PARAGON CONVENT SCHOOL

SECTOR : 24 B, CHANDIGARH

LESSON - 8

GETTING TO KNOW PLANTS

Summary:

- Trees are big plants with thick, brown stem from which the branches and leaves grow.
- Shrubs are smaller plants with woody stems and branches near the base.
- Herbs are small plants with green stems.
- Creepers are plants with weak stems. They cannot stand erect and spread on the ground.
- Climbers are the plants with weak stems that climb on to the other plants.
- The part of the plant that grows under the soil is called the root system. Tap roots and fibrous roots are the two types of roots.
- Roots spread into the soil and keep the plant erect. They absorb water and nutrients from the soil.
- The part of the plant above the soil is called the shoot system. It contains the stem, branches, flowers and fruits.
- The stem keeps the plant upright and connects all the parts of a plant to the roots. It transports water and minerals from roots to different parts of plants. It also transports food from the leaves to the different parts of the plant.
- Leaves are flat green structures with parallel or reticulate venation. Leaves make food by the process of photosynthesis. They also exchange gases and water vapour with the air through stomata.
- Flowers are the colourful parts of the plant. The male part is called the stamen and bears pollen grains at its tip. The female part is called the pistil and

contains the ovary. When pollination takes place, the ovary changes into fruit and the ovules change into seeds.

Multiple Choice Questions (Page No. 92)

1. (d) 2. (c) 3. (a) 4. (b) 5. (b)

Multiple Choice Questions (Page No. 96)

1. (a) 2. (b) 3. (c) 4. (a) 5. (d)

SECTION A

Oral questions.

Q1.- Why are leaves known as 'kitchen of the plant'?

Ans.- As green leaves prepare food for plant, they are called food factories or kitchen of the plant.

Q2.- How does exchange of gases take place in plants?

Ans.- In plants, exchange of gases takes place through the stomata.

Q3.- What are the main functions of leaves?

Ans.- The main functions of leaves are manufacturing of food, exchange of gases and transpiration.

Science quiz.

Q1.- Name two plants with leaves that are modified into spines.

Ans.- Cactus / prickly pear / date palm.

Q2.- Name two plants that have tap root.

Ans.- Mustard / pea / carrot / radish / mango / neem.

WORKSHEET

Tick (√) the correct options.

1. (c) 2. (a) 3. (c) 4. (b) 5. (a)

Circle the odd ones. Give reasons for your choice.

1. Mango Peepal Gulmohar Lemon

Ans.- Lemon → It is a shrub, whereas others are trees.

2. Stigma Style Filament Ovary

Ans.- Filament → It is a part of stamen, whereas others are the parts of a pistil.

3. Sepal Anther Flower Pistil

Ans.- Flowers → All others are parts of flower.

SECTION B

Multiple Choice Questions

1. (b) 2. (b) 3. (c)

Very Short Answer Questions.

Q1.- What is the male reproductive part of a flower called?

Ans.- Stamen

Q2.- Name two plants that have reticulate venation.

Ans.- Peepal and mango / china rose / mustard / cabbage / lemon / neem.

Q3.- What is the function of stem in potato plant?

Ans.- The stem of a potato plant that is present above the ground, makes food by photosynthesis. The underground stem that is fleshy, stores food and is edible.

Q4.- What is the difference between node and internode?

Ans.- The part of a stem where a leaf arises is called node and the region of the stem between the two adjacent nodes is called internode.

Q5.- What happens when pollen grains fall on the stigma - fetilisation or pollination?

Ans.- When pollen grains fall on the stigma, they germinate and move down through the tube called style and reach the ovary. Inside the ovary, the male sex cells present in the pollen grains fuse with the female sex cells present in ovules. This is called fertilisation.

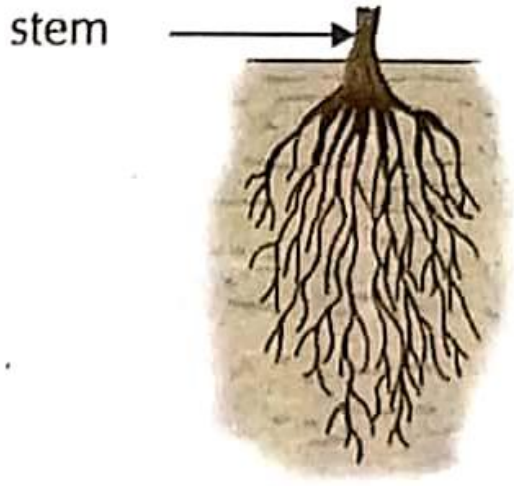
Short Answer Questions.

Q1.- What is venation? Name two plants that have parallel venation.

Ans.- The arrangement of veins on leaf blade or lamina is called venation. The leaves of banana, palm, bamboo and sugar cane have parallel venation.

Q2.- What are fibrous roots? Draw a sketch of fibrous roots.

Ans.- In some plants, a bunch of thin, fibre-like roots arise from the base of the stem. These are called fibrous roots. E.g., onion, rice, grass, maize and wheat are plants that have fibrous roots.



STRUCTURE OF FIBROUS ROOT

Q3.- What happens to the ovule and the ovary after fertilisation?

Ans.- After fertilisation, the ovules grow and become seed. The ovary of a flower grows and becomes fruit. The fruit protects the seeds.

Q4.- Shalini sees an uprooted pea plant. She saw some swellings on the roots called root nodules.

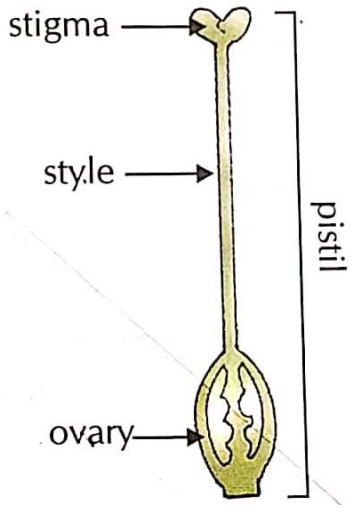
a) What do these root nodules contain?

b) What does the relation between the roots of leguminous plants and bacteria teach us?

Ans.- (a) These root nodules contain a nitrogen-fixing bacteria called Rhizobium.
(b) The relationship between the roots and bacteria teach us to help each other to survive and live in harmony in the society.

Q5.- What is pistil? Draw its labelled diagram.

Ans.- A pistil is a flask-shaped organ present at the centre of a flower. The pistil is the female reproductive part of the flower. Each pistil consists of stigma, style and ovary.



STRUCTURE OF PISTIL

Q6.- Classify the following plants into herbs, shrubs and trees - sunflower, china rose, lemon, tomato, mango, gulmohar, rose plant, mustard.

Ans.- Herbs - sunflower, tomato, mustard.

Shrubs - China rose, lemon, rose plant.

Trees - gulmohar, mango.

Q7.- How can you say that ginger is a modified stem?

Ans.- Ginger is a stem because like stems it also has nodes, internodes, buds and scaly leaves. It is thick and fleshy because it is modified to store food.

Long Answer Questions.

Q1.- Write an activity to show that roots absorb water for the plant.

Ans.- To show that roots absorb water and minerals from the soil.

Things needed: Two pots, two weed plants, khurpi, some water, soil, a pair of scissors.

Method: Take two pots (A and B) and fill them with soil. Select two weed plants from an open ground. With the help of a khurpi, dig these plants without breaking their roots. Plant one plant in pot A. With the help of scissors, cut off the roots of the other plant and plant it in pot B. Provide water to both the pots regularly and observe the plants after a week.

Observation: The plant in pot A remains healthy, while the plant in pot B wilts and eventually, dries.

Result: This activity shows that roots are essential for the absorption of water and minerals from the soil. After a week, Pot A plant with roots remains healthy whereas After a week, Pot B plant without root wilts Roots absorb water for the plant.

Q2.- What are the advantages of transpiration in plants?

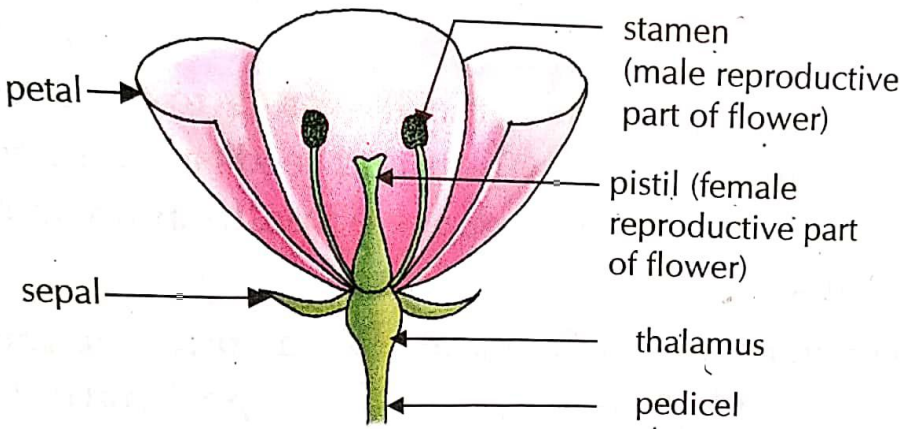
Ans.- The advantages of transpiration are as follows:

(i) It helps in cooling the plant body just as loss of water during sweating helps us to keep cool.

(ii) When leaves lose water during transpiration, more water and minerals are pulled upwards from the roots to make up for the lost water. Thus, transpiration helps in the conduction of water and minerals in the plant.

Q3.- Describe the structure of flower with a well-labelled diagram.

Ans.- Flowers are the most beautiful part of a plant. Different plants have different types of flowers. The flower is attached to the stem by a stalk called pedicel. The uppermost part of the stalk is somewhat swollen.



STRUCTURE OF FLOWER

The main parts of a flower are sepals, petals, stamens and pistil.

Sepals – The green, leaf - like parts in the outermost circle of a flower are called sepals. They protect the flower during the bud stage.

Petals - These are usually brightly coloured due to the presence of coloured pigments. The brightly - coloured petals serve to attract insects which help in pollination.

Stamens - They are found just inside the petals. The stamen is the male reproductive part of a flower. Each stamen consists of a thin stalk called filament and a two-lobed head called the anther. Each anther lobe has two pollen sacs that are filled with pollen grains. Pollen grains are yellow fine dust-like particles which contain the male sex cells of the flowering plant.

Pistil – At the centre of the flower, there is a flask-shaped organ called pistil. The pistil is the female reproductive part of a flower. Each pistil consists of stigma, style and ovary.

Q4.- What is the difference between the tap root and the fibrous root? Explain the relationship between types of roots and leaf venation.

Ans.- Tap root is a single straight root which grows vertically down into the soil and gives out many branches on all the sides. Tap root is the main root and the smaller side roots are called lateral roots. E.g., mango, neem, carrot and radish.

The fibrous roots consist of many thin, fibre-like roots of same size. The fibrous roots spread out in the soil and give a firm support to the plant. E.g., grass and wheat.

The leaf venation and the types of root system in a plant are related. Plants with reticulate venation in their leaves have tap roots whereas those with parallel venation have fibrous roots. E.g., sugarcane and banana leaves.