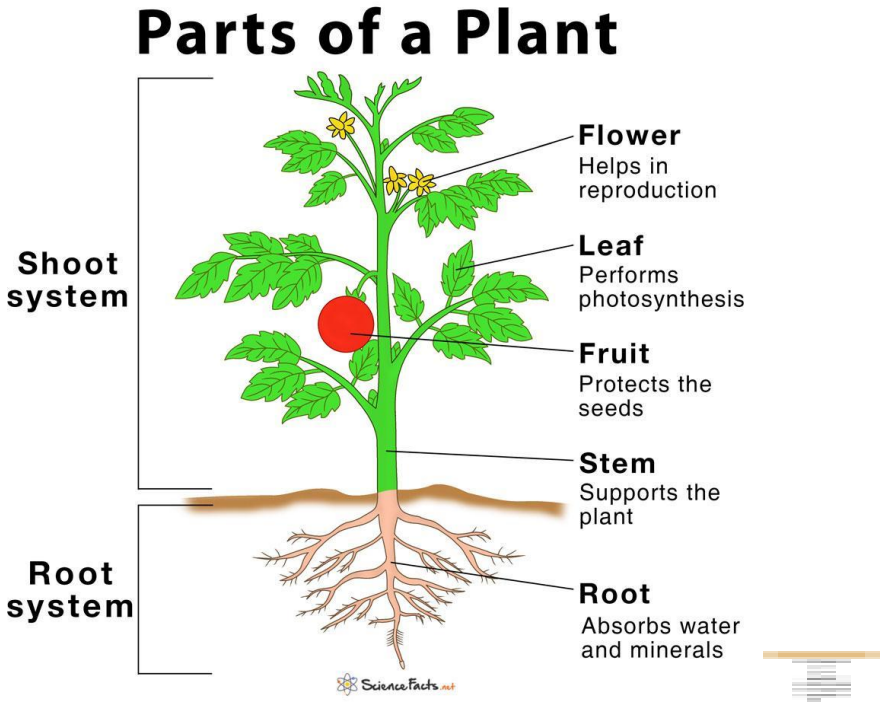
Ayesha Ali Academy Kanipora Kulgam

Class:- 4th **Subject:- Science**

Study material cum winter assignment

Chapter 1

Green plants- The Food producers



Structure and function of a leaf

The main function of a leaf is to produce food for the plant by photosynthesis. Chlorophyll, the substance that gives plants their characteristic green colour, absorbs light energy.

The internal structure of the leaf is protected by the leaf epidermis, which is continuous with the stem epidermis.

Some amazingly different plants

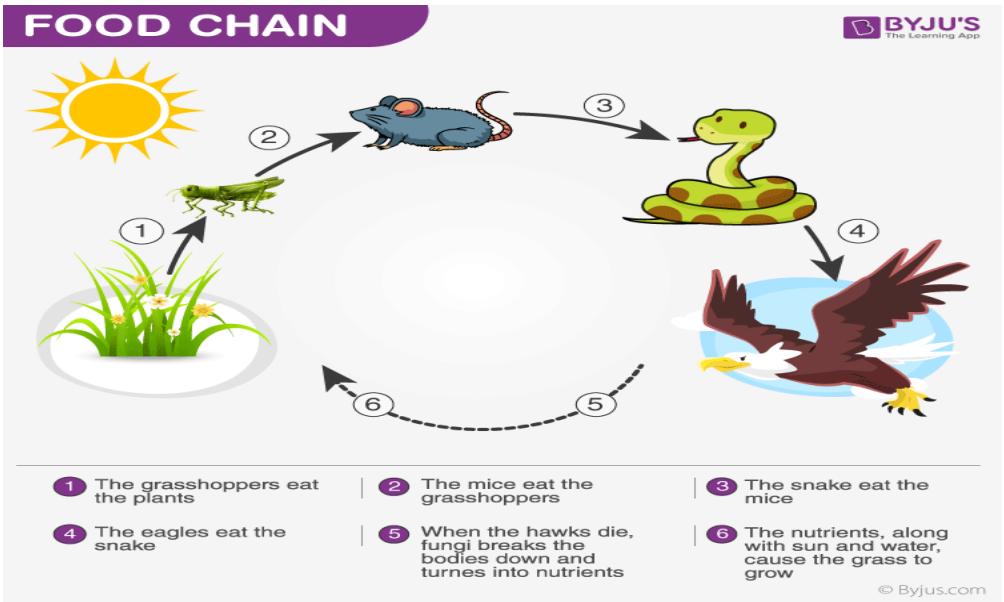
White Baneberry

Cactus

Money plant

Mushroom

Flow of energy



Textual questions

A) Answer the following questions

1. What is chlorophyll?

Ans:- It is the green pigment present in the leaves of green plants which help the plants in making their food.

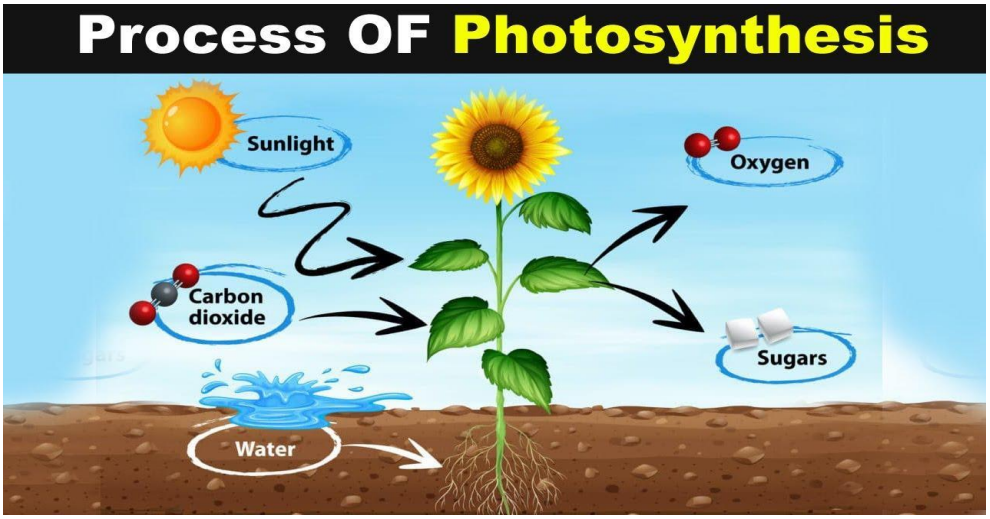
2. What are the functions performed by the leaf?

Ans:- Following are the functions of the leaf:

a) It prepares food for plants by the process of photosynthesis.
b) It helps the plants to breathe through stomata.
c) Some leaves store food for the plant.
d) It also helps in transpiration:- that is the loss of water.

3. Explain the process of photosynthesis with the help of a diagram.

Ans:-The process of making food by plants using sunlight, water, and carbon dioxide in the presence of chlorophyll is known as photosynthesis. Carbon dioxide is taken in by the plants through stomata from air, water is absorbed from the soil through roots, and sunlight is trapped by chlorophyll. All these are used by leaves to prepare food.



4. **What happens to the food prepared by leaf?**
   Ans:- The food prepared by leaf is transported throughout the plant by stem and branches. Some amount of the prepared food is used to carry out metabolic activities of the plants while the rest of the food is stored in fruit, stem or roots.
5. **Write what happens in the following cases?**
   a) **If you put a few drops of iodine solution on a potato slice.**
      Ans:- It will turn into Blue-black colour which shows the presence of starch.
   b) **If you put a few drops of iodine solution on a fresh green leaf which has been bleached.**
      Ans:- It will not turn blue-black, which shows that starch was not present in the leaf.
6. **Give examples of the plants.**
   a) **Having variegated leaves**
      Ans:- Money plant and Croton
   b) **Lacking chlorophyll.**
      Ans:- Mushroom and Cuscuta.
7. **Write short on how plants and animals depend on each other.**
   Ans:- Plants and animals depend upon each other as mutual interdependence is must for their survival. As animals provide carbon dioxide to them and in turn Plants provide shelter for animals and they make oxygen for the animals to live.

B) **State whether the following statements are true or false.**
   1. The green colour of leaves is due to the presence of stomata: **false**
   2. The food prepared by the plants is called starch**: true**
   3. Stomata helps in breathing: **true**
   4. A yellow leaf turns blue-black when a few drops of iodine solution are put on it: **false**
   5. Oxygen is also given out by plants during photosynthesis: **true**

C) **Tick the correct answer.**
   1. **Which of these traps the sunlight.**
      a) Stomata b) **chlorophyll** c) both of these
   2. **Which of these cannot prepare food and obtain it from dead and decaying plants and animals?**
      a) **Mould** b) Cactus c) croton.

3. **A green leaf turns blue-black when a few drops of iodine solution are put on it showing the presence of.**
   a) Sugar b)chlorophyll **c) starch**
4. **Which of these is known as the food factory of a plant?**
   a) Root b) stem **c) Leaf**
5. Which of these plants have variegated leaves.
   a) **Croton** b) mushroom c) cactus

Worksheet- 1

1. Fill in the blanks.
   a. _____ are called the food factory of a plant.
   b. Chlorophyll traps _____ .
   c. The extra food of plants are stored as _____ .
   d. _____ are the smaller tubes that are attached to the midrib of a leaf.
2. Give answer in one word.
   a. A non-green plant that feeds on dead and decaying plants and animals for food. _____
   b. Tiny opening in the leaf for performing exchange of gases in plants. _____
   c. A substance which is responsible for the green colour of leaves. _____

3. Define.
   a. Photosynthesis
   b. Midrib
   c. Insectivorous plants

Chapter 2. Adaptation for survival in plants.

All plants have to adjust themselves to their surroundings to live and reproduce. This process of adjustment in a particular environment is called adaptation.
Plants are classified into TERRESTRIAL PLANTS (that grow on land) & AQUATIC PLANTS (that grow in water).
Plants are used as food,as cloth material, as furniture, medicinal plants. Plants provide rubber, oil, gums, resins etc.
Aquatic plants are of three types-Floating plants, Fixed plants and Submerged plants.
Some trees have leaves all through the year, such trees are called evergreen trees.
The fungus which grows on bread is also a plant. It is commonly known as bread mould. It is not a photosynthetic plant.
The algae which covers the unclean surface is also a plant. It is green in colour and can perform photosynthesis.

Habitat: the region where a living organism lives or grows naturally is called habitat. There are many types of habitats like terrestrial, aquatic, Epiphytic, deserts and Marshy Regions.
Terrestrial plants: those plants which survive on land. E.g, mango tree, neem tree, apple tree, rose plant etc.
Aquatic Plants are those plants which live and survive in water. Eg lotus, water lily etc.
Epiphytic plants which grow on other plants or trees are called Epiphytic plants.
Floating plants
Free Floating - These plants float freely on the water surface. ... The entire plant is suspended on the water, allowing the plant to be moved around the pond by wind and water currents. Plants such as duckweed, mosquito fern and water hyacinth are free floating.
Plants in marshes are called mangroves. Roots do not get air to breathe,hence grow out of soil & water. These roots are called breathing roots Eg: cariops.
Plants in plains
Deciduous trees bear the heat of summer and provide us shade.
Shed their leaves in winter. Eg:-peepal,banyan,mango, gulmohar,sheesham.
Insectivorous plants
They are found in the nitrogen deficient soil. That is why they trap and digest insects to absorb nutrients. Venus flytrap, pitcher plant and cobra lily are some of the insectivorous plants' names. They are often called Carnivorous plants.
Textual questions
Sections A

1. **What are adaptations?**
   Ans: the special; features that allow organisms to live in a particular area are known as adaptations.
2. **Name two categories into which plants have been divided on the basis of their habitat.**
   Ans:- There are two types of habitats- terrestrial and aquatic. Terrestrial habitats are ones that are found on land, like forests, grasslands, deserts, shorelines, and wetlands. An aquatic habitat is a habitat with water. It includes areas that are permanently

covered by water and surrounding areas that are occasionally covered by water. Estuaries, rivers, and marshes are examples of aquatic habitats.

3. **Give adaptations and examples of plants growing in**
   a) **Hills**
   b) **Deserts**
   c) **Marshy**

   Ans: a) **Hills:** The adaptation that helps "plants in hilly areas" to face "high speed winds" and "cold" is the conical shape and needle shaped leaves. The conical shape of the trees in hilly areas, helps the plant to survive, by sliding off and getting rid of the snow or ice that falls on the trees.

   b) **Deserts**: The **leaves** and stems of many desert plants have a thick, waxy covering. This waxy substance does not cover the **stomata**, but it covers most of the **leaves**, keeping the plants cooler and reducing evaporative loss. Small **leaves** on desert plants also help reduce moisture loss during transpiration.
   c) **Marshy:** Wetland plants are plants that have developed special adaptations that allow them to live in the water.

4. **How is water lettuce adapted to grow in water?**
   Ans:- Tiny hairs on the roots and leaves enable the water lettuce to float, making sure that it does not drown in its watery environment. Its leaves are waxy, which makes water run off more easily.
5. **What are underwater plants? How are they adapted to grow under water?**
   Ans:- Those plants which are completely submerged in water are called underwater plants.
   Aquatic plants require special adaptations for living submerged in water, or at the water's surface. The most common adaptation is the presence of lightweight internal packing cells, aerenchyma, but floating leaves and finely dissected leaves are also common.
6. **Name some plants that don't contain chlorophyll.**
   Ans:- Mushrooms, molds and beech-drops are non- green plants.
7. **How is the leaf of a pitcher plant modified to capture insects?**
   Ans:- In a pitcher plant, leaves are modified in a container or pitcher like structure with a lid. When an insect lands on the edge of the pitcher, the lid closes, trapping the insect inside.

<u>Sections A</u>

Fill in the blanks

1. Plants that grow on land are known as ***terrestrial*** plants.
2. A plant adapts itself according to the climatic conditions of its ***habitat.***
3. The trees growing in ***plain land*** have many branches.
4. Floating plants are ***light and hollow*** to facilitate floating.

5. In a ***pitcher plant***, the leaf is modified into a pitcher-like structure.

Sections C

Tick the correct answer.

1. **Which of these is an example of underwater plants?**
   a) Lotus b) **Water hyacinth**) cactus
2. **Which of these plants absorbs food from other sources?**
   a) **Mould** b) Water Lettuce c) cactus
3. **Which of these trees has leaves that are waxy and needle-like?**
   a) **Coconut** b) Neem c) Cedar
4. **Which of these plants have long, hollow, light and flexible stems?**
   a) Underwater plants b) Fixed plants c) **Floating Plants.**

ADAPTATION IN PLANTS

Worksheet-1

Answer the following questions:-

Q1.**Give five uses of plants.**
Ans-The five uses of plants are:-

A. Plants give us fruits, vegetables, oils, sugar, cereals, pulses, nuts, tea, coffee etc.
B. Plants give us cloth material like cotton, jute, flax.
C. Trunks of Sheesham, Teak, Sal etc. give us wood for making furniture, doors etc.
D. Many plants like Eucalyptus, Tulsi, Neem etc. are used as medicinal plants.
E. Plants give us rubber, oils, gums, resins etc.

Q2.**Differentiate between fixed plants and underwater plants.**
Ans-FIXED PLANTS-
a. These plants have roots which fix them to the bottom of the pond.
b. Leaves of these plants are broad and flat with a waxy protective cover.
c. Example: Water lily, Lotus

UNDERWATER PLANTS-
a.These plants grow completely underwater.
b.Their leaves are long and tapered.
c. Example: Hydrilla, Tape grass

Q3.**What are floating plants? Give two examples.**
Ans-Floating plants have spongy bodies which trap air in between such plants, thus become light and hence float on water.
Examples:- Water Hyacinth, Green Algae

Q4.**What are breathing roots?**
Ans-Swampy and marshy areas have sticky and clayey soil. This type of soil does not have air spaces in between. As a result, it becomes very difficult for the plants to grow here. Hence, the roots of the trees growing in such areas, grow above the ground. These roots are

known as breathing roots. Example:- Mangrove tree.

Q5.**What are saprophytic plants?**
Ans-Non-green plants like mushroom and mould cannot prepare their own food and depend upon other plants and dead decaying matter for food. Such plants are known as saprophytic plants.

Q6.**What are deciduous trees?**
Ans-Trees which shed their leaves periodically are called deciduous trees. Example:- Neem, Banyan

Q7.**Give the features of coniferous trees With examples.**
Ans-The features of coniferous trees are as follows:-

A. They grow in cold hilly areas like Shimla, Darjeeling Etc.
B. These trees have needle-like leaves and bear cones instead of flowers.
C. Some examples of coniferous trees are pine, fir, cedar etc.