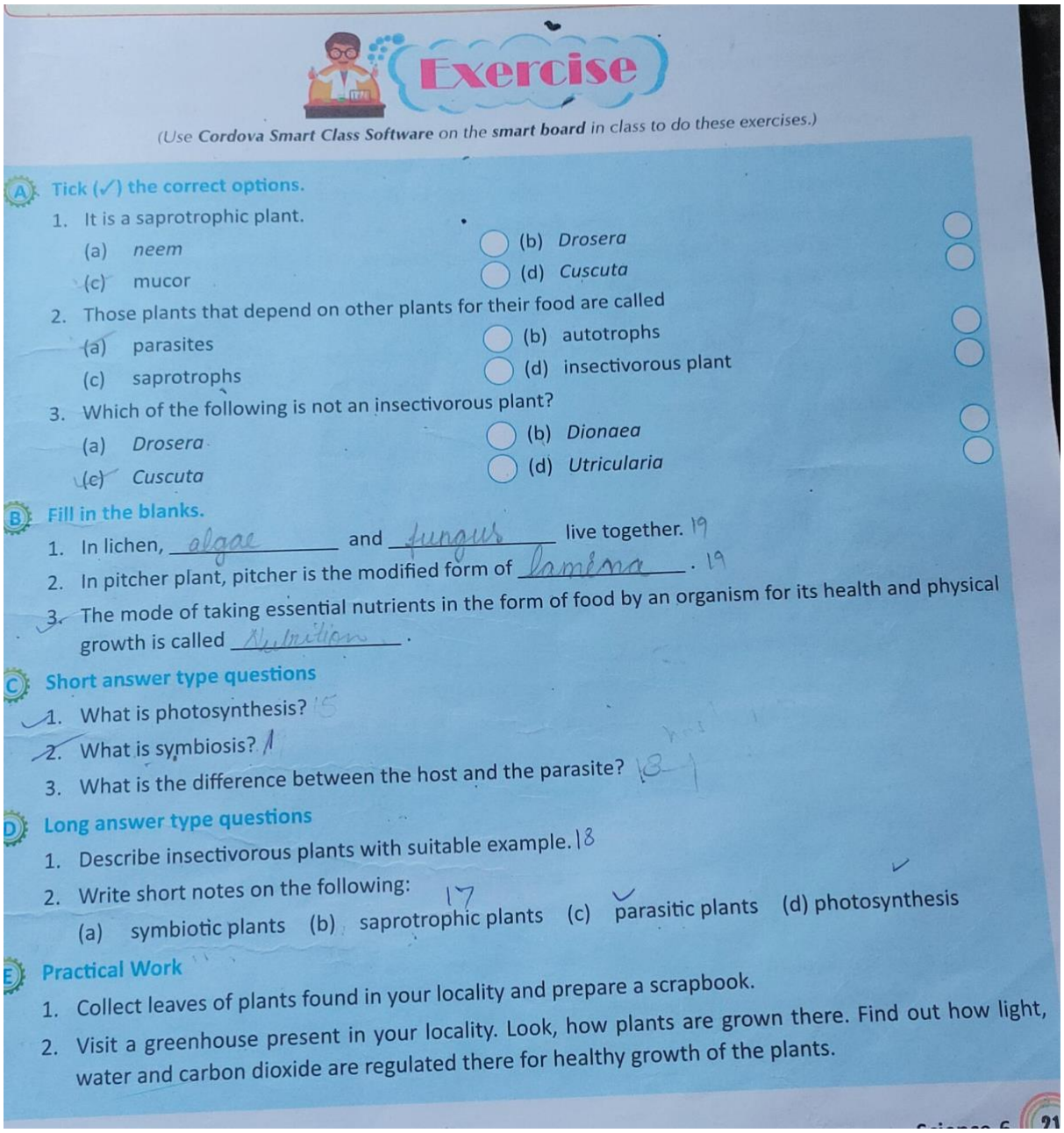
Subject – Science Class- 6 Topic – chapter-2



Exercise

(Use **Cordova Smart Class Software** on the **smart board** in class to do these exercises.)

A Tick (✓) the correct options.

1. It is a saprotrophic plant.
   (a) *neem* (b) *Drosera*
   (c) mucor (d) *Cuscuta*
2. Those plants that depend on other plants for their food are called
   (a) parasites (b) autotrophs
   (c) saprotrophs (d) insectivorous plant
3. Which of the following is not an insectivorous plant?
   (a) *Drosera* (b) *Dionaea*
   (c) *Cuscuta* (d) *Utricularia*

B Fill in the blanks.

1. In lichen, algae and fungus live together.
2. In pitcher plant, pitcher is the modified form of lamina.
3. The mode of taking essential nutrients in the form of food by an organism for its health and physical growth is called Nutrition.

C Short answer type questions

1. What is photosynthesis?
2. What is symbiosis?
3. What is the difference between the host and the parasite?

D Long answer type questions

1. Describe insectivorous plants with suitable example.
2. Write short notes on the following:
   (a) symbiotic plants (b) saprotrophic plants (c) parasitic plants (d) photosynthesis

E Practical Work

1. Collect leaves of plants found in your locality and prepare a scrapbook.
2. Visit a greenhouse present in your locality. Look, how plants are grown there. Find out how light, water and carbon dioxide are regulated there for healthy growth of the plants.

ADDITIONAL QUESTIONS FOR PRACTICE

A **Tick (✓) the correct options.**

1. Which of the following is not an example of primary macronutrients?
   (a) phosphorus (b) potassium (c) sulphur (d) nitrogen
2. Which of the following is not an example of secondary macronutrients?
   (a) calcium (b) magnesium (c) sulphur (d) nitrogen
3. Chlorophyll is present in
   (a) stoma (b) mitochondria (c) chloroplast (d) chromoplast
4. Which of the following gases is released during photosynthesis?
   (a) carbon dioxide (b) nitrogen
   (c) oxygen (d) chlorine
5. The food prepared by plants is stored in the form of
   (a) glucose (b) minerals (c) starch (d) none of these
6. Starch gives blue-black colour with
   (a) alcohol (b) water (c) iodine (d) sunlight
7. _____ are the sources of food to all living organisms.
   (a) Plants (b) Green plants (c) Animals (d) Bacteria

B **Match the following.**

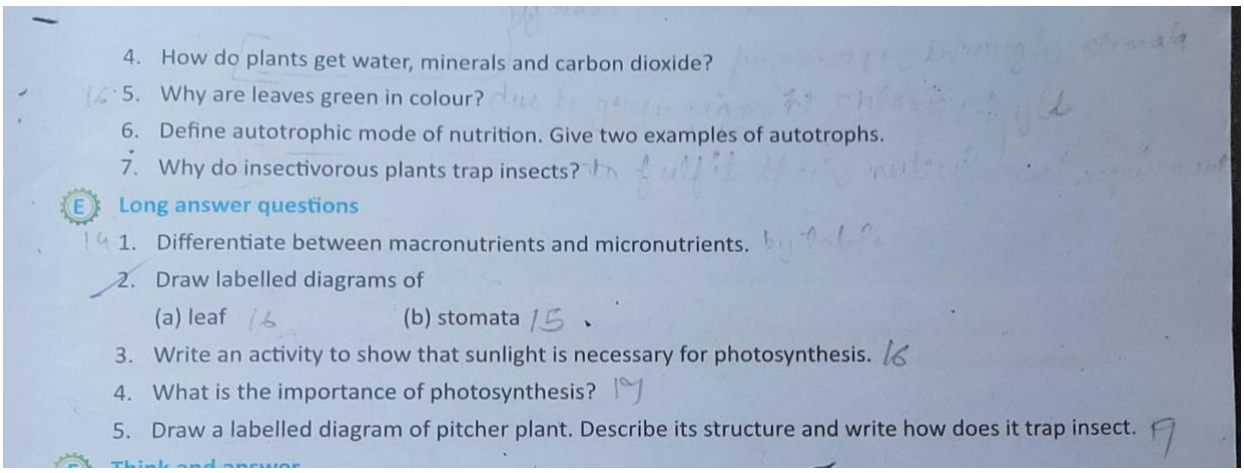
Column A	Column B
1. Insectivorous plant	(a) Indian pipe
2. Symbiosis	(b) *Cuscuta*
3. Parasite	(c) pitcher plant
4. Saprophyte	(d) lichen

C **Fill in the blanks.**

1. Plants need different types of _____ to grow and develop.
2. _____ and some bacteria are autotrophs.
3. The food prepared by the green leaves of a plant is in the form of a simple sugar called _____.
4. Stomata are tiny pores surrounded by _____ cells.
5. _____ cells control the opening and closing of stomata.
6. _____ traps sunlight energy.
7. Sandalwood tree is a partial _____.

D **Short answer questions**

1. What are nutrients?
2. From where do plants get nutrients?
3. (a) Why do we boil the leaf in alcohol during starch test?
   (b) Which chemical is used to detect the presence of starch in leaves?



4. How do plants get water, minerals and carbon dioxide?
5. Why are leaves green in colour?
6. Define autotrophic mode of nutrition. Give two examples of autotrophs.
7. Why do insectivorous plants trap insects?

E Long answer questions

1. Differentiate between macronutrients and micronutrients.
2. Draw labelled diagrams of
   (a) leaf (b) stomata
3. Write an activity to show that sunlight is necessary for photosynthesis.
4. What is the importance of photosynthesis?
5. Draw a labelled diagram of pitcher plant. Describe its structure and write how does it trap insect.

Answer key:-

Chapter 2: Nutrition In Plants

Multiple Choice Questions **Page No. 17**

1. (c) 2. (a) 3. (a)

Multiple Choice Questions **Page No. 20**

1. (d) 2. (a) 3. (b)

EXERCISE

A. Tick (✓) the correct options.

1. (c) 2. (a) 3. (c)

B. Fill in the blanks.

1. algae, fungi 2. leaf 3. nutrition

C. Short answer type questions

1. The process by which green plants make their own food (glucose) from carbon dioxide and water in the presence of sunlight and chlorophyll is called photosynthesis.
2. The mutual association in which two different types of organisms live and work together for their mutual benefit from each other is called symbiosis.
3.

Host	Parasite
The organism from whose body the food is obtained is called the host.	The organism that obtains the ready-made food is called a parasite.

D. Long answer type questions

1. A few plants feed on insects for fulfilling their nutritional requirements. Such insect-eating plants are called insectivorous plants. For example, the pitcher plant feeds on insects to fulfil its nitrogen requirement. When an insect sits on the rim of the pitcher, the lid closes immediately. The insect is digested by the digestive juices secreted in the pitcher.

2. (a) **Symbiotic plants:** The mutual association in which two different types of organisms live and work together for their mutual benefit from each other is called symbiosis. Lichens show symbiotic relationship. *Rhizobium* bacteria and leguminous plants show symbiosis or symbiotic relationship. Most of the pulses (*dals*) are leguminous plants. They have nodules in their roots. *Rhizobium* bacteria cannot make their own food. They take atmospheric nitrogen and convert it into a soluble form. Plants cannot directly use atmospheric nitrogen. They need nitrogen in a soluble form. So, *Rhizobium* bacteria live in the nodules of the roots of leguminous plants like gram, peas and *moong*, and provide them nitrogen. In return, the plants provide food and shelter to the *Rhizobium* bacteria. So, both organisms benefit each other and show a symbiotic relationship.

   (b) **Saprotrophic plants:** The organisms that use saprotrophic mode of nutrition are called saprotrophs. Indian pipe, coral root, fungi (like moulds, mushrooms and yeast) and bacteria are examples of saprotrophs. Saprotrophs obtain their nutrients from dead and decaying organic matter of plants and animals. The roots of saprophytes contain organisms called fungi. The fungi secrete digestive juices on the dead and decaying matter and convert it into a liquid that is used as a nutrient by non-green plants.

   (c) **Parasitic plants:** The mode of nutrition in which some plants live in or on the body of other living organisms and get their ready-made food from them is called parasitic nutrition. The plant (like Cuscuta) that obtains the ready-made food is called a parasite and the organism from whose body the food is obtained is called the host. Parasites may be total or partial. Cuscuta is a total parasite. Sandalwood tree is a partial parasite. It has green leaves and prepares its own food. The roots of the tree make contact with the roots of the other nearby plants. They absorb water and minerals from them.

(d) **Photosynthesis:** The process by which green plants make their own food (glucose) from carbon dioxide and water in the presence of sunlight and chlorophyll is called photosynthesis. The materials required by plants for photosynthesis are water and minerals, carbon dioxide, chlorophyll and sunlight.

$$\text{Carbon dioxide } \textit{(from air)} + \text{Water } \textit{(from soil)} \xrightarrow[\text{Chlorophyll (in green leaves)}]{\textit{Sunlight (from the Sun)}} \text{Glucose } \textit{(food)} + \text{Oxygen } \textit{(to air)}$$

E. Practical Work

1. Teacher/Parents may help the students to perform this practical work.
2. Regulation of light in greenhouse: Greenhouse is painted with light reflecting paints.

   Regulation of water in greenhouse: Capillary mats are used which ooze water slowly. Drip system is also used.

   Regulation of carbon dioxide in greenhouse: Horizontal fans allow to peak photosynthesis action as proper ventilation increases the carbon dioxide levels.

ADDITIONAL QUESTIONS FOR PRACTICE

A. Tick (✓) the correct options.

1. (c) 2. (d) 3. (c) 4. (c)
5. (c) 6. (c) 7. (b)

B. Match the following.

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

C. Fill in the blanks.

1. nutrients 2. Green plants

C. Fill in the blanks.

1. nutrients
2. Green plants
3. glucose
4. guard
5. Guard
6. Chlorophyll
7. parasite

D. Short answer questions

1. The substances present in food that are responsib energy, for growth, maintenance and repair of the boo protection from diseases are called nutrients.
2. Plants get nutrients mainly from soil. They get carbon in the form of carbon dioxide present in the air and oxygen in the form of water present in the environment.
3. (a) During starch test, we boil the leaf in alcohol to remove chlorophyll from it.
   (b) Iodine solution is used to detect the presence of starch in leaves.
4. Plants absorb water and minerals by the roots from the soil. They get carbon dioxide from the air that enters the leaves of the plant through stomata.
5. The leaves of a plant are green in colour because of the presence of chlorophyll in them. Chlorophyll is a green pigment present in the chloroplasts.
6. The mode of nutrition in which an organism makes its own food from simple substances like carbon dioxide, water and minerals present in the

surroundings with the help of sunlight is called autotrophic nutrition. All green plants and some bacteria are examples of autotrophs.

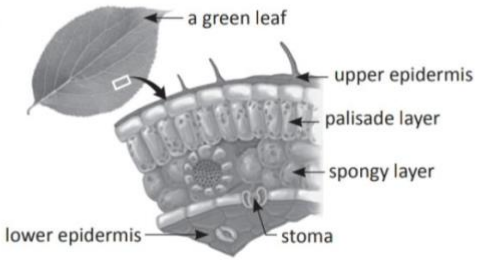
7. Insectivorous plants trap insects to fulfil their nutritional requirements.

E. Long answer questions

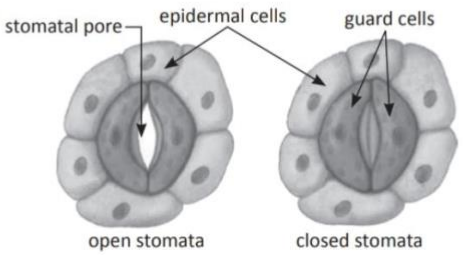
1.

Macronutrients	Micronutrients
The nutrients that are required by plants in larger amounts are called macronutrients.	The nutrients that are required by plants in very small amounts are called micronutrients.
Examples of macronutrients are carbon, hydrogen, oxygen and nitrogen.	Examples of micronutrients are zinc, copper, manganese and iron.

2. (a)



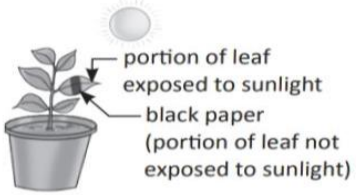
(b)



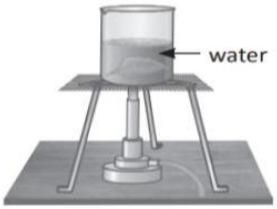
(ii) Cover one of its leaves partly with a strip of black paper. Put the plant in sunlight for a few hours [Fig. (ii)].

(iii) Pluck this covered leaf. Remove the black strip.

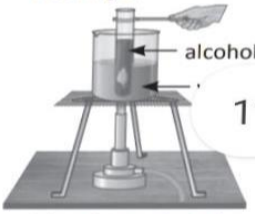
(i) The plant is kept in a dark room.



(ii) The plant is kept in sunlight.

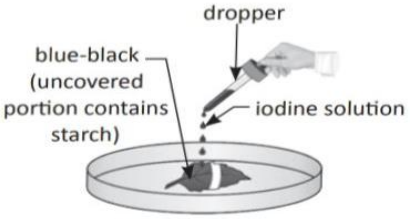


(iii) Boil it in water.



(iv) Boil it in alcohol.

(v) Wash leaf with tap water.



(vi) Add iodine solution.

(iv) To remove the chlorophyll from the leaf, first boil it in water and then in alcohol. In this way, we get a decolourised leaf. Wash the leaf with water again [Fig. (iii), (iv) and (v)].

(v) Add a few drops of iodine over the colourless leaf.

Observation: The part of the leaf covered with black paper does not turn blue-black, whereas the other part turns blue-black [(vi)].

Discussion: The covered part of the leaf did not get sunlight. Hence, there is no starch in that part.

Conclusion: Sunlight is necessary for photosynthesis.

4. Photosynthesis is important in the following ways:

(i) Photosynthesis enables the green plants to prepare their own food. In the absence of photosynthesis, there would be no plants.

(ii) Animals eat plants. These animals are food for the other animals. Thus, green plants are the source of food to all living organisms.

(iii) Oxygen is produced during photosynthesis. It is used by all living organisms for breathing.

(iv) During the process of photosynthesis, plants use carbon dioxide and give out oxygen. In this way, photosynthesis maintains a balance between oxygen and carbon dioxide in the atmosphere.

5. In a pitcher plant, the lamina forms a pitcher- shaped structure. The apex of the leaf forms the lid of the pitcher. It can open and close the mouth of the pitcher. The petiole manufactures the food. Inside the pitcher, there are hair that are directed downwards. The pitcher plant feeds on insects to fulfil its nitrogen requirement. When an insect sits on the rim of the pitcher, the lid closes

immediately. The insect is digested by the digestive juices secreted in the pitcher.

F. Think and answer

She will not get a positive starch test because plant does not get sunlight in the dark. As a result, photosynthesis will not take place and stored starch in the leaf would be used up by the plant for its food requirements.

Fun Time

1. Pitcher plant
2. Bread mould