

7th class

Science

Chapter -1

Section I

A. Select and tick the correct option :

Ans. 1. d 2. c 3. b 4. a

B. Fill in the blanks :

1. All green plants convert solar energy into chemical energy.
2. Autotrophs / plants are also known as producers.
3. Photosynthesis always occurs in the presence of sunlight.
4. A common plant parasite is Cucuta or dodder plant.
5. Insectivorous plants have developed special structures to catch insects.

C. Write true or false:

Ans. 1. true 2. true 3. false 4. false 5. true

Section II

A. Very short answer questions:

1. What is photosynthesis?

Photosynthesis is the process by which green plants prepare their food.

2. Why are algae green ?

Algae are green because they contain a green coloured pigment called chlorophyll.

3. What name is given to the relationship between an alga and fungus in lichen?

Symbiotic relationship.

4. Why do insectivorous plants catch insects?

Insectivorous plants catch insects to fulfil their requirement of nitrogen. This

is so because they grow in nitrogen deficient soil.

5. What is symbiosis?

Symbiosis is a kind of association of two organisms in which both are benefited.

B. Short answer questions:

1. How do green plants make food?

Green plants make food by the process of photosynthesis.

During this process, the green plants convert simple inorganic substances

like CO₂ and H₂O into glucose, in the presence of sunlight. Light energy

from sunlight is captured by the chlorophyll (green pigments)

present in green plants and transformed into chemical energy in their form

of food (starch).

2. Differentiate between autotrophs and heterotrophs. Organisms which make or synthesis their own food from simple raw materials are called autotrophs. As they can prepare their food from raw inorganic materials (carbon dioxide and water), they are also known as producers.

Organisms that are not capable of synthesizing their food, and are dependent on other organisms for their food requirement are called heterotrophs.

As these organisms depend on others for food (plants and animals) they are also called consumers.

3. What is special about leaves that they can synthesis food but other parts of a plant cannot?

Only leaves can synthesis food because they contain a green coloured

pigment called chlorophyll. Chlorophyll can convert solar energy into chemical energy in the form of starch (food).

4. Why do organisms need to take food? What are the two main modes of nutrition in organisms?

Organisms need to take food to provide nutrients to their body cells so that they can carry out activities to keep themselves active. Autotrophic nutrition and heterotrophic nutrition are two modes of nutrition in organisms.

5. What are plant parasites ?

Plant parasites are those plants which live on other living organisms and obtain their food from them. Cuscuta or dodder plant is a common plant parasite.

C. Long answer questions:

1. Explain the term nutrients and nutrition.

The process of intake of food and its proper utilisation in the body is termed

as nutrition. Living organisms broadly exhibit two modes of nutrition autotrophic (self nutrition) and heterotrophic (another nutrition).

Nutrients are the components of food such as carbohydrates, fats, proteins, vitamins and minerals.

2. How will you test a leaf for starch?

We can test a leaf for starch by the following activity.

Aim : To show that starch is produced during photosynthesis.

Materials required : Iodine, solution, ethyl alcohol, a green leaf, beakers,

water.

Procedure :

- Pluck a green leaf from a plant.
- Take some water in a beaker and boil the leaf in it for about 5 minutes.
- Now put the leaf in ethyl-alcohol for a minute. Chlorophyll being soluble in alcohol comes out of the leaf. The leaf becomes colourless.
- Wash the leaf thoroughly with water and dip the leaf in iodine solution.

Observation : The leaf turns blue-black.

Inference: The leaf contains starch which turns blue-black on reaction with iodine.

Starch is produced during photosynthesis

3. Explain symbiosis by giving some examples.

Symbiotic Plants : Plants which live in association with other plants and share shelter and nutrients are called symbiotic plants. This association between two different plants is called symbiotic association or relationship.

Both the plants benefit from symbiotic association.

Examples :

- Certain fungi live in the roots of trees. The tree provides nutrients to the fungus. In return, the fungus provides certain nutrients from the soil to the tree.
- In lichens also, symbiotic relationship is seen. There is an association between a green alga and

a non-green fungus. The fungus provides shelter,
water and minerals to the alga. The alga, in return,
provides food to the fungus. The alga, being green
, prepares food by photosynthesis.

4. How will you test that chlorophyll is necessary for photosynthesis?

This can be shown by the following activity:

Book page no . 10 **Activity -3**

5. How does a pitcher plant catch insects?

In a pitcher plant, the pitcher – like structure is a modified part of the leaf. The leaf tip is modified to form a lid which can open or close the mouth of the pitcher. Inside the pitcher, downward – pointing hairs are present. Once an insect enters the pitcher, the lid closes and

the insect gets trapped in the hair. Digestive juices secreted in the pitcher now digest the insect.