



DAV INTERNATIONAL SCHOOL, AHMEDABAD
SCIENCE
STANDARD VII
CHAPTER 1 (Nutrition in Living Organisms - Plants)

SOMETHING TO KNOW

A. Fill in the blanks:

1. Animals are heterotrophs as they cannot synthesised their own food.
2. The root of a plant, absorb water and minerals from the soil.
3. During photosynthesis plants takes in carbon dioxide and releases oxygen.
4. Stomata are tiny pores through which leaves exchanges gases.
5. Insect eating plants are called insectivorous plants.
6. An essential raw material needed for the process of photosynthesis, and
 - (a) Available in the soil is water and minerals
 - (b) Available in the air is carbon di oxide

B. Match the following:

1. Chlorophyll	a. Autotrophs	1-d
2. Lichens	b. Saprotrophs	2-c
3. Fungi	c. Symbiotic relationship	3-b
4. Amarbel	d. Leaf	4-e
5. Plants	e. Parasite	5-a

C. Tick the correct option:

1. Green plants, that can synthesise their own food, are known as-
autotrophs
2. The food factory, of the plant, is its-
leaf
3. Which of the following is an insectivorous plants?
pitcher plant
4. Mushroom is an example of a/an-
saprotroph
5. An organisms that fixes nitrogen in the soil, is-
Rhizobium

D. Answer the following questions in brief:

1. Why is nutrition important for a living organism?

Ans. The process of **obtaining** and **utilizing** food by an organism is known as nutrition. The nutrients of food enable living organisms to **build their bodies, to grow, to repair damaged parts** of their bodies and provide energy to carry out life processes. Therefore nutrition is very important to living organisms.

Code: Body builders remembered how to grow and repair, but forgot how to obtain and utilize food.

2. How do green plants synthesize their food?

Ans. Green plants make their own food from simple raw materials. This mode of nutrition is known as Autotrophic Nutrition.

Code: Autotrophic likes simple and raw food.

3. State the role of vessels present in a plant.

Ans. Vessels are tubes that run throughout the roots, stem, branches and leaves. Water and minerals are absorbed by roots from soil. They are transported to the other parts of the plant by vessels.

Code: tell the vessels to transport water and minerals by tubes.

4. Define the following terms:

- a) Symbiotic relationship
- b) Nutrients
- c) Saprophytic mode of nutrition
- d) Photosynthesis

Ans.

a) **Symbiotic Relationship:** sometimes two organisms live in a close association and develop relationship that is beneficial to both. This is called symbiotic relationship. Some algae and fungi live in the roots of trees. They receive shelter and nutrition from the tree; in return, they help the trees to absorb water and minerals more efficiently.

Code: Alga ne fungus se kaha, chalo close association se benefit ke liye shelter and nutrition ki baat karte hain.

b) **Nutrients:** Carbohydrates, proteins, fats, vitamins and minerals are all important components of our food. These components of food are necessary for our body and are called nutrients.

Code- Shaktiman ne kya khaya? CPM FV

c) **Saprophytic mode of nutrition:** Saprophytic nutrition is the process which the organisms feed on dead and decaying matter. The food gets digested outside the cells, or sometimes, even outside the body of the organism. Example: Rhizopus.

Code: Mr. Saprophytic threw all the dead and decaying matters out of his house.

d) **Photosynthesis:** Plants utilize the energy of sunlight to synthesize their food using carbon dioxide, water and minerals in their leaves. This process is called Photosynthesis.

Code: Sunlight, carbon dioxide, water and minerals learnt together to do photosynthesis.

5. When some wheat dough was left in the open for a few days, it started emitting a foul smell. State why?

Ans. If wheat dough is kept open for a few days, **fungus spores** settle on it. The fungus spores develop into fungus, a kind of **saprotrophic** organism. These fungus carry out saprotrophic nutrition because of which **foul smell** is emitted.

Code: **Fungus spores did not like the foul smell coming from saprotrophic nutrition.**

E. Answer the following questions:

1. Why would life not be possible on the earth in the absence of photosynthesis?

Ans. **Photosynthesis** is a unique process. This process supplies **food**, directly or indirectly, to all living organisms. The energy of sun, thus, gets passed to all organisms through **plants**. Both **herbivores** and **carnivores** depend on plants. In absence of plants, herbivores would not survive. This in turn would cause death to carnivores.

Plants also provide oxygen, needed by all living organisms, for respiration. Emission of **oxygen** is also a byproduct of photosynthesis.

Therefore life would not be possible in absence of photosynthesis.

Code: **Photosynthesis taught plants how to make food and bought him some oxygen.**

Seeing that, herbivores and carnivores asked him for a party.

2. Give reasons for the following:

a) Mushroom is a saprotroph

b) Sun is the ultimate source of energy for all living organisms

c) The leaf of a plant dies out if its stomata are blocked.

d) Leaf is known as the food factory of the plant.

e) Lichen is a living partnership between a fungus and an alga and this partnership is beneficial to both.

Ans.

a) **Mushroom is a Saprotroph:** **Mushroom** can't make own food because it does not have green pigments. It acquires nutrition from **dead and decaying** organisms. Therefore it is known as a **saprotroph**.

Code: **Mushroom ne gusse me saprotroph ko dead and decaying organisms kaha.**

b) **Sun is the ultimate source of energy for all living organisms:** The **energy of sun**, thus, gets passed to all organisms through plants. **Plants** make food through **photosynthesis** which is directly taken by **herbivores** and indirectly by **carnivores**. Therefore sun is the ultimate source of energy for all living beings.

Code: **Plants invited herbivores and carnivores for food after doing photosynthesis.**

c) **The leaf of a plant dies out if its stomata are blocked:** if the **stomata** of a plant are **blocked**, it cannot take **carbon dioxide and oxygen**. The **leaf dies** out in absence of photosynthesis and respiration.

Code: **Doctors carbon dioxide and oxygen said, taking care of stomata is very important. If it is blocked, leaf can die.**

d) Lichen is a living partnership between fungus and an alga and this partnership is beneficial to both: In Lichen, the fungus absorbs water and provides shelter. The alga prepares food by photosynthesis. Therefore Lichen is a living partnership between a fungus and an alga and the partnership is beneficial to both.

Code: Fungus and alga has taken a flat in partnership and named it Lichen.

3. Why do some plants feed on insects? How does a pitcher plant catch insects?

Ans. Some plants feed on insects to fulfill their nitrogen requirements. These plants are known as insectivorous plants.

The leaf of the pitcher plant gets modified to form a pitcher with a lid. The pitcher is lined with downward pointing hairs. When the insect enters, it cannot climb back out against the hairs and falls ultimately to the bottom of the leaf. Then it gets digested by the juices present there.

Code: pitcher plant ne insects se nitrogen chhin ke digestive juice wale pitcher me dal diya.

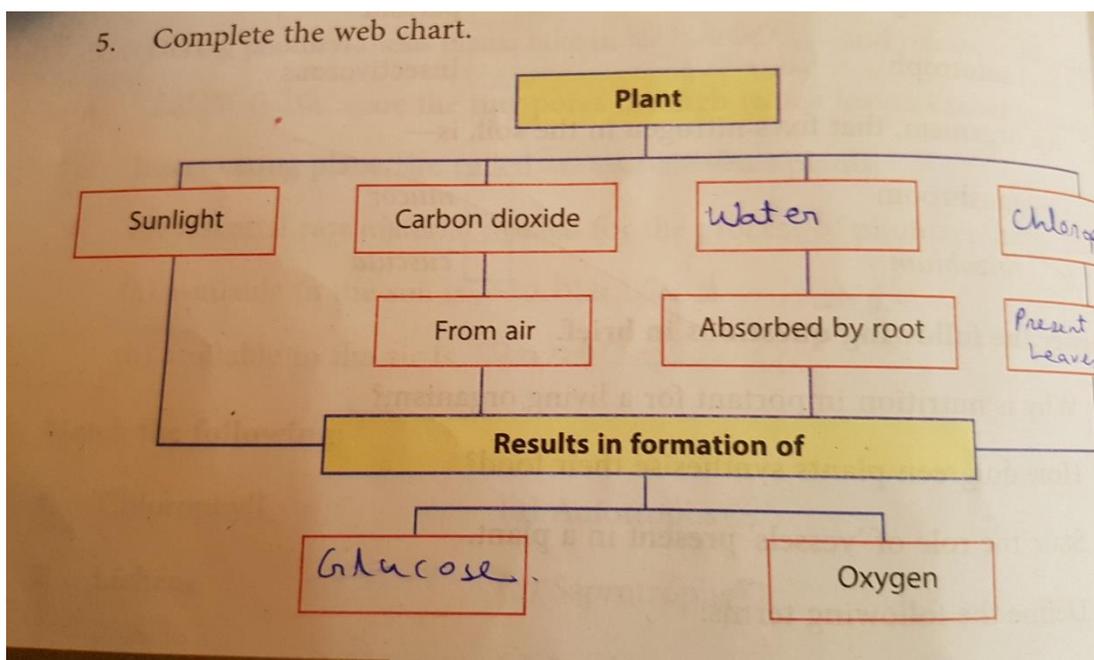
4. How do Rhizobium bacteria and leguminous plants help each other in their survival?

Ans. Rhizobium is a bacterium that lives in the roots of Leguminous plants. It converts nitrogen from the atmosphere into a usable form that can be utilized by the plants.

The plants, in turn provide food and shelter to the bacterium.

Code: Leguminous plants invited Rhizobium to stay in their shelter. Rhizobium brought return gift of usable nitrogen from the atmosphere.

5. Complete the web chart.



VALUE BASED QUESTION

The teacher told her students the story of the film 'Dost'. She told them that in that film. There was a friendship between a visually challenged and a lame boy. Both of them supported in their day to day life and solved the challenges faced. She compared the relationship with the symbiotic relationship.

1. Suggest any two values that according to you must have been there in the two friends of the film 'Dost'.

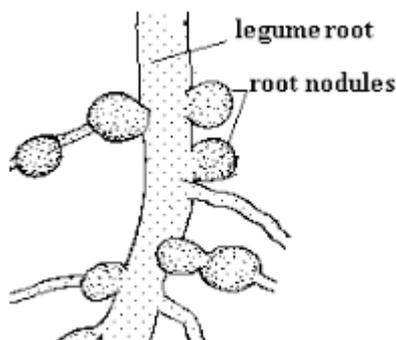
Helping Attitude, Caregiver, Supportive etc.

2. In what ways is the friendship between the two boys, similar to the symbiotic relationship between two organisms?

In the film Dost two friends are helping each other by supporting them on their inabilities. Like Blind boy used to carry the lame boy to the school and lame boy read the books for the blind boy.

Similarly, Lichen is a live in partnership between a fungus and an alga. The fungus absorb water and provides shelter. The alga prepares food by photosynthesis.

3. Draw a diagram showing a higher organism showing a symbiotic relationship with a lower organism.



Rhizobium is a bacterium (lower organisms) that lives on the root of leguminous plants(higher organisms)

SOMETHING TO DO:

1. Compose a few lines/poem on the 'utility of plants.'

Plants and trees
So green so green
The kitchen is the leaf
And the root is the chief

They give us flowers to decorate

And also to celebrate
They give us paper from their wood
And they are found in the woods

With their help we can make whatever we want
From a rubber band to a pant
We don't need to pay tax or fees
To borrow from our lovely trees

They protect us from diseases
That would make us ill
All the carbon dioxide
They always take in

Some people cut trees
For things like table and chair
Not knowing what pollution
They are doing to the air

Forests are turning from green to brown
Animals' faces are always with a frown
So let's make this place from brown to green
By planting more saplings and trees

-----DEEPIKA GANESH

2. Why it is important to increase forest cover?

It important to increase the 'forest cover' because-

- Forests purify the air
- It prevents soil erosion
- It brings rain
- It prevents global warming
- It gives us oxygen
- It keeps the environment cool
- Forest is the place where wild animals, birds live they will get shelter etc.

3. Keep a stale, moist piece of bread in a warm corner of the kitchen and observe it for 3-4days. Can you identify the organisms growing on the piece of bread? Identify its mode of nutrition.

The organisms growing on bread mould are *Rhizopus*.

Mode of Nutrition- Saprotrophic

4. Solve the crossword puzzle with the help of the clues given below:

ACROSS:

1. A plant parasite. *Cuscuta*
2. The process by which green plants prepare their own food. Photosynthesis
3. The process of obtaining, and utilizing, food. Nutrition.
4. Green pigment present in the leaves of plants. Chlorophyll

DOWN

1. The two different organisms that live together and thereby benefit from each other. Symbiotic
2. Organisms feeding on dead matter. Saprotrophic
3. An organism deriving food from other living organism. Parasite
4. Organisms that cannot prepare its own food. Heterotroph

Note-

Answer given in Value based questions and Something to do are only suggested/probable/sample answers.