

NEW ERA PUBLIC SCHOOL

Subject :- Science

Topic :- Nutrition in Plants

Class :- 7th

Lesson no :- 1

Solved Assignment of Unit-I

→ Short answer questions :-

D. Answer in brief.

Q1 :- What is photosynthesis?

Ans :- Photosynthesis is the process by which green plants prepare their own food using carbon dioxide and water in the presence of sunlight and chlorophyll.

Q2 :- Complete this equation:

Carbon dioxide + water

$\xrightarrow[\text{Sunlight}]{\text{chlorophyll}}$ glucose + oxygen

Q3 :- What will happen when you add a drop of iodine to starch?

Ans :- When iodine is added to starch, the addition of iodine solution makes the parts of the leaf that were originally green

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turn blue-black.

Q4:- How will you remove chlorophyll from a leaf?

Ans:- By adding alcohol, we can remove chlorophyll from a leaf.

Q5:- Name any two parasitic plants.

Ans:- The two parasitic plants are dodder and mistletoe.

Q6:- Why do some plants trap small animals and insects?

Ans:- Some plants trap small animals and insects because they get nutrition from them.

Q7:- Define symbiosis?

Ans:- A relationship between two organisms that benefits both is called symbiosis.

Q8:- From where do saprophytes get their nutrients?

Ans:- Saprophytes get their nutrients from dead and decaying material.

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→ Long answer Questions:-

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E. Answer in detail.

Q1:- How will you test for the presence of starch in a leaf?

Ans:- Aim :- To test for the presence of starch in a leaf.

Materials required:- a coleus leaf, beaker, water, alcohol, iodine solution, test tube, tweezers, tripod stand, Bunsen burner, white tile.

Method:-

1. Pluck a leaf from a healthy plant and place it in a beaker of water. Boil the water for three minutes.
2. Take the leaf out carefully with tweezers and place it in a test tube of alcohol.
3. Place the test tube in the beaker of boiling water for 10 minutes.
4. Take the leaf out and wash it carefully in water and place it on a white tile.
5. Place a few drops of iodine solution on the leaf.

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Observations and conclusions:- He will see that the alcohol removes the green colour from the leaf. The addition of iodine solution makes the parts of the leaf that were originally green turn blue-black. This shows that only the green parts of the leaf contain chlorophyll, and hence make starch.

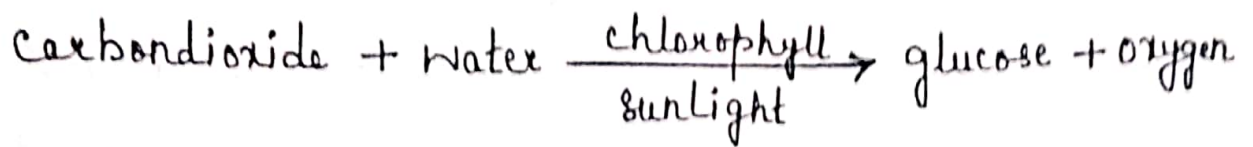
Draw Fig. 1.3 (Testing for starch) Pg no 2

Q2:- Briefly describe what happens during photosynthesis.

Ans:- Photosynthesis is the process by which green plants prepare their own food using carbondioxide and water in the presence of sunlight and chlorophyll. The process of photosynthesis involves the following steps:-

- During photosynthesis, carbondioxide is taken in through tiny pores on the lower surface of the leaf. These pores are known as stomata.
- Water is absorbed from the soil by the roots and transported to the leaves.

Chlorophyll, the green substance found in leaves, traps energy from sunlight that falls on it. This trapped energy is used to convert carbon dioxide and water into oxygen and a simple sugar called glucose.



The oxygen is released into the atmosphere through the stomata. The glucose is transported to all parts of the plant. Excess glucose is converted into starch, which is stored.

Draw Fig 1.1 (closed and open stomata)
and Fig 1.2 (Photosynthesis) Pg. no 1 and 2

Q3:- Why is photosynthesis important?

Ans:- Photosynthesis is important for the following reasons:-

1. Plants store excess glucose as starch. When animals eat plants, they can use this starch for their life processes.
2. The oxygen released after photosynthesis is used by plants and animals for respiration.

3. Photosynthesis helps to maintain the balance between oxygen and carbon dioxide in the atmosphere.

Q4:- Differentiate between autotrophs and heterotrophs.

Ans:- Autotrophs

1. Autotrophic nutrition is the kind of nutrition where a living organism makes its own food using simple substances that it gets from its environment.

2. Organisms that exhibit this type of nutrition are called autotrophs.

3. Most green plants are examples of autotrophs.

Heterotrophs

1. Heterotrophic nutrition is the kind of nutrition where an organism depends on other plants or animals for its nutrition.

2. Organisms that exhibit this type of nutrition are called heterotrophs.

3. Organisms like animals, some bacteria and fungi are examples of heterotrophs.

Q5:- Write a short note on heterotrophic plants?

Ans:- There are different types of heterotrophic^(or) plants. These are:-

1. Parasitic Plants:- Some plants use modified roots that help them to get nutrients from another plant. These plants are called parasites. The dodder and mistletoe are examples of parasitic plants.
2. Insectivorous Plants:- Some plants get some of their nutrition by trapping and digesting insects, and sometimes other small animals. These plants are called insectivorous plants. The pitcher plant, sundew and Venus flytrap are some examples of insectivorous plants.
3. Saprophytes:- Organisms that get their nutrients from dead and decaying material are called saprophytes. Some bacteria and fungi are saprophytes.
4. Symbiotic Plants:- A relationship between two organisms that benefits both is called symbiosis. The relationship is called a symbiotic relationship. Lichens are examples of such an association between two organisms.

Q6:- Explain with an example each.

(i) Total parasite:- A parasite such as dodder that is totally dependent on the host for its nutrition is called a total parasite.

(ii) Symbiont:- A relationship between two organisms that benefits both is called symbiosis. The relationship is called a symbiotic relationship and an organism that is involved in a symbiotic relationship is called a symbiont. Lichens are examples of such an association between two organisms.

(iii) Saprophyte:- Organisms that get their nutrients from dead and decaying material are called saprophytes. Some bacteria and fungi are saprophytes. They decompose dead plant and animal matter and absorb the nutrients from this decomposed material.

Q7:- How are nutrients returned to soil after being absorbed by plants?

Ans:- Plants absorb nutrients from the soil for their growth. Over time, this decreases the

amount of nutrients in the soil. Nutrients can be returned to the soil by applying manures and fertilizers, or by natural methods. These methods include the action of saprophytic organisms called decomposers. Decomposers are bacteria and fungi that break down or decompose the dead remains of plants and animals into simple substances. These simple substances can again be absorbed as nutrients by plants.

Draw Fig 1.8 (How nutrients are returned to soil) Pg. no 6

→ Objective Type Questions:-

Multiple choice questions:-

A. Choose the correct option.

→ KEY :-

- | | |
|------|------|
| 1. b | 5. c |
| 2. b | 6. d |
| 3. a | 7. b |
| 4. d | 8. c |

1. Fill in the blanks.

1. Chlorophyll
2. Stomata

3. Oxygen
4. Starch

5. Parasitic
6. Insectivorous plant.
7. Saprophytes

C. Say whether the statements are true or false

1. False

4. True

7. True

2. False

5. True

3. False

6. False

Topic :- Nutrition in Animals

Lesson no :- 2

→ Short answer questions:-

D. Answer in brief.

Q1:- Define digestion?

Ans:- The process of breaking down of complex food into simpler substances is called digestion.

Q2:- How does an Amoeba ingest its food?

Ans:- The Amoeba ingests its food by using its pseudopodia to engulf the food and take it into its body.

Q3:- How is food prevented from going into the windpipe while swallowing?

Ans:- When the food is swallowed, a flap called the epiglottis prevents the food from

entering the windpipe and choking the person. (111)
Q4:- What are the functions of saliva?

Ans:- The salivary glands secrete saliva into the mouth. The saliva contains digestive juices that digest carbohydrates. It also moistens the food, making it easier to swallow.

Q5:- What is peristalsis?

Ans:- The swallowed food travels to the stomach because of a wave-like motion in the walls of the oesophagus called peristalsis.

Q6:- What do the walls of the stomach secrete?

Ans:- The walls of the stomach secrete digestive juices, acid and mucus.

Q7:- What is the function of the mucus in the stomach?

Ans:- The mucus coats the walls of the stomach and prevents it from being digested by the digestive juices.

Q8:- What are villi?

Ans:- Villi are the projections on the inner walls of small intestine.

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Q9:- How is digested food transported within the body?

Ans:- The digested food enters the blood in the small intestine. This is carried throughout the body through the blood stream.

Q10:- Name the four stomachs in cattle.

Ans:- The four stomachs in cattle are Rumen, Reticulum, Omasum and Abomasum.

→ Long answer Questions:-

E. Answer in detail.

Q1:- List and briefly describe the five steps of digestion.

Ans:- Nutrition can be divided into five steps— ingestion, digestion, absorption, assimilation and egestion.

1. Ingestion :- The process of taking food into the body is called ingestion.

2. Digestion :- The process of breaking down complex food into simpler substances is called digestion.

3. Absorption :- The process by which the digested food moves into the blood and cells of the body is called absorption.

4. Assimilation:- The process by which the absorbed⁽¹¹³⁾ food is used by the body to generate energy and carry out its life functions is called assimilation.

5. Egestion:- The process by which the undigested food and waste is sent out of the body is called egestion.

Q2:- Write a short note on digestion in Amoeba.

Ans:- The Amoeba is a unicellular animal that feeds on bacteria, microscopic algae and other unicellular organisms. It moves by extending its body into finger-like projections called pseudopodia.

The Amoeba ingests its food by using its pseudopodia to engulf the food and take it into its body. It then secretes digestive juices into the cavity that contains the food. Once the food is digested, it is absorbed and assimilated into the body. The undigested food is sent out of the body.

Draw Fig. 2.1: (Nutrition in the Amoeba) Bm

Q3:- Briefly describe the structure and functions of the different kinds of teeth in humans.

There are four types of teeth in the human mouth.

1. Incisors :- are the teeth found in the front of the mouth. They are chisel-shaped and mainly used for biting and cutting food.
2. Canines :- are pointed and used for piercing and tearing food into smaller pieces.
3. Premolars :- have a flattened surface and are used for grinding food into small pieces.
4. Molars :- are similar to premolars, but are larger. They are also used to grind food.

The teeth are coated with enamel which is the hardest substance in the body. Beneath the enamel is the dentine which is softer.

The innermost portion of the tooth is called the pulp. The pulp contains blood vessels and nerves.

Draw Fig 2.4 (Types of teeth in humans) Pg. no 13

Q.4 :- What is tooth decay caused by? Explain how it occurs.

Ans :- Tooth decay is caused by bacteria present in the mouth. The bacteria act on small bits of food left in the mouth after a meal to form a soft sticky material called plaque,

which sticks to the teeth and gums. The bacteria⁽¹⁵⁾ also change sugar into acids which destroy the enamel. Plaque and acids in the mouth result in tooth decay and gum problems.

Q5:- What are the functions of the tongue?

Ans:- The tongue is a sense organ that helps us taste food. We use the taste buds on the surface of the tongue to differentiate between sweet, bitter, salty and sour foods.

The tongue is a muscular organ that helps us mix food with saliva. It also helps us roll the chewed food into a ball or bolus which is pushed towards the back of the mouth where it is swallowed.

Q6:- Describe what happens to the food in the stomach and intestines.

Ans:- In the stomach:-

The swallowed food stays in the stomach for around four hours. The walls of the stomach secrete digestive juices, acid and mucus.

- The digestive juices digest proteins in the food to simpler substances.
- The acid kills bacteria and other germs that

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are present in the swallowed food.

- The mucus coats the walls of the stomach and prevents it from being digested by the digestive juices.

In small Intestine:-

The walls of the small intestine secrete digestive juices.

- Bile breaks down fat into tiny droplets.
- The digestive juices secreted by the walls of the small intestine break down fats into simpler substances.
- The pancreatic juice breaks down starch into simple sugars, and proteins and fats into simple substances.

Q7:- Explain what happens to digested food when it enters the blood stream.

Ans:- The digested food enters the blood in the small intestine. This is carried throughout the body through the blood stream.

- Glucose is used to get energy through the process of respiration. This occurs in the cells of the body.
- The simpler substances that we get when fats

are digested are stored in the body and also⁽¹⁷⁾ used as a source of energy.

- The simplex substances that we get when proteins are broken down are used for growth, repair and to make new materials like proteins and hormones.

Q8:- Explain the process of digestion in cattle.

Ans:- When cattle eat, the food is chewed and swallowed quickly. It enters the rumen where microorganisms help to break down the plant material. This partially digested food (cud) enters the second stomach, the reticulum, where it is either sent back to the mouth for more chewing or sent to the third stomach, the omasum.

Water is absorbed in the omasum and digestive juices are secreted in the fourth stomach, the abomasum. So, the abomasum is the true stomach where digestion of food takes place.

Draw Fig. 2.7 (The digestive system in cattle) on Pg. no 16

→ Objective Type Questions:-

Multiple choice Questions:-

A. Choose the correct option.

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|------|------|-------|
| 1. d | 5. c | 9. b |
| 2. b | 6. c | 10. b |
| 3. b | 7. a | |
| 4. b | 8. d | |

B. Fill in the blanks.

- | | |
|---------------------|--------------|
| 1. accessory | 5. omnivores |
| 2. chyme | 6. incisors |
| 3. stomach | 7. enamel |
| 4. small intestine. | 8. Ruminants |

C. Say whether the statements are true or false.

- | | |
|----------|----------|
| 1. True | 5. True |
| 2. False | 6. False |
| 3. False | 7. True |
| 4. True | 8. True |