

CLASS - VII

Subject - Science

Chapter - 1st

Nutrition in plants.

Protein, fats, vitamins and mineral are components of food. These components of food are called nutrients and are necessary for our body.

All living organism require food. plants can synthesise food for themselves but animal including human cannot. They get it from plants or animals that eat plants. Thus human and animal are directly or indirectly dependent on plants.

(1.1) MODE OF NUTRITION IN PLANTS:-

plants are ^{the} only organism that can prepare food for themselves by using water, carbon dioxide (CO_2), and mineral.

The mode of Nutrition in which organism make food themselves from simple substances is called 'autotrophic'. These plants are called 'autotrophs'. Animals and most other organism take in food prepared by plant. It is called 'heterotrophic'.

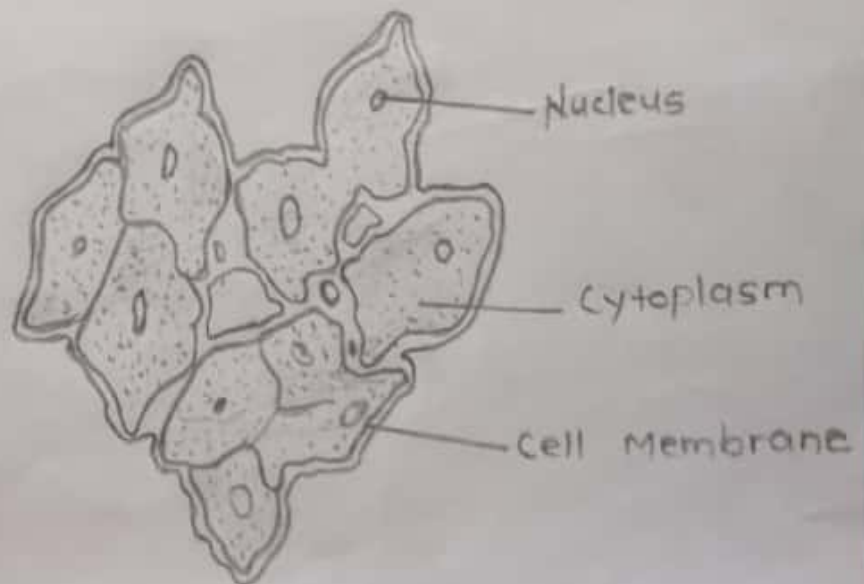
1.2) (2) Photosynthesis - Food Making Process In Plant

Leaves are the food factories of plants.

Therefore, all the raw material must reach the leaf. Water and mineral present in the soil are absorbed by the roots and transported to the leaves. These pores are surrounded by 'guard cells'. Such pores are called "stomata".

Cells
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The bodies of living organisms are made of tiny units called cells. Cells can be seen only under the microscope. Some organisms are made of only one cell. The cell is enclosed by a thin outer boundary, called the cell membrane. The nucleus is surrounded by a jelly-like substance called cytoplasm.



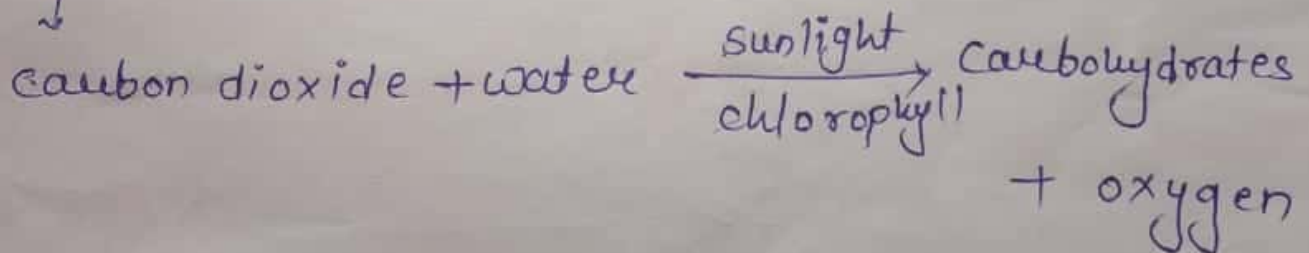
The leaves have a green pigment :called ^③ chlorophyll "chlorophyll". ~~Capt~~ It helps leaves to capture the energy of the sunlight. ~~this~~ This energy is used to synthesise food from CO_2 and water. Since the synthesis of food occurs in the presence of sunlight, It is called photosynthesis.

NOTE ↓

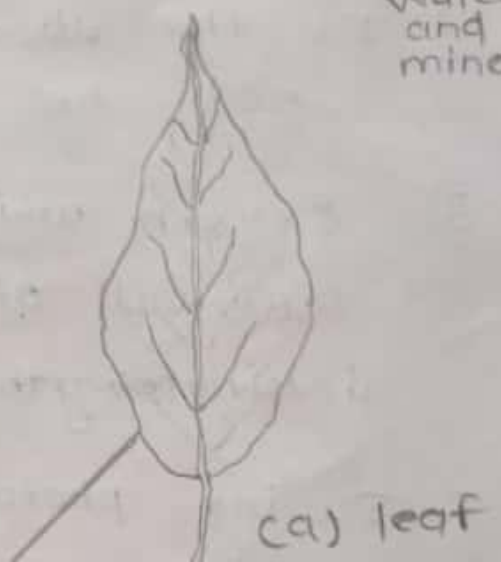
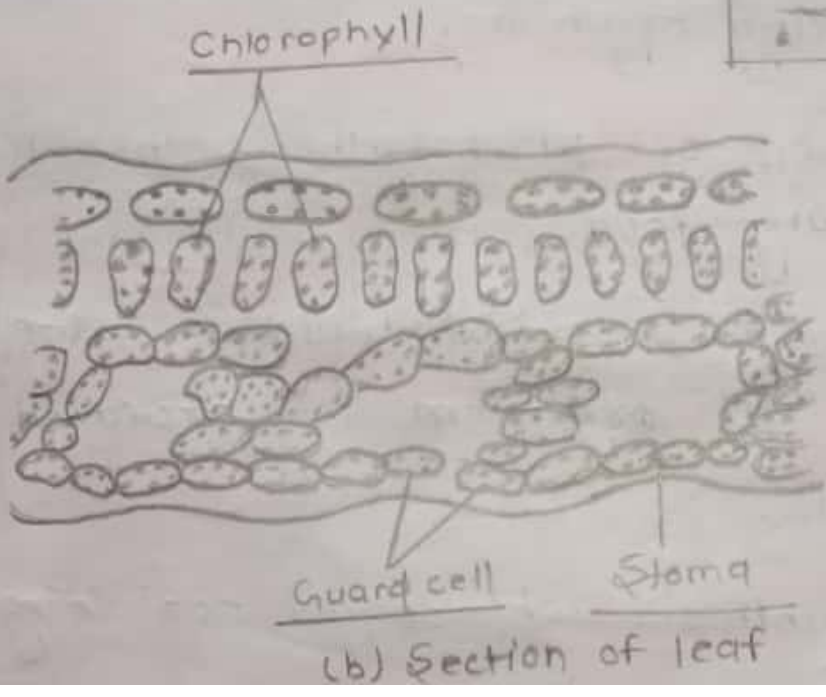
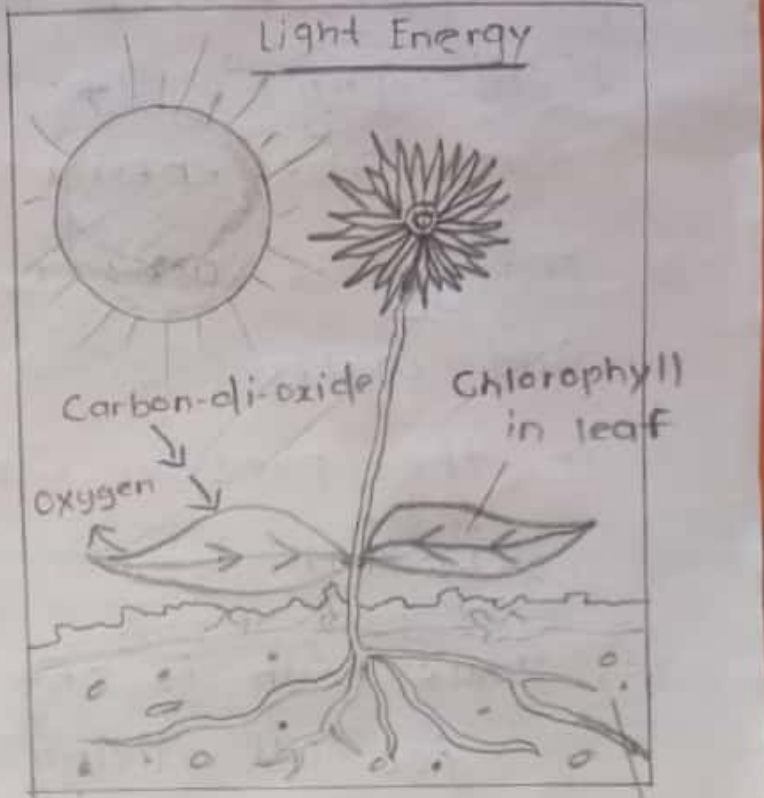
- 1) Thus Sun is the ultimate source of energy for all living organism.
- 2) In the absence of photosynthesis there would not be any food.
- 3) oxygen which is essential ~~which~~ for the survival of all organism is produced during photosynthesis.

during photosynthesis, chlorophyll containing cells of leaves.

Eq. ↓



Diagram



Synthesis of plant food other than carbohydrates ⁽⁵⁾

The carbohydrates are made of oxygen, hydrogen and oxygen (CH_2O)_n. These are used to synthesise other compound of food such as protein and fats. But protein is Nitrogenous substance which contain Nitrogen.

Recall that Nitrogen is present in abundance in gaseous form in the air. plants can't absorb Nitrogen in this form. Soil has certain bacteria that convert gaseous Nitrogen into soluble form and release it into the soil. These are absorbed by the plants along with water.

Other modes of Nutrition in plants ↓

There are some plants which do not have chlorophyll. They cannot synthesise food.

Like humans and animal such plants depend on the food produced by other plants. They use the ~~heterotroph~~ heterotrophic mode of Nutrition.

1.4) SAPROTROPHS

You might have seen packets of mushrooms sold in the vegetable market. You may have also seen fluffy umbrella like patches growing in moist soils or on rotting wood during in rainy season.



Mushroom

HOW NUTRIENTS ARE REPLENISHED IN THE SOIL:-

you learnt the plant absorb mineral and nutrients from the soil. so their amount in the soil keep on ~~de~~ ^{de}clining, Fertilisers and manures. contain Nutrients such as (N, P, K) etc. these Nutrient to be added from time to time to enrich the soil.

usually crop plants absorb a lot of Nitrogen and the soil becomes deficient in Nitrogen. you learnt that though Nitrogen gas is available in plenty in air. plant cannot use ~~use~~ CO_2 . They need Nitrogen in a soluble form the bacterium is called Rhizobium. Can takes atmospheric Nitrogen and convert it into a usable form. But rhizobium cannot makes it's own food. so it often lives in the roots of grams, peas, moong, beans. provide them with Nitrogen the plants provide food and shelter to the bacterium. They Thus have a Symbiotic relationship.