

Write down In ur note book 1st day work.

Nutrition in Plants and Animals – Life Processes Class 10 Notes

Nutrition: The process by which an organism takes food and utilizes it, is called nutrition.

Need for Nutrition: Organisms need the energy to perform various activities. The energy is supplied by the nutrients. Organisms need various raw materials for growth and repair. These raw materials are provided by nutrients.

Nutrients: Materials which provide nutrition to organisms are called nutrients. Carbohydrates, proteins and fats are the main nutrients and are called macronutrients. Minerals and vitamins are required in small amounts and hence are called micronutrients.

Modes of Nutrition

1. Autotrophic Nutrition.
2. Heterotrophic Nutrition.

Autotrophic Nutrition – Life Processes Class 10 Notes

The mode of nutrition in which an organism prepares its own food is called autotrophic nutrition. Green plants and blue-green algae follow the autotrophic mode of nutrition.

The organisms which carry out autotrophic nutrition are called autotrophs (green plants).

Autotrophic nutrition is fulfilled by the process, by which autotrophs intake CO₂ and H₂O, and convert these into carbohydrates in the presence of chlorophyll, sunlight is called photosynthesis.

Equation

Nutrition in Plants: Green plants prepare their own food. They make food in the presence of sunlight. Sunlight provides energy', carbon dioxide and water are the raw materials and chloroplast is the site where food is made.

What is Photosynthesis in biology class 10?

Photosynthesis: The process by which green plants prepare food is called photosynthesis.

During this process, the solar energy is converted into chemical energy and carbohydrates are formed.

Green leaves are the main site of photosynthesis.

The green portion of the plant contains a pigment chloroplast, chlorophyll (green pigment).

The whole process of photosynthesis can be shown by the following equation:

Raw Materials for Photosynthesis:

Sunlight

Chlorophyll: Sunlight absorbed by chloroplast

CO₂: Enters through stomata, and oxygen (O₂) is released as a byproduct through stomata on the leaf.

Water: Water + dissolved minerals like nitrogen, phosphorous etc., are taken up by the roots from the soil.

How do raw materials for photosynthesis become available to the plant?

Water comes from the soil, through the xylem tissue in roots and stems.

Carbon dioxide comes in the leaves through stomata.

Site of Photosynthesis: Chloroplast in the leaf. Chloroplast contains chlorophyll (green pigment)

Main Events of Photosynthesis:

Absorption of light energy by chlorophyll.

Conversion of light energy into chemical energy + splitting (breaking) of water into hydrogen and oxygen.

Reduction of CO₂ to carbohydrates.

Sunlight activates chlorophyll, which leads to splitting of the water molecule.

The hydrogen, released by the splitting of a water molecule is utilized for the reduction of carbon dioxide to produce carbohydrates.

Oxygen is the by-product of photosynthesis.

Carbohydrate is subsequently converted into starch and is stored in leaves and other storage parts.

The splitting of water molecules is a part of the light reaction.

Other steps are part of the dark reaction during photosynthesis.

Stomata – Life Processes Class 10 Notes

Stomata: These are tiny pores present in the epidermis of leaf or stem through which gaseous exchange and transpiration occur.

Functions of stomata

Exchange of gases, O₂ and CO₂.

Loses a large amount of water (water vapour) during transpiration.

Opening and closing of stomatal pores:

The opening and closing of stomatal pores are controlled by the turgidity of guard cells.

When guard cells uptake water from surrounding cells, they swell to become a turgid body, which enlarges the pore in between (Stomatal Opening).

While, when water is released, they become flaccid shrinking to close the pore (Stomatal Closing).

Significance of Photosynthesis:

Photosynthesis is the main way through which solar energy is made available for different living beings.

Green plants are the main producers of food in the ecosystem. All other organisms directly or indirectly depend on green plants for food.

The process of photosynthesis also helps in maintaining the balance of carbon dioxide and oxygen in the air.