

Biology

CLASS NOTES FOR CBSE

Chapter 7. Life Processes

01. Introduction

All the plants and animals (including human beings) are alive or living things. The most important criterion to decide whether something is alive (or not) is the movement. All the living things (which are alive) move by themselves without any external help. The movement in most of the animals are fast and can be observed easily but the movements in plants are usually slow and observed with difficulty. Animals can move from one place to another or they can move their body parts. The plants are fixed in the soil at a place, so they cannot move like animals from place to place. The plants can only move parts of their body such as leaves, flowers, shoots and roots. The plant parts move towards a stimulus such as sunlight, gravity or water, etc. Non-living things (which are not alive) cannot move by themselves. The characteristics of living things are as follows :

- Living things can move by themselves.
- Living things need food, air and water.
- Living things can grow.
- Living things can respond to changes around them. They are sensitive.
- Living things respire (release energy from food).
- Living things excrete (get rid of waste materials from their body).
- Living things can reproduce. They can have young ones.

02. What are Life Processes

The basic functions performed by living organisms to maintain their life on this earth are called life processes. The basic life processes common to all the living organisms are Nutrition and Respiration; Transport and Excretion; Control and coordination (Response to stimuli); Growth; Movement and Reproduction.

03. Energy is Need for The Life Processes

Food is a kind of fuel which provides energy to all the living organisms. The energy required by an organisms comes from the food that the organism eats.



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04. Nutrition

Food is an organic substance. The simplest food is glucose. It is also called simple sugar. A more complex food starch. Starch is made from glucose. The general name of substances like glucose (sugar) and starch is 'Carbohydrates are the most common foods for getting energy. Fats and proteins are also foods. (A wider definition of food, however, also includes mineral salts, vitamins and water which are essential for the normal growth and development of an organism). The process of taking in food (consuming food) and utilising it is called nutrition. A nutrient can be defined as a substance which an organism obtains from its surroundings and uses it as source of energy or for the biosynthesis of its body constituents (like tissues and organs). For example carbohydrate and fats are the nutrients. Nutrition is a process of intake of nutrients (like carbohydrates, fats, proteins, minerals, vitamins and water) by organism as well as the utilisation of these nutrients by the organism.

05. Modes of Nutrition

There are mainly two modes of nutrition :

- (i) **Autotrophic Mode of Nutrition** : Autotrophic nutrition is that mode of nutrition in which an organism make (or synthesizes) its own food from the simple inorganic materials like carbon dioxide and water present in the surroundings (with the help of sunlight energy). The green plants have an autotrophic mode of nutrition. The autotrophic bacteria also obtain their food by the autotrophic mode of nutrition. Those organisms which can make their own food from carbon dioxide and water are called autotrophs. All the green plants are autotrophs The autotrophic organisms (or autotrophs) contain the green pigment called chlorophyll which is capable of trapping sunlight energy.
- (ii) **Heterotrophic Mode of Nutrition** : Heterotrophic nutrition is that mode of nutrition in which an organism cannot make (or synthesize) its own food from simple inorganic materials like carbon dioxide and water, and depends on other organisms for its food. All the animals have a heterotrophic mode of nutrition. Most bacteria and fungi also have heterotrophic mode of nutrition. Those organisms which cannot make their own food from inorganic substances like carbon dioxide and water, and depend on other organisms for their food are called heterotrophs. All the animals are heterotrophs The non-green plants (like yeast) are also heterotrophs.

Types of Heterotrophic Nutrition

A heterotrophic organism (or heterotroph) can obtain its food from other organisms in three ways. So, the heterotrophic made of nutrition is of three types:

- (a) **Saprotrophic Nutrition (or Saprophytic)** : Saprotrophic nutrition is that nutrition in which an organism its food decaying organic matter of dead plants, dead animals and rotten bread, etc. Saprophytes are the organisms which obtain their food from dead plants (like rotten leaves), dead and decaying rotten bread