

NUTRITION

Life Processes

"The basic functions performed by living organisms to maintain their life on the Earth are called life processes."

Nutrition is the process of intaking as well as utilization of food.



Autotrophic Nutrition

In it organism take in simple inorganic substances from outside and use them to synthesize organic molecules and then convert into stored forms of energy.

Mode of Nutrition

Heterotrophic Nutrition

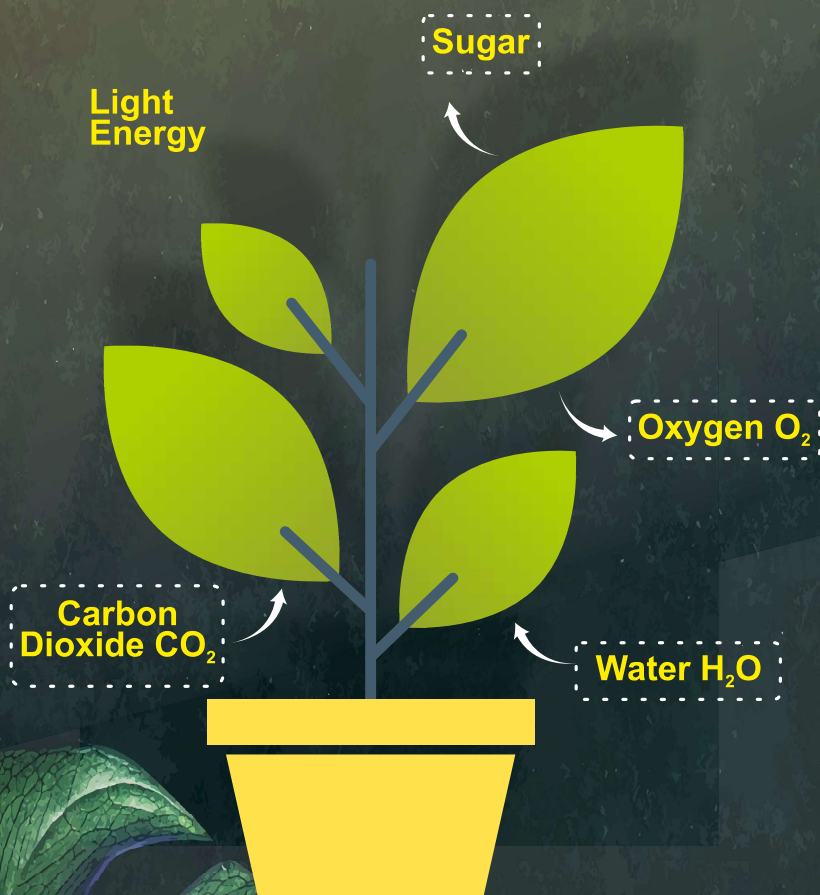
Mode of nutrition in which the organisms derive their nutrition by taking readymade food, from other dead or living plants and animals.

Holozoic, Saprotrophic & Parasitic nutrition are the types of Heterotrophic nutrition.

Photosynthesis



Photosynthesis is the process of synthesis of organic food (glucose) from inorganic carbon dioxide and water, using solar energy captured by chlorophyll pigments.



Requirements of Photosynthesis:

SUNLIGHT

Sun is the natural source of sunlight which provides solar energy to the plant.

CHLOROPHYLL

It traps solar energy from sunlight. Chlorophyll pigment is present in all the green parts of the plant in cell organelles called chloroplast.

CARBON DIOXIDE

Carbon dioxide is obtained from the atmosphere through stomata present on the leaf surface of the plants.

WATER

Water is also essential for photosynthesis.

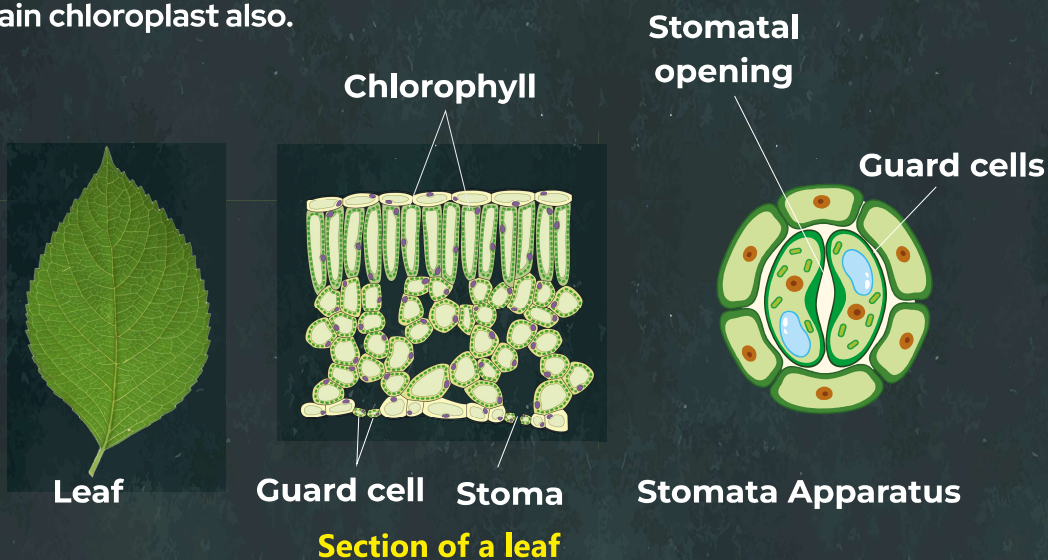


CHEMICAL REACTION OF PHOTOSYNTHESIS



Role of leaf in Photosynthesis

The tiny pores present on the surface of the leaves surrounded by two kidney shaped guard cells are called stomata. Guard cells regulate the opening and closing of stomata. These are kidney shaped cells which cover single stoma. They contain chloroplast also.



Functions of Stomata



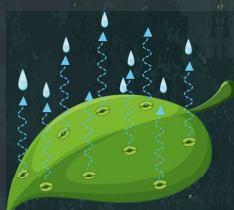
Exchange of gases

Exchange of gases take place (carbon dioxide from air is taken in and oxygen is released) through stomata.



Transpiration

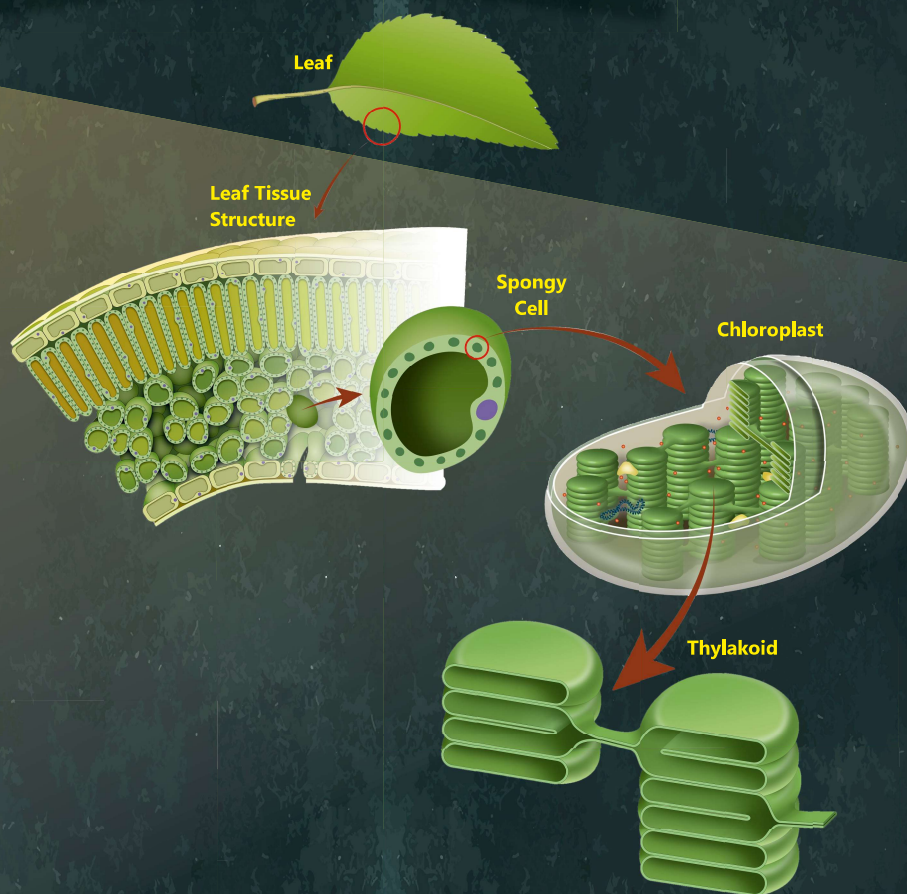
Transpiration takes place through stomata. Transpiration is the process of loss of water in a vapour form from aerial parts of plants.



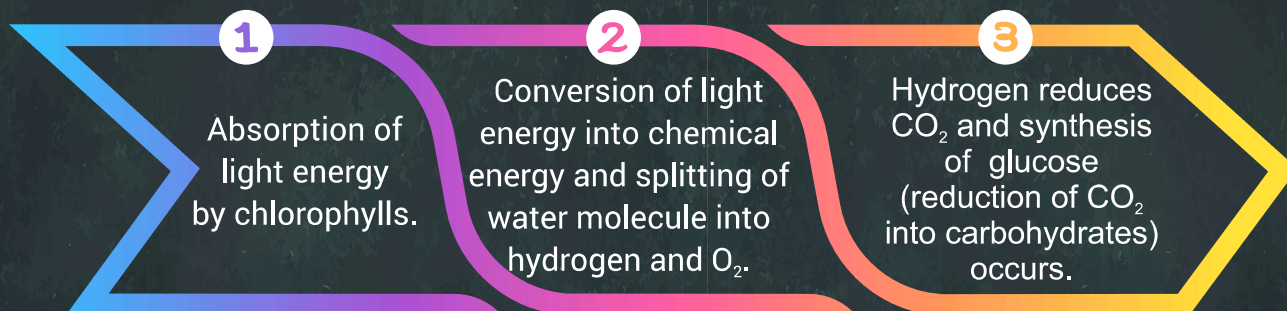
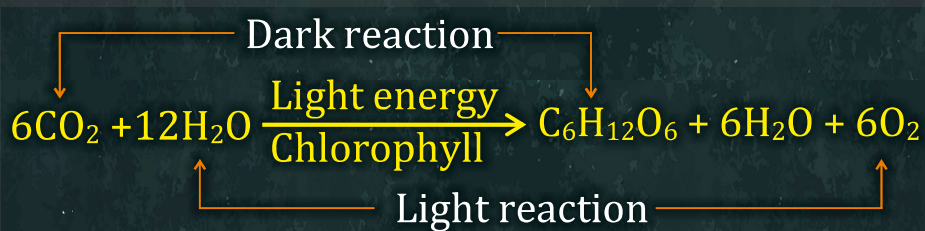
SITE OF PHOTOSYNTHESIS



Photosynthesis takes place in the green plastid (Chloroplast or Kitchen of the cell) present in tissues inside leaves and young stem.



MECHANISM OF PHOTOSYNTHESIS

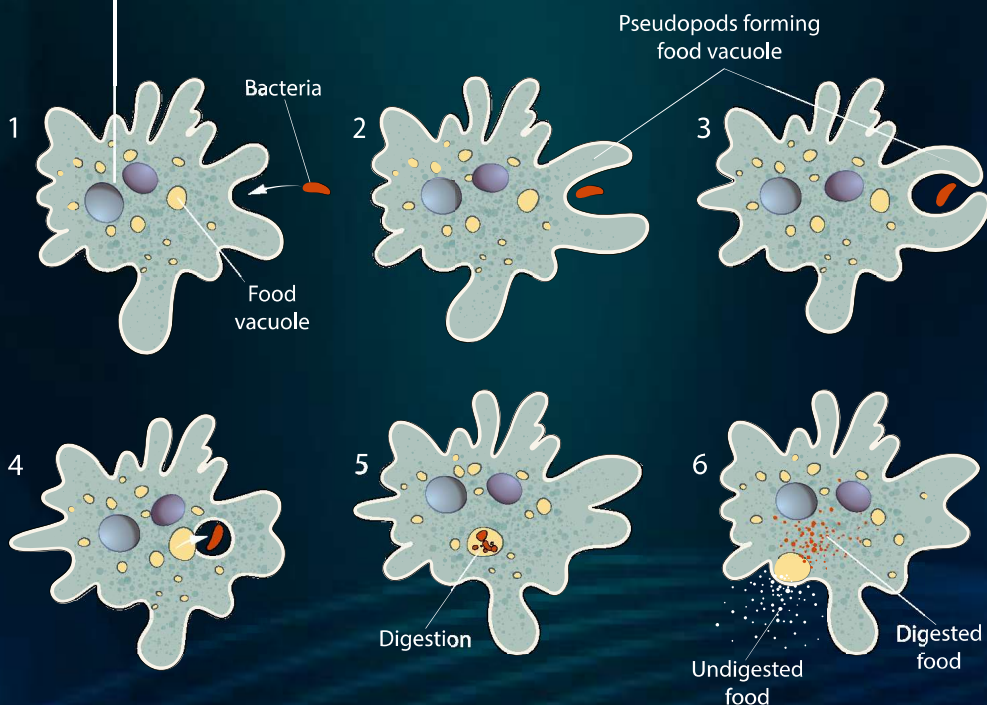


NUTRITION IN ANIMALS

Steps In Nutrition



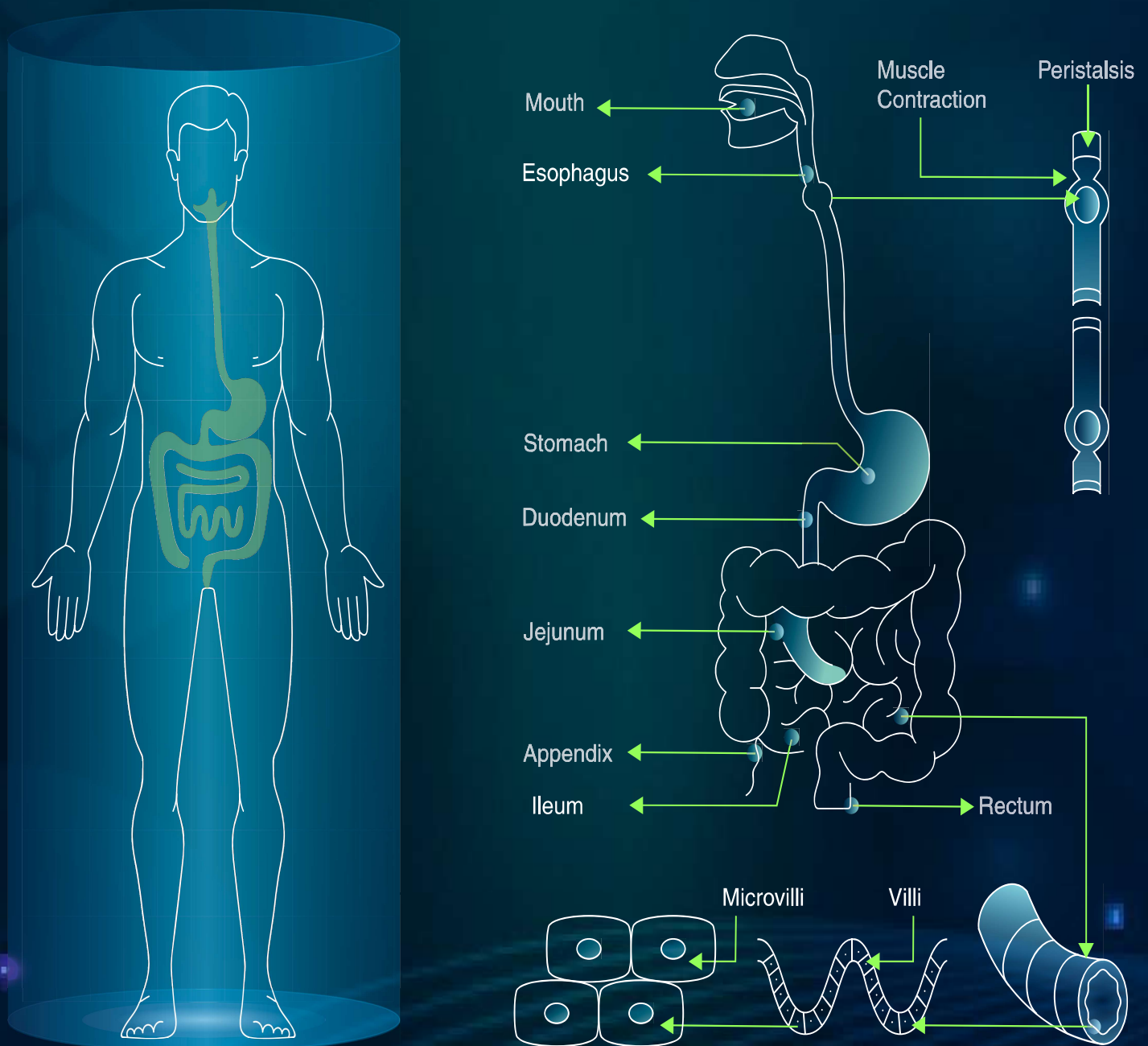
NUTRITION IN AMOEBA



HUMAN BODY

DIGESTIVE SYSTEM

Human digestive system consists of the alimentary canal and digestive glands and it involves mastication, swallowing, digestion of food and elimination of undigested matter. The alimentary canal is basically a long tube extending from the mouth to the anus. It is differentiated into following parts.



Steps in nutrition are ingestion, digestion, absorption, assimilation, egestion.

PROCESS OF DIGESTION

Mechanical Process

Mechanical process that includes cutting, grinding and swallowing the food thus broken into small particles and then pushing the food along the food canal. Smaller particles expose greater surface area for action by enzymes.

Chemical Process

Enzyme	Produced In	Site of Release	pH Level	Action
Carbohydrate Digestion				
Salivary amylase	Salivary glands	Buccal cavity	Nearly Neutral	Starch → Maltose + Dextrin
Pancreatic amylase	Pancreas	Small intestine	Basic	Starch → Maltose + Dextrin
Maltase	Intestinal glands	Small intestine	Basic	Maltose → Glucose + Glucose
Protein Digestion				
Pepsin	Gastric glands	Stomach	Acidic	Proteins → Peptides + Proteoses
Trypsin	Pancreas	Small intestine	Basic	Proteins → Peptides
Peptidases and Dipeptidases	Intestinal glands	Small intestine	Basic	Peptides → Dipeptides → Amino acids
Fat Digestion				
Pancreatic Lipase	Pancreas	Small intestine	Basic	Fats → Fatty acids + glycerol
Intestinal Lipase	Intestinal glands	Small intestine	Basic	Fats → Fatty acids + glycerol

