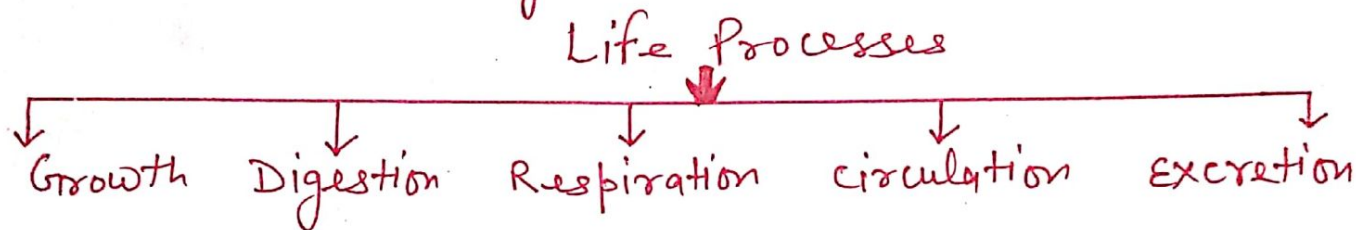


Class - X

Subject - Science (Biology)

Topic - Life Processes

All the Processes like respiration, digestion which together keep the living organisms alive and perform the job of body maintenance are called life processes. e.g.



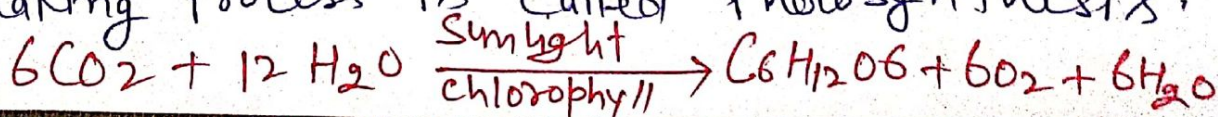
- :: Nutrition :: -

Taking into the food and its proper utilization by the organisms is called nutrition. It is of two types — (a) Autotrophic :— when the organism can make their own food. Such type of nutrition is called autotrophic nutrition.

Green Plants and algae synthesise their own food. They do not depend upon others for food.

(b) Heterotrophic :— when the organisms can not prepare their own food. They depend upon others for food. Such type of nutrition is called heterotrophic nutrition. Animals like dog, cat, man, lion etc.

• Photosynthesis :— Green Plants prepare their food with the help of CO_2 and water in the presence of sunlight. This food making process is called photosynthesis.

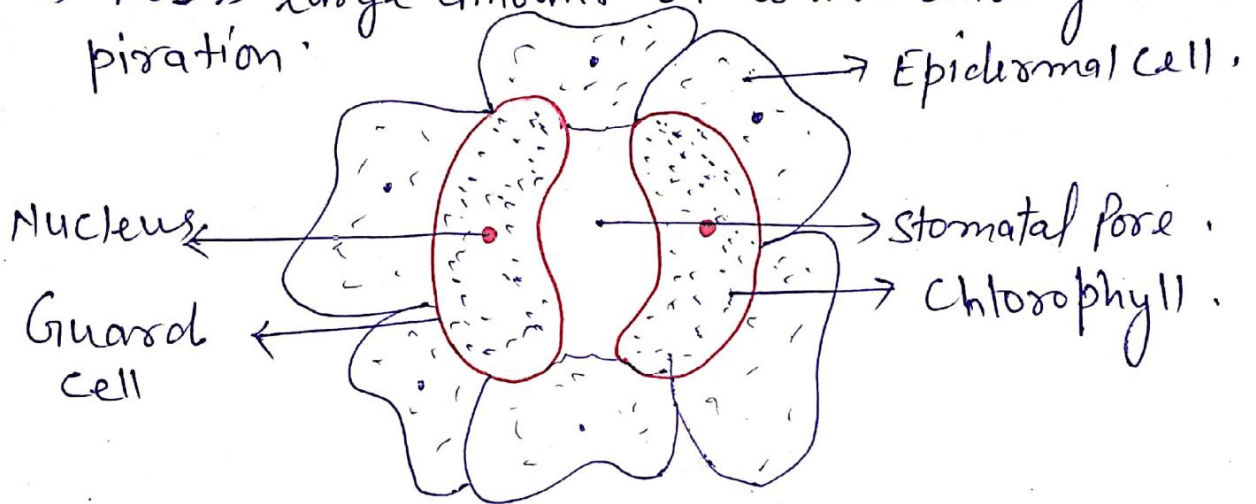


main Events / steps of Photosynthesis: — # X ②

- (i) Absorption of light energy by chlorophyll.
- (ii) Conversion of light energy into chemical energy + splitting of water into hydrogen and oxygen.
- (iii) Reduction of CO_2 into carbohydrates (food).

STOMATA: — Tiny pores present on the surface of the leaves are called stomata.

Functions: — (a) Exchange of gases O_2 / CO_2 .
 (b) loses large amount of water during transpiration.

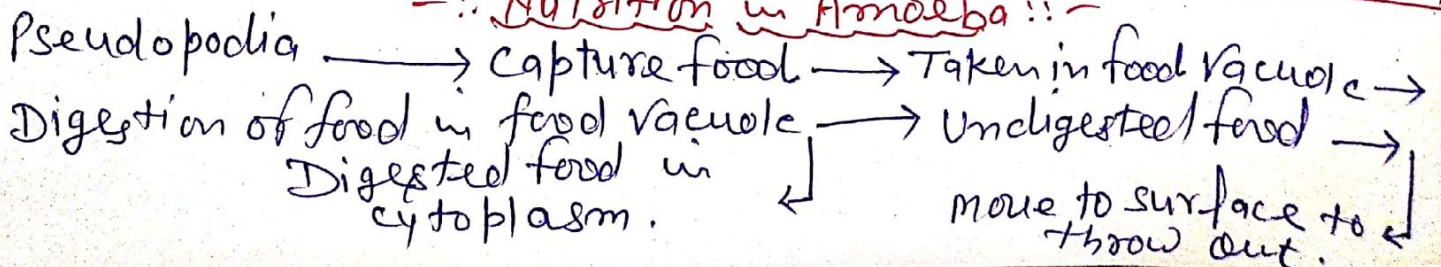


View of stomata

Heterotrophic Nutrition

<p><u>Holozoic</u> Animals take in food in solid form and breakdown inside the body. e.g - Amoeba, animals.</p>	<p><u>Saprophytic</u> organisms feed on dead, decaying matter. e.g - Fungi.</p>	<p><u>Parasitic</u> parasites live inside or outside other organisms (host) and derive nutrition from them. e.g - cuscuta, Ticks, leech, Plasmodium</p>
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— :: Nutrition in Amoeba :: —



Nutrition In Human Beings ③

1. Mouth → Intake of whole food.
 ↓
 Teeth → chewing / grinding of food.
 ↓
 Tongue → Rolling of food + Tasting of food + pushing down / swallowing of food.
 ↓
 Salivary Glands → Secrete saliva + mucus
 starch $\xrightarrow[\text{Amylase}]{\text{Enzyme}}$ sugar

2. Oesophagus → Taking food from mouth to stomach by Peristaltic movements (Contraction and expansion of muscles of it).
 ↓

3. Stomach → Gastric glands secrete Gastric Juice

Gastric Juice

 - PEPSIN :- It breaks down proteins.
 - HCl :- It makes medium acidic.
 - MUCUS :- It protects inner lining of the stomach.

↓

4. Small Intestine: → (a) Intestinal enzyme
 ↓ Convert

↓ Carbohydrates	↓ Fats	↓ Proteins
Glucose	Fatty Acid + Glycerol	Amino Acids

5. Small Intestine → (b) Villi - (Finger like projections) :-
 These help in absorption of food into the blood.
 (c) Receives secretion from: -
 (i) Liver → bile → fat → Emulsified fat
 (ii) Pancreas → P. Juice → ~~trypsin~~ \rightarrow Lipase \rightarrow fat \rightarrow Lipid + Peptides \leftarrow Proteins

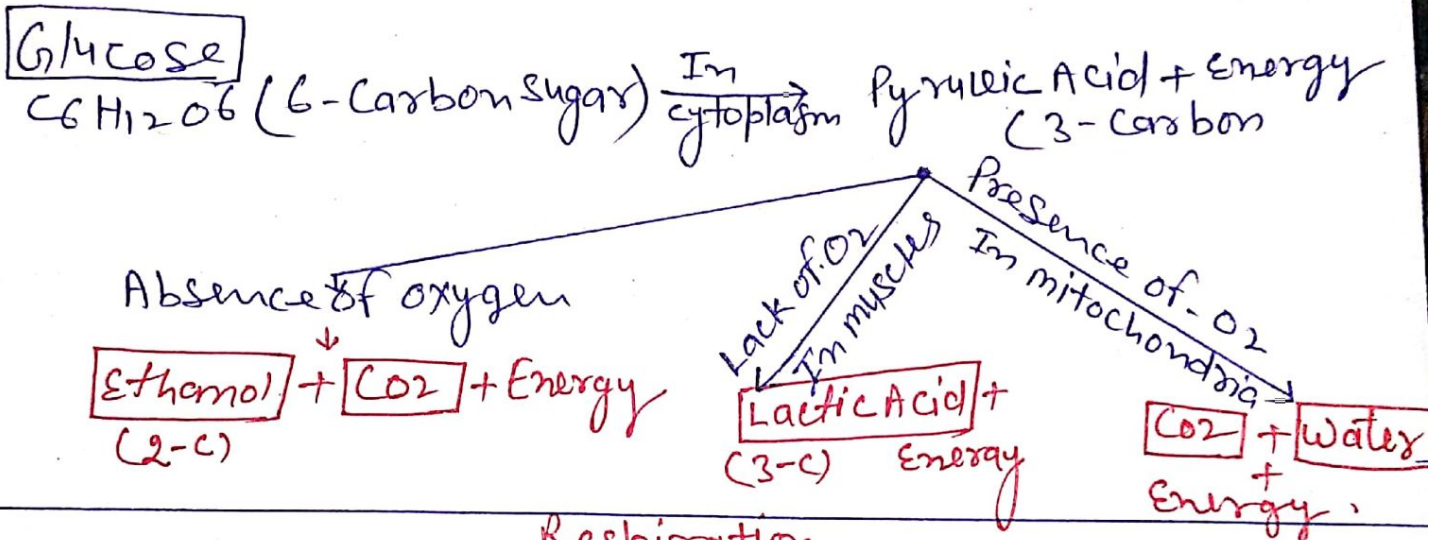
↓

6. Large Intestine → Absorbs excess of water.
 → The undigested food material is removed from the body via the anus by the action of sphincter muscles.

Respiration

Respiration involves: (i) Gaseous exchange: - Intake of oxygen from the atmosphere and release of CO_2 → **Breathing**.
 (ii) Break down of simple food in order to release energy inside the cell → **cellular-respiration**.

Break down of Glucose by Various Pathways:-



Respiration

Aerobic

1. It takes place in the presence of oxygen.
2. It occurs in mitochondria.
3. Its end products are CO_2 and H_2O .
4. More amount of energy is released.

Anaerobic

1. It takes place in the absence of oxygen.
2. It occurs in cytoplasm.
3. Its end products are alcohol or lactic acid.
4. Less amount of energy is released.

Inhalation

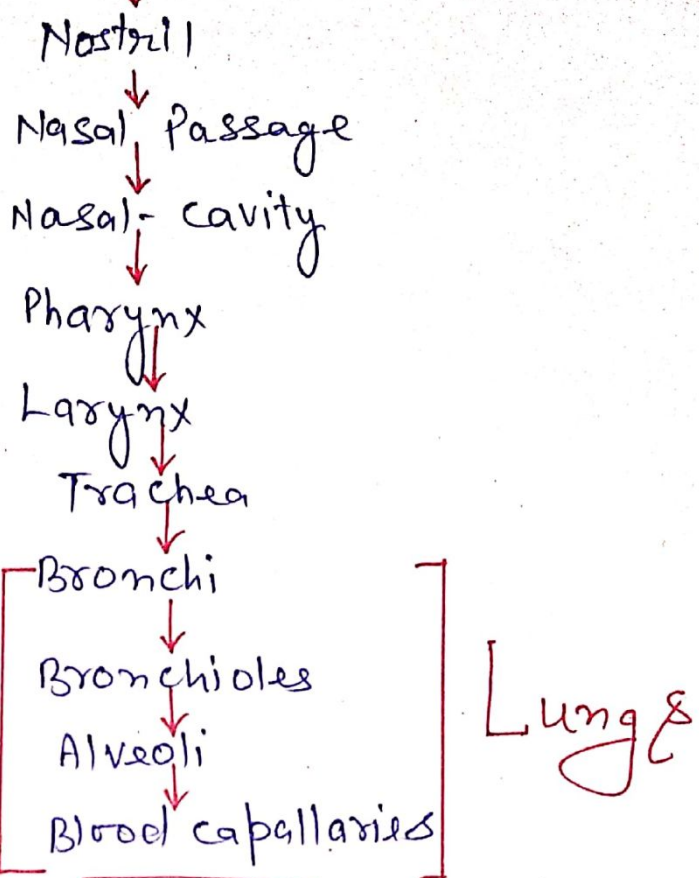
1. During inhalation, the thoracic cavity expands.
2. Ribs lift up.
3. Volume of lungs increases and air enters the lungs.

Exhalation

1. Thoracic cavity contracts.
2. Ribs move downwards.
3. Volume of lungs decreases and air exits from the lungs.

Passage of Air through the respiratory system

in Human



Assignment to do

- Q No 1: - ----- organism feed on dead, decaying matter.
- Q No 2: - Food making process by green plants is -----.
- Q No 3: - The numbers of stomata are more on the lower surface of the leaf as compared to the upper surface Give reason.
- Q No 4: - Define peristaltic movement.
- Q No 5: - what is the role of saliva in the digestion of food?
- Q No 6: - what is emulsification?
- Q No 7: - write one function of each of the following: -
(i) Pepsin enzyme (ii) Lipase enzyme.
- Q No 8: - Explain three pathways of breakdown of glucose in living organisms.
- Q No 9: - what will happen if green plants disappear from earth?
- Q No 10: - mention three major events in photosynthesis.