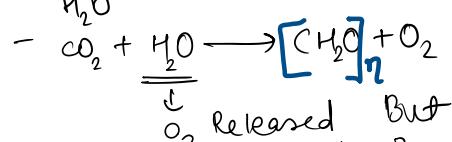
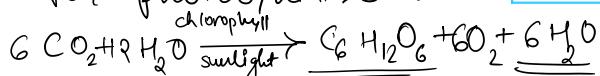


Life processesNutrition :- Intake and Utilization of NutrientsAutotrophic

- Make their own food
- With the help of photosynthesis.
- They make glucose with the help of CO_2 & H_2O



the main formula is
for photosynthesis is



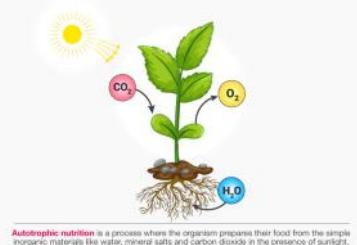
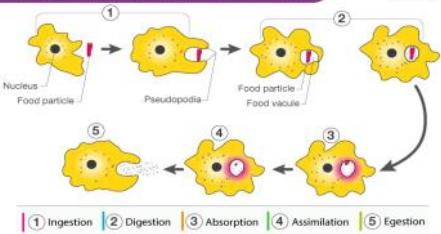
Glucose

Removes in the process of transpiration

photosynthetic organism → Trap solar energy.
→ solar energy from ATP & NADPH

ATP & NADPH is energy molecule

- Adenosine triphosphate
- Nicotinamide adenine Dinucleotide phosphate

AUTOTROPHIC NUTRITION**HETEROTROPHIC NUTRITION : AMOeba**

Ingestion :-

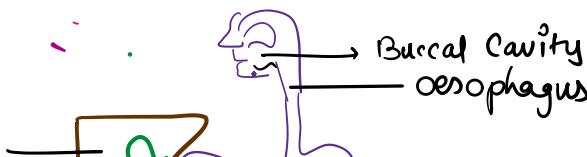
Digestion :-

Absorption :-

Assimilation :-

Egestion :-

Liver



Holozoic

- animal like nutrition
- Ingestion, Digestion, Absorption, Assimilation, egestion
- Ex:- amoeba, humans

Saprophytic

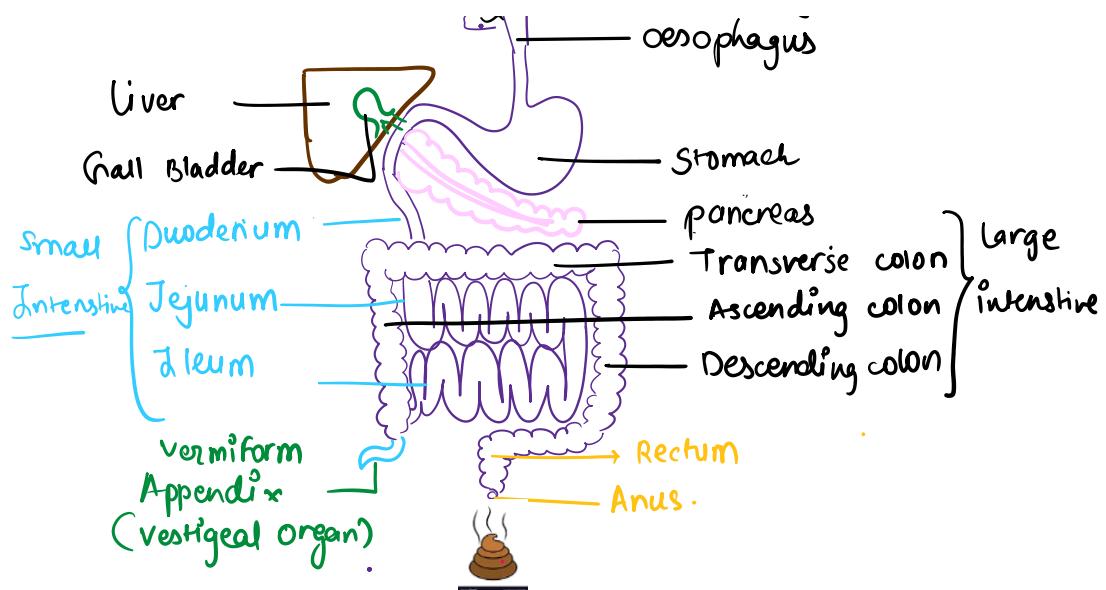
- Feeds upon Dead & Decaying matter
- Organic matter digestion
- Fungus.

Symbiotic

- two organisms are mutually benefitted by living in close association

Ex:- Lichen → Algae + Fungi

Autotrophic nutrition	Heterotrophic nutrition
(i). Food is prepared from CO_2 , water and sunlight	(i). Food is obtained from other organisms.
(ii). Chlorophyll is required.	(ii). Chlorophyll is not required.
(iii). All green plants and some bacteria have this type of nutrition.	(iii). All animals and fungi have this type of nutrition.
(iv). Food is generally in day time.	(iv). Food can be obtained at all time.

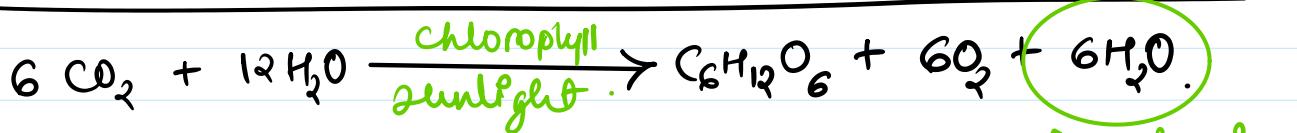
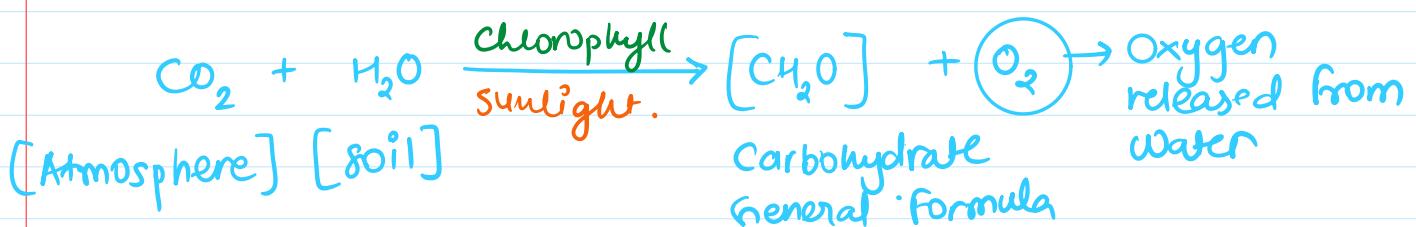


Photosynthesis

11 April 2023 15:47

Photo + synthesis = Photosynthesis

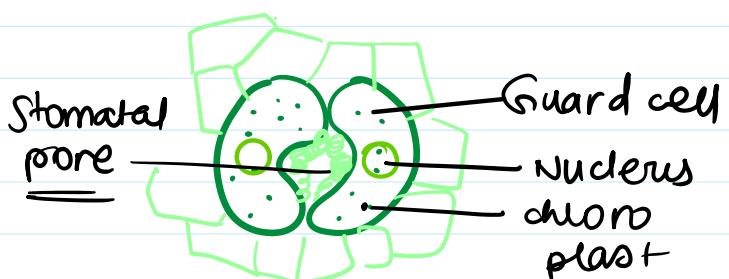
Photon or Sunlight To make something [Nutrition Autotrophic].



Transpiration

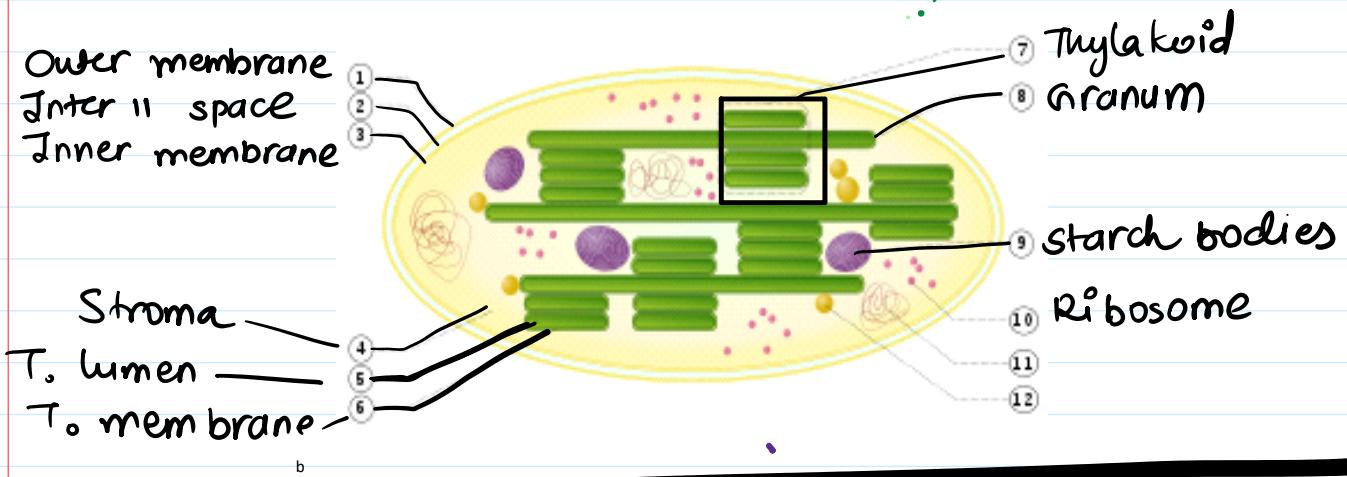
Here the energy released from ATP & NADPH which was trapped by PHOTOSYNTHETIC ORGANISM

Stomata



Tylakoid membrane contain Green pigment molecule called **Chlorophyll**

Outer membrane
Inter II space
Inner membrane



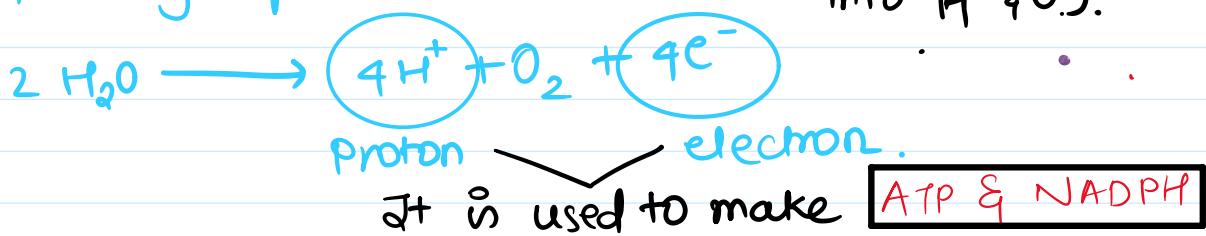
T_o membrane —

Mechanism of photosynthesis

- ## 1) Absorption 2) conversion 3) Reduction

1) Absorption of solar energy by chlorophyll.

2) conversion of light energy to chemical energy & splitting of waves (photo lysis \rightarrow Breaking water mol. into H & O).



3) Reduction :- $\text{CO}_2 \longrightarrow \text{CH}_2\text{O}$ [carbohydrates].
- Removal Oxygen
- addition of Hydrogen

Reduction

Oxydation

Additivity - b

Wednesday -

Human Digestive system:-

- (1) Mouth / Buccal cavity.
 - (2) Oesophagus
 - (3) Stomach
 - (4) Small Intestine
 - (5) Large Intestine
 - (6) Rectum / Anus
- } Morphology
-

(1) Mouth :- Buccal cavity.

⇒ stoma

⇒ Gnathostomata

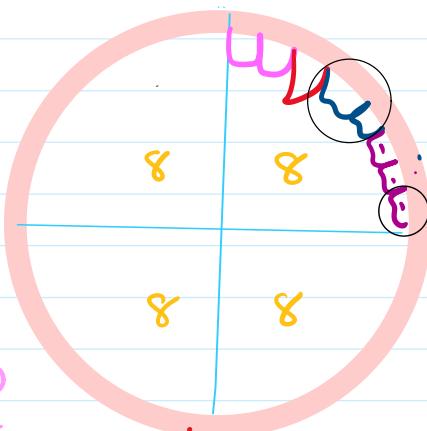
⇒ teeth ⇒ Heterodont, thecodont, Diphyodont

$$= I \ C \ P \ M \ M$$

$$= \frac{2 \ 1 \ 2 \ 3}{2 \ 1 \ 2 \ 3} \times 2 = 32$$

In children
Milk teeth

$$= \frac{2 \ 1 \ 0 \ 2}{2 \ 1 \ 0 \ 2} \times 2 = 20$$



I - Incisor = 2/2

C - Canine = 1/1

PM - Pre molar = 2/0

M - Molar = 3./2

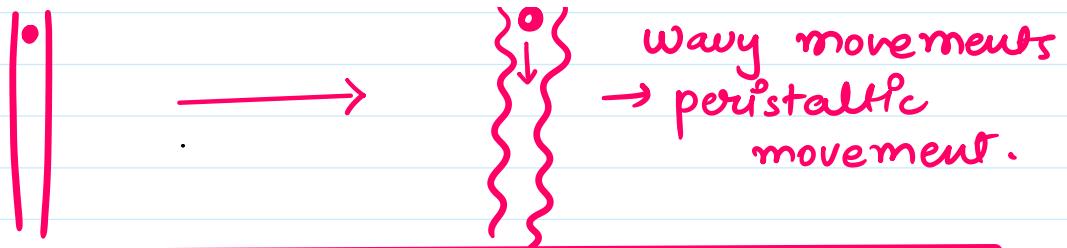
- ⇒ Tongue = for taste, muscular sensory organ.
 - ⇒ Salivary glands :- secretes saliva.
 - (1) parotid gland → largest
 - (2) sub maxillary gland
 - (3) sub lingual gland → smallest.
-

(2) Oesophagus :- ~25 cm long. → pharynx → Oesophagus

- With the help of mucus & saliva, chewed food become bolus which drawn down to oesophagus with rhythmic contraction it is known as **peristalsis** by this movement food forward to stomach.

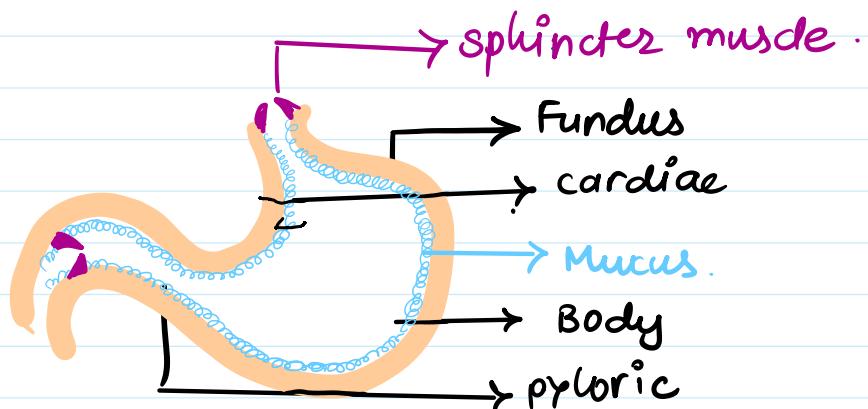


Wavy movements
→ peristalsis.



(3) stomach :- It is a muscular sac.

- storehouse of food material
- It secretes the gastric gland which mixed with the food and make the acidic chyme



→ Mainly three types of secretion is getting secreted:-

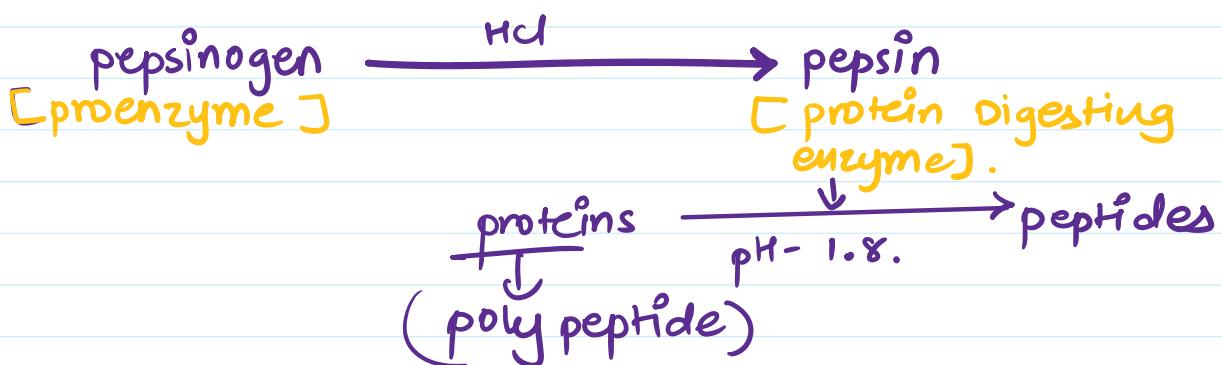
(1) Mucus :- (Goblet cells)

→ thick layer on the inner surface of stomach & protects it from the action of HCl.

(2) HCl :- (chief cell)

- kills the harmful bacteria
- creates the acidic medium
- It facilitates activation of proenzyme pepsinogen & action of enzyme pepsin.

(3) pepsinogen :- (protein Digesting enzyme) - Proenzyme (chief cells / zymogenic cells/ peptic cells)



(4) Small intestine :- 6 meters long tube

→ longest part of alimentary canal

→ It is divided into 3 parts :-

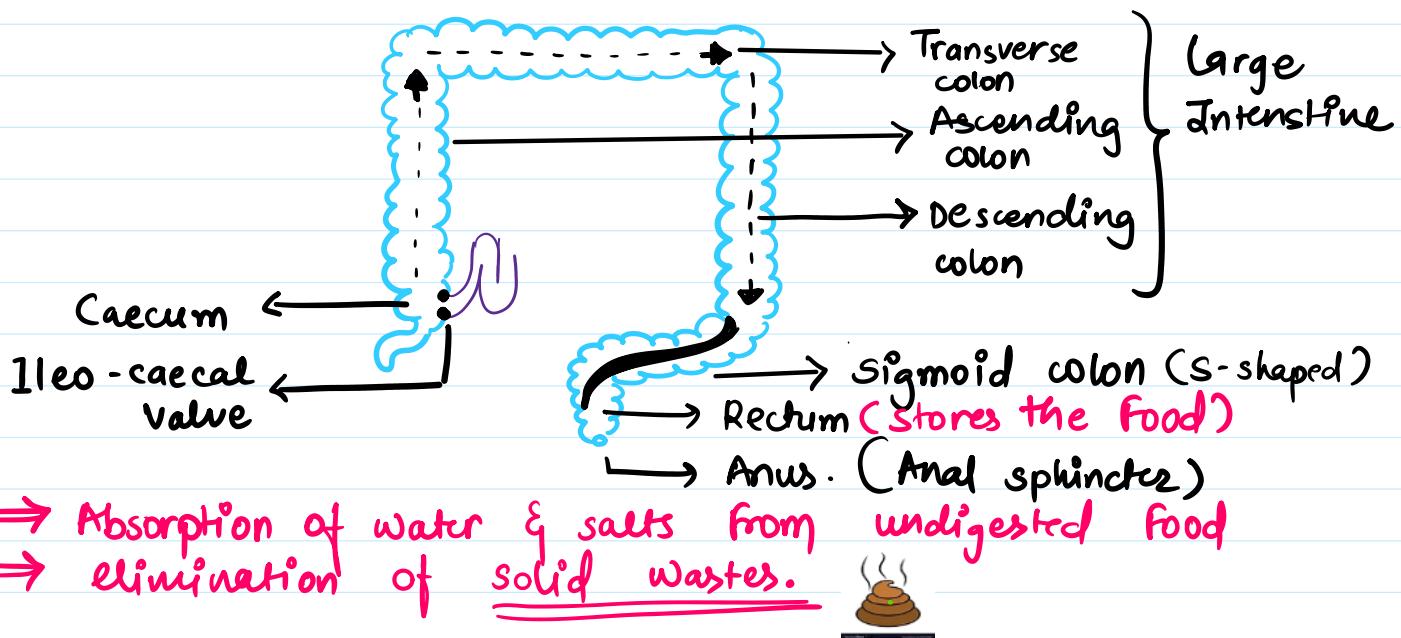
(1) Duodenum :- [25 cm] C shaped

(2) Jejunum :- [2.5 m]

(3) Ileum :- [3.5 m].

(5) Large Intestine :- Wider than the small intestine.

⇒ much shorter 1.5 to 1.8 mt.



⇒ Absorption of water & salts from undigested food

⇒ elimination of solid wastes.

FUNCTIONS OF DIGESTIVE SYSTEM.

→ Break down of complex food to simpler form. →
 Absorption of simpler form → absorbed food is utilised for obtaining energy..

(1) Ingestion :-

- taking of food
- Masturbation of food
- Moistening of food
- Deglutition of food

(2) Digestion :- Food broken down into small particles by churning process & Digestive enzymes into absorbable food particles.

- (i) Digestion in mouth :- secretes 1. to 1.5 L saliva/day.
- composed of 99% water and contains ptyalin or **Salivary amylase** enzyme.
 - Digestion of carbohydrate (starch)



(2) Digestion in stomach :-

→ Mainly three types of secretion is getting secreted:-

(1) Mucus :- (Goblet cells)

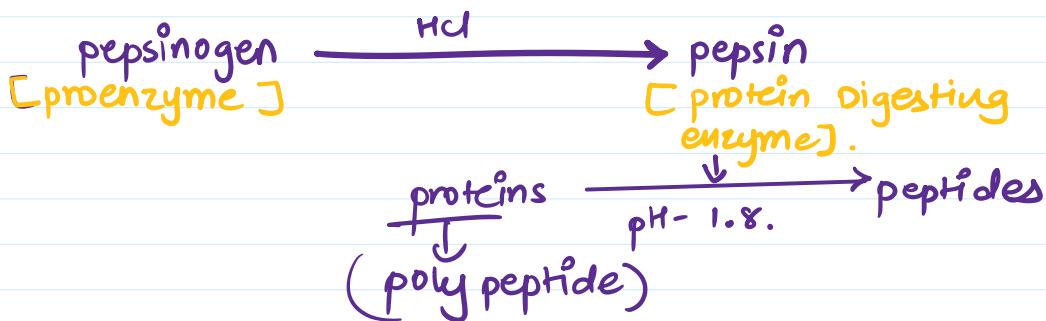
→ thick layer on the inner surface of stomach & protects it from the **action of HCl**.

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- kills the harmful bacteria
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(3) pepsinogen :- (protein Digesting enzyme) - Proenzyme

- (chief cells / zymogenic cells/ peptic cells)



(3) Digestion in small intestine :-

(1) JTT :-

(3) Digestion in small intestine :-

→ protein Digestion :-

protein $\xrightarrow[\text{Trypsin}]{\text{Pepsin}}$ peptides + peptones $\xrightarrow{\text{Dipeptidase}}$ Amino acids.

→ Fat (Lipid) Digestion :-

Fats $\xrightarrow{\text{lipase}}$ Emulsified fats $\xrightarrow{\text{lipase}}$ Glycerol + Fatty acid

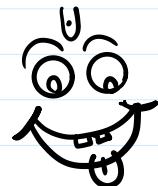
→ Carbohydrate Digestion :-

Maltose $\xrightarrow{\text{Maltase}}$ Glucose.

Glucose + Glucose $\xleftarrow{\text{Maltase}}$ Maltose

Glucose + Fructose $\xleftarrow[\text{Invertase}]{\text{Sucrase}}$ Sucrose

Glucose + Galactose $\xleftarrow{\text{lactase}}$ Lactose.



⇒ Accessory Digestive Gland :-

(1) Liver :- Largest gland of our body.
It secretes bile juice which is stored in gall bladder, a yellowish green, small sac.
Bile juice $\xrightarrow{\text{Bile salts}}$ Bile salts
 $\xrightarrow{\text{Bile pigments}}$ Bile pigments.

Functions :-

(1) To make the food alkaline :-

- Bile salts accomplish this as these contain Na_3HCO_3 sodium bicarbonate.

(2) Emulsification of the fat :-

- Fats in intestine are in form of large globules. Bile salts break down to small globules so it increases the surface area exposed for enzyme action.

⇒ The process of breakdown of fat into small droplets is known as **emulsification of fats**.



② Functions of liver :-

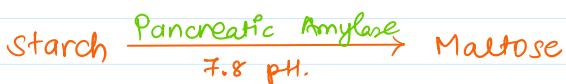
① Functions of liver :-

- It is responsible for the secretion of bile juice
- Production of urea
- Detoxification

② Pancreas :-

- soft, lobulated, greyish pink gland
- It secretes an alkaline pancreatic juice with pH. 7.8.
 - Role of pancreatic juice in digestion :-

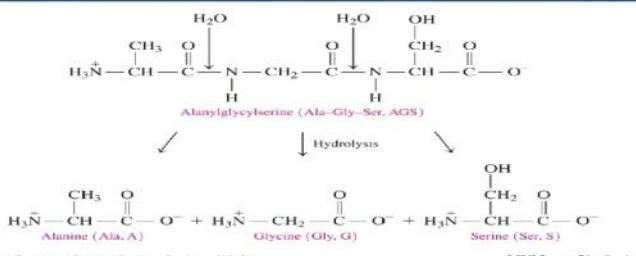
1) Pancreatic Amylase :-



2) Protease → trypsin.



Protein Hydrolysis



3) Lipid → Lipase / Pancreatic Lipase → Steapsin.



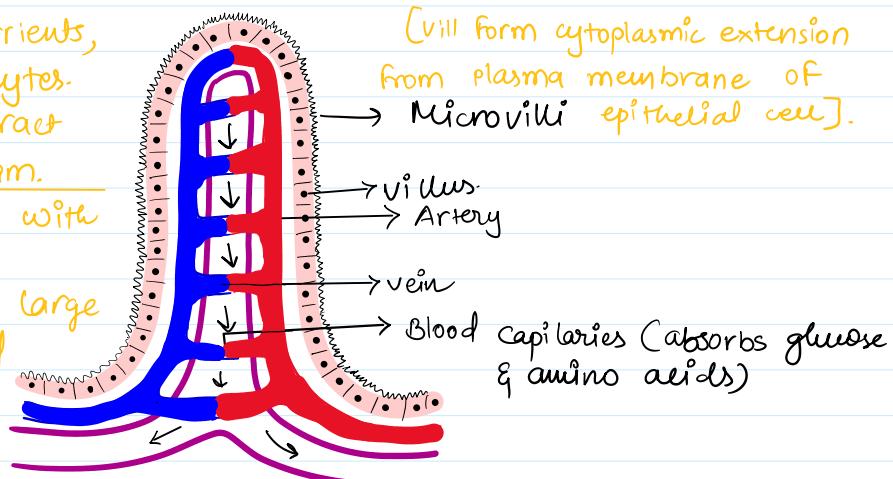
3] Absorption :-

⇒ Absorption of nutrients, water and electrolytes.

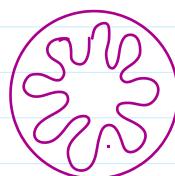
⇒ Gastro-intestinal tract to the blood stream.

⇒ Villi are supplied with network of blood capillaries and a large lymph vessel called

Lacteal

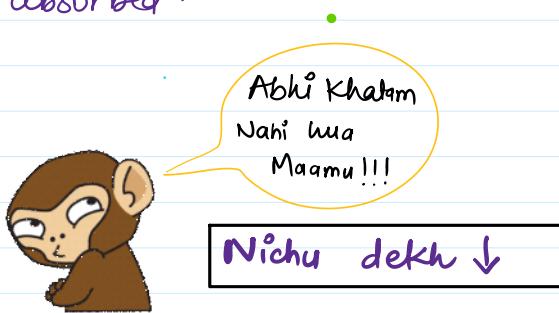


Villi in small intestine



4] **Assimilation :-** Absorbed food utilised for obtaining energy
→ Building up new tissues & repair of the old tissue

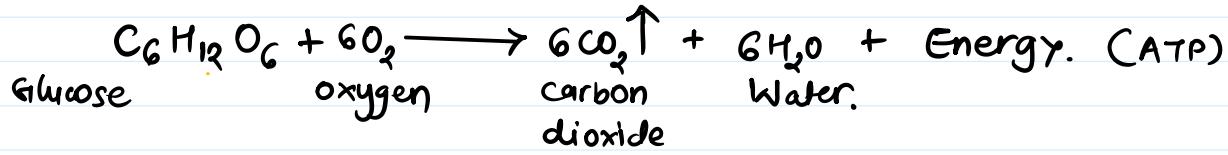
5] **egestion :-** unabsorbed food is sent to the large intestine
where water is absorbed.
⇒ Rest of the



about Respiratory system. → ↗

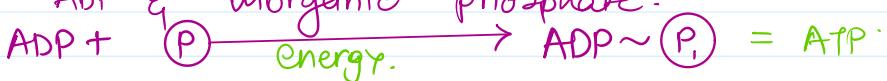
RESPIRATION

→ Respiration is a process in which oxygen is taken up for the oxidation of food in order to release Energy, water & CO_2 .



→ Adenosine Triphosphate → Energy currency for most of cellular process. Ex:- protein synthesis, conduction of nerve impulses.

⇒ Energy is released during a process in which ATP is released from ADP & inorganic phosphate.



शक्तिमान

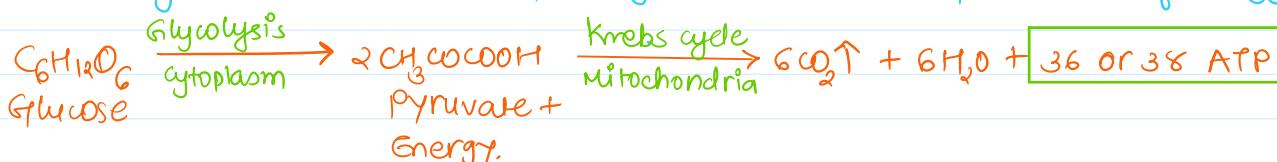


મે. બંગ ! ટકલીફ
લો એવાળી ર.
Coorgar ...

→ Oxidation of food can occur in the presence or absence of oxygen. respiration is of two types:-

(1) Aerobic Respiration:-

Organic food is completely oxidized in presence of oxygen.



In aerobic Respiration two processes are done

① Glycolysis :- [Occurs in cytoplasm]

- 2 ATP.

- 2 NADH \rightarrow 3 or 2 ATP per NADH. = 6 or 4.

● $2 + 6 = \boxed{8}$ or ● $2 + 4 = \boxed{6}$

② Krebs cycle :- [occurs in matrix of mitochondria]

$$- 2 \text{NADH} + 6 \text{NADH} \rightarrow 8 \times 3 = 24$$

- $2\text{FADH}_2 \rightarrow$ Each releases $2\text{ATP} = 2 \times 2 = 4$

ONLY FOR KNO

- $2\text{NADH}^+ + 6\text{NADH} \rightarrow 8 \times 3 = 24$
- $2\text{FADH}_2 \rightarrow$ Each releases 2 ATP = $2 \times 2 = 4$
- 2 ATP

• $24 + 4 + 2 = \boxed{30}$

⇒ Total Net gain of ATP is
Krebs cycle + Glycolysis = $8/6 + 30 = \boxed{38}$ or $\boxed{36}$

KNOWLEDGE

⇒ About Aerobic Respiration :-

1. It occurs in cytoplasm and mitochondria of cell.
2. Oxygen is required.
3. Due to complete oxidation of organic food, more energy is released.
4. End products are CO_2 & H_2O .
e.g. common in most of the eukaryotic organism.

(2) Anaerobic Respiration :-



Absence of oxygen

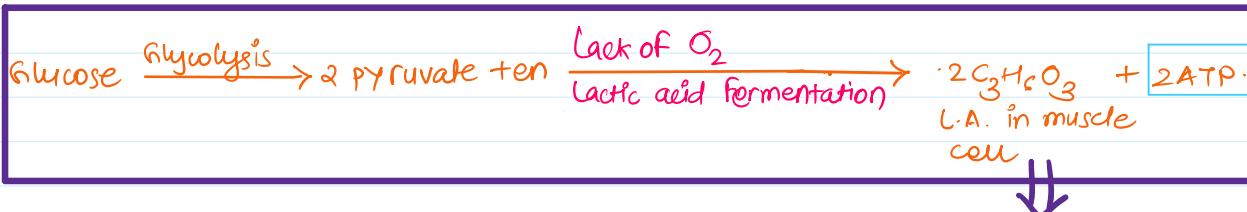
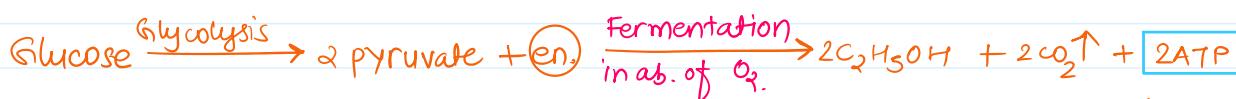
[In Yeast, some bacteria]

- Organic food is incompletely oxidised into ethyl alcohol.
- 2 ATP is released.

Lack of oxygen

[in human muscles].

- During vigorous muscular activity lack of O_2 supply, anaerobic respiration takes place.
- During this lactic acid is formed which leads to muscle cramps



When O_2 will supply properly it will then completely oxidised into CO_2 & H_2O .



⇒ Respiration in plants :-

⇒ Respiration in plants :-

- Exchange of gases occurs through the minute pores called Stomata. By diffusion & Depends on env. condition & requirement of plant.



At Daytime ☺

- ⇒ CO_2 generated during respiration is utilized by the plants for the process of photosynthesis
- ⇒ Thus O_2 release is the major event at this time.

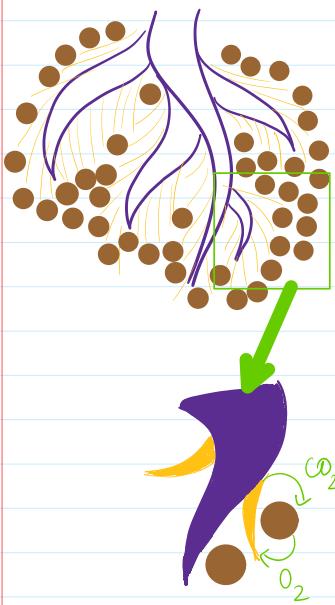
At night 🌙

- ⇒ When no photosynthesis, CO_2 generated during respiration is eliminated
- ⇒ Thus, CO_2 release is the major event at this time.

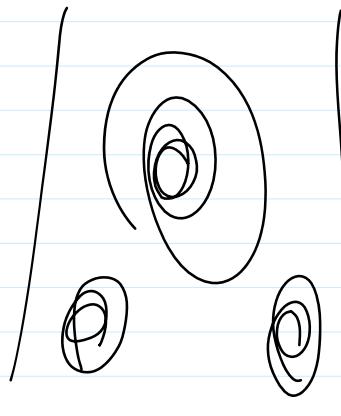
⇒ In plants, exchange of gases can also occur in roots and stem as well



Root hairs



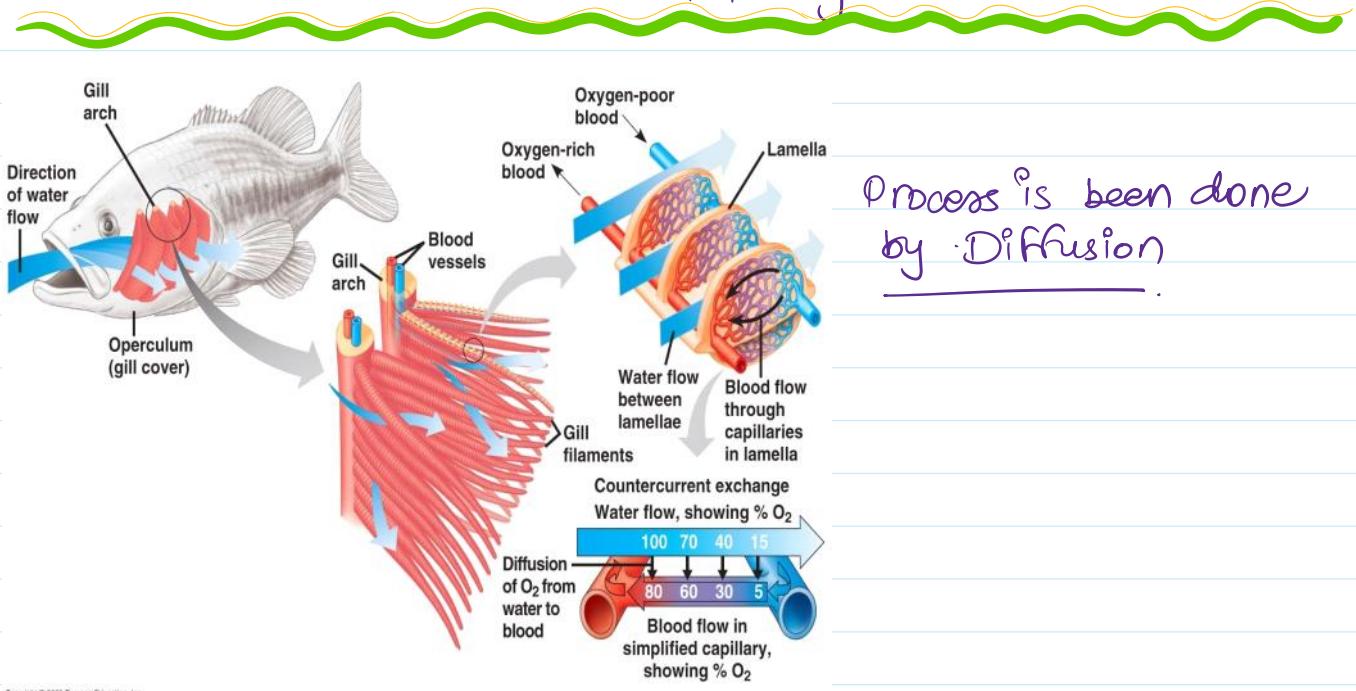
- ⇒ Older parts of the root & stem do not have hairs. They are covered by protective layer of dead cells known as bark.
- ⇒ This bark has tiny openings called lenticels which help in the gaseous exchange between tissues underlying bark & surroundings.



Respiration in animals

21 April 2023 11:26

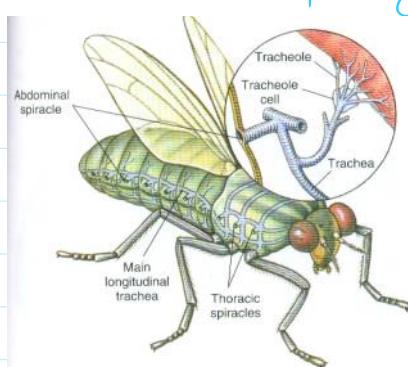
- ⇒ Terrestrial animals use the oxygen available in atmosphere.
- Aquatic animals use the oxygen dissolved in water.
- ⇒ Dissolved oxygen is fairly low as compared to the amount of oxygen in the air.
- ⇒ The rate of breathing in aquatic organisms is much faster than that seen in terrestrial organisms.



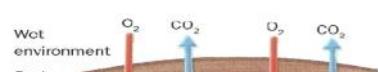
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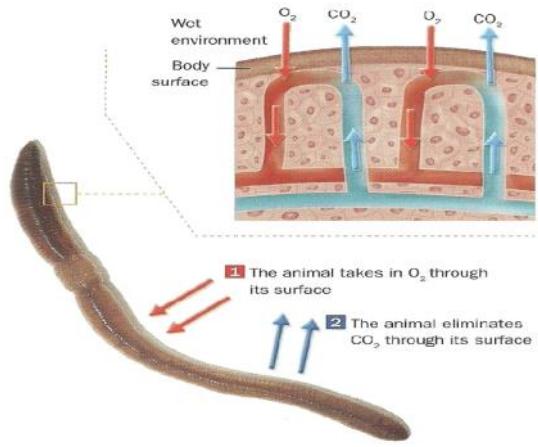
Different animals have different organs for exchange of gases such as:

- (1) Body surface :- Amoeba & certain lower animals like sponges exchange gases through body surface.
- (2) Trachea :- Insects such as cockroaches have a network of air tubes called trachea for exchange of gases.
- Openings of these air tubes are known as spiracles.

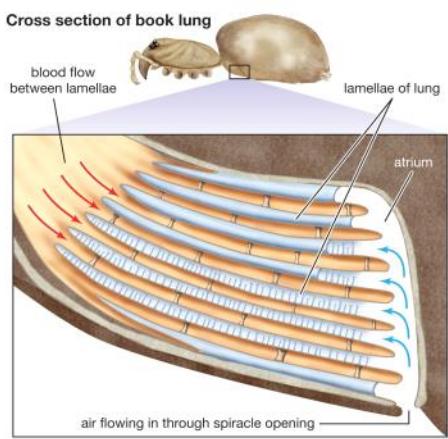


- (3) skin :- Animals like frogs and earthworms, skin is moist and slimy which makes it easier to exchange gases.





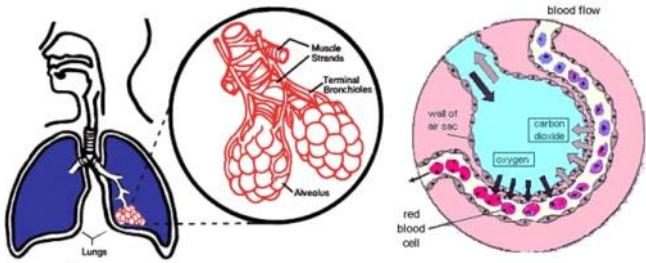
skin is moist and slimy which makes it easier to exchange gases.
[cutaneous respiration]



(4) Book lungs:- Many arachnids like scorpions and some spiders have book lungs for gaseous exchange.

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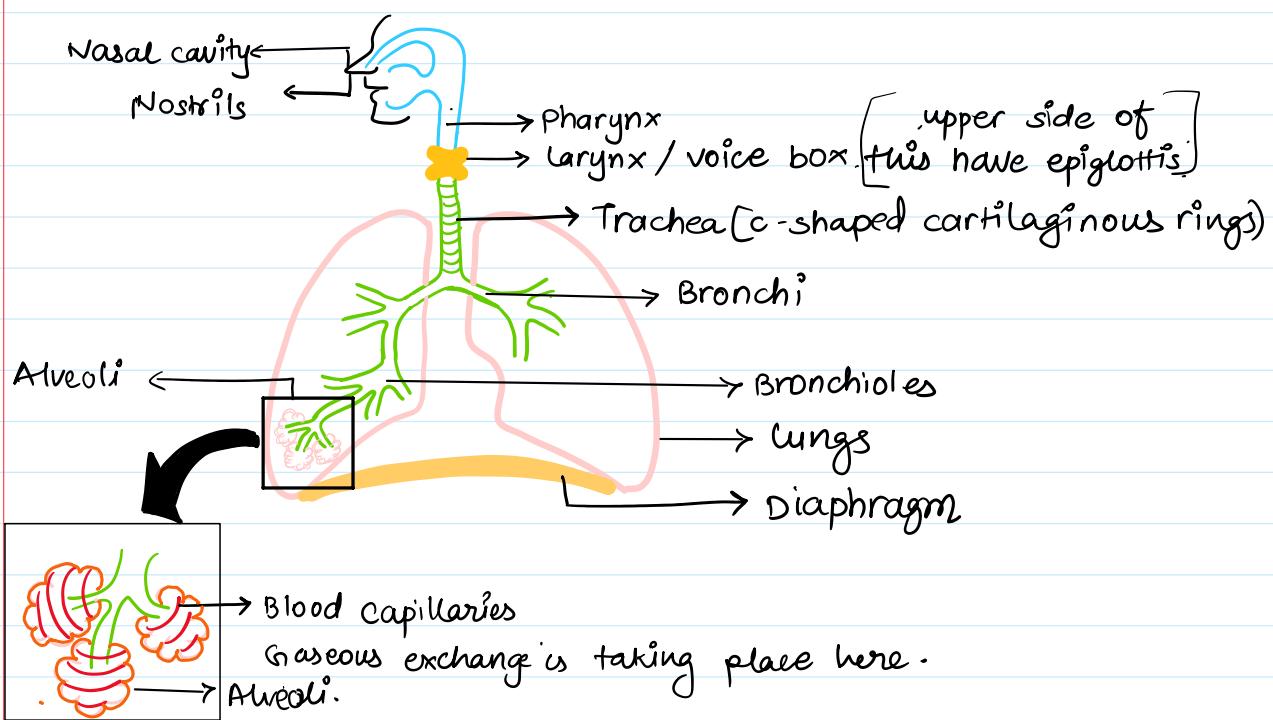
(5) lungs:- Many terrestrial animals.



"Human Respiratory system is a network of organs 6 tissue that helps us breathe. The primary function of this system is to introduce oxygen into the body and expel carbon dioxide from the body."

⇒ Parts/organs of Human Respiratory system-

- (1) Nose/ Nasal cavity
- (2) Mouth
- (3) pharynx
- (4) larynx
- (5) Trachea / wind pipe
- (6) Bronchi
- (7) Bronchioles.
- (8) lungs.



(1) Nostrils or External Nares:- Small, oval apertures present at the lower end of the nose and just above the mouth. Air is inhaled through nostrils.

(2) Nasal chambers:- A pair of nasal chambers are enclosed in the Nasal cavity and are present above the palate. These are separated by a nasal septum. Fine hair & mucus secreting cells are present in the lining of chamber to filter the air.

surrounded by a **nasal septum**. The **hair** & **mucus** secreting cells are present in the lining of chamber to **filter the air**.

(3) **Pharynx** :- Common passage for **Food & air**. The pharynx leads into trachea or wind pipe through a slit like aperture called **glottis**. While swallowing the food, glottis gets covered by a small cartilaginous flap called **epiglottis**.

(4) **Larynx** :- It is a sound producing organ and contain vocal cords which is made up of elastic fibres. It is also known as voice box.

- During expiration, air is forced out of lungs which vibrates vocal cords and produces sound, and results in speech

Male

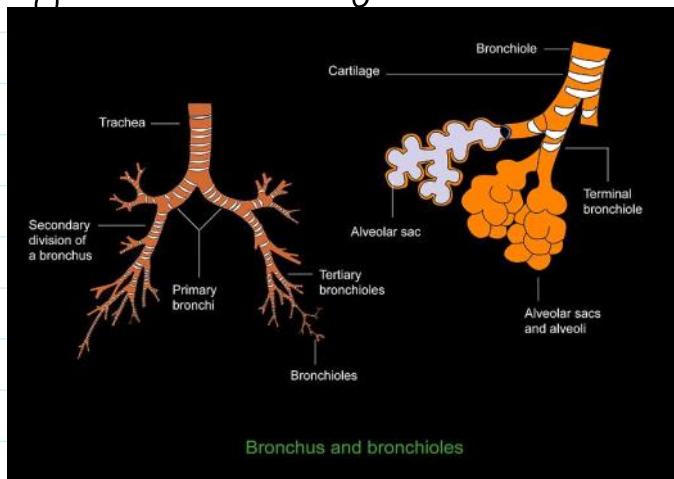
- Vocal cords are usually longer and thicker so their voice is of low pitch.
- Adam's apple
- length: 1.75 - 2.5 cm

Female

- Vocal cords are usually shorter & thinner in ♀ & children so their voice is of high pitch.
- length: 1.35 - 1.75 cm.

(5) **Trachea** :- The larynx leads into a long tube called trachea or wind pipe.

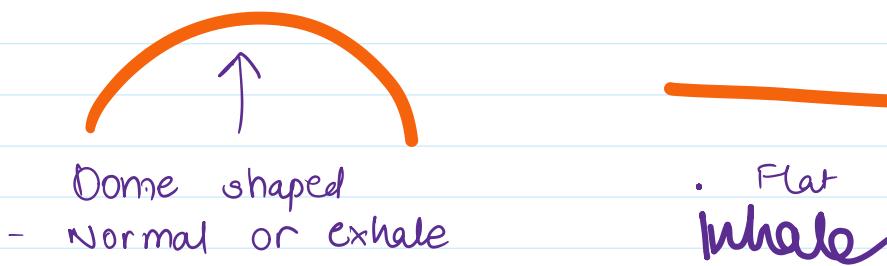
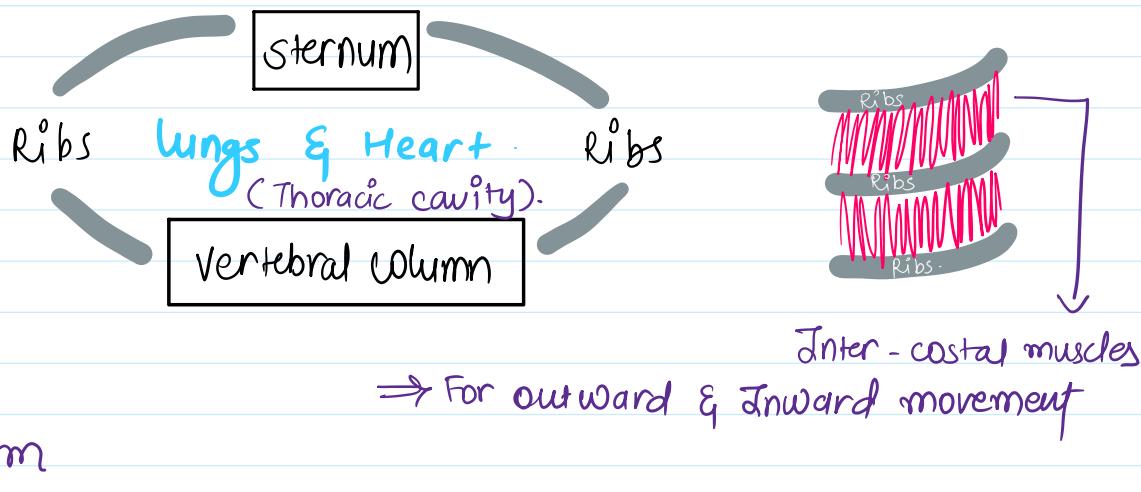
- 11.8 cm long trachea is supported by C-shaped incomplete rings of hyaline cartilage.



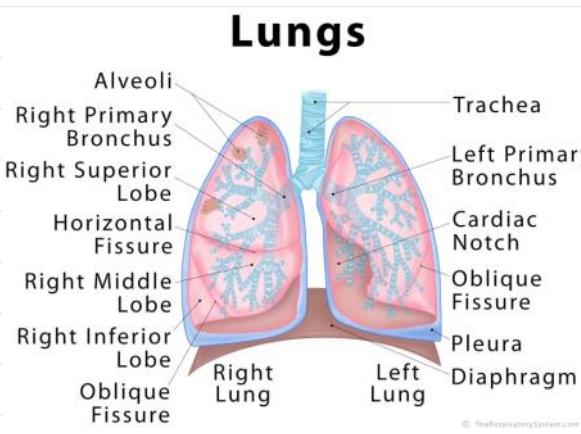
(6) **Bronchi & Bronchioles** :- The trachea bifurcates at its lower end into a pair of primary bronchi → lungs → secondary bronchi → tertiary bronchi → bronchioles (Not supported by C cartilaginous rings) → gets deeper & thinner

(7) Ribs inter-costal muscles and diaphragm

- (7) Ribs, inter-costal muscles and diaphragm
- ⇒ 12 pairs of ribs
 - ⇒ Made up of bones & cartilage to form thoracic cavity.
 - ⇒



- 8) Lungs:- soft, spongy, elastic organs-
- ⇒ covering of lungs are the pleural membrane.
 - ⇒



Left lung is slightly longer & narrow than the right & has the concavity for heart.

- The exchange of gases taking place at alveoli through diffusion process. It has been estimated to be approximately 300 million & its wall has an extensive network of blood capillaries in contact where exchange of gases is taking place. Thus a respiratory surface must be:
- (1) thin and permeable to respiratory gases (O_2 & CO_2).

Thus a respiratory surface must be

- (1) thin and permeable to respiratory gases (O_2 & CO_2).
- (2) moist either with water or mucus.
- (3) highly vascular & have large surface area.
- (4) directly or indirectly in contact with source of oxygen.

Breathing → Intake of O_2 &



elimination of CO_2



Inhalation or Inspiration

- Inter costal muscles pull the ribs outwardly and at the same time, diaphragm becomes flat.
- Volume of thoracic cavity increases.
- creates a low pressure inside the cavity.
- Air from outer atmosphere rushes into the thoracic cavity through respiratory tract.

Exhalation or Expiration.



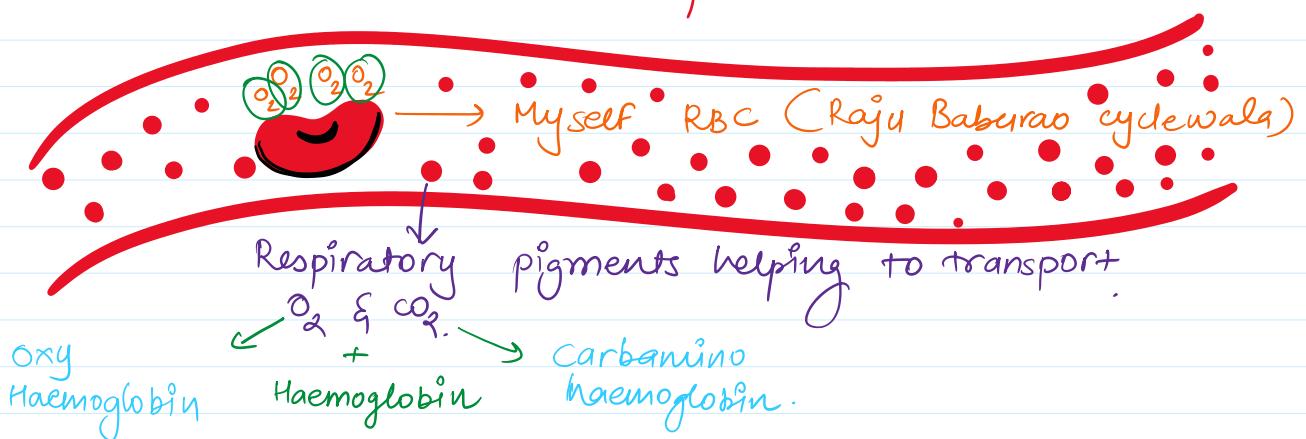
" Inwardly "



dome shaped.

- volume of thoracic cavity decreases.
- creates a high pressure inside the cavity.
- Air from thoracic cavity moves outside the body through the respiratory tract.

→ For large sized animals, alone diffusion pressure will not be able to work. Instead.



Breathing

- Intake of oxygen from environment and release of CO_2 in atmosphere
- Physical process
- No enzymes are required.
- Utilizes energy.
- Only certain organs take part.
- It is extracellular phenomena.

Respiration

- Transport of gases and oxidation of food materials.
- Biochemical process.
- Several enzymes are required.
- Utilizes & releases energy.
- It connects with every cell of the body.
- Both extra & intracellular process.

→ The collection & distribution of the nutrients and waste substances require **transportation**.

Absorbed or synthesised
in one part

Moved to other
parts of the body.

⇒ Methods of transportation are different in various organisms.

Unicellular

- Transportation is performed through **cytoplasmic streaming** (Movement of the fluid substance)
- Ex:- Amoeba & Paramecium.

Multicellular

- Different methods.

Animals.

- circulatory system

Plants

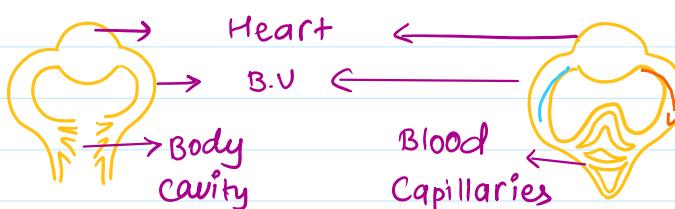
- conducting system (xylem & phloem)

⇒ In human beings:-

- various substances such as O_2 , CO_2 , digested food, hormones, excretory products, etc. are transported by the blood.
- Blood circulates and reaches to each & every organ through the Blood circulatory system which consists of blood, the heart & blood vessels.

Open type circulatory

Ex:- Arthropod &
non-cephalopod



close Type circulatory.

Ex:- Annelids, Molluscs,
Vertebrates

⇒ What is blood?

⇒ fluid connective tissue.

⇒ two main components → Plasma and blood cell/corpuscles.

⇒ Plasma:- slightly alkaline, non-living, intercellular pale yellow

- 90-92% of plasma is of water.

- Several organic & inorganic substances are dissolved in it.

Blood corpuscles.

Erythrocytes
or

Leucocytes
or

Thrombocytes.
or

Erythrocytes
or

RBCs

(Transport of Respiratory gases)

Leucocytes
or

WBCs (protects

from diseases)

Thrombocytes.

or

Platelets.

(Help in blood clotting)

Agranulocytes.

(No any granules in nucleus)

Lymphocytes
(provide immunity)

Monocytes.

(phagocytosis)

Eosinophils

(Associated with allergy)

Basophils.

(Release chem. for inflammation)

Granulocytes.

(Granules in nucleus)

Neutrophils.

(phagocytosis).

⇒ Functions of Blood

(1) helps in transport of food & respiratory gases.
hormones, excretory matter and salts.

(2) helps in maintaining temperature (Thermoregulation).

(3) helps in defence against infection.

⇒ Human circulatory system :-

Blood vessels

Heart.

* Three types of Blood vessels:-

Arteries

oxygenated Blood

Heart → Body parts

- except- pulmonary artery.

thick & elastic wall
lack of valves.

Arteries contain 16%
of total Blood.

Veins

- Deoxygenated Blood

- Body parts → Heart

- except- pulmonary vein.

- Thin walled

- Have valves which prevents back flow.

- It contain 64% of total Blood

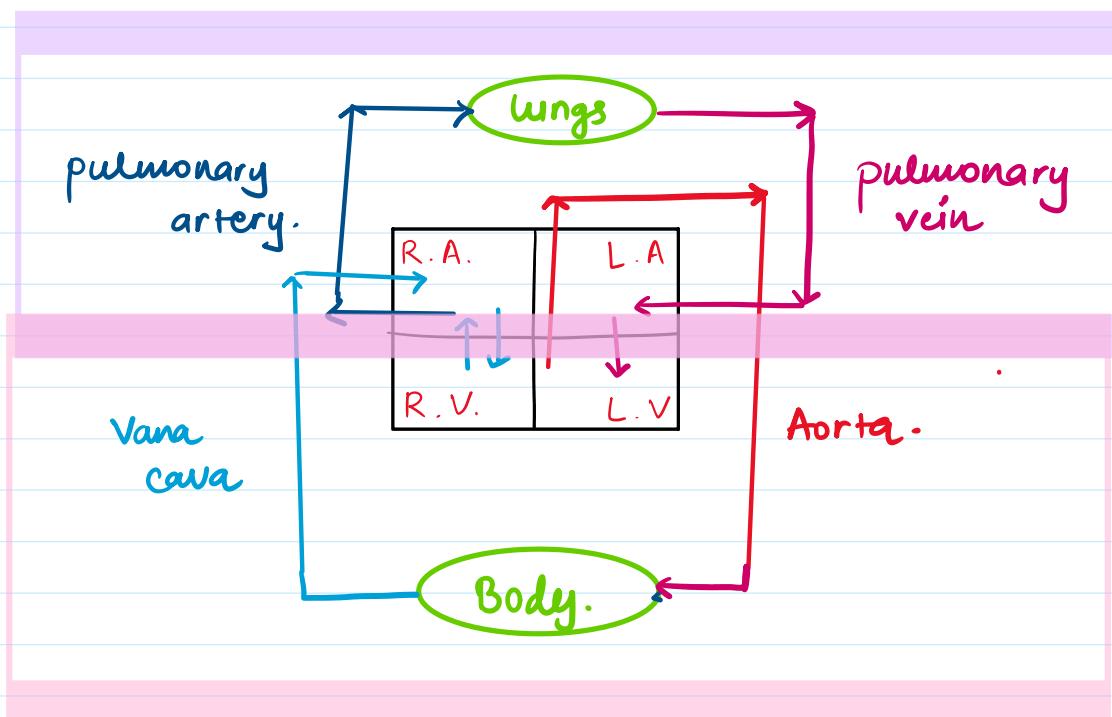
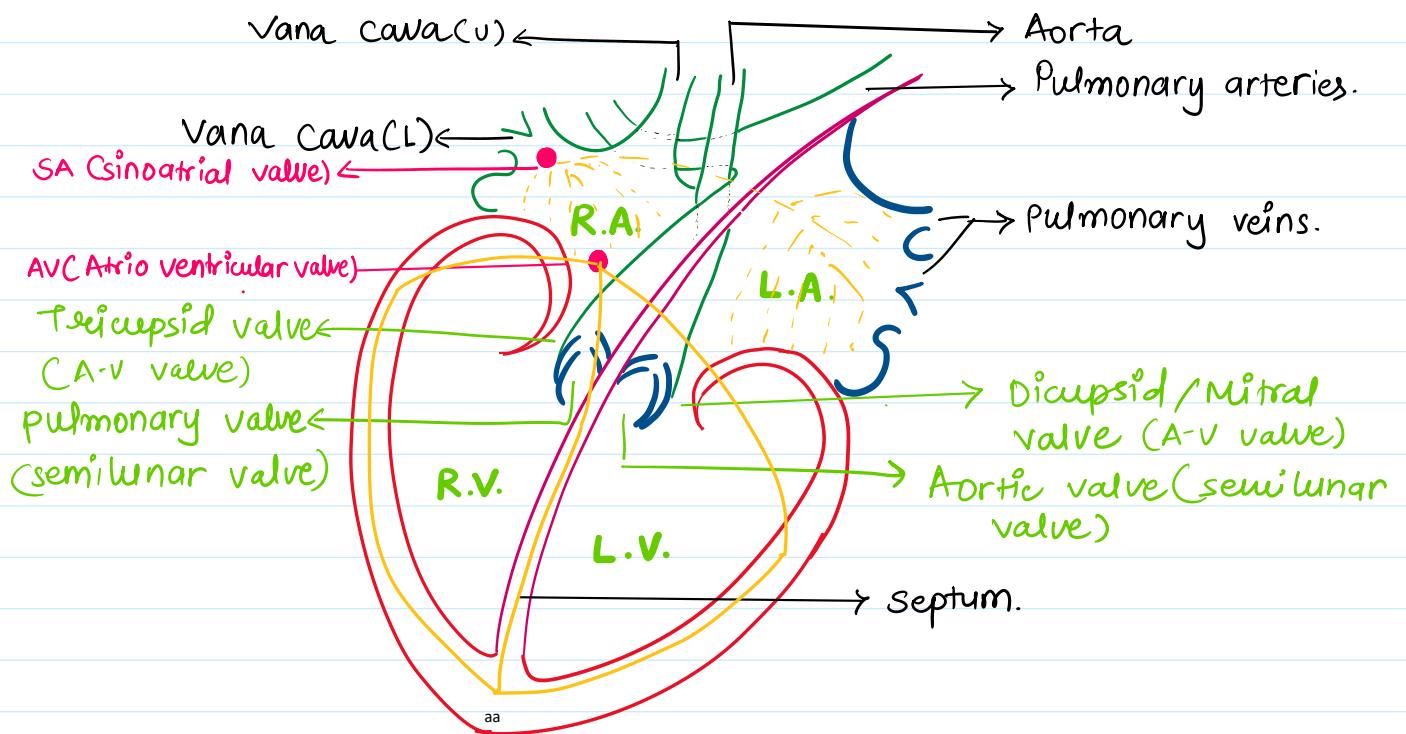
Capillaries.

→ fine blood vessels, occurring at the terminal of artery & veins.

- Thin walled & extremely narrow

- Made up of a single layer of squamous epithelial cells called **Endothelium**

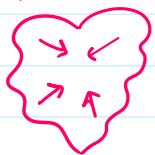
⇒ Heart :-



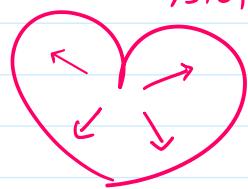
- ⇒ Heart :- 300 g → ♂ , 250 gm → ♀ / 4 chambered
- Aorta → largest artery of the body
 - Vena cava → " Veins "
 - Heart beats 72 BPM.
 - pulmonary artery - carries deoxygenated blood
heart → lungs.
 - pulmonary veins - carries oxygenated blood
lungs → heart
- ⇒ SA node → Acting as a "Pace maker" - specialized muscle cells in heart which initiate Heart beat. (Atrium - systol.)

in heart which initiate Heart beat. (Atrium -
systol.)
AV node → (Ventricle systol)

Diastol

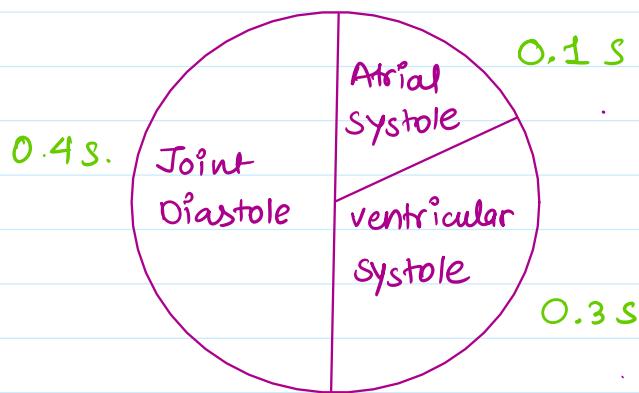


systol



Blood pressure n cardiac cycle

05 May 2023 19:19



⇒ Blood pressures:-

Normal Systolic pressure - 120 mm Hg.

II Diastolic pressure - 80 mm Hg.

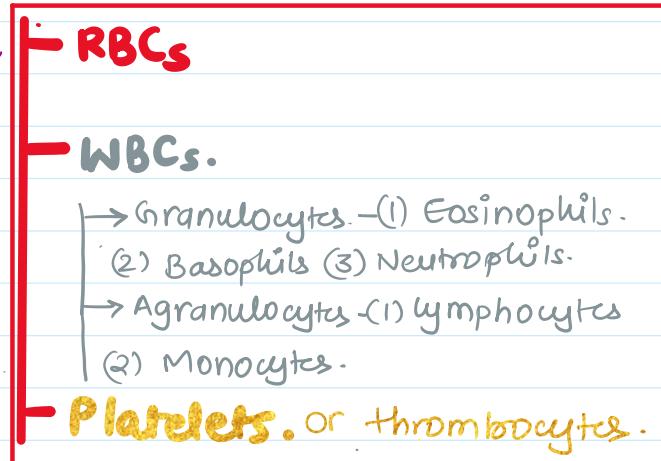
Abnormal
140 mm Hg
90 mm Hg

- Hypertension
- High blood pressure.

⇒ sphygmomanometer.

Plasma + blood cells = Blood.

- slightly alkaline, non-living, intercellular pale yellow component of blood
- 90-92% water
- protein, glucose, cholesterol, urea, hormones, vitamins & inorganic salts.
- It transports food, CO_2 , & N_2 waste in dissolved form.



(1) Erythrocytes (Red Blood corpuscles or RBCs)

- circular, biconcave and enucleated (non-nucleated) in mammals.
- Process of RBC formation → erythropoiesis. Found in red bone marrow. (Born place)
- Life span: 120 Days - Died/Broken down in spleen or liver (graveyard of RBCs).
 - abnormal rise in RBCs count called **polycythemia**.
 - Decrease in the number of RBCs called **erythrocytopenia**.

	Male	Female
NO. of RBCs.	5.5 to 5	4.5 to 5 million/mm ³ .
Haemoglobin.	15 g/ml.	13 to 14 g/ml.

↳ less Haemoglobin → Anaemia
 ↳ Function in carrying CO_2 & O_2 .



(2) Leucocytes (White blood cells or WBCs).

WBC.

Agranulocytes.

(No any granules in nucleus)

Granulocytes.

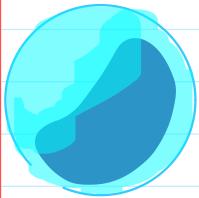
(Granules in nucleus)

Agranulocytes.

(No any granules in nucleus)

Lymphocytes

(provide immunity)



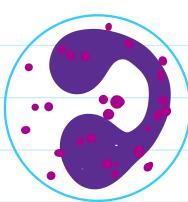
Monocytes.

(phagocytosis)



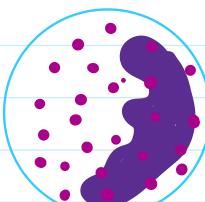
Eosinophils

(Associated with allergy)



Basophils.

(Release chem. for inflammation)

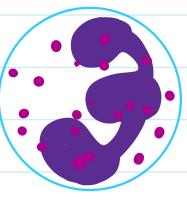


Granulocytes.

(Granules in nucleus).

Neutrophils.

(phagocytosis).



- Round or regular in shape.
- colourless blood cells (lack of haemoglobin)
- Normal WBC count is $6000 - 8000/\mu\text{m}^3$
- Lower count of WBCs → Leucopenia
- Higher count of WBCs → Leucocytosis
- Increase in the number of abnormal WBCs → Leukemia (Blood cancer).
- Life span of WBCs → 2-3 Days.

Immunity.

- WBCs protect our body from infections.
- WBCs engulf & destroy foreign particles.
- These also produce antibodies against the foreign particles (Antigen).
- Hence, these are also called "soldiers of the body".
- Here, WBC (Lymphocytes) are of two types.

B-lymphocytes

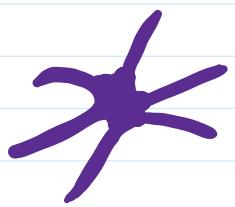
- Matures in Bone marrow
- produces the antibodies which acts against foreign body called antigen.

T-lymphocytes

- Matures in thymus gland.
- Stimulate other defense cells of the body.
- These cells are capable of destroying cancer cells & cells affected by virus.

cells affected by virus.

(3) Thrombocytes (Blood platelets)



- Non nucleated, round or oval, biconvex disc like bodies formed in red bone marrow and help in blood coagulation.
- life span → 8 days or a week.
- prevents the blood leakage
- low count of platelets → Thrombocytopenia
high count of platelets → Thrombocythemia.
- Platelet count → 1.5 to 3.5 lac/mm³.



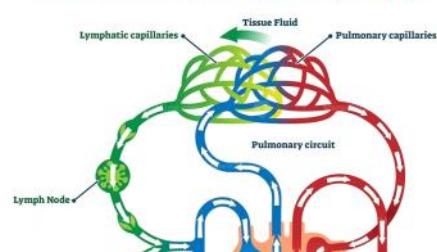
consists of lymph, lymphatic vessels and lymph nodes.

- Lymph :- Helps in transport of respiratory gases, fatty acids, glycerol, vitamins etc. inside body.
- Lymphatic vessels :- collect lymph and transport it to the veins.
- Lymph node :- Helps in formation of lymphocytes.

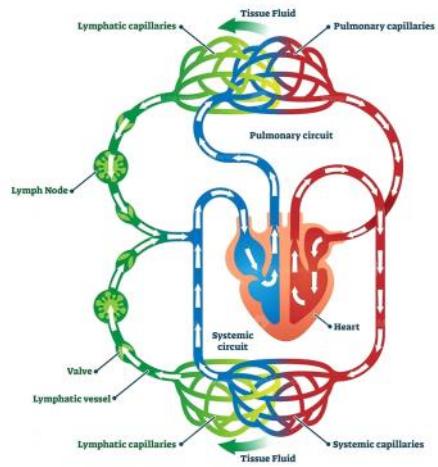
→ Functions :-

1. Maintenance of blood volume.
2. It destroys the invading microorganism & foreign particles in the lymph nodes.
3. Acts as an accessory circulatory system.
4. Lymph nodes produce lymphocytes and along with antibodies it transports to the blood.
5. When a body part swells, it may be because there is too much fluid in the tissue in that area. The lymph vessels collect the excess fluid and carry it to the veins through the lymphatic system.

LYMPHATIC CIRCULATION



LYMPHATIC CIRCULATION



Transportation in plants

12 May 2023

