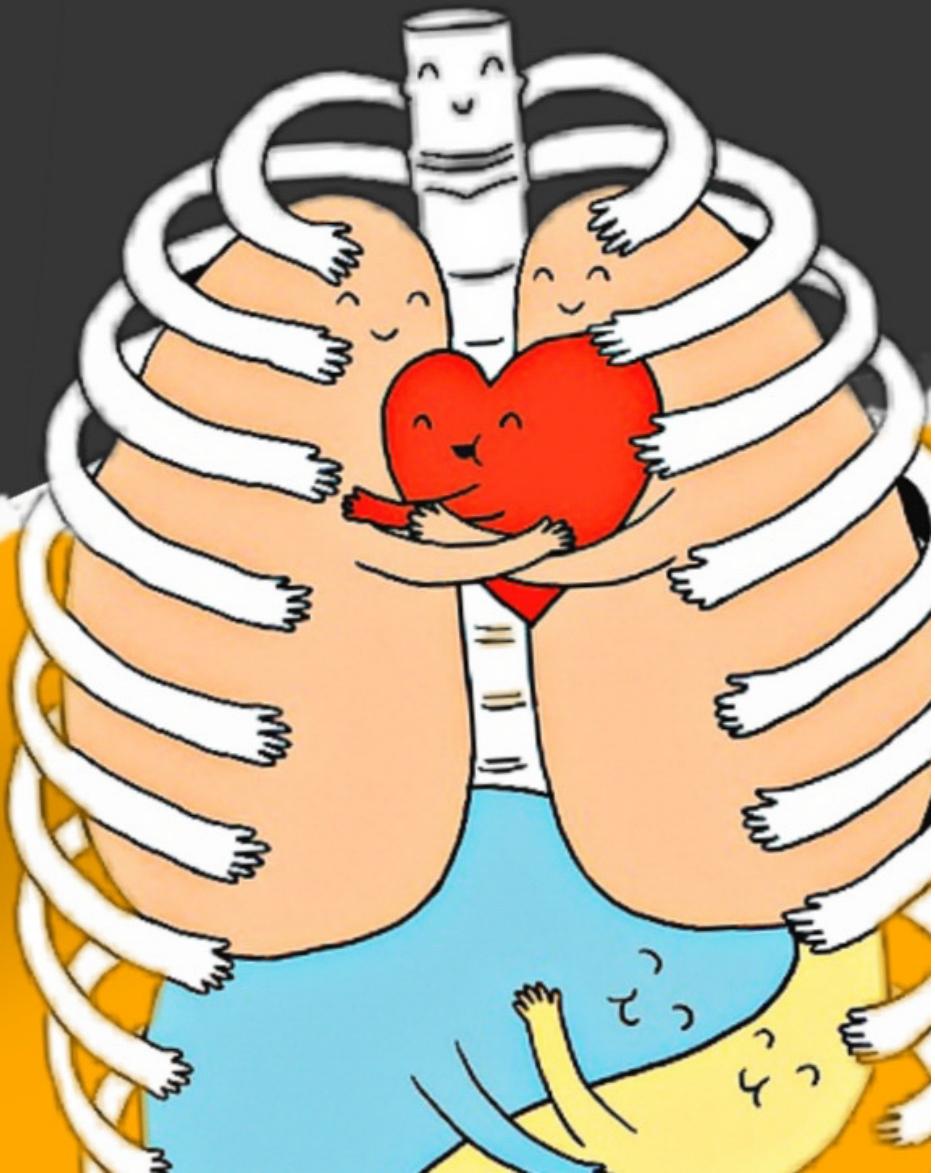




/padhle akshay

PRESENTS

# Life Processes



NO BAKWAS



padhle.akshay

# WHY THESE NOTES?

- ✓ TOUCHES EVERY CORNER OF NCERT
- ✓ INCLUDES NCERT ACTIVITIES (AKQ), BOXES(BKQ) & EXEMPLAR (EKQ)
- ✓ EACH LINE, FLOWCHART & DIAGRAM IS MOTIVATED FROM PYQs
- ✓ APPROVED BY 3 CBSE TOPPERS

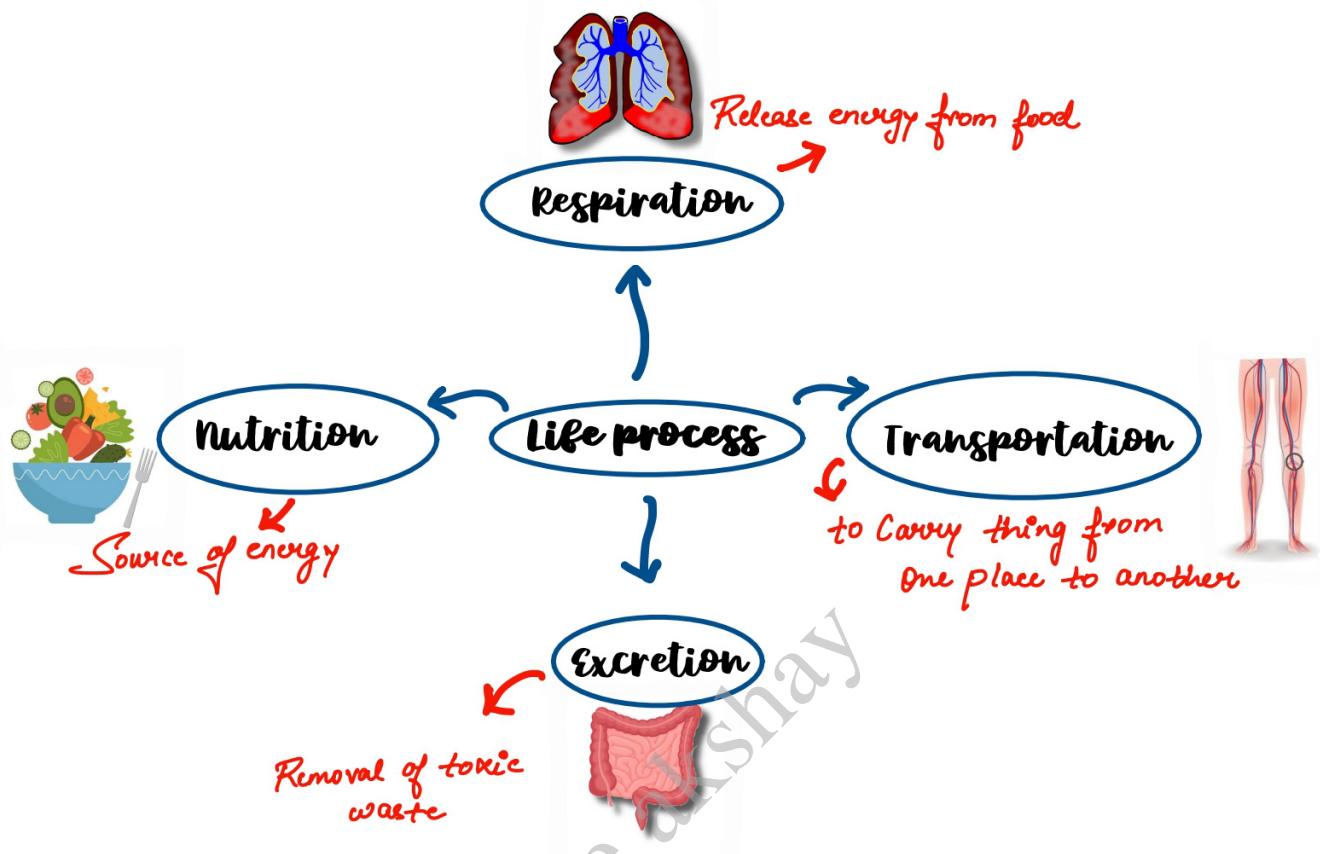
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# Life process

The basic functions performed by living organism to maintain their life on this earth are called Life process. The basic life process common to all living organism are Nutrition, Respiration, Transportation, Control and Coordination, Growth; movement and Reproduction.

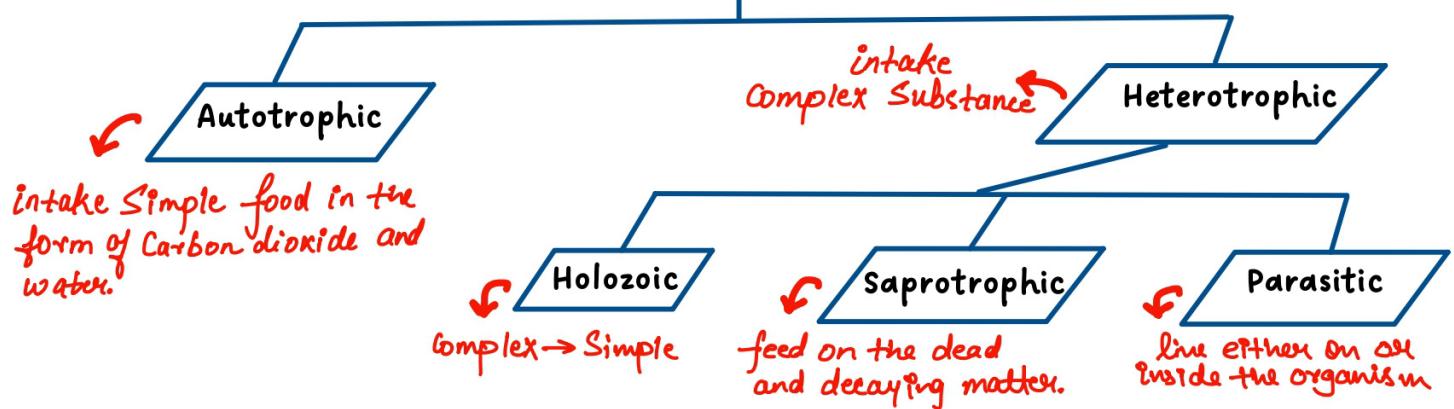


## Nutrition

Nutrition is a process of intake of nutrients (like carbohydrate, fat, protein, minerals, vitamins and water) by an organism as well as the utilisation of these nutrients by the organism.

- **Nutrient:** A nutrient can be defined as a substance which an organism obtain from its surroundings and uses it as a source of energy or for the biosynthesis of its body constituents (like tissues and organs).

## Modes of Nutrition



## autotrophic

Autotrophic nutrition is that mode of nutrition in which an organism make (or synthesises) its own food from the simple inorganic material like carbon dioxide and water present in the surroundings (with the help of sunlight energy.)

## Heterotrophic

Heterotrophic nutrition is that mode of nutrition in which an organism cannot make (or synthesise) its own food from simple inorganic material (like Carbon dioxide and water) and depend on the other organism for its food.

- **Holozoic nutrition:** The complex food material taken in by the organism is broken down into simpler and soluble molecules. For example, Human, Amoeba.
- **Saprotrophic nutrition:** The organisms feed on the dead and decaying matter. For example, Fungi.
- **Parasitic nutrition:** The organisms live either on or inside the organism to obtain its nutrition. For example, Lice, Cuscuta (amarbel).

→ **Biocatalyst:** Biocatalysts are the substance that speed up or activate any biochemical reaction. Example: Digestive enzyme like trypsin and pepsin.

## photosynthesis

The process by which green plants make their own food (like glucose) from carbon dioxide and water by using sunlight energy in the presence of chlorophyll is called photosynthesis.



### Raw Materials for Photosynthesis:

- **Sunlight**
- **Chlorophyll**-It helps to trap the energy of the sun
- **CO<sub>2</sub>**-It enters through Stomata
- **Water**-Water and dissolved minerals are taken up by the roots from soil

### Products of Photosynthesis:

- Carbohydrates in the form of glucose → Provide energy and remaining were stored in the form of starch
- Oxygen (O<sub>2</sub>)-released as a by-product

### Site of Photosynthesis:

- Chloroplast is the site of photosynthesis. Chloroplast contains a green pigment called chlorophyll which helps to trap energy of sunlight.

### Events of Photosynthesis:

- Absorption of light energy by chlorophyll.
- Conversion of light energy to chemical energy + splitting of water molecules into hydrogen and oxygen.
- Reduction of carbon dioxide to carbohydrates.

### **Question: How do deserts plants get CO<sub>2</sub> and Why?**

Deserts plants or Xerophytes live in extremely dry conditions. They took in carbon dioxide through stomata or small pores present on the plant surface. These desert plants take in carbon dioxide during the night time or when the temperature is cooler because during the day stomata are closed to prevent transpiration or water loss.

## structure of leaf

External structure of leaf comprises of:

Petiole → stalk of leaf.

Lamina → Flat, broad and expanded portion of leaf.

Midrib → Midline which divides leaf into two equal halves.

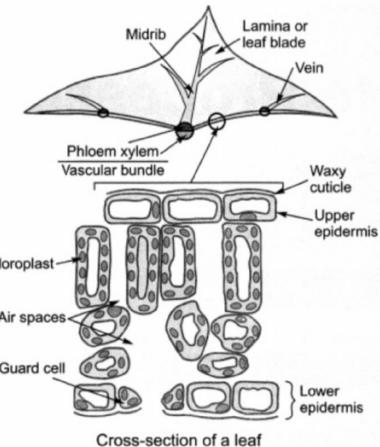
Veins → Supply water throughout surface of leaf.

Internal structure of leaf comprises of:

Epidermis: It has two parts

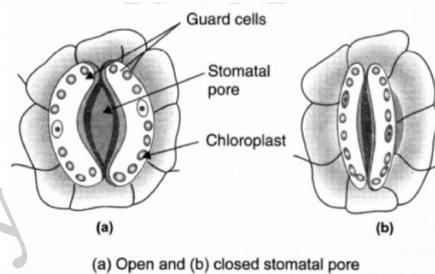
(i) upper epidermis: Upper epidermis is usually covered by a waxy layer called cuticle which prevents water loss through transpiration.

(ii) lower epidermis: Lower epidermis has stomata which help in gaseous exchange.



**Stomata:** Tiny pores which are generally found in the lower epidermis and help in gaseous exchange and transpiration.

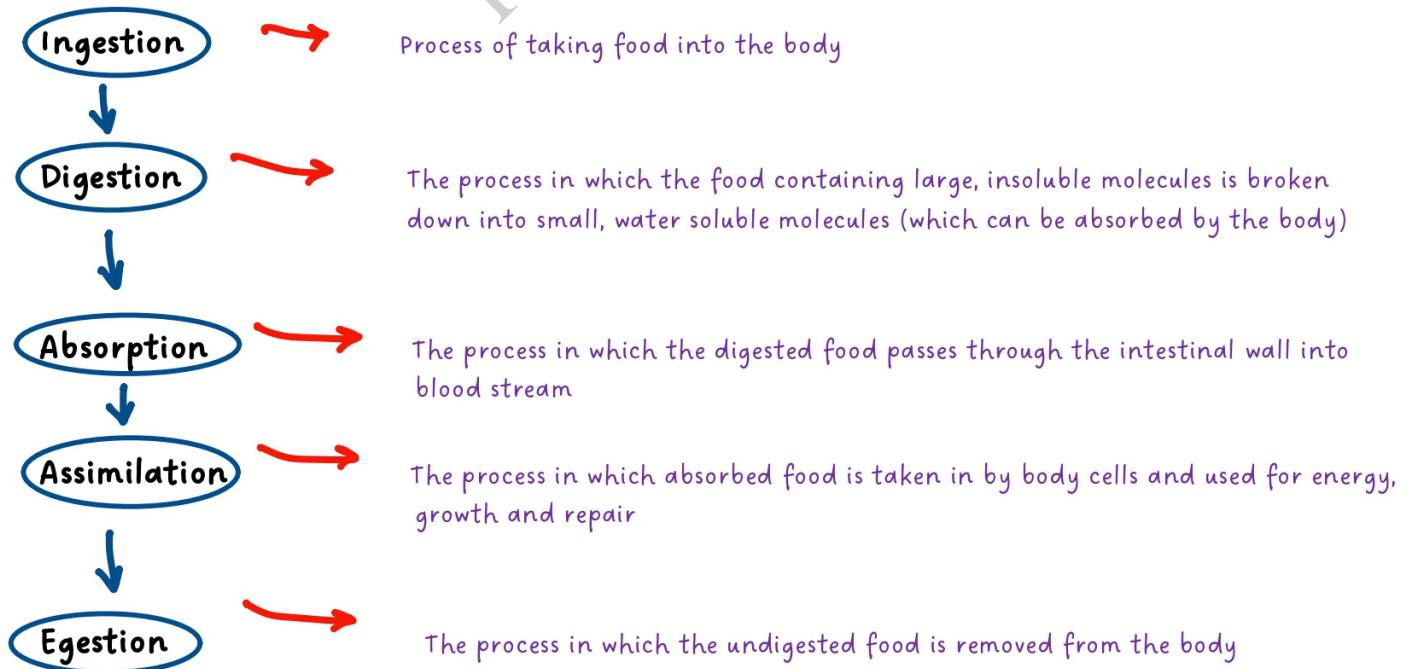
**Guard cells:** Bean-shaped cells which guard the opening of stomata. They have chloroplasts and have uneven thickening in their cell wall. Opening and closing of stomatal pore is done by guard cells. Movement of water into guard cells cause their swelling and open the stomatal pore. The shrinking of the guard cells when water moves out causes closing of stomatal pore.



(a) Open and (b) closed stomatal pore

→ Water used in photosynthesis is taken up from the soil by the roots in terrestrial plants. Other material like nitrogen, phosphorus, iron and magnesium are taken up from the soil. Nitrogen is an essential element used in the synthesis of proteins and compounds. This is taken up in the form of inorganic nitrates or nitrites. Or it is taken up as organic compound which have been prepared by bacteria from atmospheric nitrogen.

## Different steps in the process of nutrition in animal

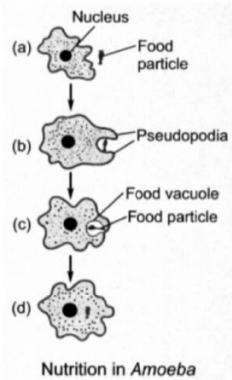


## Nutrition in Simple Animals

In Unicellular animals, all the process of nutrition are performed by the single cell only. Amoeba and Paramecium are two very simple animals.

### Nutrition in Amoeba

Temporary finger-like extensions of the cell surface called pseudopodia are used by Amoeba to engulf food. Pseudopodia fuse over the food particle forming a food vacuole in which complex substances are broken down into simpler ones and diffuse into the cytoplasm. The remaining undigested material moves to the surface of the cell and gets thrown out.



### Nutrition in Paramecium

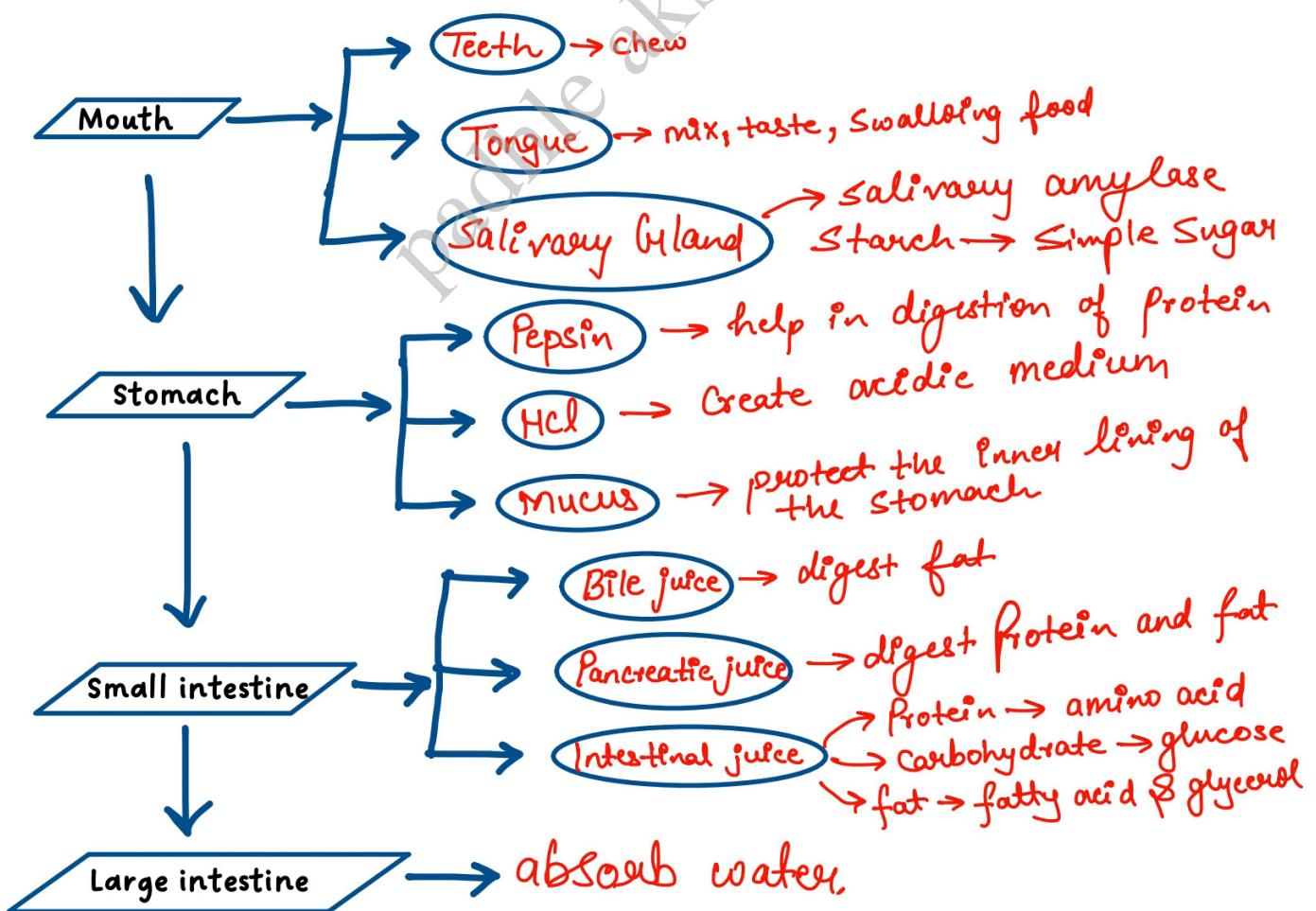
In Paramecium, food is moved to a specific spot by the movement of cilia which cover the entire surface of the cell.

## Nutrition in Complex Multicellular Animals

In the complex multi cellular animals like man, grasshopper, fish and frogs etc., all the process involved in nutrition are performed by a combination of digestive organs. This Combination of digestive organ is called digestive system.

### Nutrition in Human Beings

Human digestive system consists of alimentary canal and the associated glands. The alimentary canal is a long tube running from mouth to anus of a human being (or other animals) in which digestion and absorption of food take place is called elementary canal.



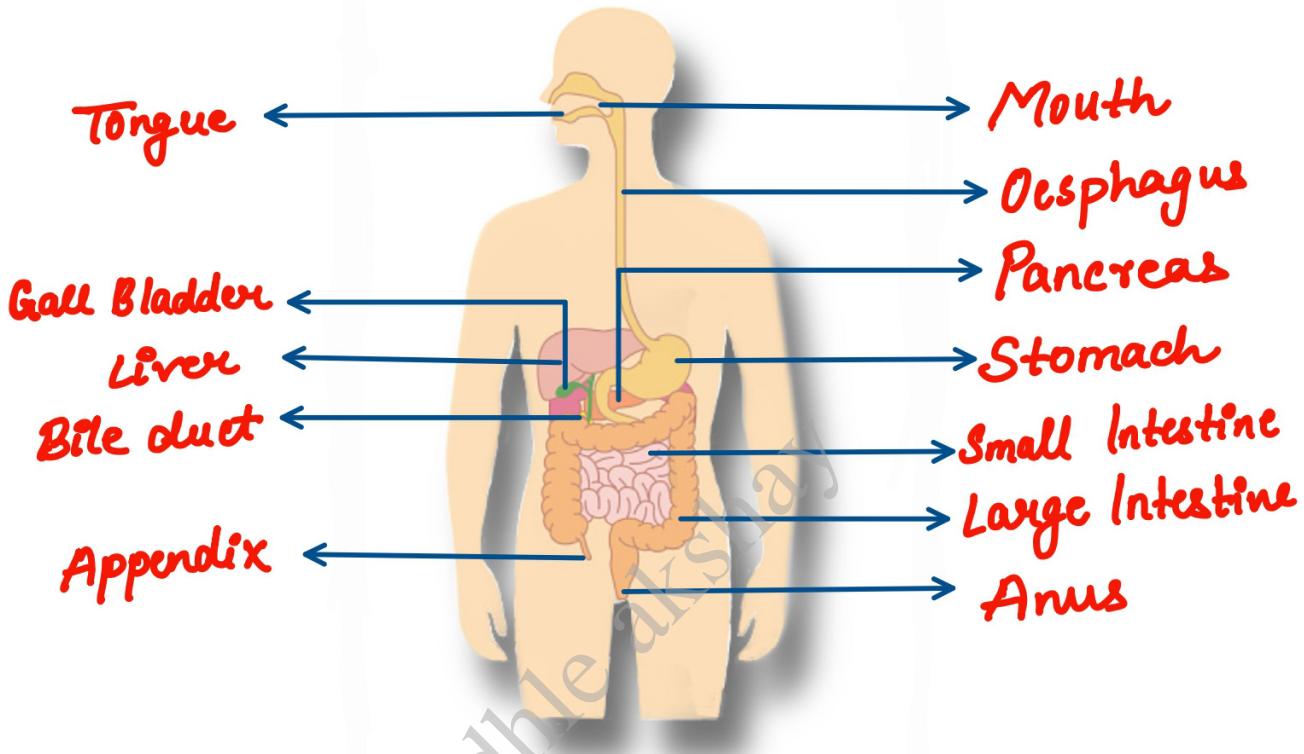
Mouth - Helps in intake of whole food.

Teeth - Helps in chewing and grinding of food.

Tongue - Helps in tasting food + rolling food + swallowing food.

Salivary glands - Secrete saliva and mucus. The enzyme called **salivary amylase** is present in saliva which breaks down the complex starch into sugar.

Oesophagus (food pipe) - Food moves towards stomach through esophagus by rhythmic contraction of its muscles called peristaltic movements or peristalsis.



Stomach - Muscular walls of stomach help in mixing food thoroughly with digestive juices. Stomach has gastric glands which secrete gastric juice containing **pepsin**, **hydrochloric acid** and **mucus**.

- **Pepsin** helps in digestion of proteins.
- **Hydrochloric acid** creates an acidic medium which facilitates the action of the enzyme **pepsin** + kills germs present in food particles.
- **Mucus** protects the inner lining of the stomach from the action of the hydrochloric acid under normal conditions

Small Intestine - A sphincter muscle regulates the exit of food from stomach into the highly coiled, longest part of the alimentary canal called the small intestine. Herbivores have a longer small intestine compared to the carnivores to allow the cellulose present in the grass to get digested. The digestive juices released in small intestine are:

- **Bile juice:** It is released from liver (stored in gall bladder). It helps to create alkaline medium in the small intestine for the pancreatic enzymes to act. Bile salts present in bile juice break down large fat lobules into smaller globules (emulsification of fats) to increase the efficiency of enzyme action.
- **Pancreatic juice:** It is released from pancreas and contains enzymes like **trypsin** for digesting proteins and **lipase** for breaking down emulsified fats.
- **Intestinal juice:** The walls of the small intestine contain glands which secrete intestinal juice. The enzymes present in it finally convert the proteins to amino acids, complex carbohydrates into glucose and fats into fatty acids and glycerol. Intestinal juice completes the process of digestion.

**Role of Villi**- The digested food is absorbed by the inner lining or wall of the intestine with the help of villi. Villi are finger-like projections richly supplied with blood vessels and help to increase the surface area for absorption. Absorbed nutrients reach the cells through blood and are utilised for obtaining energy, building up new tissues and the repair of old tissues.

**Large Intestine**- The unabsorbed food is sent into the large intestine where more villi absorb water from this material and remove the wastes through the anus by egestion. The exit of this waste material is regulated by the anal sphincter.

### P.Y.Qs

Question: Write any two events occurring during Photosynthesis?

Question: Give reason for the following

- (A) Herbivores have longer small intestine than carnivores
- (B) Rings of cartilage are present in trachea
- (C) Mucus is secreted along with HCl in the stomach

Question: (a) Discuss the role of HCl, pepsin, bile and trypsin in the digestion of food in human beings.

(b) Where are gastric glands located in alimentary canal of human?

Question: How is the small intestine designed to absorb the digested food?

### A.K.Q 6.1

Question: What happens to the colour of the leaf? What is the colour of the solution?

Answer: The leaf becomes colourless. Chlorophyll is dissolved in alcohol and the alcohol turns green.

Question: Observe the colour of the leaf and compare this with the tracing of the leaf done in the beginning.

Answer: The green areas of leaf turn dark blue, it indicates the presence of starch.

Colourless part of leaf shows no formation of starch.



Variegated leaf  
(a) before starch test  
(b) after starch test

Question: What can you conclude about the presence of starch in various areas of the leaf?

Answer: The blue colour in green areas indicates the presence of starch.

Colourless part of leaf shows no formation of starch.

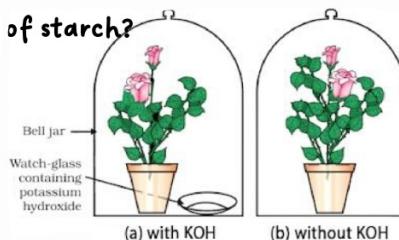
### A.K.Q 6.2

Question: Do both the leaves show the presence of the same amount of starch?

Answer: No

Question: What can you conclude from this activity?

Answer: The amount of CO<sub>2</sub> affects the process and outcome of photosynthesis.



### P.Y.Qs from activity

Question: In the experiment of preparing temporary mount of a leaf peel to observe stomata, we use two liquids other than water. Name these two liquids and state when and why these liquids are used.

Answer: Two liquids used:

- (A) Saffranin stain : in order to stain the peel.
- (B) Glycerin - so that the peel doesn't dry out.

**Question:** List four precautions in proper sequence which we observe while preparing a temporary mount of a leaf peel.

**Answer:** (i) Cut the peel to a proper size to avoid its folding.

(ii) Do not over strain or under strain the peel.

(iii) Handle peel with a brush, as needle can damage it.

(iv) Keep peel away from drying by using glycerin.

### A&Q 6.3

**Question:** In which test tube do you observe a colour change?

**Answer:** Test tube B.

**Question:** What does this indicate about the presence or absence of starch in the two test tubes?

**Answer:** Test tube A does not contain starch whereas test tube B contains starch.

**Question:** What does this tell us about the action of saliva on starch?

**Answer:** On the addition of saliva in starch solution, the starch gets converted into other products such as maltose sugar.

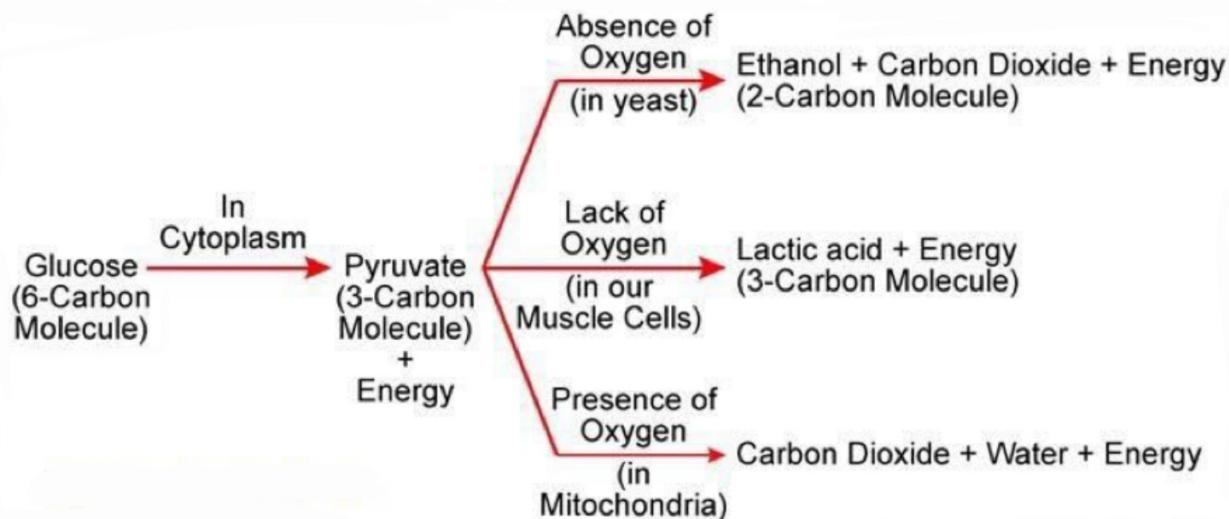
## Respiration

The breakdown of simple food material to release energy is called as respiration.

**Aerobic:** Aerobic respiration takes place in the presence of air (oxygen).

**Anaerobic:** Anaerobic respiration occurs in the absence of air (oxygen).

Aerobic	Anaerobic
1. Aerobic respiration takes place in the presence of oxygen. 2. Complete breakdown of food occurs in aerobic respiration. 3. The end products in aerobic respiration are carbon dioxide and water. 4. Aerobic respiration produces a considerable amount of energy.	1. Anaerobic respiration takes place in the absence of oxygen 2. Partial breakdown of food occurs in anaerobic respiration. 3. The end products in anaerobic respiration may be ethanol and carbon dioxide (as in yeast plants), or lactic acid (as in animal muscles). 4. Much less energy is produced in anaerobic respiration.



**Glycolysis:** This is the first step which occurs in the cytoplasm and results in breakdown of glucose (six-carbon molecule) into a three-carbon molecule called pyruvate. Glycolysis occurs both in aerobic as well as anaerobic respiration.

#### **Fate of pyruvic acid (pyruvate):**

- The pyruvate is converted into ethanol and carbon dioxide by the process called fermentation in east due to anaerobic respiration.
- The pyruvate is converted into a three-carbon compound lactic acid during respiration in muscle cells due to anaerobic respiration. Accumulation of lactic acid causes cramps in muscles.
- The pyruvate is broken down into carbon dioxide and water in presence of oxygen inside the mitochondria. The energy released during cellular respiration is used to synthesise a molecule called ATP which is used to fuel all other activities in the cell.

**Respiration in plants:** Respiration in plants is simpler than the respiration in animals.

#### **Gaseous exchange occurs through:**

- Stomata in leaves
- Lenticels in stems
- General surface of the roots

**Respiration in terrestrial animals:** They use atmospheric oxygen for respiration.

**Respiration in aquatic animals:** Aquatic animals use the oxygen dissolved in water. They breathe at a faster rate since the amount of dissolved oxygen is fairly low compared to the amount of oxygen in the air. Fishes take water from mouth and send it to the gills where the dissolved oxygen is taken up by blood.

## **Human Respiratory System**

Air enters the body after getting filtered by fine hairs and mucus in the nostrils. The air then passes through trachea (present in throat) into the lungs. Rings of cartilage present on trachea prevent it from collapsing during the passage of air. The trachea divide into bronchi which enter the lungs and divide further into bronchioles which finally terminate in balloon-like structures called alveoli which have a rich supply of blood vessels and help in exchange of gases.

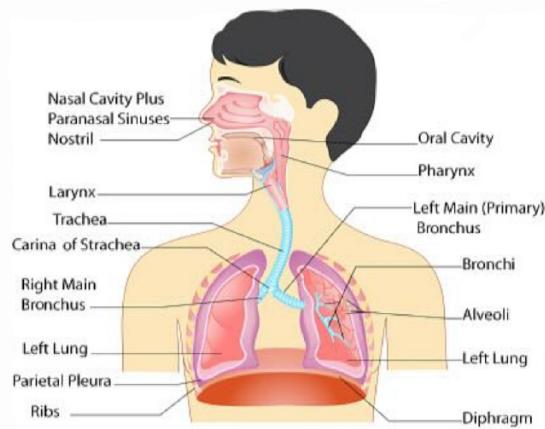
## **Mechanism of breathing**

**During inhalation** (breathing in), the volume of the chest cavity becomes larger as the ribs get lifted and diaphragm gets flattened. Air gets sucked into the lungs and fills the expanded alveoli. The blood brings carbon dioxide from the rest of the body to the alveoli and exchanges it for oxygen to be transported to all the cells in the body.

**During exhalation** (breathing out), the volume of the chest cavity becomes smaller as the ribs get relaxed and diaphragm moves upward (relaxes). Air rich in carbon dioxide gets pushed out of the lungs to come out through the nostrils.

**Residual volume:** It is the volume of air left behind in the lungs even after forceful breathing out of air. This helps to provide sufficient time for oxygen to be absorbed and for the carbon dioxide to be released.

**Respiratory pigment:** The respiratory pigment called haemoglobin in human beings is present in the red blood corpuscles. Haemoglobin has a very high affinity for oxygen.



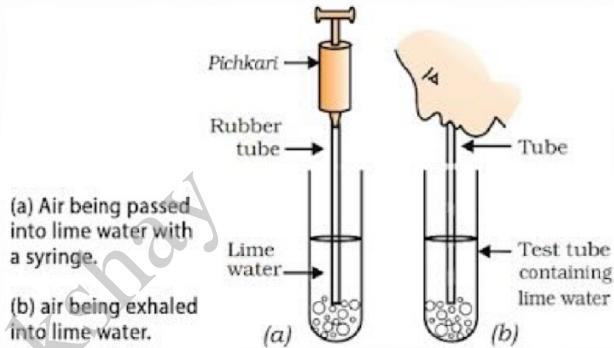
### A.K.Q 6.4

**Question:** Take some freshly prepared lime water in a test tube. Blow air through this lime water. Note how long it takes for the lime water to turn milky.

**Answer:** It immediately turns lime water milky.

**Question:** Use a syringe or pichkari to pass air through some fresh lime water taken in another Test tube. Note how long it takes for this lime water to turn milky.

**Answer:** It takes much time to turn the lime water milky.



**Question:** What does this tell us about the amount of carbon dioxide in the air that we breathe out?

**Answer:** It shows that the breath-out air contains more  $\text{CO}_2$  as compared to atmospheric air.

### A.K.Q 6.5

**Question:** What change is observed in the lime water and how long does it take for this change to occur?

**Answer:** Air taken out through the tube makes lime water milky.

**Question:** What does this tell us about the products of fermentation?

**Answer:** Products of fermentation are  $\text{CO}_2$  and alcohol.

### A.K.Q 6.6

**Question:** Are the timings of the opening and closing of the mouth and gill-slits coordinated in some manner?

**Answer:** Yes. During breathing, fishes open and close their mouth & gill slits in a coordinated manner and timing.

**Question:** Count the number of times the fish opens and closes its mouth in a minute.

**Answer:** It is varied based on the type and size of fish. For example, goldfish can breathe up to 100 or more times per minute.

**Question:** Compare this to the number of times you breathe in and out in a minute.

**Answer:** The amount of dissolved  $\text{O}_2$  is lower than that in the air. So, the rate of breathing in fishes is faster than that in terrestrial organisms. The normal respiratory rate of an adult human is 12-16 times/minute.

## P.Y.Qs from activity

Question: In the experimental set up to show that "CO<sub>2</sub> is given out during respiration", name the substance taken in the small test tube kept in the conical flask. State its function and the consequence of its use.

Answer: The substance taken in the small test tube kept in the conical flask is KOH (potassium hydroxide) solution. The CO<sub>2</sub> produced by germinating seeds is absorbed by KOH solution due to which the air from the bent tube moves into the conical flask, which eventually pulls the water up in the bent glass tube.

Question: A student has set up "CO<sub>2</sub> is released during respiration". After about 1 hour he observes no change in the water level in the delivery tube. Write two possible reasons for the failure of the experiment.

Answer: (i) The setup was not air tight

(ii) Germinating seeds were not moist

(iii) One end of U-shaped delivery tube is placed in conical flask and the other end was not immersed in the water of the beaker.

## P.Y.Qs

Question: When a sportsman runs, he gets muscle cramps. Why?

Question: Differentiate between fermentation in yeast and aerobic respiration on the basis of end products formed.

Question: How are lungs designed in human beings to maximise the area for exchange of gases?

Question: What advantages over an aquatic organism does a terrestrial organism have with regard to obtaining oxygen for respiration?

Question: Diffusion is insufficient to meet the oxygen requirements of multicellular organisms like human. State reason.

## Transportation

### Transportation in Human Beings

Circulatory system helps to transport blood to various parts of the body to ensure the supply of nutrients and oxygen to these parts and remove carbon dioxide and metabolic wastes.

The circulatory system in human beings consists of:

- A pumping organ-a muscular heart
- Blood vessels--Arteries and veins
- Circulating medium-Blood and lymph

#### Steps in circulation of blood:

The relaxed thin-walled upper chamber of the heart on the left, the left atrium, receives oxygen-rich blood from the lungs through the pulmonary vein.



The left atrium contracts and transfers blood to the left ventricle.



The left ventricle contracts and sends the oxygen-rich blood through aorta to the various parts of the body.



De-oxygenated blood from the various parts of the body is transported by vena cava to the relaxed right upper chamber of the heart called the right atrium.

The right atrium contracts and transfers blood to the right ventricle.

The right ventricle pumps de-oxygenated blood for oxygenation to the lungs through pulmonary vein.

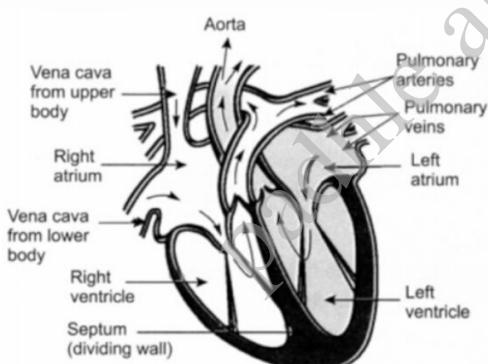
Ventricles have thicker muscular walls than atrium as they have to pump blood into various organs.

**Role of valves:** Valves ensure that blood does not flow backwards when the atria or ventricles contract.

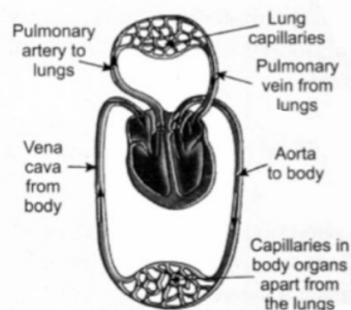
Significance of separation of right and left side of the heart: It is useful to prevent mixing of oxygenated and de-oxygenated blood. It also allows a highly efficient supply of oxygen to the body. It is useful for animals that have high energy needs, such as birds and mammals, which constantly use energy to maintain their body temperature.

## Types of heart

- Fishes have a two chambered heart. Blood pumped by heart gets oxygenated by gills and passes directly to the rest of the body. This is called single circulation.
- Amphibians and reptiles have three-chambered hearts and tolerate some mixing of the oxygenated and de-oxygenated blood.
- Birds and mammals have four chambered heart. Blood goes through the heart twice during each cycle in them. This is known as double circulation.



Schematic sectional view of the human heart



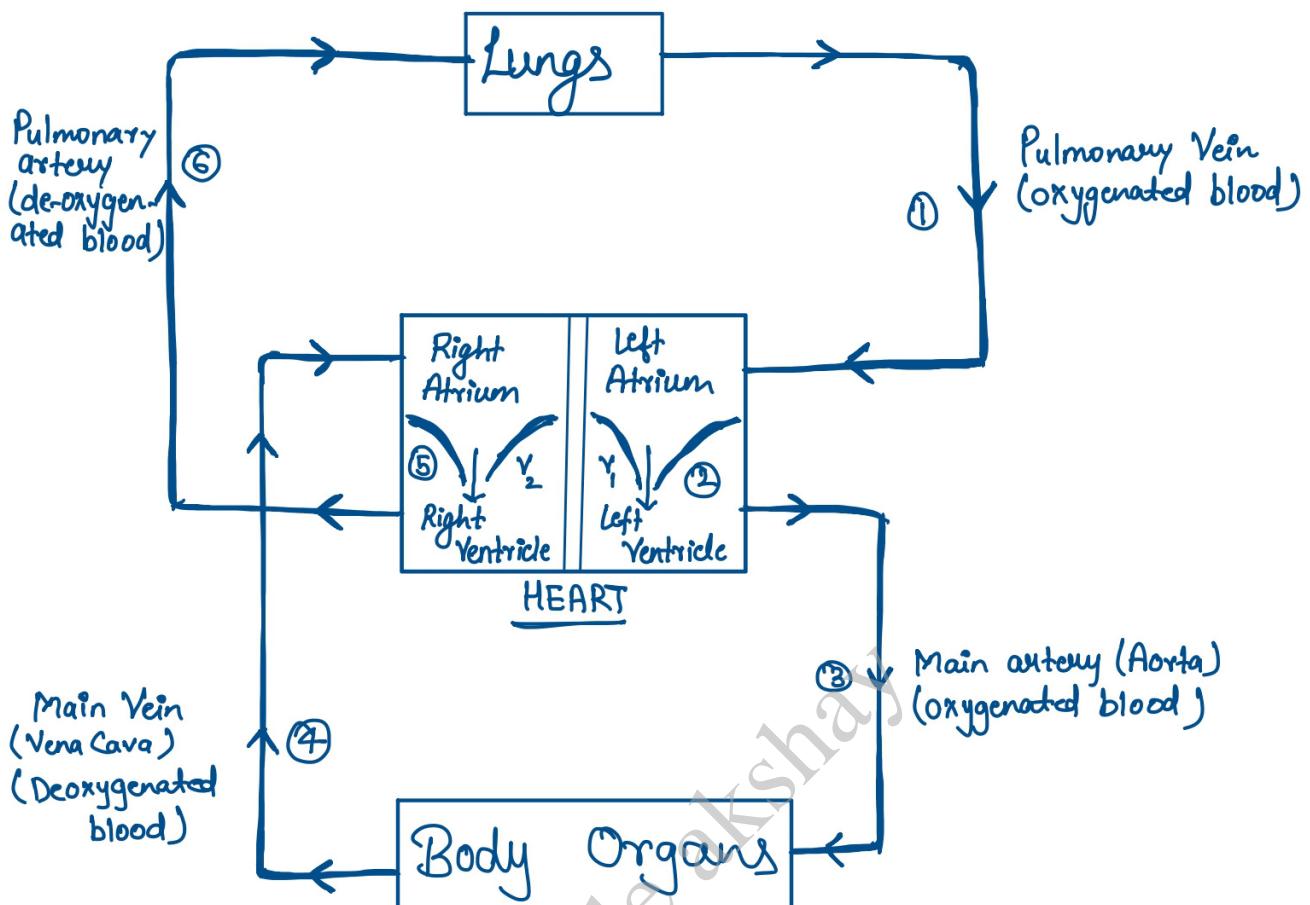
Schematic representation of transport and exchange of oxygen and carbon dioxide

**Capillaries:** The smallest vessels have walls which are one-cell thick and are called capillaries. Their thin wall helps in exchange of material between the blood and surrounding cells. Veins are formed when the capillaries join together.

**Role of blood platelets:** Platelet cells circulate around the body in the blood and help in the clotting of blood when blood flows out during injury or cut.

**Lymph or Tissue fluid:** It is formed by the plasma, proteins and blood cells which escape into the intercellular spaces in the tissues through the pores present in the walls of the capillaries. Lymph is similar to the plasma of blood but colourless and contains less protein. It also carries digested and absorbed fat from intestine and drains excess fluid from extra cellular space back into the blood. Lymph enters the lymphatic capillaries which join to form large lymph vessels that finally open into larger veins.

## Blood Circulation in Human Body



### P.Y.Qs

Question: List the three kinds of blood vessels of human circulatory system and write their functions?

Question: Describe double circulation in human beings. Why is it necessary?

Question: (a) How many chambers are present in the heart of

(i) fish

(ii) amphibians

(b) Why is it necessary to separate oxygenated and deoxygenated blood in mammals and birds?

### P.Y.Qs

Question: Difference between arteries and Veins.

Answer:

Arteries	Veins
1. They are thick walled. 2. Arteries have no valves. 3. Carry Oxygenated blood except pulmonary artery.	1. They are thin walled. 2. They have Valves. 3. Carry deoxygenated blood except pulmonary vein.

Question: Difference between blood and lymph.

Answer:

Blood	Lymph
1. The constituents of blood are RBC, WBC, platelets and plasma. 2. It is red in colour due to the presence of RBC.	1. The constituent of lymph's are plasma and lymphocytes. 2. It is colourless.

## A.K.Q 6.7

**Question:** Visit a health centre in your locality and find out what is the normal range of haemoglobin content in human beings.

**Answer:**

- In men: 14 to 17 g/ 100 ml.
- In women: 12 to 15 g/ 100 ml.
- In children: 11 to 16 g/ 100 ml.

**Question:** Is it the same for children and adults?

**Answer:** No. In adults, it ranges from 12 to 17 g/ 100 ml. In children: 11 to 16 g/100 ml.

**Question:** Is there any difference in the haemoglobin levels for men and women?

**Answer:** Yes. In men: 14 to 17 g/ 100 ml. In women: 12 to 15 g/ 100 ml.

**Question:** Visit a veterinary clinic in your locality. Find out what is the normal range of haemoglobin content

in an animal like the buffalo or cow. Is this content different in calves, male and female animals?

**Answer:** The normal level of haemoglobin in animals like buffalo or cow is 10.4 to 16.4 g/ 100 ml. Haemoglobin content in calves is higher than male and female animals.

**Question:** Compare the difference seen in male and female human beings and animals.

**Answer:** Haemoglobin level in human is comparatively more than that of animals

**Question:** How would the difference, if any, be explained?

**Answer:** Human body needs more oxygen to do various biological works.

## Transportation in Plants

Two main conducting pathways in plants are:

- (i) Xylem and
- (ii) Phloem

**(i) Xylem:** It carries water and minerals from the roots to other parts of the plants.

**(ii) Phloem:** It carries products of photosynthesis from leaves to the other parts of the plant.

### Transport of Water and Minerals

**(i) By root pressure:** The cells of root in contact with soil actively take up ions which creates a difference in ion concentration between the root and the soil. Water moves into the root from the soil to eliminate this difference, creating a column of water that is steadily pushed upwards.

**(ii) By transpiration pull:** Loss of water from stomata by transpiration gets replaced by the xylem vessels in the leaf which creates a suction to pull water from the xylem cells of the roots. This strategy is used during day time and helps to transport water to the highest points of the plant body.

**Transpiration and its roles:** The loss of water in the form of vapour from the aerial parts of the plant is known as transpiration.

It helps in

- (i) absorption and upward movement of water and minerals.
- (ii) temperature regulation by cooling the leaf surface.

**Transport of food and other substances:** Translocation is the transport of soluble products of photosynthesis through phloem.

Sucrose is transferred into sieve tubes of phloem via the companion cells using energy from ATP. This increases the osmotic pressure inside the sieve tubes which causes movement of water into the sieve tubes from the adjacent xylem. This pressure helps in translocation of material in the phloem to tissues which have less pressure.

### A.K.Q6.8

**Question:** Do you observe any difference in the two cases?

**Answer:** Yes. In the pot with plant, water droplets are found in the plastic sheet. It is due to the condensation of water vapour released by transpiration. In other pot, water droplets are not formed.

## Excretion

Removal of metabolic wastes from the body is called as excretion.

**Excretion in Unicellular organisms:** Many unicellular organisms remove metabolic wastes from the body surface into the surrounding water by simple diffusion.

**Excretion in Human Beings:** Excretory system of human beings includes:

- (i) A pair of Kidneys
- (ii) A Urinary Bladder
- (iii) A pair of Ureters
- (iv) A Urethra

The purpose of making urine is to filter out waste product from the blood i.e., urea which is produced in the liver. Each kidney has large numbers of filtration units called nephrons. The urine formation involves three steps.

**(i) Glomerular filtration:** Nitrogenous wastes, glucose water, amino acid filter from the blood in blood capillaries into Bowman Capsule of the nephrons.

**(ii) Selective reabsorption:** Some substances in the initial filtrate, such as glucose, amino acids, salts and a major amount of water are selectively reabsorbed back by capillaries surrounding the nephrons.

**(iii) Tubular secretion:** Some ions like  $K^+$ ,  $H^+$ , etc. are secreted into the tubule which opens up into the collecting duct.

Urine produced in the kidneys passes through collecting duct into the ureters. Ureters takes urine into the urinary bladder where it is stored until it is released through the urethra. Release of urine is under nervous control.

## Excretion in Plants

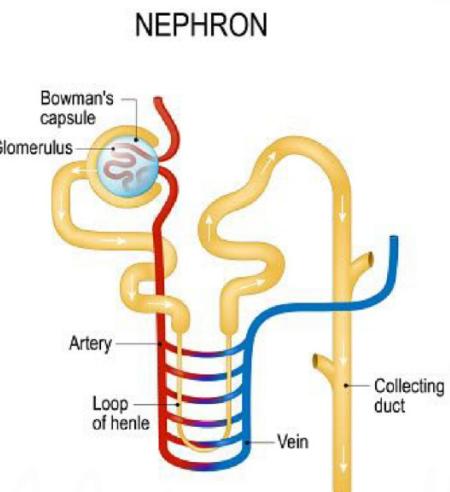
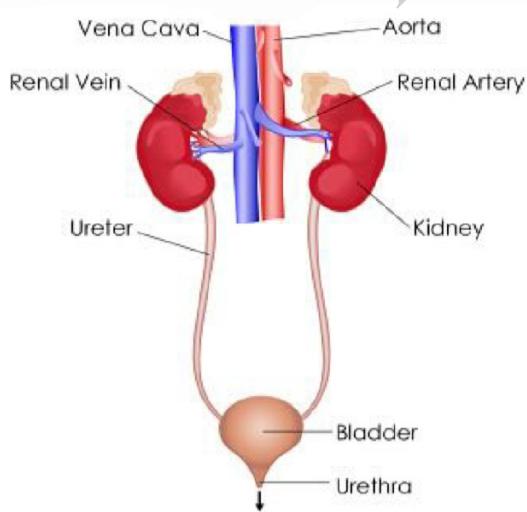
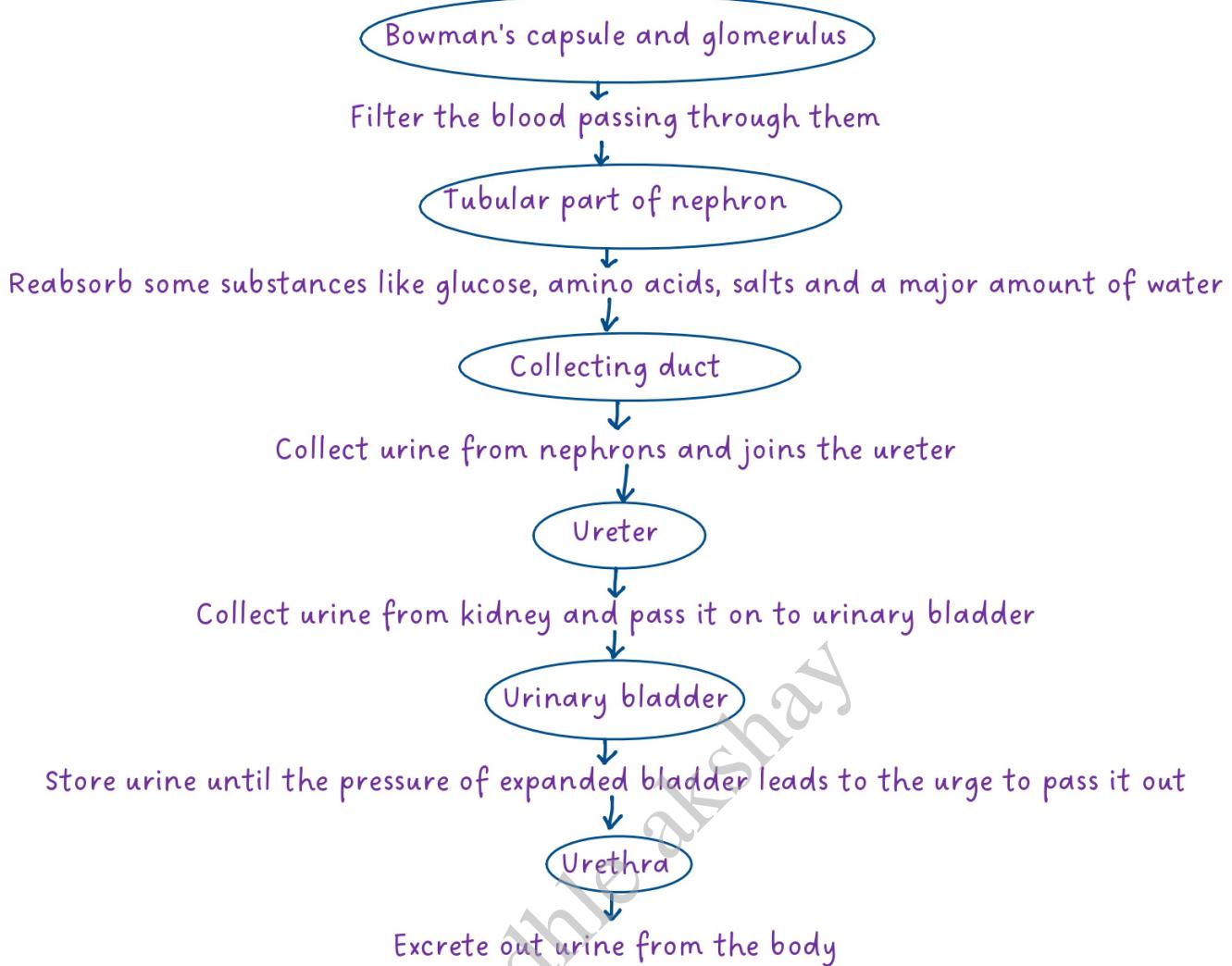
Excess oxygen and carbon dioxide removed through stomata.

Excess water removed by transpiration through stomata.

Plant waste products are also removed by:

- Storage in cellular vacuoles
- Storage in leaves that fall off
- Storing as resins and gums in old xylem
- By excreting into the soil around them.

## Excretion In Human Being And function



### **P.Y.Q**

Question: Compare the functioning of alveoli in the lungs and nephrons in the kidneys with respect to their structure and functioning.

Question: Describe the structure and functioning of nephrons.

Question: How is the amount of urine produced regulated?

### **E.K.Q**

Question: In which of the following groups of organisms, food material is broken down outside the body and absorbed?

- (a) Mushroom, green plants, Amoeba
- (b) Yeast, mushroom, bread mould
- (c) Paramecium, Amoeba, Cuscuta
- (d) Cuscuta, lice, tapeworm

Question: Which of the following statement(s) is (are) true about respiration?

- (i) During inhalation, ribs move inward and diaphragm is raised
  - (ii) In the alveoli, exchange of gases takes place i.e., oxygen from alveolar air diffuses into blood and carbon dioxide from blood into alveolar air
  - (iii) Haemoglobin has greater affinity for carbon dioxide than oxygen
  - (iv) Alveoli increase surface area for exchange of gases
- (a) (i) and (iv)
  - (b) (ii) and (iii)
  - (c) (i) and (iii)
  - (d) (ii) and (iv)

Question: Which of the following statement (s) is (are) true about heart?

- (i) Left atrium receives oxygenated blood from different parts of body while right atrium receives deoxygenated blood from lungs
  - (ii) Left ventricle pumps oxygenated blood to different body parts while right ventricle pumps deoxygenated blood to lungs
  - (iii) Left atrium transfers oxygenated blood to right ventricle which sends it to different body parts
  - (iv) Right atrium receives deoxygenated blood from different parts of the body while left ventricle pumps oxygenated blood to different parts of the body
- (a) (i)
  - (b) (ii)
  - (c) (ii) and (iv)
  - (d) (i) and (iii)

Question: Leaves of a healthy potted plant were coated with vaseline. Will this plant remain healthy for long? Give reasons for your answer.

Question: Why do fishes die when taken out of water?

Question: How do the guard cells regulate opening and closing of stomatal pores?

Question: Lack of oxygen in muscles often leads to cramps among cricketers. This results due to

- (a) conversion of pyruvate to ethanol
- (b) conversion of pyruvate to glucose
- (c) non conversion of glucose to pyruvate
- (d) conversion of pyruvate to lactic acid