DCP FOR CHAPTER-6: LIFE PROCESSES.

Number of period	Sub-Topics
1	Living, Nonliving, Molecular movements needed for life, Single-celled organism, multi-celled organism, Basic rules for body design in multi-cellular organisms
2	Nutrition, Types of nutrition, metabolism, Autotrophic Nutrition, photosynthesis, Heterotrophic Nutrition, Holozoic Nutrition, Nutrition in Amoeba
3	Human Digestive System, Alimentary Canal, Associated Digestive Glands, Digestion of various food components along various parts of Alimentary canal
4	Respiration, Aerobic & Anaerobic Respiration, Breakdown of glucose by various pathways, formation of ATP.
5	Mechanism of Respiration in Human Beings, Mechanism of Respiration in aquatic and Terrestrial organism, breathing in plants.
6	Transportation in human being, Circulatory System, Components of Transport system in Human Beings, Blood vessels, Functions of the various blood Components, Blood Pressure
7	Human Heart, Double circulation
8	Lymph, Maintenance by platelets, Composition of lymph
9	Transportation in Plants, Components of transport system in a highly organized plants, Transport of water, Transport of food and other substances
10	Excretion, Excretion in Human Beings, Excretory System, Structure & function of Nephrons
11	Mechanism of urine formation, Artificial Kidney (Hemodialysis)
12	Excretion in plants.
13	Recapitulation of the Chapter

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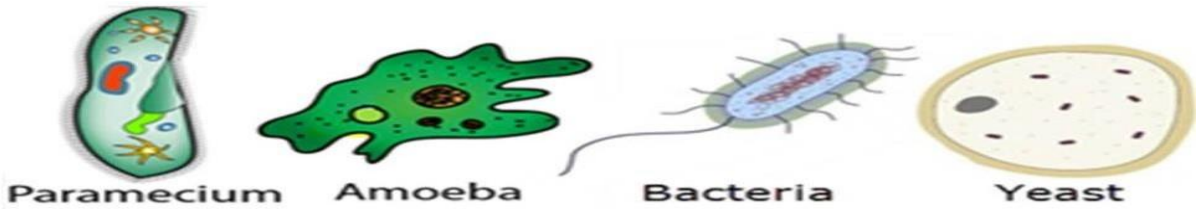
Class	X	**Subject**	BIOLOGY
Period.	1	**Chapter-6**	LIFE PROCESSES.
Sub- Concepts	Living, Nonliving, Molecular movements needed for life, Single-celled organism, Multi-celled organism, Basic rules for body design in multi-cellular organisms		
Teaching Aid To beused	Smart Class, PowerPoint presentation, classroom objects, charts.		

Learning Outcome.	On completion of this topic, students will be able to • Define living and nonliving. • List the different types of organisms • Categorize the single celled and multi-celled organisms. • Identify the single celled, multi-celled organisms. • List the categories of living and non-living organisms.
Sl. No	**Step Wise (What to be done)**
1. **Introduction.**	Teacher will discuss about the following contents and will utilize the corresponding module (life processes) for the better understanding of students. ➢ What are life processes? ➢ Single celled, multicellular organisms ➢ Single celled organism ➢ Multi celled organism
2**.** Living, Nonliving	➢ Define Living and Nonliving ➢ Nonliving.

3. Molecular movements needed for life	➢ Movement of constituent particles or molecules in a certain direction. ➢ It is essential because our cells in constant need of oxygen and nutrients.
4. Single-celled organism, Multi-celled organism	➢ Define Single-cell organism ➢ Multi-celled organism 
5.Home Assignment	In box Question - 1,2,Pg No- 95

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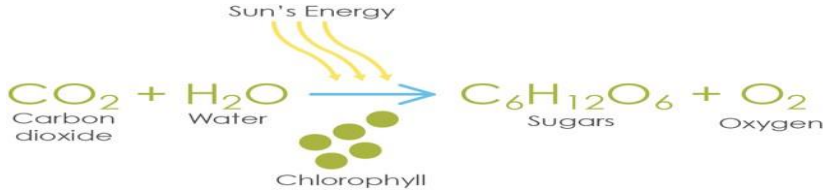
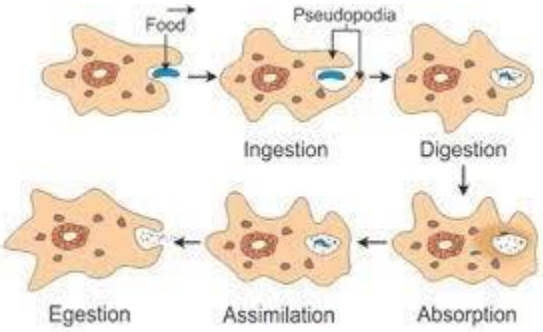
Class	X	**Subject**	BIOLOGY
Period.	2	**Chapter-6**	LIFE PROCESSES.
Sub- Concepts	Nutrition, Types of nutrition, metabolism, Autotrophic Nutrition, photosynthesis, Heterotrophic Nutrition, Holozoic Nutrition, Nutrition in Amoeba		
Teaching AidTo be used	Smart Class, PowerPoint presentation, classroom objects, charts.		
Recapitulation.	Teacher will discuss about mode of nutrition in case of single celled and multicellular organism as taught in the previous class and explain about how do living things get their food and the importance of food 1. What is nutrition? 2. What is metabolism and catabolism?		
Learning Outcome	On completion of this topic, students will be able to • Investigate how nutrition helpful for the organisms. • Understand the role of autotrophs. • Distinguish between autotrophs and heterotrophs. • Analyze how autotrophs prepare their food. • Demonstrate how plants prepare food?		
Sl. No	**Step Wise (What to be done)**		
1. Nutrition, Types of nutrition, metabolism, Autotrophic Nutrition.	➢ Define nutrition ➢ Modes of nutrition ➢ Energy producing ➢ Metabolism		
2. Autotrophic Nutrition, photosynthesis, Heterotrophic Nutrition.	➢ Define Autotrophic nutrition ➢ Hetero trophic nutrition. ➢ Explain photosynthesis ➢ Difference between autotrophic and heterotrophic nutrition. Autotrophs —Use→ Simple inorganic material —Convert into→ Complex high energy molecules of carbohydrates  		

3. Holozoic Nutrition	
4. Nutrition in Amoeba.	
5.Home Assignment	In box Question - 2,Pg No-101 and Exercise Question No- 7

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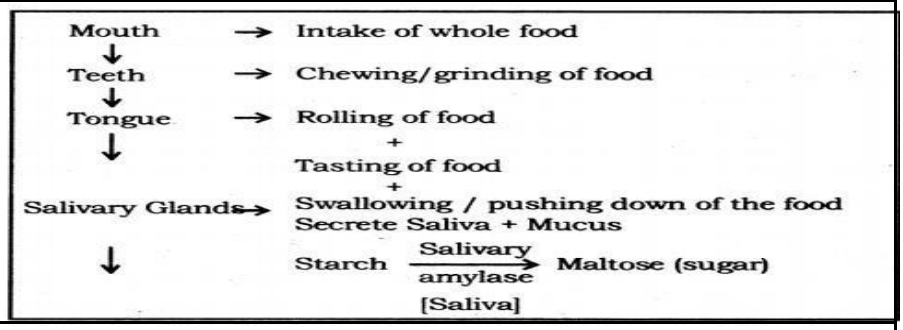
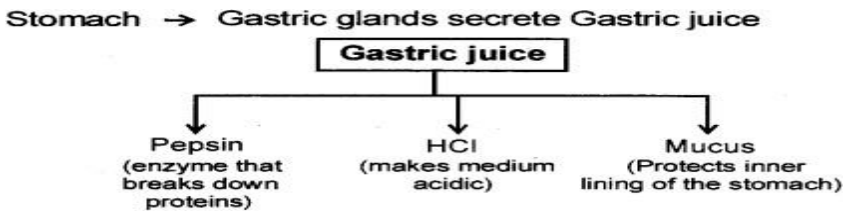
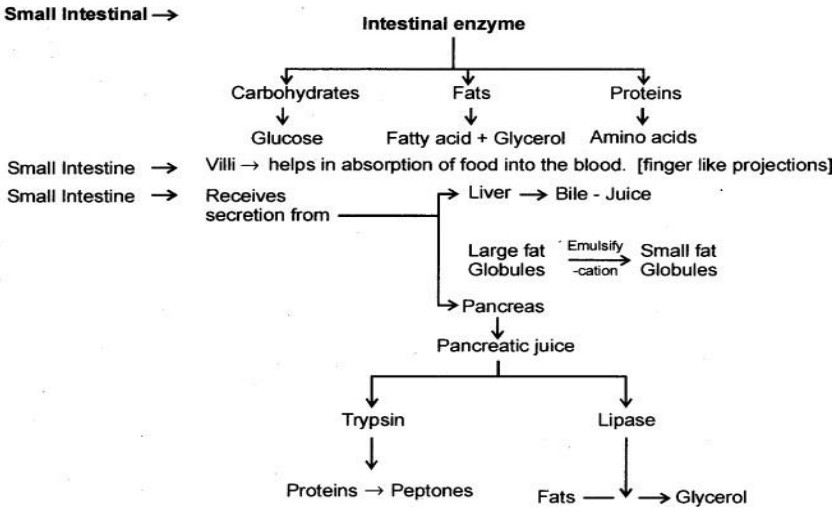
ODM Teachers' Note

Class	X		**Subject**	BIOLOGY
Period.	3	**Chapter-6**	LIFE PROCESSES.	
Sub-Concepts	Human Digestive System, Alimentary Canal, Associated Digestive Glands, Digestion of various food components along various parts of Alimentary canal			
Teaching Aid Tobe used	Smart Class, PowerPoint presentation, classroom objects, charts.			
Recapitulation	Testing previous knowledge – 1. Explain the processes of photosynthesis. 2. What is holozoic mode of nutrition?			
Learning Outcome	On completion of this topic, students will be able to • Define glands. • Draw or construct the human digestive system and labeled different parts. • Outline and analyses the process digestion in human beings. • Analyze the different glands associated with human digestive system.			
Sl. No	**Step Wise (What to be done)**			
1. Human Digestive System	➢ 			
2. Alimentary Canal, Associated Digestive Glands	➢ Alimentary Canal: It comprises of mouth, oesophagus, stomach, small intestine and large intestine. ➢ Associated Glands: Main associated glands are ○ Salivary gland ○ Gastric Glands ○ Liver ○ Pancreas			

3. Digestion of various food components	
4. Digestion of various food components along various parts of Alimentary canal.	
5.Home Assignment .	In box Question - 3,4Pg No- 101 and Exercise Question No- 5, 6

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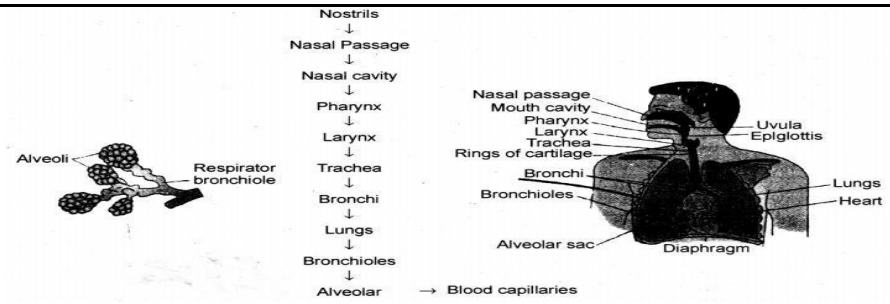
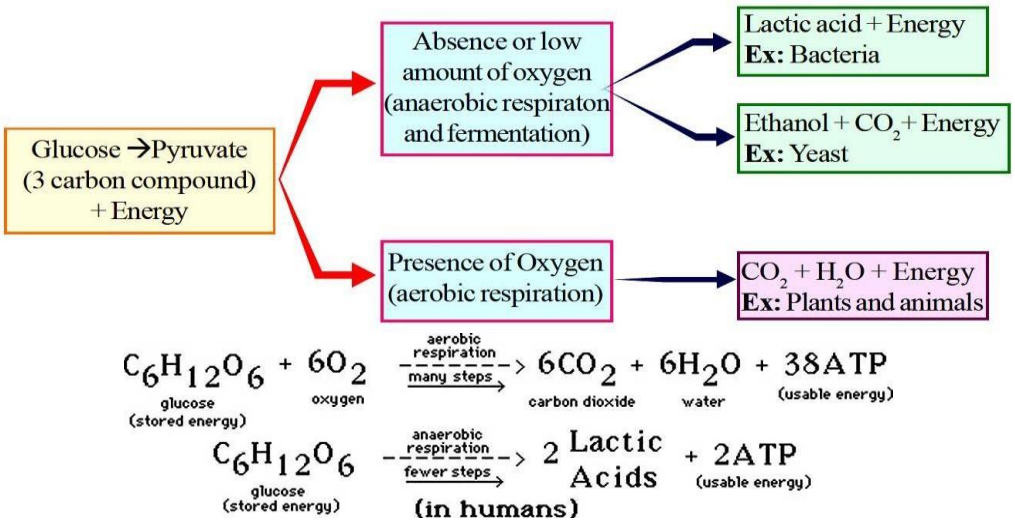
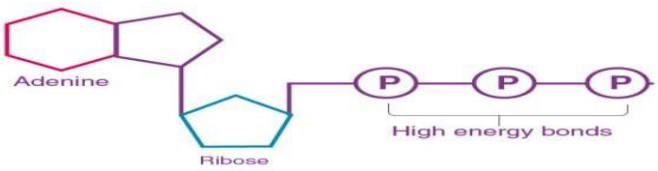
ODM Teachers' Note

Class	X	**Subject**	BIOLOGY.
Period.	4	**Chapter-6**	LIFE PROCESSES.
Sub-Concepts	Respiration, Aerobic & Anaerobic Respiration, Breakdown of glucose by various pathways, formation of ATP.		
Teaching Aid To be used	Smart Class, PowerPoint presentation, classroom objects, charts		
Recapitulation.	Testing previous knowledge – 1. Name the different parts of human digestive system. 2. How carbohydrates, protein and fat digestion occur in the body?		
Learning Outcome.	On completion of this topic, students will be able to • Identify and explain major steps of glucose break down in various organisms. • Define respiration and also explain types of respiration • List the types of respiration in various organisms. • Categories the aerobic and anaerobic respiration.		

Sl. No	Step Wise (What to be done)
1. Respiration.	
2. Aerobic & Anaerobic Respiration	$C_6H_{12}O_6$ (Glucose) $\xrightarrow{\text{presence of } O_2}$ $6CO_2 + 6H_2O + \text{Energy}$ $C_6H_{12}O_6$ (Glucose) $\xrightarrow{\text{absence of } O_2}$ $C_2H_5OH + CO_2$ (Ethanol) $C_6H_{12}O_6$ (Glucose) $\xrightarrow{\text{lack of } O_2}$ $CH_3CHOHCOOH$ (Lactic acid)
3. Breakdown of glucose by various pathways	
4. formation of ATP.	
5.Home Assignment	In box Question - 2, Pg No-105 and Exercise Question No-8

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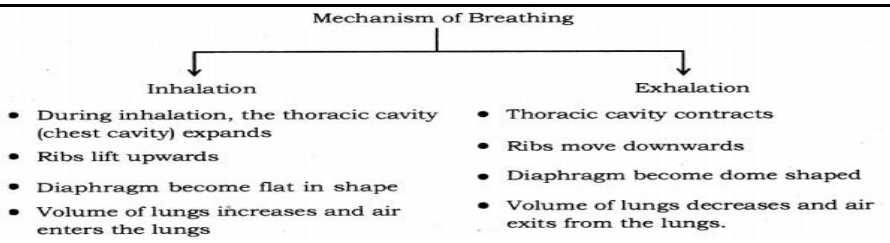
ODM Teachers' Note

Class	X	**Subject**	BIOLOGY.
Period.	5	**Chapter-6**	LIFE PROCESSES.
Sub-Concepts	Mechanism of Respiration in Human Beings, Mechanism of Respiration in aquatic and Terrestrial organism, breathing in plants		
Teaching Aid To be used	Smart Class, PowerPoint presentation, classroom objects, charts		
Recapitulation .	Testing previous knowledge – 1. what is aerobic and anaerobic respiration. 2. Name one organism which can live without oxygen. 3. In which type of respiration, aerobic or anaerobic, more energy is released? 4. Name the substance whose build up in the muscles during vigorous physical exercise may cause cramps.		
Learning Outcome .	On completion of this topic, students will be able to • Identify and explain the mechanism of respiration. • Define gaseous mechanism. • List the different types of organisms and how respiration occurs in them. • Categories the types of respiration occur in different organisms.		

Sl. No	Step Wise (What to be done)
1. Mechanism of Respiration in Human Beings	
2. Mechanism of Respiration in aquatic	➢ Respiration through gills ➢ General body surface.
3. Mechanism of Respiration in Terrestrial organism.	➢ general body surface ➢ skin ➢ tracheal tubes
4. breathing in plants	➢ Unlike animals and humans, plants do not have any specialized structures for gaseous exchange ➢ They have stomata (present in leaves) and lenticels (present in stems) which are involved in the exchange of gases. ➢ Compared to animals, plant roots, stems, and leaves respire at a very lower rate.
5.Home Assignment	In box Question - 3,4 ,Pg No- 105 and Exercise Question No- 9

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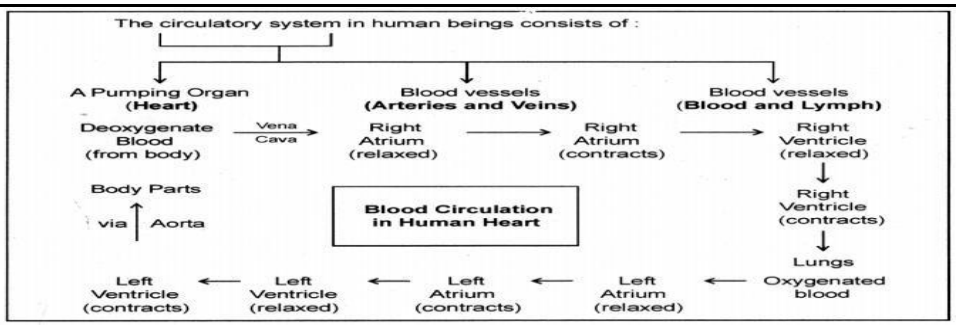
ODM Teachers' Note

Class	X	**Subject**	BIOLOGY.
Period.	6	**Chapter-6**	LIFE PROCESSES.
Sub-Concepts	Transportation in human being, Circulatory System, Components of Transport system in Human Beings, Blood vessels, Functions of the various blood Components, Blood Pressure		
Teaching Aid To be used	Smart Class, PowerPoint presentation, classroom objects, charts		
Recapitulation .	Testing previous knowledge – 1. Describe the process of respiration in *Amoeba*. State whether it is anaerobic respiration or aerobic respiration. 2. State the three common features of all the respiratory organs like skin, gills and lungs. 3. Describe the process of respiration in fish. 4. Why is the rate of breathing in aquatic organisms much faster than in terrestrial organisms		
Learning Outcome .	On completion of this topic, students will be able to • Identify and explain major steps of circulatory system. • Define transportation. • List the components of circulatory system • Categories arteries and veins		

Sl. No	Step Wise (What to be done)
1. Transportation in human being	➢ Transportation ➢ Modes of transportation
2. Circulatory System	
3. Components of Transport system in Human Beings,	➢ Blood ➢ Blood vessels ➢ Arteries ➢ Veins
4. Functions of the various blood Components, Blood Pressure	➢ RBCs ➢ WBCs ➢ Platelets ➢ Blood clotting
5.Home Assignment	In box Question - 1, Pg No- 110 and Exercise Question 10

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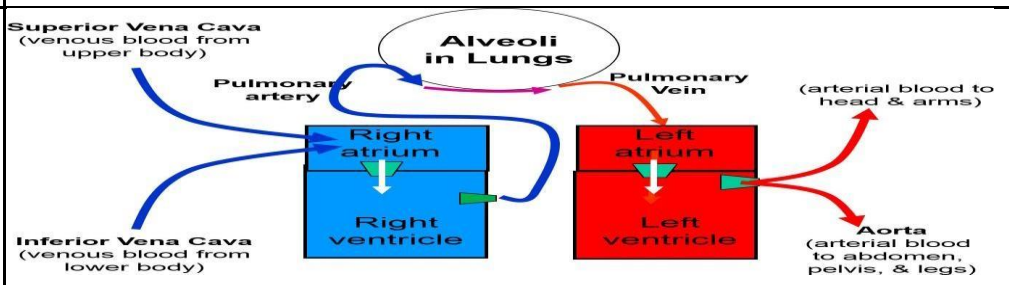
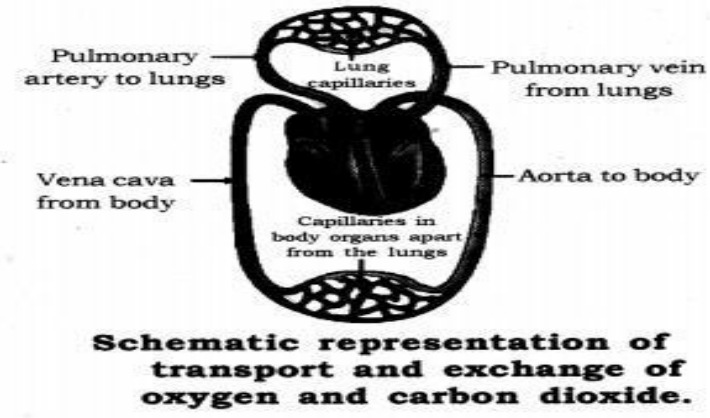
ODM Teachers' Note

Class	X	**Subject**	BIOLOGY.
Period.	7	**Chapter-6**	LIFE PROCESSES.
Sub-Concepts	Human Heart, Double circulation		
Teaching Aid To be used	Smart Class, PowerPoint presentation, classroom objects, charts		
Recapitulation .	Testing previous knowledge – 1. why do capillaries have very thin walls? 2. List the three kinds of blood vessels of human circulatory system and write their functions in tabular form. 3. why is the circulation of blood in fishes called single circulation?		
Learning Outcome .	On completion of this topic, students will be able to • Identify and explain double circulation • Define double circulation. • What are the components of the transport system in human beings? What are the functions of these components? • Name one animal having single circulation of blood and another having double circulation.		

Sl. No	Step Wise (What to be done)
1. Human Heart	➢ Oxygen- rich blood ➢ Carbon dioxide-rich blood ➢ Auricle Ventricle Systemic Vein →Sinus Venosus →Right Auricle →Right Ventricle → Pulmonary Artery → Lungs →Pulmonary Vein →Left Auricle →Left Ventricle →Trunchus Arteriosus →Systemic Circulation
2. Human Heart	
3. Double circulation	➢ Pulmonary circulation. ➢ Systemic circulation
4. Double circulation	 **Schematic representation of transport and exchange of oxygen and carbon dioxide.**
5.Home Assignment	In box Question - 2 Pg No-110 and Exercise Question No-11

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ODM Teachers' Note

Class	X	**Subject**	BIOLOGY.
Period.	8	**Chapter-6**	LIFE PROCESSES.
Sub-Concepts	Lymph, Maintenance by platelets, Composition of lymph		
Teaching Aid To be used	Smart Class, PowerPoint presentation, classroom objects, charts		
Recapitulation .	Testing previous knowledge – 1. draw a sectional view of the heart and label on it: aorta, right ventricle, pulmonary vein 2. State the differences between artery, vein and capillary.		
Learning Outcome .	On completion of this topic, students will be able to • Identify and explain major composition of lymph. • Define lymph. • Difference between lymph and blood? • What do you mean by 'lymph'? Mention its function. • How does tissue fluid differ from plasma?		

Sl. No	Step Wise (What to be done)
1. Lymph,	➢ Lymph ➢ Lymph vessels
2. Maintenance by platelets	➢ platelets
3. Composition of lymph	➢ Blood plasma composition ➢ Tissue fluid composition
4. Function of lymph	➢ Middle man ➢ Maintenance of blood volume ➢ Fat ➢ Waste ➢ Germs
5.Home Assignment	what is lymph?

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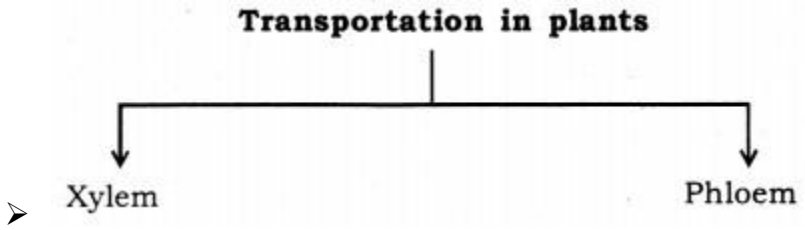
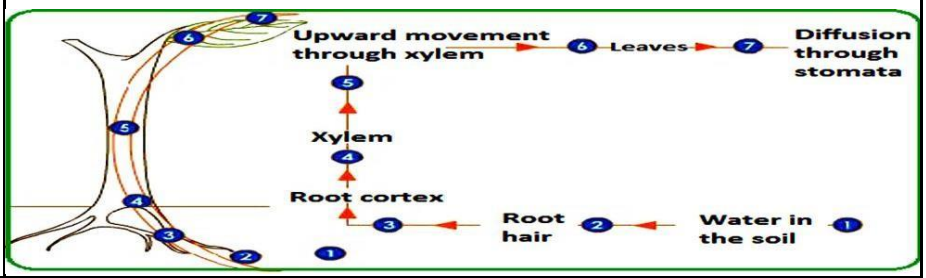
ODM Teachers' Note

Class	X	**Subject**	BIOLOGY.
Period.	9	**Chapter-6**	LIFE PROCESSES.
Sub-Concepts	Transportation in Plants, Components of transport system in a highly organized plants, Transport of water, Transport of food and other substances		
Teaching Aid To be used	Smart Class, PowerPoint presentation, classroom objects, charts		
Recapitulation .	Testing previous knowledge – 1. What are the functions of lymph in our body? **2.** How is plasma different from blood and serum?		
Learning Outcome .	On completion of this topic, students will be able to • Identify and explain major components of transportation in plants. • Define transportation. • List the substances that transport in plants • Explain the factors responsible for the ascent of sap in plants . • what do you understand by the force of adhesion and cohesion in the ascent of sap? • what is translocation in plants?		

Sl. No	Step Wise (What to be done)
1. Transportation in Plants,	
2. Components of transport system in a highly organized plants,	➢ Xylem ➢ phloem
3. Transport of water	➢ Ascent of Sap ➢ Root Pressure ➢ Capillary Action ➢ Adhesion-cohesion of Water Molecules ➢ Transpiration Pull
4. Transport of food and other substances	
5.Home Assignment	In box Question - 3,4 Pg No- 110 and Exercise Question No-12

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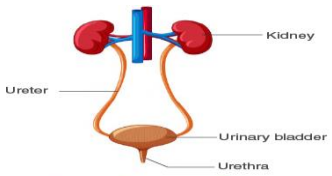
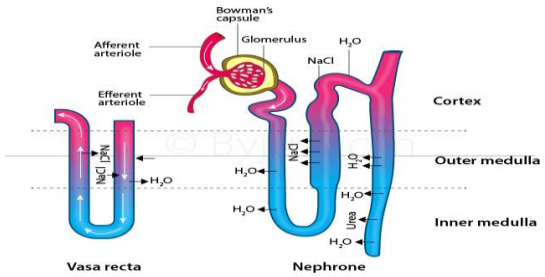
ODM Teachers' Note

Class	X	**Subject**	BIOLOGY.
Period.	10	**Chapter-6**	LIFE PROCESSES.
Sub-Concepts	Excretion, Excretion in Human Beings, Excretory System, Structure & function of Nephrons		
Teaching Aid To be used	Smart Class, PowerPoint presentation, classroom objects, charts		
Recapitulation .	Testing previous knowledge – **1.** What is "translocation"? Why it is essential for plants. **2.** How does food pass in the phloem? **3.** what forms the continuous water conducting channels in the plants? **4.** why does water diffuse into the root hair passively?		
Learning Outcome .	On completion of this topic, students will be able to • Identify and explain major steps of excretion. • Define excretion. • Explain the structure and function of nephron. • Draw a neat labelled diagram of the human excretory system. • Describe the mechanism of urine formation in human excretory system. Draw a labelled diagram to illustrate your answer.		

Sl. No	Step Wise (What to be done)
1. Excretion	➢ Waste materials ➢ Ammonotelism ➢ Ureotelism ➢ uricotelism
2. Excretion in Human Beings	➢ The excretory system in humans includes ➢ a pair of kidneys, ➢ a pair of ureters, ➢ a urinary bladder and ➢ urethra.
3. Excretory System	 Human Excretory System
4. Structure & function of Nephrons	 Structure of a Nephron
5.Home Assignment	In box Question - 1Pg No- 112 .

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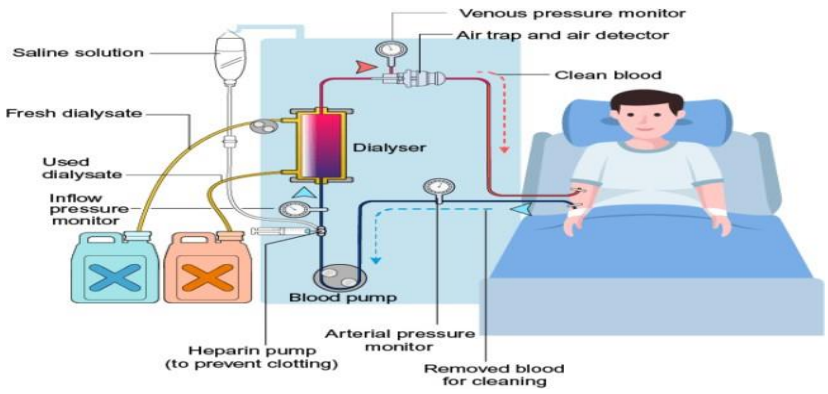
ODM Teachers' Note

Class	X	**Subject**	BIOLOGY.
Period.	11	**Chapter-6**	LIFE PROCESSES.
Sub-Concepts	Mechanism of urine formation, Artificial Kidney (Hemodialysis)		
Teaching Aid To be used	Smart Class, PowerPoint presentation, classroom objects, charts		
Recapitulation .	Testing previous knowledge – 1. why should ammonia be excreted as soon as it is formed? 2. Name two organisms which excrete urea. 3. How do most of the unicellular organisms excrete?		

Learning Outcome .	On completion of this topic, students will be able to
	• Identify and explain the mechanism of urine formation.
	• Define hemodialysis.
	  • What is meant by dialysis? What type of patients are put on dialysis?
	  • Explain the principle of dialysis with the help of a labelled diagram.
	  • Differentiate between ammoniotelic and uricotelic organisms.		

Sl. No	Step Wise (What to be done)
1. Mechanism of urine formation	➢ Glomerular filtration ➢ Reabsorption ➢ Tubular secretions
2.micturation	➢ Urge for micturition occurs when urinary bladder comes to have 300-400 ml of urine ➢ Total amount of urine excreted per day is about 1.6-1.8 litres.
3. Composition of urine.	➢ Water96% ➢ Organic substances 2.5% ➢ Inorganic solutes 1.5%
4. Artificial Kidney (Hemodialysis)	
5.Home Assignment	In box Question - 3 Pg No-112 and Exercise Question No-13.

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ODM Teachers' Note

Class	X	**Subject**	BIOLOGY.
Period.	12	**Chapter-6**	LIFE PROCESSES.
Sub-Concepts	Excretion in plants		
Teaching Aid To be used	Smart Class, PowerPoint presentation, classroom objects, charts		
Recapitulation .	Testing previous knowledge – 1. Name the constituent present in glomerular filtrate. 2. From where do the ureters arise? 3. Name an anticoagulant used in dialysis. 4. why do the excretory products pass from the blood to the dialyzing fluid?		
Learning Outcome .	On completion of this topic, students will be able to • Explain the processes of excretion in plants. • Define excretion. • What are the methods used by plants to get rid of excretory products? • Name the waste products stored in the old xylem of many plants. • Name any two waste products produced by the plants.		

Sl. No	Step Wise (What to be done)
1. Excretion in plants	Excretion of Oxygen, CO_2 and H_2O → Through stomata (Transpiration)
2. Excretion in plants	➢ Other wastes may be stored in leaves, bark etc. which fall off from the plant. ➢ Plants excrete some waste into the soil around them. ➢ Gums, resin → In old xylem ➢ Some metabolic wastes in the form of crystals of calcium oxalates in the leaves of colocasia and stem of Zamikand.
3. Excretion in plants	➢ Tannins ➢ Latex ➢ Root excretion
4. Excretion in plants	 Different forms of excretory products in plants
5.Home Assignment	In box Question - 2 Pg No-112.