

SALWAN PUBLIC SCHOOL, RAJENDRA NAGAR
CLASS – X
LESSON PLAN
CHAPTER-6: LIFE PROCESSES

Unit	Science (Chapter -6: Life Processes)
Class Transaction	Total: 10 periods (approx. 40 min each)
Pre-requisite for the course	This lesson requires: 1. Basic knowledge of different life processes studied in previous classes. 2. Knowledge of how are these processes different in plants and animals. 3. Understanding of the basic difference between a plant and animal with respect to nutrition, growth, movement etc. 4. Knowledge of presence of different organs for performing the life processes in organisms according to their habitat.
Learning Outcomes	KNOWLEDGE: Students will be able to: • identify the different life processes • describe the different modes of nutrition • know the function of different organs associated with digestion, respiratory system, methods of respiration • understand the mechanism of breathing and respiration • realize the significance of respiratory system. • understand the function of different organs in respiratory system and circulatory system. • differentiate between the processes of transportation and excretion in plants and animals • understand the importance of transportation and excretion in plants and animals • understand the functioning of kidney and the process of dialysis SKILLS and COMPETENCIES • Analytical skills (scrutinizing an observation) • Problem solving (investigating and applying established principles to justify an observation) • Critical thinking (Competitive evaluation of given information) • The ability to understand complex concepts (Inspecting and analysing reasons for variation in established principles) • Teamwork and communication skills (working effectively with others)
Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Evidence-based active-learning instructional strategies, Transaction would proceed in the following manner- Brain Storming-The class would start with a discussion on what the students have already learnt in the previous classes and hence what is it that they would learn now. They would also be told the significance of the topic that they would be studying. Real time monitoring- clicker questions can be given to students, which

	give them an opportunity to practice and solve genetics problems (or crosses) in class and allow instructors to monitor student learning in real time. Introduction of the topic- PPT and Digital Content would be shared Guided practice followed by Independent Practice- NCERT questions to be discussed in the classroom. Techniques to be used: Quiz Daily Practice Problem MCQ Peer Assessment Lab Activities Any Other
Self-Study, Homework Assignments	Independent Practice: Students would do the given questions in their H.W. notebooks as mentioned in the monthly planner. H.W. notebooks to be marked as per the given plan: Assessment Parameters: The total marks for the activity is 5 marks On time submission.....1 mark Presentation/ Neatness.....1 mark Content.....3 marks It is also advised that the students come to the class with proper background knowledge of the topic under discussion. They can refer to the resources stated above.

TOPIC	1 PERIOD: INTRODUCTION OF LIFE PROCESSES
Pre- Requisite for the course	Definition of all the life processes- Nutrition, respiration, transportation and excretion.
Assessment of qualifying knowledge	Students will be able to reason out the need of various organ systems in a multicellular organism.
Objective	1. Students will be able to understand that nutrition, respiration, transportation and excretion are important for the survival of an organism and reproduction is required for the continuity of a species. 2. Students will realize the importance these life processes in growth and development of an organism.
Learning Outcomes	Students will identify the different life processes and their significance in survival of an organism.

Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Evidence based learning Transaction would proceed in the following manner- Anticipatory Set The facilitator introduces the chapter by Brain Storming (Critical, Collaboration). Class would be divided into 4 groups. Each group will be asked to choose a life process and answer the following questions- 1. What is the need of that life process for the organisms? 2. Name the organs involved in carrying out that process. 3. Identify the basic difference between a plant and an animal with respect to that life process. 4. Write the basic difference between an aquatic and a terrestrial organism with respect to that life process. Discussion of topic and Guided Practice <u>Inquiry based learning</u> (Critical Thinking and Problem Solving) ▪ The students will answer the above questions and read them out to the class for further discussion. Independent Practice: Students will do the QUESTIONS from NCERT book with the help of facilitator and then do Q.1- 4 on page no. 95. Closure: A short oral test would be taken to check proper assimilation of the topic discussed.
Self-Study, Home Work, Assignments	A questionnaire can be given as assignment. 1. Only visible movement cannot be used as the defining character for life. Give reasons. 2. The molecular movements inside the body of living organisms help them in survival. How? 3. Explicate the association between nutrition, respiration, transportation and excretion in multicellular organisms.

TOPIC	3-4 PERIODS : NUTRITION
Pre- Requisite for the course	Knowledge of different types of nutrition that exist in the living world namely autotrophic and heterotrophic.
Assessment of qualifying knowledge	Students should be able to differentiate between autotrophic nutrition and heterotrophic nutrition. They should be able to identify the difference between a saprotroph and a parasite.
Objective	1. To describe the different modes of nutrition 2. To understand the process of photosynthesis. 3. To know the function of different organs and enzymes associated with digestion.
Learning Outcomes	• Students will know ways by which a plant acquires inorganic (CO₂, water, minerals) raw material from its surrounding.

	- Students will be able to list all the events that occur during photosynthesis in correct sequence. - Students will know the function of different organs and enzymes associated with digestion in humans.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Evidence based learning Transaction would proceed in the following manner- Recapitulation: Quick revision on the previous concept would be taken up. Transaction would proceed in the following manner- Anticipatory Set: - Teacher asks students to summarize the process of photosynthesis in the form of an equation. - After that sequence of events in photosynthesis are explained and listed. - Help of the diagrams of cross section of leaf and stomata is taken to explain procurement of raw material. - Nutrition in Amoeba can be compared with nutrition in humans to make the class interesting and clear the concept of holozoic nutrition. - Diagram of human alimentary canal is to be used to explain nutrition in humans in detail. Note: Teachers can create a table on a board listing various organs of digestive system with their secretions and functions. Discussion of topic and Guided Practice <u>Inquiry based learning</u> (Critical Thinking and Problem Solving) - The students will do the QUESTIONS from NCERT book with the help of facilitator and then do Q.1- 5 on page no. 101 - The facilitator would take rounds and help the students in solving the questions. Independent Practice: Students will go through the solved example before doing Exercise of NCERT text book and do Q.5, 6, and 7 from page 113 in Homework notebooks. Closure: A short oral test would be taken to check proper assimilation of the topic discussed.
Self-Study, Home Work, Assignments	A questionnaire can be given as assignment. - In most organisms the complex substances are taken as food from outside and then broken down into simpler one by use of biocatalysts. What is this mode of nutrition called? - What are enzymes? Name an enzyme secreted by salivary glands. - Name the movement that occur all along the gut to move the food in the regulated manner. - List the major events of Photosynthesis. - Explain the process of nutrition in amoeba with the help of a labeled diagram. - Describe the process of digestion in human small intestine.

TOPIC	3 PERIODS: RESPIRATION
Pre- Requisite for the course	The students should know the definition of respiration and difference between aerobic and anaerobic respiration. They should also know the respiratory organs in aquatic and terrestrial organisms.
Assessment of qualifying knowledge Objective	Students should name the respiratory organs in different animals. They should be able to write the end products of aerobic and anaerobic respiration. To make students 1. understand about respiration and different types of respiration. 2. realize the reason for specific design of respiratory system in aquatic and terrestrial organisms. 3. understand the mechanism of respiration.
Learning Outcomes	Students will be able to • explain respiratory organs, methods of respiration. • understand the mechanism of breathing and respiration • realize the significance of respiratory system. • understand the function of different organs in respiratory system.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Evidence based learning Transaction would proceed in the following manner- Recapitulation: Quick revision on the previous concept would be taken up. Transaction would proceed in the following manner- Anticipatory Set: 1. Teacher asks students about the type of respiration in humans and in yeast. 2. The type of respiration in our muscles after fast running. 3. The difference between these respirations. 4. What is common between the types of respiration? Guided Practice: The students will solve the questions 1-4 on page on 105 and question 8 & 9 on page number 113 from NCERT book in the class with the help of their teacher.
Self-Study, Home Work, Assignments	Independent Practice: Students would do the given questions in their H.W. notebooks.
Assessments	1. List the two processes involved in respiration. 2. Differentiate between aerobic and anaerobic respiration. 3. Draw a well labelled diagram of human respiratory system. 4. Describe the mechanism of breathing in humans.
TOPIC	2-3 PERIODS: TRANSPORTATION
Pre- Requisite for the course	The students should know the importance of transportation, Organs of circulatory system in humans and role of xylem and phloem in plants.
Assessment of qualifying knowledge Objective	Students should name the organs of circulatory system. They should be able to define the role of xylem and phloem. It will enable the students to • know the function of different organs for transportation in humans.

	- understand the requirement of special types of structures like heart for special functions. - know significance of transportation in plant.
Learning Outcomes	The students would be able to: - understand the function of different organs in circulatory system. - understand the importance of transportation in plants and animals.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Think pair share. Transaction would proceed in the following manner- Recapitulation: Quick revision on the previous concept would be taken up. Learning through Discussion: (Creativity, Collaboration) We begin the discussion by asking our students “Why is heart 4 chambered in mammals unlike 2 chambered heart in fishes?” This can lead to the explanation of structure of heart. How can the blood be carried to other parts of the body? This will help in explaining the need of blood vessels. Are the blood vessels enough to take nutrients and oxygen to all cells? This question will lead to the importance of lymph. Guided Practice: Draw the diagram of heart and label its four chambers. Construct a table to show the functions of these four chambers.
Self-Study, Home Work, Assignments	Independent Practice: Students would do the given questions in their H.W. notebooks as mentioned in the monthly planner. - Draw the diagram of heart and label its four chambers. Construct a table to show the functions of these four chambers. - Write the constituents and functions of lymph. - What is blood? Describe its composition. - Differentiate between blood and lymph. Independent Practice: Students will solve the various problems independently.
Assessments	- How is separation of the right side and the left side of the heart useful in mammals and birds? - Why is double circulation of blood necessary in humans?
TOPIC	2-3 periods EXCRETION
Pre- Requisite for the course	The students should know: What is excretion?, What are the organs of excretion in humans?; What is the need of excretion?
Assessment of qualifying knowledge	Oral questions on organs of excretory system like the unit of filtration, place where the urine is stored and ways in which humans excrete.
Objective	It will enable the students to - know the process of excretion. - Know the ways of excretion in plants. - Know about artificial kidney/ dialysis.

Learning Outcomes	The students would be able to: • differentiate between the processes of transportation and excretion in plants and animals • understand the importance of transportation and excretion in plants and animals • understand the functioning of kidney and the process of dialysis.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Think pair share. Transaction would proceed in the following manner- Recapitulation: Quick revision on the previous concept would be taken up. Learning through Discussion: (Creativity, Collaboration) Students are divided into 4 groups and a questionnaire is given to each group. Each group will have common questions, except the first one. Q1. "Name the organ that excretes sweat/CO₂/undigested waste/urine." Q2. Write the components of waste. This leads to the detailed explanation of each method of excretion in humans. Guided Practice: 1. State the functions of Bowman's capsule and glomerulus. 2. What happens to the useful substances which flow into nephridia along with waste? 3. Draw a diagram of excretory system in human beings and label on it. Aorta, Vena cava, Urinary bladder, Urethra
Self-Study, Home Work, Assignments	Independent Practice: Students would do the given questions in their H.W. notebooks as mentioned in the monthly planner. Q 1 to Q3 on page no. 112 from NCERT book. Q 13 on page no. 113 from NCERT book. Independent Practice: Students will solve the various problems independently.
Assessments	1. Name the substances present in the initial filtrate from the glomerulus. 2. Write the function of the following-Bowman's capsule; Glomerulus; collecting duct. 3. List the ways in which the plants excrete their waste.