LOTUS PETAL SENIOR SECONDARY SCHOOL
GRADE - 7
SUBJECT -Science

Month	Chapter	Learning objectives	Teaching Methods	Learning Outcomes	Subject Enrichment Activity	Art Integration /Multi-Disciplinary
April 18	Nutrition in Plants	The learners will be able to: 1. Describe photosynthesis process in plants. 2. Evaluate other plants in their surroundings & classify them as autotrophs, heterotrophs, saprotrophs, parasitic or symbiotic based on their nutritional requirements 3. Apply their knowledge to find how nutrients are replenished in the soil. 4. Draw a schematic diagram of a section through a leaf in order to pictorially represent photosynthesis.	1. Explanation 2. Discussion 3. Peer – group tutoring	The students learnt: · To Identify different organisms on the basis of mode of nutrition. · Write word equation for photosynthesis. · Explain process of photosynthesis in plants with the help of labeled diagram.	Collect leaves of different Colors	Lab Activity: Collect leaves of different Colors – check that photosynthesis also occur in these colored leaves.

		5. Establish the relationship between Rhizobium bacteria & leguminous plants.		· Conduct investigations to seek the answer that leaves other than green also carry photosynthesis.		
April	Nutrition in Animals	1. To learn the different ways of intake food. 2. To Explain process of digestive system in animals and human 3. To Draw labelled diagram or flow charts of digestive system in humans. 4. To understand the digestion process in grass eating animals. 5. To learn about feeding and digestion process in Amoeba. 6. To know about rrangement of teeth and different types of teeth , region of the tongue for	1. Lecture method 2. Demonstration 3. Project based learning	The learners · Explores that animal nutrition includes nutrient requirement, mode of intake of food and its utilization in the body. · Identifies that digestive system consists of the alimentary canal and secretary glands.	To find the position of taste buds with the help of edible things brought by the students	Bio Activity: To observe Permanent slide of Amoeba. Art Activity: Make model of human digestive system using waste material.

		different tastes etc.		· Observes that the modes of feeding vary in different organisms. · Draws diagrams of human Digestive system.		
May 11	Heat	1. Distinguish the Clinical thermometer from Laboratory thermometer (range, least count, units of measurement) 2. Apply the concept of convection to heating of land and water in order to predict the description of land and sea breeze. 3. To know about the concept of conduction, radiation and convection. 4. To learn the different modes of transfer of heat with their diagram. 5. Absorption and reflection of heat by black and white clothes.	1. Hands on learning 2. Experimental learning 3. Discussion	The learner · Concludes that a reliable measure of the hotness of an object is its temperature. · Identifies between clinical and laboratory	Calculate the temperature of chemicals with laboratory thermometer.	Lab Activity: Explore the different modes of conduction of heat. Objects of day-to-day use in groups andin different settings and arrangements.

				thermometers. · Recognize different mode of transfer of heat. · Why we wear light color clothes in summer and dark color in winter.		
May	Acids, Bases and Salts	1. To examine the common substance used at home based on taste and touch and classify them as acidic or basic. 2. Summarizes observations with respect to behavior of indicators in acidic and basic solutions 3. To know about some natural indicators. 4. Identify neutralization reactions and its characteristics 5. Evaluate the effectiveness of certain neutralization Reaction employed in everyday life, based on observed data.	1. Experimental learning 2. Explanation 3. Discussion	· Distinguishes between acids bases and salts . · Classifies between different types of indicators and their effects on acidic and basic solution. · How to write the word equation for neutralization process.	Prepare a card with Turmeric paste and soap solution.	Chemistry Activity: 1. Testing solutions of common substances like sugar, salt, vinegar, limejuice etc. With indicators like Litmus, Study of visual resources (at home

		6. To write the word equation for acid- base reaction.		· Apply learning of scientific concept in day to day life – like dealing with Acidity, treating the stings of ants etc.		and inthe surroundings) and means of Creative expression Turmeric, China rose 2. To study neutralizatio n reaction.
July 21	Ch-5 Physical and Chemical Changes	1. Infer the effects which help you to identify a physical change 2. Summarize various features accompanying chemical change 3. Evaluate a given set of changes (in everyday life) on attributes of physical or chemical changes to distinguish between them. 4. Defend why rusting of iron is a chemical change. 5. Differentiates physical changes from other changes (periodic changes etc) in order to characterize the common feature of physical changes.	1. Group discussion 2. Hands on learning 3. Lecture based	The learner · Distinguishes between physical and chemical changes. · Gets the knowledge about different kinds of changes. · Learns the effect of carbon dioxide on lime water. · Learns the Importance of galvanization.		Chemistry lab Activity: Experiment on Physical and chemical changes. Creative use of colours to show changes

		6. Illustrate the usage of crystallization in purification of various salts. 7. Judge why better crystallization occurs at lower temperatures.		· Learns how crystallization process works.		
July	Ch:6 Respiration in Organisms	1. Define cellular respiration in order to differentiate between aerobic and anaerobic respiration. 2. To Examine inhalation, exhalation and breathing rate in own body in order to analyze the effect of various activities on breathing rate. 3. Construct a cause and effect model of respiratory processes in animals and plants, as an extension of available resources and respiratory organs/features. 4. List the functions performed by a cell in order to infer the need of energy for various processes 5. Recall details/definitions of terminology related to respiration in humans. 6. Describe the process of breathing in humans in order to explain the role of nostrils (hair and mucus), trachea, lungs, ribs and diaphragm.	1. Demonstration 2. Lecture based 3. Hands on activities	At the end of the lesson students will be able to- · Knows about aerobic and anaerobic respiration . · Knows the mechanism of inhalation and exhalation . · They will analyse that muscle cramps are due to lactic acid which forms due to an aerobic respiration in cells . · They would learn that anaerobic respiration has in the production of alcohol .	Diagram of human respiratory system and heart.	Bio Lab Activity: Demonstration of how ribs and diaphragm moves during respiration.

		7. Describe the process of respiration in cockroach, earthworm, fish and plants in order to predict consequences of absence of respiratory organs/features, in animals or plants. 8. Select distinguishing features and categorize them as belonging to respiratory systems in plants and human beings (stomata & lungs). .		· They will apply warm water in case of muscle cramps to get relief.		
August 14	Ch:7 Transportation in plants and animals	1. Draw a contrast between the functions of arteries and veins, in the functioning of the circulatory system. 2. Analyze the implications of intermixing of oxygenated and deoxygenated blood in order to explain the existence of four chambers in the heart. 3. Outline functions carried out by parts of the circulatory system as being contributory to proper circulation of oxygen.	1. Discussion 2. Peer group tutoring 3. Explanation	· Learns about transpiration process and its advantages. · Notes about various components of blood and their function. · They can calculate the pulse rate and feels the heartbeat. · Knows the structure of heart and its function.	Observe and note down the Pulse rate of yours and your class mates .	Bio Activity: Transportation of water through cells. Study and use of various media and

		4. Describe the function of blood and its constituents. 5. Describe the location and function of the heart. 6. Recall details/functions of parts of the excretory system. 7. Explain the process of transport of water, minerals and food in plants in order to differentiate between xylem and phloem. 8. Observe own heartbeat and pulse rate after different activities in order to draw a relationship between them.		· Learns the function of xylem and phloem in plants. · Knows the heart beat and pulse rate of normal person at fest or during exercise. · Learns the function of human excretory system.		techniques to the extent of their availability.
September 7	Ch:8	1. Define reproduction in order to identify its need 2. Observe and recall how different types of plants grow new ones in	1. Lecture based 2. Discussion		Study of	

	Reproduction in Plants	order to differentiate between asexual and sexual modes of reproduction 3. Distinguish between any two modes of asexual reproduction, in connection with parts involved, etc. 4. Compare the outcomes of sexual reproduction in unisexual plants with those in bisexual plants 5. Recall details/definitions pertaining to sexual mode of reproduction in plants 6. Critique the idea that any one of the categories of seeds might disperse better than another category, in connection with reference to their features.	3. explanation	· Learn about various modes of reproduction in plants like vegetable propagation. · Differentiates between sexual and asexual reproduction in plants. · Learns about Pollination and its types. · Knows the advantages of different	flower and all its part.	Bio Activity: 1. Seed Germination process. 2. Demonstration of Parts of flower. Study of flower and all its part. Aesthetic organization of the physical environment by enhancing the surrounding area, i.e., landscaping including plantation of trees and other flowering plants and vegetables, etc.

				mode of reproduction in plants. · Learn about the bisexual mode of reproduction.		
October 15	Ch:9 Motion and Time	Students will be able to - 1. Recall change in position of the body with respect to surroundings as motion. 2. Identify repetition of natural events at definite/regular intervals of time/fraction of second in order to describe periodicity. 3. Infer from the given data that time taken to complete one oscillation as time period of simple pendulum. 4. Paraphrase the to and fro motion of simple pendulum/metallic bob suspended by a string is known as oscillatory motion 5. Recall the definition of speed (average speed) as distance covered in unit time.	1. Experimental 2. Numerical solving method 3. Exemplary based	· Observe and analyze motion as slow/fast. · Appreciate the idea of time and need to measure it(like measuring time with wrist watch / stop watch) 1. Analyze the consistency of time period of pendulum etc. · Measure and calculate speed of moving objects. ,		Physics lab Activity: Observation of Oscillatory motion of pendulum and calculate time period.

		6. Recall the instrument used to measure speed. 7. Uniform and Non- uniform speed. 8. Calculate speed or distance or time taken if any two of these three are quantities are provided. 9. Utilize data given in odometer to measure distance travelled, average speed for a given time. 10. Record data for distance covered in fixed intervals of time for a moving object in order to plot a distance-time graph and interpret the shape.		· Measure the physical quantities and express their SI units. · Plot and interpret distance-time graph		Math : (1) Find out the distance measured by odometer of your guardian vehicle. (2) Calculation of Time and Distance using formula.
November 17	Ch:10 Electric current and its effects	1. Examine how that an electric current can be used as a magnet in order to list its uses. 2. Outline the constriction and uses of electromagnets and electric bell.	1. Experimental based learning 2. Explanationx3s	· Learns about electric effect of electric current. · Learns the symbol of different electric components	Prepare a circuit	Physics lab : Perform a simple activity to demonstrate the magnetic effect of an electric current.

		3. Translate a circuit with actual components into a circuit diagram. 4. Observe heating effect of current in order to enlist its uses and compare it for conductors of different material, length and thickness. 5. Recall the precautions to be observed while working with electricity. 6. Summarize the benefits of using CFLs over ordinary electric bulbs. 7. Evaluate the role of a fuse wire and MCBs provide for electrical safety in a circuit.		used in a circuit. · Knows the magnetic and heating effect of electric current. · Knows about the working principle and construction of electric bell. · Learns about the use of fuse and MCBs in electric circuit.		Stem lab: Demonstrate the working and construction of electric bell.
November	Ch:12 Light	1. Recall reflection as change in direction of light by polished surfaces/mirrors. 2. Observe and describe image formed by a plane mirror in order to enlist its uses. (image/object, erect/inverted, virtual/real, distance from the mirror) 3. Conclude from observations that concave mirror forms real, inverted image at all places except when the object is too close whereas convex mirror is erect, virtual & smaller size than the object.	1. Demonstration 2. Experimental 3. Discussion	· Study and demonstrate experimentally rectilinear propagation of light . · Differentiate between real and virtual image. · Recognize lateral inversion	Construct model of seven color disc from the resources available in their surroundings .	Stem Lab: Demonstration of Concave and convex lens.

		4. Differentiate between convex and concave lenses based on the image formed when object is placed at different positions. 5. Explain the formation of a rainbow. 6. Analyze why virtual image cannot be obtained on the screen but still can be photographed. 7. Analyze the reason behind 'AMBULANCE' written as its mirror image on the hospital vehicles/ambulances. 8. Outline the important uses of spherical mirrors & lenses.		in daily life for example mirror images. · Identify mirrors and lenses on the basis of their function. · Differentiate images formed by mirrors and lenses on the basis of its properties. · Conduct investigation like—Is white light composed of many colors? · Learns about the formation of Rainbow. · Knows the uses of all types of lenses and mirrors.		Observation of Periscope and Kaleidoscope. Organization, display and exhibitions of students' periodical and sessional work.
December 14	Ch:13	Students will be able to		· Student knows about	Locate different states having	

	Forest: Our lifeline	1. Study diversity of plants and animals in forest . 2. Understand the role of decomposers in maintaining nutrients Realize the need of wildlife conservation. 3. Understand the fact that 'forest are a dynamic living'. 4. Infer reasons for the aerial appearance of forests (as shown in the chapter), in connection with types of trees/shapes of trees. 5. Create a flowchart of the food web, taking into consideration some examples of living beings, used in the chapter 6. Outline features of forests that are responsible for sustenance of life. 7. Design a forest ecosystem by considering a few plants and animals and explaining how they support one another.	1. Group Discussion 2. Lecture based	uses and need of Forest. · Learns about food web chart. · Student knows how forest is essential for sustainable development of environment. · Learns about how forest helps in controlling floods and maintain the flow of water in streams so that we get a steady supply of water. · Knows about decomposers and their function. · Knows about variety of trees and animals found in forest.	dense forest on map.	Activity: Identify different layers in forest. SST- Locate different states having dense forest on map. Study of various materials such as clay, plaster of paris, soft-stone, wood (blocks, twigs and branches, roots, etc.), metal scraps, plastic sheets, bamboo, wire thread, papers and cardboards, vegetables and other throw-away available materials.

December	Ch:14 Waste water story	1. Recall the journey of used water as waste water/ water that goes down the drains from sinks, showers, toilets, laundries 2. Perform various processes related to treatment of wastewater in order to describe processes inside a Wastewater Treatment Plant 3. List the uses of water in everyday life in order to identify various source of contamination 4. Define sewage and list its components in order to identify their points of origin. 5. Make a flow chart/line diagram of sewage route from all the various sources of generation to the treatment plant. 6. Outline factors responsible for scarcity of clean water and list some waterborne diseases in order to suggest methods of their prevention. 7. Conduct a water contamination survey in order to devise a plan for good sanitation practices and avoidance of contagious diseases.	1. Visual method 2. Demonstration method 3. Explanation	· Student learns about the ways of wastage of water. · Learns about different treatment plants to conserve and purification of water. · Knows about the factors responsible for scarcity of water. · Student learns about food sanitation and water purification process.	Mind map on conservation of water	Chemistry Lab: How water can be purified to make fit for drinking. Exercises in characterization waste water treatment