



LOTUS PETAL SENIOR SECONDARY SCHOOL
GRADE - 8
SUBJECT - Science

Month	Chapter	Learning objectives	Teaching Methods	Learning Outcomes	Subject Enrichment Activity	Art Integration /Multi-Disciplinary
April 18	Crop Production and Management	<p>Enable the students to -</p> <ol style="list-style-type: none"> 1. Know what is crop and understand the climatic conditions of kharif and rabi crop. 2. Know the method of preparation of field soil. 3. Understand tilling and ploughing practices. 4. Compare traditional tools with modern agricultural implements. 5. Analyse the importance of adding manures and fertilizers to the crop. 6. Explain the importance of supply of water to crops at different time intervals. 7. Analyze the impact of weedicides over weeds. 	<ol style="list-style-type: none"> 1. Explanation. 2. Discussion 3. Demonstration 	<p>The students learnt:</p> <ul style="list-style-type: none"> • What is crop and understand the climatic conditions of kharif and rabi crop. • Compare traditional tools with modern agricultural implements. • The importance of adding manures and fertilizers to the crop. • The systematic approach to get the desired results. • To understand the method of removing unwanted plants from crops. • The skill of analysis through the activity of seed germination. 	<p>Bio Lab Activity:</p> <ol style="list-style-type: none"> 1. Seed selection through Soaking seeds. 2. Action of manures and fertilizers 	<p>Diagram of farming tools or crops.</p> <p>Link with geography: soil and climate for crops.</p> <p>Connect with economics: farming and livelihoods.</p> <p>Collage Making: Create a visual timeline showing different</p>

		8. Describe the importance of silos and granaries for food storage.				<p>agricultural practices (sowing, irrigation, harvesting).</p> <p>- Model Making: Build a 3D model of irrigation systems (sprinkler, drip irrigation) using waste materials.</p>
	Coal and petroleum	<ol style="list-style-type: none"> To understand that the formation of fossil fuels and differentiate the types as renewable and non renewable. To understand the process of destructive distillation of coal and refining of petroleum and the uses of products in day to day life. Student should be able to explain basic facts about various renewable energy sources such as solar, hydropower, wind, geothermal, and biomass. Identify the advantages and disadvantages of renewable energy sources. Contribution of the alternatives towards reducing emissions of air pollutants, greenhouse gases 	<ol style="list-style-type: none"> Discussion method Lecture based method 	<ul style="list-style-type: none"> Learners have learned the formation of available natural resources like coal and petroleum They will come to know the different products and uses of the same. They will have learnt the judicious use of the available resources and created awareness in the society. 	<p>Activity: Learners will find out the total expenditure on electricity, petrol, and cooking gas in the house for the past three months and suggest the ways to reduce the consumption of all the three sources.</p>	<p>Diagram of coal and petroleum formation. Flowchart of refining processes.</p> <p>- Poster Making: Design an infographic on fossil fuels and their alternatives.</p> <p>- Clay Modeling: Create models of coal, petroleum reservoirs, and oil refineries.</p>

						Link with geography: natural resources distribution. Connect with environmental science: conservation and pollution.
May 11	Combustion and Flame	<ol style="list-style-type: none"> To Explain the process of combustion in order to describe the role of fuel and oxygen in the process as necessary conditions for combustion to take place Ignition temperature. Differentiate and compare the types of combustion on the basis of availability of oxygen. Compile and list the commonly known inflammable substances to explain that certain substance catch fire than others. To identify different zones of a candle flame in order to explain why goldsmith blow the outermost zone of a flame to melt gold and silver. Explain the fuel efficiency in terms of calorific value. 	<ol style="list-style-type: none"> Discussion method Lecture method Demonstration method Experimental learning 	<ul style="list-style-type: none"> Learners will recall the process of combustion and the conditions needed for it. They will differentiate and analyze the types of combustion occurring in real life. They will understand regarding the working of fire extinguishers. They will be able to analyze the cleaner fuel, that is least expensive and sustainable 	<p>Lab Activity: Learners will collect different types of materials like paper, cotton, straw, wooden ice-cream stick each of the piece is held over flame for some time. Materials that catch fire and burn are noted.</p> <p>Art Activity: Make a model of fire extinguisher by using household substances.</p>	<p>Draw: Flame zones and combustion process. Flowchart: Combustion conditions and products.</p> <p>Poster Making: Illustrate fire safety rules and precautions.</p> <p>- Digital Art & Infographics: Design a safety guide for handling fire and combustible substances.</p> <p>Physics: Heat transfer and energy release. Chemistry: Chemical reactions in</p>

						combustion.
	Microorganisms Friend and Foe	Students are able to <ol style="list-style-type: none"> 1. Identify the various microorganisms and their structure. 2. They would be aware about the harms and benefits of microorganisms. 3. Describe how mosquitoes spread malaria and dengue to explain the role of carriers in order to explain the harmful effects of microorganisms. 4. They would get the knowledge about the commercial uses of microbes. 	<ol style="list-style-type: none"> 1. Inquiry based 2. Lecture based 3. Demonstration based 	Students would: <ul style="list-style-type: none"> • Identify the various microorganisms and their structure. • Aware about the harms and benefits of microorganisms. • Get the knowledge about the commercial uses of microbes. • Why children are given vaccination. • Appreciate the importance of microbes in industries like alcohol, wine, bread, bakery. 	Biology Lab activity: <ol style="list-style-type: none"> 1. Observation of a drop of pond water under microscope. 2. Showing slides of microorganisms. 	Draw: Illustrate helpful and harmful microorganisms. - Collage Work: Make a photo collage of beneficial and harmful microorganisms. - Clay Modeling: Create 3D

		<ol style="list-style-type: none"> To learn the role of microbes in nitrogen fixation in nature. To be aware of the diseases caused by them. To Realize the Importance of microbes in medicines such as antibiotics, vaccines. To gain knowledge about various food preservation techniques. 				<p>models of bacteria, fungi, and viruses. - Theatrical Play: Perform a skit on how microbes help in food production and medicine.</p> <p>Biology: Beneficial microorganisms in digestion and fermentation. Health Science: Impact of harmful microorganisms on diseases.</p>
JULY 21	Reproduction in animals	<p>To enable the students to</p> <ol style="list-style-type: none"> Understand male and female reproductive systems. Differentiate between oviparous and viviparous animals. To learn about IVF technique and test tube babies. To gain knowledge about internal and external fertilization in order to describe two methods of fertilization 	<ol style="list-style-type: none"> Explanation Lecture Group discussion 	<p>Students would:</p> <ul style="list-style-type: none"> Understand male and female reproductive systems. Differentiate between oviparous and viviparous animals. Learn about IVF technique and test tube babies. How do babies develop inside the mother? Why does our body change when we reach our teen age. How sex of the baby is determined. Some animals lay eggs while some give birth to young ones. 	<p>Bio Activity: Look out for clusters of frog eggs floating in water and write down the color and size of eggs.</p> <p>Art Activity: Make 3-D model for life cycle of frog using waste material.</p>	<p>Draw: Diagram of male and female reproductive systems in animals. Flowchart: Stages of sexual reproduction in animals. - Diagram & Sketching: Draw lifecycle</p>

		<p>in animals.</p> <p>5. To explain the formation of zygote and foetus.</p> <p>6. Describe the life cycle of frog from eggs to adult frogs in order to explain metamorphosis process.</p> <p>7. To explain both asexual and sexual reproduction in animals.</p>		<ul style="list-style-type: none">How test tube babies are born.		<p>diagrams of different animals (butterfly, frog, human reproduction)</p> <p>- 3D Model Making: Build a model of internal reproductive organs using clay.</p> <p>Health Science: Human reproduction and related health education.</p>
Chemical Effects of electric current	<p>Students will be able-</p> <p>1. To understand the concept of liquid conductors, electroplating and LED.</p> <p>2. To understand the concept of, electroplating and various daily life applications of electroplating</p> <p>3. To Identify electrolytes and non electrolytes by testing with LED.</p> <p>4. To Arrange the experimental set up for electroplating. and apply</p>	<p>1. Experimental</p> <p>2. Demonstration</p> <p>3. Lecture</p>	<p>At the end of the lesson</p> <ul style="list-style-type: none">Students can perform test for the identification of solutions as electrolyte or non electrolyte.They know how coating of expensive metals is put to make artificial jewelry.They know that the components of water can be separated by electro refining.They are aware that pure water is an insulator. It can be made conducting by adding acid.	<p>Chemistry Lab Activity:</p> <p>1. Testing of conductivity of different solutions by LED.</p> <p>2. Electroplating of copper from copper sulphate solution.</p> <p>Resources- Torch, bulb, wires and LED</p>	<p>Draw: Diagram of electrolysis setup. Flowchart: Process of electrolysis and its applications.</p> <p>Electroplating Art: Show how metal gets coated using electroplating experiments.</p> <p>- Sketching & Poster Making:</p>	

		the concept in daily life.				<p>Illustrate applications of electrolysis in industries.</p> <p>- DIY Project: Create a simple battery cell using lemon, wires, and nails.</p> <p>Physics: Electric current and its chemical effects.</p> <p>Chemistry: Electrolysis and its role in chemical reactions</p>
AUGUST 14	Reaching the Age of Adolescence	<ol style="list-style-type: none"> 1. They would be provided knowledge about the various functions performed by different endocrine glands, Changes during puberty, Secondary sexual character. 2. They would be able to relate their concepts with puberty and adolescence. 3. They would be made aware about adolescent problems. 4. They would learn about nutritional needs and reproductive health of adolescent. 5. Identify the harmful consequences of taking 	<ol style="list-style-type: none"> 1. Peer – Group tutoring 2. Presentation 3. Discussion 	<ul style="list-style-type: none"> • They would be provided knowledge about the various functions performed by different endocrine glands, Changes during puberty, Secondary sexual character. • They would be made aware about adolescent problems. <ol style="list-style-type: none"> (1) what-is adolescence (2) the noticeable changes that occur during puberty such as-increase in height, body shape, change in voice of males, appearance of pimples (3) Mental and emotional maturity bodily changes during adolescence 	<p>Activity:</p> <p>Calculation of full height likely to be at the end of adolescence and drawing the graph for the same.</p> <p>Art Activity:</p> <p>Preparing charts and posters on adolescent diets and paste them in class to create awareness</p> <p>Assessment: Through-</p>	<p>Draw: Diagram showing physical changes during adolescence.</p> <p>Flowchart: Stages of adolescence and key changes.</p> <p>- Comic Strip Creation: Illustrate the journey of a teenager experiencing physical and</p>

		<p>drugs in order to explain why drugs are not solution to confused and insecure feeling during adolescence.</p> <p>6. Illustrate the process for determining the sex of a baby by the chromosomes from male sperm.</p>			<p>Oral interaction on location and hormones and functioning of hormones secreted by endocrine glands.</p>	<p>emotional changes. - Poster & Awareness Campaign: Design posters on hygiene, nutrition, and emotional well-being.</p> <p>Psychology: Emotional and behavioral changes during adolescence.</p>
September 7	Force and pressure	<p>Students will be able to</p> <ol style="list-style-type: none"> 1. Understand the effect of force. 2. Comprehend about the Different types of forces. 3. Explain the factors Affecting different types of forces. 4. Understand the Difference between mass and weight. 5. Become aware of the condition of weightlessness. 6. Understand the factors affecting fluid pressure. 7. To Explain the working of a rubber sucker, syringe and many other devices using the fluid pressure. 8. Illustrate with examples from daily life an action that causes 	<ol style="list-style-type: none"> 1. Experimental learning 2. Lecture cum demonstration 3. Inquiry based 	<ul style="list-style-type: none"> • Students are aware about the different types of forces and their effects. • Students know the Difference between mass and weight. • They are ready to handle the hurdles coming in their lives by increasing their efforts. • They are aware about the factors affecting pressure. • Students can use the equipments based on fluid pressure like syringe, piston etc. • They know about the working of vacuum cleaner. • Students can take Necessary measure to reduce pressure on Mother Earth. 	<p>Sports Activity:</p> <ol style="list-style-type: none"> 1. Students will be divided in two groups in which they will discuss and give the day to day examples for push and pull. 2. Tug of War <p>Physics Lab:</p> <p>Demonstration of attractive and repulsive property of magnets for understanding magnetic force.</p> <p>Chemistry lab:</p>	<p>Model: Create a simple model to demonstrate force and pressure (e.g., using a rubber sheet and small weights).</p> <p>- Clay Modeling: Make 3D models of different forces in action (gravitational, muscular, frictional).</p> <p>- Collage Work: Create a collection of images</p>

		change in movement or shape due to the contact between two objects in order to define contact forces.			<p>Demonstrating that liquids exert pressure-a) On the walls of the container b) On the base of the container</p> <p>SEA:</p> <p>Demonstration of electrostatic force by the attraction of paper pieces towards an electrically charged comb.</p>	<p>showing force and pressure in daily life.</p> <p>- DIY Experiment:</p> <p>Design a simple hydraulic system using syringes and water to show Pascal's Law.</p> <p>Everyday Life: Connect the concept to practical scenarios like lifting heavy objects or using tools.</p>
October 15	Friction	<p>Students will be able to understand-</p> <ol style="list-style-type: none"> Terms related to friction Factors affecting friction Types of friction How to measure friction Advantages and disadvantages of friction Methods of increasing and reducing friction. 	<ol style="list-style-type: none"> Experimental learning Demonstration based Group discussion 	<ul style="list-style-type: none"> Students are acquainted with the different types of friction. They have realized that friction cannot be zero. They are aware about the various techniques of increasing and reducing friction 	<p>Physics Activiy:</p> <ol style="list-style-type: none"> Study of different types of surfaces on the basis of roughness or smoothness. Measurement of friction with the help of spring balance. Discussion about various advantages and disadvantages of friction 	<p>Drawing: Illustrate how friction affects motion (e.g., between a car tire and road or a sled on snow).</p> <p>- Poster Making:</p> <p>Illustrate advantages and disadvantages of friction.</p> <p>- Photography & Experiment:</p> <p>Capture motion effects</p>

						<p>with and without friction (rolling objects, sliding books).</p> <p>- Drama & Role Play: Act out how friction helps in walking, driving, and daily activities.</p> <p>Daily Life: Relate friction to walking, driving, and sports.</p>
	Sound	<p>Students will be able to</p> <ol style="list-style-type: none"> 1. Explain propagation of sound in th medium. 2. Understand about the characteristics of sound- pitch, loudness and intensity. 3. Differentiate between frequency and amplitude in order to explain factors responsible for loudness and pitch of the sound. 4. Study the mechanism of various musical instruments. 4. Comprehend audible and inaudible sound. <ol style="list-style-type: none"> 1. Explain the structure and working 	<ol style="list-style-type: none"> 1. Technology based 2. Group discussion 3. Demonstration. 	<p>At the end of the lesson -</p> <ul style="list-style-type: none"> • Students know how sound propagated in the medium and reaches to us . • They can make their own musical instruments and study the different sounds produced by them. • They are aware about the differences of sound and reason for it. <ul style="list-style-type: none"> • They know how ear enables us to listen sound. • They are aware about the short term and the long term harmful effects of noise pollution. • They will take necessary measures for reducing noise pollution. 	<p>Classroom activity- Article writing on noise pollution.</p> <p>Art Activity: Making of simple musical instruments like Jal Tarang, Ek Tara, flute etc. with the help of waste materials.</p> <p>Physics lab- To calculate the frequency of Simple Pendulum.</p> <p>Chemistry Lab- Waves produced during sound propagation.</p>	<p>Model: Create a simple instrument (like a drum or rubber band guitar) to demonstrate sound waves.</p> <p>Craft: Guide students to create a simple ektara (stringed instrument) using available materials.</p> <p>- Musical Integration: Build a simple musical</p>

		<p>of human ear</p> <p>2. Acquaint themselves with the various causes of noise pollution and its prevention</p>				<p>instrument (rubber band guitar, water glass xylophone).</p> <p>- Sketching & Diagram Making:</p> <p>Draw waveforms of different sounds.</p> <p>- Theatrical Play: Perform a sound-based storytelling act using different pitch and tones.</p> <p>Diagram: Illustrate sound wave propagation and its effects on materials.</p>
November 17	Light	<p>Students will be able to understand-</p> <ol style="list-style-type: none"> 1. Formation of image by plane mirror and its characteristics. 2. Multiple reflections. 3. Structure of human eye and its working. 4. Defects of eye and other eye disorders. 5. Identify and calculate the angles of incidence and 	<ol style="list-style-type: none"> 1. Kinesthetic method 2. Lecture cum Demonstratio 	<ul style="list-style-type: none"> • Students can apply the phenomenon of multiple reflection in daily life. • They are able to verify the laws of reflection of light. • They know the structure of human eye and functions performed by its different parts. • They are aware of the causes of various eye disorders and their correction. 	<p>Physics Lab Activity:</p> <ol style="list-style-type: none"> 1. Obtaining multiple images by multiple reflection 2. Verification of laws of reflection 	<p>Drawing: Illustrate the paths of light rays in different situations (reflection, refraction, dispersion).</p> <p>- Shadow Art: Create shadow-</p>

		<p>reflection of a ray of light to illustrate the laws of reflection in real life.</p> <ol style="list-style-type: none"> Distinguish between reflection from a rough and a smooth reflecting surface in order to differentiate between diffused and regular reflection Describe the Braille system in order to explain how people with visual impairment manage to read and write 			<p>STEM Lab: Model of human eye and demonstration of Plane and spherical Mirrors.</p> <p>Art- Ray Diagram.</p>	<p>based storytelling using a torch and paper cutouts. - Sketching & Perspective Drawing: Illustrate the reflection and refraction of light. - DIY Periscope: Construct a simple periscope using mirrors and cardboard.</p> <p>Art: Explore how light and shadows are used in art and photography. Astronomy: Discuss how light helps us study stars and planets.</p>
	some Natural Phenomenon	<p>Students will be able to-</p> <ol style="list-style-type: none"> Understand static electricity and its effect, electric discharge, formation of lightning and Thunderstorm. Examine the working of electroscope to detect if an object is charged or not in order to apply the concept of 	<ol style="list-style-type: none"> Discussion Peer group tutoring Explanation 	<ul style="list-style-type: none"> Students know that static charge can be established by rubbing two different objects. They know the charge can be detected by using electroscope. They are aware about the causes of earthquake and lightening. They are aware about the safety 	<p>Physics Lab: Experiment with comb and paper to show positive and negative charges Force of attraction and repulsion between the</p>	<p>Diagram: Illustrate phenomena like lightning, rainbow, or eclipses with labeled diagrams.</p>

		<p>similar charge Objects repel each other.</p> <ol style="list-style-type: none"> To understand the cause of earthquake. Know what to do during thunderstorm, lightning and earthquake. To take necessary steps for mitigation in case of any natural disaster. Predict how lightning travels from the cloud to the ground in order to describe the measures that must be taken during lightning. 		measures that can be taken in case of natural disaster.	charged bodies.	<p>- Clay & 3D Model Making: Build models of lightning, earthquakes, and tsunamis.</p> <p>- Collage Work: Collect images of natural disasters and study their causes.</p> <p>- Drama & Role Play: Enact a rescue operation during an earthquake or storm.</p> <p>Meteorology: Discuss natural phenomena like thunderstorms, tornadoes, and their causes.</p> <p>Geography: Connect phenomena like eclipses and tides to Earth's movement and position.</p>
Decembe	Conservatio	To enable the students to	1. Group	The students learnt:	Soial Science	Poster

r 14	n of plants and animals	<ol style="list-style-type: none"> 1. Know about deforestation, its causes and consequences 2. Define and differentiate between different protected areas. 3. List out the flora and fauna of their areas. 4. Write the endemic species of a particular biosphere reserve. 5. Make aware about endangered species, project tiger and the red data book. 6. Understand the need of migration among animals. 7. Comprehend the importance of trees and reforestation. 	<ol style="list-style-type: none"> 2. Discussion Group Coordination 	<ul style="list-style-type: none"> • About deforestation, its brief report in the notebook regarding various factors disturbing the biodiversity of their area. • To appreciate the use of recycled paper. • Importance of flora and fauna in the ecosystem and also learn the value of conservation of wildlife. • About endangered species, project tiger and the red data book. • The need of migration among animals. • The importance of trees and reforestation 	<p>Activity : Data collection on protected areas of the country and showing these areas in an outline map of the state and the country.</p> <p>Art activity: Students will prepare paper bags from the used and loose papers and would be encouraged to use them.</p> <p>SEA: Observe the harmful effects of deforestation leading to soil erosion in your area</p>	<p>Making: Create posters promoting the protection of endangered species and plant life. Drawing: Illustrate ecosystems or endangered species and their habitats.</p> <p>- Poster & Awareness Campaign: Design posters on endangered species and conservation efforts.</p> <p>- Photography & Nature Walk: Capture photos of biodiversity and discuss their ecological roles.</p> <p>- Street Play (Nukkad Natak): Perform a skit on deforestation and its effects on wildlife.</p> <p>Geography: Explore the</p>
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