

Espalier-The Heritage School											
Annual Academic Planning (2022-23)											
Grade: VII			Subject : Science								
Sr no	Proposed date	Points to cover	Lesson Plan	Methodology	Teaching Aid	Location	Activities/ Diagram/ Map work	Reff books with pg. no.	No. of lectures required	Learning Outcome	Art Integration
1		<b>Lesson No/Name : 1. Nutrition in Plants</b> <b>Learning objective-</b> *Students will identify sources of nutrients for plants. • Students will contrast macronutrients with micronutrients. • Students will understand the role of nitrogen as a special plant nutrient. • Students will be introduced to the concept of a mutualistic symbiosis. • Students will examine other sources of plant nutrition such as parasitism and carnivore behavior. <b>Text Exercises.</b> *Question and answer * Match the pair * Fill in the blanks <b>Notebook work</b> * Answer the following	<b>Step1-</b> Read the lesson <b>Step 2</b> -Activities given in textbook <b>Step 3-</b> teacher asks question to the students <b>Teacher questions</b> -1)What is autotrophic mode of nutrition? 2)Define nutrition. <b>Step 4 -</b> Teacher helps students to carry out various activities discussed in the book. <b>Explanation-</b> *Teacher explains the concepts in the chapter .	Recitation, observation, discussion, drawing explanation , writing, reading.	Potted plants, video and PPT	Classroom	Photosynthesis process observation, video and ppt	1) NCERT textbook	10	Do leaves other than green also carry out photosynthesis? writes word equation for photosynthesis	Grow your own veggies at your home
2		<b>Lesson No/Name : 13 - Motion and Time</b> <b>Learning objective-</b> * understand the need to measure time *learn to calculate how fast an object moves (speed) <b>Text Exercises.</b> *Question and answer * Match the pair * Fill in the blanks * True or false <b>Notebook work</b> * Answer the following * *Question and answer * Match the pair * Fill in the blanks * True or false	<b>Step1-</b> Read the lesson <b>Step 2-</b> explanation of concepts of time <b>Step 3-</b> teacher asks question to the students <b>Teacher questions</b> 1] How is time measured? How to calculate speed? <b>Step 4 -</b> Teacher helps students to carry out various activities discussed in the book. <b>Explanation-</b> *Teacher explains	Recitation, observation, discussion, drawing explanation , writing, reading, technology based	Pendulum, clock, ball, water clock	Classroom	Observation of speed of vehicles, clock, oscillating pendulum, speed measurement of ball	1) NCERT textbook 2) Internet 3) Reference books	12	measures and calculates speed of moving objects; time period of a simple pendulum, etc. plots and interprets graphs e.g., distance-time graph	collect pictures of time measuring devices that were used in the ancient times in different parts of the world.

3		<b>Lesson No/Name : 4-Heat</b> <b>Learning objective-</b> * difference between hot and cold *Measurement of temperature *Transfer of heat *Different types of clothing according seasons <b>Text Exercises.</b> *Question and answer * Match the pair * Fill in the blanks * True or false <b>Notebook work</b> * Answer the following * *Question and answer * Match the pair * Fill in the blanks * True or false	<b>Step1-</b> Explain the chapter <b>Step 2-</b> Conduct activities <b>Step 3-</b> teacher asks question to the students <b>Teacher questions</b> 1] What is heat? 2]Different types of thermometer? 3]how is heat is transfered? 4] .What are insulators and conductors <b>Step 4 -</b> Teacher helps students to carry out various activities discussed in the book. <b>Explanation-</b> *Teacher explains the concepts	Recitation, observation, discussion, drawing, experiments explanation , writing, reading, technology based	rod (steel / iron), warm, hot, cold water, thermometer, bricks, candle, beaker	Classroom	heat transfer experiment , check the temperature of water, video	1) NCERT textbook 2) Internet 3) Reference books	12	explains processes and phenomena heating, measures and calculates e.g., temperature, conductors and insulators of heat	activity- pg no 48 of textbook based on conduction
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4	<p><b>Lesson No/Name : 7- Weather, Climate and Adaptations of Animals to Climate</b></p> <p><b>Learning objective-</b> *To know weather conditions are what happens in the atmosphere. To learn weather, climate, Adaptations in animals, global warming. To understand climate conditions on the earth suitable for life. To differentiate the regions have different climates? To understand climate adaptations and tropical rainforests. To know about deserts adaptations. To know about polar region in animals living in the Arctic region, animals living in the Antarctic region. To learn about migration. To learn global warming, effects of climate change.</p> <p><b>Text Exercises.</b></p> <p>*Question and answer * Match the pair* Fill in the blanks * True or false</p>	<p><b>Step1-</b> Explanation of chapter <b>Step 2-</b> activities of chapter <b>Step 3-</b> teacher asks question to the students <b>Teacher questions</b> 1] difference between climate and weather? 2]what is adaptation? . <b>Step 4 -</b> Teacher helps students to carry out various activities discussed in the book. <b>Explanation-</b> *Teacher explains the various concepts like climate, adaptation, weather</p>	Recitation, observation, discussion, drawing, experiments explanation , writing, reading, technology based	rain gauge, room thermometer, mind map, video	Classroom	rain gauge making, mind map making, Video watching	1) NCERT textbook 2) Internet 3) Reference books	14	<p>Learn weather conditions are what happens in the atmosphere. Understand weather, climate, Adaptations in animals, global warming Know climate conditions on the earth suitable for life. Differentiate regions to close to the equator. Recall the various types of habitats seen in India. Learn animals in the desert get their water from. Recall Polar Regions animals, Antarctic region, and migration. Explain what can cause global warming? And effects of change.</p>	season songs
5	<p><b>Lesson No/Name : - 2 Nutrition in Animals</b></p> <p><b>Learning objective-</b> *understand how animals utilise (use) food *Digestion in animals ( grass eating and meat eating) *Parts of digestive system *Digestion and feeding in amoeba</p> <p><b>Text Exercises.</b></p> <p>*Question and answer * Match the pair* Fill in the blanks * True or false</p> <p><b>Notebook work</b> * Answer the following * *Question and answer Match the pair * Fill in the blanks * True or false</p>	<p><b>Step1-</b> Explanation of chapter <b>Step 2-</b> Activities in the textbook <b>Step 3-</b> teacher asks question to the students <b>Teacher questions</b> 1] What is heterotrophic nutrition? 2]How is food digested? Which part of the digestive system absorb water? <b>Step 4 -</b> Teacher helps students to carry out various activities discussed in the book. <b>Explanation-</b> *Teacher explains the concepts</p>	Recitation, observation, discussion, drawing, experiments explanation , writing, reading, technology based	torso, digestive system video, teeth model, sugar solution, lemon juice, crushed neem, iodine solution	Classroom	strach test, taste bud position test	1) NCERT textbook 2) Internet 3) Reference books	12	<p>differentiates materials and organisms such as, digestion in different organisms; identifies materials types of teeth; draws labelled diagrams/ flow charts e.g., organ systems in human</p>	make a chart on arrangement and different types of teeth.

6	<p><b>Lesson No/Name : - 14- Electric current and its effect</b></p> <p><b>Learning objective-</b> 1. To revive their previous knowledge about last year's lesson on "electricity and circuit. 2. Students will learn about the difference between static charge and electric current. 3. Students will be familiarized with an electric circuit, circuit components and their respective functions and symbols. 4. To construct a simple electric circuit in the classroom and to explain how current flows and the bulb glows. 5. To introduce circuit diagram for a simple circuit.</p> <p><b>Text Exercises.</b> *Question and answer * Match the pair* Fill in the blanks * True or false <b>Notebook work</b> * Answer the following * *Question and answer Match the pair</p>	<p><b>Step1-</b> Explanation of chapter <b>Step 2-</b> Activities in the textbook <b>Step 3-</b> teacher asks question to the students <b>Teacher questions</b> 1)What makes electric iron hot? 2) What makes electromagnet acts as a magnet? 3)How does electric heater work? <b>Step 4 -</b> Teacher helps students to carry out various activities discussed in the book. <b>Explanation-</b> *Teacher explains the concepts</p>	Recitation, observation, discussion, drawing, experiments explanation , writing, reading, technology based	wires, cells, batteries, switches, magnet	Classroom	simple circuit formation, heating of coil, making electromagnet	1) NCERT textbook 2) Internet 3) Reference books	12	draws labelled diagrams/ flow charts electric circuits; experimental set ups, explains processes and phenomena, e.g., heating and magnetic effects of electric current, etc.	with the help of elders, observe all the plugs, switches ,bulbs and different electrical gadgets and speak out it in the classroom
7	<p><b>Lesson No/Name : - 5 Acids, Bases and Salts</b></p> <p><b>Learning objective-</b> *To enable the students to know about acid, base and salts. *To enable the students to differentiate the acid, base and salts . *To enable the students to identify the acid , bases and salts *Uses of Acid &amp; Base in day- to-day life. <b>Text Exercises.</b> *Question and answer * Match the pair* Fill in the blanks * True or false <b>Notebook work</b> * Answer the following * *Question and answer Match the pair * Fill in the blanks * True or false</p>	<p><b>Step1-</b> Explanation of chapter <b>Step 2-</b> Activities in the textbook <b>Step 3-</b> teacher asks question to the students <b>Teacher questions</b> 1)What are acids? 2)What is chemical changes? 3)What is rusting? <b>Step 4 -</b> Teacher helps students to carry out various activities discussed in the book. <b>Explanation-</b> *Teacher explains the concepts</p>	Recitation, observation, discussion, drawing, experiments explanation , writing, reading, technology based	litmus paper, turmeric, vinegar, curd, china rose, soap solution,	Classroom	litmus paper test, indicator test, neutralization reaction	1) NCERT textbook 2) Internet 3) Reference books	10	conducts simple investigations to seek answers to queries, e.g., Can extract of coloured flowers be used as acid-base indicator? writes word equation for chemical reactions, e.g., acid-base reactions	From the kitchen collect substances which are acidic, basic, neutral and discuss with your friends in the classroom

8	<p><b><u>Lesson No/Name : - 8- Winds, Storms and Cyclones</u></b></p> <p><b><u>Learning objective-</u></b> * Air Exerts Pressure Air Expands on Heating Thunderstorms and Cyclones</p> <p><b><u>Text Exercises.</u></b> *Question and answer * Match the pair* Fill in the blanks * True or false</p> <p><b><u>Notebook work</u></b> * Answer the following * *Question and answer Match the pair * Fill in the blanks * True or false</p>	<p><b><u>Step1-</u></b> Explanation of chapter</p> <p><b><u>Step 2-</u></b> Activities in the textbook</p> <p><b><u>Step 3-</u></b> teacher asks question to the students</p> <p><b><u>Teacher questions</u></b> 1) Does air have weight? 2]how are cyclone caused? 3]What are safety measures during cyclone?</p> <p><b><u>Step 4 -</u></b> Teacher helps students to carry out various activities discussed in the book.</p> <p><b><u>Explanation-</u></b> *Teacher explains the concepts</p>	Recitation, observation, discussion, drawing, experiments explanation , writing, reading, technology based	bottle, water, burner, beaker, balloons, thread, test tubes, plastic bags, cups, wind wane	Classroom	experiment : air has weight, air expands on heating, air has pressure, video on cyclones	1) NCERT textbook 2) Internet 3) Reference books	14	exhibits values of honesty, objectivity, cooperation, freedom from fear and prejudices, exhibits creativity in designing, planning, making use of available resources, etc. relates processes and phenomena with causes, e.g., wind speed with air pressure;	
9	<p><b><u>Lesson No/Name : - 17 Forest our line line</u></b></p> <p><b><u>Learning objective-</u></b> * To teach the students about the importance of forest in our life *How the various components of a forest are dependent on each other How forests help us Deforestation</p>	Project based chapter: Visit to Botanical garden or forest, deforestation and awareness, how to prevent soil erosion, PPT presentation, tree planation drive					1) NCERT textbook 2) Internet 3) Reference books	8	crops grown with types of soil dealing with acidity; taking measures during and after disasters testing and treating soil; makes efforts to protect environment, e.g., following good practices for sanitation at public places; minimising generation of pollutants; planting trees to avoid soil erosion; sensitising others with the consequences of excessive consumption of natural resources, etc	

10		<b>Lesson No/Name : - 16- Garbage in Garbage out-</b> <b>Learning objective</b> -Origin of waste water Constituents of waste water Cleaning of waste water Different waste water treatment Work in group Identify the important aspects of 'Waste water'	Project based chapter: Sewage management, sewage treatment, better housekeeping practice, alternate arrangement for sewage disposal				1) NCERT textbook 2) Internet 3) Reference books	8	suggesting methods for treatment of polluted water for reuse, etc. exhibits creativity in designing, planning, making use of available resources, etc. • exhibits values of honesty, objectivity, cooperation, freedom from fear and prejudices depletion of water table with human activities, etc.		
11		<b>Lesson No/Name : - 3- Fibre to Fabric</b> <b>Learning objective</b> - *learn about fabrics which comes from animal sources know which animals yields fibre and who rears those animals learn which parts of animals yield yarn understand how animal fibre is converted into fabric <b>Text Exercises.</b> *Question and answer * Match the pair* Fill in the blanks * True or false <b>Notebook work</b> * Answer the following * *Question and answer Match the pair * Fill in the blanks * True or false	<b>Step1</b> - Explanation of chapter <b>Step 2</b> - Activities in the textbook <b>Step 3</b> - teacher asks question to the students <b>Teacher questions</b> 1]What are fabrics 2]What are sources of fibres 3) How make fabric out of yarn ? <b>Step 4</b> - Teacher helps students to carry out various activities discussed in the book. <b>Explanation-</b> *Teacher explains the concepts	Recitation, observation, discussion, drawing, experiments explanation , writing, reading, technology based	cotton balls, spinning, charka, knitting needles, scissor and paper (2 different colours), life cycle of silkworm (sericulture visit ), video on procession of silk	Classroom	collect picture of furry animal, collect different kinds of fabric, differentiate between synthetic and natural thread	1) NCERT textbook 2) Internet 3) Reference books	12	identifies materials such as, animal fibres, classifies materials e.g., plant and animal fibres; explains processes and phenomena, e.g., processing of animal fibres; draws labelled diagrams/ flow charts; life cycle of silk moth, etc.	

12	<p><b><u>Lesson No/Name : - 16 Water a precious resource</u></b></p> <p><b><u>Learning objective-</u></b>  1. Understand the importance of water to humans and they are able to reason how to conserve the precious water.  2. Understand the Earth's water cycle process and its various stages.  3. Need of water conservation and Management of Water</p> <p><b><u>Text Exercises.</u></b>  *Question and answer  * Match the pair* Fill in the blanks  * True or false</p> <p><b><u>Notebook work</u></b> * Answer the following * *Question and answer Match the pair  * Fill in the blanks * True or false</p>	<p><b><u>Step1-</u></b> Explanation of chapter  <b><u>Step 2-</u></b> Activities in the textbook  <b><u>Step 3-</u></b> teacher asks question to the students  <b><u>Teacher questions</u></b>  1)What is importance of water?  2)How much water is available? 3) What is ground water?  <b><u>Step 4 -</u></b> Teacher helps students to carry out various activities discussed in the book.  <b><u>Explanation-</u></b>  *Teacher explains the concepts</p>	Recitation, observation, discussion, drawing, experiments explanation , writing, reading, technology based	cotton, leaves, water, beaker, burner, filter paper, video on shortage of water	Classroom	water cycle making, water filtration and purification processes	1) NCERT textbook 2) Internet 3) Reference books	12	depletion of water table with human activities, etc. makes efforts to protect environment, e.g., following good practices for sanitation at public places;	Water resources song
13	<p><b><u>Lesson No/Name : - 6- Physical and Chemical Changes</u></b></p> <p><b><u>Learning objective-</u></b> Discuss the difference between physical and chemical change; B. Appreciate the importance of the knowledge on physical and chemical change in our life through citing its applications in our community; and C. Write at least 5 examples of chemical and physical changes of matter. s</p> <p><b><u>Text Exercises.</u></b>  *Question and answer  * Match the pair* Fill in the blanks  * True or false</p> <p><b><u>Notebook work</u></b> * Answer the following * *Question and answer Match the pair  * Fill in the blanks * True or false</p>	<p><b><u>Step1-</u></b> Explanation of chapter  <b><u>Step 2-</u></b> Activities in the textbook  <b><u>Step 3-</u></b> teacher asks question to the students  <b><u>Teacher questions</u></b>  What is melting? What is reversible and irreversible change? What is rusting?  <b><u>Step 4 -</u></b> Teacher helps students to carry out various activities discussed in the book.  <b><u>Explanation-</u></b>  *Teacher explains the concepts</p>	Recitation, observation, discussion, drawing, experiments explanation , writing, reading, technology based	ice, paper, chalk, water, iron , vinegar, copper sulphate, magnesium, baking soda	classroom	dissolution test, freezing of water, rusting of iron, burning of magnesium ribbon, colour change of copper sulfate, lime water release carbon di oxide videos	1) NCERT textbook 2) Internet 3) Reference books	10	classifies materials and organisms based on physical and chemical changes, writes word equation for chemical reactions, e.g., acid-base reactions; corrosion, taking measures to prevent corrosion;	note down the physical and chemical changes happening in the kitchen .

14		<p><b>Lesson No/Name : - 9- Soil</b></p> <p><b>Learning objective-</b> * Different kinds of soil *Soil profile *importance of soil *Percolation rate of water</p> <p><b>Text Exercises.</b></p> <p>*Question and answer</p> <p>* Match the pair* Fill in the blanks</p> <p>* True or false</p> <p><b>Notebook work</b> * Answer the following * *Question and answer Match the pair</p> <p>* Fill in the blanks * True or false</p>	<p><b>Step1-</b> Explanation of chapter</p> <p><b>Step 2-</b> Activities in the textbook</p> <p><b>Step 3-</b> teacher asks question to the students</p> <p><b>Teacher questions</b></p> <p>1)What is porous soil?</p> <p>2)What is importance of soil? 3) In which soil crops grow best ?</p> <p><b>Step 4 -</b> Teacher helps students to carry out various activities discussed in the book.</p> <p><b>Explanation-</b></p> <p>*Teacher explains the concepts</p>	Recitation, observation, discussion, drawing, experiments explanation, writing, reading, technology based	soil profile video, different soil samples, water, burner,	classroom	soil air test, porosity test, identification of different soil	1) NCERT textbook 2) Internet 3) Reference books	12	crops grown with types of soil	make a collage of pictures of different types of soil.
15		<p><b>Lesson No/Name : - 10-Respiration in Organisms</b></p> <p><b>Learning objective-</b> understand why animals and plants breathe learn the difference between breathing and respiration see how plants and animals breathe in waters</p> <p><b>Text Exercises.</b></p> <p>*Question and answer</p> <p>* Match the pair* Fill in the blanks</p> <p>* True or false</p> <p><b>Notebook work</b> * Answer the following * *Question and answer Match the pair</p> <p>* Fill in the blanks * True or false</p>	<p><b>Step1-</b> Explanation of chapter</p> <p><b>Step 2-</b> Activities in the textbook</p> <p><b>Step 3-</b> teacher asks question to the students</p> <p><b>Teacher questions</b></p> <p>1)What is respiration?</p> <p>2) does respiration provide us energy?</p> <p><b>Step 4 -</b> Teacher helps students to carry out various activities discussed in the book.</p> <p><b>Explanation-</b></p> <p>*Teacher explains the concepts</p>	Recitation, observation, discussion, drawing, experiments explanation, writing, reading, technology based	balloon, bottles, straws, lime water, rubber, mirror	Classroom	model of lung, lime water test, video on respiratory system	1) NCERT textbook 2) Internet 3) Reference books	12	• writes word equation for chemical reactions, e.g., respiration	Make a poster on "smoking and alcoholism can kill"
16		<p><b>Lesson No/Name : -11 - Transpiration in Animals and Plants</b></p> <p><b>Learning objective-</b> *Circulation system *Heart and its working *Excretory system in humans *Transpiration in plants *transport of minerals and water in</p>	<p><b>Step1-</b> Explanation of chapter</p> <p><b>Step 2-</b> Activities in the textbook</p> <p><b>Step 3-</b> teacher asks question to the students</p> <p><b>Teacher questions</b></p> <p>1)What is the function the</p>	Recitation, observation, discussion, drawing, experiments explanation, writing, reading	model of heart, lungs, chart of circulatory system, rubber tube, funnel, rubber sheet or	Classroom	making of stethoscope, drawing heart and excretory system	1) NCERT textbook 2) Internet 3) Reference books	15	measures and calculates e.g., temperature; pulse rate; draws labelled diagrams/ flow charts e.g., organ systems in human and plants;	
17		<p><b>Lesson No/Name : -12 - Reproduction in Plants</b></p> <p><b>Learning objective-</b> *Modes of reproduction *Pollination</p>	<p><b>Step1-</b> Explanation of chapter</p> <p><b>Step 2-</b> Activities in the textbook</p>	Recitation, observation, discussion, drawing,	Different kinds of seed, model of flower,	Classroom	dissection of flower, stem cutting and	1) NCERT textbook 2) Internet 3)	15	Pollination, fertilisation, seed dispersal	Make your own cactus garden



18		<b>Lesson No/Name : -15 -Light</b> <b>Learning objective-</b> *Light travels in straight line *Reflection of light *Different kinds of mirror *the characteristics of the image formed by the plane mirror.	<b>Step1-</b> Explanation of chapter <b>Step 2-</b> Activities in the textbook <b>Step 3-</b> teacher asks question to the students <b>Teacher questions</b>	Recitation, observation, discussion, drawing, experiments explanation	mirrors, torch, candle, pipe, glass, convex and concave mirror,	Classroom	Shadow, light travels in straight line, formation of real and virtual	1) NCERT textbook 2) Internet 3) Reference books	15	constructs models using materials from surroundings and explains their working, Newton's colour disc ,etc. images formed by	Make a top with seven colours.
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