First Term Curriculum
Subject: Science
Class: VIII
Session: 2024-25

	April	May	June	July
Content	*Production of Crops *Microorganisms	*Synthetic Fibers and Plastics *Combustion and Fuel *Conservation of Biodiversity	*Wise Use of Natural Resources. *Metals and Non-Metals *Some Natural Phenomena	*Friction
Learning Outcomes	**Students will be able to:** -Identify the various agricultural tools. -Familiarize with the steps involved in crop production. - Explain Nitrogen cycle and Nitrogen fixation. - Observe and identify the slides of various types of microorganisms under the microscope. -Categorize the types of microorganisms and differentiate between useful and harmful microorganisms -Compare the ways of food preservation(Old and Modern)	**Students will be able to:** -Analyze the difference between the types of fibers. -Differentiate thermoplastic and thermosetting plastics. - Evaluate the impact of plastic on our environment. -Explain the terms-Calorific value, Fuel efficiency, Ignition temperature and enlist characteristics of a good fuel. -Differentiate between the types of combustion and types of fuels. -Analyze different zones of a candle flame. -Explain the reasons responsible for the loss of biodiversity. - Classify animals on the basis of level of threat. - Explore the ways to conserve biodiversity.	**Students will be able to:** -Discuss the formation and processing of coal and petroleum. -Enlist the products of coal and petroleum. -Interpret the importance and conservation of forest and fossil fuel. -Differentiate between metals, non-metals and alloys on the basis of their properties. -Enlist practical utility of metals and non-metals. - Deduce the method to write formulae and balanced chemical equations. -Recognize the different methods to charge a body(Friction, Conduction and Induction). -Discuss lightning and its after effects. -Explain causes, effects and precautions in case of earthquakes.	**Students will be able to:** -Identify and differentiate the types of friction - Infer the advantages and disadvantages of friction. -Tabulate methods of increasing and reducing the friction.
Skills	Knowledge/ Understanding/ Application/ Analysis/ Evaluation/Create	Knowledge/ Understanding/ Application/Analysis/ Evaluation/Create	Knowledge/ Understanding/ Application/ Analysis/ Evaluation/Create	Knowledge/ Understanding/ Application/ Analysis/ Evaluation/ Create

Activities	**Competency Skill based Activities/Experiential learning Activities:** **Search Work:** *Find out areas or states where crop rotation is most commonly used. Mark the areas/states on the political map of India. Also mark the states which are leading producers of wheat, rice, sugarcane and jute. **Class-Activity**: *Students will be asked to identify and compare the various tools during the ancient and modern age with the help of video shown. They also will be asked to draw them. **Field Trip:** *Students will visit Agriculture University, Bajaura and interact with scientists. There they will explore the various agricultural equipment and crops grown. Then students will be asked to make a brief report of their observations. ***Lab Activities**- To show the various slides: Students will be shown various slides of the microorganisms. *To study fermentation of sugar into alcohol by the action of yeast. ***Investigation** – To find various preservative methods which were used earlier by the people and also compare them with the modern preservative methods. Checking the preservatives used in the packed food items and to check the expiry date. Students made a table of various items they had in their home showing their expiry date, manufacture date and the preservatives added to them. **Search Work:** *Find out the cases of bacterial and viral diseases in the last 3-4 years. Is there a decrease or increase in the number of patients? Create a graph using data. Explore the causes and the ways to prevent this disease. **(Integration with Social Science, IT and English)**	**Competency Skill based Activities/Experiential learning Activities:** **Class-Activities:** ***Students will be asked to think of various things they use at home as well as observe in their classroom and sort these things as natural and synthetic. *Students will be asked to make a list of plastic items they use in their daily life and sort these materials/items into thermoplastic and thermosetting plastics. **Lab-Activity:** *To find out the nature of different types of fibres through burn test. **Class-Activities:** *Students will investigate the ignition temperature with simple experiment using paper cups, water and candles. *Students will burn a candle and identify the various zones of a candle, and colour of various zones. *Students will make models of fire extinguishers using PET bottles, vinegar, baking soda and tissue paper. **Lab-Activities:** *** To show that air is a supporter of combustion. *To show that the non-luminous zone is the hottest part of the candle flame. **Powerpoint presentation:** Students choose any one topic of their own interest from the chapter and will make a ppt. *Students will locate the Wildlife sanctuaries, National parks on the political map of India. *Students will write an essay on Conservation of animals. **(Integration with Social Science, IT and English)**	**Competency Skill based Activities/Experiential learning Activities:** **Class-Activities:** *Students Will be shown a video on extraction of coal and Petroleum and then they write paragraphs on the extraction processes. ***Debate** on the impact of extraction of fossil fuels on the environment. ***Group discussion** on the health problems faced by the people working in the coal mines. *Students will be asked to mark the areas which are covered by dense forest on a physical map of India and on a world map, mark the countries where petrol is extracted. **Class-Activities:** *Students will investigate the malleability and ductility of elements using Iron nail, pencil lead and hammer. *Students will learn to calculate the valency through magic numbers. **Lab-Activities:** *To demonstrate the formation of metal oxide and show that they are basic in nature. *To study the reaction between acids and metals and liberation of hydrogen gas. *To observe the displacement reaction using copper sulphate and iron nail. **Research Activity:** *Students will be divided into groups. Each group will give one metal to another group to research using reference books and will make a beautiful collage showing location, properties uses and interesting facts of that metal. **Class-Activities:** *Students will demonstrate electric charges with balloons and using the walls of the classroom. *Students will make an Electroscope with polythene strips, screwdriver ,glass rod and silk cloth -**Search Work:** *Students will be asked to find out and make a list of areas prone to earthquake. Enlist the precautions to be followed during the earthquake. Students will write all information in a notebook. **(Integration with English, IT and Art)**	**Competency Skill based Activities/ Experiential learning Activities:** **Class-Activities:** ***Students will check the factors affecting friction by using books, cardboard. They will be asked to write their observations and conclusions. **Group -Discussion:** *Students will discuss the topic "Imagine a world without friction". Then they will write a paragraph on the topic. **(Integration with English)**
Assessments	**Pen – Paper test, Observations, Diagrams, Tabular information, Map work, Report, Concept map, HOTs , Quiz, Reasoning questions, Value based questions, Collage, Search work, Model, C.W. and H.W.**			
	Main Book: Cambridge Science Voyage **Publisher: Cambridge University Press**			

Final Term Curriculum
Session: 2024-25
Subject: Science
Class: VIII

	August/September	October	November	December
Content	*Reproduction *The Age of Adolescence *Night Sky and Solar System	*Cell Structure and Function *Pollution of Air and Water	*Force and Pressure *Light	*Electricity and Circuits *Sound
Learning Outcomes	**Students will be able to:** -Interpret the methods of sexual and asexual reproduction in animals. -Distinguish male/female reproductive parts in human beings along with their functions. -Discuss the sex determination in human -Summarize the changes occurring during puberty and adolescence. -Locate the endocrine glands in the body. -Interpret the functions of glands/hormones. -Recognize and classify various celestial objects. -Identify and explore members of the solar system other than planets.	**Students will be able to:** - Discuss the discovery of cells and cell theory. - Differentiate between animal and plant cells and their cell organelles. - Explain the process of cell division. -Classify the types of pollution. - Identify and Analyze the causes, impact of air and water pollution. - Interpret methods of purification of water.	**Students will be able to:** -Explain the terms like force, pressure and atmospheric pressure. -Identify and differentiate the types of Forces. -Relate Pressure with area and analyze it for fluids. -Recall reflection, laws of reflection and characteristics of image formation by plane mirror. -Comprehend multiple reflections and working of the Human eye. -Analyze the Phenomenon of refraction and dispersion of light.	**Students will be able to:** -Explain the terms anode, cathode, electrolysis and electroplating. -Analyze the process of electrolysis and its applications. - Demonstrate chemical effects of current in case of electroplating. -Describe the concept of sound and noise. -Explain the mechanism of hearing in human beings. - Compare the frequency, pitch, amplitude and loudness of various types of sound. -Create musical instruments and bring one change to understand change in amplitude and sound.

Activities	**Competency skill based Activities/Experiential learning Activities:** **Class-Activities** *Students will draw male and female reproductive systems. *Students will be asked to make powerpoint presentations on topics: Fertilization, Embryo development in human beings, metamorphosis in insects and frog. Then they will explain these topics during the class. **Search -Work:** *Students will collect information about **Beti Bachao, Beti Padhao Scheme** initiated by the Government of India. They will make a report on it. **Class-Activities:** ***Group Discussion**: Students will discuss changes that occur during adolescent age. How to maintain health and Hygiene during the Adolescent age. **Group Activity:** *Students will be asked study and collect the data regarding the diet pattern of their family or neighborhood in the tabular form on the basis of balanced diet, need improvement and undernourishment, then they will represent data in the form of pie charts or graphs. Students will also make a healthy diet chart for adolescent age. *Students will draw the diagrams of endocrine glands and Menstrual cycle. *Students will refer to the websites of National Geographic or NASA and find out about how the universe was formed. **(Integration with IT, English, Mathematics and Art)**	**Competency skill based Activities/Experiential learning Activities** **Observation Activities:**- *Students will observe and Identify the parts of a Microscope. **Lab-Activities:** *Teacher will demonstrate a method to make temporary slides using an onion peel and cheek cell to observe the structure of plant and animal cell. Students will try to write a procedure to make a temporary slide ***Model Making** –Making the models of a plant cell or an animal cell. Students will be asked to make a model of an animal or a plant cell, with the waste material found in their home or maybe they use some threads, stones etc. **Group discussion** *Students will discuss types and causes of pollution in groups. * Students will share innovative ways to reduce pollution with their classmates. **Project work: (Outdoor)** *Students will make a Report on types of Pollution created in their locality/School locality and measures that can be adopted to minimize it. Students will make a collaborative project in groups. * Students will also find out the places or monuments which are affected due to pollution, what type of pollution is responsible for the corrosion. **(Integration with Art)**	**Competency skill based Activities /Experiential learning Activities** **Class-Activities:** *Students will observe magnetism with Horseshoe magnet and iron nails. *Students will demonstrate electrostatic force with balloons, bits of paper and plastic comb. *Teacher will cut any fruit with the blunt side and sharp side of the knife to explain the term pressure. *Students will solve numericals related to pressure and area. **Lab-Activities:** ***To show that pressure exerted by liquid increases with depth using two containers, pencil, water and cello tape. *To prove air exerts pressure using cardboard, glass tumbler and water. **Lab-Activities:** ***To verify the laws of reflection using a drawing board, white sheet or mirror. *To demonstrate refraction and dispersion through glass slab and prism. **Class-Activities**: *Students will demonstrate multiple reflections using two plane mirrors. *Students will give diagrammatic representation of the human eye and defects of eyes as well as correction of defects. **(Integration with Mathematics and Art)**	**Competency skill based Activities/Experiential Learning** **Lab-Activities:** ***To demonstrate conductivity through water using beaker, salt, water, battery, metal wire and bulb *To demonstrate electrolysis using tap-water, electrodes, battery and wires. *To demonstrate electroplating using water, copper sulphate, copper electrode, battery, nail and wires. **Class-Activities:** ***Students will classify the materials they have in class into conductors and insulators with the help of simple electric circuits. *Students will enlist the application of electroplating in their daily life. **Lab-Activity:** * study the sound travels in air and not vacuum(bell jar experiment) **Class-Activities**: *Students will make toy telephones to study propagation of sound through a medium. *Students will draw the internal structure of the human ear. *Students will make models of musical instruments and They will also play musical instruments in school with the help of a music teacher. They will come to know about different sounds and types of musical instruments. *Students will recreate their model after they understand the concept of amplitude, frequency and pitch of a sound. **(Integration with Music, Art and IT)**
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