Scheme of Work

NAS 5

Chapter	Sub-Topic	SLO	Pages	Activities
Unit 1 Classification of Living thing	Classification of Living Organisms (Monera, Protists, Fungi, Plants) Flowering & non-flowering plants (Mosses, Ferns, Conifers) and (Monocotyledons & Dicotyledons) Differences between monocots and dicots seed.	Describe classification of living organisms and its importance. Classify the plants into two major groups (dicots and monocots) and give examples of each group. Compare and contrast the structure of a dicot and a monocot plant (with respect to their seeds, leaves and flowers).	2-4 5-6 7-8	Compile a scrap book with a collection of 5 dried and preserved flowering and 5 non flowering plants.
	The animal kingdom, The vertebrates The invertebrates	Differentiate between vertebrates and invertebrates based on their characteristics. Classify vertebrates into, fish, amphibians, reptiles, birds and mammals on the basis of their characteristics. Classify invertebrates into five groups (sponges, worms, insects, snails, and starfish) on the basis of their characteristics.	8 9-11 9-10	• Compile an album of vertebrates and invertebrate and write information about their characteristics. • Explore biodiversity and factors causing loss of biodiversity.

	Extinct and endangered species Threats to biodiversity Revise and Review Concepts	Understand the concept of extinction and endangered species and the role of human actions in the loss of biodiversity. Analyse some of the factors caused by human which are affecting biodiversity. Write some measures for conservation of endangered species.	12 12-13	Give examples of extinct or endangered species? Which category of living organisms are the most at risk?
Unit 2 Microorganism	Types of microorganisms Bacteria, Virus, Fungi	Define and describe microorganisms. Identify the main groups of microorganisms and give examples for each.	20 20-22	• Discuss what food students typically have at home and the importance of 'good' microorganisms in producing these foods (yoghurt, cheese, bread etc.). • Disease & Prevention activity: Brainstorm several common diseases with students. Which of these are caused by viruses, bacteria, fungi – how can we keep ourselves safe? • Plan and prepare yogurt or other biotechnological products.

	Role of microorganisms in nature (Decomposition, Food decay, Infection) Transmission of microorganisms (by breathing in droplets, by eating or drinking, by touch, by blood, by animal)	Highlight the role of microorganisms in decomposition and discuss its harmful and beneficial effects. Recognize that microorganisms get transmitted into humans and spread infectious diseases Recognize some common diseases of each group caused by microorganisms.	23 23-25	
	useful microorganisms Protecting the body against diseases Revise and Review Concepts	Discuss and deduce advantages and disadvantages (any 3) of microorganisms by using some daily life examples. Suggest preventive measures to protect themselves from these infections.	23, 25 25	
Unit 3 Flowers and Seeds	Structure of a flower Types of reproduction in plants (Sexual reproduction)	Examine and describe the structure of a flower. Define reproduction and differentiating between sexual and asexual reproduction in plants.	32-33 34	Dissect the flower and observe various parts of a flower

	Pollination & fertilisation Inside a seed (seed coat, embryo, endosperm)	Define pollination and describe its types with examples. Describe the structure of a seed and demonstrate its germination.	34- 36 36	Design an experiment to monitor the changes that occur in the seed during its germination. Also suggest reasons for the changes as well as the factors imperative for germination
	Difference between chickpea seed and maize seed The stages of germination Types of reproduction in plants (ASexual reproduction) Revise and review concepts	Compare and contrast the structure and function of a chickpea and Maize seed. Illustrate the conditions necessary for seed germination. Define reproduction and differentiating between sexual and asexual reproduction in plants.	37 38 38-39	Compile a scrap book of the leaves of dicot and monocot plants. Also describe other characteristics that make it different from each other.
Unit 4 Environmetal Pollution	Environment, Pollutant, Pollution, types of pollution Air pollution, water pollution and land pollution	Define pollution and its types. Explain the main causes of water, air and land pollution Explain the effects of water, air and land pollution (unclean/ toxic water, smoke, smog, excess CO2/ other gases, open garbage dumps, industrial waste etc.) on the environment and life.	46-48 46-48	Plan and conduct a campaign to bring awareness to a problem of environmental pollution in your surroundings. Plan and conduct a campaign in your school or neighbourhood regarding our responsibility to save our immediate environment

	The greenhouse effect Biodegradable and non-biodegradable materials Impact of non-biodegradable materials on the environment Revise and Review Concepts	Discuss and explain the effects of burning fossil fuels and releasing greenhouse gases in air. Differentiate between biodegradable and non-biodegradable materials. Explain the impact of non-biodegradable materials on the environment. Investigate possibilities and suggest ways to reduce non-biodegradable materials.	47 49 50	Design a model to explain the greenhouse effect Students to bring biodegradable and non-biodegradabl e material and discuss what makes them different.
Unit 5 Physical and Chemical Changes of Matter	Introduction Change in state, change in shape and size, change in colour	Identify observable changes in materials that do not result in new materials with different properties (e.g., dissolving, crushing aluminium can). Recognize that matter can be changed from one state to another by heating or cooling (candle wax).	56 57	

	Water and its three states, change from solid to liquid – melting, change from a liquid to a gas – boiling, change from a gas to a liquid – condensation, change from liquid to a solid – freezing, changes from a liquid to a gas – evaporation Dissolving (stirring, temperature, reducing the size of solid)	Describe and demonstrate the states of water (i.e., melting, freezing, boiling, evaporation, and condensation). Identify ways of accelerating the process of dissolving materials in given amount of water and provide reasoning (i.e., increasing the temperature, stirring, and breaking the solid into smaller pieces increases the process of dissolving). Distinguish between strong and weak concentrations of simple solutions.	58-60 61	Take baking soda and vinegar in separate bowls. Then combine the two together in a large bowl. (Be sure students stand away from the bowl). Explain that when baking soda and vinegar are combined, they go through a chemical change. Bubbles form because a gas is released, which is a byproduct of the chemical change. Ask students to draw the process
	Chemical change, energy change, unpleasant odour, Gas Formation, Change in colour Physical change versus chemical change Revise and review concepts	Identify observable changes in materials that make new materials with different properties (e.g., decaying, burning, rusting). Differentiate between physical and chemical changes with examples.	62-64 64	

Unit 6a Light	Sources of light Properties of light Luminous & non-luminous objects	Identify natural and artificial sources of light. Justify that light emerges from a source and travels in a straight line. Investigate that light travels in a straight line. Investigate luminous and non-luminous objects in daily life.	70 70-71 71-72	
	Materials and light, transparent, opaque and translucent Shadows, Characteristics of shadows, size and position of shadow Revise and Review concepts	Identify and differentiate between transparent, opaque and translucent objects in their surroundings. Demonstrate that shiny surfaces reflect light better than dull surfaces. Explain the formation of shadows. Predict the location, size and shape of a shadow from a light source relative to the position of objects.	72-74 74 74-75 82-83	Look around your house for one object made out of wood (opaque), clear glass, (transparent), and frosted glass (translucent). Shine a flashlight beam through each item and observe what happens to the light. Draw a diagram of what you observe.

Unit 6b Sound	Introduction Sound waves, Speed of sound in three states	Describe and demonstrate how sound is produced by a vibrating body. Identify variety of materials through which sound can travel. Identify that speed of sound differs in solids, liquids and gaseous mediums.	83 84	
	Loud and soft sounds, high and low sounds Noise pollution Revise and Review concepts	Define and describe the intensity of sound with examples. Define noise and its harmful effects on human health. Appreciate the role of human beings in reducing noise pollution.	84-85 86 86	Ask students to maintain a journal by identifying sources of noise pollution in their daily lives. Discuss the various sources? How can we reduce noises? Design symbols and signs for controlling noise pollution around your school.
Unit 7 Electricity and Magnetism	Introduction, static charge Charges (like, unlike, positive, negative, opposite)	Explain the phenomenon of static electricity in everyday life. Describe charges and their properties.	92 93-94	Use a dry comb and small pieces of paper to demonstrate static electricity.
	Electric current Electric circuits	Differentiate between conductors and insulators in daily life. Describe the flow of electric current in an electric circuit. Describe and design an electric circuit and explain its components.	94-95 95-96 95-96	Investigate insulators and conductors from daily life. Design an electrical circuit and observe the working of its components.

	Magnets Earth as a magnet North & South Poles, Like & Unlike poles	Recognize that magnets can be used to attract some metallic objects. Identify Earth as a huge magnet and demonstrate it with experiment. Describe and demonstrate that magnets have two poles and like poles repel and opposite poles attract.	96 96-97 97	Make a list of magnetic and non-magnetic materials from everyday life. Plan, design and make a model/ toy based on magnetism. Design an experiment by using two magnets to investigate that each magnet has north and south poles and same poles attract while opposite poles repel each other
	Compass Types of magnets, electromagnets Revise and review concepts	Describe the working of a magnetic compass. Explain different types of magnets (permanent, temporary magnet and electro-magnet).	97 98	Make an electromagnet. Design an electromagnet with the help of a cell, iron nail and wire and show its working.
Unit 8 Structure of Earth	Introduction, Earth's Structure Sources of water on earth, oceans, fresh water, rivers and streams, standing water, groundwater, water cycle	Describe the structure of the Earth (i.e., crust, mantle, and core) and the physical characteristics of these distinct parts. Describe the sources of water on Earth.	106 107-108	
	Soil, types of soil	Identify similarities and differences among the different types of soil.	109-111	

	Components of soil	Investigate the composition and characteristics of different soils.	110-111	
Unit 9 Space and Satellites	The Universe Satellites	Define the term 'space' and emphasize the need to explore it. Recognize the role of NASA (National Aeronautics and Space Administration) in space exploration. Define the term 'satellite' and describe its importance.	118-119 119	Make a satellite model with a cardboard. Guide the students through the following website link: https://www.youtube.com/watch?v=S_rEKUruxqQ
	Natural satellites Artificial satellites	Describe the natural satellites of the planets of the solar system. Define artificial satellites and explain their importance in exploring the Earth and space.	119-120 120-121	
	Global Positioning System (GPS), geostationary satellites Key milestones of Space technology Revise and review concepts	Describe the uses of various satellites in space i.e. geostationary, weather, communication and Global Positioning System (GPS). Recognize the key milestones in space technology.	121-122 123	

Unit 10 Technology in Everyday Life	Introduction How to move an injured person, in case of emergency Practice an emergency drill, before the drill, the drill, earthquake, flood, fire Making a guitar Making a moveable bus, making a bookshelf	Enlist and practice safety procedures while carrying out the activities. Use first aid box to dress a wound. Practice shifting a person to hospital. Practice earthquake, fire, and flood drill. Make a musical instrument from easily available resources. Make moveable van, bus, trolley etc	130 130-131 131-133 134 134-135	Learn to stitch buttons and make button holes manually. Make a posters of different safety drills and put up on the walls Take help from different YouTube videos to see how to make foot bridge and book shelves and other things mentioned. Make a list of electric appliances in their homes and describe how they are operated
	Making a foot bridge Spirit level Plumb line Prepare led light strings Revise and Review concepts	Make a model of foot bridge and bookshelf. Use spirit level/ water level to level different objects (table, picture, frame etc.). Use a plumb line to install a flag pole vertically. Prepare LED light strings working with 12 volt battery.	136 135 136 137	Take help from different YouTube videos to see how to make foot bridge and book shelves and other things mentioned. Make a list of electric appliances in their homes and describe how they are operated