

Scheme of Work

NAS 6

Unit	Learning Objective	Suggested activities	Resources	Homework
Unit 1	To enable students to understand cells as a basic unit of living things and how to look at the structure of cells. To enable students to understand and recognize animal and plant cells and its parts.	Starter Activity (5 min) Distribute the cards amongst the students and ask them to identify the type of cell and label the three main parts. Write key words on the board.	• Textbook (NAS Book 6) • Light microscope, slides and required material for preparation of slides. • Charts • Two sets of cards with diagrams of either animal cell or plant cell • Worksheet	To study the topic for revision.
	To arrange and rank different levels of cellular organisations—cells to tissues, organs, systems, and organisms. To relate the structure of some common cells (nerve, muscle, epithelium and blood cells) to their function. To study about some commonly found unicellular organisms and their functions.	Starter Activity (5 min) Students will be shown slides of Amoeba and Paramecium under the light microscope. Ask them to share their observations on the structure of the microscopic unicellular organisms.	• Textbook (NAS Book 6) • Charts • Light Microscope, slides of Amoeba, Paramecium • Worksheet	Students will be asked to study the topic for better comprehension.

Unit 2	To explain the process of reproduction in plants and animals and its purpose. To give knowledge of as to how plants and animals increase in number and continue their line	Starter Activity (5 min) • Arrange a variety of seasonal flowers. • Write key words on the board. • Ask students to come close to the display table in groups. • With magnifying glasses show them internal structure of flower, especially reproductive parts. • Ask students to about purpose of these parts.	• Textbook (NAS Book 6) • Charts Life cycle of a flowering plants. Pollination • Videos on Dispersal of seeds from internet	
	To distinguish between artificial and natural asexual reproduction in plants (budding, grafting, bulbs, tubers, runners, cutting and layering). To inquire how vegetative propagation can lead to better quality yield in agriculture.	Starter Activity (15 min) Arrange a trip to the school garden. The gardener will prepare and show various methods e.g., cutting, grafting. Explain the procedure as it is being done. Let students ask a couple of questions or queries for the gardener to answer.	• Textbook (NAS Book 6) • School Garden • Charts • Worksheets	Students will read the topic for reinforcement. Ask students to share their learning experience at garden with a family member.

Unit 3	Identify the constituents of a balanced diet for humans including proteins, carbohydrates, fats and oils, water, minerals (limited to calcium and iron) and vitamins (limited to A, C and D), and describe the functions of these nutrients. Identify the essential nutrients, their chemical composition, and food sources.	Starter Activity (5 min) • Ask students to bring small packets of different food types (or arrange) Display on the table prior to the class. • Ask some questions; for example: Can you name some of the food types by looking at the table? What is a balanced diet? Do you eat some of the foods displayed here?	• Textbook (NAS Book 6) • Charts— Balanced diet pyramid (page# 33) • Packets of a variety of food types	Ask students to study the topic for revision. Ask students to talk about the food types and balanced diet with a family member or friend and what they have learned through food pyramid.
	To emphasize upon the basis of healthy eating and its benefits. To highlight importance of good health and how malnutrition is bad for health.	Starter Activity (5 min) Ask students to look at the chart of food types and then throw few relevant questions: • What are the food types in each picture? • Why we need to eat a balanced diet as learnt in the previous lesson? • What happens if people tend to eat more or less than what is required? • Then write key words on the board.	• Textbook (NAS Book 6) • Chart-- book page # 35— images of food types • Worksheet	Ask students to read study the topic for revision. Ask them to search for information and write a comprehensive report on Malnutrition.

Unit 4	To state the importance of digestion in the human body and describe physical and chemical digestion. To sequence the main regions of the alimentary canal, its associated organs and describe the functions of different parts of the alimentary canal. To briefly describe the role of enzymes in digestion. To conclude that blood transports the products of digestion to other parts of the body and the undigested products get egested/ defecated.	Starter Activity (10 min) Ask students some questions, for example: What have you eaten in the breakfast? Are you still thinking about the food you have eaten? If the answer is 'no' say, do you know what is happening to the food you have eaten? Then say that your body has started working on it and this process is known as digestion.	• Textbook (NAS Book 6) • Charts • Computer with Internet access • Pen, pencil and paper	Ask students to read and revise the lesson.
	To discuss the disorders that are a result of bad eating habits and mistakes in selection of food. To highlight the importance of good health, a result of healthy eating habits.	Starter Activity (10 min) DRIFKFPVJFXWPIHV JGINSKALMSHEMFIT JOYTFMFEEQJBYSSQ DLLXVIXZNFCEIHKC OBASMDGRMIOGLHJH BUHXTJHEBXNMVQRD EFVPAOODSMSTTEYN SOOPITMPRTTMMAIM IJD LAR IAGBITIRQEG TFNIWDMVCPPOZQFB YQSUKEJIGEHAWNJQA GXOCAPYLSSTPQLQP FYNFLEBIFCIFSQSF CWXADVJHEPOCEYEK KQWPIAAGDINZRLYW GETULCERSXYBJZBW • ulcers • stomach • indigestion • obesity • lactose • constipation	• Textbook (NAS Book • Worksheet for starter activity	• Students will read the topic of revision. • Search for information on the topic at home on Internet and make notes. • Write a comprehensive and brief report on 'eating disorders'.

Unit 5	Explain the particle theory of matter. Use particle model of matter to investigate the movement and arrangement of particles in three states. Explain why gases and liquids take the shape of their containers but solids do not, in terms of the Particle theory of matter. Discuss, using the particle theory of matter, why liquids and gases can flow easily but solids cannot. Interpret the evidence for the existence of the particles in matter by observing daily life examples (Adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water). Apply the particle theory of matter to explain diffusion. Explain the changes in states: melting, freezing, evaporation, condensation and sublimation using the particle model of matter.	Starter Activity (5 min) Flash cards with images of water will be shown, in all three states. Randomly ask students to comment on images. Starter Activity (5min) Ask students to share the observations from the list they prepared as home work. Write key words on the board.	• Textbook (NAS Book 6) • Charts • Flash cards-state of matter (example water) Textbook (NAS Book 6) Charts	Ask students to read the topic for comprehension. Ask students to make a list of five examples from daily life showing changes in states of matter. Ask students to attempt worksheet #2
---------------	--	--	---	---

Unit 6	Describe the structure of matter in terms of particles (i.e., atoms and molecules). Describe molecules as a combination of atoms (water, oxygen, carbon dioxide). Recognize the name and symbols for some common elements(first ten elements of periodic table) and recognize their physical properties. Differentiate that some elements are made of atoms and some elements exist as molecules and have different properties to a single element of molecules.	Starter Activity Set up a table and display models of atoms and molecules. Also arrange pencil, pen, ink, inflated balloon and glass of water. Ask students to firstly identify the states of matter in objects displayed. Then show models of atoms and molecules and share that all things are made up of atoms and molecules.	Textbook (NAS Book 6) Charts Scientific models of elements and molecules	Ask students to read the topic for revision. Ask students to visit websites on Internet to watch subject related videos.
	Explain that compounds are by different types of elements joining together chemically to form a new substance. Explore the common elements or compounds in our daily life (Carbon, Nitrogen, Aluminum, Water, Table Salt)	Starter Activity (10 min) Take students to the laboratory and show burning of Magnesium. Let them observe the change and note.	• Textbook (NAS Book 6) • Charts- Periodic Table • Laboratory Material	Ask students to study the topic for reinforcement. Write their observations of the starter activity in their notebooks.

	Categorize elements into metals and non-metals (first ten elements) based on their physical properties.			
Unit 7	Demonstrate that mixtures are formed when two or more substances mix with each other physically without the formation of a new substance Identify and explain different types of mixtures from daily life. Describe the difference between elements, compounds and mixtures. Differentiate between pure substances and mixtures on the basis of their formation and composition. Demonstrate the process of solution formation (using water as a natural solvent). Justify why air is considered as a mixture of gases.	Starter Activity (5 min) Arrange the following items: • Inflated balloon • Table salt • Steel spoon Ask students few questions, e.g., What is inside the balloon? (Air) Then ask if air is a mixture or compound? Ask similar questions for table salt and silver spoon.	Textbook (NAS Book 6) Charts Miscellaneous items for activity.	• Ask students to read the topic for revision. • Ask students to take 250 ml or one glass of drinking water and add 2 table spoons of sugar and stir until it is dissolved. Record their observations in their notebooks

	Describe alloys as mixtures of metals and some other elements. Demonstrate ways of separating mixtures.	Starter Activity (5 min) • Arrange filtration and paper chromatography experiments in the laboratory. • Take students to the laboratory and explain the experiments.	• Textbook (NAS Book 6)	• Ask students to study the topic for revision. • Ask them to observe solutions around them where water is the natural solvent and note.
Unit 8	Recognize energy as a physical quantity. Relate potential energy and kinetic energy. Demonstrate an energy transfer such as bouncing ball by energy transfer diagram., Gravitational Potential Energy—Kinetic—elastic potential Energy+sound—Kinetic—elastic+GPE,etc State the law of conservation of energy and explain how the law applies to different situations. Compare the renewable energy sources (wind, water, Sun, and plants) and non-renewable sources of energy(coal,	Starter Activity (5 min) Call out 2 students and give them a tennis ball. Ask them to throw and catch the ball for a minute. Rest of the class will observe and comment later keeping in mind change in energy/ shift in energy. Teacher will briefly share the two energies involved. Starter Activity (10 min) • Arrange the following items on the display table: Torch, Inflated balloon, match box, Candle on stand • Take precautions and call few students to perform the activity;	• Textbook (NAS Book 6) • Charts • Textbook (NAS Book 6) • Charts • Miscellaneous items	Ask students to revise the topic and learn names of different types of energies from the book.

	natural gas, crude oil) Identify the advantages of using renewable energy resources.	• Firstly, ask the student to release air from inflated balloon. • Ask second volunteer to turn on the torch. • Light up the candle with a match • Now ask the class to share what they have observed. Yes, the demonstration showed conversion of energy.		
Unit 9	To explain the phenomenon of static electricity in everyday life. Recognize electric current as a flow of charges. Describe a simple circuit as a path of flow of charges.	Starter Activity (10 min) • Arrange the items on the display table. Ask for volunteers from class and give balloons or combs to them. • Now ask them to rub the objects on their woolens and then take them close to pieces of paper. The pieces will be attracted towards balloons. • Introduce the word static electricity and write key words on the board	• Textbook (NAS Book 6) • Charts • A simple circuit • Miscellaneous Items (inflated balloon, small pieces of paper, sweater and woolen clothes).	

	Differentiate between open and closed circuits. Draw and interpret simple circuit diagrams (using symbols). Describe the characteristics of series and parallel circuits. Draw and construct series and parallel circuits. Identify the use of series and parallel circuits in daily life. Investigate the factors that affect the brightness of bulbs or speed of motors (Number of batteries, Number of bulbs, Types of wire, Thickness of wire).	Starter Activity (10 min) • Students will play the following game and teacher will facilitate. Teacher Ideas 104 to demonstrate how series and parallel circuits work. • Ask students to stand in a circle. Give two small balls to a student. Ask the students to pass the ball around the circle to demonstrate a closed series circuit. • Next, separate two students from the circle as they are at a distance hence cannot reach each other. Pass the ball again to show an open circuit that comes to a stop due to a break. • Now, place two rows of students on either side of the circle, connecting them; pass three balls to the students noting that they can divide the balls when they reach a break in the path (circle path or centre line path).	• Textbook (NAS Book 6) • Charts • Two small balls	
--	---	--	---	--

		• Share this is how a closed parallel circuit works. • At the end, ask two students in one of the centre line paths to move away from one another to demonstrate a circuit break. Pass the ball again noting that when they reach the break, the other circuit is still intact and active		
Unit 10	Recognise that a freely moving magnet comes to rest pointing to a North-South direction. Recognise that there is a space around a magnet where effects of magnetic force can be observed. Draws magnetic field of a bar magnet using iron fillings.	Starter Activity (5 min) Ask some questions randomly. For example: • What keeps the fridge door on hold? • How are decorations kept on hold on the fridge door? • What keeps the room doors open? • Write the response on the board. • Show some magnets of daily use at homes, etc.	• Textbook (NAS Book 6) • Charts	• Ask students to study the topic for revision. • Make a list of three uses of magnets in everyday life.
	Recognise that electric current has a magnetic field around it and it can be verified using a magnetic	Starter Activity (10 min) • Place the poster on the class board.	• Textbook (NAS Book 6) • Charts	Ask students to study the topic for revision.

	compass. Describe how to magnetise a magnetic material. Describe how to demagnetize a magnetic material. Construct an electromagnet and identify its applications in everyday life. Compare different types of magnets (permanent, temporary and electromagnets). Recognise Earth's magnetic field which attracts a freely pivoted magnet to line up within.	• Ask students to how Maglev train is known for its speed? How it is run? Is it a fuel run train or electric? • Write the correct response on the board. • Show the compass to the class.	• Modern train model/poster - Maglev train	
Unit 11	Differentiate between different planets	Starter Activity Place a poster of solar system on the board, covering its labels. Ask following questions: • What is shown? • What are the objects orbiting the sun? • Name the planets of the solar system in right order	• Textbook (NAS Book 6) • Charts/ models -Solar system	• Ask students to study the topic for revision. • Ask them to draw and label a diagram of solar system and label it.

	Describe the characteristics of meteorites, asteroids and comets. Describe the uses of satellites in space, i.e. geostationary, weather, communication and Global Positioning System(GPS). Investigate how beneficial satellites have been in improving our knowledge and how useful they are in space research. Inquire into citing of Halley's comet and describe how would they feel if they saw it.	Starter Activity (5 min) - Recall students' previous knowledge by asking some questions. For example: - What is a satellite? - Have you seen satellites? - Can you differentiate a satellite from a star on the night sky?	- Textbook (NAS Book 6) - Charts - Video Link: http://youtube/RLW3VLK3Y2KBqoo	again
Unit 12	To grow seasonal plants and vegetables in earthen pots and demonstrate the effect of fertiliser usage on the growth of plants. Prepare yoghurt and cheese from milk to demonstrate the beneficial organisms. Design a solar oven to convert solar energy into heat.	Starter Activity (10 min) Ask students if they would like to start gardening as a hobby. Then share that plants can be grown in earthen pots as well as small spaces in the homes. Also share that fertiliser can be used to improve growth of plants.	- Textbook (NAS Book 6) - Plants and other material for activity.	Grow some potted plants at home with parental guidance.

	Assemble a circuit to demonstrate working of an electric bell	Starter Activity (10 min) As students have started working on project 1 in previous lesson, share that there are some more hands on activities in daily life		Ask students to briefly write a report on the activity they performed.
--	--	---	--	---