

# Science & Technology

## Class -VII

Sr. No.	Time	Topic	Subject Matter	Activities / T. L. M.
<b>Unit – 1</b> <b>Food</b>				
1.	8 hrs.	Life Processes	<ul style="list-style-type: none"> <li>❖ Introduction to various life processes.</li> <li>❖ Nutrition in plants ;               <ol style="list-style-type: none"> <li>I. Autotrophic – photosynthesis</li> <li>II. Heterotrophic- Herbivores Carnivores Omnivores</li> <li>III. Saprophytic- Parasitic Symbiosis</li> </ol> </li> <li>❖ Nutrition in amoeba</li> <li>❖ Various life processes in man</li> <li>❖ Process of nutrition in man :- Various steps of nutrition in brief.</li> <li>❖ Digestive system, Respiratory system, circulatory system, Excretory system in man</li> </ul>	<ul style="list-style-type: none"> <li>❖ To show that light is essential for photosynthesis</li> <li>❖ Classify animals found in local area as Herbivores, carnivores and omnivores</li> <li>❖ Count your pulse rate.</li> <li>❖ Count how many times you breathe per minute at rest and after exercise</li> <li>❖ Experiment to show that oxygen is given out during breathing: lime</li> </ul>

				water test as it turns milky.
<b>Unit – II</b>				
<b>Materials</b>				
2.	10 hrs.	1. Matter	<ul style="list-style-type: none"> <li>❖ States of matter: Solids, Liquids and Gases. Inter-conversion of states by changing temperature.</li> <li>❖ Concept of Atom and Molecule</li> <li>❖ A brief idea about structure of Atom, Atomic number, Atomic mass, Isotopes, table of elements, 1-20 elements</li> <li>❖ Concept of elements, compounds and mixtures.</li> <li>❖ Symbols and Formulae (Valency and how to write chemical formula)</li> <li>❖ Chemical equation and balancing of simple equation (in brief)</li> </ul>	<ul style="list-style-type: none"> <li>❖ States of matter by showing ice, water and vapours.</li> <li>❖ Intermolecular forces can be shown by showing chalk for solid, water for liquid and perfume and incense-stick (agarbatti) vapours for gas.</li> <li>❖ With the help of thermometer boiling point, melting point and freezing point of water can be observed.</li> <li>❖ Room temperature can also be observed.</li> </ul>

3.	8 hrs.	2. Acid, Base and Salt	<ul style="list-style-type: none"> <li>❖ Introduction, Definition of Acid, Base and Salt.</li> <li>❖ Properties of Acids (Brief) :- Weak and Strong Acids, Concentrated and dilute acids, chemical formula and names of a few acids, uses of acids.</li> <li>❖ Bases:- Definition, properties, Weak and dilute bases and uses of bases.</li> <li>❖ Brief idea about acid/ base indicators</li> <li>❖ Salt – definition, naming a few salts used in daily life.</li> </ul>	<p>Activity to show nature of sugar/ vinegar/lime juice, etc. as acidic/ basic nature with test of litmus paper and turmeric.</p> <p>Activity to show neutralization reaction (using litmus paper or indicators).</p>
		<b>Unit – III</b> <b>The World of Living</b>		
4.	8 hrs.	1. Organization in living world.	<ul style="list-style-type: none"> <li>❖ Introduction of organization &amp; different levels of organization.</li> <li>❖ Lower level &amp; higher level.</li> <li>❖ Lower level – Atoms, molecules,</li> </ul>	<ul style="list-style-type: none"> <li>❖ Make a chart showing different levels of organization.</li> <li>❖ Make a list of students of your class under different</li> </ul>

			<p>cell (brief idea about unicellular &amp; multi - cellular organisms), tissues, organ, organ systems, organisms.</p> <ul style="list-style-type: none"> <li>❖ Higher level – Population, community, ecosystem, biome, biosphere.</li> </ul>	<p>houses.</p> <ul style="list-style-type: none"> <li>❖ Through a live plant, show different organ systems of plants, e.g. root system, shoot system, etc.</li> </ul>
5.	4 hrs.	2. Cell structure & function.	<ul style="list-style-type: none"> <li>❖ Cell size variation (Diagrams showing different plant &amp; animal cell).</li> <li>❖ Structure of plant &amp; animal cells.</li> <li>❖ Cell organelles, nucleus, vacuole, chloroplast, cell membrane, cell wall.</li> </ul>	<ul style="list-style-type: none"> <li>❖ Cell can be shown by taking an onion peel and seeing it with the help of magnifying glass or microscope.</li> <li>❖ Animal cells can be shown under microscope (cheek squamous epithelium).</li> </ul>
6.	8 hrs.	3. Structure & function of plant- parts.	<ul style="list-style-type: none"> <li>❖ Different parts of plant – Root, Stem &amp; Leaf.</li> <li>❖ Root system – Kinds of roots &amp;</li> </ul>	<ul style="list-style-type: none"> <li>❖ Study of local plants &amp; their parts.</li> <li>❖ Activity to show anchorage by</li> </ul>

			<p>functions of roots.</p> <ul style="list-style-type: none"> <li>❖ Stem – Kinds of stem, modification of stem &amp; functions.</li> <li>❖ Leaf – Types and modification of leaf, Functions of leaf.</li> <li>❖ Flower – Parts of flowers &amp; functions of flowers.</li> <li>❖ Fruits, seeds &amp; their functions.</li> </ul>	<p>roots.</p> <ul style="list-style-type: none"> <li>❖ Demonstration: process of transpiration by covering a plant with transparent paper (polythene).</li> <li>❖ Demonstration to show that the stem helps in conducting water upward using coloured red water.</li> </ul>
7.	7 hrs.	4. Micro-organisms.	<ul style="list-style-type: none"> <li>❖ Introduction.</li> <li>❖ Discovery &amp; occurrence of micro organisms.</li> <li>❖ Structure, types, nutrition, reproduction of bacteria (brief).</li> <li>❖ Blue green algae, diatoms.</li> <li>❖ Fungi.</li> <li>❖ Virus.</li> <li>❖ Protozoa.</li> <li>❖ Uses and harmful effects of micro-organisms in each case.</li> </ul>	<ul style="list-style-type: none"> <li>❖ Take samples of water from different sources &amp; observe micro-organisms under magnifying glass or microscope.</li> <li>❖ Keep bread in dark &amp; humid place for a few days, fungi will grow at the surface of bread.</li> </ul>

				❖ Curd formation, bread & bhatura formation can be shown in daily activities.
<b>Unit – IV</b>				
<b>Moving things, people &amp; Ideas</b>				
8.	6 hrs.	Measurement	<ul style="list-style-type: none"> <li>❖ General idea of measurement.</li> <li>❖ Need for accurate measurement.</li> <li>❖ Units– S.I. unit of measurement</li> <li>❖ Measurement of length, area, volume, density, time &amp; heat with examples.</li> </ul>	<ul style="list-style-type: none"> <li>❖ Measure own height with inch tape in ft. inches &amp; cms.</li> <li>❖ Measure length of curved line with the help of thread &amp; divider.</li> <li>❖ Measure volume of stone/object by putting it in graduated cylinder containing water.</li> <li>❖ Measurement of area of hand/leaf by using graph paper.</li> <li>❖ Measure diameter of a</li> </ul>

				sphere using wooden blocks or matchboxes & scale.
<b>Unit – V</b>				
<b>How Things Work</b>				
9.	7 hrs.	Heat & Temperature	<ul style="list-style-type: none"> <li>❖ Introduction of Heat &amp; Temperature.</li> <li>❖ Effect of Heat.</li> <li>❖ Heat as a form of energy.</li> <li>❖ Expansion of solids, liquids &amp; Gases.</li> <li>❖ Thermometer – Measurement of Temperature.</li> <li>❖ Scale – Celsius &amp; Fahrenheit – Inter conversion of scales.</li> <li>❖ Units of heat.</li> <li>❖ Specific heat.</li> <li>❖ Melting &amp; boiling point.</li> <li>❖ Transfer of heat : Conduction (Good &amp; Bad Conductors), Convection &amp; Radiation &amp; their applications</li> </ul>	<ul style="list-style-type: none"> <li>❖ That gases/ liquids/ solids expand on heating can be shown.</li> <li>❖ Observe room temperature.</li> <li>❖ To find out body temp. with the help of thermometer.</li> <li>❖ Make a list of good &amp; bad conductors.</li> <li>❖ To show heat flow by conduction in solids with the help of iron rod/ wooden rod &amp; drawing pins attached to these with wax.</li> <li>❖ Thermos flask to be shown &amp; explained to the students.</li> </ul>

			(Thermos Flask)	
10.	7 hrs.	Static electricity	<ul style="list-style-type: none"> <li>❖ Introduction of static electricity.</li> <li>❖ Current electricity.</li> <li>❖ Two kinds of charges (Positive &amp; Negative).</li> <li>❖ Charging an object electrically by friction, conduction &amp; induction (in brief).</li> <li>❖ Charges in atmosphere – Lightning &amp; Thundering.</li> <li>❖ The lightning conductor.</li> </ul>	<ul style="list-style-type: none"> <li>❖ Two rubbed scales attract each other.</li> <li>❖ Charged pen or comb attracts bits of paper.</li> <li>❖ Attraction &amp; repulsion can be shown by charged &amp; uncharged straw.</li> </ul>
<b>Unit – VI</b> <b>Natural Phenomenon</b>				
11.	8 hrs.	Light	<p>Introduction of Light.</p> <ul style="list-style-type: none"> <li>❖ Sources of light.</li> <li>❖ Rectilinear propagation of light.</li> <li>❖ Transparent, translucent &amp; opaque objects. (Show glass as transparent, board as opaque &amp; tracing/butter paper as translucent.</li> </ul>	<ul style="list-style-type: none"> <li>❖ Three Pinhole cardboard &amp; burning candle experiment.</li> <li>❖ Pinhole camera experiment to show rectilinear propagation of light.</li> <li>❖ Take three mirrors at 60° angle. Put some</li> </ul>

			<ul style="list-style-type: none"> <li>❖ Shadow &amp; Eclipses. (Solar &amp; Lunar).</li> <li>❖ Reflection of light.</li> <li>❖ Laws of reflection.</li> <li>❖ Real &amp; virtual images.</li> <li>❖ Plane mirror.</li> <li>❖ Concave &amp; convex mirror.</li> </ul>	object in between. You will find many images.
<b>Unit – VII</b> <b>Natural Resources &amp; Conservation</b>				
12.	8 hrs.	Our Earth & Resources.	<ul style="list-style-type: none"> <li>❖ Origin of life on the earth.</li> <li>❖ Four spheres of environment.</li> <li>❖ Resources: Air, water, soil, minerals &amp; forests.</li> <li>❖ Misuse of nature.</li> <li>❖ Renewable &amp; Non-renewable resources.</li> <li>❖ Formation of coal &amp; petroleum.</li> <li>❖ Alternative sources of energy.</li> <li>❖ Conservation of resources.</li> <li>❖ Energy, development &amp; environment.</li> </ul>	<ul style="list-style-type: none"> <li>❖ Make a model showing component distribution of gases (%age) in air.</li> <li>❖ Projects exploring various kinds of water resources existing in nature. (local area).</li> <li>❖ Make a list of renewable &amp; non-renewable resources in surroundings.</li> </ul>
13.	9 hrs.	Water	General idea of water (%age) distribution.	How much water do we use in daily life

			<ul style="list-style-type: none"> <li>❖ Forms of water.</li> <li>❖ Sources of water.</li> <li>❖ Importance of water.</li> <li>❖ Purification of water.</li> <li>❖ Water cycle.</li> <li>❖ Constituents of water. Electrolysis of water.</li> <li>❖ Physical properties of water.</li> <li>❖ Water as a solvent.</li> <li>❖ Scarcity of water – Draught.</li> <li>❖ Cloud bursts &amp; Floods (in H.P.).</li> <li>❖ Water conservation.</li> <li>❖ Rain - water harvesting.</li> <li>❖ Water pollution.</li> <li>❖ Need for drainage &amp; closed sewage system.</li> </ul>	<p>activities?</p> <ul style="list-style-type: none"> <li>❖ Filtration of water.</li> <li>❖ Make a model &amp; chart showing rain - water harvesting.</li> <li>❖ Discussion with people living in conditions of extreme scarcity of water. How do they use water in a judicious way.</li> <li>❖ List the difficulties faced by them (students &amp; their families) when there is no water. (Acute shortage).</li> </ul>
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