Curriculum Science : Class VII

Objectives

*To develop scientific temperament.
*To enable critical thinking.
*To enhance logical skill.
*To enquire and verify the given facts.
*To make well developed diagrams,to enhance creative skill.
*To articulate thoughts and ideas effectively using oral,written and non-verbal communication skills.

General skills to be developed

*Experimentation skill-to perform experiments under guidance.
*Researching skill-to be able to gather information and critically analyse it.
*Observational skill-1)observe the given situation carefully and are expected to infer it.

S.N	Content	Objectives	Skills	Learning Styles	Activity	Subject Integration	Outcome	Assessment
1	**NUTRITION IN PLANTS**	To enable the students to *Recall importance of food in our daily activities . *Define nutrition and its types. *Analyse how plants and animals get their food ,and utilize it. * Define and explain the process of photosynthesis with the help of chemical equtation and diagrama- tic expression. * Evaluate the factors effecting photosynthesis. *observe and analyse through experiments- .Green plants produce oxygen during photosynthesis. .leaves make starch as food and sun light is necessary. .photosynthesis takes place only in green portion. * Apply information to understand the role of leaves in the process of photosynthesis and synthesis of food other than carbohydrates.	Listening ,speaking and reading Comprehension Diagramatic expression. content organisation experimental observations listening ,analysing and answering	linguistic Intrapersonal Visual logical Visual Naturalistic and bodily - kinesthetic Visual Interpersonal Intrapersonal Intrapersonal	Key words in notebooks. Role play-herbivore, carnivore, omnivore and producers. Drawing neat and well labelled diagrams. Balanced chemical equation. lab work--slide of stomata,bread mould,plant cell animal cell starch preparation in leaves during photosynthesis,chart of insectivorous plants. To show varigated leaves. Group discussion. To show video clips of insectivorous plants. Answering oral as well as written questions.	Art-Diagrams Maths -balancing equation	At the end of the lesson,students will be able to know - *The importance of food. *Comprehend the concept of nutrition and how animals utilize it. *Know the concept through various experiments done in class/lab. *Understand the process of photosynthesis with its chemical equation and diagramatic representatio representation. *Define and learn the various modes of nutrition.	Pen Paper Test-1 Notebook assessment class test Lab work Term-1
2	**NUTRITION IN ANIMALS**	To enble the students to-	listening ,speaking	linguistic	key words/key concepts	Arts - diagramatic-	At the end of the lesson the students will be able	Unit test-1

		*Recall nutrition,modes of nutrition in plants. *Comprehend the modes of procuring food. *Understand and list the steps involved in the process of nutrition.	and reading comprehension	 interpersonal	 group discussion	expression Maths-number and rows of teeth	to- *Understand mode of nutrition and will be able to explain them. *Comprehend the role of teeth and be able to	class test Term -1
		*Analyse the role of various types of teeth, diagramatic expression of tooth,and understand the importance of oral hygiene and care *Evaluate the role of each organ of the digestive system along with their function and be able to to draw a well labelled diagram of the same.	content organisation and expression diagramatic - representation	intrapersonal logical visual	By answering verbally as well in writing. answering hots Diagram of the digestve system,chart. To show video clip of digestion.	Life skill-how to brush, and maintain oral hygiene	draw them neatly. *Evaluate the role of various organs in digestive system along with the diagram. *Understand the role of saliva. *Comprehend the process of digestion in grass eating animals. *Understand the process of feeding and digestion	
		*practically explain the role of saliva to break down the starch into sugar through experiment. *Comprehend the process of digestion in grass eating animals. Diagramatic expression and comprenhesion of	experimental diagramatic expression	visual visual	experimental work-role of saliva in breaking down starch into sugar(Iodine test) diagram of amoeba,chart and slide of amoeba		in amoeba and will be able to draw it.	
		feeding and digestion in amoeba.	content organisation					
3	**FIBRE TO FABRIC**	To enable the students to- *Recall the importance of fibre and their sources (plants/animals) *Get the depth knowledge about animal fibres- wool and silk along with their properties.	 Listening,reading & speaking	 Linguistic visual Bodily-	 Key words/new concepts in notebook. Showed sampler file-natural & animal fibres. Pasting of wool and silk fibre.	S.St-wool and silk produc- tion in various areas Art-diagramatic expression	At the end of the of the lesson students will be able to - *Know the process of production of wool and silk fibre. *Understand the various processes involved	Unit test 2 class test Note book assessment Term-2
		*List wool yielding animals.	Observational	kinesthetic	Scrap book of wool yielding animals.		during the production of animal fibre.	

		*Comprehend the process of converting animal fibre into wool. *Define and explain sericulture ,life history of silk moth,development of silk from cocoon. *Draw the life cycle of silk worm.	Observational Observational Evaluation	Naturalistic Visual Naturalistic Interpersonal	Video clip showing life cycle of silk worm and sericulture. Specimens -cocoons,chart of life cycle of silkmoth showed mullbery leaves. Group discussion.		*Know the process of sericulture and be able to draw life cycle of silk moth. draw life cycle of silk moth.	
			Listening & analysing	Logical Intrapersonal	Hots questions. Showed files containing many samples of fibres and the process of making wool and silk from fibre Answering oral as well as written questions. Showed cocoons from which silk is extracted.			
4	**HEAT**	*Recall that heat gives warmth, conversion of one form of energy into heat by day to day examples and understand that energy gives sensation of hotness & coldness. *Understand and learn S.I. non S.I units of heat along with their conversion. *Define temperature and know the different temperature scales. *Study and learn clinical and laboratory	listening,speaking and reading Calculation	linguistic Logical	rubbing hands,nail hammered-warm Key words and major concepts. Learning conversion of units.	Maths-units of heat and their conversion Art-diagrams	*Understand and learn the definition of heat , units and their conversion. *Read the laboratory & clinical thrmometer and	class test Note book assessment Lab work-assessment Term-1
		thermometers,their use and precautions taken along with their diagrams. *Tabulate and comparative study of both thermometers,their similarities and differences.	Diagramatic express-ion analytical	visual/bodily kinesthetic Intrapersonal	Show clinical, laboratory and digital thermometer diagrams. table showing difference.	S.St-Sea breeze,land breeze	understand similarites and differences between the two. *Learn about transfer of heat by convection, conduction and radiation and their application	

		*Analyse how heat is transferred in solids ,liquids and gases by conduction ,convection and radiation.	experimentation observation	visual/naturalis- tic	lab work to explain convection and conduction.		in day to day life. *Draw neat and well labelled diagrams of	
		*Define conductors and analyse use of conductors and insulators in day to day life. *Define convection and the application of	co-relating to daily life reasoning	logical(reasoning question) logical/reasonin g	Handles of utensils as poor conductors lab work		thermometers ,land breeze and sea breeze. *Logically answer reasoning questions and cross-word puzzle	
5	ACIDS ,BASES AND SALTS	To enabie the students to- *Recall the various substances present in kitchen and their properties. *Classify substances as acidic ,basic and neutral substances.	Reading/listening and speaking comprehension	Linguistic Interpersonal	Key words and major concepts Discussion	Maths-balancing chemical equation. Home science-chemical	Students will be able to- *Get the depth knowledge of acids ,bases and salts. *Know the types of acids-natural and man made. *Understand what are bases and their uses.	UT-1 Class test Practical Note book assessment Term-1 & Term-2
		*List out the types of acids(mineral and naturally occuring acids)along with their uses. *Understand the bases,their uses and list out some common bases. *Analyse the use of different indicators both natural as well as man made.	experimental	Intrapersonal Visual/Bodily kinesthetic	Tabulate day to day substances and acid present. Common names of acids & bases. Tabulate strong and weak bases. Making and pasting turmeric paper along with the colour change when put in different substances	composition of substances used in day to day life.	*Analyse the use of natural and man made indicators to test acidic and basic nature of substances. *Know and define neutralisation reaction and various applications based on it.	
		*Will be able to differentiate between acids and bases on the basis of their properties. *Define and evaluate how neutralisation can be used in day to day situations like treatment of tooth decay,treatment of indigestion,treatment of soil.	application	observational Logical	By balancing the chemical equations of neutralisation reaction. Lab work- To test the acidic, basic nature of substances using litmus papers, turmeric paper,phenolphthalein, methyl orange and china rose indicator**s.** Demonstration of neutralisation reaction using			

					acid, base and phenolphthalein.			
6	**PHYSICAL AND CHEMICAL CHANGES**	To enable the students to- *Define and comprehend reversible and irreversible changes. *Know about physical & chemical changes and their characteristics. *Differentiate between physical and chemical changes. *Explain some typical physical and chemical changes occuring in day to day life. *Know about rusting and learn different methods to prevent rusting. *Know about the process of crystallisation.	Experimentation and observation (through lab experiments) Application (to find out reversible and irrever- sible changes) Listening & speaking (by reading)	Bodily -kinesthe- tic (experiment) Interpersonal - (by discussing) Intrapersonal - (by answering) Visual by(obser- vation) Naturalistic -(by processes like rusting etc)	experiments involving chemical reactions like rusting of iron. Neutralisation(vinegar and baking soda) Displacement of copper from copper sulphate. Making crystals of copper sulphate using super - saturated solution & evaporation. Showing some physical changes in the class like breaking of a stick and changes in the state of water etc. To show that burning of magnesium ribbon is a chemical change. Sublimation process by using Ammonium chloride	Art -diagrams	The students will be able to- *Differentiate between reversible and irreversible changes and identify them. *Differentiate & identify physical and chemical changes. *Know about rusting and different methods to prevent it. *Know the concept of crystallisation. *Explain some physical and chemical changes.	Class test Practicals Notebook assessment Term-1
7	**WEATHER ,CLIMATE AND ADAPTATION TO CLIMATE**	To enable the studentsto- *Recall the day to day weather and relate it to weather report in the newspaper. *Define and comprehend the terms weather, meteorology and various terms related to it. *Understand the importance of weather - forecasting.	Recollection Reading/listening Content organisation	Interpersonal/ intrapersonal linguistic Intrapersonal bodily- kinesthetic.	Group discussion Key words/ concept Paste waether report for a week with detailed information.	S.St Climatic adaption and weather changes	The chiidren will be able to- *Define and learn about weather and climate. *Know the importance of weather forecasting . *Analyse the importance of weather monitoring. *Differentiate between climate and weather. *Know and learn about the various adaptation	Class test Notebook Assessment Term-2

		*Analyse the importance of weather monitoring by using maximum and minimum thermometer.					of animals to different region. Solve the cross word puzzle.	
		*Define climate and learn about the geographical factors which affect the climate of the place. *Tabulate the difference between weather and climate.	Analytical	Logical	Table of differences.			
9	**S0IL**	To enable the students to- *Know how soil is formed and role of water, roots of plants,temperature,chemical weathering in soil formation. *View,draw and explain different layers of the	Recllection Reading/learning speaking Comprehension	Intrapersonal Linguistic Intrapersonal	Key words Discussion(group)	S.St-soil and its role in growing crops In different areas.	To enable the students to- *Know the formation of soil and the various factors responsible for soil formation. *To draw and get depth knowledge of various	Note book assessment class test Term 2
		soil. *Analyse soil on the basis of their contents-sandy clayey and loamy. *Do comparative study of sandy, clayey and loamy soil. *Compehend the properties of the soil by	Diagramatic-expressi- on/Observation Content organisation Comprehension	Visual/naturalis- tic Interpersonal	Class activity-to identify different layers of soil. To observe samples of soil. Tabulation(making a table) Activities-percolation rate,soil contain moisture,		layers of soil. *Define and understand the importance of various types of soil. *List out various crops suitable for particular type of soil. *Differentiate what is soil erosion and	
		various activities. *Identify the type of soil suitable for the particular type of crop. *Analyse the causes of soil erosion & evaluate how it can be prevented.	Observation	Visual Visual/naturalis- tic	water retaining capacity of various soils.		afforestation and how soil erosion can be prevented.	
10	**RESPIRATION IN ORGANISMS**	To enable the students to - *Define and comprehend respiration. *Know and differentiate between the types of	Listening and speaking by reading.	Linguistic by learning new/ key words.	Listing key words.	Art-by drawing diagrams. Maths-measuring	The students will be able to- *Define ,comprehend & differentiate between types of respiration.	Note book assessment Class test

		respiration. *Define and comprehend breathing.	Visual(chart & diagram)	Visual through charts and diagr-		breathing rate.	*Define & comprehend breathing. *Analyse mechanism of breathing.	Practical Term -1
		*Understand how it is done. *Analyse the mechanism of breathing. *Differentiate between the breathing and respiration. *Understand how other plants and animals respire.	Experimentation Application	ams on boards. Bodily kinesthetic (breathing rate at rest and after exercise). Interpersonal -	Measuring breathing rate at rest and after exercise. Measuring the change in chest size during breathing. Experiment to show -		*Differentiate between breathing and respiration. *Understand respiration in other animals and plants.	
				by discussing various concepts Intrapersonal by answering questions.	*exhaled air contains moisture. *exhaled air contains carbon dioxide which makes lime water milky.			
11	**TRANSPORTATION IN ANIMALS AND PLANTS**	To enable the students to- *Understsnd transportation in animals and plants. *The functions of excretory system along with the organs. *List and summerize the various components of	Listening and speaking by reading Visual/observation	Linguistic by learning new/key words & new concepts. Visual through	Listing the key words. Model of heart & chart of excretory system & circulatory system.	Medical science Arts-diagrams	The students will be able to - *Understand the transportation in plants and animals. *Know the organs and functions of circulatory system.	Pen paper test -2 Class test Note book assessment Term -2
		blood along with their functions. *Interpret the role of blood in the transport of oxygen. *Distinguish between the three types of blood vessels and know their functions. *Digramatically represent the human heart ,	Experimentation/ observation	charts,diagrams Video clips. Bodily kinesthe-tic & visual	Lab work- to measure the heart beat and pulse rate & to show transpiration. Stethoscope shown and heart beat heard using it.		*List the components of blood & summerize their functions. *Interpret the role of blood in transport of oxygen *Distinguish between various types of blood vessels. *Draw a neat and well labelled diagram of heart.	

		knowing about it in detail-its description and functioning. *Comprehend the circulation of blood in the body. *Define and understand pulse rate and heart beat. *Comprehend excretion in animals.	Expression observation Drawing & labelling	Interpersonal Intrapersonal Visual	Discussion of concepts and question & answers. By answering oral questions and maintaining a record of them in the note book. Well labelled diagram of human heart.		*Comprehend blood circulation. *Know the definition of pulse rate & heart beat. *Understand the excretory system and removal of solid,liquid & gaseous waste.	
		*Understasnd how solid,liquid & gaseous wastes are removed. *List the organs of excretory system along with their description and function.	skill-diagramatic representation of structure of heart Diagram of human excretory system	Visual	Making diagram.		Excretory system aiong with the function. *Understand the vascular system. *Understand and describe translocation. *Understand transpiration ,the factors affecting it and its importance.	
12	**REPRODUCTION IN PLANTS**	To enable the students to- *Define,understand and classify the various modes of reproduction in plants. *Comprehend and diagramatically represent the different modes of asexual reproduction in plants.	Listening & speaking by reading. Observation	Linguistic Visual by charts specimens &	Listing key words and learning new concepts. Chart of structure of flower and fertilisation in plants.	Arts -by drawing diagrams	The students will be able to- *Define,understand & classify various methods of reproduction in plants. *Draw neat and well labelled diagrams of	UT-2 Class test Note book assessment Term-2
		*Study in detail the vegetative propagation of plants by natural & artificial methods. *Describe sexual reproduction in flowering plants with the help of a diagram (by knowing the various reproductive parts of a flower and their respective function).	Diagramatic- representation Observation	models. Visual through making diagrams on the board. Visual/	Draw neat & well labelled diagrams of structure of flower,asexual reproduction in organisms. Methods of vegetative propagation in plants with		mehods of asexual reproduction. *Study in detail vegetative propagation in plants. *Diagramatically represent structure of flower and its explanation. *Define and understand the mechanism of reproduction in plants.	
		*Define and describe the various steps in mechanism of sexual reproduction in plants like		Naturalistic	the help of the gardener. Sexual parts and other parts of a flower.			

		pollination, fertilisation,formation of seeds, formation of fruits, germination of seed.	Expression	Intrapersonal Interpersonal	By answering the questions and maintaining the record in the note book. Discussion in class.			
					Reproductive parts of china rose were shown. Lab activity-vegetative reproduction in potato & rose**.** Showed vegetative reproduction in the class by the students-rose ,potato,ginger,money plant,sweet			
					potato.			
13	**MOTION AND TIME**	To enable the students to- *Define and differentiate between state of rest and motion. *Analyse that motion is a relative term and define time period.	Listening and speaking by reading	Linguistic-by learning new terminology	Listing the key words.	Maths-numericals & graph S.St-By knowing history of measurement of time in ancient age(Janter Mantar).	The students will be able to- *Define and differentiate between motion and rest. *Analyse that motion is a relative term. *Know the types of motion.	Class test Notebook assessment Term -1
		*Identify the types of motions. *Acquire knowledge about the various ancient & modern methods of measuring time. *Comprehend oscillatory & periodic motion. *Define,calculate and differentiate between speed and average speed.	Experimentation and observation. Expression Mathematical	Bodily kinesthetic and visual(by viewing various picture of ancient &modern devices of time	Lab work-To determine the time period of a simple pendulum. Models of sand clock & sundial were shown. Showed pendulum- mean & extreme positions**.**		*Know about ancient methods of measuring time. *Define,calculate & differentiate between speed & average speed. *Know the difference between uniform and non uniform motion. *Draw neat distance-time graph and interpret	
		*Differentiate between uniform and non-uniform motion. *Identify, interpret and draw the distance -time	Graphical-	measu+E14:E15rement Interpersonal Intrapersonal	Discussion of concepts & questions /answers. By answering oral questions.		types of motion.	

		graph for uniform and non uniform motion.	representation	Logical/	By solving numericals.			
14	**ELECTRIC CURRENT AND ITS EFFECTS**	To enable yhe students to - *Define and comprehend electric circuit. *Draw and identify the symbols of various electrical components.	Listening & speaking by reading Diagramatical representation	Linguistic -by learning new concepts & terms Visual	By listing key words. Drawing circuit diagrams & electric bell.	Arts-drawing electric circuit and electric bell	The students will be able to- *Define, comprehend,identify and draw electrical circuit. *Set up a simple model of electrical circuit. *Analyse the effects of electric current.	UT-2 Class test Note book assessment Term -2
		*Set up a simple electrical circuit. *Gain knowledge about the various effects of currents(Heating and Magnetic effect in detail) *Comprehend the various applications of heating	Mechanical Observation Application	Bodily - kinesthetic Visual	Setting up a simple working electric circuit Devices used in an electric circuit-switch ,cell , battery etc.	Electrical Engineering	*Understand the applications of heating as well as magnetic effects of current. *Know the principle behind the working of electrical gadgets. *Know the importance of electromagnet. *Know the working of electric bell.	
		as well as magnetic effects of current. *Understand the principle behind the working of electric fuse ,electromagnet & electric bell. *List the uses of electromagnet. *Understand the working of an electric bell.	Observation Expression	Bodily - kinesthetic Visual/bodily-kinesthetic Interpersonal Intrapersonal	Making of a simple electro-magnet. Showing magnetic effect of current with a compass and needle. Showing working model of eiectric bell. Model of railway crossing signal using magnets. Samples of different types of electric fuses were shown. Discussion of concepts and questions & answers. Answering questions and self study.			
15	**LIGHT**	To enable the students to- *Define and draw rays and beams of light.	Listening and speaking	Linguistic	By listing spellog/key words & reading of the	Arts-through drawing	The students will be able to- *Identify the beam of light as parallel,divergent	Classtest Note book assesment

		*Differentiate between parallel,divergent and convergent beam of light. *Describe the phenomena of reflection of light.	by reading Drawing through diagramatic represen-	Visual/spatial bodily-	chapter. Drawing of ray diagrams for mirrors and lenses (concave as well as convex).	various ray diagrams Optics(by undersanding	or convergent. *Differentiate between a real and a virtual image.	Term -2
		*Distinguish between real and virtual images. *Prove the properties of image formed by a plane mirror. *Identify spherical mirrors(concave and convex) *Draw the ray diagrams for the formation of images by convex and concave mirrors and describe the	tation Experimentation Observation Diagramatic represen- tation	kinesthetic Bodily- Kinesthetic Visual/tangible bodily- kinesthetic	Lab activity- Using a plane mirror proving all the properties of the image. Indentify convex and concave mirrors by observing the surface.	the property of reflection of light)	*Retell the properties of the image formed by a plane mirror. *Identify convex and concave mirrors. *Draw the ray diagrams for the formation of images by spherical mirrors and lenses.	
		properties of image in each case. *Retell the uses of plane ,convex and concave mirrors. *Comprehend what is a lense and its types. *Describe the converging and diverging action of	Application	Learning by doing Application of knowledge	Touch and differentiate lenses. Ray diagrams by exact measurement. By applying the knowledge of uses of mirrors and lenses in their daily life to use them like-in torches rear-view mirrors dentist`s mirror		*Apply the knowledge of uses of spherical mirrors and lenses for using them. *Use a magnifying glass and know the principle behind its woking.	
		lenses. *Differentiate between a concave and convex lens. *Draw the ray diagram for the formation of images by convex and concave lenses.	Comparison/ Observation Tangible diagramatic represen- tation	Observation/ visual Visual/spatial	By listing the differences between them. By drawing all the ray diagrams in the notebook.		*Comprehend the reason of splitting of white light into seven colours and the formation of a rainbow. *Make Newton`s colour disc on their own.	
		*Reword the uses of convex and concave lenses. *Retell the principle of a magnifying glass.	Logical reasoning	logical-mathe- matical	Seeing through a magnifying glass.			

		*Comprehend the phenomena of dispersion of white light and the reason behind it.	Logical Making of a model	Reasoning Bodily-				
		*To interpret the rainbow as an example of the dispersion of white light.		kinesthetic	Making of a Newton`s colour disc. Showed dispersion of light/spectrum of colours			
		*Know what is a Newton disc.			in soap bubbles,oil drop, C.D.			