

ಪಠ್ಯವಸ್ತು

10ನೇ ತರಗತಿ

ವಿಜ್ಞಾನ

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
		<p>and vertebrata.</p> <ul style="list-style-type: none"> • G e n e r a l characteristics of Pisces - Cartilage and Bonyfishes - Blue revolution. • Genral charecteristics of Amphibia Transition from water to land, parental care • General charecteristits of reptiles - Terrestrial adaptation - Economic importance - Poisonous appartus of snake • G e n e r a l charectesistics of Aves - Reptiles to birds (Archaeopteryx) - Flight adaptation - Bird migration • G e n e r a l charecteristics of mammals - Echo location in bats. 				

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
The Living World (b)	Cells and Tissues Plant Tissues	<ul style="list-style-type: none"> • Plant tissues. <ul style="list-style-type: none"> • Meristematic Tissue <ul style="list-style-type: none"> - Apical - Intercalary - Lateral • Simple permanent tissue <ul style="list-style-type: none"> - Parenchyma - Collenchyma and - Sclerenchyma • Complex permanent Tissues <ul style="list-style-type: none"> - Xylem and Phloem - Arrangement of Vascular bundles in monocot & dicot stems. 	<ul style="list-style-type: none"> • Understanding the type of tissues in plants and animals • Appreciating the diversity in structure and function • Developing the skill of drawing diagrams • Appreciating the economic importance of some plants and animals 	Charts Slides Specimens	<ul style="list-style-type: none"> • Macerative technique to show tissues • Sectioning and staining of stem and root. 	
	Animal tissues	<ul style="list-style-type: none"> • Animal Tissues Structure, Type, Location and function of the following. <ul style="list-style-type: none"> - Epithelial tissue <ul style="list-style-type: none"> - Squamous, cuboidal, columnar and stratified - Connective tissue <ul style="list-style-type: none"> - Aerolar, Adipore, Fibrous, Elastic, Cartilage, Bone, Blood and lymph - Nervous tissue Structure and function of a neuron. 				

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
2. Materials	Electronics	<ul style="list-style-type: none"> - Semi Conductors types, application - Diode - Transistors - Doping - Super conductivity 	Will know the concepts of semi conductivity, super conductivity, doping etc.			6
	Synthetic materials	Manufacture of <ul style="list-style-type: none"> • paper • Ceramics • Glass • Silicon and uses Optical fibres - <ul style="list-style-type: none"> - Composition - Properties and - uses 	able to know the manufacture <ul style="list-style-type: none"> - Methods - Uses - Structures able to know the uses	Samples Charts Charts	Visits, guest lectures observations, guest lectures	5
3. How Things work		<ul style="list-style-type: none"> - Radio transmission - TV - Electromagnetic Induction - Faraday's laws - DC Motor - AC & DC Dynamo - Heat Engines 	Will understand the Radio transmission & TV working Understand the functioning of AC & DC Dynamo, DC Motor, heat engines, ultra sound scanners, MRI	TV, Radio, Charts Motors, Dynamo, Heat engines Scanners	A Visit to a Radio shop & Radio, Transmission Centre A Visit to a Hospital	8

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
	Metallurgy	<ul style="list-style-type: none"> - External, internal efficiency - Ultrasound scanners - MRI • Periodic classification • Metallurgy-properties of metals, Occurrence. • Concentration of ores and methods • Refining of metals • Alloys of Cu, Fe, Al and uses. • Extraction of Fe and Aluminium 	<ul style="list-style-type: none"> • Understanding metallurgy concepts • Use of alloys 	<p>Metals, Charts CD's, Ores of metals Alloys, products</p>	<p>Visit, Guest lectures.</p>	6
	Organic Chemistry	<p>Manufacture of Sugar, fermentation of sugar, manufacture of alcohol, Organic compounds :</p> <ul style="list-style-type: none"> • Aliphatic • Alicyclic • Aromatic • Functional group NH₂, CHO, COOH, OH. <p>Polyfunctional compounds, hydrogenation of oils.</p>	<p>Knowledge of constituents of sugar alcohol, - Hydrocarbons.</p>	<p>- Charts</p>	<p>Diagram, Visit,</p>	12

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
4. Food	Plant Breeding Techniques	Plant Breeding Techniques <ul style="list-style-type: none"> • Common breeding techniques • Hybridization • Tissue Culture-Application and limitations • Genetically modified plants • Hydroponics • Aeroponics • Roof gardening Role of biotechnology in Food Industries <ul style="list-style-type: none"> • Preservatives • Odorants • Colorants 	<ul style="list-style-type: none"> • Understanding the various techniques of plant breeding. • Understanding application and limitations of plant tissue culture • Appreciating the role of biotechnology in plant and animal breeding 	Videos and Movies in related topics	Visits to plant breeding centres Guest lectures	
	Animal breeding techniques	Animal Breeding Techniques <ul style="list-style-type: none"> • Animal husbandry • Animal breeding techniques. 				

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
5. Microbes and Man	Microbial Diseases Sexually Transmittable Infections	<ul style="list-style-type: none"> • Microbial Diseases Causes-Symptoms and preventive measures of... <ul style="list-style-type: none"> • Chikungunya • Bird flu and dengue. • Sexually Transmittable Infections (STI) <ul style="list-style-type: none"> - Syphilis - Gonorrhea - Genital herpes - Genital warts - HIV / AIDS - Hepatitis - B. 	<ul style="list-style-type: none"> • Developing an awareness on microbial diseases • Becoming familiar with preventive measures • Developing life skills towards reproductive health • Skill of drawing • Awareness about HIV 	Visits to primary health centres	Roleplays, Dramatization Guest lectures Awareness Programmes	
6. Environmental Science	Environmental Problems	<ul style="list-style-type: none"> • Environmental Problems • Causes, effects and Prevention of the following <ul style="list-style-type: none"> - Air pollution <ul style="list-style-type: none"> - Acid rain - global warming - Ozone depletion - Water pollution <ul style="list-style-type: none"> - Thermal Pollution 	<ul style="list-style-type: none"> • recognizing different types of pollution • Creating awareness regarding ill effects of pollution • Analysing reasons for global environmental problems. 	CD's, Charts, Videos	Charts, Videos showing acidrain, globalwarming • Visits to recycling units	

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
	Waste Disposal	<ul style="list-style-type: none"> - Soil Pollution - Noise pollution - Radiation pollution Disposal of biodegradable and non biodegradable wastes.				
	Natural Resources	<ul style="list-style-type: none"> • Solar energy and devices • Wind energy • Tidal energy • Geothermal energy • Alternative sources of energy • Biofuels 	Will understand solar energy <ul style="list-style-type: none"> - able to know devices of solar energy. - able to know importance of alternate energy sources. - able to know the importance of biofuels in human life activities. - able to know the importance of geothermal energy 	Charts, Solar devices, CD's	Conduct exhibition in shcool level. <ul style="list-style-type: none"> - Prepare models. (Working, Static) Visit, Guest lecture.	5

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
7. Life Processes	<p>Control and coordination in plants</p> <p>Chemical coordination</p> <p>Nervous Coordination in animals</p>	<ul style="list-style-type: none"> • Control and co-ordination <ul style="list-style-type: none"> • Chemical co-ordination in plants • Irritability in plants • Plant hormones <ul style="list-style-type: none"> - Auxins, Gibberllins, Cyto Kines, Absciscic acid, Ethylene - Role & uses of plant hormones in agriculture - Bonsai Culture • Chemical coordination in animals <ul style="list-style-type: none"> - Homeostasis - Endocrineglands - Hormones-Steroids and nonsteroids - Location, function and effect of hyper and hypo secretions. • Nervous co-ordination in animals. • Nervous system in Man. <ul style="list-style-type: none"> - Conduction of nerve impulses - CNS - PNS - ANS Brain mapping ill effects of drugs. • Sense organs in man. Eye-Ear-Stru & function Nose, Tougue <ul style="list-style-type: none"> - Skin Defects & care of sense organs. 	<ul style="list-style-type: none"> • Analysing the role of plant hormones • Appreciating the art of practies like Bonsai • Differentiating exocrine and endocrine glands • Appreciating the influence of hormones on life proceses • Skill of drawing diagrams 	<p>Models</p> <p>Charts</p>	<ul style="list-style-type: none"> • Experiments related to growth • Pictures of diseases caused by hormonal deficiency 	

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
8. Reproduction and Heredity	Heredity and Variation	<ul style="list-style-type: none"> • Heredity and Variation • Mendel's experiments <ul style="list-style-type: none"> - Principle of dominance - Laws of segregation - Law of independent assortment • Deviation from the principle of dominance - incomplete dominance • Sex determination • Sex linked inheritance • Sex abnormalities • DNA - Hereditary Material components and structures <p>Brief account of Watson & Krick's contributions DNA replication Gene- The physical basis of heredity, Application of DNA technology</p> <ul style="list-style-type: none"> - DNA finger print technology - Recombinant DNA technology - Cloning - stem cell culture. 	<ul style="list-style-type: none"> • Understanding the mechanism of inheritance • Appreciating the contribution of Mendel. • Understanding the different patterns of inheritance • Gaining knowledge on DNA & its replication • Understanding the process and application of DNA finger printing 	<p>Guest lectures</p> <p>Videos Movies</p>	<ul style="list-style-type: none"> • Checker board problem solving 	

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
9. Motion	Electrolysis	Types of motion - linear motion - Circular Motion - Wave motion - Simple harmonic motion applications & examples • Faraday's law of electrolysis, Electrolytes & Types and examples • Gas laws • Boyle - Char's law • Graham's laws of diffusion • Electrolytes and non-electrolytes • Applications	Will understand the concept of motion & types • able to understand the concepts of Electrolysis. • Uses of Electrolytes. • Applications.	Charts Experiments Charts Experiments	Drawing skill. Demonstration Conduct Experiments	6
	Types of reactions	Exothermic and Endothermic reaction - definition - Examples	Recognise the reactions that take place in our surrounding			6

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
10. Energy, Work and Force	Nuclear Energy	Sound - Properties - Echo - Wave Yelocity $V=n\lambda$ - Ultrasonics - Doppler Effect - Sonar - Radar • Nuclear energy - Fission - Fusion • Nuclear reactor	Will understand the concept of sound generation, propogation, Echo formation etc. Sonar Radar • able to understand the process • Understand the difference • Application of Nuclear reactor.	Charts • Charts • Animation	• Prepare model of Nuclear reactor (Static model) • Prepare animation model of chain reacting of U_{92}^{235} (Fission)	6 4
		• Birth - Life - death of a star • Black hole • Colour of Star • Bigbang theory • Galaxies & types - Working of Rockets - Multistage Rockets - Artificial Satellites - Orbital Velocity - Escape velocity - Indian Contribution to space science - Chandrayan	Will understand the birth, life, death of stars Big bang theory. Rockets, Working satellites	Charts Charts Models A detailed exhibition of Indian work in space science	A Visit to a sky observatory, Planetorium	8

Theme	Sub Theme	Key Concepts	Objectives	Resources	Activity Process	Periods
12. Evolution of Life	Human Evolution	Evolution of man - Trends in human evolution - Human ancestors - Distinct features of each stage	Appreciating the stages in human evolution	Charts	<ul style="list-style-type: none"> Preparation of Models 	

