

HANSRAJ MODEL SCHOOL

PUNJABI BAGH, NEW DELHI

ACADEMIC PLAN

SESSION: 2024-2025

SUBJECT-BIOLOGY

CLASS-XII

<u>MONTH</u>	<u>TOPIC/SUBTOPIC</u>	<u>LEARNING INTENTIONS/SKILLS DEVELOPMENT</u>	<u>ACTIVITIES</u>	<u>ASSIGNMENTS</u>
<u>APRIL</u>	Unit: Reproduction Sexual reproduction in flowering plants	1. Students will understand the parts & functions of flower 2. They will be able to explain the development of male & female gametophyte 3. They will understand the pollination & double fertilisation 4. They will be able to explain the development of seed & fruit 5. They will be able to explain special mode of reproduction-Apomixis	1. Flower dissection 2. Slide showing pollen germination. 3. Controlled pollination.	Assignment sheet-1

	Unit: Reproduction Human Reproduction	1.Students will understand male & female reproductive system, anatomy of testis & ovary, 2.They will be able to explain Menstrual cycle, fertilization Embryo development & Implantation	<ol style="list-style-type: none"> 1. Slide of testis & ovary(to understand structure and function) 2. Slide showing of Blastula. 	Assignment sheet-2
<u>MAY</u>	Unit :Reproduction Reproductive health	<ol style="list-style-type: none"> 1. Students will understand prevention of STD, Birth control method, MTP amniocentesis. 2.They will explain - Infertility & ART 	<ol style="list-style-type: none"> To gather latest information about ART(newspaper and internet) 2. Population control measures. 3. Causes of Infertility. 	Assignment sheet-3

<p><u>MAY</u></p>	<p>Unit : Genetics & Evolution</p> <p>Principles of inheritance</p>	<p>1 Students will understand .Mendelian inheritance,</p> <p>2. They will understand-Deviation from Mendelism- Incomplete dominance, Codominance, Multiple alleles, Pleiotropy, Polygenic inheritance,</p> <p>3.They will be able to explain sex determination methods- in humans, birds, honey bee</p> <p>4.They will understand- Linkage & crossing over</p> <p>5.They will be able to explain Sex linked inheritance- Haemophilia, Colour blindness Mendelian disorder- Thalassemia Chromosomal disorder- down's syndrome, Turner's syndrome, Klinfelter's syndrome</p>	<p>1. Pedigree analysis (Through charts)</p> <p>2. Identification genetic diseases.</p>	<p>Assignment sheet-4</p>
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<p><u>JULY</u></p>	<p>Unit : Genetics & Evolution</p> <p>Molecular basis of inheritance</p>	<p>1.students will understand the - DNA as genetic material Transforming principle Hershey & Chase experiment</p> <p>2.They will explain - Structure of DNA & RNA</p> <p>3.They will understand- DNA Replication, Meselson & Stahl Experiment, mechanism of DNA replication</p> <p>4.They will understand- Central dogma, Transcription and Genetic code</p> <p>5.They will explain- Translation, Gene expression & regulation- Lac Operon</p> <p>6.They will understand- Human Genome Project and DNA fingerprinting</p>	<p>Human genome project.</p> <p>DNA finger printing.</p> <p>Isolate DNA from plant material</p> <p>Make complimentary sequence of nucleotides</p>	<p>1.Assignment sheet -5</p> <p>2.Written explanation of experiments of different scientists</p>
<p><u>AUGUST</u></p>	<p>Unit : Biology in human welfare</p> <p>Microbes in human welfare</p>	<p>1.Students will understand the use of microbes in household food processing Industrial production Sewage Treatment</p>	<p>News reports</p> <p>Sewage treatment and Biogas</p>	<p>Assignment sheets-8</p>

		<p>Energy Production</p> <p>2.They will explain Biocontrol agent, Bio fertilizer, Antibiotics</p>		
	<p>Unit : Biology in human welfare</p> <p>Human health & diseases</p>	<p>1.Students will understand Pathogen, Parasites causing human diseases(Malaria, Dengue, Chikungunya, Filariasis) their control</p> <p>2.They will explain basic concept of immunology, vaccine Cancer, HIV- AIDS Adolescence-drug & alcohol abuse</p>	<p>Immunology related research work.</p> <p>Study of slides showing various disease causing organismsand their life cycle</p>	<p>Assignment sheet-7</p> <p>News report on communicable and Non-communicable disease.</p>
	<p>Unit : Ecology</p> <p>Biodiversity & conservation</p>	<p>1. Students will understand the concepts & patterns of biodiversity.</p> <p>2.They will explain loss & Conservation of biodiversity Hotspots, Endangered organisms. Extinction Red data book, biosphere reserves, National parks, Sanctuaries & Ramsar sites.</p>	<p>Assignment sheet-12</p> <p>Collect information on biosphere reserves, Hot spot and endangered species.</p>	

<u>SEPTEMBER</u>	<p>Unit : Ecology</p> <p>Organisms & Population</p>	<p>1. Students will understand the They will explain Ecological adaptations, Population interaction (mutualism, competition etc) Population attributes (growth, birth rate etc)</p>	Assignment sheet-13	
	<u>HALF YRARLY EXAM 2024-25</u>			

<p><u>OCTOBER</u></p>	<p>Unit ; Biotechnology</p> <p>Biotechnology Principles & Processes</p>	<p>1.Students will understand -Genetic Engineering (r DNA Technology),role of Restriction endonuclease, Cloning Vector</p> <p>2.They will explain the Process of Recombinant DNA Technology, Production of Transgenic Individuals and Downstream Processing</p>	<p>Assignment sheet-9</p> <p>Latest uses of Biotechnology in everyday life(collect material from newspaper, internet)</p>	
<p><u>NOVEMBER</u></p>	<p>Unit ; Biotechnology</p> <p>Biotechnology & Application</p>	<p>1.Students will understand application of Biotechnology in health, Agriculture & Industry</p> <p>2.They will explain- RNA i, Transgenic animals</p> <p>Gene Therapy, Molecular diagnostics, Ethical issues, Bio piracy, Bio patent</p>	<p>Gather information about latest research in the field of Biotechnology</p> <p>Study Details on tissue culture through videos</p>	<p>Assignment sheet-10</p>

	Unit : Genetics & Evolution Evolution	1. Students will understand the concept of Origin of life, biological evolution & evidence. 2.They will explain Darwin's contribution., modern synthetic theory, mechanism of Evolution, variations & natural selection, Hardy Weinberg's Principle, Adaptive radiation and Human Evolution	Study homologous and analogous organs from plants and animals	Assignment sheet-7
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