

**The Orchid School  
Baner  
Weekly Syllabus Overview 2015- 2016  
Std : XII  
Subject : Biology**

Month	Lesson / Topic	Expected Learning Objective	Activities/ FAs Planned	Remark
March	<u>Chapter-1: Reproduction in Organisms</u> - Reproduction, a characteristic feature of all organisms for continuation of species; Asexual reproduction Modes of reproduction-Asexual and sexual reproduction; Modes-Binary fission, sporulation, budding, gemmule, fragmentation; vegetative propagation in plants.	understand important and modes of reproduction and their procedures	Lab Activity: Study of pollen germination,	
APRIL	<u>Chapter-2: Sexual Reproduction in Flowering Plants</u> -lower structure; Development of male and female gametophytes; Pollination-types, agencies and examples; Outbreedings devices; Pollen-Pistil interaction; Double fertilization; Post fertilization events-Development of endosperm and embryo, Development of seed and formation of fruit; Special modes-apomixis, parthenocarpy, polyembryony; Significance of seed and fruit formation	to understand reproductive structures of flower, process developmental stages etc	flowers adapted to pollination types , contro:ed pollination	
	<u>Chapter-3: Human Reproduction</u> -Male and female reproductive systems ; Microscopic anatomy of testis and ovary; Gametogenesis-spermatogenesis & oogenesis	to understand basic histology of reproductive organs and their functions		
	<u>Chapter-3: Human Reproduction</u> - Menstrual cycle; Fertilisation embryo development upto blastocyst formation, implantation; Pregnancy and placenta formation (Elementary idea); Parturition (Elementary idea); Lactation (Elementary idea)	.to understand various stages of human reproduction , development of foetus and post delivery changes	Identification of T.S. of test ovary, blastula (toad) ..	
	<u>Chapter-4: Reproductive health</u> Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control – Need and Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (Elementary idea for general awareness).	to understand concepts of reproductive health , sexually transmitted disesses etc		

MAY	<u>Chapter-5: Principles of inheritance and variation-</u> Mendelian Inheritance; Deviations from Mendelism-Incomplete dominance, Co-dominance, Multiple alleles and Inheritance of blood groups	principles of mendelian inheritance , types of gene interactions.		
	<u>Chapter-5: Principles of Inheritance and Variation-</u> Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination - in humans, birds, honey bee; Linkage and crossing over;	understand chromosomal theory of inheritance ,sex determination in organisms linkage	Lab Activity : Study of Mandelian inheritance using seeds,	
JUNE	<u>Chapter-5: Principles of Inheritance and Variation</u> - Sex linked inheritance - Haemophilia, Colour blindness; Mendelian disorder in humans - Thalassaemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.	to understand concepts of various genetic diseases their causes and treatments	preparing pedigree chart,	
	Revision for unit test using worksheets		Lab Activity: Isolation of DNA from plant material, , meiosis.	
	Revision from CBSE papers		tudy of mitosis and meiosis	
	Unit test			
UT 1				
JULY	<u>Chapter-6: Molecular Basis of Inheritance</u> - Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, genetic code,	to understand basic structure of DNA , nucleosome model, replication and transcription		
	<u>Chapter-6: Molecular Basis of Inheritance</u> translation; Gene expression and regulation - Lac Operon; Genome and human ganeome project; DNA fingerprinting.	to understand importance of DNA fingerprinting operon concept and pprotein synthesis		
	<u>Chapter-7: Evolution</u> Origin of life; Biological evolution and evidences for biological evolution (Paleontological, comparative anatomy, embryology and molecular evidence); Darwin's contribution, Modern Synthetic theory of Evolution;	to understand concepts ane evidences of origin of life using various theories		
	<u>Chapter-7: Evolution</u> Mechanism of evolution - Variation (Mutation and Recombination) and Natural Selection with examples, types of natural selection; Gene flow and genetic drift; Hardy - Weinberg's principle; Adaptive Radiation; Human evolution.	To understand concepts of origin of life, evolutionary evidences, theories of Darwin, mutation & variation.		
	Revision using worksheets and board papers			

AUG	<u>Chapter-8: Human Health and Diseases</u> Pathogens; parasites causing human diseases (Malaria, Filariasis, Ascariasis, Typhoid, Pneumonia, common cold, amoebiasis, ring worm); Adolescence, drug and alcohol abuse.	gain knowledge about prophylaxis and treatment as well as transmission of several diseases	Lab Activity : Identification of disease causing organisms,	
	<u>Chapter-8: Human Health and Diseases</u> Basic concepts of immunology - vaccines; Cancer, HIV and AIDs;	Understand basic concepts of immunology and related diseases		
	<u>Chapter-9: Strategies for Enhancement in Food Production</u> Improvement in food production : Plant breeding, tissue culture, single cell protein, Biofortification, Apiculture and Animal husbandry.	Understand basic concepts of tissue culture & animal husbandry.		
	<u>Chapter-10: Microbes in Human Welfare</u> In household food processing, industrial production, sewage treatment, energy generation and as biocontrol agents and biofertilizers. <u>Antibiotics: production and judicious use.</u>	To understand industrial production of economically important products.		
SEPT	<u>Chapter-11: Biotechnology - Principles and Processes</u> Genetic engineering (Recombinant DNA technology).	to understand the use of rec technology and different steps involved in it	study of effect of temperature & pH on salivary amylase.	
	<u>Chapter-12: Biotechnology and its Application</u> Application of Biotechnology in health and agriculture: Human insulin and vaccine production, gene therapy;	to understand importance of genetic engineering & use of recombinant DNA technology in various fields.		
	<u>Chapter-12: Biotechnology and its Application</u> Genetically modified organisms-Bt crops; Transgenic Animals; biosafety issues, biopiracy and patents.	to understand the concepts of GMO crops, production of vaccines & medicines using biotechnology.		
	Revision for term 1			

Term 1 Exam				
OCT	<del>Chapter-13: Organisms and Populations</del> Organisms and environment: Habitat and niche, Population and ecological adaptations; Population interactions-mutualism, competition, predation, parasitism; Population attributes-growth, birth rate and death rate, age distribution.	To understand concepts of adaptation, population related issues & population interaction.	Lab Activity : Study of plant population density. Quadrat method	
	<u>Chapter-14: Ecosystem</u> Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass, energy; nutrient cycles (carbon and phosphorous); ecological succession; ecological services - carbon fixation, pollination, seed dispersal, oxygen release (in brief).	to understand of biogeo chemical cycles ecology and ecosystem		
	<u>Chapter-15: Biodiversity and its Conservation</u> Concept of biodiversity; patterns of biodiversity; importance of biodiversity; loss of biodiversity; biodiversity conservation;	To understand the concept of biodiversity, importance of conservation of natural resources.		
	Revision tests to be conducted and doubts to be cleared		study of adaptive features of plant & animal specimens. 1 diffhabitats	
NOV	<u>Chapter-16: Environmental Issues</u> Air pollution and its control; water pollution and its control; agrochemicals and their effects;	to understand the harmful effects of pollution and methods to overcome them	Study of presence of SPM in air	
	<u>Chapter-16: Environmental Issues</u> Solid waste management; radioactive waste management; greenhouse effect and climate change; ozone layer depletion; deforestation; any one case study as success story addressing environmental issue(s).	To understand Ecosystem, Environmental problems, Waste management, pollution, pollution related diseases & global warming.	Lab Activity: . Study of pH of water & soil from different sources.	
DEC	Revision			
UT 2				
JAN	Revision			
FEB	Revision			
Final				B