

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

Month	Lesson / Topic	Expected Learning Objective	Activities/ FAs Planned	Remarks
March	Unit I Chapter 1 Diversity of Living Organism Biodiversity; Need for classification; three domains of life; taxonomy and systematic	Students will be able to appreciate the need of conserving biodiversity and importance of taxonomy in identification and nomenclature	Study parts of compound microscope.	
APRIL	Concept of species and taxonomical hierarchy; binomial nomenclature; tools for study of taxonomy-	Students will be able to write scientific names properly using binomial nomenclature	Specimens and identification with reason-bacteria, liverwort, fern,moss, pinus, lichen. rhizopus,oscillatoria,spirogyra, yeast. Mushroom, monocotyledon, dicotyledon	
	Museums, zoological parks, herbaria, botanical gardens	Students will be able to discuss the importance of museums and herbaria in conservation		
	Chapter 2 Biological classification Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups: Lichens, Viruses and Viroids.	Students will be able to differentiate between different groups according to their features and characterise each group with example	Study of the specimens and identification with reason-bacteria, oscillatoria, spirogyra, rhizopus,	

	<p>Chapter 3 Plant kingdom Salient features and classification of plants into major groups - Algae, Bryophyta, Pteridophyta, Gymnospermae and Angiospermae - classification upto class, characteristic features and examples.</p>	Students will be able to explain features of each group in plant kingdom and discuss their life cycle patterns.		
MAY	<p>Chapter 4 Animal Classification Salient features and classification of animals non chordates up to phyla level and chordates up to class level (three to five salient features and at least two examples of each category). Nonchordates</p>	Students will be able to compare features of different groups with example	Study of the specimens and identification with reason Mushroom, yeast, liverwort, moss, fern, pinus, one monocotyledon, one dicotyledon and one lichen.	
	<p>Salient features and classification of animals non chordates up to phyla level and chordates up to class level (three to five salient features and at least two examples of each category). Chordates</p>	Students will be able to compare features of different groups with example		
	<p>Unit 3: Chapter 8 Cell - Unit of life and Function Cell theory and cell as the basic unit of life: Structure of prokaryotic and eukaryotic cells; Plant cell and animal cell; Cell envelope, cell membrane</p>	Students will be able to get an idea about structure of plant and animal cell		
	<p>Cell wall; Cell organelles - structure and functions</p>	Students will be able to draw structure of each organelle and state their location and functions		

JUNE	Vacuoles; mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function);	Students will be able to draw structure of each organelle and state their location and functions		
	nucleus, nuclear membrane, chromatin, nucleolus. Chemical constituents of living cells: Chapter 9 Biomolecules, structure and function of proteins, carbohydrates,	Students will be able to draw and label nucleus and state function of each part Students will be able explain the structures of carbohydrate protein in details		
JULY	Lipids, nucleic acids, enzymes, types, properties, enzyme action.	Students will be able to discuss types of nucleic acids , property of DNA and RNA, enzyme functions		
	Chapter 10 Cell division and Cell cycle Mitosis , meiosis and their significance	Students will be able to draw stages of cell cycle and explain the mechanism of cell division	Study of mitosis in onion root tip cell and animal cells (grass hopper) from permanent slides.	
	Revision			
UT 1				
JULY	Unit 2 Chapter 5 Morphology of flowering Plants Morphology and modifications: Tissues; anatomy and functions of different parts of flowering plants: root, stem, leaf,	Students will be able to draw modification of root stem and leaves and mention their functions	Study and describe three common flowering plants (Solanaceae, Fabaceae & liliaceae)	
	inflorescence, flower, fruit and seed	Students will be able to dissect and label each part of a flower and relate it to a particular family depending on its morphological features		

AUG	Chapter - 6 : Anatomy of flowering plants Types of tissues - meristematic permanent Simple and complex tissue	Students will be able to Differentiate between different types of tissues with diagrams	Preparation and study of T.S. of Dicot and monocot roots and stems (Normal) Study of different modifications in root stem and leaves.	
	Structure and function of plant tissue; Dicot and root stem and leaves , Secondary growth in plants	Students will be able to dissect and identify specific plant tissue with reasons	Study and identify types of inflorescence, root stem, leaves Study of tissue and diversity in shapes & sizes for plant and animal cells.(Palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem, phloem	
	Chapter 7 Structural organizations in animals Types of animal tissues , their classification with function- epithelial and connective tissue neural and nervous tissue	Students will be able to to explain the structure and fnction of different types of animal tissues with diagrams	Squamous epithelium, muscle fibers and mammalian blood smear) through temporary/ permanent slides.	
	Morphology and anatomy of cockroach, earthworm and toad	Students will be able to discuss the structural details of organisms like earth cockroach, earthworm and toad	Study of external morphology of earthworm. Cockroach & frog through models.	
SEPT	Chapter - 16 Digestion and absorption: Alimentary canal and digestive glands, role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats;	Students will be able to explain structure and function of each part of digestive system and process of digestion of absorption and assimilation of proteins, carbohydrates and fats	Test for the pressure of sugar starch proteins and fats in food material The effect of different temperatures on the activity of salivary amylase on starch.	
	Calorific values of proteins, carbohydrates	Students will be able to Develop an idea about B.M.R and different diseases		

	<p>Chapter 17 Breathing and Respiration: Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration,</p>	Students will be able to explain the structure & functions of respiratory organs, breathing mechanism		
	Revision	Revision using Work sheet		
	Revision	Revision using Work sheet		
Term 1 Exam				
	Respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders. Chapter - 18 Body fluids and circulation: Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels	Students will be able to discuss structure of heart with diagram		
	Cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure Chapter 19 Excretory products and their elimination: Modes of excretion - ammonotelism, ureotelism, uricotelism	Students will be able to discuss double circulation, cardiac cycle & diseases associated with heart	To test the presence of urea albumin, sugar and bile salts in urine.	

OCT

<p>human excretory system - structure and function; urine formation, osmoregulation; regulation of kidney function - renin - angiotensin, atrial natriuretic factor, ADH and diabetes insipidus; role of other organs in excretion; disorders - uraemia, renal failure, renal calculi, nephritis; dialysis and artificial kidney.</p>	<p>Students will be able to explain & draw structure of Nephron, Hormonal regulation of urine formation, diseases</p>		
<p>Chapter 20 Locomotion and movement: Types of movement - ciliary, flagellar, muscular; skeletal muscle- contractile proteins and muscle contraction; skeletal system and its functions; joints; disorders of muscular and skeletal system - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.</p>	<p>Students will be able to explain types of movement, parts of skeletal system, various diseases associated with it</p>	<p>Study of human skeleton and types of joints</p>	
<p>Chapter 21 Neural control and coordination: Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse; reflex action; sensory perception; sense organs; elementary structure and functions of eye and ear.</p>	<p>Students will be able to draw structure of Neuron, reflex arc, structure & functions of paths of Eye & Ear</p>		

NOV	<p>Chapter 22 Chemical coordination and integration</p> <p>Endocrine glands and hormones; human endocrine system - hypothalamus, pituitary, pineal, thyroid, parathyroid, adrenal, pancreas, gonads; mechanism of hormone action (elementary Idea); role of hormones as messengers and regulators, hypo - and hyperactivity and related disorders; dwarfism, acromegaly, cretinism, goiter, exophthalmic goiter, diabetes, Addison's disease. Note: Diseases related to all the human physiological systems to be taught in brief</p>	Students will be able to explain functions of different hormones & related diseases		
	<p>Unit 4: Plant Physiology Chapter 11 Transport in plants</p> <p>Movement of water, gases and nutrients; cell to cell transport, Diffusion, facilitated diffusion, active transport; plant-water relations, Imbibition, water potential, osmosis, plasmolysis; long distance transport of water - Absorption, apoplast, symplast, transpiration pull, root pressure and guttation</p>	Students will be able to discuss Diffusion, Osmosis, Transportation of water & minerals	Study of osmosis and Plasmolysis and imbibition	

DEC	<p>Transpiration, opening and closing of Stomata</p> <p>Chapter 12</p> <p>Mineral nutrition</p> <p>;Uptake and translocation of mineral nutrients - Transport of food, phloem transport, massflow hypothesis; diffusion of gases.</p> <p>Mineral nutrition: Essential minerals, macro- and micronutrients and their role; deficiency symptoms; mineral toxicity</p>	<p>Students will be able to differentiate between Macro & Micro elements, mineral deficiency diseases</p>	<p>Study of rate of transpiration</p>	
	<p>Elementary idea of hydroponics as a method to study mineral nutrition; nitrogen metabolism, nitrogen cycle, biological nitrogen fixation.</p>	<p>Students will be able to explain Nitrogen cycle & Nitrogen metabolism</p>		
	<p>Chapter13</p> <p>Photosynthesis:</p> <p>Photosynthesis as a mean of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and non cyclic photophosphorylation; chemiosmotic hypothesis;</p>	<p>Students will be able to differentiate cyclic and non cyclic photophosphorylation, explain chemiosmotic hypothesis</p>	<p>Separate plant pigments through paper chromatography, Distribution of stomata</p> <p>-</p>	
	<p>Photorespiration; C3 and C4 pathways; factors affecting photosynthesis.</p>	<p>Students will be able to explain C3 & C4 pathways</p>		
UT 2				

JAN	Chapter 14 Respiration in plants : Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic) , TCA cycle and electron transport system	Students will be able to describe - glycolysis, fermentation (anaerobic) , TCA cycle and electron transport system	Study the rate of respiration in flower bud /leaf tissues and germinating seeds	
	Energy relations - number of ATP molecules generated; amphibolic pathways; respiratory quotient. Chapter 15 Plant growth and development Seed germination; phases of plant growth and plant growth rate; conditions of growth	Students will be able to explain dormancy, conditions of seed germination		
	Differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; growth regulators - auxin, gibberellin,	Students will be able to state the functions of phytohormones		
	Cytokinin, ethylene, ABA; seed dormancy; vernalisation; photoperiodism.	Students will be able to state the functions of phytohormones		
FEB	Revision			
	Revision			
	Revision			
Final Exam				