



**ARMY PUBLIC SCHOOL RAKHMUTHI**  
**MONTH WISE SYLLABUS BIFURCATION BIOLOGY**  
**CLASS-XI (SESSION 2023-24)**

MONTH	CHAPTERS	SUB-TOPIC	ACTIVITIES/PROJECT WORK
April	Chapter-1: The Living World  Chapter-2: Biological Classification	What is living? Biodiversity; Need for classification; three domains of life; concept of species and taxonomical hierarchy; binomial nomenclature.  Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups; Lichens, Viruses and Viroids.	TAL ACTIVITIES: To show ppt on taxonomy and biological classifications  Specimens/slides/models and identification with reasons - Bacteria, <i>Oscillatoria</i> , <i>Spirogyra</i> , <i>Rhizopus</i> , mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen  :
May	Chapter-3: Plant Kingdom	Salient features and classification of plants into major groups - Algae, Bryophyta, Pteridophyta and Gymnospermae. (salient and distinguishing features and a few examples of each category).	To show the ppt based on the classification of plants
June	Chapter-4: Animal Kingdom	Salient features and classification of animals, non-chordates up to phyla level and chordates up to class level (salient features and distinguishing features of a few examples of each category). (No live animals or specimen should be displayed.)	To show the animated videos on classification of animal kingdom  Virtual specimens/slides/models and identifying features of - <i>Amoeba</i> , <i>Hydra</i> , liverfluke, <i>Ascaris</i> , leech, earthworm, prawn, silkworm, honey bee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit
UT-1		Syllabus- unit-1, 2 ,3 & 4	
	Chapter-5: Morphology of Flowering Plants	Morphology of inflorescence and flower, Description of 01 family: Solanaceae or Liliaceae (to be dealt along with the relevant experiments of the Practical Syllabus).	Study and describe locally available common flowering plants, from family Solanaceae

July	Chapter-6: Structural Organisation in Animals	Animal tissues	
August	Chapter-7: Cell- The Unit of Life	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, cell wall; cell organelles - structure and function; endomembrane system, endoplasmic reticulum, golgi bodies, lysosomes, vacuoles, mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus. Animal tissues	Preparation and study of T.S. of dicot and monocot roots and stems (primary).  Parts of a compound microscope.
HALF YEARLY EXAM	SYLLABUS:1,2, 3,4,5,6,7		
Septem ber	Chapter-8: Biomolecules  Chapter-9: Cell Cycle and Cell Division	Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids; Enzymes- types, properties, enzyme action.  Cell cycle, mitosis, meiosis and their significance	Test for the presence of sugar, starch, proteins and fats in suitable plant and animal materials  Mitosis in onion root tip cells and animals cells (grasshopper) from permanent slides.
October	Chapter-10: Photosynthesis in Higher Plants  Chapter-11: Respiration in Plants	Photosynthesis as a means 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; photorespiration; C <sub>3</sub> and C <sub>4</sub> pathways; factors affecting photosynthesis.  Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); energy relations - number of ATP molecules generated; amphibolic pathways; respiratory quotient.	To show the ppt and animated videos on photosynthesis and exchange of gases in plants
Novembe r	Chapter-12: Plant - Growth and Development  Chapter-13: Breathing and	Growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA.  Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of	To show animated videos on human respiratory system and circulatory system

	Exchange of Gases  Chapter-14: Body Fluids and Circulation	gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders.  Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure	
DECEMBER	Chapter-15: Excretory Products and their Elimination  Chapter-16: Locomotion and Movement  Chapter-17: Neural Control and Coordination.	Modes of excretion - ammonotelism, ureotelism, uricotelism; 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 - uremia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant.  Skeletal muscle, contractile proteins and muscle contraction.  Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse.	Human skeleton and different types of joints with the help of virtual images/models only.  To show animated videos based on nervous system and excretory system in humans
UT-2	SYLLABUS: 8,9,10,11		
January	Chapter-18: Chemical Coordination and Integration	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	To show ppt/ animated videos on endocrine
Feb.		Revision/ Final- exam	