

**BUDHA DAL PUBLIC SCHOOL, SAMANA**  
**SUBJECT: BIOLOGY**  
**CLASS – XI**  
**SESSION – 2023-24**

**Resources for whole year:- Book: Science and Technology (NCERT) ; NCERT exemplar; Bank of biology presentations; Reference books.**

**MARKING SCHEME:**

**TOTAL MARKS: 70**

<b>UNITS</b>	<b>TITLE</b>	<b>MARKS</b>
<b>1</b>	<b>DIVERSITY OF LIVING ORGANISM</b>	<b>15</b>
<b>2</b>	<b>STRUCTURAL ORGANISATION IN ANIMALS &amp; PLANTS</b>	<b>10</b>
<b>3</b>	<b>CELL STRUCTURE AND FUNCTION</b>	<b>15</b>
<b>4</b>	<b>PLANT PHYSIOLOGY</b>	<b>12</b>
<b>5</b>	<b>HUMAN PHYSIOLOGY</b>	<b>18</b>
	<b>TOTAL</b>	<b>70</b>

<b>MONTH</b>	<b>TOPICS</b>	<b>SUB-TOPICS</b>	<b>LEARNING OUTCOMES</b>	<b>INNOVATIVE PEDAGOGY/METHOD</b>	<b>PRACTICALS/Art integrated</b>
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<p><b>April and May</b></p>	<p><b><u>Diversity Of Living Organism.</u></b>  1.The Living World  2. Biological Classification</p>	<p>1.What is Living, Biodiversity, Three domains of life, Binomial Nomenclature  2. Two Kingdom, Five Kingdom classification, details of Kingdom Monera, Protista and Fungi.</p>	<p>To make them comfortable in understanding the concept of using microscope.    To help them in developing idea about primitive cell and the advanced organisms evolved.</p>	<p>To develop skill to relate evolution and classification.    To give technique to learn classification in a simple way</p>	<p>1. Parts of a compound microscope.  2.<b><u>SPECIMENS</u></b> of Bacteria, Oscillatoria, Spirogyra, Rhizopus, Mushroom, Yeast, Liverwort, Moss, Fern, Pinus, one monocot and one dicot and one lichen.  3. <b><u>SPECIMENS</u></b> of - Amoeba, Hydra, Liverfluke, Ascaris, Leech, Earthworm, Prawn, Silkworm, Honeybee, Snail,</p>
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	<p>3. Plant Kingdom    4. Animal Kingdom</p>	<p>3. Algae and its types, Bryophytes and its types, Gymnosperms - life cycles.    4. Salient points of Phylum Porifera, Platyhelminthes, Cnidaria</p>	<p>To analyses the types of biodiversity in kingdom Plantae and Animalia and to make a record.</p>	<p>To arrange all phylum and division of plant kingdom and Animal kingdom in flow chart which help in making the learning process faster</p>	<p>Starfish, Shark, Rohu, Frog, Lizard, Pigeon and Rabbit  <b><u>ART INTEGRATED ACTIVITY.</u></b> Prepare a power point presentation on Biodiversity and Intersection with class XI Panel  <b><u>Discussion with</u></b> English and Biology faculty</p>
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<p><b>July</b></p>	<p><b>Structural Organisation in Plants and Animals</b>  5. Morphology of Flowering Plants   6 . Anatomy of flowering plants   7. Structural organization in Animal</p>	<p><b>5. FLOWER</b>  Inflorescence, Flower and its parts  Aestivation and Placentation   Anatomy of tissue system in dicot and monocot .   7 Morphology and anatomy of frog   Explanation of all life processes and system involved in frog</p>	<p>To develop skill of making diagram of Flowers. Floral Diagram and Floral Formula of Family Solanaceae   Discussion about all the plant tissue such as collenchyma; sclerenchyma; xylem and phloem.   To visualize and understand frog internal structure and function</p>	<p>Dissection of flowers to understand floral description and floral formula.  Family: Solanaceae or   Demonstration of anatomical structure of monocot and dicot plant parts.   Brain Storming sessions with hands on activities.</p>	<p><b>4. FLORAL DISSECTION</b>  Dissection of Flower – Family Solanaceae or Liliaceae  Distribution of Stomata  <b>5. PERMANENT SLIDES</b>  Study of tissues, diversity in shapes, sizes of plant tissue, collenchyma, parenchyma, sclerenchyma, xylem and p h l o e m .</p>
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MONTH	TOPICS	SUB-TOPICS	LEARNING OUTCOMES	INNOVATIVE PEDAGOGY	PRACTICALS
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<p><b>August</b></p>	<p><b>Cell Structure and Function 8. Cell – The Unit of Life</b></p> <p><b>9. Biomolecules</b></p> <p><b>10. Cell Cycle and Cell Division</b></p>	<p>1. Cell as basic structural and functional unit of life, difference between prokaryote/eukaryote, Cell membrane, and cell organelles like mitochondria, plastids, chloroplast and nucleus</p> <p>2. Structures of carbohydrates, proteins, fats, nucleic acids</p> <p>3. Mitosis and meiosis,</p>	<p>To understand cell as basic structural and functional unit of life.</p> <p>To analyse and draw structure and function of different cell organelles.</p> <p>To study different Bio molecules, their structure and function.</p> <p>To comprehend the new terms and process of cell division</p> <p>To understand the steps and phases of Mitosis and Meiosis</p>	<p>Interactive discussion on discovery of cell, osmosis, plasmolysis and comparison between prokaryotic and Eukaryotic cell.</p> <p>Making diagrams of plant cell animal cell with visualization of organelles structure and their function.</p>	<p>1. Study of different phases of mitosis onion root tip, and animal cells (grasshopper).</p> <p><b>Art Integrated Activity</b></p> <p>Prepare Mitosis and Meiosis Cards Using Beautiful colours and creativity to show crossingover terminalisation of chiasmata, chromosomes moving over spindle fibers . solve it like a jig saw puzzle in group of 6.</p>
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September	<b>Plant Physiology</b>  <b>13. Photosynthesis in higher Plants</b> <b>14. Respiration in Plants</b>  <b>15. Plant Growth and Development</b>	Steps of photosynthesis, Light and dark reaction, Role of chlorophyll, Cyclic and noncyclic photo-phosphorylation, Calvin Cycle, Hatch and Slack Cycle, Photorespiration, Factors. Glycolysis, Fermentation, Aerobic respiration, TCA cycle, ETS and oxidative phosphorylation, and RQ values. Plant growth Regulators	To Comprehend new terms and cycles pertaining to Photosystems I & II  To analyse the steps of metabolic enzymes mediated cycles of respiration  To understand the role of Auxin, Gibberellin, Cytokinin, Ethlene, ABA in Plant growth and development	Drawing various cycles and discussion about enzyme mediated processes.  Case Studies, Hands on Activities  Pair and Share with Peer teaching methods  Interactive Discussion and Reasoning Questionnaire	1. Separate plant pigments through paper chromatography.  2. To study the rate of respiration in flower buds / leaves / germinating seeds.
October and November	<u><b>Human Physiology</b></u> <b>17. Breathing and Exchange of Gases</b> <b>18. Body Fluids and Circulation</b> <b>19. Excretory</b>	Cellular Respiration, Respiratory Organs, Respiratory Volume Disorders Blood and Lymph Cardiac cycle & regulation of cardiac activity	To comprehend the mechanism of breathing, Calculate respiratory Quotient. To understand hypertension, CAD, Angina pectoris Cardiac arrest, heart failure.	Drawing various cycles and discussion about enzyme mediated processes.  Case Studies, Hands on Activities	To test the presence of Sugar in Urine To test the presence of Albumin in Urine. <u><b>Art Integrated Activity</b></u> <b>Rhythm and Rap –</b> <b>Students will Prepare a Rap song on Human</b>

	<b>Products and Their Elimination</b>	Modes of Excretion, Human excretory system, Kidney function and disorders.	To analyse regulation of kidney function- Renin- angiotensin, Atrial natriuretic factor, ADH.	Pair and share with Peer teaching methods	Systems (Circulatory, Digestive, Respiratory, Nervous etc. )and prepare a video. This activity can be in a Pair or group.
<b>December</b>	<b>Human Physiology 20. Locomotion and Movement 21. Neural Control and Coordination 22. Chemical Coordination and Integration</b>	Skeletal muscles, Muscle contraction Nervous system in humans, CNS, PNS & ANS ,nerve impulse. Endocrine Glands hormones and Their functions with disorders.	To understand the Sliding filament theory of muscle contraction in humans  To analyse the role of hormones in human body, their importance and feed back mechanism of control	Prepare Mind maps  Case Studies  Pair and Share with Self assessment methods	<b>Sports Integrated Activity</b> Yoga and Muscle Contraction and Relaxation- Spread your mats and perform : Sukhasana, Tadasana, Shashankasana, Padamasana, Naukasana, Vrikshasana.
<b>January and February</b>	<b>Revision for Annual Exams</b>	Assignments and Sample Papers.	To revise and Prepare for exams,	One to one problem solving Remedial classes Personal guidance.	

