

**CLASS XI BIOLOGY SESSION (20-21)**

**APRIL**

<b>Content/Topic</b>	<b>1<sup>st</sup> Week</b>	<b>2<sup>nd</sup> Week</b>	<b>3<sup>rd</sup> Week</b>	<b>4<sup>th</sup> Week</b>	<b>5<sup>th</sup> Week</b>
<b>Chapter-1</b> <b>Living world</b>  <b>Chapter-2</b> <b>Biological</b> <b>Classification</b>	<b>Orientation</b>	<b>Chapter-1contd.</b>	<b>Chapter-1</b> ➤ Introduction to the syllabus <b>Chapter-2</b> ➤ Binomial nomenclature ➤ Taxonomical aids ➤ Systems of classification	<b>Chapter-2 continued</b> ➤ Living world ➤ Taxonomical - hierarchy ➤ Five kingdom classification ➤ Salient features of all kingdoms.	➤ Viruses and viroids ➤ Lichens
<b>Practicals</b>	➤ Nature walk to get acquainted with the flora & fauna of the school ➤ Study and describe three locally available common flowering plants, one from each of the families <i>Solanaceae</i> , ➤ <i>Fabaceae</i> and <i>Liliaceae</i> including dissection and display of floral whorls.				
<b>Learning Objectives</b>	<b>Students will be able–</b> ➤ To understand the concept of living ➤ To arrange organisms sequentially according to their hierarchy ➤ To understand the important features and life cycles of different plant divisions				
<b>Learning Outcome</b>	<b>Students would be able –</b> ➤ To understand and appreciate the meaning of life ➤ To allot a hierarchical position to each family or taxa				
<b>Teaching Aids</b>	<b>Power point presentations on diversity in the living world and biological classification, mind map from reckoner</b>				
<b>Assessment</b>	<b>Home assignments, worksheets, class discussions, class tests</b>				

MONTH: MAY

Content/Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week	5 <sup>th</sup> Week
<b>Chapter-3</b>  <b>Plant kingdom</b> <b>Chapter-4</b> <b>Animal kingdom</b>	<b>Chapter-3</b> <ul style="list-style-type: none"> <li>➤ Algae, bryophytes,</li> <li>➤ pteridophytes</li> </ul>	<b>Chapter-3cont.</b> <ul style="list-style-type: none"> <li>➤ gymnosperms and angiosperms</li> <li>➤ plant life cycles and alternation of generation.</li> </ul> <b>Chapter-4</b> <ul style="list-style-type: none"> <li>➤ Levels of classification,</li> </ul>	<b>Chapter-4 cont.</b> <ul style="list-style-type: none"> <li>➤ phylum wise description of all animals upto invertebrates and Vertebrates</li> </ul>	<b>Chapter-4 cont.</b> Class wise description of Vertebrates	Summer Break
<b>Practicals</b>	<ul style="list-style-type: none"> <li>➤ Study of the 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 and one dicotyledonous plant and one lichen.</li> <li>➤ Study of specimens/slides/models and identification with reasons -prawn, silkworm, honeybee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.</li> <li>➤ Study of specimens/slides/models and identification with reasons - Amoeba, Hydra, Liverfluke, Ascaris, Leech, Earthworm</li> </ul>				
<b>Learning Objectives</b>	<b>Student will be able –</b> <ul style="list-style-type: none"> <li>➤ To understand the concept of alternation of generation</li> <li>➤ To understand the various levels of classification in animals</li> <li>➤ To distinguish between different types of</li> </ul>				
<b>Learning Outcome</b>	<b>Students would be able –</b> <ul style="list-style-type: none"> <li>➤ To apply the concept of alternation of generation in ploidy levels</li> <li>➤ To correlate and appreciate the presence of various features in animals</li> </ul>				
<b>Teaching Aids</b>	Smart class modules on classification of plants, diagrams, examples from school flora and fauna, mind maps from reckoner				
<b>Assessment</b>	Home assignments, worksheets, class discussions, class tests, quiz on plant and animal kingdom				

**MONTH: JULY**

Content/Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week	5 <sup>th</sup> Week
<p><b>Chapter-5 Morphology of flowering plants</b>  <b>Chapter-6</b> Anatomy of flowering plants  <b>Chapter-7</b> Structural organization in animals</p>	<p><b>Chapter-5</b>  Morphology</p> <ul style="list-style-type: none"> <li>➤ Root-structure, function and modification</li> <li>➤ Stem, origin, modifications and functions</li> <li>➤ Leaf, structure, Functions modifications,</li> <li>➤ phyllotaxy,</li> <li>➤ venation and inflorescence</li> </ul>	<p><b>Chapter 6</b></p> <ul style="list-style-type: none"> <li>➤ Parts of flower aestivation</li> <li>➤ description of flower and families- Solanaceae, Fabaceae and Liliaceae</li> </ul>	<p><b>Chapter 6 contd</b></p> <ul style="list-style-type: none"> <li>➤ Meristematic and permanent tissues, simple and complex tissues</li> <li>➤ Anatomy of dicot and monocot root.</li> </ul>	<p><b>Chapter-7</b>  Contd.</p> <ul style="list-style-type: none"> <li>➤ Animal tissues- epithelial, connective, muscular and neural tissues</li> </ul>	<p><b>Chapter-7</b>  Contd.</p> <ul style="list-style-type: none"> <li>➤ Organ and organ systems</li> <li>➤ Morphology and anatomy of cockroach</li> </ul>
<p><b>Practicals</b></p>	<ul style="list-style-type: none"> <li>➤ Study of tissues and diversity in shapes and sizes of plant and animal cells (palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem, phloem, squamous epithelium)</li> <li>➤ Muscle fibres and mammalian blood smear) through temporary/permanent slides.</li> <li>➤ Study and identification of different types of inflorescence (cymose and racemose)</li> </ul>				
<p><b>Learning Objectives</b></p>	<p><b>Student will be able –</b></p> <ul style="list-style-type: none"> <li>➤ To understand the anatomical origin and importance of all plant structures</li> <li>➤ To understand the different types of tissues and their organization.</li> <li>➤ To understand the role of .different tissues in metabolic activities</li> </ul>				

<b>Learning Outcome</b>	<b>Student would be able –</b> <ul style="list-style-type: none"> <li>➤ to apply the knowledge of anatomical studies in wood and furniture selection</li> <li>➤ To locate the different types of tissues in body.</li> <li>➤ to appreciate the role of .different tissues in metabolic activities</li> </ul>
<b>Teaching Aids</b>	Smart class modules on secondary growth and structural organization in animals, mind maps from reckoner
<b>Assessment</b>	Home assignments, worksheets, class discussions, class tests

### MONTH: AUGUST

Content/Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week	5 <sup>th</sup> Week
<b>Chapter-8 Cell: unit of life</b>  <b>Chapter-9 Biomolecules</b> <b>Chapter -10 Cell and cell division</b>	<b>Chapter-8</b> <ul style="list-style-type: none"> <li>➤ Types of cells. structure of eukaryotic and prokaryotic</li> <li>➤ Cell. Celltheory.structure and functions of various cell organelles-</li> </ul>	<b>Periodic Test I</b> <b>Chapter -8 contd</b> <ul style="list-style-type: none"> <li>➤ plasma membrane, golgi bodies and mitochondria</li> <li>➤ chloroplast nucleus, lysosomes, types of chromosomes</li> </ul>	<b>Periodic Test I</b> <b>Chapter-9</b> <ul style="list-style-type: none"> <li>➤ Concept of macromolecules primary and secondary metabolites</li> </ul>	<b>Chapter-9 contd</b> <ul style="list-style-type: none"> <li>➤ Proteins, polysachharides</li> <li>➤ Nucleic acids, structure of proteins, metabolism, enzymes and their types</li> </ul>	<b>Chapter -10 Cell and cell division</b> <ul style="list-style-type: none"> <li>➤ Cell cycle</li> <li>➤ Phase of cell cycle ➤ Mitosis and its importance</li> <li>➤ Meiosis and its importance</li> </ul>
<b>Practicals</b>	<ul style="list-style-type: none"> <li>➤ Test for the presence of sugar, starch, proteins and fats. To detect these in suitable plant and animal materials.</li> <li>➤ Preparation and study of T.S. of dicot and monocot roots and stems (primary).</li> </ul>				
<b>Learning Objectives</b>	<b>Student will be able-</b> <ul style="list-style-type: none"> <li>➤ to understand the meaning of cell theory</li> <li>➤ To understand the structure and function of various cell organelles</li> <li>➤ To correlate the effect of various factors on enzyme</li> </ul>				
<b>Learning Outcome</b>	<b>Student would be able –</b> <ul style="list-style-type: none"> <li>➤ to apply cell theory in various aspects of life</li> <li>➤ to locate cell organelles according to their function</li> <li>➤ to correlate the roles of various enzymes in controlling and coordinating various metabolic activities</li> </ul>				
<b>Teaching Aids</b>	Smart class modules on biomolecules and cell division (meiosis), diagrams, mind maps from reckoner				
<b>Assessment</b>	Home assignments, worksheets, class discussions, class tests				

**MONTH: SEPTEMBER**

<b>Content/Topic</b>	<b>1<sup>st</sup> Week</b>	<b>2<sup>nd</sup> Week</b>	<b>3<sup>rd</sup> Week</b>	<b>4<sup>th</sup> Week</b>	<b>5<sup>th</sup> Week</b>
<b>Chapter -10</b> <b>Cell and cell division</b>  <b>Chapter-11</b> <b>Transport in plants</b>	<b>Chapter -10</b> Types of cytokinesis <u><b>Chapter -11</b></u> <b>Revision</b>	<b>TERM END I</b>	<b>TERM END I</b>	<b>TERM END I</b>	<b>Chapter-11 Transport in plants contd.</b> Steps involved in ascent of sap, cohesion- tension theory, role of water potential, transpiration Opening and closing of

<b>Practicals</b>	<ul style="list-style-type: none"> <li>➤ Study of mitosis in onion root tips cell from permanent slides.</li> <li>➤ Study of osmosis by potato osmometer.</li> </ul>
<b>Learning Objectives</b>	<b>Students will be able –</b> <ul style="list-style-type: none"> <li>➤ To understand the stages and the importance of the two types of cell division.</li> <li>➤ To sequentially understand the steps involved in ascent of sap</li> <li>➤ To understand the importance of various elements in plants</li> </ul>
<b>Learning Outcome</b>	<b>Student would be able</b> <ul style="list-style-type: none"> <li>➤ Apply the knowledge of cell division in tissue culture</li> <li>➤ To appreciate the ascent of sap in extremely tall trees</li> <li>➤ To apply the concept of hydroponics in studying deficiency symptoms</li> </ul>
<b>Teaching Aids</b>	Smart class modules on transport in plants, diagrams, mind maps from reckoner
<b>Assessment</b>	Home assignments, worksheets, class discussions, class tests, mind maps from reckoner

**MONTH: OCTOBER**

<b>Content/Topic</b>	<b>1<sup>st</sup> Week</b>	<b>2<sup>nd</sup> Week</b>	<b>3<sup>rd</sup> Week</b>	<b>4<sup>th</sup> Week</b>	<b>5<sup>th</sup> Week</b>
<b>Chapter-12 Mineral nutrition</b> <b>Chapter-13 Photosynthesis</b> <b>Chapter-14 Respiration in plants</b>	<b>Chapter-12</b> Essentiality of an element ➤ hydroponics, hunger signs	<b>Chapter-12</b> Cont. functions deficiency symptoms of various elements ➤ mobility of	<b>Chapter-13</b> ➤ History of photosynthesis, modern equation of photosynthesis, light reaction	➤ dark reaction, discovery of calvin cycle C3 and C4 plants, photorespiration	<b>Chapter-14</b> ➤ Glycolysis and fermentation
<b>Practicals</b>	➤ Study of plasmolysis in epidermal peels (e.g. Rhoeo leaves) ➤ Study of distribution of stomata in the upper and lower surface of leaves ➤ Comparative study of the rates of transpiration in the upper and lower surface of leaves ➤ Separation of plant pigments through paper chromatography				
<b>Learning Objectives</b>	<b>Students will be able –</b> ➤ To understand the concept of hydroponics ➤ To understand the sequence of events in light and dark reactions ➤ To understand steps involved in glycolysis and kreb's cycle				
<b>Learning Outcome</b>	<b>Students would be able –</b> ➤ To locate and correlate the importance of various pigments in light and dark reactions ➤ To sequentially learn the steps in glycolysis and kreb's cycle ➤ To appreciate the role of cellular respiration in plants and energy production				
<b>Teaching Aids</b>	Smart class modules on light and dark reactions in photosynthesis, diagrams, mind maps from reckoner				
<b>Assessment</b>	Home assignments, worksheets, class discussions, class tests				

**MONTH: NOVEMBER**

<b>Content/Topic</b>	<b>1<sup>st</sup> Week</b>	<b>2<sup>nd</sup> Week</b>	<b>3<sup>rd</sup> Week</b>	<b>4<sup>th</sup> Week and 5<sup>th</sup> Week</b>
<b>Chapter-14</b> <b>Respiration in plants</b> <b>Chapter-15 Plant growth and development</b> <b>Chapter-16 Digestion and absorption</b>	<b>Chapter-14 contd</b> <ul style="list-style-type: none"> <li>➤ TCA cycle, ETS.</li> <li>➤ Oxidative phosphorylation, respiratory balance sheet</li> <li>➤ Amphibolic pathways</li> </ul>	<b>Chapter-15</b> <ul style="list-style-type: none"> <li>➤ Growth, phase of growth, growth rates, conditions for growth development</li> <li>➤ PGRs</li> </ul>	<b>Chapter-15 contd.</b> <ul style="list-style-type: none"> <li>➤ Physiological effects of plant growth regulators</li> <li>➤ photoperiodism,</li> <li>➤ vernalisation</li> </ul>	<b>Chapter-16</b> <ul style="list-style-type: none"> <li>➤ Digestive system and organs involved in digestion in man</li> <li>Digestive glands</li> <li>➤ Absorption and assimilation of food</li> <li>➤ Disorders of digestive system</li> <li>Absorption and assimilation of food, Disorders of digestive system</li> </ul>
<b>Practicals</b>	<ul style="list-style-type: none"> <li>➤ To test the presence of urea, sugar, albumin, bile salts in urine.</li> <li>➤ Study of different modifications in root, stem and</li> </ul>			
<b>Learning Objectives</b>	<b>Students will be able –</b> <ul style="list-style-type: none"> <li>➤ To understand the cellular respiration in plants and energy production</li> <li>➤ To understand Growth pattern in plants</li> <li>➤ To understand the process of digestion</li> </ul>			
<b>Learning Outcome</b>	<b>Students would be able –</b> <ul style="list-style-type: none"> <li>➤ To understand the cellular respiration in plants and energy production</li> <li>➤ To correlate the roles of various enzymes in controlling and coordinating various metabolic activities along growth pattern.</li> <li>➤ To sequentially understand the stages of digestion in humans.</li> <li>➤ To understand the importance of various organs, glands, tongue and teeth in digestion</li> </ul>			
<b>Teaching Aids</b>	Power point presentations on respiration in plants, diagrams, mind maps from reckoner			
<b>Assessment</b>	Home assignments, worksheets, class discussions, class tests			

**MONTH: DECEMBER**

Content/Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week and 5 <sup>th</sup> Week
<p><b>Chapter-17</b> Breathing and exchange of gases <b>Chapter-18</b> Body fluids and circulation <b>Chapter-19</b> Excretory products and exchange of gases</p>	<p><b>PERIODIC TEST-II</b> <b>Chapter-17</b> ➤ Human respiratory system, mechanism of breathing ➤ respiratory capacity and volume ➤ Exchange of gases ➤ Regulation of respiration, disorders related to respiration</p>	<p><b>PERIODIC TEST-II</b> <b>Chapter-18</b> ➤ Composition of blood ➤ Blood plasma ➤ Blood groups and blood coagulation ➤ Cardiac cycle and functioning of heart</p>	<p><b>Chapter-18</b> Cont. ECG ➤ Disorders of circulatory system  <b>Chapter-19</b> ➤ Human excretory system, structure of nephron, urine formation ➤ Counter current mechanism</p>	<p><b>Chapter-19 Cont.</b> ➤ Regulation of blood pressure and kidney function ➤ Micturition Disorders of excretory system</p>
<b>Practicals</b>	<ul style="list-style-type: none"> <li>➤ Study of imbibition in seeds/raisins.</li> <li>➤ Observation and comments on the experimental set up for showing: Anaerobic respiration, Phototropism, Apical bud removal, Suction due to transpiration</li> </ul>			
<b>Learning Objectives</b>	<p><b>Student will be able –</b></p> <ul style="list-style-type: none"> <li>➤ To sequentially understand the stages and the importance of different parts of nephron in urine formation.</li> <li>➤ To locate various bones and joints in the body</li> <li>➤ To understand the functioning of muscular and skeletal system</li> <li>➤ To understand the importance of various organs ,glands, tongue and teeth in digestion</li> </ul>			
<b>Learning Outcome</b>	<p><b>Students would be able –</b></p> <ul style="list-style-type: none"> <li>➤ ➤ To apply the knowledge of respiratory system in occurrence of diseases</li> <li>➤ To be able to sequentially arrange the events taking place during one cardiac cycle</li> </ul>			
<b>Teaching Aids</b>	Power point presentations on circulation and excretory system, diagrams, mind map from reckoner			
<b>Assessment</b>	Home assignments, worksheets, class discussions, class tests			



**MONTH: JANUARY**

Content/Topic	1 <sup>st</sup> Week	2 <sup>nd</sup> Week	3 <sup>rd</sup> Week	4 <sup>th</sup> Week	5 <sup>th</sup> Week
<p><b>Chapter-20</b> Locomotion and movement</p> <p><b>Chapter-21</b> Neural control and coordination</p>	<p><b>WINTER BREAK</b></p>	<p><b>WINTER BREAK</b></p>	<p><b>Chapter-20</b> Types of movements, structure of muscular tissue</p> <ul style="list-style-type: none"> <li>➤ Mechanism of muscle contraction</li> <li>➤ Skeletal system of man</li> </ul> <p>Types of bones and joints</p> <ul style="list-style-type: none"> <li>➤ Disorders of muscular and skeletal system</li> </ul>	<p><b>Chapter-21</b></p> <ul style="list-style-type: none"> <li>➤ components of CNS</li> <li>➤ Transmission of nerve impulse</li> <li>➤ Reflex action</li> <li>➤ Structure of brain</li> </ul> <p>Structure and functioning of ear and eye</p> <ul style="list-style-type: none"> <li>➤ Transmission of nerve impulse</li> <li>➤ Reflex action</li> <li>➤ Structure of brain</li> </ul> <p>Structure and functioning of</p>	<p><b>Chapter-22 Chemical coordination and integration</b></p> <ul style="list-style-type: none"> <li>➤ Endocrine glands and hormones</li> </ul>
<b>Practical</b>	<ul style="list-style-type: none"> <li>➤ Study of external morphology of cockroach through specimens/models.</li> <li>➤ Study of human skeleton and different types of joints</li> </ul>				
<b>Learning Objectives</b>	<p><b>Student will be able –</b></p> <ul style="list-style-type: none"> <li>➤ To understand the functioning of nervous system</li> <li>➤ To correlate the functions of various glands with the disorders that occur in body due to their malfunctioning □To appreciate the chemical coordination achieved by hormones in our body</li> </ul>				
<b>Learning Outcome</b>	<p><b>Student would be able –</b></p> <ul style="list-style-type: none"> <li>➤ To apply the knowledge of importance of different parts of nephron in urine formation in understanding diseases</li> <li>➤ To understand various bones and joints in the body</li> <li>➤ To understand the functioning of muscular and skeletal system, to appreciate how accurately and fast our nervous system works Would be able to be able to locate various glands of the body</li> </ul>				
<b>Teaching Aids</b>	Smart class modules on excretory system, 3D models of ear and brain, animation film on nerve transmission				
<b>Assessment</b>	Home assignments, worksheets, class discussions, class tests				

**MONTH: FEBRUARY**

<b>Content/ Topic</b>	<b>1<sup>st</sup>&amp;2<sup>nd</sup> Week</b>	<b>3<sup>rd</sup> Week</b>	<b>4<sup>th</sup> Week</b>	<b>5<sup>th</sup> Week</b>
	<ul style="list-style-type: none"><li>• <b>Revision</b></li></ul>	<ul style="list-style-type: none"><li>• <b>TERM END-II</b></li></ul>	<ul style="list-style-type: none"><li>• <b>TERM END-II</b></li></ul>	<b>TERM END-II</b>
<b>Practical</b>	Revision of practical.			
<b>Learning Objectives</b>				
<b>Learning Outcomes</b>				
<b>Teaching Aids</b>	<ul style="list-style-type: none"><li>• Class Discussion, Class Assignment</li></ul>			
<b>Assessment</b>	<ul style="list-style-type: none"><li>• Assignments, worksheets, class discussions, tests</li></ul>			

<b>Practicals</b>	➤ Revision of practicals
<b>Learning Objectives</b>	
<b>Learning Outcome</b>	
<b>Teaching Aids</b>	Smart class modules on chemical coordination, diagrams, mind maps from reckoner
<b>Assessment</b>	Home assignments, worksheets, class discussions, class tests

