

**GRADE 13 BIOLOGY TERM PLAN**

**TERM ONE: SEPTEMBER 2 – DECEMBER 19**

**2024 – 2025**

		<b>THEORY</b>	<b>ASSESSMENT</b>	<b>SUGGESTED ONLINE ACTIVITIES</b>
<b>SEPTEMBER</b>				
<b>September 2-6</b>	<b>WEEK 1 5 Sessions</b>	<b>ENERGY FLOW AND NUTRIENT CYCLING</b> <ul style="list-style-type: none"> <li>● Definition of ecological terms</li> <li>● Energy flow within an ecosystem</li> <li>● Ecological pyramids</li> <li>● Nutrient recycling – nitrogen cycle</li> </ul>	<i>Assign the students into groups and allow them to discuss the presentations on Ecological Systems and Biodiversity.</i>  <b>Biodiversity Presentations given.</b>	Google classroom for posting information (PowerPoints, online images, and videos). Presentations will be projected on board in class.
<b>September 9-13</b>	<b>WEEK 2 5 Sessions</b>	<b>ENERGY FLOW AND NUTRIENT CYCLING</b> <ul style="list-style-type: none"> <li>● Differences between energy flow and nutrient cycling</li> </ul> <b>ECOLOGICAL SYSTEMS, BIODIVERSITY AND CONSERVATIONS</b> <ul style="list-style-type: none"> <li>● Ecosystems as dynamic systems</li> <li>● Biodiversity – genetic, species, ecosystem</li> <li>● Importance of maintaining biodiversity.</li> <li>● In situ and ex situ conservation methods – zoos, protected areas, seed banks, botanic gardens, zoos, sperm banks, embryo banks, cryopreservation</li> </ul>	<b>Graded Presentations</b>	Google classroom for posting information (PowerPoints, online images, and videos).

		<ul style="list-style-type: none"> <li>o Presentations by students</li> </ul>		
Sept. 16 – 20	<b>WEEK 3</b> 5 Sessions	<b>ECOLOGICAL SYSTEMS, BIODIVERSITY AND CONSERVATIONS</b> <ul style="list-style-type: none"> <li>● In situ and ex situ conservation methods – zoos, protected areas, seed banks, botanic gardens, zoos, sperm banks, embryo banks, cryopreservation</li> </ul> <b>cont'd</b> <ul style="list-style-type: none"> <li>o Presentations by students</li> </ul>	<b>Graded Presentations Cont'd</b>	Google classroom for posting information ( <i>PowerPoints, online images, and videos</i> ).
September 23-27	<b>WEEK 4</b> 5 Sessions	<b>ECOLOGICAL SYSTEMS, BIODIVERSITY AND CONSERVATIONS</b> <ul style="list-style-type: none"> <li>● Reinforcement of presentation content by teacher</li> <li>● Ecology experiment</li> <li>● Field trip</li> </ul>	<b>Ecology LAB</b>	
<b>OCTOBER</b>				
Sept 30- Oct 4	<b>WEEK 5</b> 5 Sessions	<b>PHOTOSYNTHESIS AND ATP SYNTHESIS</b> <ul style="list-style-type: none"> <li>● Review dicot leaf and chloroplast structure and function</li> <li>● Photosynthesis – light dependent</li> </ul>	<b>LAB #1 – 3 sessions</b> <ul style="list-style-type: none"> <li>● Draw internal structure of a dicot leaf – plan, detailed</li> <li>● Draw palisade cell</li> </ul>	
October 7-11  <b>October 12-16- Midterm break</b>	<b>WEEK 6</b> 5 Sessions	<b>PHOTOSYNTHESIS AND ATP SYNTHESIS</b> <ul style="list-style-type: none"> <li>● Photosynthesis – light dependent and light independent (Calvin cycle) reaction cont'd</li> </ul>		Google classroom for posting information ( <i>PowerPoints, online images, and videos</i> ).

{subject to change}				Images/online slide images of plant tissues presented for lab.
October 14-18  National Heroes Day-October 21 {midterm break date unknown}	WEEK 7	<p><b>PHOTOSYNTHESIS AND ATP SYNTHESIS</b></p> <ul style="list-style-type: none"> <li>• Photosynthesis – light dependent and light independent (Calvin cycle) reaction cont'd</li> <li>• Factors affecting photosynthesis.</li> </ul> <p><b>CELLULAR RESPIRATION AND ATP SYNTHESIS</b></p> <ul style="list-style-type: none"> <li>• Structure and function of mitochondria</li> <li>• Overview of respiration – glycolysis, link reaction, Krebs cycle, oxidative phosphorylation</li> </ul> <p>Glycolysis</p>	<p><b>LAB #2 – 3 sessions</b></p> <ul style="list-style-type: none"> <li>• Photosynthesis in (<i>Elodea</i>)</li> <li>• Photosynthesis worksheet</li> </ul>	<p>Google classroom for posting information (<i>PowerPoints, online images, and videos</i>).</p> <p>Lab session at school or video presented of lab along with necessary information.</p>
October 21-25	WEEK 8 5 Sessions		<b>TEST #1- tentative</b>	
October 28 - Nov. 1	WEEK 9 5 Sessions	<p><b>CELLULAR RESPIRATION AND ATP SYNTHESIS</b></p> <ul style="list-style-type: none"> <li>• Link reaction</li> <li>• Krebs cycle</li> </ul> <p>Oxidative phosphorylation</p>		<p>Google classroom for posting information (<i>PowerPoints, online images, and videos</i>).</p>
<b>NOVEMBER</b>				
November 4-8	WEEK 10 5 Sessions	<p><b>CELLULAR RESPIRATION AND ATP SYNTHESIS</b></p> <ul style="list-style-type: none"> <li>• Oxidative phosphorylation cont'd</li> <li>• Anaerobic respiration/Fermentation</li> </ul>	<p><b>LAB #3 – 3 sessions</b></p> <ul style="list-style-type: none"> <li>• Respiration</li> </ul> <p>Respiration worksheet</p>	<p>Google classroom for posting information (<i>PowerPoints, online images, and videos</i>).</p>

				Lab session at school or video presented of lab along with necessary information.
November 11-15	<b>WEEK 11</b> 5 Sessions	<b>UPTAKE AND TRANSPORT OF WATER AND MINERALS</b> <ul style="list-style-type: none"> <li>• Structure of roots, uptake of ions by active transport</li> <li>• Entry and transport of water in plant roots – 3 pathways</li> <li>• Structure and function of xylem vessels.</li> <li>• Ascent of water in plants – root pressure, cohesion and adhesion, transpiration pull.</li> <li>• Role of stomata in transpiration</li> </ul>	<b>LAB #4 – 3 sessions</b> Drawing of xylem vessels	Google classroom for posting information ( <i>PowerPoints, online images, and videos</i> ).
November 18 - 22	<b>WEEK 12</b> 5 Sessions	<b>TRANSPORT IN PHLOEM</b> <ul style="list-style-type: none"> <li>• Phloem and sieve tube structure</li> <li>• Translocation of food – source to sink, loading of sieve tubes</li> <li>• Mass/Pressure Flow Hypothesis</li> <li>• Evidence for and against the hypothesis</li> <li>• Mass/Pressure Flow Hypothesis</li> </ul>	<b>LAB – 3 sessions</b> <ul style="list-style-type: none"> <li>• Environmental factors affecting transpiration (potometer)</li> </ul> Transport in plants worksheet	Google classroom for posting information ( <i>PowerPoints, online images, and videos</i> ). Lab session at school along with necessary information.
November 25 - 29	<b>WEEK 13</b> 5 Sessions	<b>CIRCULATORY SYSTEM OF MAMMALS</b> <ul style="list-style-type: none"> <li>• Need for a circulatory system</li> <li>• Open and closed systems</li> <li>• Blood vessels</li> <li>• Blood vessels cont'd</li> <li>• Structure of the heart</li> <li>• Cardiac cycle</li> </ul>	<b>LAB – 3 sessions</b> Drawing of phloem tubes	Google classroom for posting information ( <i>PowerPoints, online images, and videos</i> ).

		<ul style="list-style-type: none"> <li>● Maintaining the heart's rhythmic beat</li> <li>● Definitions – pulse, blood pressure</li> <li>● Factors affecting blood pressure</li> </ul>		
<b>DECEMBER</b>				
<b>December 2-6</b>	<b>WEEK 14</b> <b>5 Sessions</b>	o	<b>TEST #2 – 2 sessions</b>	
<b>December 9-13</b>	<b>WEEK 15</b> <b>5 Sessions</b>	<b>CIRCULATORY SYSTEM OF MAMMALS</b> <ul style="list-style-type: none"> <li>● Definitions – pulse, blood pressure</li> <li>● Factors affecting blood pressure</li> <li>● Nervous and hormonal control of heart rate</li> <li>● Role of haemoglobin in oxygen transport</li> </ul>	<b>LAB – 3 sessions</b> <ul style="list-style-type: none"> <li>● Drawing of blood vessels, blood cells</li> </ul>	Google classroom for posting information ( <i>PowerPoints, online images, and videos</i> ).
<b>December 15-19</b>	<b>WEEK 16</b>	<b>CIRCULATORY SYSTEM OF MAMMALS</b> <ul style="list-style-type: none"> <li>● Bohr's effect</li> </ul>	<b>LAB – 3 sessions</b> <ul style="list-style-type: none"> <li>● Drawing of blood vessels, blood cells</li> </ul> Transport in animals worksheet	Google classroom for posting information ( <i>PowerPoints, online images, and videos</i> ).