

GRADE 13 BIOLOGY TERM PLAN

2023 – 2024

TERM ONE: SEPTEMBER 11 – DECEMBER 15

		THEORY	ASSESSMENT	SUGGESTED ONLINE ACTIVITIES
SEPTEMBER				
September 11-15	WEEK 1 5 Sessions	<p>ENERGY FLOW AND NUTRIENT CYCLING</p> <ul style="list-style-type: none"> ● Definition of ecological terms ● Energy flow within an ecosystem ● Ecological pyramids ● Nutrient recycling – nitrogen cycle 	<p><i>Assign the students into groups and allow them to discuss the presentations on Ecological Systems and Biodiversity.</i></p> <p><i>Biodiversity Presentations given.</i></p>	<ul style="list-style-type: none"> ● Google classroom for posting information (PowerPoints, online images, and videos). ● Presentations will be projected on board in class.
September 18-22	WEEK 2 5 Sessions	<p>ENERGY FLOW AND NUTRIENT CYCLING</p> <ul style="list-style-type: none"> ● Differences between energy flow and nutrient cycling <p>ECOLOGICAL SYSTEMS, BIODIVERSITY AND CONSERVATIONS</p> <ul style="list-style-type: none"> ● Ecosystems as dynamic systems ● Biodiversity – genetic, species, ecosystem ● Importance of maintaining biodiversity. ● In situ and ex situ conservation methods – 	<p>Graded Presentations</p>	<ul style="list-style-type: none"> ● Google classroom for posting information (PowerPoints, online images, and videos).

		zoos, protected areas, seed banks, botanic gardens, zoos, sperm banks, embryo banks, cryopreservation <ul style="list-style-type: none"> ○ Presentations by students 		
Sept. 25 – 29	WEEK 3 5 Sessions	ECOLOGICAL SYSTEMS, BIODIVERSITY AND CONSERVATIONS <ul style="list-style-type: none"> ● In situ and ex situ conservation methods – zoos, protected areas, seed banks, botanic gardens, zoos, sperm banks, embryo banks, cryopreservation cont'd <ul style="list-style-type: none"> ○ Presentations by students 	Graded Presentations Cont'd	<ul style="list-style-type: none"> ● Google classroom for posting information (<i>PowerPoints, online images, and videos</i>).
OCTOBER				
October 2 – 6	WEEK 4 5 Sessions	PHOTOSYNTHESIS AND ATP SYNTHESIS <ul style="list-style-type: none"> ● Review dicot leaf and chloroplast structure and function ● Photosynthesis – light dependent 	LAB #1 – 3 sessions <ul style="list-style-type: none"> ● Draw internal structure of a dicot leaf – plan, detailed ● Draw palisade cell 	
October 9-11 October 12-16- Midterm break {subject to change}	WEEK 5 5 Sessions	PHOTOSYNTHESIS AND ATP SYNTHESIS <ul style="list-style-type: none"> ● Photosynthesis – light dependent and light independent (Calvin cycle) reaction cont'd 		<ul style="list-style-type: none"> ● Google classroom for posting information (<i>PowerPoints, online images, and videos</i>). ● Images/online

				slide images of plant tissues presented for lab.
October 17-20	WEEK 6 5 Sessions	PHOTOSYNTHESIS AND ATP SYNTHESIS <ul style="list-style-type: none"> ● Photosynthesis – light dependent and light independent (Calvin cycle) reaction cont'd ● Factors affecting photosynthesis. CELLULAR RESPIRATION AND ATP SYNTHESIS <ul style="list-style-type: none"> ● Structure and function of mitochondria ● Overview of respiration – glycolysis, link reaction, Krebs cycle, oxidative phosphorylation Glycolysis	LAB #2 – 3 sessions <ul style="list-style-type: none"> ● Photosynthesis in (<i>Elodea</i>) ● Photosynthesis worksheet 	<ul style="list-style-type: none"> ● Google classroom for posting information (<i>PowerPoints, online images, and videos</i>). Lab session at school or video presented of lab along with necessary information.
October 23-27	WEEK 7	●	TEST #1	●
NOVEMBER				
October 30 - Nov. 3	WEEK 8 5 Sessions	CELLULAR RESPIRATION AND ATP SYNTHESIS <ul style="list-style-type: none"> ● Link reaction ● Krebs cycle Oxidative phosphorylation		<ul style="list-style-type: none"> ● Google classroom for posting information (<i>PowerPoints, online images, and videos</i>).
November 6-10	WEEK 9 5 Sessions	CELLULAR RESPIRATION AND ATP SYNTHESIS <ul style="list-style-type: none"> ● Oxidative phosphorylation cont'd 	LAB #3 – 3 sessions <ul style="list-style-type: none"> ● Respiration Respiration worksheet	<ul style="list-style-type: none"> ● Google classroom for posting information (<i>PowerPoints, online images,</i>

		<ul style="list-style-type: none"> Anaerobic respiration/Fermentation 		<p><i>and videos).</i></p> <ul style="list-style-type: none"> Lab session at school or video presented of lab along with necessary information.
November 13-17	WEEK 10 5 Sessions	<p>UPTAKE AND TRANSPORT OF WATER AND MINERALS</p> <ul style="list-style-type: none"> Structure of roots, uptake of ions by active transport Entry and transport of water in plant roots – 3 pathways Structure and function of xylem vessels. Ascent of water in plants – root pressure, cohesion and adhesion, transpiration pull. Role of stomata in transpiration 	<p>LAB #4 – 3 sessions Drawing of xylem vessels</p>	<ul style="list-style-type: none"> Google classroom for posting information (<i>PowerPoints, online images, and videos).</i>
November 20 - 24	WEEK 11 5 Sessions	<p>TRANSPORT IN PHLOEM</p> <ul style="list-style-type: none"> Phloem and sieve tube structure Translocation of food – source to sink, loading of sieve tubes Mass/Pressure Flow Hypothesis Evidence for and against the hypothesis Mass/Pressure Flow Hypothesis Evidence for and 	<p>LAB – 3 sessions</p> <ul style="list-style-type: none"> Environmental factors affecting transpiration (potometer) Transport in plants worksheet 	<ul style="list-style-type: none"> Google classroom for posting information (<i>PowerPoints, online images, and videos).</i> Lab session at school along with necessary information.

		against the hypothesis		
November 27 - Dec 1	WEEK 12 5 Sessions	CIRCULATORY SYSTEM OF MAMMALS <ul style="list-style-type: none"> ● Need for a circulatory system ● Open and close systems ● Blood vessels ● Blood vessels cont'd ● Structure of the heart ● Cardiac cycle ● Maintaining the heart's rhythmic beat ● Definitions – pulse, blood pressure ● Factors affecting blood pressure 	LAB – 3 sessions Drawing of phloem tubes	<ul style="list-style-type: none"> ● Google classroom for posting information (<i>PowerPoints, online images, and videos</i>).
DECEMBER				
December 4-8	WEEK 13 5 Sessions	○	TEST #2 – 2 sessions	
December 11-15	WEEK 14 5 Sessions	CIRCULATORY SYSTEM OF MAMMALS <ul style="list-style-type: none"> ● Definitions – pulse, blood pressure ● Factors affecting blood pressure ● Nervous and hormonal control of heart rate ● Role of haemoglobin in oxygen transport ● Nervous and hormonal control of heart rate ● Role of haemoglobin in 	LAB – 3 sessions <ul style="list-style-type: none"> ● Drawing of blood vessels, blood cells ● Transport in animals worksheet 	<ul style="list-style-type: none"> ● Google classroom for posting information (<i>PowerPoints, online images, and videos</i>).

		oxygen transport ● Immunology (start)		
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