GRADE 12 BIOLOGY TERM PLAN

2023– 2024

TERM ONE: SEPTEMBER 11 – DECEMBER 15

		THEORY	LABS/QUIZ/TESTS
SEPTEMBER			
September 11-15	**WEEK 1**	**INTRO TO COURSE** • Course outline **ASPECTS OF BIOCHEMISTRY** • Water • Carbohydrates – structure and function of monosaccharides	
September 18-24	**WEEK 2**	**ASPECTS OF BIOCHEMISTRY** • Carbohydrates – disaccharides and polysaccharides	Course Work Water Worksheet
September 25-29	**WEEK 3**	• Lipids • Proteins	
OCTOBER			
October 2-6	**WEEK 4**	**ASPECTS OF BIOCHEMISTRY** • Proteins cont'd	**LAB –** • Food tests – qualitative & quantitative
October 9 - 12	**WEEK 5**	**CELLS** • Review structure and function of plant and animal cells • Describe prokaryotic and eukaryotic cells • Endosymbiotic theory • Cell organelles – structure and function • Tissues and Organs concept using the dicot root	Course Work Electron Micrograph Worksheeet
October 17-20	**WEEK 6**	**MEMBRANE STRUCTURE** • Fluid mosaic model • Passive and active transport	**LAB –** • Calibrate microscopes • Draw unspecialized plant and animal cells • Draw dicotyledonous root

October 23-27	**WEEK 7**	**Test Week**	Biochemistry **&** **Cells**
NOVEMBER			
October 30 - November 3	**WEEK 8**	**ENZYMES** • Definition and structure • Review properties of enzymes • Mode of action – 'lock and key', induced fit • Factors affecting enzyme activity – pH, temperature, substrate concentration, enzyme concentration • Inhibitors – competitive and non-competitive inhibitors, allosteric inhibitors	**LAB –** • Water potential (potato)
November 6-10	**WEEK 9**	**NUCLEIC ACIDS** • DNA structure and function • DNA Replication • Protein synthesis o Genetic code o Transcription o Translation	**LAB –** • Enzymes – substrate concentration, temperature
November 13-17	**WEEK 10**	**NUCLEIC ACIDS** • Protein synthesis cont'd o Genetic code o Transcription o Translation o	Course Work **Aspects of Genetic Engineering Project**
November 20-24	**WEEK 11**	**NUCLEIC ACIDS** • Complete protein synthesis **MITOSIS** • Review stages of mitosis • DNA replication and genetic stability • Importance of mitosis – growth, repair and asexual reproduction	**LAB -** Drawing of mitotic cells in onion root tip
DECEMBER			
November 27 - December 1	**WEEK 12**	**MEIOSIS** • Definition – homologous chromosomes, haploid, diploid • Stages of meiosis	**LAB -** Drawing of meiotic cells in onion root tip

		• Importance of meiosis to heritable behaviour	
December 4-8	**WEEK 13**	**Test Week**	Enzymes, Nucleic Acids and Mitosis and Meiosis
December 11-15	**WEEK 14**	**PATTERNS OF INHERITANCE** • Define terms – gene, allele, dominant, recessive, codominant, homozygous and heterozygous • Monohybrid cross review; genetic problems • Dihybrid cross Monohybrid cross review • Dihybrid cross • Genetic crosses – sex linkages, codominance, multiple alleles, dominant epistasis	

CHRISTMAS HOMEWORK:

- **Genetic Problems not completed in class time**