

Biology 2018 Unit 3 and 4, Timeline

Resource – Heinemann Biology 2, 5th Edition

TERM 1		Written activities	Concepts covered	Assessment Tasks	
Orientation week 28/11 – 2/12	UNIT 3: Area of Study 1: Molecules of life	Chapter 1: Biology keystone-Foundation skills Key Questions 1.1 Q2,6,10 1.2 Q3,4,5,6,7 1.3 Q3 1.4 Q1,2,5,6,8,9 1.5 Q1,2,3,5 1.6 Q1,2,3 TSSM Booklet: Topic 1 – Experimental Design and Data Interpretation Website Questions: Experimental Design Worksheet	<ul style="list-style-type: none"> Scientific method Safety Experimental Design and Data Analysis 		
Week 1 29/1 – 2/2		Chapter 2: Cells and composition of cells Key Questions All Chapter Review 12,13,14,15,16,18,19,22,24,25 Website Questions: Biological Molecules Worksheet Cells and Cell Structures Worksheet Material Transport Worksheet TSSM Booklet: Topic 2 - Cells Topic 3 – Chemical Nature of the Cell Topic 4 – Plasma Membranes and Material Transport	<ul style="list-style-type: none"> Carbohydrates Protein Lipids Plasma membrane Transport of biomolecules throughout eukaryote cell Transport of biomolecules in and out of the cell Structure and functions of cell organelles Connections between cells 	1. Topic Test	
Week 2 5/2 – 9/2		Chapter 3: Nucleic acids, gene structure and regulation Key Questions All Chapter Review 9, 10,11,13,15,17,18 Website Questions: TSSM Booklet: Topic 10 – DNA Replication and Protein Synthesis	<ul style="list-style-type: none"> Nucleic acids Genetic code Transcription and translation 	1. Topic test	
Week 3 12/2 – 16/2 Swimming Sports 14/2		Chapter 4: Enzyme regulation in biochemical pathways Key Questions All Chapter Review 5,6,7,8,9,12,14,15 Website Questions: Enzymes Worksheet Photosynthesis Worksheet Respiration Worksheet TSSM Booklet: Topic 5 – Biochemical Reactions	<ul style="list-style-type: none"> Enzymes Regulation of enzymes Energy requiring and energy yielding reactions Anabolic and catabolic 	Topic test Enzyme Action SAC WK 5	
Week 4 19/2 – 23/2		UNIT 3: Area of Study 2:	Chapter 5: Energy transformation in cells Key Questions All Chapter Review	<ul style="list-style-type: none"> Photosynthesis Cellular respiration 	Topic Test Cellular respiration and Photosynthesis SAC WK 8
Week 5 26/2 – 2/3					
Week 6 5/3 – 9/3					
Week 7 12/3 – 16/3 Labour Day 12/3					

Week 8 19/3 – 23/3 Athletics sport 20/3		2,3,4,6,8,9,13,15 Website Questions: Photosynthesis Worksheet Respiration Worksheet TSSM Booklet:		
Week 9 26/3 – 30/3				
		Written activities	Concepts Covered	Assessment Tasks
Term 2 Week 1 16/4 – 20/4		Chapter 6: Cellular signals Key Questions All Chapter Review 4,5,6,7,10,14,17 Website Questions: Homeostasis Worksheet Hormonal System Worksheet Plant Hormonal System Worksheet Nervous and Endocrine System Worksheet Nervous System Worksheet TSSM Booklet: Topic 6 – Animals Responding to Change Topic 7 – Plants Responding to Change	<ul style="list-style-type: none"> • Homeostasis • Stimulus response model • Negative feedback mechanisms • Hormones, neurotransmitters, cytokines and pheromones • Signal transduction • Apoptosis, including malfunctions 	Topic Test Homeostasis SAC WK 2
Week 2 23/4 – 27/4 Anzac Day 25/4				
Week 3 30/4 – 4/5		Chapter 7: Responding to antigens Key Questions All Chapter Review 5,6,7,8 Website Questions: Defence Systems Worksheet Disease Causing Agents Worksheet TSSM Booklet: Topic 9 - Immunity	<ul style="list-style-type: none"> • Cellular • Non-cellular pathogens • Lymphatic system • Adaptive immune response • Physical and chemical barriers to reduce infection • Non-specific defence mechanisms • Specific defence mechanisms 	Topic Test
Week 4 8/5 – 14/5		Chapter 8: Immunity, immune malfunctions and immunotherapy Key Questions All Chapter Review 3,4,6,7,12,15,18 Website Questions: TSSM Booklet:	<ul style="list-style-type: none"> • Natural immunity • Artificial immunity • Vaccination programs • Herd immunity • Allergic responses • Deficiencies of the immune response • Autoimmune disease • Cancer treatment 	Topic Test Immunity SAC – Wk 7
Week 5 15/5 – 21/5				
Week 6 22/5 – 25/5				
Week 7 28/5 – 1/6				

		UNIT 4		
Week 8 4/6- 8/6 Week 9 11/6 – 15/6 Queen's b'day 11/6 Report Writing Day 15/6 GAT 13/6 Week 10 18/6 – 22/6 Semester 2 starts	Area of study 3: Practical investigation	Antibiotics in action	<ul style="list-style-type: none"> • Rubric • Scientific poster evaluation tool • Checklist for designing experiment • Checkpoint 1-4 	SAC Practical investigation
Week 11 25/6 – 29/6 <u>Term 3</u> Week 1 16/7 – 20/7 Week 2 23/7 – 27/7	Area of study 2: How do humans impact on biological	Chapter 13: DNA manipulations: PCR, gel electrophoresis, DNA transformations Key Questions All Chapter Review 1-8 Website Questions: DNA Technology TSSM Booklet: Topic 12: Molecular biology	<ul style="list-style-type: none"> • DNA amplification • DNA polymerase • PCR • Gel electrophoresis • Restriction enzymes • Recombinant DNA • Transformed cells 	Topic Test 1. Topic Test
Week 3 30/7 – 3/8 GTAC 2/8 Week 4 6/8 – 10/8	Area of study 1: How are species related	Chapter 9: Changes in the genetic make-up of a population Key Questions All Chapter Review 10-19 Website Questions: Population genetics Variation and natural selection TSSM Booklet: Topic 11: Mutations Topic 14: Population genetics	<ul style="list-style-type: none"> • Changes in allele frequency • Mutations – point, frameshift, block • Chromosomal abnormalities • Natural selection • Allopatric speciation • Selective breeding programs 	1. Topic Test SAC DNA manipulation Wk 4
Week 5 13/8 – 17/8	Area of study 1: How are species related	Chapter 10: Changes in biodiversity Key Questions All Chapter Review 6-17 Website Questions: Evidence for evolution TSSM Booklet: Topic 15: Evolution and the evidence for evolution	<ul style="list-style-type: none"> • Biological change • Dating fossils and fossiliation • Structural morphology • Divergent and convergent evolution • Extinction 	2. Topic Test
Week 6 20/8 – 24/8 Week 7 27/8 – 31/8	Area of study 1: How are species related	Chapter 11: Determining relatedness between species Key Questions All Chapter Review	<ul style="list-style-type: none"> • Molecular homology • DNA hybridisation • DNA sequencing • Phylogenetic trees 	1. Topic Test SAC Evidence for evolutionary change (Chapter 11 & 12)

Curriculum day 20/8 Ski Camp 21/8-24/8		5,6,8,9,10 Website Questions: Evolution TSSM Booklet:	<ul style="list-style-type: none"> • Developments in evolutionary biology 	Wk 8
Week 8 3/9 – 7/9		Chapter 12: Human Change over time Key Questions All Chapter Review 9,10,11,12,13 Website Questions: Human Evolution TSSM Booklet: Topic 16: Human evolution	<ul style="list-style-type: none"> • Primates, hominoids and hominins • Hominin evolution including structural, functional and cognitive changes 	1. Topic Test
Week 9 and 10 10/9 – 21/9 Parent- Teacher Interviews 19/9 Year 12 Practice English Exam 21/9	Area of study 2: How do humans impact on biological processes?	Chapter 14: Biological knowledge and society Key Questions All Chapter Review 4,6,7,9,10,12,14 Website Questions: TSSM Booklet:	<ul style="list-style-type: none"> • Gene cloning • DNA profiling • Genetic screening • Genetically modified and transgenic organisms • Emerging new diseases • Rational drug design • Chemical agents against pathogens 	1. Topic Test
Term 4 Holidays		Year 12 Practice Exams		
Term 4 Week 1 8/10 – 12/10		Revision Past VCAA Exams Practice Exams on P Drive and VCAA website		
Week 2 15/10 – 19/10		Revision Past VCAA Exams Practice Exams on P Drive and VCAA website		