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<th><strong>TERM 1</strong></th>
<th><strong>Written activities</strong></th>
<th><strong>Concepts covered</strong></th>
<th><strong>Assessment Tasks</strong></th>
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<tr>
<td><strong>Orientation week</strong> 28/11 – 2/12</td>
<td><strong>UNIT 3: Area of Study 1: Molecules of life</strong></td>
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<td><strong>Week 1</strong> 31/1 – 2/2</td>
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</table>
| | **Chapter 1: Biology keystone-Foundation skills** | • Scientific method  
• Safety  
• Experimental Design and Data Analysis |  |
| | **Key Questions** | |  |
| | **All** | |  |
| | **TSSM Booklet:** Topic 1 – Experimental Design and Data Interpretation | |  |
| | **Website Questions:** Experimental Design Worksheet | |  |
| | **Chapter 2: Cells and composition of cells** | • 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 |
| | **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 | |  |
| | **Week 2** 6/2 – 12/2 | |  |
| | **Week 3** 13/2 – 19/2 | |  |
| | **Week 4** 20/2 – 26/2 Swimming sport 16/2 | |  |
| | **Week 5** 27/2 – 5/3 | |  |
| | **Week 6** 6/3 – 12/3 | |  |
| | **Week 7** 13/3 – 19/3 Labour Day 13/3 | |  |
| | **Week 8** 20/3 – 26/3 20/3 Athletics sport | |  |
| | **UNIT 3: Area of Study 2: Detecting and Responding** | |  |
| | **Chapter 3: Nucleic acids, gene structure and regulation** | • Nucleic acids  
• Genetic code  
• Transcription and translation | 1. Topic test |
| | **Key Questions** | |  |
| | **All** | |  |
| | **Chapter Review** 9, 10,11,13,15,17,18 | |  |
| | **Website Questions:** TSSM Booklet: Topic 10 – DNA Replication and Protein Synthesis | |  |
| | **Chapter 4: Enzyme regulation in biochemical pathways** | • Enzymes  
• Regulation of enzymes  
• Energy requiring and energy yielding reactions  
• Anabolic and catabolic | Enzyme test  
Enzyme Action SAC WK 5 |
| | **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 | |  |
| | **Chapter 5: Energy transformation in cells** | • Photosynthesis  
• Cellular respiration | Topic Test  
Cellular respiration and Photosynthesis SAC WK 8 |
| | **Key Questions** | |  |
| | **All** | |  |
| | **Chapter Review** 2,3,4,6,8,9,13,15 | |  |
| | **Website Questions:** Photosynthesis Worksheet  
Respiration Worksheet | |  |
<p>| | <strong>TSSM Booklet:</strong> | |  |</p>
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<th>Week 9</th>
<th>27/3 – 31/3</th>
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<td>Written activities</td>
<td>Concepts Covered</td>
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<tr>
<td><strong>Term 2</strong></td>
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<td><strong>Week 1</strong></td>
<td>18/4 – 23/4 Easter Monday 17/4</td>
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<td><strong>Week 2</strong></td>
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<td><strong>Week 4</strong></td>
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<td><strong>Week 5</strong></td>
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<td><strong>Week 6</strong></td>
<td>22/5 – 28/5</td>
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**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

**Topics Covered:**
- Homeostasis
- Stimulus response model
- Negative feedback mechanisms
- Hormones, neurotransmitters, cytokines and pheromones
- Signal transduction
- Apoptosis, including malfunctions

**Assessment Task:**
- **Topic Test**
- **Homeostasis SAC WK 2**

**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

**Topics Covered:**
- Cellular
- Non-cellular pathogens
- Lymphatic system
- Adaptive immune response
- Physical and chemical barriers to reduce infection
- Non-specific defence mechanisms
- Specific defence mechanisms

**Assessment Task:**
- **Topic Test**

**Chapter 8: Immunity, immune malfunctions and immunotherapy**
- **Key Questions**
  - All
- **Chapter Review**
  - 3,4,6,7,12,15,18
- **Website Questions:**
- **TSSM Booklet:**

**Topics Covered:**
- Natural immunity
- Artificial immunity
- Vaccination programs
- Herd immunity
- Allergic responses
- Deficiencies of the immune response
- Autoimmune disease
- Cancer treatment

**Assessment Task:**
- **Topic Test**
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| **Week 7**  
29/5 - 4/6 |
| **Week 8**  
5/6- 11/6 |
| Practice | Unit 3  
Exam |
| **Week 9**  
12/6 – 18/6  
Queen’s b’day  
12/6  
Report Writing  
Day 16/6  
GAT 14/6 |
| **Week 10**  
19/6 – 25/6  
Semester 2 starts |
| **Week 11**  
26/6 – 30/6 |
| **Term 3**  
Week 1  
11/7 – 17/7  
Curriculum Day 11/7 |
| **Week 2**  
18/7 – 24/7 |
| **Week 3**  
25/7 – 31/7 |

**Chapter 9: Genes, Chromosomes and Patterns of Inheritance**  
**Key Questions**  
All  
**Chapter Review**  
1,2,4,5,6,7,8,9,10,11,12,13,14, 15  
**Website Questions:**  
Monohybrid Crosses Worksheet  
Codominance and Intermediate Inheritance Worksheet  
X-linked Genetics Worksheet  
Dihybrid Crosses Worksheet  
Pedigree Charts Worksheet  
**TSSM Booklet:**  
Topic 13 - Heredity  
- meiosis  
- alleles and phenotype  
- monohybrid crosses  
  - complete (full) dominance  
  - codominance  
  - X-linked inheritance  
  - Test crosses  
- Dihybrid crosses  
- Linked genes  
- Pedigree Charts  

**Chapter 10: Nature, Structure and Organisation of the Genetic Material**  
**Key Questions**  
All  
**Chapter Review**  
2,3,6,9,11,12,13,14  
**Website Questions:**  
Question notes mutations: causes and detection  
**TSSM Booklet:**  
Topic 11 - Mutations  
- Structure of DNA  
- Mitochondrial DNA  
- Gene sequencing  
- Comparative genomics  
- Mutations  

**Chapter 11: Genes Function: Genes in Action**  
**Key Questions**  
All  
**Chapter Review**  
2,3,4,5,6,7,8,9,10,11,14  
**Website Questions:**  
DAN Replication and Protein Synthesis Worksheet  
**TSSM Booklet:**  
Topic 10 – DNA Replication and Protein Synthesis  
- Protein Synthesis  
  - Transcription  
  - Translation  
- DNA Replication  
- RNA (Switching genes on and off)  

**Chapter 12: Manipulating DNA: Tools and Techniques**  
**Key Questions**  
All  
**Chapter Review**  
3,4,5,6,7,8,9,10,11,14  
**Website Questions:**  
DNA Technology Worksheet  
**TSSM Booklet:**  
Topic 12 – Molecular Biology  
- Restriction enzymes  
- Electrophoresis  
- Gene cloning  
  - Plasmids  
  - PCR (Polymerase Chain Reaction)  
- Transgenic Organisms (TGO’s)  
- Genetically Modified Organisms (GMO’s)  
- DNA Profiling/fingerprinting  

**Topic Test**  
**Immunity SAC Wk 7**  
1. Topic Test  
2. Topic Test  
1. Topic Test  
2. Meiosis and Genetic Cross SAC (WK 2)
| Week 4 and 5 | Chapter 13: Population Genetics | Types of variation  
Types of variation  
Monogenic vs polygenic traits  
Gene pool  
Allele frequencies  
Natural Selection  
Artificial Selection  
Speciation  
mtDNA haplogroups | 1. Topic Test |
| 1/8 – 14/8 | Key Questions  
All  
Chapter Review  
All, except 15  
Website Questions:  
Genetics (Other) Worksheet  
Variation and Selection Worksheet  
Population Genetics Worksheet  
TSSM Booklet:  
Topic 14 – Population Genetics | |
| | | |
| Week 6 and 7 | Chapter 14: Evolution: Changes Over Time  
Key Questions  
All  
Chapter Review  
2,3,4,5,6,7,8,9,10,11,12,13  
Website Questions:  
Evolution Worksheet  
Evidence for Evolution Worksheet  
TSSM Booklet:  
Topic 15 – Evolution and the Evidence for Evolution | Relative Dating  
Absolute Dating  
Evidence of Evolution  
Fossilisation  
Cladograms (Phylogenic trees)  
Divergent, Convergent, Parallel evolution, Co-evolution  
Homologous and analogous structures | 1. Topic Test |
| 15/8 – 28/8 | | |
| Year 11 Ski Camp 1/9 – 4/9 | GTAC | |
| **Week 8** | Chapter 16: Human Intervention in Evolution  
Key Questions  
All  
Chapter Review  
2,3,4,5,6,7,8,9,10  
TSSM Booklet:  
Topic 16 – Human Evolution (pages 21 – 24) | Selective Breeding  
Cloning  
- Embryo splitting  
- Somatic nuclear transfer  
Gene transfer between species  
Stem cells | 1. Topic Test  
2. DNA Manipulation WK 8 |
| 29/8 – 4/9 | | |
| **Week 9 and 10** | Chapter 15: Hominin Evolution  
Key Questions  
All  
Chapter Review  
All except 1,10,11  
Website Questions:  
Human Evolution Worksheet  
TSSM Booklet:  
Topic 16 – Human Evolution | Primate features  
Bipedalism features  
Hominin evolution  
Cultural Evolution  
Technological Evolution  
Out of Africa Theory | 1. Topic Test  
2. Evolutionary Relationships and Human Intervention in Evolution SAC WK 9 |
| 5/9 – 20/9 | Parent-Teacher Interviews 14/9  
Year 12 Practice English Exam 16/9 | | |
| **Term 4** | Year 12 Practice Exams  
6/10 – 8/10 | | |
| Week 1 | | | |
| 3/10 – 9/10 | | | |
| **Week 2** | Revision  
Past VCAA Exams  
Practice Exams on P Drive | | |
| 10/10 – 16/10 | | | |
| **Week 3** | Revision  
Last Day Year 12 21/10 | | |