

## 2021 Annual Teaching Plan – Term 1: LIFE SCIENCES: Grade 11

Term 1 45 days	Week 1 27 - 29 January (3 days)	Week 2 01 - 05 February (5 days)	Week 3 08 - 12 February (5 days)	Week 4 15 - 19 February (5 days)	Week 5 22 - 26 February (5 days)	Week 6 01 - 05 March (5 days)	Week 7 08 - 12 March (5 days)	Week 8 15 - 19 March (5 days)	Week 9 23 - 26 March (4 days)	Week 10 29 - 31 March (3 days)
<b>CAPS Topic</b>	<b>(CAPS pg. 39) Biodiversity and classification of microorganisms</b>			<b>(CAPS pg. 40) Biodiversity of plants</b>			<b>(CAPS pg. 41) Biodiversity of animals</b>			
<b>Core Concepts, Skills and Values</b>	Basic structure of viruses, bacteria, Protista and fungi	Roles of viruses, bacteria, Protista and fungi in maintaining balance in the environment	Symbiotic relationships of bacteria, effect and management of ONE disease from each of the 4 groups  Immunity, effect of drugs, use of microorganisms and traditional technology	Bryophytes, Pteridophytes, Gymnosperms and Angiosperms (Comparative table of: Simple diagram for identification, presence of vascular tissue, true leaves and roots, seeds or spores and fruit, dependence of water for reproduction)	Asexual and sexual reproduction – advantages and disadvantages	Flowers as reproductive structures	The concept of a phylum, six phyla: Porifera, Cnidaria, Platyhelminthes, Annelida, Arthropoda and Chordata (Comparative table of: Simple diagram for identification, four key features i.e. symmetry and cephalisation; the number of tissue layers developed from embryo; the number of openings in the gut; coelom and blood systems in the six selected phyla)	Relationship between body plans and modes of living for each of the 6 phyla	Role of invertebrates in agriculture and ecosystems	<b>Consolidation and revision</b>
<b>Requisite Pre-Knowledge</b>	Revise the topic 'microorganisms' from Natural Sciences Grades 8			Revise anatomy of plants from Grade 10			Revise animal tissues from Grade 10			Watch Telematics video on scientific method at: <a href="https://bit.ly/2VOLuhj">https://bit.ly/2VOLuhj</a>
<b>Resources (other than textbook) to enhance learning</b>	Wall charts, practical apparatus e.g. agar, petri dishes and hand lenses			Plant specimens, micrographs, wall charts, microscope and prepared slides			Reference books, photographs, DVD's, posters of phyla			
<b>Informal Assessment</b>	<b>Practical work:</b> prevalence of bacteria/fungi by growing cultures on agar or bread mould on bread, revision questions and tests			Questions on phylogenetic tree showing evolutionary history of 4 plant groups. <b>Practical work:</b> Observe and draw relevant macroscopic parts to provide examples of each of the following divisions: - bryophytes: moss plant - pteridophytes: rhizome, frond with sori - gymnosperms: needles, cones and seeds; and - angiosperms: flower, fruit and seeds. - Dissect and observe of wind, insect and bird pollinated flowers - Informal Tests			Refer to a comparative table of the four key features in the 6 selected phyla Revision questions and tests			
<b>SBA (Formal Assessment)</b>	<b>TASK 1: PRACTICAL TASK (minimum 30 marks) - SBA Weighting: 10%</b>						<b>TASK 2: FORMAL TEST (minimum 50 marks) - SBA Weighting: 20%</b>			

## 2021 Annual Teaching Plan – Term 2: Life Sciences: Grade 11

Term 2 51 days	Week 1 13 – 16 April (4 days)	Week 2 19 – 23 April (5 days)	Week 3 28 – 30 April (3 days)	Week 4 03 – 07 May (5 days)	Week 5 10 – 14 May (5 days)	Week 6 17 – 21 May (5 days)	Week 7 24 – 28 May (5 days)	Week 8 31 May – 4 June (5 days)	Week 9 07 – 11 June (5 days)	Week 10 14 – 18 June (4 days)	Week 11 21 – 25 June (5 days)
CAPS Topic	(CAPS pg. 42) Photosynthesis				(CAPS pg. 43) Animal nutrition				(CAPS pg. 45) Cellular respiration		
Core Concepts, Skills and Values	Revise from Gr 10: Basic cell structure with focus on the chloroplast Revise leaf structure	Process of photosynthesis, importance of photosynthesis	Effects of variable amounts of light, carbon dioxide and temperature on rate of photosynthesis	Improve crop yields in greenhouse systems, role of ATP as energy-carrier in the cell ONE investigation to explain the principles of the Scientific process: <i>Light is necessary for photosynthesis</i>	Dentition for herbivorous, carnivorous and omnivorous life styles	Human nutrition (Organs, functions, ingestion, digestion)	Human nutrition (Absorption, assimilation and egestion)	Homeostatic control, which involves the hormonal control of blood sugar levels	Process of respiration  Aerobic and anaerobic respiration	ONE investigation to explain the principles of the Scientific process: <i>CO<sub>2</sub> is produced by living organisms during respiration</i>	
Requisite Pre-Knowledge	Revise topic 'photosynthesis' from Grade 8 and the cell & leaf structure from Grade 10				Revise carbohydrates from Grade 10, digestive systems from Grade 9				Revise respiration from Grade 9 and cell structure from Gr 10 with focus on the mitochondrion		
Resources (other than textbook) to enhance learning	Living plants, wall charts, chemicals, support content material e.g. short videos				Newspapers, DVD's Watch Telematics video on hormonal control of blood sugar levels at: <a href="https://bit.ly/2nN5uEm">https://bit.ly/2nN5uEm</a>				Snails/seedlings, chemicals and apparatus		Consolidation and revision
Informal Assessment	<ul style="list-style-type: none"> <li>Worksheets on: cell location of different phases; graph interpretation (light, CO<sub>2</sub>, temperature)</li> <li>Basic scientific investigation skills with demonstrations or data interpretation on: Investigate photosynthesis by showing that light is necessary for photosynthesis –</li> <li>Apply basic knowledge to mention the factors carbon dioxide &amp; chlorophyll necessary and O<sub>2</sub> produced by photosynthesis (listed in CAPS pg. 42)</li> <li>Informal test</li> </ul>				<ul style="list-style-type: none"> <li>Worksheets on: Dentition, organs &amp; functions; processes, regulation of blood sugar levels (drawing/interpreting graphs)</li> <li>Exercises on the calculation of nutritional value of meals from dietary information or food packaging</li> <li>Informal test</li> </ul>				<ul style="list-style-type: none"> <li>Worksheets on: cell location of the different phases; comparison of aerobic/anaerobic respiration</li> <li>Basic scientific investigation skills with demonstrations or data interpretation on: Investigate respiration by showing that CO<sub>2</sub> is produced by living organisms during respiration</li> <li>Apply basic knowledge to mention that O<sub>2</sub> is used by living organisms during respiration (listed in CAPS pg. 45)</li> <li>Informal test</li> </ul>		
SBA (Formal Assessment)	TASK 3: ASSIGNMENT (minimum 50 marks) - SBA Weighting: 20%						TASK 4: FORMAL TEST (minimum 50 marks) - SBA Weighting: 20%				

## 2021 Annual Teaching Plan – Term 3: Life Sciences: Grade 11

Term 3 52 days	Week 1 13 – 16 July (4 days)	Week 2 19 – 23 July (5 days)	Week 3 26 – 30 July (5 days)	Week 4 02 – 06 August (5 days)	Week 5 10 – 13 August (4 days)	Week 6 16 – 20 August (5 days)	Week 7 23 – 27 August (5 days)	Week 8 30 Aug.– 03 Sept (5 days)	Week 9 06 – 10 September (5 days)	Week 10 13 – 17 September (5 days)	Week 11 20 – 23 September (4 days)
<b>CAPS Topic</b>	(CAPS pg. 46) Gaseous exchange			(CAPS pg. 48) Excretion in humans			(CAPS pg. 49) Population Ecology				<b>Consolidation and revision</b>
<b>Core Concepts, Skills and Values</b>	Difference between cellular respiration, breathing and gas exchange  Requirements of efficient gas exchange organs	Human gas exchange – structure, location, functions and adaptations of the ventilation system	Ventilation of the lungs  Homeostatic control of breathing	Excretion in various organs	Urinary system-position of organs, structure and functioning of kidney Structure and functioning of nephron	Homeostatic control of water and salts; role of ADH and aldosterone	Population size: Immigration, emigration, mortality, natality; fluctuations and limiting factors	Logistic and geometric growth curves with phases	Interactions in the environment – predation, competition, specialisation, parasitism, mutualism, commensalism	Human population	
<b>Requisite Pre-Knowledge</b>	Revise respiratory system from Grade 9, revise cellular respiration from Grade 11			Revise excretory system from Grade 9, animal tissues from Grade 10			Revise ecology (Grade 8) and biodiversity (Grade 10)				
<b>Resources (other than textbook) to enhance learning</b>	Models, wall charts, DVD's or videos, hand lenses. Watch Telematics video on homeostatic control of breathing at: <a href="https://bit.ly/2nN5uEm">https://bit.ly/2nN5uEm</a>			Models, wall charts, DVD's or videos, hand lenses, sheep kidney from butcher, dissecting knives. Watch Telematics video on homeostatic control of water and salts at: <a href="https://bit.ly/2nN5uEm">https://bit.ly/2nN5uEm</a>			Reference books, wall charts, magazines, videos, DVD's				
<b>Informal Assessment</b>	<ul style="list-style-type: none"> <li>Worksheets on: structure, location, functions and adaptations</li> <li>Demonstration/explanation/worksheet on breathing using a model of the human breathing system (pg. 46 and 47 in CAPS)</li> <li>Informal test</li> </ul>			<ul style="list-style-type: none"> <li>Worksheets on: drawings and labels with functions of kidney &amp; nephron</li> <li>Informal test</li> </ul>			<ul style="list-style-type: none"> <li>Worksheets: determine population size</li> <li>Complete case studies e.g. culling</li> <li>Worksheet to interpret different human population</li> <li>Informal test</li> </ul>				
<b>SBA (Formal Assessment)</b>	<b>TASK 5: PRACTICAL TASK (minimum 30 marks) - SBA Weighting: 10%</b>						<b>TASK 6: FORMAL TEST (minimum 50 marks) - SBA Weighting: 20%</b>				

## 2021 Annual Teaching Plan – Term 4: Life Sciences: Grade 11

Term 4 47 days	Week 1 05 – 08 October (4 days)	Week 2 11 – 15 October (5 days)	Week 3 18 – 22 October (5 days)	Week 4 25 – 29 October (5 days)	Week 5 01 – 05 November (5 days)	Week 6 08 – 12 November (5 days)	Week 7 15 – 19 November (5 days)	Week 8 22 – 26 November (5 days)	Week 9 29 Nov – 03 December (5 days)	Week 10 06 – 08 December (3 days)				
<b>CAPS Topic</b>	(CAPS pg. 51) Human impact on the environment (current crises)				<b>Consolidation and revision</b>			<b>FINAL EXAMINATION</b>						
<b>Core Concepts, Skills and Values</b>	The atmosphere and climate change	Water availability and Water quality	Food security	Loss of biodiversity  Solid waste removal							<b>PAPER 1</b>		<b>PAPER 2</b>	
<b>Requisite Pre-Knowledge</b>	Revise balance in ecosystems from Grade 8 and 10										<b>Marks: 150</b> <b>Time: 2½ hours</b> <i>Learners must answer all 3 questions.</i>  <b>Topics and marks:</b> <i>Photosynthesis – 32</i> <i>Animal nutrition -32</i> <i>Respiration – 22</i> <i>Gaseous exchange – 32</i> <i>Excretion – 32</i>		<b>Marks: 150</b> <b>Time: 2½ hours</b> <i>Learners must answer all 3 questions.</i>  <b>Topics and marks:</b> <i>Biodiversity and classification of microorganisms- 29</i> <i>Biodiversity in plants and reproduction – 29</i> <i>Biodiversity of animals -18</i> <i>Population ecology - 37</i> <i>Human impact - 37</i>	
<b>Resources (other than textbook) to enhance learning</b>	Reference books, media reports, internet, magazines, newspapers. Watch Telematics video on human impact on the environment at: <a href="https://bit.ly/2lTaRk0">https://bit.ly/2lTaRk0</a>													
<b>Informal Assessment</b>	<ul style="list-style-type: none"> <li>Worksheets: Interpret case studies, tables and graphs</li> <li>Practical observation of ONE example of human influence on the environment in local area; write a report</li> <li>Interpret articles e.g. rhino poaching</li> <li>Conduct a solid waste analysis</li> <li>Informal test</li> </ul>										<b>End of year Examinations: Weighting: 40%</b>			
<b>SBA (Formal Assessment)</b>	<b>SBA Weighting: 60%</b>													