



**PROVINCE OF KWAZULU-NATAL  
DEPARTMENT OF EDUCATION**

# **LIFE SCIENCES**

**Grade 10**

**Revised ATP, SBA,  
Content trim, & Final Exam Structure**

**Version 1**

**Post Covid-19 Lockdown**

**June 2020**

## Life Sciences - Grade 10 – CAPS (2020)

### Annual Teaching Plan - TERM ONE (10 weeks)

Planned Date (week ending)	Completion date (Actual date)	Topic for the week	INFORMAL ASSESSMENT Classwork/Homework	TICK	FORMAL ASSESSMENT SBA
17 Jan		Orientation to Life Sciences			<b>Practical</b> Minimum marks: 30 Weighting: 20%  <b>March Controlled Test</b> Minimum marks: 50 Duration: 1 hour Weighting: 20%
24 Jan		Inorganic Compounds Organic compounds	<b>Task 1</b> <ul style="list-style-type: none"> <li>State the functions and diseases associated with the various minerals</li> <li>Explain how excess use of fertilisers may lead to eutrophication</li> </ul>	<input type="checkbox"/>	
31 Jan		Organic compounds	<b>Task 2</b> <ul style="list-style-type: none"> <li>State the functions of carbohydrates, proteins and lipids, vitamins and nucleic acids</li> <li>Draw a table showing the colour changes associated with each food-test</li> <li>Interpret data based on the organic/inorganic content of various food types</li> </ul>	<input type="checkbox"/>	
07 Feb		Organic Compounds Microscope, microscopic skills	<b>Task 3</b> <ul style="list-style-type: none"> <li>Identify /state the functions of given parts on a diagram of a microscope</li> </ul>	<input type="checkbox"/>	
14 Feb		Cell structure	<b>Task 4</b> <ul style="list-style-type: none"> <li>State the functions of the various cell components</li> <li>Make labelled drawings of selected cell organelles</li> <li>Tabulate differences between plant and animal cells</li> </ul>	<input type="checkbox"/>	
21 Feb		Cell structure		<input type="checkbox"/>	
28 Feb		Cell Division	<b>Task 5</b> <ul style="list-style-type: none"> <li>Describe the events of the various phases of mitosis</li> <li>Make a labelled drawing of selected phases of mitosis</li> <li>Interpret the phases and events of mitosis from given diagrams</li> <li>Describe the causes and treatment of cancer</li> </ul>	<input type="checkbox"/>	
06 March		Tissues: Plant Tissues	<b>Task 6</b> <ul style="list-style-type: none"> <li>Describe the structure and functions of the various plant tissues represented in diagrams</li> </ul>	<input type="checkbox"/>	

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13 March		Tests			<p><b>Monitoring by HOD</b>                  (Date, signature and comment on progress with ATP)</p>
20 March		Tests			

## Life Sciences - Grade 10 – CAPS (2020)

### Annual Teaching Plan - TERM TWO (4 weeks)

Planned date (week ending)	Completion date (Actual date)	TOPIC FOR THE WEEK	INFORMAL ASSESSMENT Classwork/Homework	TICK	FORMAL ASSESSMENT - SBA
Week 1		<b>Anatomy of dicotyledonous plants</b> - Root and stem : distribution of different tissues - Structure of cells in different tissues	<b>Task 8</b> <ul style="list-style-type: none"> <li>Provide names and functions of various labelled parts in a section through the root and stem</li> <li>Draw section of stem and root, labels and functions, tests, revision questions</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>June Test</b> Minimum marks: 60 Duration: 1 hour Weighting: 20%
Week 2		<b>Organs: Leaf structure</b> Cross section of a dicotyledonous leaf to demonstrate and explain its structure in terms of its functions i.e. Photosynthesis, gas exchange and transport. Link with plant tissues, appropriate cell organelles, movement across membranes and movement of molecules into through and out of the leaf  <b>Support and Transport in Plants</b> Relationship between water loss and <b>leaf structure</b> Factors that affect the rate of transpiration: - Temperature - Light intensity - Wind	<b>Task 9</b> <ul style="list-style-type: none"> <li>Provide names &amp; functions of various labelled parts in a section through the leaf</li> <li>Provide the correct biological term for concepts used in 'Life at the molecular and cellular level'</li> </ul> <b>Task 10</b> <ul style="list-style-type: none"> <li>Interpret graphs and explain the effect of temperature, light intensity, wind and humidity on the rate of transpiration</li> <li>Draw line graphs on effect of any one environmental factor on the rate of transpiration</li> <li>Describe movement of water from the soil → roots → stem → leaves</li> <li>Practical work – investigate the factors that affect rate of transpiration, water uptake by the plants</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Week 3		<b>Support and Transport in Plants</b> Relationship between water loss and <b>leaf structure</b>  Factors that affect the rate of transpiration: - Uptake of water and minerals into xylem in roots in xylem - Transport of water and minerals to leaves - Translocation of manufactured food from leaves to other parts of plant			

<p>Week 4</p>		<p><b>Tissues: Animal tissues</b></p> <ul style="list-style-type: none"> <li>- Epithelial</li> <li>- Connective</li> <li>- Muscle and</li> <li>- Nerve tissue and some examples of each.</li> </ul> <p>Relationship between structure and function                      [no detail required – some tissue, e.g. blood and nerves in the reflex-arc, will be covered in more detail in relevant sections]</p>	<p><b>Task 7</b></p> <ul style="list-style-type: none"> <li>• Describe the structure and functions of the various animal tissues represented in diagrams</li> <li>• Practical work – draw cells that make up animal tissues</li> </ul>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p>	<p><b>Monitoring by HOD</b>                      (Date, signature and comment on progress with ATP)</p>
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## Life Sciences - Grade 10 – CAPS (2020)

### Annual Teaching Plan - TERM THREE (8 weeks)

Planned date (week ending)	Completion date (Actual date)	TOPIC FOR THE WEEK	INFORMAL ASSESSMENT Classwork/Homework	TICK	FORMAL ASSESSMENT - SBA
Week 1		<p><b>Support in Mammals</b></p> <p><b>Skeletons:</b></p> <ul style="list-style-type: none"> <li>- Examples of animals with each of the following types of skeleton:-hydrostatic skeleton; endoskeleton; exoskeleton</li> <li>- Advantages and disadvantages</li> <li>- Emphasize developmental progression and relate to the need for support linked to a terrestrial lifestyle.</li> </ul> <p><b>Human skeleton</b></p> <ul style="list-style-type: none"> <li>- The axial skeleton: mention of facial bones, cranium, foramen magnum, palate and jaws.</li> <li>- Appendicular skeleton</li> </ul> <p><b>Functions of skeleton</b></p> <ul style="list-style-type: none"> <li>- Movement, protection, support, storage of minerals and hearing</li> <li>- Structure of a long bone</li> <li>- Relationship between structure and function of the following tissues: bone, cartilage, tendons and</li> <li>- Ligaments</li> </ul>	<p><b>Task 11</b></p> <ul style="list-style-type: none"> <li>• Practical work – observe and draw a long bone</li> <li>• Provide advantages and disadvantages of the three types of skeletons</li> <li>• Make a drawing of the L/S through a long bone</li> <li>• Identify the various bones of the skeletal system</li> <li>• State the role of muscles, tendons, ligaments and cartilage in relation to the skeletal</li> </ul>	<input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p><b>Practical</b> Minimum marks: 30 Weighting: 20%</p> <p><b>Test</b> Minimum marks: 60 Duration: 1 hour Weighting: 20%</p>
Week 2		<p><b>Support in Mammals</b></p> <p><b>Joints</b></p> <ul style="list-style-type: none"> <li>- Fixed</li> <li>- Partly movable</li> <li>- Freely movable (synovial). Structure of synovial joints: ball and socket, hinge, pivot and gliding</li> <li>- Roles of the following in human locomotion: bones, joints, ligaments, tendons</li> <li>- Antagonistic muscles (e.g. biceps/triceps)</li> </ul>	<p><b>Task 12</b></p> <ul style="list-style-type: none"> <li>• Differentiate amongst the different types of joints</li> <li>• Practical work –observe movement that occurs at joints</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	

Week 3		<p><b>Transport in Mammals</b></p> <p><b>Blood circulation system:</b> pulmonary and systematic (double, closed) circulatory systems</p> <ul style="list-style-type: none"> <li>- Heart and associated blood vessels</li> <li>- Heart: internal and external structure related to functioning</li> <li>- cardiac cycle: flow of blood through the heart</li> </ul>	<p><b>Task 13</b></p> <ul style="list-style-type: none"> <li>• Provide names and functions of various labelled parts of the external and internal structure of the heart</li> <li>• Provide names and functions of various major blood vessels in the body</li> <li>• Differentiate amongst capillaries, arteries and veins</li> <li>• Describe the cardiac cycle</li> <li>• Draw a pie-chart indicating the time taken for each phase in the cardiac cycle</li> </ul>	<input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Week 4		<p><b>Transport in Mammals</b></p> <p><b>Direction of blood flow:</b></p> <ul style="list-style-type: none"> <li>- Difference between oxygenated and deoxygenated blood in different parts of the system (diagram or schematic drawing)</li> <li>- Lungs and pulmonary system and associated blood vessel</li> <li>- Major organs and systematic system and associated major blood vessels of brain, small intestine, liver kidney</li> <li>- Blood vessels: structure and functioning of arteries, veins with valves and capillaries</li> </ul>			<p><b>Monitoring by HOD</b> (Date, Signature and comment on progress with ATP)</p>
Week 5		<p><b>Biosphere, biomes, ecosystems</b></p> <ul style="list-style-type: none"> <li>- Environment, ecosystems: Definitions of biosphere, biomes, environment ecosystem (No detail about different types of biomes in Southern Africa)</li> <li>- Abiotic factors and biotic factors</li> </ul>	<p><b>Task 14</b></p> <ul style="list-style-type: none"> <li>• Provide the correct term for various phrases/definitions related to Environmental Studies</li> <li>• Locate and provide characteristics of the various biomes in South Africa</li> </ul>	<input type="checkbox"/>  <input type="checkbox"/>	
Week 6		<p><b>Biosphere, biomes, ecosystems</b></p> <ul style="list-style-type: none"> <li>- Abiotic and biotic factors</li> </ul>	<p><b>Task 15</b></p> <ul style="list-style-type: none"> <li>• Interpret data/draw graphs showing the effect of the abiotic factors on living organisms</li> </ul>	<input type="checkbox"/>	
Week 7		<p><b>Biosphere, biomes, ecosystems</b></p> <ul style="list-style-type: none"> <li>- Energy flow: Energy flow through ecosystems</li> </ul>	<p><b>Task 16</b></p> <ul style="list-style-type: none"> <li>• Interpret data based on food chains, food pyramids, food webs and energy flow</li> </ul>	<input type="checkbox"/>	
Week 8		<p><b>Biosphere, biomes, ecosystems</b></p> <ul style="list-style-type: none"> <li>- Nutrient cycles: Water, oxygen, carbon and nitrogen cycles</li> </ul>	<p><b>Task 17</b></p> <ul style="list-style-type: none"> <li>• Describe how water, oxygen, carbon and nitrogen is cycled through an ecosystem</li> <li>• Interpret flow diagrams based on the water, oxygen, carbon and nitrogen cycles</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	

## Life Sciences - Grade 10 – CAPS (2020)

### Annual Teaching Plan - TERM FOUR (8 weeks + 3 weeks for exams)

Planned date (week ending)	Completion date (Actual date)	TOPIC FOR THE WEEK	INFORMAL ASSESSMENT Classwork/Homework	TICK	FORMAL ASSESSMENT - SBA
Week 1		<b>Biosphere, biomes, ecosystems</b> - Ecotourism	<b>Task 17</b> • Describe the advantages and disadvantages of ecotourism	<input type="checkbox"/>	<b>Final Examination</b> Paper 1 + Paper 2 Duration: 2½ hours for each paper 150 marks for each paper  <b>Monitoring by HOD</b> (Date, Signature and comment on progress with ATP)
Week 2		<b>Biodiversity and Classification</b> <b>Classification schemes a way of organizing biodiversity</b> Brief history of classification: scientist attempt to classify organisms based on shared features. As information increases classification changes.	<b>Task 18</b> • Explain the need for classification and describe the classification system used today • List distinguishing characteristics of each of the five kingdoms • Use biological keys to identify various organisms	<input type="checkbox"/>	
Week 3				<input type="checkbox"/>	
Week 4		- One of the currently accepted classification systems is the Five-kingdom system; Animalia, Plantae, Fungi, Protista and Monera (Bacteria) - Naming things in science: species concept and binomial system. - Linnaeus (Carl von Linne) and his role in classification systems: - Why do we use Latin? - Differences between prokaryotes and eukaryotes - Main groupings of living organisms are bacteria, protists, fungi, plants and animals. - Diagnostic features of each of the following: Bacteria, Protists Fungi, Plants and Animals		<input type="checkbox"/>	
Week 5		<b>Life's history, Geological time, Cambrian explosion</b> - Different representations of the history of life on earth. The relationship to changes in climate and geological events ; bivalves and ammonites on the Makhatini flats in northern KZN, whale fossils in the Sahara, trilobites in the Karoo. - The three eras: Paleozoic, Mesozoic and Cenozoic.	<b>Task 19</b> • Provide the correct term for various phrases/definitions related to Diversity, Change and Continuity • Describe factors that have led to changes in life forms that have existed over millions of years • Interpret various forms of the geological time scale and representations of the history of life on Earth	<input type="checkbox"/> <input type="checkbox"/>	



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Week 6		<b>Life's history, Geological time, Cambrian explosion</b> - Geological timescale - Cambrian explosion - Mass extinctions - Fossil formation and methods of dating	<b>Task 20</b> <ul style="list-style-type: none"> <li>Describe the mass extinctions that took place 65m and 250m years ago</li> <li>Describe the link between dinosaurs and birds (Archaeopteryx)</li> <li>Describe the link between fish and amphibians (Coelacanth)</li> </ul> <b>Task 21</b> <ul style="list-style-type: none"> <li>Describe how a fossil is formed and ways in which it's age is determined</li> <li>Describe the impact of humans on biodiversity and the environment</li> <li>Construct a timeline showing history of life, research missing link between dinosaurs and birds, hypotheses of extinctions</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Week 7		Revision			
Week 8		Revision			
Week 9		Exams			
Week 10		Exams			
Week 11		Exams			

**REVISED PROGRAM OF ASSESSMENT – 2020****LIFE SCIENCES - Grade 10**

<b>TERM</b>	<b>Task number</b>	<b>Type of Task</b>	<b>Topic/s tested</b>	<b>Maximum marks</b>	<b>Planned Date</b>	<b>Actual Date</b>
<b>1</b>	1	Practical				
	2	March Controlled Test				
<b>2</b>	3	Test				
<b>3</b>	4	Practical				
	5	Test				

<b>MONITORING BY HOD</b>	<b>TERM 1</b>	<b>TERM 2</b>	<b>TERM 3</b>
<b>Comments</b>			
<b>Date</b>			
<b>Signature</b>			

### Revised Composition of SBA components for Grade 10 – 2020

<b>TERM</b>	<b>Task</b>	<b>Weighting (% of SBA)</b>	<b>% of Reporting mark per term</b>	<b>% of Promotion Mark</b>
1	Practical Minimum 30 marks	20	25	25
	Control Test 60 marks Duration: 1 hr	20	75	
2	Test 60 marks Duration: 1 hr	20	100	
3	Practical 30 marks	20	25	
	Test 60 marks Duration: 1 hr	20	75	
	<b>Total</b>	<b>100</b>		
4	Final Examination P1 (150 marks) 2 ½ hrs & P2 (150 marks) 2 ½ hrs	<b>300</b>		75

**REVISED SCOPE OF COMMON TESTS – Grade 10: 2020****TERM 1**

<b>MARCH TEST</b>	
<b>GRADE</b>	<b>10 Life Sciences</b>
<b>PAPER</b>	<b>ONE PAPER ONLY</b>
<b>DURATION OF THE PAPER</b>	<b>1 HOUR</b>
<b>TOTAL MARKS</b>	<b>60</b>
<b>NUMBER OF QUESTIONS</b>	<b>3</b>
<b>QUESTION PAPER FORMAT</b>	SECTION A: Objective Questions: [20 marks] SECTION B: Short Questions: 20 + 20 = [40 marks]
<b>EXPECTED WORK COVERAGE/TOPICS</b>	
1. Organic and inorganic compounds	
2. Microscope	
3. Cell structure	
4. Cell division	

**TERM 2**

<b>JUNE TEST</b>	
<b>GRADE</b>	<b>10 Life Sciences</b>
<b>PAPER</b>	<b>ONE PAPER ONLY</b>
<b>DURATION OF THE PAPER</b>	<b>1 HOUR</b>
<b>TOTAL MARKS</b>	<b>60</b>
<b>NUMBER OF QUESTIONS</b>	<b>3</b>
<b>QUESTION PAPER FORMAT</b>	SECTION A: Objective Questions: [20 marks] SECTION B: Short Questions: 20 + 20 = [40 marks]
<b>EXPECTED WORK COVERAGE/TOPIC</b>	
1. Plant Tissues	
2. Plant Organs	
3. Support and Transport Systems in Plants	

**TERM 3**

<b>TEST</b>	
<b>GRADE</b>	<b>10 Life Sciences</b>
<b>PAPER</b>	<b>ONE PAPER ONLY</b>
<b>DURATION OF THE PAPER</b>	<b>1 HOUR</b>
<b>TOTAL MARKS</b>	<b>60</b>
<b>NUMBER OF QUESTIONS</b>	<b>3</b>
<b>QUESTION PAPER FORMAT</b>	SECTION A: Objective Questions: [20 marks] SECTION B: Short Questions: 20 + 20 = [40 marks]
<b>EXPECTED WORK COVERAGE/TOPICS</b>	
1. Support System in Animals	
2. Transport Systems in Mammals	

**CONTENT TRIM - GRADE 10**

<b>Term</b>	<b>Topic /Subtopic</b>	<b>Content trimmed</b>
1	The Chemistry of life	- Omit the need for fertilisers in over-utilised soils, eutrophication
	Cell division (mitosis)	- Omit cancer
2	Animal tissues	- Omit application of IKS and biotechnology, medical biotechnology, cloning and stem cell research
	Leaf Structure	- Teach with transpiration
	Support and transport systems in plants	- Omit secondary growth, wilting and guttation
3	Support in Mammals	- Omit voluntary skeletal muscles (structure) .Only cover briefly the structure of voluntary skeletal muscles, tendons and bones in bringing about movement  - No need for actual mode of contraction and relaxation of muscles  - Omit diseases that affect the skeleton but this can be addressed in application and synthesis style questions on higher order
	Transport systems in mammals	- Omit mechanisms for controlling cardiac cycle and heart rate (pulse). - Omit lymph - Omit diseases of heart and circulatory system but this can be addressed in application and synthesis style questions on higher order
	Biosphere to Ecosystems	- Omit details on different biomes in Southern Africa
4	History of Life on Earth	- Omit fossil tourism - Omit key events in life's history

## REVISED FINAL EXAMINATION STRUCTURE

- Paper 1 and Paper 2
- 150 marks each paper
- 2½ hours each paper

### Format of a Grade 10 Examination Paper

Sections	Type of questions	Marks
A	A variety of short answer questions, objective questions for example MCQ, terminology, columns/statement and items, data-response	50
B	A variety of question types. TWO questions of 50 marks each divided into 2 – 4 subsections	2 x 50

### Topic Weightings

PAPER 1	MARKS	PAPER 2	MARKS
Term1: Chemistry of Life	33	Term 3: Transport systems in mammals	32
Term 1: Cells: Basic units of life	19	Term 3: Biosphere to ecosystems	54
Term 1: Cell division (mitosis)	19	Term 4: Biodiversity and classification	21
Term 1 and 2: Plant and Animal Tissues	28	Term 4: History of life on earth	43
Term 2: Plant organs	9		
Term 2: Support and transport systems: plants	23		
Term 2: Support systems: animals	19		
<b>Total</b>	<b>150</b>		<b>150</b>

### Cognitive Level Weightings

A	B	C	D
Knowing Science	Understanding Science	Applying scientific knowledge	Evaluating, analysing and synthesising scientific knowledge
40%	25%	20%	15%

### Degrees of Difficulty Weightings

Easy	Moderate	Difficult	Very difficult
30%	40%	25%	5%