

Annual Teaching Plan 2026: Life Sciences: Grade 10

TERM 1: 14 January to 27 March 2026

TERM 1 (53 Days)	WEEK 1 14-16Jan (3)	WEEK 2 19-23 Jan (5)	WEEK 3 26-30 Jan (5)	WEEK 4 02-06 Feb (5)	WEEK 5 09-13 Feb (5)	WEEK 6 16-20 Feb (5)	WEEK 7 23-27 Feb (5)	WEEK 8 02-06 March (5)	WEEK 9 09-13 March (5)	WEEK 10 16-20 March (4)	WEEK 11 23-27 March (5)
CAPS TOPICS	ORIENTATION TO LIFE SCIENCES		THE CHEMISTRY OF LIFE (CAPS P. 23)			CELLS: BASIC UNIT OF LIFE (CAPS P. 25)		CELL DIVISION: MITOSIS (CAPS P. 26)		PLANT TISSUES (CAPS P. 26)	PLANT ORGANS (CAPS P. 28)
CORE CONCEPTS, SKILLS AND VALUES	<p>How science works based on knowledge and scientific skills, careers and subject combinations</p> <ul style="list-style-type: none"> Graphs Calculations Percentage Percentage increase/decrease Average 	<p>Scientific method Planning steps, identification of variables, ensuring validity and reliability</p> <p>Brief overview of the history of microscopy:</p> <ul style="list-style-type: none"> Light Electron microscope Scientific diagrams Calculations Actual size Magnification 	<p>Molecules for Life Organic molecules made up of C, H, O, and some contain N and P</p> <p>Cells are made up of proteins, carbohydrates, lipids, nucleic acids and vitamins (only basic structural details required)</p> <p>Inorganic Compounds</p> <p>Water: 2 H and 1 O Minerals: e.g., Na, K, Ca, P, Fe, I, nitrates, phosphates, macro and micro elements: Main functions and deficiency diseases</p>	<p>Organic Compounds</p> <p>Carbohydrates</p> <p>Monosaccharide's (single sugars) glucose and fructose</p> <p>Disaccharides (double sugars) sucrose + maltose</p> <p>Polysaccharides (many sugars) starch, cellulose and glycogen</p> <p>Lipids (Fats and oils) 1 glycerol and 3 fatty acids: Unsaturated and saturated fats, cholesterol in foods, and heart disease</p>	<p>Organic Compounds</p> <p>Proteins: Amino acids (C, H, O and N and some have P, Se, Fe) – are sensitive to temperature and pH:</p> <ul style="list-style-type: none"> Loss of structure and function The role of enzymes in breaking down/ synthesizing molecules <p>The influence of temperature and pH on enzyme action</p> <ul style="list-style-type: none"> The lock- and- keymodel of how enzymes work Enzymes in everyday life (for instance using washing powders): <p>Nucleic acids: DNA and RNA consisting of C, H, O, N and P (No detail of structure required) Vitamins: A, one of the B vitamins, C, D and E</p>	<p>Cell structure</p> <p>Molecular make- up: Cells are mostly made of proteins, carbohydrates, lipids, nucleic acids and water</p> <p>Cell structure and function: Roles of organelles</p> <p>Cell wall – support structure in plant cells only</p> <p>Cell membrane boundaries and transport: Movement across membranes: Diffusion, osmosis and active transport</p> <p>Nucleus, chromatin material, nuclear membrane, nuclear pores, nucleolus: the control centre, heredity</p> <p>Differences between prokaryotes and eukaryotes</p>	<p>Cell structure and function: Roles of organelles</p> <p>Mitochondria – release of energy during cell respiration</p> <p>Ribosomes – protein synthesis</p> <p>Endoplasmic reticulum (rough and smooth) - transport systems</p> <p>Golgi body – assemble secretions</p> <p>Plastids – production and storage of food, pigments</p> <p>Vacuole, lysosomes, vesicles – storage, digestion, osmoregulation</p> <p>Relate structure and location of organelles to their functions</p> <p>Cells differ in size, shape and structure in order to carry out specialised functions [link to tissues]</p> <p>Differences between plant and animal cells</p>	<p>Chromosomes In nuclei of all cells, two chromatids, centromere</p> <p>Cell division mitosis</p> <p>The cell cycle including mitosis: Interphase, mitosis (with names of phases), cytokinesis and growth</p> <p>Role of mitosis: Growth and repair. Reproduction in some simple organisms</p> <p>The continuous process of mitosis: The division of a cell to form two identical cells (<i>Simple description with diagrams to show chromosome changes so that one parent cell forms two identical daughter cells</i>)</p> <p>Difference in telophase between plant and animal cells</p>	<p>Cancer: (Only a brief description required)</p> <ul style="list-style-type: none"> Uncontrolled cell division and growth Causes of cancer Treatments of cancer Medical biotechnology e.g., radiotherapy, chemotherapy (no detail required) 	<p>Introduce concept of a tissue as a group of similar cells adapted for a particular function: Cell differentiation Plant tissues</p> <p>Emphasis on the relationship between basic structure and function</p> <p>Differentiate between meristematic and permanent tissue</p> <p>Permanent tissue: Epidermis (root hair, guard cells), parenchyma, collenchyma, sclerenchyma, vascular tissue: Xylem & phloem</p>	<p>Anatomy of dicotyledonous plants: Root and stem: Distribution of different tissues</p> <p>Structure of cells in different tissues (link to plant tissues)</p> <p>Organs consist of a number of tissues e.g., leaf structure</p> <p>Leaf structure: Cross section of a dicotyledonous leaf to demonstrate and explain its structure in terms of its functions i.e., photosynthesis, gas exchange and transport</p> <p>Link with plant tissues, appropriate cell organelles, movement across membranes and movement of molecules into, through and out of the leaf</p>

TERM 3 (46 day)	WEEK 1 21-24 July (4)	WEEK 2 27-32 July (5)	WEEK 3 03-07 Aug (5)	WEEK 4 11-14 Aug (4)	WEEK 5 17-21 Aug (5)	WEEK 6 24-28 Aug (5)	WEEK 7 31 Aug -04 Sept (5)	WEEK 8 07-11 Sept (4)	WEEK 9-10 14-23 Sept (8)
CAPS TOPICS									
HISTORY OF LIFE ON EARTH (CAPS P 36)									
BIOSPHERE TO ECOSYSTEMS (CAPS P 33)									
BIODIVERSITY AND CLASSIFICATION (CAPS P 35)									
CORE CONCEPTS, SKILLS AND VALUES	<p>Life's history: Change throughout the history of life on earth</p> <p>Different representations of the history of life on earth</p> <p>The relationship to changes in the composition of the atmosphere (e.g., increases in the levels of oxygen)</p> <p>Changes in the climate (e.g., Ice ages)</p> <p>Geological events (e.g., movements of continents) and their effect on the distribution of living organisms (biogeography)</p>	<p>Geological timescale: Meaning and use of timescales (<i>details not to be memorised</i>)</p> <p>The three eras: Palaeozoic, Mesozoic and Coenozoic Each era divided into periods (<i>names of periods not to be memorised</i>)</p> <p>Cambrian explosion: Origins of early forms of all animal groups</p> <p>Life-forms have gradually changed to become present life-forms</p> <p>In the last four million years significant changes have occurred in species occurring in Africa (e.g., humans)</p>	<p>Mass extinctions: There have been five, two of which are particularly important: 250 MYA (resulted in the extinction of about 90% of all life on earth) and 65 MYA (resulted in the extinction of many species, including the dinosaurs)</p> <p>The rate of extinction on the earth at present is higher than at any time in the past</p> <p>The present time has been called the sixth extinction</p> <p>Fossil formation and methods of dating, e.g., radiometric dating and relative dating</p>	<p>Biosphere Concept of the biosphere</p> <p>Inter-connectedness with and components of global ecosystem: Hydrosphere, lithosphere, atmosphere</p> <p>Biomes</p> <p>Terrestrial and aquatic biomes of southern Africa and give a general description of how climate, soil and vegetation influence the organisms found in the biomes</p> <p>Location of the different biomes in South Africa</p> <p>Environment Concept of environment to show human activities in and interactions with the natural environment</p> <p>Abiotic and biotic factors: Effects on the community</p> <p>Ecosystems</p> <p>The concept of ecosystem, structure and ecosystem functioning</p>	<p>Abiotic factors</p> <ul style="list-style-type: none"> • Physiographic factors (aspect, slope, altitude) • Soil (pH, humus content, texture, water retention capacity and air content) • Light (day length and seasonal changes) • Temperature (effect of day/night and seasons) • Water (water cycle and the importance of wetlands) • Atmospheric gases • Wind <p>Biotic factors</p> <ul style="list-style-type: none"> • Producers • Consumers • Decomposers <p>Energy flow through ecosystems and relationship to trophic structure (food pyramids):</p> <p>Trophic levels: Producers, consumers (herbivores and carnivores and omnivores, decomposers)</p>	<p>Cycles</p> <p>Flow charts of the following cycles:</p> <ul style="list-style-type: none"> • Nutrient • Water • Oxygen • Carbon • Nitrogen cycles <p>(Names, e.g., nitrates are required but no detail of chemistry is necessary)</p>	<p>Classification schemes: a way of organising biodiversity</p> <p>Brief history of classification: Scientists attempt to classify organisms based on shared features</p> <p>As information increases classification changes</p> <p>One of the currently accepted classification systems is the five kingdom system: Animalia, Plantae, Fungi, Protista and Monera (Bacteria)</p> <p>Naming things in science: Species concept and binomial system.</p> <p>Focus on Linnaeus (Carl von Linne) and his role in classification systems: Why do we use Latin? Differences between prokaryotes and eukaryotes (link to cell structure)</p>	<p>Main groupings of living organisms are bacteria, protists, fungi, plants and animals</p> <p>Diagnostic features of each of the following:</p> <ul style="list-style-type: none"> • Bacteria • Protists • Fungi • Plants • Animals 	Consolidation and Revision

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CAPS TOPICS	HISTORY OF LIFE ON EARTH (CAPS P 36)			BIOSPHERE TO ECOSYSTEMS (CAPS P 33)			BIODIVERSITY AND CLASSIFICATION (CAPS P 35)		
EXAMPLES OF INFORMAL/ DAILY ACTIVITIES	<p>Activity Construct a timeline showing the history of life on earth The timeline should show all the key events from the emergence of the earliest life forms to the present day to emphasise the long history of life</p>	<p>Activity Use a geological time scale to test the understanding of the three eras and the periods with emphasis on the Cambrian explosion</p>	<p>Activity Research the “missing link” between dinosaurs and birds (Archaeopteryx) Research the “link” between fish and amphibians (Coelacanth) Present a verbal or written report Activity Various hypotheses have been proposed for the extinction, 65 million years ago, such as the meteorite impact theory and the volcanism (in India) theory Select ONE of these hypotheses and describe the evidence scientists have gathered in support of it (Nature of science) Activity Describe fossil formation and interpretation of data based on methods of dating Activity Examine fossils at a museum or fossil site or look at photographs of fossils Optional: Use plaster of Paris to construct a “fossil”</p>	<p>Activity Draw a mind map to indicate the concept of the biosphere and the components of global ecosystems (spheres) Activity Use a map of Southern Africa to indicate the different terrestrial and aquatic biomes Activity Indicate the climate, soil and vegetation of each of the biomes</p>	<p>Activity Use illustrations of ecosystems to identify abiotic and biotic factors Activity Develop food chains and food webs by giving different examples</p>	<p>Activity Use flow charts to illustrate the 4 nutrient cycles</p>	<p>Activity Principles of classification Grouping everyday objects on the basis of shared similarities: A simple nested hierarchy Classify a selection of familiar organisms into groups based on visible evidence Use keys and identification guides</p>	<p>Activity Tabulate the diagnostic features of the following kingdoms:</p> <ul style="list-style-type: none"> • Bacteri, • Protists • Fungi • Plants • Animals 	
INVESTIGATIONS/ EXPERIMENTS				<p>INVESTIGATION (Fieldwork) Choose ONE ecosystem (close to the school) within a local biome for special study The study must deal with abiotic and biotic factors and the interactions between them, trophic relationships in an ecosystem, record and describe seasonal changes over 2 terms: Either term 1 and 2 or term 3 and 4, biodiversity within the ecosystem using field guides and keys, positive and/or negative human impact/influence on the ecosystem Different groups should investigate different factors Each group must plan, collect, record and present, analyse and evaluate data</p>					
INFORMAL TESTS			<p>Topic Test 11 06 August History of Life on Earth</p>			<p>Topic Test 12 27 August Biospheres to Ecosystems</p>		<p>Topic Test 13 10 September Biodiversity and Classification</p>	
SBA (FORMAL ASSESSMENT)	<p>TASK 5: PRACTICAL TASK: 20 August 2026 (minimum 30 marks) TASK 6: FORMAL TEST: 17 September 2026 (minimum 50 marks)</p>								
DATE COMPLETED + SIGNATURE									

Consolidation and Revision

ANNUAL TEACHING PLANS: LIFE SCIENCES: GRADE 10

TERM 4: 06 October to 09 December 2026

TERM 4 (47 days)	WEEK 1 06-09 Oct (5)	WEEK 2 12-16 Oct (5)	WEEK 3 19-23 Oct (5)	WEEK 4 26-30 Oct (5)	WEEK 5-10 02 Nov – 09 Dec (28)		
CAPS TOPICS							
CORE CONCEPTS, SKILLS AND VALUES	Consolidation and Revision		Revision paper 1 and 2		<p>FINAL EXAMINATION (Two papers)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <p>PAPER 1 Marks: 150 Time: 2½ hours <i>Learners must answer all 3 questions</i> Topics and marks <i>Chemistry of life – 33</i> <i>Cells: Basic units of life- 19</i> <i>Cell division (mitosis) – 19</i> <i>Plant and animal tissues – 28</i> <i>Plant organs – 9</i> <i>Support and transport systems: Plants – 23</i> <i>Support systems: Animals – 19</i></p> </td> <td style="width: 50%; padding: 5px;"> <p>PAPER 2 Marks: 150 Time: 2½ hours <i>Learners must answer all 3 questions</i> Topics and marks: <i>Transport systems in mammals – 32</i> <i>Biosphere to ecosystems – 54</i> <i>Biodiversity and classification – 21</i> <i>History of life on earth – 43</i></p> </td> </tr> </table>	<p>PAPER 1 Marks: 150 Time: 2½ hours <i>Learners must answer all 3 questions</i> Topics and marks <i>Chemistry of life – 33</i> <i>Cells: Basic units of life- 19</i> <i>Cell division (mitosis) – 19</i> <i>Plant and animal tissues – 28</i> <i>Plant organs – 9</i> <i>Support and transport systems: Plants – 23</i> <i>Support systems: Animals – 19</i></p>	<p>PAPER 2 Marks: 150 Time: 2½ hours <i>Learners must answer all 3 questions</i> Topics and marks: <i>Transport systems in mammals – 32</i> <i>Biosphere to ecosystems – 54</i> <i>Biodiversity and classification – 21</i> <i>History of life on earth – 43</i></p>
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<p>Cognitive levels Knowing science – 40%; Understanding science – 25%; Applying scientific knowledge – 20%; Evaluating, analysing and synthesising science knowledge –15%</p> <p>Degrees of difficulty for examination and test questions: Easy – 30% Moderate – 40% Difficult – 25% Very difficult – 5%</p>							
SBA (FORMAL ASSESSMENT)	SBA:40%				End-of-year examination:60%		
DATE COMPLETED + SIGNATURE							