

2021 Annual Teaching Plan
Natural Sciences and Technology
Grade 5

Life and Living

Term 1 45 days	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
CAPS Topic	Plants and animals on Earth (2 ½ weeks)		Animal skeletons (1½ weeks)		Skeletons as structures (2 ½ weeks)		Food chains (1½ weeks)	Life Cycles (2 weeks)		
Core Concepts, Skills and Values	<ul style="list-style-type: none"> Many different plants and animals Inter-dependence Animal types 		<ul style="list-style-type: none"> Skeletons of vertebrates Movement 		<ul style="list-style-type: none"> Frame and shell structures 		<ul style="list-style-type: none"> Food and feeding 	<ul style="list-style-type: none"> Growth and development 		
Requisite pre-knowledge	<ul style="list-style-type: none"> Grade 4: Life processes; Structure of plants and animals; Habitats of plants and animals; Matter and Materials 									
Resources (other than textbook) to enhance learning	<ul style="list-style-type: none"> Pictures of plants and animals 		<ul style="list-style-type: none"> Pictures and examples of animal skeletons / bones 		<ul style="list-style-type: none"> Paper, drinking straws, wooden dowels or sticks (30cm X 10mm), sticky tape, metal paper fasteners 		<ul style="list-style-type: none"> Pictures of various plants and animals 		<ul style="list-style-type: none"> Pictures of different stages in the development of various plants and animals 	
Informal Assessment	<ul style="list-style-type: none"> Identify different habitats in South Africa and some of the plants and animals that we find there. Describe and compare animals without bones with animals with bones. Describe interdependence between living and non-living things. Identify the interdependence between the animals and/or plants and the non-living things in their environment. Identifying common characteristics of invertebrates and vertebrates animals 		<ul style="list-style-type: none"> Identify the different types of skeletons. Use pictures of animals to identifying five groups of vertebrates and their common characteristics. Identify and describe different bones in a vertebrate skeleton and state the functions of each bone. Label the diagram of the human skeleton. Describe how different vertebrate animals move including humans. Design, draw, make and evaluate a skeleton. Write a paragraph about the skeleton that you built to address what worked and what did not work. Your skeleton should have the following specifications: - It must be 3-dimensional; It must look realistic; It must have/show the basic parts, i.e. skull, backbone, ribs; It must be strong and rigid and so it can stand on its own. 				<ul style="list-style-type: none"> Describe how each living thing gets food and how energy is passed from one organism to the next. Sequence plants and animals to make up a proper food chain in which the energy is transferred from one organism to the next with up to four organisms each, describing their relationships. Classify the animals according to their feeding relationships (as herbivores, omnivores, carnivores, scavengers or decomposers) Explain the 4 stages in the life cycle of a flowering plant. Describe the different stages in the life cycle of an animal. 			
SBA (Formal Assessment)	<ul style="list-style-type: none"> Practical task / Investigation Test 									

Matter and Materials

Term 2 51 days	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
CAPS Topic	Materials around us (3 weeks)			Metals and non-metals (2 weeks)		Uses of Metals (2½ weeks)		Processing materials (2 ½ weeks)		Processed materials (1 week)
Core Concepts, Skills and Values	<ul style="list-style-type: none"> Solids, liquids and gases Change of State Water Cycle 			<ul style="list-style-type: none"> Properties of metals Properties of non-metals 		<ul style="list-style-type: none"> Other properties of metals Uses of metals 		<ul style="list-style-type: none"> Combining materials 		<ul style="list-style-type: none"> Properties and uses
Requisite pre-knowledge				<ul style="list-style-type: none"> Grade 4: Materials around us; Solid Materials 						
Resources (other than textbook) to enhance learning	<ul style="list-style-type: none"> Examples of materials and substances including wood, stone, plastic, fabric, water, juice, tea, air, cooking oil, cooking gas Examples of different substances such as ice, butter, wax, ice cream, chocolate Video clips from internet 			<ul style="list-style-type: none"> Examples of metal objects such as copper wire, coins, nails, cooking pots, knives and forks Examples of non-metal objects such as a piece of chalk, a pile of sand, a piece of coal 		<ul style="list-style-type: none"> Magnets and objects such as coins, iron filings, nails, drawing pins, paper clips, wire 		<ul style="list-style-type: none"> Materials and substances such as: plaster of Paris(or Polyfilla), sand, gravel, cement, flour, ingredients to make dough, jelly powder, wet clay and straw 		<ul style="list-style-type: none"> Clay Pictures and examples of objects made by weaving plant material
Informal Assessment	<ul style="list-style-type: none"> Investigate and write down the properties of solids, liquids and gases. Compare the properties of solids, liquids and gases Describe and draw the stages of the water cycle. Make a model of a water cycle 			<ul style="list-style-type: none"> Investigate, compare and record the properties of some metal objects (such as copper wire, coins, nails, cooking pots, knives and forks) and some non-metal objects (such as a piece of chalk, a stone, a pile of sand, a piece of coal). Investigate ways to make old and dull metal objects shiny again. Investigate how rust occurs Research and writing about the property and uses of metals from home environment. 		<ul style="list-style-type: none"> Investigate reasons why we process materials Describe with examples the properties of processed materials Explain with examples the purpose processing materials Explain the difference between raw materials, natural materials and processed materials. Research the traditional processing methods that humans have been using to give materials more desirable properties. 				
SBA (Formal Assessment)	<ul style="list-style-type: none"> Practical task / Investigation Test 									

Energy and Change

Term 3 52 days	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
CAPS Topic	Energy and Energy transfer (2 weeks)		Energy Around us (1 week)	Stored energy in fuels (3 weeks)			Energy and electricity (3 weeks)			Energy and movement (1 week)
Core Concepts, Skills and Values	<ul style="list-style-type: none"> Energy for life Energy from the Sun 		<ul style="list-style-type: none"> Energy Input and output energy 	<ul style="list-style-type: none"> Fuels Burning fuels Safety with fire 			<ul style="list-style-type: none"> Cells and batteries Mains electricity Safety with electricity 			<ul style="list-style-type: none"> Elastic and springs
Requisite pre-knowledge	Grade 4: Energy and Energy Transfer; Energy around us						Grade 4: Movement and Energy in a System			
Resources (other than textbook) to enhance learning	<ul style="list-style-type: none"> Pictures and examples of a selection of machines and appliances including a kettle, stove, torch, radio, iron, fan/hair dryer, car/bicycle, drum 		<ul style="list-style-type: none"> Pictures and examples of a selection of machines and appliances including a kettle, stove, torch, radio, iron, fan/hair dryer, car/bicycle, drum 	<ul style="list-style-type: none"> Examples of substances including wood, coal, candle (wax), paraffin, peanut, a biscuit. Candles and different sized glass containers 			Cells (batteries), lengths of wire, light bulbs			<ul style="list-style-type: none"> Elastic bands and compressed springs, a catapult, elastic powered aeroplanes, 'jack-in-a-box'
Informal Assessment	<ul style="list-style-type: none"> Describe the transfer of energy from the Sun. Identify activities that people and animals do that require energy. Draw and explain how animals get energy for life processes from the Sun 		<ul style="list-style-type: none"> Investigate the input and output energy of appliances, e.g. a kettle, stove, torch, radio, iron, fan/hair dryer, car/bicycle, drum, etc. 	<ul style="list-style-type: none"> Compare energy from various packaging for foods collected from home. Investigate fuels that can be used to give forms of useful energy. Investigate how much energy can we get from different fuels such as a peanut, piece of wood, candle wax or piece of biscuit? Investigate how long a candle will burn for when given different amounts of oxygen. Research and present the dangers of fires within our communities with focus on causes and prevention. 			<ul style="list-style-type: none"> Investigate the source of electricity in a torch. Compare the differences between batteries and cells. Explore and explain various ways of making a complete simple circuit. Draw simple circuit diagrams with correct symbols and labels. Use diagrams to trace and explain how the electricity comes from the power station to our homes/schools, including power station, pylons, substation, electricity boxes, wall sockets, plugs and appliances such as the TV, a kettle, stove, torch, radio, iron, fan/hair dryer and computer, etc. Use pictures and illustrations to explain the safety tips for using electricity. 			<ul style="list-style-type: none"> Explain how stored energy can be changed into movement energy using elastic bands, compressed metal spring, etc. Investigate various ways how stored energy can be changed into movement energy using elastic bands, compressed metal spring, etc.
SBA (Formal Assessment)	<ul style="list-style-type: none"> Practical task / Investigation Test 									

Planet Earth and Beyond

Term 4 47 days	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
CAPS Topic	The Sun (1 week)	The Moon (1 week)	Planet Earth (2 weeks)		Surface of the Earth (2 weeks)		Sedimentary rocks (1 week)	Fossils (1 week)
Core Concepts, Skills and Values	<ul style="list-style-type: none"> Our closest star 	<ul style="list-style-type: none"> Features of the Moon Phases of the Moon Moon stories 	<ul style="list-style-type: none"> Features of the Earth (Grade 4) Earth and Space (Grade 4) The Earth Moves 		<ul style="list-style-type: none"> Rocks Soil comes from rocks Soil types 		<ul style="list-style-type: none"> Formation of sedimentary rock Uses of sedimentary rock 	<ul style="list-style-type: none"> Fossils in rock Body and trace fossils Importance of South African fossils
Requisite pre-knowledge	Learners' experiences from their own general observation of the Sun and the Moon				Learners' experiences of soil and rocks			
Resources (other than textbook) to enhance learning	<ul style="list-style-type: none"> Pictures of Earth showing its main features Pictures of the Moon, Sun and planets Models of the Earth, Moon and the Sun Video clips 	<ul style="list-style-type: none"> Calendar for recording phases of the Moon Cultural stories about the Moon Video clips 	<ul style="list-style-type: none"> Pictures of Earth showing its main features Pictures of the Moon, Sun and planets Models of the Earth, Moon and the Sun Video clips Pictures and models of Earth, Moon, Sun and planets. Light source such as torch, lamp, or candle Samples of different types of soil Measuring cylinders, funnels and filter paper, beakers Seeds and rulers to measure length 		<ul style="list-style-type: none"> sandy soil clayey soil loamy soil stones dry plant material 		<ul style="list-style-type: none"> Pictures and or samples of sedimentary rocks such as limestone and sandstone 	<ul style="list-style-type: none"> Pictures and or samples of sedimentary rocks Play dough, clay, plaster of Paris, variety of parts of plants and animals Pictures of fossils Information texts about South African fossils
Informal Assessment	<ul style="list-style-type: none"> identify and describe the main features of the Earth describe the main features of the Sun and the Moon explain how Earth moves around the Sun recognise that the phases of the Moon are a result of the changing pattern of sunlight that we can see on the Moon make a model of a balloon rocket, and test it record and compare the distances travelled by different balloon rockets evaluate balloon rockets demonstrate the Earth's movement in its orbit around the Sun describe the Earth's movement on its own axis identify the main elements (soil, air, water, sunlight) that support life on Earth identify and describe different soil types correctly explain the formation of sedimentary rock distinguish between body and trace fossils explain aspects of South Africa's fossil record 							
SBA (Formal Assessment)	<ul style="list-style-type: none"> Test 							

Major Process and Design Skills

The teaching and learning of Natural Sciences and Technology involves the development of a range of process and design skills that may be used in everyday life, in the community and in the workplace. Learners also develop the ability to think objectively and use a variety of forms of reasoning while they use these skills. Learners can gain these skills in an environment that taps into their curiosity about the world, and that supports creativity, responsibility and growing confidence.

The following are the cognitive and practical process and design skills that learners will be able to develop in Natural Sciences and Technology

1. *Accessing and recalling information* – being able to use a variety of sources to acquire information, and to remember relevant facts and key ideas, and to build a conceptual framework
2. *Observing* – noting in detail objects, organisms and events
3. *Comparing* – noting similarities and differences between things
4. *Measuring* – using measuring instruments such as rulers, thermometers, clocks and syringes (for volume)
5. *Sorting and classifying* – applying criteria in order to sort items into a table, mind-map, key, list or other format
6. *Identifying problems and issues* – being able to articulate the needs and wants of people in society STATEMENT (CAPS)
7. *Raising questions* – being able to think of, and articulate relevant questions about problems, issues, and natural phenomena
8. *Predicting* – stating, before an investigation, what you think the results will be for that particular investigation
9. *Hypothesizing* – putting forward a suggestion or possible explanation to account for certain facts. A hypothesis is used as a basis for further investigation which will prove or disprove the hypothesis
10. *Planning investigations* – thinking through the method for an activity or investigation in advance. Identifying the need to make an investigation a fair test by keeping some things (variables) the same whilst other things will vary
11. *Doing investigations* – this involves carrying out methods using appropriate apparatus and equipment, and collecting data by observing and comparing, measuring and estimating, sequencing, or sorting and classifying. Sometimes an investigation has to be repeated to verify the results.
12. *Recording information* – recording data from an investigation in a systematic way, including drawings, descriptions, tables and graphs
13. *Interpreting information* – explaining what the results of an activity or investigation mean (this includes reading skills)
14. *Designing* – showing (e.g. by drawing) how something is to be made taking into account the design brief, specifications and constraints
15. *Making/constructing* – building or assembling an object using appropriate materials and tools and using skills such as measuring, cutting, folding, rolling, gluing
16. *Evaluating and Improving products* – using criteria to assess a constructed object and then stating or carrying out ways to refine that object
17. *Communicating* – using written, oral, visual, graphic and other forms of communication to make information available to other people