2026 Annual Teaching Plan
Natural Sciences: Grade 7

basic education
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Basic Education
REPUBLIC OF SOUTH AFRICA

Life and Living

Duration	CAPS Topics	Core Concepts, Skills and Values	Resources to Enhance Learning	Informal Assessment
1 week	**The Biosphere**	**The concept of the biosphere** • the biosphere is where life exists and includes the lithosphere (soil and rocks), hydrosphere (water), and atmosphere (gases) • it also includes all living organisms, and dead organic matter • there are many different kinds of living things including plants, animals, microorganisms • all living things can carry out all the seven life processes: nutrition (feeding), growth, reproduction, respiration (energy production), excretion, sensitivity (to the environment), movement **Requirements for sustaining life** • living things need energy, gases, water, soil and favourable temperatures • living things are suited (adapted) to the environment in which they live, such as fish have fins to move easily through water	• Reference materials • Pictures and/or video clips of Earth and its biosphere • Seeds, soil and containers to grow seeds, rulers or measuring tapes	• Describe the components of Earth's biospheres and identify living organisms found in each sphere • Investigate conditions required to sustain life such as light and water for the growth of seedlings • Germinate seeds and grow the seedlings under different conditions. Observe, draw and record the stages in the life cycle by measuring the height of the plant as it grows and record observations in diagrams, tables and graphs
3½ weeks	**Biodiversity**	**Classification of living things** • plants, animals and microorganisms, and their habitats make up the total biodiversity of the Earth • living organisms are sorted and classified according to their shared characteristics • scientists have grouped the organisms into a classification system • the five main groups (called Kingdoms) of living organisms include Bacteria, Protista, Fungi, Plants and Animals • basic differences in processes such as movement, nutrition and reproduction, distinguishes plants from animals • Kingdoms are further subdivided into Phyla/Divisions, then Classes, then Families, then Orders, then Genera, and the smallest group is Species **Diversity of animals** • animals are classified as either vertebrates (animals with backbones) or invertebrates (animals without backbones) • vertebrates are subdivided into five classes on the basis of distinguishing characteristics: - Fish - Amphibians - Reptiles - Birds - Mammals • invertebrates are subdivided into the Phyla Arthropoda and Mollusca, on the basis of distinguishing characteristics • arthropods have a hard outer covering (exoskeleton) and jointed legs, such as Insects (locust), Arachnids (spider), Crustaceans (crab) • Molluscs are soft bodied animals such as snails *[**Note**: Classification of all of the invertebrates is not required]* **Diversity of plants** • plants are classified as plants with seeds (such as maize) or plants without seeds (such as ferns) • plants with seeds are Angiosperms (flowering plants) and Gymnosperms (cone bearing plants	• Selection of pictures, photographs or drawings of vertebrates and invertebrates • Reference materials • Selection of plants collected in and around the school property • Magnifying lenses • Live or preserved specimens	• Distinguishing characteristics of the 5 classes of vertebrates • Identify the distinguishing characteristics of the five (5) classes of vertebrates • Identify the distinguishing characteristics of the four (4) groups (classes /phyla) of invertebrates by observing and describing the land snail

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		such as the cycad) • plants can produce their seeds in flowers (Angiosperms) or in cones (Gymnosperms) • Angiosperms consist of two major groups, dicotyledons and monocotyledons. These groups differ with respect to their roots, stems, leaves, flowers, fruits and seeds *[**Note**: Emphasise local and other South African examples]*		
3½ weeks	**Sexual Reproduction**	**Sexual reproduction in Angiosperms** • seeds are produced in flowers, which are the sexual organs of Angiosperms • the components of a flower usually include: - male structures called stamens for producing pollen (containing male sex cells) - female structures called stigma (for receiving pollen), style and ovary (for producing female sex cells) - petals (for attracting pollinators) - sepals (for protecting the flower bud) • pollination and fertilisation are essential processes for flowers to produce seeds • pollination is the transfer of pollen between plants of the same species for the purpose of fertilisation • wind and water can facilitate pollination • pollination can also be aided by pollinators such as insects, birds, mammals • flowers have special adaptations to promote pollination, such as large colourful petals, scent and sweet nectar to attract insects and birds • pollinators play an important role in the production of food crops (such as maize) for humans • fertilisation is the fusion of the male and female sex cells to produce seeds • during fertilization the following happens: each mature pollen grain contains two male sex cells. When the pollen attaches to the stigma of a flower from the same species, the pollen produces a pollen tube, which grows down the neck of the style, transporting the male sex cells to the ovule. Within the embryo sac of the ovule, one male sex cell fertilizes the egg, which develops into a seed. The other male sex cell unites with two cells in the embryo sac and this results in the development of the endosperm, the starchy food that feeds the developing seed. The ovary enlarges and becomes a fruit. • the seeds are contained in fruit • fruits and seeds are dispersed in various ways **Human Reproduction** • the main purpose of reproduction is for the sperm (male sex cell) and egg (female sex cell) to combine, develop and produce a baby • puberty is the stage in the human life cycle when sexual organs mature for reproduction • humans also experience drastic physical and emotional changes during this stage • the male reproductive organs include the penis and the testis (produces sperm cells) • the female reproductive organs include the vagina, uterus, ovaries (contain egg cells/ ova) • fertilisation is a process when the sperm fuses with the egg • the uterus develops a thick layer of blood in preparation for a fertilised egg • if fertilisation does not take place, menstruation occurs. The thick layer of blood breaks down and is released through the vagina • if fertilisation takes place, the fertilised egg is embedded (implanted) in the blood lining of the uterus. This leads to pregnancy.	• A variety of plant specimens • Soil • Containers to grow plants • Seeds (such as beans and maize) • Rulers or measuring tapes	• Identify and describe the observable differences between angiosperms and gymnosperms • Identify and describe the observable differences between monocotyledons and dicotyledons • Identify, draw and describe the components of a flower • Compare the structure of a variety of flowers, how they are adapted to promote pollination and the methods of pollination • Identify different fruits and describe their methods of seed dispersal • Define the terms puberty, menstruation, fertilization, pregnancy and contraception

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		• pregnancy can be prevented by using contraceptives such as condoms to prevent the sperm reaching the egg • condoms also prevent the transmission of HIV/AIDS and other STDs (sexually transmitted diseases), if used effectively *[**Note**: It is important that learners understand that early sexual activity can have serious consequences. Learners need to know enough about this topic to be able to make informed decisions and responsible choices]*		
1 week	**Variation**	**Variations exist within a species** • a species is a category within the classification system. Living things of the same type belong to the same species. For example, humans are one species and dogs are another species • individuals of the same species can reproduce to make more individuals of the same species • all people are human (Homo sapiens) and belong to the same species • differences between living things of the same species is called variation • variation amongst humans can be inherited. Some inherited characteristics are height and tongue-rolling		• collect information (data) about the height of learners in the class and show the results as a bar graph • record information about how many learners are able (or not) to roll their tongues
1 week	**Remediation, revision and consolidation**			
SBA (FORMAL ASSESSMENT)	• Practical task/investigation • Test			

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Matter and materials

Duration	CAPS Topics	Core Concepts, Skills and Values	Resources to Enhance Learning	Informal Assessment
1½ weeks	**Introduction to the Periodic Table of Elements**	**Arrangement of elements on the Periodic Table** • the Periodic Table of Elements is a classification system for the elements which make up matter and materials in the world *[an element is a pure substance which cannot be broken down further]* • the Periodic Table was devised by Dmitri Mendeleev in the 1860s. He arranged the elements according to their properties in a table format • the elements of the Periodic Table are arranged into three main categories; metals, semi-metals and non-metals: - metals are arranged on the left hand side of the table - non-metals are found on the far right hand side of the table - semi-metals are found in the region between metals and nonmetals • each element has its own name, symbol, atomic number and position on the Periodic Table **Some properties of metals, semi-metals and non-metals** • metals are usually shiny, ductile and malleable, solid (except mercury) and have high melting and boiling points • non-metals have a variety of different properties (depending on whether they are solids or gases) • semi-metals are solids and have some properties of metals and some properties of non-metal	• Periodic tables • Three colours of pencils/crayons	• Identify the names and symbols of the first 20 elements of the periodic table [learners need NOT memorise the atomic number of each element] • Identify metals, semi-metals, and non-metals on the periodic table of elements • Discuss the arrangement of elements in the Periodic Table of Elements
2½ weeks	**Properties of Materials**	**Physical properties of materials** • properties of materials determine their suitability for a particular use such as: *(refer to Grade 5 Energy & Change)* - boiling and melting points - electrical conductivity - heat conductivity • the boiling point of a substance is the *temperature* at which the liquid starts boiling (boiling is a rapid change in state from a liquid state to a gas state) • other factors (such as cost, colour and texture) are also taken into account when using materials **Impact on the environment** • the production and/or use of materials such as metals, plastics and fuels has an impact on the environment	• Selection of materials for example: Paper, cardboard, copper wire, wood, rubber, plastic, stone/clay, brick, glass, aluminium foil, wax paper, rope/string • Heat sources • Tripod stands, gauze and glass containers • Thermometers	• Measure the temperature of water as it heats up to boiling point, draw accurate line graphs, understand, and explain the results
3 weeks	**Separating Mixtures**	**Mixtures** • a mixture is made up of two or more substances or materials that have different physical properties. Where the properties differ, the substances can be separated **Methods of physical separation** • the physical properties of the materials in a mixture determine the separating method to be used • some methods used to separate materials include hand sorting (separating sheep wool from thorns), sieving (separating stones from sand), filtration (separating sand from water) *(refer to Grade 6 Matter & Materials)* • additional methods include - using a magnet (separating iron from sand) - evaporation (retrieving salt from sea water) - distillation (retrieving pure water from sea water). Distillation always involves boiling and	• Measuring cylinders, funnels, filter paper, beakers, evaporating dish, salt, food colouring • Sieves • Filter paper • Funnel • Glass or plastic jars • Magnets • Iron or metal filings (or coins) • Sugar/salt • Heat source • Liebig condenser (if available) or test tubes,	• Explain the separation processes correctly and write about how to separate and collect sand, iron filings, salt, ethanol, and water from a mixture • Design and explaining about the best ways to separate and collect all the materials from a mixture • List and explain the following methods of separation: *filtration*, *sieving*, *magnetism*, *evaporation*, *distillation* & *chromatography* • Discuss practical applications of each of the methods of separation in daily life and environmental contexts (e.g. recycling, water purification)

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		condensation *[change from gas to a liquid]* - chromatography (separating different colour pigments from one colour pigment, such as black **Sorting and recycling materials** • it is every person's responsibility to dispose of waste in a proper way • only certain materials are suitable for recycling, such as metals, plastics and glass. Organic waste can be made into compost. Material which cannot be recycled has to be dumped • local authorities have systems for sorting and disposing of waste materials • there are negative consequences associated with poor waste management such as pollution of water, soil and the environment; health hazards and diseases; blockage of sewage and water drainage systems; waste of land used for landfills; wastage of valuable materials which could be recycled	stoppers and glass and rubber tubes • Black ink • Koki colours • Methylated spirits • Containers, beakers, ice cream sticks for stirring, measuring spoons, hot water, salt (coarse and fine)	
2 weeks	**Acids, Bases, and Neutrals**	**Tastes of substances** • the human tongue can sense four different tastes, salty, sweet, sour and bitter *[There is a survival advantage to being able to distinguish these tastes, such as selecting a ripe apple which usually tastes sweet, but discarding an unripe one which tastes sour]* *[**Note**: not all substances are safe to taste]* **Properties of acids, bases and neutrals** • acids and bases are an important group of chemicals • many foods and household chemicals can be classified as acids, bases, or neutrals depending on their properties • acids (such as lemon and other fruit juices, vinegar, tartaric acid, swimming pool acid) have the following properties - taste sour - feel rough on the skin - many are dangerous to taste or feel (are corrosive) • bases (such as bicarbonate of soda, washing powder, most soaps, bleach and household cleaners) have the following properties - taste bitter - feel slippery on the skin - many are dangerous to taste or feel (are corrosive) *[soluble bases are called alkaline/s]* • neutrals (such as pure water, salt solution, sugar solution, cooking oil) are neither acids nor bases **Acid-base indicators** • red and blue litmus paper can be used to test/indicate whether a substance is an acid, a base or a neutral - red litmus paper remains red in an acid and a neutral, but turns blue in a base - blue litmus paper remains blue in a base and a neutral, but turns red in an acid • we always use *both* red and blue litmus to test a substance	• Red litmus paper • Blue litmus paper • Glass containers • Liquids such as: tea, rooibos, coffee, milk, fruit juices, fizzy drinks • Household substances such as: vinegar, tartaric acid, lemon, antacids, shampoo, soap, bicarbonate of soda, liquid soap	• Classify several common beverages/household substances into acids or bases or neutrals using an indicator • Investigate common beverages to determine whether they are acids, bases or neutrals (such as water, tea and rooibos, coffee, milk, fruit juices, fizzy drinks) • Investigate a range of household substances (such vinegar, tartaric acid, aspirin, antacids' shampoo, soap' bicarbonate of soda, salt water, sugar water, liquid soap) to test whether they are acids, bases or neutrals. Record results on a table and draw conclusions
1 week	**Remediation, revision and consolidation**			
SBA (FORMAL ASSESSMENT)	• Practical task/investigation • Test			

Energy and change

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Duration	CAPS Topics	Core Concepts, Skills and Values	Resources to Enhance Learning	Informal Assessment
1 week	**Sources of Energy**	**Renewable and non-renewable sources of energy** • energy is needed to make everything work, move or live • a source of energy has energy stored waiting to be used, or energy that is needed to make something happen - non-renewable sources of energy cannot be replenished once used, such as fossil fuels (coal, oil, natural gas) and nuclear fuels (such as uranium) *[Links to Planet Earth and Beyond Grade 7 term 4]* • renewable sources of energy are continually replenished, such as hydro power, wind, sunlight, biofuel (wood)	• Reference materials • Pictures and reading texts about non-renewable and renewable sources of energy • Rubber bands • Various food packaging with labels showing energy content • Scissors, paper, rulers • Candles, cans • Cells (batteries), conducting wire, motors, torch bulbs, buzzers	• Classify the energy sources as either renewable or non-renewable • Discuss the advantages of using nuclear fuels instead of fossil fuels
2 weeks	**Potential & Kinetic Energy**	**Potential energy** • potential energy is energy that is stored in a system, such as in a stretched rubber band, a weight balanced on the edge of a table, a cell (battery), fuel • there is also potential energy in food [all energy is measured in a unit called the joule (J)]. The energy content in foods is usually labelled on food packaging *[**Note**: definition and calculation of joules is NOT required]* **Kinetic energy** • kinetic energy is the energy that a body has when it is moving, such as when a rubber band snaps back, a weight falls off a table, wind blows, water falls, a vehicle moves, current flows through a circuit (electricity) **Potential and kinetic energy in systems** • potential and kinetic energy are involved in - mechanical systems - thermal (heating) systems - electrical systems - biological systems *[a system is a set of parts working together]* **Law of conservation of energy** • energy can neither be created nor destroyed but can be converted from one form to another • energy can be transferred in a system when different parts of the system interact with one another and cause changes *[Approach should be to provide learners with examples rather than a definition]* • energy can also be transferred from one system to another such as from an electrical system to a mechanical system in a motor		• Find the energy content in different foods, by reading the labels on food packing • Investigate energy in: - mechanical systems such as – a cricket ball hit a ball. - thermal system – such a candle heating a can of water - electrical systems – such as a cell/battery in a circuit activating a motor/buzzer/light bulb - Biological system such as a horse eats a plant
3 weeks	**Heat Transfer**	**Heating as a transfer of energy** • heating is a process in which energy is transferred from a hotter body to cooler body • the energy transfer continues until both bodies are at the same temperature • heat is transferred in three ways by: - conduction - convection - radiation **Conduction** • is the transfer of heat between solid objects that are in direct physical contact with each other • heat “travels” from the source of heat through the object, or from one object to another by conduction • metals are conductors of heat. Some metals conduct heat better than others	• Video clips from the internet to show conduction, convection and radiation • Spirit/Bunsen burner • Steel, brass, aluminium and Iron rods • Styrofoam • Wood • Plastic • Wax or Vaseline • Drawing pins • Heat conducting tins (if available) • Wristwatch with a second hand/stopwatch • Food colouring or crystal of potassium	• Identifying energy transfers in mechanical systems • Investigate the energy transfers when boiling water • Investigate which surfaces absorb the most radiation • Investigate which are the best insulating material • Investigate heat conduction using various metals such as aluminium, steel, brass, iron rods and compare their rates of conduction. Identify variables that could affect the findings. [attach a pin to one end of each rod with Vaseline. Heat the other end of the rod

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		• good conductors are used for making things such as cooking pots • other materials prevent/slow down conduction of heat, and are called insulators of heat (such as plastics and wood). These are generally poor conductors of heat **Convection** • is the transfer of heat from one place to another by the movement of liquid or gas particles - air and water expand when heated and the particles move upwards. When cooled they move down again. This is called a convection current **Radiation** • radiation is the transfer of heat and does not require physical contact or movement of particles • the heat from the Sun travels mainly by radiation across empty space to the Earth • shiny surfaces (such as silver) are good reflectors of radiant heat and dark surfaces (such as black) absorb heat energy (*links to Light in Grade 8 and FET*) • radiation heats up dark surfaces more quickly (absorb heat) than it heats up shiny surfaces (reflect heat)	permanganate • Glass/transparent plastic container • Candles • Shiny silver surfaces (wrapped by aluminium foil) • Matt black surfaces (painted matt black) • Thermometers • Cardboard or paper and glue	in a water bath of hot water and record the time of how long it takes for the pin to fall off]. Draw a bar graph to show the results
1 week	**Insulation and Energy Saving**	**Using insulating materials** • heat can be 'lost' through conduction, convection and radiation from our bodies and objects such as electric geysers, • heat can also be gained through radiation, conduction and convection, for example in solar water heaters • people use insulating materials to help minimise heat loss in winter or heat gain in summer • insulating materials slow down heat transfer (heat loss or gain) through conduction, convection and radiation. Insulators are used: - for making things such as "cool boxes" - in the ceilings of buildings, - for clothing (such as coats, jerseys, woolly hats) and blankets • conservation of heat energy in homes and buildings can be improved by minimising heat loss in winter and heat gain in summer • many indigenous, traditional homes and technologies in South Africa are designed for our climate and to be energy efficient	• Pictures/diagrams of solar water heaters • Video clips from internet • Thermometers • Insulating materials such as Styrofoam, newspaper, plastic and glass containers, ice • Cooking pot (or container), cardboard box to make a "hotbox", insulation materials such as paper, fabric, cushions, blankets • Materials to build a model of a house • Insulating materials • Pictures or examples of tools/appliances such as electric drill, electric iron, kettle, food mixer	• Investigate different insulating materials such as Styrofoam, newspaper, plastic, glass by how well they keep hot objects (such as a cup of hot tea or prevent cold objects such as ice from heating up. Measure the temperature loss or gain and record results. Sequence the insulators from very good to poor • Discuss energy-saving strategies such as geyser blankets, ceiling insulation etc • Thermal lunchbox challenge – learners design and test a lunchbox that keeps food warm using insulating materials
1 week	**Energy Transfer to Surroundings**	**Useful and 'wasted' energy** • systems such as appliances, tools, vehicles, machines provide useful energy outputs • some energy that is transferred in a system can escape to the surrounding environment as 'wasted energy' • the output energy in a system is always less than the input energy, because some of the energy escapes to the surroundings • 'wasted' energy can escape in the form of heat and/or sound - sound is an example of 'wasted' energy in an electric drill, food processor, hair dryer • heat is an example of 'wasted' energy in a candle, lamp, engine		• Research the wasted energy from different machines and appliances such as : a car which waste about 65% of the energy from fuel in the form of heat & power station which waste about 50% of the energy from burning coal to the surrounding
1 week	**Remediation, revision and consolidation**			
SBA (FORMAL ASSESSMENT)		• Project • Test		

Planet Earth and beyond

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Duration	CAPS Topics	Core Concepts, Skills and Values	Resources to Enhance Learning	Informal Assessment
4 weeks	**Relationship of the Sun to the Earth**	**Solar energy and the Earth's seasons** • the Sun radiates heat and light in all directions • the Earth receives energy from the Sun in the form of heat and light (solar energy) • the Earth spins on its axis once per day • the Earth's axis is an imaginary line that goes through the centre of the Earth from the north pole to the south pole • the Earth's axis is not vertical, it is tilted from the vertical by an angle of 23,5º • the tilt of the Earth's axis does not change as the Earth orbits around the Sun • due to the tilt of the Earth, the intensity of the solar energy (amount per unit area) that reaches different parts of the Earth changes through the year • differing intensities of solar energy reaching the southern and northern hemispheres through the year lead to the four seasons • when the solar energy falls more directly on the southern hemisphere, the solar energy is spread over a smaller area and it is summer in the southern hemisphere • when the solar energy falls obliquely (at an extreme angle) on the southern hemisphere, the solar energy is spread over a wider area and it is winter in the southern hemisphere • the length of the day also depends upon the season. In summer, days are longer than in winter. This is also caused by the tilt of the Earth's axis. **Solar energy and life on Earth** • plants absorb light from the Sun and produce energy containing food (*refer to Grade 8*) • all plants and animals depend on this process for their energy (*refer to Grade 8*) • the Sun's energy sustains all life on Earth **Stored solar energy** • dead plants and animals can eventually form coal, oil or gas (fossil fuels) after millions of years • this happens when: - the remains of dead plants and animals are covered by layers of mud and soil - the layers press down on these remains - more layers lead to increased pressure - increased pressure, over long periods of time, changes these remains into coal, oil or gas • the coal, oil and gas store energy from the Sun that was absorbed by plant s millions of years ago • humans are using this store of energy (coal, oil and gas) faster than it is being formed (non-renewable resource)	• Reference materials • Globe/ball • Torch • Pictures and video clips from the internet of the Sun and showing: - the Earth's passage around the Sun - the changing amounts of solar energy reaching different parts of the Earth through the year • Pictures and video clips from the internet of: - the Sun and • how coal, oil and gas are formed from the Sun's energy	• Investigate the direct and indirect light and its effects on temperature • Investigate what would happen if the Sun's rays are blocked from reaching Earth • Explain the flow of energy from the Sun to Earth
4 weeks	**Relationship of the Moon to the Earth**	**Relative positions** • the Moon revolves around the Earth in its orbit **Gravity** • gravity is the tendency of all objects to attract (pull) each other • the pull of gravity depends on how much mass each object has and how far apart they are - more massive objects exert a stronger pull than smaller objects over the same distance - for objects of the same mass, the closer they are to each other, the stronger is the pull of gravity between them • the Earth is held in its orbit around the Sun by the pull of the Sun's gravity • the Moon is held in its orbit around the Earth by the pull of the Earth's gravity	• Ball and rope or string • Video clips from the internet showing: - The Moon in orbit around the Earth - The Moon's gravity results in ocean tides on Earth - Full Moon and new Moon cause spring tides • Pictures and texts about shoreline ecosystems • Reference materials on significant discoveries relating to astronomy	• Draw a diagram which shows the flow of energy from the Sun through to the formation of fossil fuels like coal, oil and gas • Demonstrate the pull of gravity by swinging a ball attached to the rope/string in a circular motion • Use diagrams to explain the effects of the Moon's gravity on the Earth • Explain the effects of the Moon's gravity on ecosystem on Earth

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		• the Moon also has its own gravity **Tides** • tides are the predictable, repeated rise and fall of sea and ocean levels • tides on Earth are caused mainly by the gravity of the Moon • the gravity of the Moon pulls on the water in the seas and oceans on Earth • this pull causes the Earth to experience high and low tides in the oceans. There are usually two high tides and two low tides over a day and a night • when the Moon is aligned with (in line with) the Sun (at Full Moon and New Moon), the Sun's gravity adds to the Moon's gravity. This causes higher than usual high tides and extra-low low tides (spring tides) • tides sustain unique shoreline ecosystems between the high and low water levels *[an ecosystem is a community of living organisms and their interaction with the environment]*		
1 week	**Remediation, revision and consolidation**			
SBA (FORMAL ASSESSMENT)	• Practical task/investigation • Test			

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Science Process Skills

The teaching and learning of Natural Sciences involve the development of a range of process 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 skills that learners will be able to develop in Natural Sciences:

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.
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. ***Hypothesising*** – 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 and understanding maps, tables, graphs). A Translation Task requires learners to make sense of information and convert the information into a different format e.g., from information captured on a table into a graph format and or written format.
14. ***Communicating*** – using written, oral, visual, graphic and other forms of communication to make information available to other people.
15. The ***Scientific Process*** is a way of investigating things about the world. Scientists use this process to find out about the world and to solve problems. The steps that make up the scientific process are not necessarily in order (sequential), and may include:

    Step 1: Identify a problem and develop a question. What is it you want to find out?

    Step 2: Form a hypothesis. A hypothesis is your idea, answer, or prediction about what will happen and why.

    Step 3: Design an activity or experiment. Do something that will help you test your idea or prediction to see if you were right.

    Step 4: Observe/note changes/reactions (e.g., through measuring), and record your observations (e.g., onto a table). What were the results of your activity or experiment? Write about what happened.

    Step 5: Make inferences about the observations recorded in the tables, graphs, drawings, photographs. Make some conclusions. What did you find out? Do your results support your hypothesis? What did you learn from this investigation?