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CURRICULUM AND ASSESSMENT POLICY STATEMENT GRADE R-5 FOR LEARNERS WITH SEVERE INTELLECTUAL DISABILITY

NATURAL SCIENCES

GRADE 4-5

Curriculum and Assessment Policy Statement Grade R-5 for learners with Severe Intellectual Disability

2018 Orientation

Learning programme

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1. SECTION 1
INTRODUCTION

2. SECTION 2:

INTRODUCTION TO NATURAL SCIENCES

Science is a systematic way of looking for explanations and connecting the ideas we have. This has been shaped by the search to understand the natural world through observation, testing and providing of ideas and has evolved to become part of the cultural heritage of all nations. In all cultures and in all times people have wanted to understand how the physical world works and have needed explanations to satisfy them.

2.1. What is Natural Sciences?

Natural Sciences is part of a selection of study areas that make up the Life Skills Learning Programme. Science is a systematic way of doing investigations through applying scientific knowledge to find explanations for phenomena. It is the **understanding of how things work in the world around us** and also support the learners to **understand their responsibility towards themselves, others and the environment**. It has a **direct link** with the **knowledge and skills taught in** various vocational subjects.

In this learning programme Natural Sciences is compulsory of all the learners in Grade 4 and 5 only as the groundwork for Natural Sciences is laid in the Life Skills learning programme grades R – 3. Knowledge strands are used as a tool for organising the content in the subject and these strands are shown in the following table:

Natural Sciences strands
Life and Living
Matter and Materials
Energy and Change
Planet Earth and Beyond

Natural Sciences is instructed over two years in Grade 4 and three years in Grade 5. During each year in each grade all four (4) strands are instructed, and the teacher is allowed to adapt the difficulty level of the skills to the ability of the learners. – refer to section 3 on differentiated instruction.

In Natural Sciences the content is embedded in the skills are taught over two years in Grade 4 and three years in grade 5. During each year in each grade all the strands are taught, and the teacher is allowed to adapt the difficulty level of the content to the ability of the learner.

2.2. Topics to be studied in Natural Sciences

The topics are tabled according to the strand and grade in which to instruct the specific topics:

	Strands	Grade 4 topics	Grade 5topics
1	Life and Living	Living and non-living things Structures of plants, animals, birds and insects What plants, animals, birds and insects need to grow Habitats plants, animals, birds and insects Shelters for animal, bird and insect Healthy eating Recycling	Plants, animals, birds and insects on earth Animal skeletons Food chains Life cycles Nutrients in food Digestion Recycling
2	Matter and materials	Materials around us Solid materials Strengthening materials Recycling	Metals and non metals Uses of metals Processing materials Processed materials Recycling
3	Energy and change	Energy and energy transfer Energy around us Movement and energy Energy and sound Recycling	Energy in fuels Energy and electricity Energy and movement Recycling
4	Planet earth and beyond	Planet earth The sun The earth and the sun The moon Rocket systems Recycling	Surface of the earth Sedimentary rocks Fossils Movement of the earth and planets Recycling

2.3. Specific Aims:

There are **three** Specific Aims in Natural Sciences and Technology:

Specific Aim 1: 'Doing Science and Technology'

Learners should be able to complete investigations, discuss problems and use practical processes and skills to understand and discuss solutions.

This means that the learners plan step by step a science activity and do simple investigations to assist them to understand a problem and to discuss their solutions. There are attitudes and values that underpin this ability. Respect for living things is an example of this, e.g. learners should not randomly strip leaves off bushes just to investigate them; if they examine small animals they should release them unharmed in the place they found them.

Specific Aim 2: 'Understanding and Connecting Ideas'

Learners should have a grasp of scientific, technological and environmental knowledge and be able to apply it in familiar as well as new contexts.

The teacher should teach the learner to build a framework of knowledge and to help them to make connections between the ideas and concepts in their minds. Learners with a severe intellectual disability often find it difficult to apply the content they know from a familiar to an unfamiliar context. Contextual teaching enables learners to use frameworks they know to unfamiliar contexts. Discussions must relate to previously acquired knowledge and experience and connections should be made.

Specific Aim 3: 'Science, Technology and Society'

Learners should understand practical uses of Natural Sciences in society and the environment and have values that make them caring citizens.

Science should improve the quality of life of the learners during their school years and thereafter. Examples of this include knowledge on how to improve water quality, how to grow food without damaging the land and improve the energy-efficiency of their houses.

Major Process Skills to be taught in Natural Sciences

Learners also develop the ability to think independently, discuss and explain results while they use these skills.

The following are the skills that learners will be able to develop in Natural Sciences:

- 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 framework to apply in unfamiliar contexts
- Observing – noting finer details of objects, organisms and events
- Comparing – noting similarities and differences between things
- Measuring – using measuring instruments such as rulers, thermometers, clocks and syringes (for volume)
- Sorting and classifying – applying knowledge in order to sort items into a group, mind-map, key or list
- Raising questions – being able to think of, and articulate relevant questions about problems, issues, and natural phenomena
- Predicting – stating, before an investigation, what you think the results will be for that particular investigation
- Putting forward a suggestion or possible explanation to account for certain facts.
- Planning steps in 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
- 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 grouping. Sometimes an investigation has to be repeated to verify the results.
- Recording information – recording data from an investigation in a systematic way, including drawings, descriptions, tables and graphs
- Interpreting information – explaining what the results of an activity or investigation mean (this includes reading skills)
- Evaluating and improving products – suing criteria to assess a constructed object and then stating or carrying out ways to refine that object
- Communicating – using written, oral, visual, graphic and other forms of communication to make information available to other people.

2.4. Requirements for Natural Sciences as a subject

2.4.1. Time Allocation

Natural Sciences is instructed in Grades 4 and 5. The compulsory instructional time for Natural Sciences for learners experiencing severe intellectual disabilities amounts to 1.5 hours per 5-day cycle.

LIFE SKILLS	TIME ALLOCATION

			COMPONENTS	
Total time allocated = 8.5 hours per week	Life Skills and Physical Education	6 hours	Routine Activities	2 hours
			Physical Education	1 hour
			Life Skills, Economic and Management Sciences, Social Sciences	3 hours (0.5 hour can be allocated to Life Skills in schools who instruct in 3 Skills electives)
	Creative arts	1 hour	Creative arts	1 hour
	Natural Sciences	1,5 hour	Natural Sciences	1,5 hour

Twenty percent (20%) of the above mentioned time is utilized to teach subject content which should be embedded in teaching the learners to execute the skills. This implies that theoretical lessons should not be instructed in isolation, but during the teacher's demonstration that takes place before the learners practise the skills. The learners are required to utilize eighty percent (80%) of the time to practise the various skills in the classroom. The Natural Science periods should be one continuous period.

2.4.2. Resources

2.4.3. Human Resources

An appropriately qualified teacher registered with SACE in line with the Collective Agreement 5 of 2001 is required to teach Natural Sciences and Technology.

2.4.3.1. Resources

Resources needed for teaching Natural Sciences is listed according to grade and terms in order to assist teachers with planning and preparation. The list is a guide and suitable alternative tools and materials may be used.

Term 1 Grade 4	Term 2 Grade 4	Term 3 Grade 4	Term 4 Grade 4
• Old telephone directories/thick books • Vegetable salad ingredients x number of learners (2nd year) • 1 Apple and 1 potato slices for number of	• 7 ice trays • 4 kettles • 15 cups/mugs • 15 teaspoons • Coffee powder X 10 ml X number of learners (1st year) • Cup a soup bags X	• 1 small ball string • 15 ml mealie pips X number of learners (1st year) • 15 ml popcorn pips X number of learners (1st year) • Elastic bands X 5 X	• Model of a globe • 300g plasticine • Thermometer X 4 • 7 black baking trays • 1 roll (15 m) glad wrap • Round balloons X number of learners

learners (2nd year) • 15 table knives • 15 table forks • 15 table spoons • 7 small scissors • Cotton wool X 4 rolls • Many empty margarine/plastic containers • Plant seeds x number of learners (1st year) • Many empty shoe boxes • Many empty purity bottle with lids • 15 droppers • Iodine x 1 bottle • 4 watering cans • Small bottle iodine • Recycle bins	number of learners (2nd year) • Small plastic bags • Chalk X 1 box • Freezer X 1 • Ice pop moulds X 15 • Bleach x 5ml X number of classes	number of learners • Empty glass bottles (e.g. coke/milk bottles)	• Long balloons X number of learners • Drinking straws X number of learners
Grade 5 Term 1	Grade 5 Term 2	Grade 5 Term 3	Grade 5 Term 4
• Old telephone directories/thick books • Chicken bone X number of classes • Vinegar X 50 Ml X number of classes • Plaster of Paris X 2 kg • Flour and oil clay X 2 kg • Pins X 2 containers • Magnifying glasses X 7 • Iodine X 3 drops X number of learners	• Plastic spoons X number of classes • Metal screws X number of learners (1st year) • Margarine 1 ml X number of learners (1st year) • Iron filings X 30 ml X number of learners (3rd year) • Bar magnets X 15 • Mixing bowls X 4 • Jelly powder packets X number of learners (1st year) • Measuring jug X 4	• Candles X 4 x 15 • 1 x fire extinguisher • Batteries x 30 (size depend on appliances) • Lemons X 15 • Light bulbs X 15 • Electrical wire x 3 m • Electrical plug X 15 • Catapult X 1 • Mousetrap x 1 • Punch x 1 • Cotton reels x number of learners in grade 5 3rd year • Elastic bands x 100	• Purity bottles X 45 + number of learners in grade 5 2nd year • Seedling x number of learners in grade 5 2nd & 3rd year • Gravel X 1 kg • Plaster of Paris x 150 g x number of learners in grade 5 1st, 2nd & 3rd year • Plasticine x 200g x number of learners in grade 5 1st, 2nd & 3rd year

• Slice of bread X number of learners • Benedict's solution X number of learners (3rd year) x few drops • Wall paper glue X 2 packets	• Plaster of Paris X 1 kg • Maize meal X 60 ml X 0.5 X number of learners (3rd year) • Concrete bricks X 0,5 number of learners (3rd year)	• Off cut wooden blocks 3cm x 1 cm • Small wheels (1cm) x number of learners in grade 5 3rd year • Thick sosatie sticks x number of learners in grade 5 3rd year	

Every learner must have his/her own workbook. A variety of basic stationary is required, namely pens, pencils, rulers, paper clips, card, coloured paper, colouring pencils, celotape, thread, scissors, prestic, glue, protective wear (e.g. aprons/old shirts/jackets), washing up liquid and dishtowels.

Ideally every learner should have access to sufficient workplace and equipment to carry out investigations. All safety measurements must be in place in the classrooms when doing investigations and experiments with learners.

With regard to equipment, schools must make every effort to ensure that the essential equipment is provided. Tools, apparatus, material, and consumables must be acquired through a planned budgeting process.

While it is acknowledge that it is not ideal to have to improvise when using equipment, teachers should remember that it is more important for learners to have the experience of carrying out a variety of investigations than to depend on the availability of equipment. In instances where equipment is limited, teachers should be encouraged to improvise. The same skills can be developed using improvised equipment.

The Natural Sciences classroom should be equipped with charts, hand lenses, scissors, models, glass beakers, and if all possible access to appropriate DVDs, DVD player, and Data Projector.

Fresh plant material can be obtained from the surroundings and teachers should ensure that appropriate plants (e.g. Impatiens) are planted on the school grounds. Teachers must familiarise themselves with the subject content and how to use equipment.

2.4.4. Infrastructure, equipment and finances

Schools must ensure that teachers have the necessary infra-structure, equipment and financial resources for quality teaching and learning.

2.4.4.1. Infrastructure

Each class must have a basin/sink and water supply available. The classroom should provide an opportunity for conducting experiments and group work.

2.4.4.2. Finances:

Budget and inventory

A budget must be allocated for the subject. The amount will be determined by the number of learners taking the subject across all the years and the nature of the practical work required as stipulated in the curriculum. The budget needs to be revised annually and must consider all resources needed per year. The funding must make provision for maintenance of equipment and the replacement over the years.

A stock inventory must be maintained by the teacher and verified annually by a Senior Management Team member.

2.5. Career opportunities

Teachers must highlight the links between Natural Sciences as a subject and other subjects like Life Skills and all the Vocational subjects offered at the school. The subject does not provide a specific career opportunity to the learners, however the subject enables them to improve their quality of life.

3. SECTION 3:

OVERVIEW OF TOPICS PER TERM AND ANNUAL TEACHING PLANS

3.1. Content Overview

Each week has a compulsory contact time of 1,5 hours for the subject Natural Sciences and Technology.

3.1.1. Content overview of topics

The content is embedded in the skills and the learners should execute the skills in a simulated working environment re created in the classroom/centre. The table below indicates the topics and content in the Natural Sciences learning programme in Grade 4 and 5 with differentiation.

	Strands	Grade 4 topics	Grade 5 topics
1	Life and Living	Living and non-living things	Plants, animals, birds and insects on earth
		Structures of plants, animals, birds and insects	Animal skeletons
		What plants, animals, birds and insects need to grow	Food chains
		Habitats plants, animals, birds and insects	
		Shelters for animal, bird and insect	Life cycles
		Healthy eating	Nutrients in food
			Digestion
		Recycling	Recycling
2	Matter and materials	Materials around us	Metals and non metals
			Uses of metals
		Solid materials	
		Strengthening materials	Processing materials
			Processed materials
		Recycling	Recycling
3	Energy and change	Energy and energy transfer	Energy in fuels
		Energy around us	Energy and electricity
		Movement and energy	Energy and movement
		Energy and sound	
		Recycling	Recycling

	Strands	Grade 4 topics	Grade 5 topics
4	Planet earth and beyond	Planet earth The sun The earth and the sun The moon Rocket systems Recycling	Surface of the earth Sedimentary rocks Fossils Movement of the earth and planets Recycling

The learners are two years in Grade 4 and three years in Grade 5. Learners should practise more advanced skills during the second year in Grade 4, thus not repeat the activities/experiments completed during the first year in Grade 4. This principle also applies to Grade 5. More advanced activities/experiments should be completed during the second and third years in Grade 5. Depending on the size of the school, this may result in learners being in Grade 4 for the first as well as the second year in one class. The teacher should ensure that these learners do different activities/experiment.

3.2. Teaching plans

Grade 4

Each term comprises of ten weeks and a minimum of 9 weeks instruction is compulsory. The sequence within the term is not compulsory and the teacher may cover the learning programme in any appropriate sequence. Learners are two years in Grade 4, therefore the activities are indicated under the headings:

- Grade 4 1st year
- Grade 4 2nd year.

The Occupational Health and Safety (OHS) Act 85 of 1993 requires the teacher to comply with the safety regulations when issuing equipment and tools to the learners and the teacher may not leave learners unattended during Natural Sciences and technology instructional time. A group discussion on the safety precautions that must be followed during all the instructional time is compulsory. Learners with severe intellectual disability are not always able to make abstract judgments, and they are often not able to apply learned knowledge from one topic to the next. Impulsive behaviour as well as the inability to make fast decisions can easily lead to learners finding themselves in, or being exposed to dangerous situations.

3.3. Grade 4: Term 1

Strand: Life and living

Grade 4: Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
1	Living and non-living things	• Understand the field of Natural Sciences • List suggestions for classroom rules and repeat rules with prompting	The teacher shows images representing the topics in the four different strands to the learners to introduce them to the subject. The learners receive their homework books including letters to the parents to explain the nature of the subject.

Grade 4: Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Identify and name different kinds of living things • Identify and list the seven life processes – feeding, growing, reproducing, breathing, excreting, sensing and moving • Identify and list things that appear not to be living (e.g. dried beans, dried yeast, a fertilised bird egg), but carry on "living" given the right conditions • Identify and name different kinds of non-living things that cannot carry out all the seven life processes • Identify and name some things that were living and are now dead, e.g. dead wood, dry leaves	The teacher shows the learners real examples and pictures of living and non living things and discusses the differences between living and non living things. Grade 4: First year Activity 1 Group images and real life objects of living and non-living things into two groups. Grade 4: Second year Activity 1 Discuss living and non-living things and list the differences and similarities between them.
2-3	Structures of plants, animals, birds and insects	• Identify and name the basic structure of plants: roots, stems, leaves, flowers, fruits and seeds • Identify and discuss the differences between plants, such as size, shape and colour of roots, stems, leaves, flowers, fruits and seeds • Identify the basic structure of animals, namely head, tail, body, limbs, sense	The teacher takes the learners to the school's garden to identify the basic structures of plants and animals (e.g. chameleon, insects, grasshopper, lizards). Grade 4: First year Activity 1 Identify and pull out a weed/plant in the garden and feel and smell the weed/plant. Activity 2 Divide learners into small groups. Trace the outlines of the weed to make a poster. Activity 3 Point out the basic structure of animals on images provided to them.

Grade 4: Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		organs • Identify the structure of birds, namely head, tail, wings, legs and sense organs • Identify the structure of insects, namely head, body, wings, legs and sense organs • Identify the visible differences between animals and birds, such as size, shape, body covering and sense organs	<u>Grade 4: Second year</u> <u>Activity 1</u> Identify and pull out a weed/plant in the garden, feel and smell the weed. Prepare and dry the weed/plant in a thick book. <u>Activity 2</u> Paste the weed in your workbooks and label each part of the weed. <u>Activity 3</u> Divide the learners in small groups and each group prepare and eat a mixed salad using different parts of the plant, e.g. lettuce leaves (leave of the plant), a tomato (fruit of the vegetable), celery (stem of the vegetable) and a carrot (root of the vegetable). <u>Activity 4</u> Discuss the differences and similarities between the animals shown on images provided by the teacher.
4	What plants, animals, birds and insects need to grow	• Identify and name what plants, animals, birds and insects need to grow, namely light, water and air • Identify and list what plants need to grow well, namely the right type of soil, right amount of water for the type of plant and sun or shade • Give examples how to grow plants, e.g. cuttings and seeds • Identify and list different plants that can	The teacher demonstrates why - plants need light, water and air to grow. Take four empty margarine containers and put seeds (e.g. beans, lentils, mealies) between two layers of damp cotton wool. Wait for 2 to 3 days for the seeds to sprout and remove the top layer of cotton wool. Place one container in a dark cupboard (no light) and three tubs near a window. Water all the tubs regularly, except one tub (no water). Put a plastic bag over one tub after the seeds sprouted to exclude air. The fourth tub serves as the control tub to show that plants need light, water and air to grow - plants need light to grow. Take an empty shoe boxes and cut a large, rectangular window in one short end of the shoe box. Take the piece of card that you have cut

Grade 4: Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		be used to take cuttings, e.g. cuttings from soft stems, runners, baby plants and leaves • List the factors seeds need to germinate, namely water and warmth • Know that plants make sugar and starch by using sunlight, water and carbon dioxide from the air • Know and understand the terminology: carbon dioxide, namely that carbon dioxide is the gas that we breathe out and the gas in fizzy drinks	out and cut a small window toward the end of the card. Secure the card with the window in the inside towards the middle of the long side of the box. Stand the box in the upright position. Place a small potted plant at the bottom of the box on the opposite side of the window card. The plant will grow in the shape of a half circle to reach the light. - animals, birds and insects need oxygen to breath. Take a small bottle, place three flies in the bottle and close the bottle tightly. Observe that the flies will die as they need oxygen to breath The teacher demonstrates how to record the results of the experiment, namely: - Which plants have grown - What the results of the experiment are <u>Grade 4: First year</u> <u>Activity 1</u> Divide learners into small groups and each group cut and grow a plant cutting taken from the school garden or home. Cuttings can be taken from geraniums, runners (e.g. creepers like an ivy or strawberry plant), spider plant and leaves from succulents. <u>Activity 2</u> Record how many days it take for the cutting to develop a new leaf. <u>Grade 4: Second year</u> <u>Activity 1</u> Divide learners into small groups and each group cut and grow two cuttings from the same

Grade 4: Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			plant. The one cutting is put in a light, warm place and watered regularly. The second cutting is placed in a dark cupboard to establish the effect of light on the growth of plants. <u>Activity 2</u> Discuss and record how many days it take for the cutting placed in an area with light to develop a new leave and how many days it takes for the other cutting in the cupboard to develop a leaf. <u>Activity 3</u> Divide learners into small groups and execute the experiment to test vegetables and fruit for sugar and starch. The teacher provides them with a slice of potato and apple and a few drops of iodine. Each group record their findings.
5	Habitats - plants, animals, birds and insects	• Understand and describe the word "habitat" • Identify and describe the habitat of plants • Describe habitats such as grassland, forest, river, desert and sea • List the differences between plants and weeds • List the plants that grow in your province • Know that the protea is our national flower • Identify and describe the habitat of animals • Identify and describe the habitat of birds • Identify the habitat of insects	<u>Grade 4: First year</u> <u>Activity 1</u> Provide learners with images of animals and their shelters. Match the animals to their shelters. <u>Activity 2</u> Identify at least one animal habitat on the school grounds and investigate the habitat in terms of materials, size, shape, colour and smell. <u>Grade 4: Second year</u> <u>Activity 1</u> Draw one animal habitat from images provided to them and describe the animal habitat. <u>Activity 2</u> Provide two reasons for the suitability of the animal habitat that you have chosen.

Grade 4: Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Discuss the different types of animal, bird and insects shelters (e.g. to shelter, to have babies and escape from danger) and differences in animal shelters • Knows and understands the terminology habitat, indigenous plants and insects	
6	Structures for animal, bird and insect shelters	• Identify and list different types of natural animal, bird and insect shelters, namely nests, shells, hollow trees, wasp nests • Identify and name human made shelters, e.g. dog kennels, cages, kraals and stables • Identify and list the different shapes, sizes and materials animal structures can be made from	Grade 4: First year Activity 1 Provide a small number of different materials to produce an animal, bird and insect shelter to the learners. Divide learners into small groups and each group make a simple model of an animal shelter, e.g. spider web, fish pond, bird nest. Grade 4: Second year Activity 1 Provide the learners with images of different types of animal, bird and insect shelters. Describe two animal, bird and insect shelters. Activity 2 List the steps to produce a model of one of the above animal, bird and insect shelters.
7-8	Healthy eating	• Identify the food pyramid and the food in each group in the food pyramid, namely the bread and starch group, the fruit group, the vegetable group, the meat, chicken, fish and bean group, the dairy group and fats and sugar group • List the number of portions in each group	The teacher - provides the learners with different types of food to taste (sweet, sour and salty), smell (coffee, fresh leafy vegetable or onions, toast), see (previously mentioned products), hear (eating chips, drinking coffee) and feel (the texture of the mentioned products) on individual paper plates - places different food items in separate coloured plastic bags and the learners must identify the food items by smelling and feeling.

Grade 4: Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		to eat daily namely the bread and starch group (6-11 servings), the fruit group (2-4 portions), the vegetable group (3-5 groups), the meat, chicken, fish and bean group (2-3 servings), the dairy group (2-3 servings) and fats and sugar group (very little) • State tips for healthy eating daily • Identify the senses that we use when we eat food, namely the tongue to taste the food, nose to smell food,	Grade 4: First year Activity 1 Cut and group the pictures of the food items and paste in the correct position onto the food pyramid. Activity 2 Make a list with the food items that you ate yesterday and list the healthy food that you have not eaten. Grade 4: Second year Activity 1 Construct a 3 dimensional food pyramid with the worksheet provided. Paste the pictures of the food items in the correct group. Activity 2 Compile a list of the food that you ate yesterday. Compare your list with the food on the food pyramid to conclude if your food intake the previous day was healthy or not.
9	Recycling	• List litter that is dangerous to plants, animals and birds • Identify the recycling logo • Explain that recycling is a process to convert waste materials into reusable materials • List the meaning of the three arrows in the logo as “reduce, reuse” and “recycle” • List the groups of recyclable materials,	The teacher and learners - discuss how to collect litter - know how to behave during a cleaning-up expedition - collect litter from the school grounds to discuss how the litter may be dangerous to plants, animals and birds - group the litter in groups of paper, plastic, metal, glass and other Grade 4: First year Activity 1 Draw up a list showing items that you have thrown in the rubbish bin yesterday and give a

Grade 4: Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		namely cans, glass, paper, plastic, oil, electronic waste, drums and aerosols • Understand the terminology: litter, packaging, recycle	reason why these items may be harmful to plants, animals and birds. <u>Grade 4: Second year</u> <u>Activity 1</u> Draw up a list (with the headings paper, plastic, metal, glass and paper) showing all the items collected on the school grounds and group together. <u>Activity 2</u> Copy the recycling logo in your workbook and tell/write the meaning of the three arrows in the recycling logo

Assessment

Assessment is formally recorded during four (4) practical sessions with a minimum of four (4) skills reported. Learners, regardless of abilities, shall be assessed on the same skill. The following serves as suggestion of skills to record and report on.

Week	Grade 4: First year	Grade 4: Second year
Week 2:	Identify a weed/plant in the garden.	Know how to prepare and dry the weed/plant in a thick book.
Week 3:	Point out the basic structure of animals on images.	Discuss the differences and similarities between animals on images.
Week 4:	Cut and grow a plant cutting.	Record how many days it takes for a cutting to develop a new leave.
Week 5:	Match animals to their shelters.	Describe a …….. (animal) habitat.
Week 6	Make a simple model of a ……. (animal) shelter.	Describe two animal OR bird OR insect shelters.
Week 7:	Group pictures of food items in the correct position onto the food pyramid.	Construct a 3 dimensional food pyramid.
Week 8:	Compile a list with the food items eaten the previous day.	Compare personal food intake to food intake suggested by the food pyramid.
Week 9:	Give a reason why waste items may be harmful to plants, animals and birds.	Know the meaning of the three arrows in the recycling logo

Four theoretical activities are assessed and recorded, however, a minimum of 1 theoretical activity is reported on. The following serves as suggestions of theoretical activities to report on.

Week 2:	Identify the structural differences between two plants
Week 3:	List the differences between animals, birds and insects
Week 4:	List the factors seeds need to germinate
Week 5:	Know our national flower
Week 6:	Identify the different materials animal structures can be made from correctly
Week 7:	List the number of portions of the ……. food group(s) correctly
Week 8:	Identify the senses that we use when we eat food
Week 9:	List litter that is dangerous to plants, animals and birds

3.4. Grade 4 Term 2

Strand: Matter and materials

Grade 4: Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
1 - 2	Materials around us	• Understand the terminology: matter and materials • Group matter as living and non-living matter • List examples of raw and manufactures materials • Know the phases of water as ice, water and steam • Know the properties of ice, namely it feels hard, cold and slippery and is white in colour • Understand what a solid, liquid and gas is • Give examples of solids, liquids and gases • List the characteristics of solids, liquids and gases: solids keep their shape, liquids flow and gases spread out and have not definite shape • List examples of materials that can change their shape, e.g. solids changes to a liquid when heated and changes to a	The teacher demonstrates - how to melt ice, by rubbing the ice between her/his hands, blowing on the ice or by placing the ice in the sun - the sensory properties of ice and that ice floats on water - how to boil water safely in a kettle and to pour water in a cup holding one hand behind her back. The teacher explains that the hand behind her back prevents her/him holder onto the cup and accidentally spilling boiling water on her/his hand. - that different types of liquids behave differently, e.g. syrup, oil and water by pouring the different liquids on a flat surface and observe how they flow differently <u>Grade 4: First year</u> <u>Activity 1</u> Group real life examples of solids and liquids provided to them in two groups. <u>Activity 2</u> Divide learners in four groups and find images of gases in magazines to make a poster. <u>Activity 3</u> Boil water safely to make a cup of coffee and enjoy your coffee. <u>Grade 4: Second year</u> <u>Activity 1</u> Complete a worksheet and table the real life examples of solids and liquids provided to the Grade 4 first year learners. <u>Activity 2</u>

Grade 4: Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		gas when cooled down. Gas changes to a liquid when cooled and the liquid changes to a solid when cooled further • Know that the boiling point of water is 100ºC and freezes at 0ºC	Divide learners in four groups. Find images of solids, liquids and gases in magazines to make a poster. <u>Activity 3</u> Boil water safely to make a cup of soup and enjoy their cup of soup. <u>Activity 4</u> Study an image depicting different matter (e.g. cars travelling on a road next to a river) and list the solids, liquids and gases in the picture.
3	Materials around us	• List the three states of water, namely water, ice and steam (water vapour) • List the solids, liquids and gases in the image of the water cycle • Know and understand the following terminology, condensation, evaporation and precipitation • Explain the water cycle	The teacher - boils water in a pot and leaves the water to cool down with the lid on the pot to explain condensation or blows against a mirror - put a little water in a saucer in a sunny corner in the class to demonstrate evaporation. <u>Grade 4: First year</u> <u>Activity 1</u> Put a weed in a small plastic bag and observe the water droplets forming in the bag. <u>Activity 2</u> Complete a worksheet to label each stage of the water cycle. <u>Activity 3</u> Demonstrate evaporation. <u>Grade 4: Second year</u> <u>Activity 1</u> Draw/copy and label an image of the water cycle in their books. <u>Activity 2</u> Plant a seedling in an empty coke bottle and close the open end with glad wrap to observe

Grade 4: Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			the water droplets forming against the glad wrap/condensation.
4-5	Materials around us	• Understand the terminology: raw and manufactured materials • Identify and list raw materials we use to make other useful materials, namely - sand is used to make glass - clay is used to make ceramics - coal and oil are used to make plastics, paints and fabrics - wood and fibre from plants are used to make paper • List different types of raw and manufactured materials • List different types of natural materials • Understand that combining materials results in new materials with added strength • Understand the terminology, namely processed materials – raw materials are processed to make other materials by using either heat or chemicals	The teacher - provides real life examples of raw and manufactured materials. The learners examine these examples and feel the texture of these materials. - shows a short video clip on how different materials are manufactured using raw materials, e.g. how fabric is manufactured, clay is used to manufacture clay pots, car tyres are manufactured and plant material is used to make homemade paper. <u>Grade 4: First year</u> <u>Activity 1</u> Divided learners in two groups. Group 1: Use mud only and shape the mud in the form of a brick. Group 2: Adds straw to your bricks. Leave the bricks for a few days in the sun and then break the bricks. Compare the strength of each group's bricks. Understand that combining materials results in new materials with added strength. <u>Grade 4: Second year</u> <u>Activity 1</u> Add grass cuttings to water one week prior. Tear waste paper (preferable 80g A4 sheets) in small pieces, add the grass cuttings to the soaked waste paper and each learners spread 125 ml of the mixture on a flat absorbent surface (e.g. piece of cloth). Leave the "paper" to dry in the sun and remove the absorbent surface from the newly produced paper. Cut a shape from the paper and paste in your book.
6	Materials around us	• Know that matter can cause fire, e.g. wood or paraffin • List the uses of wood and paraffin	The teacher demonstrates how to stop, drop and roll in case of clothes catching fire and the learners practise to do the same. Learners are divided in small groups of four learners to complete the activities.

Grade 4: Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• List the danger of wood and paraffin, namely to cause a fire • Identify dangers in the home that may cause a fire, e.g. paraffin stoves, gas lamps and stove, loose electrical wires • Tell what to do in case of a fire in a house, namely to stop, drop and roll • Know fire safety messages, namely: -stay away from paraffin – it can hurt you -stay away from flames and fire – they can burn you -if clothes catch on fire, stop, drop and roll -cool a burn with cool water • Demonstrate how to use a fire extinguisher • Design an escape plan to exit the class safely in the case of a fire	Grade 4: First year Activity 1 Identify and list dangers in the classroom/home that may cause a fire and mark these with a chalk. Activity 2 Draw an escape plan to exit the class safely in the case of a fire. Grade 4: Second year Activity 1 Describe how to adapt the dangerous objects in the classroom (that were identified by the younger group) to make them safe. Activity 2 Draw an escape/evacuation plan to exit the school buildings safely in the case of a fire.
7	Solid materials	• Know and understand the meaning of the word: solid materials • Name the properties of raw and manufactured materials, e.g. hard or soft, stiff or flexible, strong or weak, light or heavy, waterproof or absorbent	The teacher - demonstrates that heat changes the properties of materials by putting water in the freezer to become a solid that expands - demonstrates how to make sorbet using fruit juice to show that liquid expands when frozen - shows a number of bowls manufactured using different materials to the learners, e.g.

Grade 4: Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Demonstrate that heat causes matter to change, e.g. mealie meal versus cooked porridge, telephone lines contracting in cold weather and expanding in hot weather • Know that a sheep's wool is used to produce wool for jerseys/blankets and cotton from the cotton plant is used to make school shirts	a bowl made from metal, wood, wire, glass, plastic, clay and folded paper. The learners discuss the different properties of the raw materials used to produce the bowls and the uses of the bowls. <u>Grade 4: First year</u> <u>Activity 1</u> Make ice to demonstrate how heat changes the properties of water. <u>Activity 2</u> List the materials used to produce the bowls (displayed by the teacher) and name the properties of the bowls. <u>Grade 4: Second year</u> <u>Activity 1</u> Make sorbet to demonstrate how heat changes the properties of water <u>Activity 2</u> Describe the properties of three raw and manufactured materials
8	Strengthening materials	• Identify and list how to strengthen paper to build a strong structure • Roll paper in thin tubes (struts) to produce strong frames • Identify struts in images that are used to make strong, stable structures, e.g. roof trusses, bridges, cranes and pylons • Know that a square shape is strengthened by inserting a strut to form two triangular shapes	The teacher demonstrates how to - fold and roll paper (one A4 sheet for each shape) in three different shapes, namely round, square and in a triangular shape. Let the sides overlap by 1 cm and place sticky tape on the top and the bottom. The teacher places a book on top of each pillar to determine the strength of the different shapes. The tube (round shape) is the strongest and will carry the most weight. - bend a straw in four equal lengths to make a triangle. The straw is placed on a table and carefully pulled in the two opposite corners – the shape will change to a diamond shape. The teacher shows the learners how to strengthen the shape by inserting a straw diagonally into the square.

Grade 4: Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Know that a square is strengthened by inserting braces or gussets (small triangular shapes) in the corners of the square	Grade 4: First year Activity 1 Work in pairs of two and repeat the teacher's experiment. Test the strength of the three different shapes by putting your lunch box on top of each pillar. Record in your book that the tube is the strongest of the three shapes. Activity 2 Repeat the teachers experiment and paste the square with a diagonal strut in your workbook. Grade 4: Second year Activity 1 Work in pairs of two. Repeat the teachers experiment, but use the round shape only to produce four thin tubes, using four A4 sheets. They place the four thin tubes between two lunch boxes, leaving a gap between the lunch boxes. Test the strength of the tubes by placing different weights on the tubes. Record your findings in your workbook. Activity 2 Repeats the teachers experiment but instead of inserting a diagonal strut in the square, insert four small triangles in each corner of the square to strengthen the square.
9	Recycling	• Know that water is a scares resources • Know the a drought causes damage or living things • Give one reason why polluted water cause ill health, namely that the water contains germs that causes cholera	The teacher demonstrates how to make water safe to drink by boiling the water for 15 minutes and then adding 5 ml bleach to 20 liter water after the water has cooled down. Learners are divided in pairs to complete the activities. Grade 4: First year Activity 1 Practise to make water safe to drink. Record the steps in your book.

Grade 4: Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• List examples of how water pollution takes place • List ideas how to save water in the home and at school • List ideas how to save water in gardens and agriculture • Give examples of how to reuse water • Give examples of how to recycle water in the home • Know and understand the terminology: drought, water pollution, water recycling • List ideas how to use recycled cans and plastic • List suggestions how to re-use cans and plastic • Visit the website of the National Recycling Forum in South Africa at www.recycling co.za to find your nearest recycler in your area	Activity 2 Measure how much water a person use to - flush the toilet once - wash four plates and cups Record these findings in your book. Activity 3 Practise to group and recycle recyclables at school. Grade 4: Second year Activity 1 Discuss suggestions how to safe water in the house and at school. Record these in your book. Activity 2 Locate the water meter at school and take the reading of the water consumption per day over one week. Calculate how much water is consumed at school over one month. Record your findings in your book. Activity 3 Practise to group and recycle recyclables at school.

Assessment

Assessment is formally recorded during four (4) practical sessions with a minimum of four (4) skills reported. Learners, regardless of abilities, shall be assessed on the same skill. The following serves as suggestion of skills to record and report on.

Week	Grade 4: First year	Grade 4: Second year
Week 2:	Boil water safely to make a cup of coffee	Boil water safely to make a cup of soup
Week 3:	Demonstrate evaporation.	Demonstrate condensation.
Week 4:	Cut and grow a plant cutting.	Record how many days it takes for a cutting to develop a new leave.
Week 5:	Produce a mud brick.	Produce handmade paper.
Week 6	Identify dangers in the classroom/home that may cause a fire	Describe how to adapt dangerous objects in the classroom/home to make them safe.
Week 7:	Make ice to demonstrate how heat changes the properties of water.	Make sorbet to demonstrate how heat changes the properties of water
Week 8:	Test the strength of 3 different structures using weights	Test the strength of tubes by using weights
Week 9:	Know how to make water safe to drink.	Know how to safe water in the house and at school.

Four theoretical activities are assessed and recorded, however, a minimum of 1 theoretical activity is reported on. The following serves as suggestions of theoretical activities to report on.

Week 2: Know the phases of water
Week 3: Explain the water cycle
Week 4: List the factors seeds need to germinate
Week 5: List different types of natural materials
Week 6: Know what to do in case of a fire in a house
Week 7: Know and understand the meaning of the word: “solid materials”
Week 8: Know how to strengthen a square
Week 9: State how water pollution takes place

3.5. Grade 4 term 3

Strand: Energy and change

Grade 4: Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
1	Energy and energy transfer	• Understand the terminology: energy and understand that energy makes things move • Know that humans need food for energy to grow, walk, run, sing and jump • Know that animals need food for energy to grow • Know that plants need food for energy to grow • Know that we need energy for everything we do, e.g. to cook food, switch on a light, open the tap to get hot water, fill our cars with petrol	The teacher demonstrates - activities that humans do that requires energy, e.g. walk, run, sing and jump - how energy moves by using a long piece of string tied between the backs of 2 chairs. Tie 2 balls to 2 shorter pieces of string. Tie these slightly apart onto the long piece of string that is tied between the 2 chairs. Start to swing the one weight gently. The second weight will soon start to swing without you touching it. Soon the first weight will stop swinging because all its energy has transferred to the second weight, after a while, the first weight will start to swing again. Energy from the second weight is transferred back to the first weight and the second weight stops swinging. <u>Grade 4: First year</u> <u>Activity 1</u> Identify activities that humans do that require energy and find, cut and paste pictures in their workbooks to illustrate energy. <u>Grade 4: Second year</u> <u>Activity 1</u> Identify activities that animals do that require energy and find, cut and paste pictures in their workbooks to illustrate this.
2	Energy and	• Understand the concept: food chain	<u>Grade 4: First year</u>

Grade 4: Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
	energy transfer	• Identify the role players in a food chain, e.g. the sun shines to make plants grow that live stock feed on. We slaughter live stock to eat and obtain energy • Explain that plants make their own food by using energy from the sun, water from the soil and air • Explain pictures showing different food chains, e.g. how fish grow, how insects grow	Activity 1 Cut out and place the pictures in a worksheet in sequence to represent the food chain. Activity 2 Divide learners in groups of four. Place pictures of animals, birds, insects and plants in a box. Draw the pictures from a box and the groups takes turns to act out the picture they drew. Grade 4: Second year Activity 1 Describe how plants make their own food. Activity 2 Divide learners in groups of four to design a poster on how plants make their own food.
3	Energy around us	• Identify and name the different types of energy, namely heat, light, sound and movement energy • List the sources of heat energy and describe how these sources provide us with heat energy, e.g. sun, gas stove, paraffin stove, electric stove, fire • List the dangers of too much sun energy, namely heat stroke and skin cancer • List the sources of light energy and describe how these sources provide us with light energy e.g. sun, electric light,	Grade 4: First year Activity 1 Identify and label pictures representing the different types of energy. Activity 2 Make a list how to keep cool at school in very hot weather. Grade 4: Second year Activity 1 Identify, label and describe pictures representing the different types of energy. The teacher provides the learners with key words to use to describe the pictures. Activity 2 Make a list how to keep cool in your house during very hot weather.

Grade 4: Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		gas or paraffin lamps • List the sources of sound energy and describe how these sources provide us with sound energy e.g. musical instruments, radios, televisions, car sounds • List the sources of movement energy and describe how these sources provide us with movement energy e.g. petrol provides energy to buses and taxis, food provides humans with energy to push and pull objects	
4	Energy around us	• Understand the terminology: input and output energy • Identify and list sources of input energy, e.g. batteries in a phone, electricity to boil the kettle • Identify and list examples of output energy, e.g. send message with a phone, boiled water is the output energy	Grade 4: First year Activity 1 Label pictures as either input or output energy. Activity 2 Work in pairs of two learners. Make a model to illustrate input and output energy. Grade 4: Second year Activity 1 Explain the differences between input and output energy. Activity 2 Draw a table with two columns and list these words in either the input or output energy column: bicycle moves forward, leg movement to cycle a bicycle, batteries to operate a torch, torch shines a light, electricity to operate a kettle, water boils in a kettle, flames heat

Grade 4: Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			the surrounding area, wood for a fire
5	Movement and energy	• Understand that musical instruments use movement energy such as blowing, beating and plucking to make sound • List five musical instruments and the type of movement energy needed, e.g. guitar needs plucking, drum needs beating, flute needs blowing • Identify sound as the main output energy of musical instruments • Know that different shapes and sizes produce different sounds • Produce musical instruments making different sounds	The teacher provides the learners with mealie pips, gravel and elastic bands. The learners produce their own musical instruments which are kept in the classroom to continue with sound identification the following week. <u>Grade 4: First year</u> <u>Activity 1</u> Bring two containers with lids from home with different shapes (e.g. square and flat, small round tin, tall and thin) to make your own musical instrument. Teacher provides mealie pips or popcorn pips to put in the containers. The learners shake their musical instruments to produce music and listen to the different sounds as output energy that is produced. <u>Grade 4: Second year</u> <u>Activity 1</u> Bring one containers without a lid from home to make your own musical instrument. Teacher provides different thicknesses of elastic bands to pull over the containers. Learners pluck the elastic bands to produce sound energy. <u>Activity 2</u> Draw your musical instruments and describe the shape of the container and the thickness of the elastic bands.
6	Energy and sound	• State that musical instruments make sound through vibration • Feel and hear the vibrations musical instruments make • Identify loud and soft sounds and around the classroom	The teacher demonstrates how to make a telephone with two - yoghurt containers and string - bigger containers and string Learners play with the telephone after they have completed their activities <u>Grade 4: First year</u>

Grade 4: Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Identify high and low pitch sounds in and around the classroom • Identify different mediums sound travels through, e.g. air, water, plastic, metal and wood • Experiment with different types of sound to recognise the sounds	Activity 1 Play on the musical instruments that you produced the previous week and identify the sound as loud or soft, high or low pitched. Record your findings in your book. Activity 2 Place your musical instruments in a central place, and produce sounds with the musical instrument behind a screen. The other learners must determine the shape and the size of the musical instrument. Grade 4: Second year Activity 1 The teacher makes sounds behind a screen. Identify the objects used to make the sound as well as the medium the sound travel through, e.g. tap a teaspoon against a cup in a box, ringing a bell inside a tin and, alarm clock ticking inside a plastic bag. Record your answers in your book. The teacher thereafter shows the objects and mediums used to produce the sounds to the learners.
7	Energy and sound	• Identify how the volume of water and air in containers affects sound vibration • Recognise that volume affects how loud sounds are. • Recognise that quick vibrations produce high sounds and slow vibrations produce low sounds • Identify the sensory organ that is used to interpret sound	The teacher - fill identical glass bottles with water to different levels and blow across the top edge of each bottle to produce sounds at different pitch levels - fill identical glass bottle with water and tap on each bottle to illustrate a bottle xylophone Grade 4: First year Activity 1 Identify which bottle produces the sound with the highest and lowest pitch. Activity 2

Grade 4: Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Label the different parts of the ear correctly • Match the functions of each part correctly to a drawing of the ear	Bring a narrow container from home and repeat the teacher's experiment to determine how the volume of liquid in the container affects the sound that is produced. Experiment by blowing harder and softer across the top edge of the container and record your findings in your book. Grade 4: Second year Activity 1 Learners label the different parts of the human ear, namely outer part, ear canal and eardrum and list the function of each part. Activity 2 Execute an experiment to show how the volume of air influences sound.
8	Energy and sound	• Describe noise pollution as sounds that are loud, unpleasant or harmful to our ears and continues for a long time • Identify noise pollution in the surrounding areas • List the effect of noise pollution on humans • State that noise pollution can cause permanent damage to hearing • Explain the terminology: law • State that laws protect people from noise pollution	Grade 4: First year Activity 1 List three examples of noise pollution that you experience at home. Activity 2 Give ideas of how to protect yourself from the noise pollution. Grade 4: Second year Activity 1 Describe noise pollution in your own words. Activity 2 Work in four groups and select pictures of aspects that can cause noise pollution. Make a poster.
9	Recycling	• Make a list with different types of electronic waste	Grade 4: First year Activity 1

Grade 4: Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• List the health risks electronic waste poses • Identify electronic waste stations nearest to your home • Visit the electronic waste association website at www.ewasa.org for more information	Discuss in groups how to collect electronic waste safely Activity 2 Practise to group and recycle recyclables safely at school. Grade 4: Second year Activity 1 Discuss in groups how to transport electronic waste safely Activity 2 Practise to group and recycle recyclables safely at school.

Assessment

Assessment is formally recorded during four (4) practical sessions with a minimum of four (4) skills reported. Learners, regardless of abilities, shall be assessed on the same skill. The following serves as suggestion of skills to record and report on.

Week	Grade 4: First year	Grade 4: Second year
Week 2:	Describe the sequence of a food chain.	Describe how plants make their own food.
Week 3:	Identify the different types of energy from images.	Explain the different types of energy.
Week 4:	Make a model to illustrate input and output energy.	Explain the differences between input and output energy.
Week 5:	Make a musical instrument.	Make a musical instrument and describe how the instrument is made.
Week 6	Record the sound of homemade musical instruments.	Identify the media that sounds travel through.
Week 7:	Execute an experiment to show how the volume of a liquid influences sound.	Execute an experiment to show how the volume of air influences sound.
Week 8:	Know how to protect the self from the noise pollution.	Make a poster to illustrate noise pollution.
Week 9:	Group and recycle recyclables safely.	Group and recycle electronic recyclables.

Four theoretical activities are assessed and recorded, however, a minimum of 1 theoretical activity is reported on. The following serves as suggestions of theoretical activities to report on.

Week 2: Understand the concept: “food chain”.
Week 3: List the dangers of too much sun energy.
Week 4: Identify and list sources of input energy.
Week 5: Identify the type of movement energy in a ….. (musical instrument).
Week 6: Explain how musical instruments produce sound.
Week 7: Label the different parts of the ear correctly.
Week 8: List the effect of noise pollution on humans.
Week 9: List the health risks electronic waste poses.

3.6. Grade 4 term 4

Strand: Earth and beyond

Grade 4: Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
1-3	Planet earth	• Name the shape of the earth, namely a round ball or sphere • Know and understand the terminology: planet, solar system, cross section, layers, inner core, outer core, earth surface/crust, sea level, globe and atmosphere • Know the meaning of the word “solar system” • Show the layers of the earth on a sketch • State that the inner core is very hot • State that the crust is the thinnest layer • Tell that most of the surface of the earth is covered with water (oceans and seas) • Tell that the surface of the sea is called the sea level • Know that the land we can see is made up of continents and islands • Identify and/or list seven continents on earth, namely Africa, Australia,	The teacher shows a model of the earth and a 3 minute video clip depicting the layers of the earth to the learners. <u>Grade 4: First year</u> <u>Activity 1</u> Show/identify visible features such as oceans, continents and islands on a globe. <u>Activity 2</u> Work in groups of 4 to produce 2 dimensional models of the earth. <u>Grade 4: Second year</u> <u>Activity 1</u> Complete a worksheet to label the different layers of the earth. <u>Activity 2</u> Work in groups of 4 to produce 3 dimensional models of the earth.

Grade 4: Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		Antarctica, Asia and Europe, North and South America • Explain the difference between continents and islands • State that a thin layer of air surrounds the earth • State that the earth has many different habitats for living things	
4	Planet earth	• Know and understand the terminology: space, universe and stars • Know and understand that the earth is a planet and that there are eight planets • State that these planets have their own moons • Know that earth is the only planet with life on the planet • State that the moon is the closest object to earth and smaller than earth • Tell that we can see the sun, moon and stars from the earth	The teacher shows a short video clip of the solar system to the learners. <u>Grade 4: First year</u> <u>Activity 1</u> Copy our solar system from a picture provided by the teacher. <u>Grade 4: Second year</u> <u>Activity 1</u> Draw our solar system from the three dimensional model provided to them as an example of the solar system.
5	The sun	• Know and understand the terminology: solar power • State that the sun is a star at the centre of our solar system	The teacher demonstrates how to - estimate the time using the position of the sun using a plasticine ball (fist size), a piece of cardboard about 10cm X 10 cm and five straws. Put the plasticine ball on the piece of cardboard in a sunny are and insert the straw in the plasticine ball so

Grade 4: Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Tell that the sun is made of hot gas and gives out heat and light • Know that the sun is far away, but the closest star to the earth • State the safety precautions required when looking at the sun • Tell that the sun rises in the east and sets in the west • State that all life needs the sun and cannot do without • Tell that the sun is used to indicate time and direction	that it has no shadow. Repeat to insert plastic straws every hour until the learners leave school. The straw standing upright indicates noon and the straw the lowest position indicates the earliest time in the morning. Record the times that you inserted the straws on the piece of cardboard. - make a solar panel. Fill a black baking tray with cold water one centimetre deep. Measure the temperature of the water (with your finger or a thermometer). Place a sheet of plastic over the tray and leave in the sun for an hour. Take the plastic of and measure the temperature again. This experiment illustrates how solar power works. <u>Grade 4: First year</u> <u>Activity 1</u> Repeat the teacher's demonstration in groups of 2 learners. <u>Grade 4: Second year</u> <u>Activity 1</u> Stick a stick in the ground and mark the shadow of the stick. Record the time. Check the shadow of the stick every hour and draw a line in the soil. Check the length of the shadow and the markings in the soil every day for one week and you will notice that the shadows will be the same length every day at the same time. <u>Activity 2</u> Make your own solar panel.
6	The earth and the sun	• Know and understand the terminology: orbit, rotate • Know that day and night on all the continents are not at the same time	The teacher shows a model of and sundial and demonstrates how to make a model. <u>Grade 4: First year</u> <u>Activity 1</u> Discuss how life on earth would be without the sun

Grade 4: Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Show and describe how the earth moves around the sun • State that the earth takes 365 days to move around the sun once • Tell that the earth rotates while it is moving around the sun • Know and understand how we get day and night • Know and understand that summer and winter are not at the same time during the year on all the continents	Activity 2 Draw a sundial and use your teacher's model as an example. Grade 4: Second year Activity 1 Discuss the different forms of water on our planet. Activity 2 Divide the class in small groups to make a model of a sundial.
7	The moon	• Know and understand the terminology: phases of the moon, new moon, full moon • State that the moon is - a ball of rock in space - has no air and water - is smaller than the earth - is closer to the earth than the sun • Understand and know that the sun shines on the moon • Explain why the moon seems to have different shapes as observed from the earth	Grade 4: First year Activity 1 Label the stages of the moon on the image showing the moon orbiting the earth. Activity 2 Draw a table with two rows and seven squares. Write the days of the week in the first row. Draw the shape of the moon each night over seven nights. Grade 4: Second year Activity 1 Describe the terminology full moon and new moon. Activity 2 Discuss moon legends in African cultures. Activity 3

Grade 4: Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Discuss moon legends in African cultures	Observe and record the changing shape of light on the Moon each night for a month on a calendar.
8	Rocket systems	• Know and understand the terminology: telescope, rocket, launch • Explain the uses of a telescope • Explain the uses of a rocket	The teacher demonstrates how to make a rocket using balloons, drinking straws and fishing line. <u>Grade 4: First year</u> <u>Activity 1</u> Divide learners in groups of 4 to make models of rockets. All the learners use the same shape balloons. Measure and record how far the “rockets” travels along the fishing line. <u>Grade 4: Second year</u> <u>Activity 1</u> Divide learners in groups of 4 to make models of rockets. Learners use balloons with different sizes and shapes. Measure and record how far the “rockets” travels along the fishing line. <u>Activity 2</u> Discuss the reason why the rockets travelled different distances.
9	Recycling	• Make a list with different types of glass and paper that are suitable to recycle • List the health risks glass recycling poses • List the different types of paper suitable to recycle • Know the type of paper that is the most profitable to recycle • Discuss a plan to start recycling at your school	<u>Grade 4: First year</u> <u>Activity 1</u> Play “I spy with my little eye something beginning with ….” until all items made from glass in the classroom have been identified <u>Activity 2</u> Make a list with suggestions how to re-use glass bottles. <u>Activity 3</u> Identify the closest bottle bank to the school and your home. <u>Grade 4: Second year</u>

Grade 4: Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			Activity 1 Play “I spy with my little eye something beginning with ….” until all items made from paper in the classroom have been identified Activity 2 Make a list with suggestions how to re-use different types of paper. Activity 3 Identify the closest paper recycling centre to the school and your home.

Assessment

Assessment is formally recorded during four (4) practical sessions with a minimum of four (4) skills reported. Learners, regardless of abilities, shall be assessed on the same skill. The following serves as suggestion of skills to record and report on.

Week	Grade 4: First year	Grade 4: Second year
Week 2:	Identify visible features on a globe.	Identify the different layers of the earth.
Week 3:	Produce 2 dimensional models of the earth.	Produce 3 dimensional models of the earth.
Week 4:	Draw our solar system from an image.	Draw our solar system from the three dimensional model provided to them as an example of the solar system.
Week 5:	Execute and experiment to estimate the time.	Execute and experiment to make a solar panel.
Week 6	Draw a sundial.	Make a sundial.
Week 7:	Identify the stages of the moon.	Describe two stages of the moon.
Week 8:	Execute a rocket experiment to show air movement.	Execute a rocket experiment to show that volume influences air movement.
Week 9:	Know how to re-use glass bottles.	Know how to re-use paper.

Four theoretical activities are assessed and recorded, however, a minimum of 1 theoretical activity is reported on. The following serves as suggestions of theoretical activities to report on.

Week 2:	Know the meaning of the word “solar system”.
Week 3:	Identify and/or list (seven) continents on earth.
Week 4:	State that the moon is the closest object to earth.
Week 5:	State the safety precautions to take when looking at the sun
Week 6:	Describe how the earth moves around the sun.
Week 7:	State the properties of the moon.
Week 8:	List the effect of noise pollution on humans.
Week 9:	List the health risks glass poses in recycling.

3.7. Grade 5

Learners are three years in Grade 5therefore the activities are divided into:

- Grade 5 1st year
- Grade 5 2nd year
- Grade 5 3rd year.

The teacher may alter the sequence within the term provided that all the content is instructed during the term.

3.8. Grade 5 : Term 1

Grade 5 : Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
1	Plants, animals, birds and insects on earth	• Know and understand the following terminology: habitats, indigenous plants • Identify and name the habitats (home) of different plants e.g. weeds, water lily, aloe, protea bush, fruit tree • Identify the colour and/or shape of the leaves/flowers/fruit • Identify and name the habitats of different animals, birds and insects e.g. impala, birds and spiders • Know and understand that plants, animals, birds and insects can have	The teacher takes the learners to the school garden and shows them the different types of habitats and plants, animals, birds and insects Grade 5 : First year Activity 1 Learners work together in pairs. Count the number of different plants in a small section of the garden that you have chosen. Write the names of the plants that you know and the number of plants in your book. Activity 2 Study a picture and list the living and non-living things in the picture. Name three non-living things that the living things depend on. Grade 5 : Second year Activity 1

Grade 5 : Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		more than one habitat • Explain why plants, animals, birds and insects depend on each other for food and protection • State and explain that plants also depend on plants, animals, birds and insects for food • Explain that animals need non-living things such as water, air and sunlight to grow	Learners work together in pairs. Count the number of different plants, animals, birds and insects in a small section of the garden that you have chosen. Write the names of the plants that you know and the number of plants in your book. <u>Activity 2</u> Group the plants in groups according to their habitat, as either plants living in water or soil. <u>Grade 5 : Third year</u> <u>Activity 1</u> Draw a table and record the plants, animals, birds and insects according to the habitat, number,, shape of the animals, birds and insects and colour of the animals, birds and insects. <u>Activity 2</u> Collect a leave and flower (if available) from the plants, dry between newspapers, paste into your book and label correctly.
2	Plants animals, birds and insects on earth	• Know how plants, animals, birds and insects reproduce, namely with seeds/cuttings (plants), live births (animals and humans) and eggs (birds and insects) • Know that there are many different kinds of animals, birds and insects • Identify and name animals, birds and insects with bone and without bones (e.g. spiders, crabs, beetles, crayfish, cockroach, crickets, grasshoppers)	The teacher shows pictures/models of animals, birds and insects to enable learners to complete the activities. <u>Grade 5 : First year</u> <u>Activity 1</u> Draw a table with two columns and group the animals, birds and insects in the pictures in two groups, namely animals, birds and insects without bones and with bones. <u>Grade 5 : Second year</u> <u>Activity 1</u> Draw a table with two columns and group the animals, birds and insects in the pictures in two groups, namely without bones and with bones.

Grade 5 : Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Distinguish animals without bones by their hard outer shell from animals with bones • State the function of a hard outer shell • State the function of a skeleton, namely to support the body	Activity 2 List two animals and insects with a hard outer shell and give the reason why they have this hard outer shell. Grade 5 : Third year Activity 1 Draw a table with two columns and group the animals, birds and insects in the pictures in two groups, namely without bones and with bones. Activity 2 List how the animals, birds and insects reproduce. Activity 3 List two animals with skeletons and give the reasons why they have skeletons. Activity 4 Explain the word: “dependent”.
3-4	Animal skeletons	• Know and understand the terminology: skeleton, joints, muscles • Identify the basic structure of animals, birds and insects namely head, tail, body, limbs, sense organs and the visible differences between animals, birds and insects such as size, shape, body covering and sense organs • Explain that a skeleton of animals consists of bones and joints and is	The teacher does an experiment with two chicken bones. The one chicken bone is placed in a cup filled with water and the other in a cup filled with vinegar to demonstrate what happens when bones do not get calcium. The learners discuss the outcome of the experiment. Learners - do different exercises in the class and feel how their muscles and friends’ muscles contract - feel their spine and ribs - count their ribs - bend and straighten your elbow to identify a hinge joint

Grade 5 : Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		inside the body • List the main skeleton parts of animals, namely skull, backbone, ribs, arms, legs and hip bones • List the functions of each animal skeleton part, namely to protect the brain, protect the spinal cord, protect the lungs and heart and the arms, legs and hip bones provide for movement • State that calcium in bones make them strong • State the function of muscles, namely to move the bones in the body • Explain that bones move when muscles contract and feel hard • Identify and name joints in the body as the places where bones meet • Identify how animals, birds and insects move, e.g. walking, swimming, hopping, flying, trotting • Give examples of shell structures, namely crabs, snails and oysters	- swing your arm at the shoulder to identify a ball-and-socket joint <u>Grade 5 : First year</u> <u>Activity 1</u> Label the skeleton parts in the picture of a fish. <u>Activity 2</u> Lift a weight and let your friend feel how your arm muscles contract. Explain how bones in the body move. <u>Activity 3</u> Work with a friend and gather material to make a fish skeleton according to the image provided to you. You will continue with this activity next week. <u>Grade 5 : Second year</u> <u>Activity 1</u> Label the skeleton parts in the picture of a bird. Explain how the skeleton parts of a fish differ from a fish's. <u>Activity 2</u> Explain why we are able to bend our arms and legs and other body parts. <u>Activity 3</u> Work with a friend and gather material to make a bird skeleton according to the image provided to you. You will continue with this activity next week. <u>Grade 5 : Third year</u> <u>Activity 1</u>

Grade 5 : Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			Compare the skeleton parts of a human, fish and bird. How do they differ? <u>Activity 2</u> Label the skeleton parts and joints in the human body on the picture. <u>Activity 3</u> Work with a friend and gather material to make a human skeleton according to the image provided to you. You will continue with this activity next week.
5	Food chains	• Tell why living things need food and where they get food from • Discuss how plants make their own food • Explain why animals need food • Identify the food animals eat, namely plants only, meat only or both plants and animals • List examples of animals that eat plants (e.g. cattle and sheep), meat (lions) and both plants and meat (dogs and pigs) • Describe a food chain, namely that it starts with a plant, then follows with an animal that eats the plant, then an animal that eats a animal and the human that eats the animal • Sequence pictures of different food	The teacher shows - images of different types of animals and group them together according to what they eat, namely plants only, meat only or both plants and animals - a video of short and longer food chains The teacher and learners identify living creatures in the school grounds and without hurting them, study their mouths with a magnifying glass, e.g. spiders, snails, ants, birds, lizards, chickens or caterpillars. <u>Grade 5 : First year</u> <u>Activity 1</u> Label the picture of how plants make their own food <u>Activity 2</u> Make a two dimensional model illustrating the food chain depicting 3 living things. <u>Activity 3</u> Select one animal found on the school grounds and find a picture in a magazine of the animal. Name the animal, the type of food the animal eats and where the animal was found on the school grounds.

Grade 5 : Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		chains in the correct sequence • Know and understand the terminology: herbivores, carnivores and omnivores	Grade 5 : Second year Activity 1 Copy the teacher's example of how plants make their own food. Activity 2 Make a three dimensional model illustrating the food chain depicting 3 living things. Grade 5 : Third year Activity 1 Draw a picture of how plants make their own food Activity 2 Select and group images of animals that eat plants, meat and both plants and meat. Name each animal in the image. Activity 3 Make a three dimensional model illustrating the food chain depicting 4 living things.
6	Life cycles	• Understand the terminology: "life cycle" • Describe the life cycle of a human • Describe the life cycle of a plant • Know and understand the terminology: pollinate, germinate, fertilisation • Describe the life cycle of an animal • Know and understand the terminology: pregnancy, mammals, fertilisation, reproduce	Grade 5 : First year Activity 1 Cut a flower and dissect the flower. Identify the different parts of the flower, namely petals, style, anther, stigma and ovary. Complete the worksheet by labelling the parts of the flower. Activity 2 Arrange the pictures showing the life cycle of a mammal in the correct sequence and paste in your workbook. Grade 5 : Second year

Grade 5 : Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Describe the life cycle of a bird • Describe the life cycle of an insect	Activity 1 Cut a flower and dissect the flower. Identify the different parts of the flower, namely petals, style, anther, stigma and ovary. Copy the image of a flower and label the parts of the flower. Activity 2 Arrange the pictures showing the life cycle of a bird in the correct sequence and paste in your workbook. Grade 5 : Third year Activity 1 Describe the following words: life cycle, pollinate, germinate, fertilisation. Activity 2 Look at the pictures of the life cycle of a mammal and describe each picture. Activity 3 Dissect an insect and label the parts of the insect. Activity 4 Describe the life cycle of a moth or fly.
7	Nutrients in food	• Label the SA food pyramid correctly • Knows and understands the terminology nutrients • List nutrients in the bread and pasta group as starch, meat, fish and poultry group as protein and fat, dairy group as protein, calcium and water, and the fruit as well as vegetable group as vitamins	The teacher - demonstrates how to test food for starch with iodine. Use a starch rich food, e.g. a slice of bread and a non-starchy food as an control experiment - shows learners how to examine food for fat content, by putting a tissue or paper towel over the food as the fat/oiliness will be absorbed by the tissue or paper towel. - demonstrates an experiment to test for sugar in food using Benedict's solution (videos of experiments available on: http://www.bbc.co.uk/bitesize/ks3/science/organisms_behaviour_health/food_detective

Grade 5 : Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		and water • Describe how to prepare and eat fruit and vegetables to ensure that you do not waste nutrients • Explain how to store bread, pasta, fruit, vegetable, meat and dairy products to make sure that the food stays fresh and not loose their nutritional value	/activity/ Grade 5 : First year Activity 1 List the nutrients that we find in food, namely starch, protein, calcium, vitamins and water. Activity 2 Execute the experiment to test food for starch. Grade 5 : Second year Activity 1 List one food source containing each of the following nutrients: starch, protein, calcium, vitamins and water. Activity 2 Dothe experiment to test food for fat content. Grade 5 : Third year Activity 1 Identify the nutrient in each of the following food sources: milk, biltong, fish, white bread, apples, carrots, yoghurt, cheese, bananas, and spinach. Activity 2 Execute the experiment to test food for sugar.
8	Digestion	• Explain that the food we eat is digested • Tell that teeth and saliva help to digest food • Explain that organs in the body break	Grade 5 : First year Activity 1 Identify the organs on the image that digest food. Activity 2

Grade 5 : Term 1			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		food down/digest food and absorb the nutrients from the food • State that undigested material is waste material and the body gets rid of the waste through the rectum • Know and understand the terminology: digestion, digestive system, saliva	Place three digestive organs in the correct place in a model. Grade 5 : Second year Activity 1 Order the organs in the image in the correct order of how they assist with digestion. Activity 2 Place four digestive organs in the correct place in a model. Grade 5 : Third year Activity 1 Label the organs in the image of the digestive system correctly. Activity 2 Place all the digestive organs in the correct place in a model.
9	Recycling	• Know how to group bottles, cans, paper, electronic waste and plastic correctly • Know how to re-use recyclables	Grade 5 : First year Activity 1 Group recyclables and practise to recycle the items. Grade 5 : Second year Activity 1 Group recyclables and practise to recycle the items. Grade 5 : Third year Activity 1 Group recyclables and practise to recycle the items.

Assessment is formally recorded during four (4) practical sessions with a minimum of four (4) skills reported. Learners, regardless of abilities, shall be assessed on the same skill. The following serves as suggestion of skills to record and report on.

Week	Grade 5 : First year	Grade 5 : Second year	Grade 5 : Third year
Week 2:	Group animals, birds and insects in two groups - without bones and with bones.	Identify two animals and insects with a hard outer shell.	Identify two animals with skeletons.
Week 3:	Identify the skeleton parts of a fish skeleton.	Identify the skeleton parts of a bird skeleton.	Identify the skeleton parts of a human skeleton.
Week 4:	Produce a model of a fish skeleton	Produce a model of a bird skeleton	Produce a model of a human skeleton
Week 5:	Make a two dimensional model illustrating the food chain depicting 3 living things.	Make a three dimensional model illustrating the food chain depicting 3 living things.	Make a three dimensional model illustrating the food chain depicting 4 living things.
Week 6	Dissect a flower correctly.	Dissect a flower correctly and label the different parts of the flower.	Dissect an insect and label the parts of the insect.
Week 7:	Execute the experiment to test food for starch.	Execute the experiment to test food for fat content.	Execute the experiment to test food for sugar.
Week 8:	Place three digestive organs in the correct place in a model.	Place four digestive organs in the correct place in a model.	Place all the digestive organs in the correct place in a model.
Week 9:	Group and recycle recyclables correctly.	Group and recycle recyclables correctly.	Group and recycle recyclables correctly.

our theoretical activities are assessed and recorded, however, a minimum of 1 theoretical activity is reported on. The following serves as suggestions of theoretical activities to report on.

Week 2: Know how plants, animals, birds and insects reproduce.
Week 3: Know the difference between skeleton, joints and muscles.
Week 4: Identify how animals, birds and insects move.
Week 5: Know how plants make their own food.
Week 6: Describe the life cycle of a ……. (bird, animal, human or insect)
Week 7: Describe how to prepare and eat fruit and vegetables to ensure healthy eating habits.
Week 8: Know that teeth and saliva help to digest food.
Week 9: Group recyclables correctly

3.9. Grade 5 Term 2

Strand: Matter and materials

Grade 5 : Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
1 - 2	Metals and non-metals	• Arrange objects in groups of metal and non-metal objects • List the properties of metals, namely that metals are strong, very hard, shiny, malleable, conducts heat, is magnetic and melt at high temperatures • List objects made with iron, namely tools, nails, fence posts, wire fencing, palisade fencing • Know and describe the terminology: rust, alloy • List objects made with gold, silver copper and aluminium • Explain why articles are plated • List examples of non-metals • List the properties of non-metals, namely that they are not malleable and not ductile • Know and understand the terminology: rust, alloy, plated, non-metals, malleable	The teacher does an experiment with a plastic and metal spoon to show the hardness of metal. - Place the plastic and metal spoon side by side on a table with part of the spoons hanging over the side of the table. Gently push the spoons down to show that metal is hard and do not flexible. Explain the difference between hardness, flexibility and malleable. spoons - Stand on the metal and plastic spoon to demonstrate hardness of the metal spoon <u>Grade 5 : First year</u> <u>Activity 1</u> Bring five items from home and identify what it is used for. <u>Activity 2</u> Group the items as metals or non-metals. <u>Grade 5 : Second year</u> <u>Activity 1</u> Bring five pictures from home and identify what it is used for. <u>Activity 2</u> Group the items as metals or non-metals and list the properties of metals. <u>Grade 5 : Third year</u> <u>Activity 1</u>

Grade 5 : Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			Make a list of five metals and write a sentence to describe what these are used for. <u>Activity 2</u> Paste five pictures of non-metals in your book and list the properties of the non-metals.
3-4	Uses of metals	• Demonstrate three properties of metals, namely that metals rust, conduct heat and show magnetic properties • Demonstrate the opposite sides of a bar magnet attract each other • Know and understand the terminology: tarnish, corrode and magnetism	The teacher does an experiment to show learners that - metals rust - conducts heat (put butter on the tips of metal and non-metal objects and place other end in boiling water) - exhibits magnetic properties (e.g. use iron filings) - the opposite poles of magnets attract each other (e.g. kissing fish experiment) <u>Grade 5 : First year</u> <u>Activity 1</u> Execute and experiment to show that metals rust and use two different articles in your experiment. Record your findings in your workbooks. <u>Activity 2</u> Execute and experiment to show that metals conduct heat. Record the objects that you used to execute the experiment and findings in your workbooks. <u>Grade 5 : Second year</u> <u>Activity 1</u> Execute and experiment to show that metals rust and use four different articles in your experiment. Record your findings in your workbooks. <u>Activity 2</u> Execute and experiment to show that the opposite poles of a bar magnet attract each other. Record the objects that you used to execute the experiment and findings in your workbooks.

Grade 5 : Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			Grade 5 : Third year Activity 1 Execute and experiment to show that metals rust and non-metals do not rust. Use the six articles provided to you in your experiment. Record your findings in your workbooks. Activity 2 Execute and experiment to show that metals are magnetic by using a bar magnet and iron filings. Record one of the patterns made with the iron filings in your workbooks.
5-6	Processing materials	Combining materials • Describe what it means to combine materials • List methods and give examples of each to combine materials, namely - mixing and setting, e.g. Plaster of Paris and polyfilla, - Mixing and cooking, e.g. making dough, and porridge - Mixing and cooling, e.g. jelly powder and water to make jelly - Mixing, drying and firing, e.g. wet clay and straw to make bricks • List the properties of the new materials that are produced after combining the raw materials	The teacher demonstrates how to - mix Plaster of Paris and set the mixture in a mould – mixing and setting - make mealie meal pap – mixing and cooking - make jelly and set the jelly - mixing and cooling Grade 5 : First year Activity 1 List the equipment needed to execute and experiment to show how mixing and cooling produce processed materials. Activity 2 Mix jelly in small groups of four learners and set the jelly in moulds and eat. Activity 3 Copy a flow diagram of how to mix jelly. Grade 5 : Second year Activity 1

Grade 5 : Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Know and understand the terminology: mix, dissolve	List the equipment needed to execute and experiment to show how mixing and setting produce processed materials. <u>Activity 2</u> Mix Plaster of Paris in small groups of four learners and set the mixture in moulds <u>Activity 3</u> Draw a flow diagram to illustrate how to mix Plaster of Paris. <u>Grade 5 : Third year</u> <u>Activity 1</u> List the equipment needed to execute and experiment to show how mixing and cooking produce processed materials. <u>Activity 2</u> Prepare maize meal pap in small groups of two learners and enjoy the pap. <u>Activity 3</u> Draw a flow diagram to illustrate how to mix maize meal porridge.
7-8	Processed materials	• Know and understand the terminology: processed materials • State the properties of Plaster of Paris and the uses of thereof, namely that Plaster of Paris is fire resistant and can be used for soft boards, to make casts and bandages, to fill cracks in walls and to produce art works • State the properties of concrete and the	The teacher group examples of different materials together and demonstrate how to test the properties of different materials, namely water absorbency and strength. <u>Grade 5 : First year</u> <u>Activity 1</u> Bring any two small items or pictures from home made with processed materials. Put all the items together that were brought to school and divide the items in groups according the raw materials that were used to produce the items. <u>Activity 2</u> Make a list of all the items in each group in your book.

Grade 5 : Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		uses of thereof, namely that concrete is durable and waterproof and can be used to build buildings and pillars, to erect towers of power stations and silos and to produce water pipes • State the properties of ceramics and glass. • State the uses of thereof, namely to produce pottery items, tiles, basins, toilets and to use in construction glass is used as windows in buildings • State the properties of plastic and the uses of thereof, namely to produce plastic pipes, plastic coverings around electric wires and to produce dishes • Describe how traditional clay pots and bricks were produced • Distinguish between traditional methods of processing baskets, hat and mats, e.g. weaving, plating and coiling	Activity 3 List the equipment needed to conduct an experiment to test Plaster of Paris for water absorbency and strength. Activity 4 Test Plaster of Paris for water absorbency and strength. Grade 5 : Second year The learners are groups together in groups of four learners to execute the activities Activity 1 Bring any two small items or pictures from home made with processed materials. Put all the items together that were brought to school and divide the items in groups according the raw materials that were used to produce the items. Activity 2 Make a list of all the items in each group in your book. Activity 3 List the equipment needed to conduct an experiment to test concrete for water absorbency and strength. Activity 4 Test concrete for water absorbency and strength and record your findings in a table. Grade 5 : Third year The learners are groups together in groups of two learners to execute the activities Activity 1 Bring any two small items or pictures from home made with processed materials. Put all the

Grade 5 : Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			items together that were brought to school and divide the items in groups according the raw materials that were used to produce the items. <u>Activity 2</u> Make a list of all the items in each group in your book. <u>Activity 3</u> List the equipment needed to conduct an experiment to test ceramics for water absorbency and strength. <u>Activity 4</u> Test ceramics for water absorbency and strength and record your findings in a table.
9	Recycling	• Know and understand the terminology: water pollution, water borne diseases, water purification • Identify different types of water pollutants, namely litter and chemicals • Know that a clean supply of drinking water is important to people, plants and animals • List different processes to purify water, namely sieving, settling, decanting, boiling and adding chemicals • List places in your province that recycles water. • List the nearest buy-back and drop-off centres for recyclable items	Teacher demonstrates how to - make a water filter using a sieve, filter paper and funnel or a clean cloth or cotton handkerchief and elastic band - how to make a usable article using a can Learners are divided in small groups to do the following activities. <u>Grade 5 : First year</u> <u>Activity 1</u> Purify dirty water by using the sieving method. <u>Activity 2</u> Practise to group and recycle recyclables at school. <u>Grade 5 : Second year</u> <u>Activity 1</u> Purify dirty water by using the settling method. <u>Activity 2</u>

Grade 5 : Term 2			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Visit the website of the National Recycling Forum in South Africa at www.recycling co.za to find your nearest recycler in your area	Produce a usable article using empty cans collected in your community. Activity 3 Practise to group and recycle recyclables at school. Grade 5 : Third year Activity 1 Purify dirty water by adding chemicals to the water. Activity 2 Produce a decorative article using empty cans collected in your community. Activity 3 Practise to group and recycle recyclables at school.

Assessment

Assessment is formally recorded during four (4) practical sessions with a minimum of four (4) skills reported. Learners, regardless of abilities, shall be assessed on the same skill. The following serves as suggestion of skills to record and report on.

Week	Grade 5 : First year	Grade 5 : Second year	Grade 5 : Third year
Week 2:	Group items as metals or non-metals.	List the properties of metals.	List the properties non-metals.
Week 3:	Execute and experiment to show that metals rust.	Execute and experiment to show that the opposite poles of a bar magnet attract each other.	Execute and experiment to show that metals rust and non-metals do not rust.
Week 4:	Execute and experiment to show that metals conduct heat.	Execute and experiment to show that metals are magnetic.	Record one magnetic pattern an experiment that shows metals are magnetic.
Week 5:	List the equipment needed to execute an experiment to show how mixing and cooling produce processed materials.	List the equipment needed to execute an experiment to show how mixing and setting produce processed materials.	List the equipment needed to execute and experiment to show how mixing and cooking produce processed materials.
Week 6	Execute an experiment to show how mixing and cooling produce processed materials.	Execute an experiment to show how mixing and setting produce processed materials.	Execute an experiment to show how mixing and cooking produce processed materials.
Week 7:	List the equipment needed to conduct an experiment to test Plaster of Paris for water absorbency and strength.	List the equipment needed to conduct an experiment to test concrete for water absorbency and strength.	List the equipment needed to conduct an experiment to test ceramics for water absorbency and strength.
Week 8:	Test Plaster of Paris for water absorbency and strength.	Test concrete for water absorbency and strength.	Test ceramics for water absorbency and strength.
Week 9:	Conduct the experiment to purify dirty water by using the sieving method.	Conduct the experiment to purify dirty water by using the settling method.	Purify dirty water by adding chemicals to the water.

Four theoretical activities are assessed and recorded, however, a minimum of 1 theoretical activity is

reported on. The following serves as suggestions of theoretical activities to report on.

Week 2:	Group objects in groups of metal and non-metal objects
Week 3:	Know three properties of metals
Week 4:	Know that the opposite sides of a magnet attract each other
Week 5:	Describe what it means to combine materials
Week 6:	List three methods to combine materials
Week 7:	State the properties of two processed materials
Week 8:	State the use of two processed materials
Week 9:	Identify different types of water pollutants

3.10. GRADE 5 TERM 3

Strand: Energy and change

Grade 5 : Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
1 - 2	Energy in fuels	• Know and describe the terminology: fuel • Know and understand that fuel is a substance that can be eaten or burned to produce energy • State that plants use the sun's energy to produce food • State the humans eat food as fuel to produce energy • List fuels that humans use as energy sources, namely wood, coal, natural gas, candle wax, petrol and paraffin • Name the two prerequisites for fuels to keep burning, namely heat and oxygen • Identify and draw the fire triangle • Describe how to stop a fire from burning, namely to cut off the oxygen supply • Describe how to extinguish an electrical fire in the home • Know the Learn not to Burn programme messages for young children, namely	The teacher executes an experiment to show that oxygen is a prerequisite for fuels to keep burning. Three 10 cm candles are lit, the - first candle left uncovered to burn, - second candle covered with a small bottle and - third with a large bottle. The uncovered candle will burn the longest as oxygen is freely available and the candle covered with the small bottle will stop burning before the candle covered with the large bottle because of the limited amount of oxygen available in the small bottle. <u>Grade 5 : First year</u> <u>Activity 1</u> Plan an experiment with two candles to show that fuel needs heat and oxygen to burn. <u>Activity 2</u> Sing the song from the Learn not to Burn programme for young children: I don't play with paraffin I don't touch I don't play It can burn me It can burn me So stay away Stay away

Grade 5 : Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		- Matches and lighters can burn you – leave the alone - Stay away from paraffin – it can hurt you - Stay away from flames and fire – they can burn you - If your clothes catch on fire, stop, drop and roll	Grade 5 : Second year Activity 1 Execute an experiment with two candles to show that fuel needs heat and oxygen to burn Activity 2 Make a list of possible electrical fire hazards in your classroom and tell how to extinguish an electrical fire. Activity 3 Practise the Learn not to Burn message: “If your clothes catch on fire, stop, drop and roll” on command of the teacher. The learners move around in the class and immediately stop when the teacher command them to do so, then lie flat on the ground and cover their faces with their hands, and keep rolling over and over until the “flames” have been smothered. Grade 5 : Third year Activity 1 Make a list of possible electrical fire hazards in your home and tell how to extinguish an electrical fire. Activity 2 Demonstrate the Learn not to Burn message: stop, drop and roll. Activity 3 Use a fire extinguisher correctly.
3	Energy in fuels	• List ways to prevent fires namely: • Do not play with matches or lighters • Do not pour fuel onto a burning fire • Make sure candles are in sturdy candleholders and never put a	Grade 5 : First year Activity 1 List ways to prevent fires and demonstrate these to the class. Grade 5 : Second year

Grade 5 : Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		candle near anything that might catch fire • Place fireguards in front of fireplaces • Do not dry clothes on or near a heater • Never use gas near drain pipes • Do not put your fingers in electrical appliances or wall plugs • Make sure to extinguish and outdoor campfire or braai • Know the Learn not to Burn messages for young children, namely: • Matches and lighters can burn you – leave them alone • If your house is on fire, get out and stay outside • Cool a burn with cool water • Fire fighters are helpers • Know how to get out of a building on fire	<u>Activity 1</u> Demonstrate the "following Learn not to Burn message to the class: "If your house is on fire, get out and stay outside" to the class. Follow these steps: • Stay calm • Stay low on the ground to avoid the smoke • Hold onto one wall and crawl on your knees out of the building holding onto the wall • Never change holding onto the other wall as this may result in longer time to find the exit • Immediately call the fire brigade after exiting <u>Grade 5 : Third year</u> <u>Activity 1</u> Draw an escape plan for your house and share your plan with the class. <u>Activity 2</u> Draw an escape plan for your class and choose a meeting place to meet after the escape has taken place <u>Activity 3</u> Make a list showing the following emergency numbers: • Local fire brigade • Local ambulance • Emergency number to call from a cell phone, namely 112
4-5	Energy and electricity	• State that energy can be stored in cells and batteries • Know that a battery is made of one or	The teacher demonstrates how to make a battery using two coins (one nickel and one copper), one lemon and 2 pieces of wire. <u>Grade 5 : First year</u>

Grade 5 : Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		more cells • State that stored energy is controlled by a switch • Tell that the two ends of a battery is different and that one end is positive and the other negative • Describe an electrical circuit • Describe what happens when a circuit is broken • Describe the national electricity grid • State the function of a national electricity grid • List the parts of the main electricity system • Describe how electricity gets to the appliances we use • List the sources of energy power stations utilize, namely coal, nuclear fuel, wind turbines, solar energy • List points how to use plugs and wall sockets and electrical cords safely • List general safety precautions to take when using electricity and electrical appliances	Activity 1 Practise how to put batteries in different appliances and take them out again. Activity 2 Copy a diagram from the board of an electrical circuit in a torch into your book. Activity 3 Repeat the teacher's experiment and make a lemon battery. Grade 5 : Second year Activity 1 Build your own electrical circuit using a battery, electrical wire and a light bulb. Activity 2 Draw your electrical circuit to show how the battery, electrical wires and light bulb are connected. Grade 5 : Third year Activity 1 Practise to wire an electrical plug. Activity 2 Build your own electrical circuit with a switch, using a battery, electrical wire, a light bulb, two metal drawing pins, a metal paper clip and a plank about 8cmX 5 cm. Activity 3 Make a list to indicate how you will use electrical appliances safely.

Grade 5 : Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		• Know and understand the following terminology: cells, positive end of cell and negative end of cell, stored energy, rechargeable cells, electrical circuit, electricity box, wall socket, plug, generator, pylon, substation.	
6 - 7	Energy and movement	• Describe how to make objects move by using stretched or twisted elastic and compressed springs • State that we store energy in an elastic band or spring when we twist or compress the band or spring • Demonstrate how to create movement energy by releasing an elastic band or compressed spring	The teacher demonstrates how • a hand-held catapult creates movement energy when the catapult is stretched and released. • the spring in a mousetrap creates movement energy upon releasing the spring • to make a wind-up toy using an elastic ban, match stick and an empty cotton reel The teacher divides the learners in small groups of four learners to execute the activities. <u>Grade 5 : First year</u> <u>Activity 1</u> Plan how to build a catapult. <u>Activity 2</u> Build your own catapult and demonstrate how to use the catapult safely. <u>Grade 5 : Second year</u> <u>Activity 1</u> Plan how to build a “bird in the cage” experiment to demonstrate how twisted elastic makes objects move. <u>Activity 2</u> Create a “bird in the cage” spinner using a rectangular shape card, a pen to draw the cage

Grade 5 : Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			and the bird, a punch to punch holes on the left and right sides of the card, two elastic bands. <u>Grade 5 : Third year</u> <u>Activity 1</u> Plan how to build a moving toy. <u>Activity 2</u> Build a toy moving toy.
8	Energy and movement	• Describe how a bicycle and a wheelbarrow moves • Know and understand the terminology: system, axle, turning axles, fixed axle • Identify different types of input energy that is suitable to make vehicles move, e.g. pram, bicycle, taxi, car	Teacher demonstrates how to build moving objects using wheels and axles. The teacher divides the learners in pair to complete the activities and provides examples with the equipment they need to complete the activity. <u>Grade 5 : First year</u> <u>Activity 1</u> Build a toy vehicle with a turning axle. <u>Grade 5 : Second year and second year</u> <u>Activity 1</u> Build a toy vehicle with a fixed axle. <u>Grade 5 : Third year</u> <u>Activity 1</u> Build a toy vehicle with a fixed as well as turning axle.
9	Recycling	• List examples of electronic waste • Discuss how electronic waste may be	<u>Grade 5 : First year</u> <u>Activity 1</u>

Grade 5 : Term 3			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		harmful to living and non-living things • Discuss pre-cautions to take when collecting electronic waste • Visit the electronic waste association website at www.ewasa.org for more information	List the raw materials personal computers are made from and list the materials that may pose a risk to your health. Activity 2 Practise to collect, group and recycle recyclables at school. Activity 3 Discuss how you can re-use personal computers. Grade 5 : Second year Activity 1 List the raw materials cell phones are made from and list the materials that may pose a risk to your health. Activity 2 Practise to collect, group and recycle recyclables at school. Activity 3 Discuss how you can re-use cell phones. Grade 5 : Third year Activity 1 List the raw materials compact fluorescent lamps are made from and list the materials that may pose a risk to your health. Activity 2 Practise to group and recycle recyclables at school. Activity 3 Discuss how you can re-use fluorescent lamps.

Assessment

Assessment is formally recorded during four (4) practical sessions with a minimum of four (4) skills reported. Learners, regardless of abilities, shall be assessed on the same skill. The following serves as suggestion of skills to record and report on.

Week	Grade 5 : First year	Grade 5 : Second year	Grade 5 : Third year
Week 2:	Plan an experiment to show that fuel needs heat and oxygen to burn.	Execute an experiment with two candles to show that fuel needs heat and oxygen to burn	Use a fire extinguisher correctly.
Week 3:	Demonstrate how to prevent fires.	Demonstrate how to exit a building on fire.	Know the emergency number to call from a cell phone.
Week 4:	Know how to put batteries in appliances.	Draw an electrical circuit.	Wire an electrical plug
Week 5:	Build a battery using a lemon.	Build an electrical circuit.	Build an electrical circuit with a switch.
Week 6	Plan how to build a catapult	Plan how to build a “bird in the cage” experiment	Plan how to build a moving toy.
Week 7:	Build a catapult and demonstrate how to use the catapult safely.	Execute an experiment to show how twisted elastic makes objects move.	Build a toy moving toy.
Week 8:	Build a toy vehicle with a turning axle.	Build a toy vehicle with a fixed axle.	Build a toy vehicle with a fixed as well as turning axle.
Week 9:	Collect, group and recycle recyclables safely.	Collect, group and recycle recyclables safely.	Collect, group and recycle recyclables safely.

Four theoretical activities are assessed and recorded, however, a minimum of 1 theoretical activity is reported on. The following serves as suggestions of theoretical activities to report on.

Week 2: Know that plants use the sun’s energy to produce food
Week 3: List ways to prevent fires.
Week 4: Know that energy can be stored in cells and batteries
Week 5: Know that stored energy is controlled by a switch
Week 6: Describe how to make objects move using elastic and springs.
Week 7: Know that energy can be stored in an elastic band.
Week 8: Describe how a bicycle moves
Week 9: Discuss pre-cautions to take when collecting electronic waste

3.11. GRADE 5 TERM 4

Strand: Earth and beyond

Grade 5 : Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
1 - 2	Surface of the earth	• State that the surface of the earth is made or rock and soil and is called the crust • List the determinants of life on earth, namely soil, air, water and sunlight • Distinguish between topsoil, subsoil and solid rock • Describe how topsoil is formed by rocks that are broken into tiny pieces • Distinguish between sandy soil, clayey soil and loamy soil • State that soil has air, water and very small living organisms in it • State and understand that dead plant and animals decompose in soil resulting in spreading nutrients through the soil to make it more fertile • Understand that soil forms very slowly in nature and cannot be replaced when lost • Know and understand the terminology:	The teacher executes an experiment - with soil in a bottle filled with water. Shake the bottle very well and then let the soil settle, the bubbles in the water show that spaces between the soil particles. After a while the water will form the top layer in the bottle, followed by the clayey layers, then sandy layer and gravel at the bottom. - with sandy, clayey and loamy soil to determine the amount of water let through each type of soil and the amount of water held by each type of soil. The teacher demonstrates to the learners how to record their findings in a table. The learners work together in pairs to complete the activities. <u>Grade 5 : First year</u> <u>Activity 1</u> Locate and collect three different types of soil in the school gardens and repeat the teacher's experiment. Record your findings on the layers formed by different types of soil in your workbook. <u>Grade 5 : Second year</u> <u>Activity 1</u> Select one type of soil provided by the teacher. Plant a seedling in the soil and measure the height of the seedling weekly for four weeks. Record you findings.

Grade 5 : Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		top soil, clayey soil, loamy soil, decompose, erosion	<u>Grade 5 : Third year</u> <u>Activity 1</u> Select one type of soil provided by the teacher. Plant a seedling in the soil and measure the height of the seedling weekly for four weeks. Record you findings. Compare the height of the seedlings in the different types of soil, Give three reasons why you think the growth of the seedlings varies. Provide reasons why different types of soil influence plant growth.
3	Sedimentary rocks	• Know and understand the terminology: sediments, sedimentary rock, compact, shale, sandstone, limestone • Describe what sedimentary rock means, namely rock formed over a long time and consists of different layers of rock • Describe how sedimentary rock is formed, namely that mud, dust and sand are deposited in low-lying areas, the layers become compacted and hardens to form sedimentary rock • List a characteristic of sedimentary rock, namely that layers are visible within the rock • List examples of sedimentary rock, namely shale, sandstone and limestone • Give examples of the uses of limestone,	<u>Grade 5 : First year</u> <u>Activity 1</u> Make a sedimentary layer model. <u>Grade 5 : Second year</u> <u>Activity 1</u> Make a sample of sedimentary rock from rocks (gravel), sand and water. <u>Grade 5 : Third year</u> <u>Activity 1</u> Make sedimentary rock with rocks, sand and clay.

Grade 5 : Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
		shale and sandstone	
4-5	Fossils	• Know and understand the terminology: fossils, preserved • Tell how fossils are formed • Tell why fossils are important to humans • Name one fossil site in your province • Name a region in South Africa where dinosaurs lived many years ago • Name the region where human fossils have been found in South Africa • Read and understand a time chart showing when which living things existed	The teacher demonstrates how to make a plant fossil, using plasticine, plaster of Paris and a leaf with distinct veins. Roll the plasticine out about 10 mm thick, press the leaf into the plasticine, build the outer edges of the plasticine up, peel the leaf off, fill the plasticine mould with a mixture of plaster of Paris and leave to set. When the plaster of Paris has set, peel off the plasticine and you will have a leave "fossil". A mould can also be made using damp, fine sand similar to sea sand. Grade 5 : First year Activity 1 Plan how to make a leave "fossil". Activity 2 Make your own leave "fossil". Grade 5 : Second year Activity 1 Plan how to make a sea shell "fossil". Activity 2 Make your own sea shell "fossil". Grade 5 : Third year Activity 1 Plan how to make a sea animal "fossil". Activity 2

Grade 5 : Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			Make your own sea animal “fossil”, e.g. crab sea star..
6 - 8	Movement of the earth and planets	• Know that the movement of the earth and planets results in different seasons • Name the four seasons and the months of the year during which we experience the different seasons • Identify the weather symbols for sunny, cloudy, partly cloudy and rainy weather • Identify the weather symbols in different media • Tell that we measure temperature with a thermometer • Read and record temperatures on a thermometer correctly • Explain how to measure the direction of wind • Read a rain gauge correctly and record rainfall correctly	The teacher demonstrates how to make a • wind-vane to show the direction the wind is coming from • rain gauge with a jar and a strip of masking tape The teacher divides the learners in small groups of four learners to execute the activities. <u>Grade 5 : First year</u> <u>Activity 1</u> Cut a weather forecast chart from a newspaper and discuss the predicted weather according to the symbols on the weather chart. <u>Activity 2</u> Draw a table with two rows and seven columns. Write the names of the days in the top row and record the daily temperature over one week. <u>Activity 3</u> Plan how to make a wind-vane. <u>Activity 4</u> Make your own wind-vane and blow in different directions to establish the direction of the “wind” <u>Grade 5 : Second year</u> <u>Activity 1</u> Cut and paste weather symbols in your workbook. List the words that represent the different weather symbols. <u>Activity 2</u>

Grade 5 : Term 4			
Week	Topic	Content The learner must be able to:	Suggested activities, investigations practical work and demonstrations
			Draw a table with three rows and seven columns. Write the names of the days in the top row and record the daily temperature and wind direction over one week. <u>Activity 3</u> Plan how to make a rain gauge. <u>Activity 4</u> Make your own rain gauge to measure rainfall and record the rainfall. <u>Grade 5 : Third year</u> <u>Activity 1</u> Explain the weather forecast chart for the previous day. <u>Activity 2</u> Examine the weather forecast chart and record the town with the highest and lowest temperatures and wind speed. <u>Activity 3</u> Plan how to make a model to deliver weather forecasts. <u>Activity 4</u> Make a model to deliver weather forecasts.
9	Recycling	• Discuss what happens to rubbish that we don't recycle • Locate the nearest landfill to your school and home • Practise to recycle different recyclables at your school	<u>Grade 5 : First year</u> Practise to collect, group and recycle recyclables at school. <u>Grade 5 : Second year</u> Practise to collect, group and recycle recyclables at school. <u>Grade 5 : Second year</u> Practise to collect, group and recycle recyclables at school.

Assessment

Assessment is formally recorded during four (4) practical sessions with a minimum of four (4) skills reported. Learners, regardless of abilities, shall be assessed on the same skill. The following serves as suggestion of skills to record and report on.

Week	Grade 5 : First year	Grade 5 : Second year	Grade 5 : Third year
Week 2:	Locate and collect three different types of soil	Select one type of soil, and plant a seedling to determine the influence soil has on plant growth	Provide reasons why different types of soil influence plant growth.
Week 3:	Make a sedimentary layer model.	Make a sample of sedimentary rock from rocks, sand and water.	Make sedimentary rock with rocks, sand and clay.
Week 4:	Plan how to make a leave "fossil".	Plan how to make a sea shell "fossil".	Plan how to make a sea animal "fossil".
Week 5:	Make a leave "fossil".	Make your own sea shell "fossil".	Make a sea animal "fossil".
Week 6	Plan how to make a wind-vane.	Plan how to make a rain gauge.	Plan how to make a model to deliver weather forecasts.
Week 7:	Make a wind-vane.	Make a rain gauge.	Make a weather forecast model.
Week 8:	Know how to establish the direction of the wind.	Know how to read and record rainfall measured in a rain gauge.	Explain the weather forecast chart for the previous day.
Week 9:	Practise to collect, group and recycle recyclables at school.	Practise to collect, group and recycle recyclables at school.	Practise to collect, group and recycle recyclables at school.

Four theoretical activities are assessed and recorded, however, a minimum of 1 theoretical activity is reported on. The following serves as suggestions of theoretical activities to report on.

Week 2: Distinguish between sandy soil, clayey soil and loamy soil
Week 3: List examples of sedimentary rock.
Week 4: Know one fossil site in my province
Week 5: Know how fossils are formed
Week 6: Name the four seasons correctly.
Week 7: Identify the weather symbols correctly.
Week 8: Know how to measure temperature
Week 9: Know what pollution is.

4. SECTION 4:

ASSESSMENT

Subject specific content to be added to generic section 4 after public comment changes/corrections have been made.

Assessment across the 5 years

Grade 4 – Practical assessment tasks

Task	Term 1		
	Week	Grade 4: First year	Grade 4: Second year
1	Week 2 & 3:	Identify a weed/plant in the garden. Point out the basic structure of animals on images.	Know how to prepare and dry the weed/plant in a thick book. Discuss the differences and similarities between animals on images.
2	Week 4 & 5	Cut and grow a plant cutting. Match animals to their shelters.	Record how many days it takes for a cutting to develop a new leave. Describe a …….. (animal) habitat.
3	Week 6 & 7	Make a simple model of a ……. (animal) shelter. Group pictures of food items in the correct position onto the food pyramid.	Describe two animal OR bird OR insect shelters. Construct a 3 dimensional food pyramid.
4	Week 8 & 9	Compile a list with the food items eaten the previous day. Give a reason why waste items may be harmful to plants, animals and birds.	Compare personal food intake to food intake suggested by the food pyramid. Know the meaning of the three arrows in the recycling logo
Task	Term 2		
	Week	Grade 4: First year	Grade 4: Second year
1	Week 2 & 3:	Boil water safely to make a cup of coffee Demonstrate evaporation.	Boil water safely to make a cup of soup Demonstrate condensation.
2	Week 4 & 5	Cut and grow a plant cutting. Produce a mud brick.	Record how many days it takes for a cutting to develop a new leave. Produce handmade paper.
3	Week	Identify dangers in the	Describe how to adapt dangerous

	6 & 7	classroom/home that may cause a fire Make ice to demonstrate how heat changes the properties of water.	objects in the classroom/home to make them safe. Make sorbet to demonstrate how heat changes the properties of water
4	Week 8 & 9	Test the strength of 3 different structures using weights Know how to make water safe to drink.	Test the strength of tubes by using weights Know how to safe water in the house and at school.
Task	Term 3		
	Week	Grade 4: First year	Grade 4: Second year
1	Week 2 & 3:	Describe the sequence of a food chain. Identify the different types of energy from images.	Describe how plants make their own food. Explain the different types of energy.
2	Week 4 & 5	Make a model to illustrate input and output energy. Make a musical instrument.	Explain the differences between input and output energy. Make a musical instrument and describe how the instrument is made.
3	Week 6 & 7	Record the sound of homemade musical instruments. Execute an experiment to show how the volume of a liquid influences sound.	Identify the media that sounds travel through. Execute an experiment to show how the volume of air influences sound.
4	Week 8 & 9	Know how to protect the self from the noise pollution. Group and recycle recyclables safely.	Make a poster to illustrate noise pollution. Group and recycle electronic recyclables.
Task	Term 4		
	Week	Grade 4: First year	Grade 4: Second year
1	Week 2 & 3::	Identify visible features on a globe. Produce 2 dimensional models of the earth.	Identify the different layers of the earth. Produce 3 dimensional models of the earth.
2	Week 4 & 5	Draw our solar system from an image. Execute and experiment to estimate the time.	Draw our solar system from the three dimensional model provided to them as an example of the solar system. Execute and experiment to make a solar panel.
3	Week	Draw a sundial.	Make a sundial.

	6 & 7	Identify the stages of the moon.	Describe two stages of the moon.
4	Week 8 & 9	Execute a rocket experiment to show air movement. Know how to re-use glass bottles.	Execute a rocket experiment to show that volume influences air movement. Know how to re-use paper.

Grade 4 term 1 – 4: Theoretical assessment tasks

Evidence of one theoretical task of formal assessment between week 2 – 9 as in the annual teaching plan must be available for quality assurance.

Grade 5 – Practical assessment tasks

Task	Term 1			
	Week	Grade 5 : First year	Grade 5 : Second year	Grade 5 : Third year
1	Week 2 & 3:	Group animals, birds and insects in two groups - without bones and with bones. Identify the skeleton parts of a fish skeleton.	Identify two animals and insects with a hard outer shell. Identify the skeleton parts of a bird skeleton.	Identify two animals with skeletons. Identify the skeleton parts of a human skeleton.
2	Week 4 & 5	Produce a model of a fish skeleton Make a two dimensional model illustrating the food chain depicting 3 living things.	Produce a model of a bird skeleton Make a three dimensional model illustrating the food chain depicting 3 living things.	Produce a model of a human skeleton Make a three dimensional model illustrating the food chain depicting 4 living things.
3	Week 6 & 7	Dissect a flower correctly. Execute the experiment to test food for starch.	Dissect a flower correctly and label the different parts of the flower. Execute the experiment to test food for fat content.	Dissect an insect and label the parts of the insect. Execute the experiment to test food for sugar.
4	Week 8 & 9	Place three digestive organs in the correct place in a model. Group and recycle recyclables correctly.	Place four digestive organs in the correct place in a model. Group and recycle recyclables correctly.	Place all the digestive organs in the correct place in a model. Group and recycle recyclables correctly.
Task	Term 2			
	Week	Grade 5 : First year	Grade 5 : Second year	Grade 5 : Third year
1	Week 2 & 3:	Group items as metals or non-metals. Execute and experiment to show that metals rust.	List the properties of metals. Execute and experiment to show that the opposite poles of a bar magnet attract each other.	List the properties non-metals. Execute and experiment to show that metals rust and non-metals do not rust.

2	Week 4 & 5	Execute and experiment to show that metals conduct heat. List the equipment needed to execute an experiment to show how mixing and cooling produce processed materials.	Execute and experiment to show that metals are magnetic. List the equipment needed to execute an experiment to show how mixing and setting produce processed materials.	Record one magnetic pattern an experiment that shows metals are magnetic. List the equipment needed to execute and experiment to show how mixing and cooking produce processed materials.
3	Week 6 & 7	Execute an experiment to show how mixing and cooling produce processed materials. List the equipment needed to conduct an experiment to test Plaster of Paris for water absorbency and strength.	Execute an experiment to show how mixing and setting produce processed materials. List the equipment needed to conduct an experiment to test concrete for water absorbency and strength.	Execute an experiment to show how mixing and cooking produce processed materials. List the equipment needed to conduct an experiment to test ceramics for water absorbency and strength.
4	Week 8 & 9	Test Plaster of Paris for water absorbency and strength. Conduct the experiment to purify dirty water by using the sieving method.	Test concrete for water absorbency and strength. Conduct the experiment to purify dirty water by using the settling method.	Test ceramics for water absorbency and strength. Purify dirty water by adding chemicals to the water.
Task	Term 3			
	Week	Grade 5 : First year	Grade 5 : Second year	Grade 5 : Third year
1	Week 2 & 3:	Plan an experiment to show that fuel needs heat and oxygen to burn. Demonstrate how to prevent fires.	Execute an experiment with two candles to show that fuel needs heat and oxygen to burn Demonstrate how to exit a building on fire.	Use a fire extinguisher correctly. Know the emergency number to call from a cell phone.
2	Week 4 & 5	Know how to put batteries in appliances. Build a battery using a lemon.	Draw an electrical circuit. Build an electrical circuit.	Wire an electrical plug Build an electrical circuit with a switch.
3	Week 6 & 7	Plan how to build a catapult	Plan how to build a “bird in the cage” experiment	Plan how to build a moving toy.

		Build a catapult and demonstrate how to use the catapult safely.	Execute an experiment to show how twisted elastic makes objects move.	Build a toy moving toy.
4	Week 8 & 9	Build a toy vehicle with a turning axle. Collect, group and recycle recyclables safely.	Build a toy vehicle with a fixed axle. Collect, group and recycle recyclables safely.	Build a toy vehicle with a fixed as well as turning axle. Collect, group and recycle recyclables safely.
Task	Term 4			
	Week	Grade 5 : First year	Grade 5 : Second year	Grade 5 : Third year
1	Week 2 & 3:	Locate and collect three different types of soil Make a sedimentary layer model.	Select one type of soil, and plant a seedling to determine the influence soil has on plant growth Make a sample of sedimentary rock from rocks, sand and water.	Provide reasons why different types of soil influence plant growth. Make sedimentary rock with rocks, sand and clay.
2	Week 4 & 5	Plan how to make a leave “fossil”. Make a leave “fossil”.	Plan how to make a sea shell “fossil”. Make your own sea shell “fossil”.	Plan how to make a sea animal “fossil”. Make a sea animal “fossil”.
3	Week 6 & 7	Plan how to make a wind-vane. Make a wind-vane.	Plan how to make a rain gauge. Make a rain gauge.	Plan how to make a model to deliver weather forecasts. Make a weather forecast model.
4	Week 8 & 9	Know how to establish the direction of the wind. Practise to collect, group and recycle recyclables at school.	Know how to read and record rainfall measured in a rain gauge. Practise to collect, group and recycle recyclables at school.	Explain the weather forecast chart for the previous day. Practise to collect, group and recycle recyclables at school.

Grade 5 term 1 – 4: Theoretical assessment tasks

Evidence of one theoretical task of formal assessment between week 2 – 9 as in the annual teaching plan must be available for quality assurance.