Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

SENIOR PRIMARY PHASE

ELEMENTARY AGRICULTURE SYLLABUS

GRADES 5-7

FOR IMPLEMENTATION IN 2024

Ministry of Education, Arts and Culture
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Elementary Agriculture Syllabus Grades 5 - 7

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1. Introduction

This syllabus describes the intended learning and assessment for Elementary Agriculture in the Senior Primary level. As a subject Elementary Agriculture is within the natural scientific area of learning in the national curriculum, but has thematic links to others subjects across the curriculum. Learning experiences in the natural scientific area aim at increasing the learners' knowledge and understanding of the physical and biological world of which they are part. This includes understanding how people use the natural environment to satisfy human needs, and how the environment may be changed in ecologically sustainable ways. Critical thinking, investigating phenomena, interpreting data, and applying knowledge to experimental skills are essential to understanding the value and limitations of natural scientific knowledge and methods, and their application to daily life. The application of scientific knowledge and attitudes to health is of special relevance for the individual, the family, and society as a whole.

2. Rationale

Learning experiences in the natural scientific area are focused upon promoting the teaching and learning for understanding. Namibia, like most African countries is rich in natural resources, which requires scientific knowledge and technical skills for the exploration of these resources. The acquisition of scientific knowledge and technical skills presents itself as a prerequisite for a progressive national economy and the improvement of better standard of life for our people as envisaged in the country's long term strategic plan of vision 2030. It is thus important for our learners to acquire knowledge and skills which will foster their understanding of the interaction of human being and the environment in order to satisfy human needs. It must be understood that both the physical and biological world around us is quite complex and therefore need to be understood in a holistic manner by the society in order to sustain the natural resources.

3. Aims

The main aim of the Elementary Agriculture syllabus within the natural scientific area is therefore to provide basic scientific and technical background for the learners with the hope of producing the much-needed scientists and agriculturalists for the country. Another major aim of offering Elementary Agriculture in primary schools is to lay the foundation for the development of human resources as a basis for further studies, occupations or self-employment. The Namibian society needs to be scientifically literate and acquire entrepreneurship skills if they are to cope up with challenges of appropriate global technology and economic advancement of the country.

4. Inclusive education

Inclusive education is the right of every learner and promotes participation in, or access to, the full range of educational programmes and services offered by the education system in mainstream schools. It is based on the principle of supporting and celebrating the diversity found among all learners and removing all barriers to learning.

Basic education prepares the society, as envisaged in Namibia’s vision 2030, by promoting inclusivity. Learners experiencing barriers to learning and other individual needs will be included in a mainstream school and their needs will be attended to through differentiation of teaching methods and materials as required. Learners, who are so severely impaired that they cannot benefit from attending inclusive schools, will be provided for according to their needs in learning support units, resource units or resource schools until such time that they can join the inclusive schools where applicable. The curriculum, teaching methods and materials are adapted for learners in these institutions.

The learner-centred approach to teaching is highly suitable for learners with special learning needs since it capitalises on what learners already know and can do, and then assists them to acquire new knowledge and skills. The curriculum framework for Inclusive Education specifies the competencies which learners with special learning needs should master. Individual Learning Support Plan (ILSP) should be in place to guide and evaluate the individual learning process for learners with special learning needs.

Further guidelines on planning for learning and teaching in an inclusive classroom can be found in the Curriculum Framework for Inclusive Education (2014). These guidelines will help to equip all learners with knowledge, skills and attitudes to help them succeed in the world that is increasingly complex, rapidly changing and rich in information and communication technology.

The Senior Primary phase promotes equal opportunity for males and females, enabling both to participate equally. Teachers should know and understand how to treat learners equally, and all materials should support gender fairness.

Including gender perspectives is important in all social themes in order to raise awareness of gender stereotyping, how limitations are set on gender equity, and how to promote gender equity in all spheres of life. All teaching and learning materials should be analysed to ensure that they promote gender equity.

5. Links to other subjects and cross-curricular issues

The cross-curricular issues include Environmental Learning; HIV and AIDS; Population Education; Education for Human Rights and Democracy (EHRD), Information and Communication Technology (ICT) and Road Safety. These have been introduced to the formal curriculum to be dealt with in each subject and across all phases, because each of the issues deals with particular risks and challenges in our Namibian society. All of our learners need to:

- understand the nature of these risks and challenges;
- know how they will impact on our society and on the quality of life of our people now and in the future;
- understand how these risks and challenges can be addressed on a national and global level;
- understand how each learner can play a part in addressing these risks and challenges in their own school and local community.

The main risks and challenges have been identified as:

- the challenges and risks we face if we do not care for and manage our natural resources;
- the challenges and risks caused by HIV and AIDS;
- the challenges and risks to health caused by pollution, poor sanitation and waste;
- the challenges and risks to democracy and social stability caused by inequity and governance that ignores rights and responsibilities;
- the challenges and risks we face if we do not adhere to road safety measures
- the challenges and risks we face from globalisation.

Since some subjects are more suitable to address specific cross-curricular issues, those issues will receive more emphasis in those particular syllabi. In this syllabus the following are links to cross-curricular issues:

Grade	Environmental Learning	HIV and AIDS	Population Education	Entrepreneurship	ICT
5	1.3 Environmental problems associated with agriculture			1.2 The economic importance 4.1 Management of personal finances	1.1 The role of agriculture in providing food to the family 1.2 The economic importance of agriculture
6	1.3 Environmental problems associated with agriculture 3.4 Diseases, parasites and predators		1.3 Environmental problems (population growth)	1.1 The role of agriculture in different regions of the country 2.4 Harvesting and marketing vegetables 3.3 Poultry feeding 3.5 Marketing of poultry 4.1 Savings in agriculture	1.5 Record keeping and resource utilization 3.3 Poultry feeding 3.5 Marketing of poultry
7	1.2 Conservation of natural resources	1.3 HIV and AIDS at work place		1.1 The role of agriculture in Namibia 3.1 Economic importance of animals 3.2.5 Marketing of sheep/goats 3.3.6 Harvesting, preservation and marketing of fish 4.1 Production decisions	

6. Approach to teaching and learning

The approach to teaching and learning is based on a paradigm of Learner-Centred Education (LCE) described in ministerial policy documents and the LCE conceptual framework. This approach ensures optimal quality of learning when the principles are put into practice.

The aim is to develop learning with understanding, and the knowledge, skills and attitudes to contribute to the development of society. The starting point for teaching and learning is based on the fact that the learner brings to the school a wealth of knowledge and social experiences gained continually from the family, the community, and through interaction with the environment. Learning in school should thus involve, build on, extend and challenge the learner's prior knowledge and experiences.

Learners learn best when they are actively involved in the learning process through a high degree of participation, contribution and production. At the same time, each learner is an individual with his/her own needs, pace of learning, experience and abilities. The teacher must be able to sense the needs of learners, the nature of the learning to be done, and how to shape learning experience accordingly. Teaching strategies must therefore be varied but flexible within well-structured sequence of lessons.

The teacher should decide, in relation to the learning objectives and competencies in Elementary Agriculture to be achieved when:

- it is best to convey content directly;
- it is best to let learners discover or explore information for themselves;
- learners need directed learning;
- when learners need remedial and enrichment teaching and support;
- there is a particular progression of skills or information that needs to be followed;
- learners can be allowed to find their own way through a topic or area of content

It is important to make sure that when learners work in groups, in pairs, individually, or as a whole, the class must be organised as appropriate to the task in hand. Co-operative and collaborative learning should be encouraged. In such cases, tasks must be designed so that pair or group work is needed to complete it, otherwise the learners will not see any relevance in carrying out tasks together. As the learners develop personal, social and communication skills, they can gradually be given increasing responsibility to participate in planning and evaluate their work under teacher's guidance.

The learning content in this syllabus is based on the Namibian context, although the themes and topics are on a variety of scales to meet international standards. Teachers are therefore urged where appropriate to use local examples to illustrate scientific issues, concepts and processes.

7. End-of-phase objectives

On completion of the Senior Primary phase learners will:

General agriculture

- acquire an appreciation of agriculture as a source of personal income and a base for national economic development by provision of food and promotion of micro, small and medium term enterprises
- understand the danger of HIV and AIDS, pollution and soil erosion and ways of conserving our natural resources
- accumulate knowledge and skills of applying basic concepts such as observations and accurate record keeping and the use of agricultural equipment and tools.

Plant production

- acquire and understanding of the basic concepts and principles involved in the growth, reproduction, development and improvement of plants
- gain skills in the correct use, storage, handling and servicing of commonly needed tools and equipment used in producing crops and vegetables including the eradication of weeds and diseases.

Animal production

- acquire basic skills in rearing and management animals such as poultry, sheep/goats and fish to produce food.
- understand the importance of protecting animals against predators, diseases and parasites to improve production and marketing of animal products.
- demonstrate basic skills in investigating, problem solving and critical thinking in addressing factors that hinders production.

Financial management

- acquire financial, savings and production decision skills to enhance economic growth in agricultural projects and business enterprises.

8. Summary of the learning content

Grade 5	Grade 6	Grade 7
1. General agriculture		
1.1 The role of agriculture to the family 1.2 The economic importance of agriculture 1.3 Environmental problems associated with agriculture (soil erosion)	1.1 The role of agriculture in different regions of Namibia 1.2 Agriculture as a provider of raw materials 1.3 Environmental problems associated with agriculture (pollution and population growth) 1.4. Garden tools 1.5 Record keeping	1.1 The role of agriculture in Namibia 1.2 Conservation of natural resources 1.3 HIV and AIDS at work place
2. Plant production		
2.1 Soil 2.2 Water 2.3 Light 2.4 Plant diseases and pests 2.5 Weeds	2.1 Methods of producing vegetables 2.2 Planting and caring of vegetables 2.3 Vegetable diseases and pests 2.4 Harvesting and marketing of vegetables	2.1 Growing plants for decoration 2.2 Preparing the soil for planting 2.3 Planting of decorative plants 2.4 Plant structures 2.5 Pant requirements for growth 2.6 Plant reproduction 2.7 Plant diseases and pests
3. Animal production		
3.1 Types of farm animals 3.2 Caring for farm animals 3.3 Feeding of animals 3.4 Housing of animals 3.5 Animal diseases, parasites and predators	3.1 Types of poultry 3.2 Taking care of poultry 3.3 Feeding of poultry 3.4 Diseases, parasites and predators 3.5 Marketing of poultry	3.1 Economic importance of animals 3.2.1 Breeds of sheep/goats 3.2.3 Feeding of sheep/goats 3.2.4 Diseases and pests 3.2.5 Handling of sheep/goats 3.2.6 Marketing of sheep/goats **or** 3.3.1 Types of fish found in Namibia 3.3.2 Parts of the body of fish 3.3.3 Feeding of fish 3.3.4 Diseases, parasites and predators 3.3.5 Handling of fish 3.3.6 Harvesting, preservation and Marketing of fish
4. Financial management		
4.1 Management of personal finances	4.1 Savings in agriculture	4.1 Production decisions

9. Learning content

9.1 Grade 5

THEME 1: GENERAL AGRICULTURE		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
1.1 The role of agriculture to the family	• understand that agriculture provides food to the family	• list the different types of food produced locally in their communities e.g. mahangu (millet), maize, mutton, beef, fish • identify food produced by animals and plants • distinguish between food for human and animal consumption
1.2 The economic importance of agriculture	• understand that agricultural activities can generate income through micro, small and medium enterprises	• define agro-business as a business that produces, prepares and sells farm produce • list existing agro-businesses enterprises in your region • describe the characteristics for a good managed agro-businesses • select a simple agro-business activity as part of the school project to generate income
1.3 Environmental problems associated with agriculture (soil erosion)	• understand the effect of soil erosion to the environment	• define soil erosion as the removal of fertile topsoil by wind or water • identify the causes of soil erosion • explain the effects of soil erosion on crop and animal production

THEME 2: PLANT PRODUCTION		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
2.1 Soil	• understand the importance of soil in plant growth	• identify different types of soil (sand, clay and loam) • state the characteristics (limited to particles size, drainage, and cultivation) of different types of soil • compare the growth of the plants in different types of soil
2.2 Water	• understand that water is essential for plant growth	• identify sources of water in Namibia e.g. rain, rivers, dams and ground water • describe the importance of water to plant growth
2.3 Light	• acquire knowledge about the influence of light on plant growth	• describe the importance of light in plant growth • investigate the effects of light on plant growth
2.4 Plant diseases and pests	• know different diseases and pests that attack plants	• list three common diseases that affect plants (mosaic, damping-off, and downy mildew) • describe types of pests (biting and chewing, piercing and sucking, boring, and soil pest) that attack plants and give one example of each • describe how diseases and pests can cause damage to plants
2.5 Weeds	• understand the effects of weeds on plant growth	• define a weed as any plant that grows where it is not wanted • describe the effects of weeds on plant growth (compete with crops for nutrients, light, water and space) • identify unwanted plants from the desired plants

THEME 3: ANIMAL PRODUCTION		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
3.1 Types of farm animals	• know the types of animals kept on the farm in Namibia	• identify different types of farm animals found in Namibia e.g. cattle, sheep, poultry, pigs, goats, game • outline the uses of different type of animals
3.2 Caring for farm animals	• understand why farmers should take care of farm animals	• outline reasons for taking care of farm animals • describe how farmers should look after their animals
3.3 Feeding of animals	• realise that animals need food in order to grow, produce and reproduce	• list the types of feed provided to animals • outline the importance of feeding animals • distinguish between natural and cultivated pasture
3.4 Housing of animals	• value the importance of animal housing	• identify local materials used for constructing animal houses • construct a model of an animal house using locally available materials • discuss the importance of animal houses
3.5 Animal diseases, parasites and predators	• understand the need for protecting animals against, diseases, parasites, and predators	• list any two common diseases, parasites and predators which attack animals in their areas • explain how diseases, parasites and predators can be controlled

THEME 4: FINANCIAL MANAGEMENT		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
4.1 Management of family finances	• acquire the necessary skills needed for the financial management of the family	• define a budget as an estimation of income and expenditure for a set period of time • outline the procedure used in preparing a family budget • list sources of family income • calculate family total income and expenditure

9.2 Grade 6

THEME 1: GENERAL AGRICULTURE		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
1.1 The role of agriculture in different regions of Namibia	• understand that agriculture provides food and income to local communities	• discuss ways in which agriculture provides food to people and animals • identify ways people can earn money through agricultural production
1.2 Agriculture as a provider of raw materials	• appreciate the value of agriculture in providing raw materials for other industries	• discuss ways of preserving food such as milk, grain, meat, fish • identify crops that are used to produce commercial products such as drinks, glue, oil and sugar
1.3 Environmental problems associated with agriculture	• understand the effect of increased food production on the environment	• discuss the negative effects of population growth on agriculture • discuss the impact of overuse of agricultural chemicals (fertilisers, pesticides and herbicides) on land and water
1.4 Garden tools	• understand the importance of tools agriculture	• identify tools used in agriculture • explain the importance of caring for tools • describe the use of garden tools (including the spade, fork, hand fork, trowel, hoe, watering can, bucket, bush knife) • discuss safety measures when handling garden tools

1.5 Record keeping	• gain insight of the economic value of record keeping	• list the major type of records that should be kept by different agricultural enterprises • explain economic importance of keeping production records
THEME 2: PLANT PRODUCTION		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
2.1 Methods of producing vegetables	• understand the techniques of producing vegetables	• select a particular place for growing vegetables • determine the procedure to be followed in preparing seedbed for planting vegetables • find alternative medium such as containers for growing vegetables, in the absence of suitable land or space
2.2 Planting and caring of vegetables	• acquire knowledge and skills in the planting and caring of vegetables	• compare methods of sowing seeds (line planting or broadcasting) • explain the procedure of transplanting seedlings in their plots • describe the process of watering, thinning, weeding, and mulching of vegetable for effective crop production
2.3 Vegetable diseases and pests	• understand the effect of diseases and pests on vegetables	• identify common vegetable diseases e.g. downy mildew, early blight, mosaic, damping off • identify common pests that attack vegetables e.g. cutworm, nematodes, spider mites • describe how to control diseases and pests in vegetables

2.4 Harvesting and marketing of vegetables	• acquire entrepreneurship skills of harvesting and marketing of vegetables to generate income	• describe ways of harvesting and marketing vegetables • determine profit or loss from the sales of vegetables
THEME 3: ANIMAL PRODUCTION		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
Poultry Farming		
3.1 Types of poultry	• know different types of poultry found in different parts of Namibia	• list different types of poultry found in Namibia e.g. chicken, geese, ducks, turkeys, ostriches, and guinea fowls, quails • compare the indigenous and exotic breeds of chickens in terms of adaptability and production
3.2 Taking care of poultry	• understand why farmers should take care of poultry at the farm	• describe how farmers should look after their poultry
3.3 Feeding of poultry	• understand that poultry need food to grow, produce and reproduce	• outline the importance of feeding poultry • describe the different ways of feeding poultry (self feeding and hand feeding) • calculate the costs incurred in feeding poultry for specific purposes
3.4 Diseases, parasites and predators	• understand how diseases, parasites and predators can affect poultry	• name common diseases, parasites and predators which attack a named poultry • explain how diseases, parasites and predators can be controlled • discuss the costs incurred in controlling diseases, parasites and predators

3.5 Marketing of poultry	• acquire entrepreneurial skills in marketing of poultry	• suggest how to market a named poultry product
THEME 4: FINANCIAL MANAGEMENT		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
4.1 Savings in agriculture	• understand the importance of saving money for private consumption or business	• explain the importance of saving in agriculture • outline how saving can be done by people engaged in agricultural activities

9.3 Grade 7

THEME 1: GENERAL AGRICULTURE		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
1.1 The role of agriculture in Namibia	• acquire knowledge of the job opportunities offered by the agricultural industry in the country	• explain how agriculture provide job opportunities in Namibia • predict the proportion of the local population who are directly and indirectly dependent on agriculture for survival • discuss possible business opportunities based on different agricultural products or activities
1.2 Conservation of soil as a natural resources	• recognize that good agricultural practices conserve soil as a natural resources	• discuss good agricultural practices (crop rotation, mixed farming, intercropping, mulching, shading, use of organic fertilisers) on the soil • discuss poor agricultural practices (monoculture, overstocking, burning of crop residues, overuse of agricultural chemicals, leaving the soil bare) • outline advantages and disadvantages of good and poor agricultural practices
1.3 HIV and AIDS at work place	• understand the necessity of applying safety measures to avoid the spread of HIV and AIDS at the work place in agricultural sector	• discuss the effects of HIV and AIDS on agricultural production • describe safety measures applied by local farmers to mitigate the impact of HIV and AIDS at work places

THEME 2: PLANT PRODUCTION		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
2.1 Growing plants for decoration	• acquire knowledge about different ways of raising plants to beautify the school surrounding	• define decorative plants as plants used to beautify and display on the school surrounding • identify different types of decorative plants suitable for their area and surroundings (ground cover, climbers, water plants and trees) • explain the importance of growing decorative plants within the school ground • distinguish different types of flowering plants *(annuals, biennials and perennials)*
2.2 Soil preparation for decorative plants	• understand the importance of soil preparation for the growth of selected plants • acquire knowledge and skills in planting flowering plants	• identify tools used in planting decorative plants • determine the best method for planting different decorative plants • suggest an alternative medium for growing smaller decorative plants such as containers in the absence of suitable land or space • describe ways of planting flowering plants using various sowing mediums (seedbeds, trays and boxes)

2.3 Plant structures	• know the external parts of a plant	• identify the external parts of a plant • identify different parts of a flower • describe functions of parts of a flower
2.4 Plant requirements for growth	• gain knowledge on different conditions required by plants for normal growth	• discuss factors needed for plant growth (air, water, nutrients, light and temperature) • explain the need for watering plants • describe major functions of the nutrients (nitrogen, phosphorus, potassium, copper and boron) needed for plant growth • distinguish between organic and inorganic fertilisers
2.5 Plant reproduction	• understand how different plants reproduce	• describe sexual and asexual reproduction in plants, using examples
2.6 Plant diseases and pests	• understand the effect of diseases and pests on plants	• explain how plant diseases such as mildew affect plant growth • explain how plant pests such as caterpillar and aphids affect plant growth

THEME 3: ANIMAL PRODUCTION		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
3.1 Economic importance of animals	• understand the economic importance of different types of animals	• discuss the economic importance of farm animals
3.2 Sheep/Goat Farming *(choose either 3.2 or 3.3)*		
3.2.1 Breeds of sheep/goats	• understand that importance keeping different breeds of sheep/goats	• identify breeds of sheep/goats • outline reasons for keeping specific breeds of sheep/goats
3.2.2 Feeding of sheep/goats	• understand the importance of food in sheep/goats farming	• state the importance of providing enough food to sheep/goats (growth, production and reproduction) • list different types of feed required by sheep/goats such as natural pasture, fodder, licks
3.2.3 Diseases and parasites	• acquire knowledge about the negative effects diseases and parasites on the general health and productivity of sheep/goats	• state two common diseases that affect sheep/goats • state two parasites that attack sheep/goats • identify the signs of an animal that has been affected by diseases and parasites • describe the negative effects of diseases and parasites on the health and productivity of sheep/goats
3.2.4 Handling of sheep/goats	• acquire knowledge and skills on the handling of sheep/goats	• identify the external parts of the animal body • discuss the procedure of handling animals during: dosing, inspection, marking, castration, and shearing

3.2.5 Marketing of sheep/goats	• acquire entrepreneurial skills related to the ways of marketing sheep/goats	• explain ways of marketing sheep/goats in their regions in the form of meat or live animals • explain how quality of animal products influence the sales price and profit
3.3 Fish Farming in Namibia		
3.3.1 Types of fish found in Namibia	• acquire knowledge of the types of fish that can be farmed within different parts of Namibia	• identify the types of freshwater and saltwater fish such as tilapia, carp, trout, cat fish, gold fish, tiger fish, tuna
3.3.2 External parts of the fish	• know the different external parts of the fish	• draw a diagram to indicate external parts of the fish • explain the functions of different parts of the fish
3.3.3 Feeding of fish	• understand reasons for feeding fish	• state reasons for feeding fish such as growth, production and reproduction • discuss how fish can be fed by floating and sinking pellets • find pictures or samples of different kinds of fish feed e.g. bread crumbs, fish meal, oats, pellets
3.3.4 Diseases, parasites and predators	• understand that fish can be negatively affected by diseases, parasites and predators if not well cared for	• list common parasites that affect fish e.g. fish lice, tape worm, anchor worm, gill flukes and flat worm • identify different predators of fish e.g. birds, frogs, snakes, turtles (tortoise) and crocodiles • describe ways of preventing and controlling diseases and parasites (including the using chemicals such as formalin, and potassium permanganate)
3.3.5 Handling of fish	• acquire knowledge on ways of handling fish	• outline the procedure of cleaning the aquarium / a pond

3.3.6 Harvesting, preservation and marketing of fish	• acquire entrepreneur skills of different ways of harvesting, preserving and marketing fish	• list tools used for catching fish (including basket traps, fishing nets, hook and line) • discuss different ways of preserving fish such as sun drying, salting, smoking, cooking, canning, and chilling or refrigerating • explain ways of marketing fish
THEME 4: FINANCIAL MANAGEMENT		
TOPICS	**LEARNING OBJECTIVES** ***Learners will:***	**COMPETENCIES** ***Learners should be able to:***
4.1 Production decisions	• understand the importance of production decisions taken by farmers to enhance economic growth in agriculture	• conduct a simple survey to determine possible number of customers that purchase specific agricultural products (use data obtained to draw a graph) • explain how knowing the customers' needs may influence decisions on agricultural production • discuss factors (customer needs or preferences, price, demand, and population size) that influence the production decisions

10. Assessment

A learner-centred curriculum and learner-centred teaching use a broad range of knowledge and skills which are relevant to the knowledge-based society. The basic competencies in the syllabuses state what understanding and skills a learner must demonstrate as a result of a teaching-learning process, and which will be assessed. However, it is intended that the curriculum be learning-driven, not assessment and examination driven. Assessment and examination are to support learning. For more information about differentiated assessment, please refer to the National Promotion Policy Guide for Formal Basic Education.

10.1 Types and methods of assessment

Continuous assessment

In order to capture the full range and levels of competence, a variety of formal and informal continuous assessment situations are needed to give a complete picture of the learner's progress and achievements in all subjects. Continuous assessment must be clear, simple and manageable, and explicitly anchored in learner-centred principles and practice. Teachers must elicit reliable and valid information of the learner's performance in the basic competencies. The information gathered about the learners' progress and achievements should be used to give feedback to the learners about their strong and weak points, where they are doing well, and why, and where they need to try more, how, and why. The parents should be regularly informed about the progress of their child in all subjects, be encouraged to reward achievements, and given suggestions as to how they can support their learning activities. The learner's progress and achievements in all subjects must be reported to parents on the school report.

Formative

Formative continuous assessment is any assessment made during the school year in order to improve learning and to help shape and direct the teaching-learning process. Assessment has a formative role for learners if and when:

- it is used to motivate them to extend their knowledge and skills, establish sound values, and to promote healthy habits of study
- assessment tasks help learners to solve problems intelligently by using what they have learned
- the teacher uses the information to improve teaching methods and learning materials

Summative assessment

Summative assessment is an assessment made at the end of the school year based on the accumulation of the progress and achievements of the learner throughout the year in a given subject, together with any end-of-year tests or examinations. The result of summative assessment is a single end-of-year promotion grade.

Diagnostic assessment

Barriers to learning, strengths, learning difficulties and gaps in learning can be determined through diagnostic assessment, which takes place at any time during the learning process. Diagnostic assessment should include inputs from the multidisciplinary support team. It informs lesson planning and which learning and teaching methods should be used to support the learners.

Informal and formal methods

The teacher must assess how well each learner masters the basic competencies described in the subject syllabuses and from this gain a picture of the all-round progress of the learner. To a large extent, this can be done in an informal way through structured observation of each learner's progress in learning and practice situations while they are investigating things, interpreting phenomena and data, applying knowledge, communicating, making value judgements, and in their participation in general.

When it is necessary to structure assessment more formally, the teacher should as far as possible use the same sort of situation as ordinary learning and practice situations to assess the competency of the learner. The use of formal written and oral tests can only assess a limited range of competencies and therefore should not take up a great deal of time. Short tests in any subject should be limited to part of a lesson and only exceptionally use up a whole lesson. End-of-term test should only be written in the first lesson of the day, so that teaching and learning can continue normally for the rest of the time. **No end-of-term examinations may be written.**

Evaluation

Information from informal and formal continuous assessment is to be used by the teacher to know where it is necessary to adapt methods and materials to the individual progress and needs of each learner. At the end of each main unit of teaching, and at the end of each semester, the teacher together with the learners should evaluate the process in terms of tasks completed, participation, what the learners have learnt, and what can be done to improve the working atmosphere and achievements of the class.

Criterion-referenced grades

When grades are awarded in continuous assessment, it is essential that they reflect the learner's actual level of achievement in the competencies, and are not related to how well other learners are achieving or to the idea that a fixed percentage of the learners must always be awarded a Grade A, B, C, and so on (norm-referencing). In criterion-referenced assessment, each assessment task must have an assessment rubric with criteria descriptors for what the learner must demonstrate in order to be awarded the grade. Grade descriptors must be developed for each subject for each year. It is important that teachers in each department/section work together to have a shared understanding of what the criteria descriptors mean, and how to apply them in continuous assessment, so that grades are awarded correctly and consistently across subjects. Only then will the assessment results be reliable.

10.2 Grade descriptors

The learner's level of achievement in relation to the competencies in the subject syllabus is shown in letter grades. When letter grades are awarded, it is essential that they reflect the learner's actual level of achievement in relation to the competencies. In grades 4 to 7, letter grades are related to percentages. The relation between the grades awarded and competencies are shown below:

Grade	% Range (Gr. 5 - 7)	Competency descriptions
A	80%+	**Achieved competencies exceptionally well.** The learner is outstanding in all areas of competency
B	70-79%	**Achieved competencies very well.** The learner's achievement lies substantially above average requirements and is highly proficient in most areas of competency.
C	60-69%	**Achieved competencies well.** The learner has mastered the competencies and can apply them in unknown situations and contexts.
D	50-59%	**Achieved competencies satisfactorily.** The learner's achievement corresponds to average requirements. The learner may be in need of learning support in some areas.
E	40-49%	**Achieved the minimum number of competencies to be considered competent.** The learner may not have achieved all the competencies, but the learner's achievement is sufficient to exceed the minimum competency level. The learner is in need of learning support in most areas.
U	0-39%	**Not achieved the minimum number of competencies.** The learner has not been able to reach a minimum level of competency, even with extensive help from teacher. The learner is seriously in need of learning support.

10.3 Assessment objectives

The assessment objectives in Elementary Agriculture are:

A: Knowledge with Understanding
Requires the learner to identify, give examples, name, list, indicate, define and recognise.
B: Handling Information, Application of Knowledge and Solving Problems
Requires the learner to use various forms of information to select, explain, deduce, draw, relate, describe, calculate, find, estimate, predict, determine, analyse, extract and analyse, arrange, compare and discuss, suggest, evaluate, interpret and distinguish. Learners may be asked to translate information from one form to another, for example from tables, graphs and pictures.
C: Practical (experimental and investigative) Skills and Abilities
Requires the learner to carry out an investigation, present a report to their class, collect data and information and create a display, construct, write an essay, conduct a survey, demonstrate practically, produce a poster, write out a news report and analyse.

10.4 Continuous Assessment: detailed guidelines

A specified number of continuous assessment activities per term should be selected, graded and recorded. Not more than three assessments per term are to be topic tests. These continuous assessments must be carefully planned and marked according to a marking scheme, marking criteria or memorandum. The criteria used to assess activities other than tests should be given to the learner before the assessment activity. Evidence of the work produced by good, average and low-achieving candidates, as well as the written assignment and marking scheme, has to be kept at school until the end of the next year. Teachers can choose to grade and/or record more than the required continuous assessments if it is necessary for formative purposes. An end-of-year summative grade will be based only on the assessment tasks described in the syllabus. End-of-term test should not contribute more than thirty percent (30%) towards the total term mark. Not more than forty percent (40%) of the summative grade may be based on tests, which include topic tests and end-of-term test.

10.5 Types of Continuous Assessment (CA)

Practical Exercises: These are assessments of practical skills done during a practical activity where learners are required to carry out a practical exercise, by following instructions provided by the teacher. The exercises should be designed to generate some written work e.g. records of results and answering practical-related questions.

Topic Tasks: These are activities that most teachers already use in their day-to-day teaching. These are recorded, assessed activities that could introduce a topic, be used during the teaching of a topic and /or revision of a topic. They may well include assessment involving competencies to do with locating information, conducting surveys, analysing information or presenting information. Topic tasks will involve assessments of Basic Competencies in all assessment objectives; however, not all assessment objectives need to be present in every topic task. The greatest emphasis should be placed on assessment objectives B and C (see section 12) to meet the weighting shown in the Specification Grid. Each topic task should count 10 marks.

Practical investigation: An investigation is a longer assignment than a practical exercise, and gives learners an opportunity to complete an exploration into one of the themes / topics outlined in the syllabus. This type of investigation will enable the teacher and learners to pursue a topic in greater depth. Learners are required to plan, carry out the investigation, collect data, analyse information, and write a report. The investigation should count 30 marks.

Topic Tests: Completed topics should be concluded with a test indicating the achievements of the learners in these topics.

End of term Test: This will be a more comprehensive topic test of the term's work, but certainly not as comprehensive as an examination. Teaching should continue but no homework should be assigned during the time of writing the end of term test.

Summary of Continuous Assessment Tasks

Continuous Assessment for Grades 5 - 7						
Components	**Term 1**		**Term 2**		**Term 3**	
	Number & Marks	**Total**	**Number & Marks**	**Total**	**Number & Marks**	**Total**
Practical exercises	2 × 15	30	2 × 15	30		
Topic Tasks	2 × 10	20	2 × 10	20	1×10	10
Topic Tests	1 × 20	20	1× 20	20	1×10	10
Practical investigation					1×30	30
End of Term Test	1 × 30	30	1×30	30		
Term Marks		100		100		50
Weighted Term Mark (Report mark)		**100**		**100**		**50**

10.6 End of year examinations: detailed guidelines

In Grade 5 there will be internal end-of-year test which should consist of work done in the second and third term only.

In Grades 6 - 7 there will be internal end-of-year examination, which will consist of all work done during the year. The purpose of these examinations is to focus on how well learners can demonstrate their thinking, communication and problem-solving skills related to the areas of the syllabus which are most essential for continuing in the next grade. Preparing for and conducting these examinations should not take up more than two weeks altogether right at the end of the year. The description of various papers for the written examination is as follows:

Written end-of-year test for Grade 5 End-of-year examination Grades 6 and 7			
Grade	**Description of paper**	**Duration**	**Marks**
5 - 7	Written examination paper This will consist of **ONE** paper consisting of **TWO** sections: **Section A:** 20 multiple choice questions (20 marks) **Section B:** structured questions (30 marks)	1 hour	50

10.7 Promotion marks

A promotion mark will be awarded at the end of each year based on the average of the continuous assessment mark and the mark obtained in the examination. In grade 5-7 continuous assessment for skill subjects that includes Elementary Agriculture should count 50% of the summative mark.

The weighting of each assessment component is as follows:

Written end-of-year test / examination	Section A:	20	20%
	Section B:	30	30%
Continuous Assessment	Topic Tasks, Topic Tests, Practical exercises, Practical Investigation, End of Term Test	50	50%
	TOTAL MARKS	**100**	**100%**

Promotion mark for Grades 5-7				
Weighted term mark	Term 1	Term 2	Term 3	Total
	100	100	50	250
CA mark	[250÷25] × 5			50
End-of-year examination	50			50
Promotion mark	CA mark + End-of-year examination 50 + 50			**100**

10.8 Specification grids

The specification grids below indicate the mark weighting allocated to each objective for both Continuous Assessment and for the written examination.

1. Written Examination	**Weighting %**
Assessment Objectives for Written Examination:	
Objective A Knowledge with Understanding	50
Objective B Handling Information, Application of Knowledge and Solving Problems	30
Objective C Practical (experimental and investigative) Skills and Abilities	20
Total	100
2. Continuous Assessment (CA)	**Weighting %**
Assessment Objectives for Continuous Assessment:	
Objective A Knowledge with Understanding	20
Objective B Handling Information, Application of Knowledge and Solving Problems	30
Objective C Practical (experimental and investigative) Skills and Abilities	50
Total	100

10.9 Assessment criteria

The following five criteria should be assessed and marked (out of a maximum of five marks per criteria)

- Responsibility — the ability to assume responsibility for the task in hand, and to work given instructions without detailed supervision and help
- Initiative — the ability to cope with problems arising in connection with the task, to see what needs to be done and to take effective action
- Technique — the ability to tackle a practical task in a methodical, systematic way and to handle tools skilfully and to good effect
- Perseverance — the ability to see the task through to a successful conclusion with determination and sustained effort
- Quality — the ability to attend to detail, so that the work is well-finished and well-presented

Guide to marking practical exercises

1. Responsibility

• follows written or verbal instructions without the need for help • carries out appropriate safety procedures • works well in a group, assumes responsibility easily and leads in the group	3
• follows written or verbal instructions with a little help • works within the group, shows responsibility for the work including the need for safety procedures	2
• follows written or verbal instructions with considerable help • takes no responsibility for the work	1 or 0

2. Initiative

• offers solutions or explanations to unexpected problems • recognises, and is able to anticipate problems • solves problems without help	3
• offers solutions or explanations to unexpected problems after seeking advice • recognises faults in practical exercise methods, given some indicators	2
• requires considerable guidance **or** • recognises only the most obvious errors in experimental methods after considerable guidance • does not take any initiative	1 or 0

3. Technique

• approaches tasks methodically and systematically • handles tools/apparatus skilfully and confidently • carries out practical procedures with dexterity	3
• handles tools /apparatus effectively • carries out practical procedures adequately	2
• handles tools /apparatus ineffectively • does not carries out any practical task	1 or 0

4. Perseverance

• completes all the required practical tasks and attendant written work • has a positive attitude and is well motivated • carries out practical task procedures willingly	3
• completes the required practical tasks and written work with an encouragement • willing to repeat procedure if it appears unsatisfactory	2
• the required practical task is incomplete • does not complete nor submit the written work	1 or 0

5. Quality

• performs practical work carefully • produces a presentable final result • produces correct and neat written work	3
• produces a satisfactory final result • produces correct and neat written work with few errors	2
• produces an unsatisfactory final result • does not complete any task nor written work	1 or 0

11. Additional information

12. Annexe 1: Terms used in teaching and assessment

WORD	MEANING
Analyse	Examine information in detail to discover patterns or relationships
Calculate	A numerical answer is required - working must be shown
Compare	Find resemblances and differences
Deduce	Use the information provided to come to a conclusion, e.g. reference to a law or principles, or the necessary reasoning is to be included in the answer
Define	A literal statement is required
Describe	Write down what you do, or what you would see, in as much detail as possible
Determine	Use the information given to work out the answer
Discuss	Give a critical account of the points involved in the topic
Distinguish	Show the difference between one or more variables
Estimate	Implies a reasoned statement or calculation about something
Evaluate	Use the information provided to make a judgement about something
Explain	Give a reason for your answer
Find	A general term which means calculate, determine or measure
Give /state /write down	Write down your answer
Identify	Find out what is unique about a material or situation
Interpret	Reasoning or some reference to theory, depending on the context
Investigate	Examine a problem in a systematic way
List	Give a number of points, generally each of one word
Outline	Give a brief answer writing down the main points
Predict	Make a logical deduction either from your own knowledge, from the information given in the question or both
Recognise	Be aware of a fact or problem
Relate	Find the relationship between one or more variables
Select	Choose from a number of alternatives
Sketch	In case of diagrams, make a simple, freehand drawing, and in graph work, the shape and /or position of the curve should be given
Study	Use the information or data provided to investigate a problem in a systematic way
Suggest	Use your knowledge of **science** and the information in the question to give what you think is the best answer

13. Annexe 2: Examples of suggested activities for grades 5 - 7

Grade 5 Examples of suggested activities for the themes

THEME 1: GENERAL AGRICULTURE	• collect pictures of food products and make a poster distinguishing between the food obtained from animals and plants • undertake simple agro-business activities as part of the school project to generate income • conduct a simple experiment on soil erosion
THEME 2: PLANT PRODUCTION	• dig holes and observe different layers of soil • observe and monitor the growth of plants in different soils • conduct an experiment to observe and record plant growth in area with and without light • carry out activities related to the control of plant diseases, pests and weeds
THEME 3: ANIMAL PRODUCTION	• visit a local farm and observe different types of animals kept • draw and construct simple structures (using local available materials) for animal houses and calculate the costs • visit the nearest veterinary office and find out how the outbreak of diseases can be controlled
THEME 4: FINANCIAL MANAGEMENT	• practice preparing simple family budgets by identifying sources of income and expenditure • practice keeping personal and family financial records

Grade 6 Examples of suggested activities for the themes

THEME 1: GENERAL AGRICULTURE	• visit a successful entrepreneur and find out how his/her business succeeded • carry out activities related to the prevention of pollutions from agricultural industries • demonstrate the use of agricultural equipment and tools and how to apply safety measures in using them
THEME 2: PLANT PRODUCTION	• prepare seedbeds and other mediums for planting vegetables • plant vegetables in a school garden and keep various records • design simple business messages or promotion to advertise the vegetable produced • practice the harvesting and sale of vegetable to local communities
THEME 3: ANIMAL PRODUCTION	• conduct interviews with local farmers to find out the origin of different breeds of chicken found in your area • draw and construct simple structures of poultry houses using local available materials • organise visits to local farmers to find out the available markets for different poultry and their products • design communication messages based on poultry diseases, parasites and predators
THEME 4: FINANCIAL MANAGEMENT	• practice preparing simple family budgets by identifying sources of income and expenditure • practice keeping personal and family financial records

Grade 7 Examples of suggested activities for the themes

THEME 1: GENERAL AGRICULTURE	• carry out a survey to establish the proportion of local people who are directly and indirectly dependent on agriculture for their survival • carry out agricultural activities to generate income for the school • design promotional messages for agro-business products produced at the school • demonstrate first aid procedures to be applied to those injured at work place to avoid transmission of HIV
THEME 2: PLANT PRODUCTION	• select different indigenous plants (including flowers) and plant them to decorate the school environment • transplant seedlings using different mediums such as seedbeds, trays and boxes • practice to work out the costs and benefits of maintaining plants within the school environment • carry out an experiments to demonstrate the processes of photosynthesis and respiration
THEME 3: ANIMAL PRODUCTION	• organize visits to nearest farms to observe ways of caring for different animals • demonstrate techniques of determining the age of an animal e.g. sheep/goats • draw and construct simple shelters for sheep/goats kept at school (where possible) • collect pictures and make posters of fresh water and salt water fish • set up a fish aquarium using low cost materials • demonstrate the method used in harvesting and preserving fish • draw the diagram of a fish
THEME 4: FINANCIAL MANAGEMENT	• design different promotional messages (advertising) for their agro-business products

14. Annexe 3: Assessment record sheet for grades 5 – 7

ASSESSMENT RECORD SHEET: Elementary Agriculture

Grade: ……. **Year:** ..... **School:** ..... **Teacher:** .....

	Term 1							**Term 2**							**Term 3**						**Promotion Mark**			
	Practical exercise		**Topic Task**		**Topic Test**	**End of term test**	**Term Mark**	**Practical exercise**		**Topic Task**		**Topic Test**	**End of term test**	**Term Mark**	**Practical Investigation**	**Topic Task**	**Topic Test**	**Term 3 mark**	**Term 2 mark**	**Term 1 mark**	**Total Term mark** [T1 +T2+T3]	**CA Mark** [250÷25] × 5	**End of year exam**	**Promotion Mark** [CA + End of year Exam mark]
	1	**2**	**1**	**2**	**1**	**1**		**1**	**2**	**1**	**2**	**1**	**1**		**1**	**1**	**1**							
Name of learner	15	15	10	10	20	30	**100**	15	15	10	10	20	30	**100**	30	10	10	**50**	**100**	**100**	**250**	**50**	**50**	**100**

Term 1
Moderator: ……..…….. Rank: ……..

Signature: ……. Date: ……..

Term 2
Moderator: ……Rank: ……..

Signature: ……. Date: ……..

Term 3
Moderator: ……..……Rank: ……..

Signature: ……. …..Date: ……..

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