SECTION A

INTRODUCTION

Welcome

Welcome to *Study & Master Agricultural Sciences*, Grade 11. This course includes a Learner's Book and Teacher's File that provide the core material you need to cover the contents required by the Curriculum and Assessment Policy Statement for Grade 11 Agricultural Sciences.

Section A outlines some of the core features of the National Curriculum and also provides detailed advice on the Agricultural Science course in particular.

Section B contains an explanation of all the assessment requirements with guidance on how and when assessment should be done. Rubrics and checklists for formal and informal assessment of prescribed practical work can be found at the end of this section. Generic rubrics, checklists and assessment sheets can also be used or adapted for your assessment work throughout the year.

Section C contains a detailed phase plan, work schedule and lesson plan, which provides you with a structure that is in line with the CAPS requirements.

Teaching notes and guidelines as well as answers to all activities in each unit can be found in **Section D**.

Section E contains the control tests, practical assignments, mid-year and end-of-year exams and memos as well as photocopiable assessment grids to record marks. You can also file your own documents in this section.

Overview of the South African Curriculum

The National Curriculum Statement Grades R–12 describes what is regarded to be knowledge, skills and values worth learning. It will ensure that children acquire and apply knowledge and skills in ways that are meaningful to their own lives. In this regard, the curriculum promotes
the idea of grounding knowledge in local context, while being sensitive to global imperatives.

The purpose of the National Curriculum Statement Grades R–12

- To equip learners irrespective of their socio-economic background, race, gender, physical ability or intellectual ability with the knowledge, skills and values necessary for self-fulfillment and meaningful participation in society as citizens of a free country.
- To provide access to higher education.
- To facilitate the transition of learners from education institutions to the workplace.
- To provide employers with a sufficient profile of a learner's competencies.

The principles of the National Curriculum Statement Grades R–12

- social transformation
- high knowledge and high skills
- progression
- human rights, inclusivity, environmental and social justice
- valuing indigenous knowledge systems
- credibility, quality and efficiency

Social transformation

The Constitution of the Republic of South Africa forms the basis for social transformation in our post-apartheid society. Social transformation in education is aimed at ensuring that the educational imbalances of the past are redressed, and that equal educational opportunities are provided for all sections of our population.

What does this mean in your classroom? Your learners will come from families and communities that have been affected in diverse ways by South Africa's past. They will have many different ideas about what kind of future career they want, and what kind of society they want to live in. In the learning programme that you plan for the year, you need to provide opportunities for the learners to analyse, research and come to understand the role that this particular subject plays in shaping the kind of society we want to create in South Africa and in offering them possibilities for their future.

For example: Create opportunities for learners to research and discuss questions such as, how many people in their families have studied Agricultural Sciences, and to what levels? How does access to Agricultural Sciences education relate to access to different kinds of employment? What factors influence people's access to and success in the subject?

High knowledge and high skills

The National Curriculum Statement aims to develop a high level of knowledge and skills in learners. It specifies the minimum standards of knowledge and skills at each grade and sets high, achievable standards in all subjects.

What does this mean in your classroom? You as a subject expert should inspire your learners with relevant knowledge and activities that will encourage them to want to explore agricultural science in depth, and relate what they learn to their lives outside school and to possible future career paths. Strive to develop a high level of knowledge and skills in this subject in all your learners.

For example: Relate the study of particular Agricultural Sciences topics to future career paths such as electrical, chemical, and mechanical engineering, plant and animal sciences, electrical technology, and even veterinary science. Where possible, create opportunities for learners to meet professional practitioners in these and other relevant fields. Set projects that challenge learners to apply their agricultural knowledge and skills outside the school context. Inform them about what they can expect to learn if they enroll for higher education in related agricultural subjects.

Progression

Progression refers to the process of developing more advanced and complex knowledge and skills. The content and context of each grade show progression from simple to complex.

What should this mean in your classroom? This Agricultural Sciences course contains material at the appropriate level to meet the criteria required for Grade 11. If you plan a learning programme using this course, you will ensure that your learners are progressing appropriately through the levels of knowledge and skills that the curriculum requires.

Human rights, inclusivity, environmental and social justice

The National Curriculum Statement is infused with the principles and practices of social and environmental justices and human rights as defined by the Constitution of the Republic of South Africa. In particular, it is sensitive to issues of diversity such as poverty, inequality, race, gender, language, age and disability.

What should this mean in your classroom? In all activities that you organise and facilitate you should create opportunities to relate your subject to the broader social goal of promoting human rights, environmental justice and social justice. Take into account that some of your learners might be grappling with issues such as poverty, language or disability in their daily lives, and encourage them to explore these issues in ways that relate to this subject.

For example: Identify a social issue of relevance in the learners' community and help them to design a small research project to gather and analyse information about this issue. This could relate to the availability of basic services such as fresh water, the removal of waste, etc.

Valuing indigenous knowledge systems

In the 1960s, the theory of multiple-intelligences forced educationists to recognise that there are many ways of processing information to make sense of the world. Now people recognise the wide diversity of knowledge systems through which others make sense of and attach meaning to the world in which they live.

Indigenous knowledge systems in the South African context refer to a body of knowledge embedded in African philosophical thinking and social practices that have evolved over thousands of years. The National Curriculum Statement acknowledges the rich history and heritage of this country as important contributors to nurturing the values contained in the Constitution.

What should this mean in your classroom? This Agricultural Sciences course contains material that draws on indigenous knowledge systems and encourages learners to take these systems into account in their research and practical work. You should also draw on the expertise in your subject that may be available in your local community. Compile information about individuals and organisations in your region that can support your classroom work by means of relevant indigenous knowledge to which they have access. Encourage learners to recognise sources of relevant indigenous knowledge in their own communities, and to include these sources in their research and practical project work.

For example: People from indigenous cultures have always found ways to collect and preserve uncontaminated water. By researching such water collection practices, we can learn how to minimise contamination of water resources.

Credibility, quality and efficiency

The National Curriculum Statement aims to achieve credibility through providing an education that is comparable in quality, breadth and depth to the curricula of other countries. We live in a world community in which

knowledge and people are circulated all the time. It is important that other countries in the world recognise the qualifications acquired in the South African school system.

Qualities and skills of learners

The National Curriculum Statement aims to produce learners that are able to:

- identify and solve problems and make decisions using critical and creative thinking
- work effectively as individuals and with others as members of a team
- organise and manage themselves and their activities responsibly and effectively
- collect, analyse, organise and critically evaluate information
- communicate effectively using visual, symbolic and/or language skills in various modes
- use science and technology effectively and critically showing responsibility towards the environment and the health of others, and
- demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

What is Agricultural Sciences?

Agricultural Sciences is the study of the relationship between soils, plants and animals in the production and processing of food, fibre, fuel and other agricultural commodities that have an economic, aesthetic and cultural value.

The main topics in the Agricultural Sciences curriculum are as follows:
1 Soil Science; **2** Plant Studies; **3** Animal Studies; **4** Agricultural Economics
5 Basic Agricultural Chemistry; **6** Basic Genetics and Biological Concepts
7 Sustainable Natural Resource Utilisation, **8** Agro-ecology

Learners of Agricultural Sciences will:

- develop an awareness of the management and care of the environment, natural resources and the humane treatment of animals through application of science and related technology
- develop problem-solving mechanisms within the contexts of agricultural production, processing and marketing practices
- become more aware of the social and economic development of the society at large through personal development in commercial and subsistence farming enterprises
- become informed and responsible citizens in the production of agricultural commodities, caring for the environment and addressing social justice issues
- become aware of agricultural indigenous knowledge and practices through understanding agricultural sciences in historical and social contexts.

Time and resource requirements to offer Agricultural Sciences as a subject

The teaching time for Agricultural Sciences is four hours per week.

The school should be equipped with an Agricultural Sciences laboratory where various practical work or experiments could be carried out or demonstrated.

Resources needed for each unit are listed against each topic in order to assist teachers with planning and preparation. Every learner must have his or her own textbook. Teachers should ensure that a system is in place for recovering textbooks at the end of every year. Schools must provide secure storage space where textbooks, and other equipment, can be stored safely.

Ideally every learner should have access to sufficient workspace and equipment to carry out investigations. For safety reasons no more than three learners may share space and equipment in instances where space and equipment are limited due to large classes. With regard to equipment, schools must make every effort to ensure that the essential equipment is provided.

While it is acknowledged that it is not ideal to have to improvise with 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 standard laboratory equipment. In instances where equipment is limited, teachers are encouraged to improvise. The same skills can be developed using improvised equipment. Also if there are no alternatives, it is more effective for teachers to demonstrate an investigation that to not do investigations due to a lack of equipment. Secure storage for equipment must be provided by the school.

Teachers should ensure that learners are familiar with rules regarding the safe use of equipment and chemicals. The Agricultural Sciences classroom or laboratory should be equipped with Bunsen burners or spirit lamps, hand lenses, light microscopes, a set of prepared slides, glass slides and cover slips, reference books, blades or scalpels, field guides, identification keys, glass beakers, test tubes and, if at all possible, access to appropriate DVDs and a DVD player. Fresh plant material can be obtained from the surroundings and teachers should ensure that appropriate plants are planted on the school grounds.

Teachers must be qualified to teach the subject and must familiarise themselves with the equipment and how it is used.

Subject combination

It is strongly recommended that Agricultural Sciences be combined with Mathematics, Physical Sciences and/or Life Sciences. Agricultural Sciences is an integrated science. It combines knowledge and skills from Physical Sciences, Life Sciences, Social Sciences, Earth Sciences, Engineering, Mathematics and Economics. This subject must be seen within the holistic science framework rather than as an isolated science.

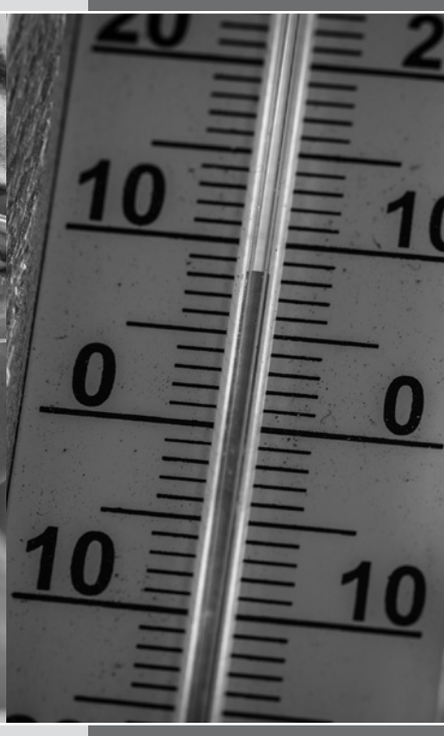
CAPS Amendments 2019

This Study & Master Agricultural Science Grade 11 course has been amended and updated according to the CAPS Policy Statement Abridged Section 4: Grades 10-11 document (FET).

SECTION B

ASSESSMENT

Look out for this logo where content has been amended to implement the latest assessment requirements in CAPS.



Assessment

Assessment is a continuous, planned process of identifying, gathering and interpreting information about the performance of learners, using various forms of assessment.

Assessment should be both informal (assessment for learning) and formal (assessment of learning). In both cases regular feedback should be provided to learners to enhance the learning experience.

Assessment is a process that measures individual learner's attainment of knowledge (content, concepts and skills) in a subject by collecting, analysing and interpreting the data and information obtained from this process to:

- enable the teacher to make reliable judgements about a learner's progress;
- inform learners about their strengths, weaknesses and progress; and
- assist teachers, parents and other stakeholders in making decisions about the learning process and the progress of the learners.

It is important to ensure that in the course of a school year:

- all of the subject content is covered;
- the full range of skills is included; and
- a variety of forms of assessment are used.

Forms of assessment

Baseline assessment

Baseline assessment is used to establish what learners already know and can do. The key questions at the beginning of each unit are an ideal form of baseline assessment. The recording of baseline assessment is usually informal.

Diagnostic assessment

Diagnostic assessment must be done every day, during formal and informal assessment sessions, to identify the need for professional help or remediation. It acts as a checkpoint to redefine goals.

Informal or daily assessment

Informal assessment is a daily monitoring of the learners' progress. This is done through observations, discussions, practical demonstrations, learner-teacher conferences and informal classroom interactions, etc. Informal assessment may be as simple as stopping during the lesson to observe learners or to discuss with learners how learning is progressing. Informal assessment should be used to provide feedback to the learners and to inform planning for teaching. It should not be seen as separate from learning activities taking place in the classroom. The results of the informal daily assessment tasks are not formally recorded unless the teacher wishes to do so. Learners or teachers can mark informal assessment tasks.

Self-assessment

Self-assessment actively involves learners in assessment. This is important as it allows learners to learn from and reflect on their own performance. It also helps learners to take responsibility for their own learning and for the learning of their peers. In this way they develop a sense of self-discipline and commitment to each other's well-being. Reflection on one's own learning is a vital component of learning.

Peer assessment

Using a checklist or rubric (provided on pages B13 to B16 and pages E55 to E58 in this Teacher's File), learners can assess their partners. This helps the learners whose work is being assessed, and the learners doing the assessment. The sharing of the criteria for assessment empowers learners to evaluate their own and others' performances.

Group assessment

Group assessment looks at process as well as product. Look for evidence that the group of learners who co-operated and assisted one another. You should be assessing social skills, time management, resource management and group dynamics as well as the output of the group.

Formal assessment

All assessment tasks that make up the formal programme of assessment for the year are regarded as Formal Assessment. Formal assessment tasks are marked and formally recorded by the teacher for progression and certification purposes. All formal assessment tasks are subject to moderation for the purpose of quality assurance and to ensure that appropriate standards are maintained.

Formal assessment provides teachers with a systematic way of evaluating how well learners are progressing in a grade and in a particular subject. Examples of formal assessments include tests, examinations, practical tasks, projects, oral presentations, demonstrations, performances, etc. Formal assessment tasks form part of a year-long formal Programme of Assessment in each grade and subject.

Programme of formal assessment

In addition to daily assessment, teachers should develop a year-long formal Programme of Assessment for each grade. The Programme of Assessment spreads formal assessment tasks in all subjects in a school throughout a term. The learner's performance in this Programme of Assessment is be used for promotion purposes to Grade 12. Assessment is school-based or internal. The marks achieved in each of the assessment tasks that make up the Programme of Assessment must be reported to parents.

Assessment plans must be linked to teaching and learning activities that take place in the classroom.

The table below illustrates the formal assessment plan for Agricultural Sciences Grade 11.

Formal assessment: Grade 11 (6 tasks)			
Term 1	**Term 2**	**Term 3**	**Term 4: Promotion mark**
Task-based assessment 1 – 25% Control test 1 – 75%	Task-based assessment 2 – 25% Mid-year exam – 75%	Control test 2 – 75%	Task-based assessment: Task-based 1: 20 marks Task-based 2: 20 marks Test-based assessment: Control test 1: 15 marks June exam: 30 marks Control test 2: 15 marks **Total: 100** **Final exam** **Total 300**
100	100	100	**Total progression mark: 400**

PROGRAMME OF ASSESSMENT							
ASSESSMENT TASKS							
	SBA					End-of-year Assessment	
% allocated	25%					75%	
Forms of assessment	Practical investigation	Research project/ Assignment	Control tests		Mid-year exam	November exam	
Number of pieces	1	1	2		1	1 (Paper 1 + 2)	
Marks	20	20	15	15	30	150	150
Sub totals	100					300	
Grand total	**400**						

Methods of assessment

The test and examinations in Grade 11 are compulsory. These are internally moderated. The following tests and exams are covered in Grade 11:

- Control Test 1: first term (assesses all work covered in this term)
- Mid-year examination (assesses work done in the first and second terms)
- Control Test 2: third term (assesses all work covered in that term)
- Final end-of-year examination (assesses work covered throughout the year)

Note: in some cases, the number of marks for a practical investigation, assignment or test might not correspond exactly to the mark allocation given in the Formal assessment structure for Grade 11 outlined above. In such cases, the teacher must convert the marks for the relevant piece of work, or test, to the value indicated in the Formal assessment structure above.