education

Department of Education
REPUBLIC OF SOUTH AFRICA

NATIONAL CURRICULUM STATEMENT GRADES 10-12

SUBJECT:
AGRICULTURAL SUBJECTS

TEACHER TRAINING MANUAL 2006

CONTENTS

PROGRAMME

PERIOD: Monday to Friday

DURATION: 36-37 hours

5-DAY PROGRAMME FOR TEACHERS-

SESSION	ACTIVITY	TIME	DAY
1. Introducing the National Curriculum Statement (NCS) and the National Senior Certificate (NSC)	Introduction of training participants	3-4 hours	Mon AM
	Overview of the week of training / documents provided		
	Introduction to the NCS and NSC		
2. Introducing the Subject Statement	Introduction	20 hours	Mon PM – Tues PM
	Subject Content and Approach		
	Conclusion / Wrap-up		
3. Planning for teaching subjects in the NCS	The Planning Cycle	8 hours	Wed-Thu
	The Grade 10-11 Work Schedule		
	Critique of the Grade 11 Work Schedule		
	Development of the first Lesson Plan for Grade 10 -11		
4. Annual assessment plan	Introduction	5 hours	Fri AM
	Annual assessment plan		
	Conclusion / Wrap-up		

SESSION 1 –

Introducing the National Curriculum Statement (NCS) and the National Senior Certificate (NSC) (3-4 hours)

ACTIVITY 1.1: Introduction of training participants

FORM OF ACTIVITY: Introductions

ACTIVITY 1.1: Overview of the week of training / documents provided

FORM OF ACTIVITY: Presentation

RESOURCES: The 5-day training programme (PowerPoint)
A hard copy of each document referred to-

- National Senior Certificate Policy
- Subject Statement
- Subject Assessment Guidelines
- Learning Programme Guidelines
- National Protocol on Assessment
- Higher Education admission requirements

CONTENT:

- Training programme for the week and house rules
- Documents making up the National Curriculum Statement policy and documents supporting the National Curriculum Statement policy – purpose and status of each

ACTIVITY1.2: Introduction to the NCS and NSC
Time: 15 minutes

Answer the 20 Questions.

<u>Part 1</u>: 20 Questions

FORM OF ACTIVITY: Test and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector

CONTENT:

- 20 questions focusing on the NCS and NSC

INSTRUCTIONS:

- Allow the participants to record their responses to each question as individuals
- Discuss the answers with the group as a whole, inviting participants to offer answers before discussing them

Part 2: NCS and NSC

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, a hard copy of each document referred to in the presentation-
- National Senior Certificate Policy
- Subject Statement
- Subject Assessment Guidelines
- Learning Programme Guidelines
- National Protocol on Assessment

CONTENT:
- Overview of the NCS, including principles and Critical and Developmental Outcomes
- National Senior Certificate: Requirements, structure and details

Activity 1.3: Requirements for Higher Education study

FORM OF ACTIVITY: Open-book and presentation

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, HE admission requirements

CONTENT:
- Requirements for certificate, diploma and degree programmes

INSTRUCTIONS:

Introduction
- While the Higher Education document is not part of NCS policy, it provides teachers with indicators on required learner performance in NCS subjects for entry into Higher Education
- The 3-year NSC programme is the key to Higher Education study and teachers need to be aware of the admission requirements for different programmes offered at Higher Education Institutions

Open-book activity
- Ask participants to study the HE document and identify the requirements for certificate, diploma and degree programmes

Report back and discussion
- Allow one report back
- Present the requirements (see PowerPoint Presentation)
- Discuss the designated list of subjects, noting that learners already have 3 of the designated subjects in their NSC package – two languages and Mathematics or Mathematical Literacy

SESSION 2
Introducing the Subject Statement (20 hours)

Activity 2.1 Introduction to Agricultural Subjects

OUTCOME: INTRODUCTION TO AGRICULTURAL SUBJECTS

At the end of this activity you will be able to:

- **Understand why a curriculum change is important and the process involved.**
- **Understand how these subjects were combined to make up the new NCS subjects**
- **Demonstrate an understanding of the new subject content.**

FORM: Presentation and discussion

RESOURCES: Power Point Presentation, Laptop, Data Projector, Subject Statements and hard copies of each policy relevant to the subject.

BACKGROUND INFORMATION.
Time: 30 minutes

Why a change in the curriculum?

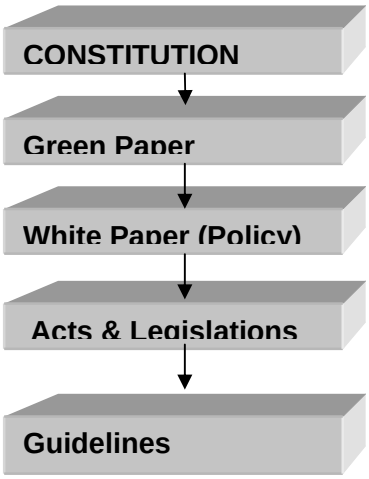
A process of reviewing and modernising Grades 10-12 school programmes was initiated in 1999. Its intentions were to:

- Establish new standards (expressed as Learning Outcomes) for grades 10-12 (General);
- (RE) DESIGN Grades 10-12 Learning Programmes aimed at achieving the Learning Outcomes:
- Establish programmes aimed at equipping educators, managers and officials with the skills and knowledge required to implement Learning Programmes effectively and efficiently; and
- Lay the foundation for the introduction of NCS in 2006, Grades 10-12 (General).
- Equip learners for life in the 21st Century and broaden access to a range of career options.

The review and modernisation process was initiated in the late part of the 20th century, with the aim of re-conceptualising and rewriting the interim syllabi, i.e. Report 550, for grades 10–12 into the new, integrated and responsive Learning Programmes. While this process was not fully implemented at the time, it served as a prelude to the **development of t**he **NCS grades 10–12 (General),** which is to replace Report 550, a decision taken by the Council of Education Ministers (CEM) in 2001.

DOCUMENTS DRIVING THE CHANGE OF THE CURRICULUM (Building blocks)

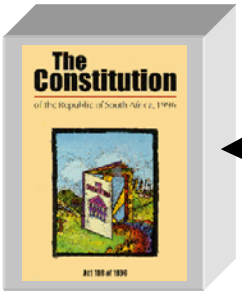
The diagram below summarises the Legislation process and the eventual relation between Acts, Policies and Guidelines**.**



Some Legal Terminology

Green Paper	Draft policy discussion documents: are intentions, frameworks and proposals.
White Papers (Policy)	Green Paper approved by Parliament: its intentions, frameworks and policy.
Acts and Legislation	Various kinds of laws and regulations passed by parliament or province that have final ruling in a court of law e.g., Constitution and South African School Act 84 of 1996.
Guidelines/ Introduction to the act	Are explanatory and supportive frameworks developed to assist in understanding policy?

LINK BETWEEN THE CONSTITUTION, THE CURRICULUM AND THE FINAL QUALIFICATION.



CRITICAL & DEVELOPMENTAL OUTCOMES

NCS PRINCIPLES SKVs

LEARNING FIELDS (SAQA & DoE)
NATIONAL CURRICULUM STATEMENT
- Subject Statements
  - Learning Outcomes
  - Assessment

Relevant Legislation
- Bill of rights
- National Education Act
- SA Schools act.
- Employment of Educators Act
- Labour relations act
- Occupation and safety
- White paper 6: Inclusive Education

The curriculum as stated in the NCS and LPG, is used as a vehicle for realizing the intentions of the Constitution by ensuring that learners live up to the aims of the Constitution.

(7 Subjects)
NATIONAL SENIOR CERTIFICATE

LPG – Learning Programme Guideline

SAG – Subject Assessment Guideline

HOW AGRICULTURAL SUBJECTS CHANGED AND WHY THEY ARE STILL IMPORTANT?

A new approach to Agricultural Education is required to address the real political, social, economic and environmental conditions.

Therefore the envisaged Agricultural Education must equip learners with the knowledge and necessary skills, which will enable them to make their own sound decisions, within the framework of the national agricultural curriculum statement, based on the principles of sustainable agriculture and living.

Activity 2.2: Complete the table in the Appendix on page 26.
Time: 15 minutes
How does Agricultural Subjects relate with the collapsed NATED 550 subjects?

TIME ALLOCATION FOR AGRICULTURAL SUBJECTS.
TIME: 15 minutes

In terms of Section 4 of the Employment of Educators Act (1998), all educators should be at school during the formal school day, which should not be less than seven hours per day. This allows for a 35-hour working week.

According to the policy document, National Policy Regarding Instructional Time for School Subjects (Government Notice 1473, Government Gazette 20692, 10 December 1999), 27,5 hours must be devoted to teaching time for the Senior Certificate programme.

Summary of credit and time allocations.

Subject		Credits	Time Allocation (hours per week)
Language 1 (LOLT)	Fundamental Subjects (GROUP A)	20	4.5
Language 2		20	4,5
Mathematics or Mathematical Literacy		20	4,5
Literacy Life Orientation		10	2
Group B – All Agricultural Subjects fall in this group		60	4 x 3

Calculate the time allocation of each subject in minutes, multiply the hours allocated to it by 60:

- 4,5 hours x 60 = 270 minutes for each of the 2 Languages, Maths or Maths Literacy
- 4 hours x 60 = 240 minutes per Group B Subjects
- 2 hours x 60 = 120 minutes for Life Orientation

EXAMPLE: Determining Number of periods.
Suppose that a period is 30 minutes (more double)

- 270/30 = 9 periods (2 languages & Maths each)
- 120/30 = 4 periods (Life Orientation)
- 240/30 = 8 periods (Compulsory optional Subjects each)

Total 55 periods per week i.e. 11 periods per day

Further suggestions:

- Consider the option of double periods or blocks (8 periods could be 2 + 2 +2 +1+1)
- If the school calculate the periods / cycle ensure that time allocation is 4 hrs per week and not per cycle

Activity 2.3: Complete the baseline assessment sheet p27 in Appendix:
Time: 10 minutes
Discuss the questionnaire on outcomes in your group. You are welcome to change your answer during the course of the training.

Specific Subject Content – Individual Subject presentation

Presentations on the Definition, Purpose, Scope and LOs of each subject.

- **Agricultural Sciences** **(30 minutes)**
- **Agricultural Management Practices** **(30 minutes)**
- **Agricultural Technology** **(30 minutes)**

(The above information is available in the NCS of each subject under Chapter 2)

WRAP-UP Subject content
Time: 15 minutes
Facilitator draws conclusions based on the previous presentations.

ACTIVITY 2.4: AGRICULTURAL SUBJECTS: Subject Content and Approach

ACTIVITY OUTCOMES: At the end of this activity, you will be able to:

- understand that learners learn differently and therefore teachers need to use a variety of teaching strategies.
- discuss learning activities to accommodate a particular learning style.

FORM OF ACTIVITY: Presentation, Group work and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, hard copy of each supporting policy relevant to the subject, news print/transparencies, OHP, OHP pens:

INTRODUCTION:

Facilitator should do a presentation regarding the classification of learning styles and multiple intelligences.

ACTIVITY 2.5: LEARNING STYLES
TIME: 90 minutes

- In your group discuss the following:

- How do **you** learn best?
- What style of learning appeals to **you**?
- Discuss **your** best learning experience and explain why the experience was special to **you**?
- Match the learning characteristics in column B with the correct learning styles in column A in Table 1 on page 32 in appendix.

ACTIVITY 2.6: TEACHING STYLES AND LEARNING STYLES
Complete the table on page 33 in the Appendix in groups by indicating what teaching and learning styles are best suited for each multiple intelligence.

WRAP-UP:
Facilitator explains how the different learning styles can inform the development of the various learning/teaching and assessment strategies.

ACTIVITY 2.7: UNPACKING THE LEARNING OUTCOMES AND ASSESSMENT STANDARDS OF THE THREE AGRICULTURE SUBJECTS

TIME: 270 minutes

ACTIVITY OUTCOMES: **At the end of this activity you will be able to:**

- Demonstrate an understanding of the Learning Outcomes and Assessment Standards
- Apply the assessment standards in developing teaching/learning and assessment strategies
- Link the assessment standards with relevant content
- Identify progression via the assessment standards through the grades
- Identify new content/context.
- Develop a professional development programme.

FORM OF ACTIVITY: Presentation, Group work, Feedback and discussions

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, hard copy of each supporting policy relevant to the subject, transparencies, OHP.

INTRODUCTION

- During the plenary the facilitator will introduce the learning outcomes and assessment standards of all three subjects
- Study the learning outcomes and assessment standards allocated to your group (In NCS and LPG)
- Complete the **activity worksheet 2.7** in the appendix on page 35.
- Use key words to explain the following on the transparency provided:
  - *what the learners have to demonstrate for the three grades,*
  - *the relevant content/context,*
  - *ideas for an activity or activities to address the Learning Outcome and Assessment* Standards,
  - *how progression per grade for each Assessment Standard takes place.*
  - *List the new content by stating new concepts, topics or themes*
  - *Complete the professional Development programme:* ***Activity Worksheet 2.8*** *(page 39 in appendix)*
- Select a person to give feedback to the plenary
- During the feed back session complete the rest of the worksheet in your manual by using the feedback supplied by each group

ACTIVITY 2.9: CASE STUDY 1 - INDIGENOUS AGRICULTURAL KNOWLEDGE AND HISTORICAL DEVELOPMENT

TIME: 60 minutes

LEARNING OUTCOME: **INDIGENOUS AGRICULTURAL KNOWLEDGE AND HISTORICAL DEVELOPMENT**

At the end of this activity you will be able to:

- Understand and analyse the reasons for different production practices and systems ranging from subsistence to commercial agriculture.
- Analyse the changes in agricultural systems, management and practices over time.

FORM OF ACTIVITY: Group work, Feedback and discussions

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, worksheets, transparencies, OHP

INSTRUCTIONS:

1. In your group carefully study Case study 1 on page 40 in the appendix and answer the questions that follow.
2. Record your answers on the news print / transparencies provided.
3. Select a member of your group to report back

ACTIVITY 2.10: CASE STUDY 2 - INVESTIGATIONS IN AGRICULTURE

TIME: 60 minutes

LEARNING OUTCOME: **INVESTIGATE AND ANALYSE**

At the end of this activity you will be able to:

- Organise, process and evaluate the collected information in order to solve problems through responsible decision-making using effective communication.

FORM OF ACTIVITY: Group work, Feedback and discussions

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, worksheets, transparencies, OHP.

Instructions
In your group carefully study case study 2 on page 41 in the appendix and answer the questions that follow.
1. Record your answers on the news print / transparencies provided.
2. Select a member of your group to report back

WRAP-UP:
Facilitator explains how the assessment standards inform learning/teaching and assessment as well as progression per grade.

Valuable information regarding LOs and AS's in the Agricultural Subjects

Interrelatedness of the Learning Outcomes
The four Learning Outcomes (LOs) in Agricultural Subjects are interrelated and should be integrated so that they are not dealt with in isolation

For Example: In Agricultural Sciences All the Learning Outcomes are of equal importance but not all have the same weighting in the allocation of time and resources. Learning Outcome 2 and 3 reflects knowledge and understanding, whilst Learning Outcome 1 deals with the application of skills of this knowledge. These three outcomes are underpinned by Learning Outcome 4 which reflects the interrelationship of Agricultural with society and the environment.

NB: The numbering system of Assessment Standards.
All Assessment Standards are numbered in the following manner:
The first number refers to the grade, the second number to the Learning outcome and the third number to the Assessment Standard e.g. 10.1.4 implies Grade 10, LO 1 and AS 4.

ACTIVITY 2.11: BLOOM'S TAXONOMY
TIME: 90 minutes

ACTIVITY OUTCOMES: At the end of this activity, you will be able to:

- Identify and understand the levels of Bloom's taxonomy from assessment standards.

FORM OF ACTIVITY: Presentation, Group work, Feedback and discussions

RESOURCES: Power Point Presentation, Laptop, Data Projector, Subject Statement, hard copy of each supporting policy relevant to the subject, transparencies, OHP

INTRODUCTION

During plenary you will be introduced to the different cognitive levels according to Bloom's taxonomy. See activity 2.11 page 43 in Appendix.

ACTIVITY 2.12: Levels of Complexity:

30 minutes

ACTIVITY OUTCOMES: At the end of this activity, you will be able to:

- In pairs identify which level of Bloom's taxonomy appears to be addressed by the following extracts from the assessment standards. Use the verb to guide you.
- Complete the Table on page 44 in the appendix

ACTIVITY 2.13: DESIGNING AN ASSESSMENT TOOL (RUBRIC)

TIME: 120 minutes

ACTIVITY OUTCOMES: At the end of this activity, you will be able to:

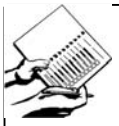
- Understand the process of developing a rubric within the Agricultural Sciences
- Design a scoring rubric for Agricultural Subjects.

FORM OF ACTIVITY: Presentation, Group work, Feedback and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Transparencies, OHP and OHP pens

INTRODUCTION:

During the plenary your facilitator discusses the steps to design a scoring rubric.



Instructions

In your group use the steps discussed to design a scoring rubric using activity 2.7 (p35 - 38)

ACTIVITY 2.14: LTSM

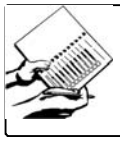
TIME: 60 minutes

ACTIVITY OUTCOMES: At the end of this activity, you will be able to:

- Identify the minimum subject packages with regard to LTSM for each agriculture subject.

FORM OF ACTIVITY: Group work, Feedback and discussion

RESOURCES: News print/Flipchart



Instructions
In your group identify relevant LTSM for each of the Agricultural Subjects. Complete the table on page 48 in the appendix.

SESSION 3 –
Planning for teaching subjects in the NCS (8 hours)

ACTIVITY 3.1: Introduction to the planning cycle (2 hours)

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector

CONTENT:
- Three stages of planning
- Purpose, role-players and duration per stage
- Issues to consider when developing a Learning Programme
- Brief overview of the key activities and development process per stage

ACTIVITY 3.2: Introduction to the Grade 10-12 Work Schedule (1.5 hours)

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: OHP of Grade 11 Work Schedule, OHP Projector, OHP Pens, OHP Sheets, Subject Assessment Guidelines, Learning Programme Guidelines, Subject Statement

CONTENT:
- Elements of design
- Process of design
  - Integration: What, how and why?
  - Sequencing: What, how and why?
  - Pacing: What, how and why?
  - Suggested assessment tasks: What and why? – will return to this in Session 4
  - LTSM: What and why?

ACTIVITY 3.3: Critique the Grade 10-12 Work Schedule (2 hours)

FORM OF ACTIVITY: Interactive, report back and discussion

RESOURCES: Grade 10-12 Work Schedule, Subject Statement, Learning Programme Guidelines, Subject Assessment Guidelines

CONTENT:
- Grade 11 Work Schedule

INSTRUCTIONS:

- Participants study the example of the Grade 10-12 Work Schedule provided and critique it:
  - Does the Work Schedule cover all the Assessment Standards (i.e. content)?
  - Integration: Are the Assessment Standards appropriately linked?
  - Are the Assessment Standards covered in sufficient detail and depth?
  - Pacing: Is the time allocation across the 40 weeks appropriate?
  - Sequencing: Is the content presented in the correct order?
  - Are relevant LTSM listed? If not, list the LTSM required.
  - How can the Work Schedule be improved?

ACTIVITY 3.4: PANEL DISCUSSION-Report back (1.5 hours)

FORM OF ACTIVITY: Report back and discussion

RESOURCES: Subject Statement, Learning Programme Guidelines

CONTENT:
- Improved Grade 10-12 Work Schedule

INSTRUCTIONS:
- Allow different groups to present their improved version of the exemplar Work Schedule for Grade 10-12
- Engage participants in a discussion after each presentation

ACTIVITY 3.5: Development of the first Lesson Plan for Grade 10-12 (4 hours)

FORM OF ACTIVITY: Presentation, interactive, report back and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, Learning Programme Guidelines

CONTENT:
- Grade 10 - 12 Lesson Plan
  - Elements of design
  - Process of design

INTRODUCTION:
- Lesson Plan: What it is and its duration
- Pointers on deciding on the number of Lesson Plans to be written
- Elements and design of a Lesson Plan
- Teaching method: What and why
- Assessment strategy: Who, when, how and form of assessment
- Expanded opportunities: Inclusive approach to accommodate all learners

INSTRUCTIONS:

- Provide an overview of the elements and the design process of a Lesson Plan
- Engage participants in the development of the first Lesson Plan that will be presented for the first 2-5 weeks of the school year according to the Grade 10-12 Work Schedule critiqued in Activity 3
- Allow one group to present and then discuss their presentation

SESSION 4 –
Annual assessment plan (8 hours)

ACTIVITY 4.1: Introduction to assessment in the NCS

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, National Protocol on Assessment

CONTENT:
- Approach to assessment: Criteria-driven
- Recording process: Record one global mark / code per task and refer to the Subject Assessment Guidelines for guidance on how to arrive at the final mark for the subject
- Reporting process: 7 codes and percentages
- Portfolios: Teacher and learner

ACTIVITY 4.2: Programme of Assessment for Grades 10 - 12

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Assessment Guidelines

CONTENT:
- Programme of Assessment for Grades 10 -12 (Section 2 of the Subject Assessment Guidelines): Number of tasks
- Nature of tasks: Forms of assessment suitable to the subject (Section 3 of the Subject Assessment Guidelines) and suitable tools
- Practical Assessment Task (PAT) – if applicable to the subject
- Weighting of tasks for the formal Programme of Assessment and mark allocation

ACTIVITY 4.3: Development of a Grade 10-12 annual assessment plan

FORM OF ACTIVITY: Presentation, interactive and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Assessment Guidelines

CONTENT:
- Programme of Assessment for Grade 10-12: Tasks, topics, tools and dates

INSTRUCTIONS:
- Engage participants in the compilation of a Grade 10-12 annual assessment plan in which they indicate:
  - Seven tasks: 2 Tests, 2 exams, other tasks and PAT

  - Topics for each task
  - Assessment tools for each task
  - Date and duration of each task
- Ask participants to revisit the Grade 10-12 Work Schedule (Session 3: Activity 3) and to align the annual assessment plan for Grade 10-12 with the assessment tasks listed in the Work Schedule

APPENDIX TO TT MANUAL FOR AGRICULTURAL SUBJECTS

CONTENT OF APPENDIX PAGE

SESSION 1

ACTIVITY 1.1 20 QUESTIONS

Make use of your knowledge of the NCS and related documents to answer the following questions.

- *Fill in the answers as quick as possible*
- *Keep answers short and to the point.*

No	Answer
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

ACTIVITY 1.2 REQUIREMENTS FOR HIGHER EDUCATION

Study the HE document and identify the requirements for certificate, diploma and degree programmes

HIGHER CERTIFICATE	DIPLOMA	BACHELOR'S DEGREE

SESSION 2

ACTIVITY 2.1 SUMMARY OF SUPPORT DOCUMENTS

SUPPORT DOCUMENTS TO THE NCS POLICY FOR ALL SUBJECTS IN FET SCHOOLS.

NCS - Overview Document

Provides a foundation, on which the NCS Curriculum is built, defines the NCS Principles, provides guidance on assessment and introduces the various Subjects and the learning fields as contained in the NCS. It also gives background to the curriculum transformation process and an overview on the qualification FETC.

NCS - Qualifications and Assessment Policy Framework

This document contains a repetition from the Overview document, but in more detail. Describes the various Pathways in the FET in order to attain a FETC; explains the promotion requirements for the band; explains the different types of assessment and how to assess, record and report; shows time allocation for Learning Programmes**.**

NCS - Subject Statement Grades 10–12 (General)

Show how each Subject fuses in the NCS Principles; specify the Learning Outcomes and Assessment Standards to be achieved; deal with assessment, recording and reporting in the Subject; provide educational and career links.

Learning Programme Guidelines (LPG)

Specify the scope of learning and assessment for three grades in the FET Band, ensures that learners achieve the Learning Outcomes, as prescribed by the Assessment Standards for a particular grade.

Subject Assessment Guidelines (SAG)

Specify the assessment criteria for the subject.

A list of relevant legislations important in attaining the outcome summarised below.

Laws and Acts	Key elements
Constitution – Bill of Rights	Fundamental Rights in education: ➢ Juristic person; ➢ Equality; ➢ Rights to privacy; ➢ Freedom of association, religion, language, culture and expression; ➢ Human dignity; ➢ Limitation clause; ➢ The Rights of the child; and ➢ Rights to basic education.
National Education Policy Act (Act 27 of 1996)	A general policy meant to address a broader issues in education and training
South African Schools Act (Act 84 of 1996)	The objectives of the Act: ➢ To provide for a uniform system for the organisation, ➢ Governance and funding of schools; ➢ To amend and repeal certain laws relating to schools; and ➢ To provide for matters connected therewith.
Employment of Educators Act (Act 76 of 1998)	➢ Regards the employee as an educator; which includes: "any person who teaches, educates or trains other persons or provides professional therapy at any school, ..."); and ➢ SACE.
Labour Relations Act (Act 66 of 1995)	The employer-employee relation as the focus of this section.
Occupational and Safety Act (Act 85 of 1993)	The Act deals with the Health and Safety of persons in the workplace. It covers the use of industrial equipment and machinery, and protection against threats and the health and safety of persons in the workplace.
White Paper 6: Inclusive Education (LSEN)	Assists in the provision of educational opportunities for learners who experience barriers, to learning and development.
White Paper 7 (e–Education)	Information Technology has an impact on curriculum development and delivery in terms of access, cost effectiveness and the quality of education. It can also be integrated into the learning and teaching process.

ACTIVITY 2.2: COMPLETE THE FOLLOWING TABLE.
Time: 15 minutes
How does Agricultural Subjects relate with the collapsed NATED 550 subjects?

Nated 550 Subjects	New NCS Subjects	Content of NCS Subjects
Agricultural Science (HG & SG) Applied Agricultural Science (SG) Animal Husbandry (HG & SG) Equine Studies (SG) Farm Mechanics (SG) Field Husbandry (HG & SG) Agricultural Economics (HG & SG)	• **Agricultural Sciences**	
	• **Agricultural Management Practices**	
	• **Agricultural Technology**	

ACTIVITY 2.3: QUESTIONNAIRE ON OUTCOMES

INSTRUCTIONS: IN YOUR OWN WORDS WRITE DOWN YOUR INTERPRETATION OF THE FOLLOWING TERMINOLOGY

LEARNING OUTCOME

SUBJECT

CRITICAL OUTCOME

DEVELOPMENTAL OUTCOME

ASSESSMENT STANDARD

WRAP – UP SUBJECT CONTENT

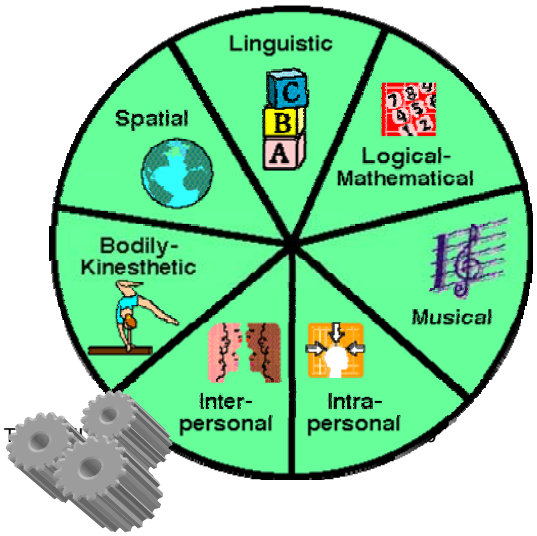
DIFFERENCES	AGRICULTURAL SCIENCES	AGRICULTURAL MANAGEMENT PRACTICES.	AGRICULTURAL TECHNOLOGY
DEFINITION	Focus on soil, plant and animal relationships	Focus on the application of economic and management practices for agricultural production.	Technological processes
PURPOSE	- learners have national priorities -care for the environment -socio-economic dev	-application of economic and management skills -social contribution of agric management -prepare agri-business learners	-prepare learners manage the impact of Technology -use Technology effectively -understand social contribution of Agric Technology
SCOPE	Ecology and Agro-ecology Agriculture as an industry Soil science Animal and Plant studies Optimum Resource Utilization Agricultural Economics	Crop Production Animal Production Entrepreneurial Skills Management Aspects	General problem solving Civil Mechanical Electrical Farming

SIMILARITIES	AGRICULTURAL SCIENCES	AGRICULTURAL MANAGEMENT PRACTICES.	AGRICULTURAL TECHNOLOGY
DEFINITION	Promote economic, aesthetic & cultural values	Promote economic, aesthetic & cultural values	Promote economic, aesthetic & cultural values
PURPOSE	➢ Indigenous knowledge ➢ Problem-solving	➢ Indigenous knowledge ➢ Problem-solving	➢ Indigenous knowledge ➢ Problem-solving
CAREERS	-Farming -Horticulture -Agricultural teaching -Extension officer -Marketing services -Agricultural business -Entrepreneurship	-Farm and ranch management -Marketing -Research -Civil service -Education -Nature conservation -Agricultural advisory service -Agricultural economy -Agribanking	-Agricultural implements -Maintenance of automotive and mechanized farm equipment -Mechanisation -Environmental conservation -Construction of agricultural structures
LOs	4:SKVs	4:SKVs	4:SKVs

ACTIVITY 2.4 AGRICULTURAL SUBJECTS: CONTENT AND APPROACH

DESCRIPTION OF LEARNING STYLE		WHAT A LESSON SHOULD INCLUDE
	1. Those who prefer a VISUAL LEARNING STYLE. • . . . look at the teacher's face intently; • . . . like looking at wall displays, books etc. • . . . often recognize words by sight; • . . . use lists to organize their thoughts; and • . . . recall information by remembering how it was set out on a page.	Activities that are visual oriented. Use many visuals in the classroom. For example, wall displays posters, regalia, flash cards, graphic organizers etc.
	2. Those who prefer an AUDITORY LEARNING STYLE. • . . . like the teacher to provide verbal instructions; • . . . like dialogues, discussions and plays; • . . . solve problems by talking about them; and • . . . use rhythm and sound as memory aids.	Activities with a strong auditory focus
	3. Those who prefer a KINESTHETIC LEARNING STYLE. • . . . learn best when they are involved or active; • . . . find it difficult to sit still for long periods; and • . . . use movement as a memory aid.	Learning experiences need an action base
	4. Those who prefer a TACTILE (HANDS ON) WAY OF LEARNING • . . . use writing and drawing as memory aids; • . . . learn well in hands–on activities like projects; and demonstrations.	Learning activities need a hands-on focus

MULTIPLE INTELLIGENCES



i. Visual/Spatial Intelligence
ii. Verbal/Linguistic Intelligence
iii. Logical/Mathematical Intelligence
iv. Bodily/Kinaesthetic Intelligence
v. Musical/Rhythmic Intelligence
vi. Interpersonal Intelligence
vii. Intrapersonal Intelligence

viii. Naturalistic Intelligence

ix. Technological Intelligence

Technological **Naturalistic**

i. VISUAL/SPATIAL INTELLIGENCE

- The ability to perceive the visual. These learners tend to think in pictures and need to create vivid mental images to retain information. They enjoy looking at maps, charts, pictures, videos and movies.

- **Their skills include:**
  Puzzle building, reading, writing, understanding charts and graphs, a good sense of direction, sketching, painting, creating visual metaphors and analogies (perhaps through the visual arts), manipulating images, constructing, fixing, designing practical objects, interpreting visual images.

ii. VERBAL/LINGUISTIC INTELLIGENCE

- The ability to use words and language. These learners have highly developed auditory skills and are generally elegant speakers. They think in words rather than pictures.

- **Their skills include:**
  Listening, speaking, writing, story telling, explaining, teaching, using humour, understanding the syntax and meaning of words, remembering information, convincing someone of their point of view, analysing language usage.

iii. LOGICAL/MATHEMATICAL INTELLIGENCE

- The ability to use reason, logic and numbers. These learners think conceptually in logical and numerical patterns making connections between pieces of information. Always curious about the world around them, these learners ask lots of questions and like to do experiments.

- **Their skills include:**
  Problem solving, classifying and categorizing information, working with abstract concepts to figure out the relationship of each other, handling long chains of reason to make local progressions, doing controlled experiments, questioning and wondering about natural events, performing complex mathematical calculations, working with geometric shapes.

iv BODILY/KINAESTHETIC INTELLIGENCE

- The ability to control body movements and handle objects skilfully. Learners express themselves through movement. They have a good sense of balance and eye – hand – co-ordination. (e.g. Ball play, balancing beams). Though interacting with the space around them, they are able to remember and process information.

- **Their skills include:**
  Dancing, physical co-ordination, sports, hands on experimentation, using body language, crafts, acting, miming, using their hands to create or build and expressing emotions through the body.

v MUSICAL/RHYTHMIC INTELLIGENCE

- The ability to produce and appreciate music. These musically inclined learners think in sounds, rhythms and patterns. They immediately respond to music either appreciating or criticising what they hear. Many of these learners are extremely sensitive to environmental sounds (e.g. crickets, bells, dripping taps).

- **Their skills include:**
  Singing, whistling, playing musical instruments, recognising tonal patterns, composing music, remembering melodies and understanding the structure and rhythm of music.

vi INTERPERSONAL INTELLIGENCE

- The ability to relate and understand others. These learners try to see things from other people's point of view in order to understand how they think and feel. They often have an uncanny ability to sense feelings, intentions and motivations. They are great organisers, although they sometimes resort to manipulation. Generally they try to maintain peace in-group settings and encourage co-operation. They use both verbal (e.g. speaking) and non-verbal language (e.g. eye contact, body language) to open communication channels with others.

- **Their skills include:**
  Seeing things from other perspectives (dual-perspective), listening, using empathy, understanding other people's moods and feelings, counselling, co-operating with groups, noticing people's moods, motivations and intentions, communicating both verbally and non-verbally, building trust, peaceful conflict resolution, establishing positive relations with other people.

vii INTRAPERSONAL INTELLIGENCE

- The ability to self-reflect and be aware of one's inner state of being. These learners try to understand their inner feelings, dreams, relationships with others and strengths and weaknesses.

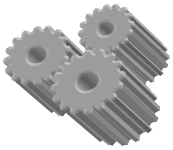
- **Their skills include:**
  Recognising their own strengths and weaknesses, reflecting and analysing themselves, awareness of their inner feelings, desires and dreams, evaluating their thinking patterns, reasoning with themselves and understanding their role in relationship to others.

viii NATURALISTIC INTELLIGENCE

- The ability to create an understanding and meaning through the world around them, excursions and research.

- **Their skills include:**
  Being able to observe and learn from what they observe, understanding the context of issues or observed objects.

xi TECHNOLOGICAL INTELLIGENCE



- The ability to understand and apply the technological process to identify needs and solve problems creatively.

- **Their skills include:**
  Being able to solve technological problems by applying the following skills; listening, observing, logical thinking, analyse, research and hand skills.

ACTIVITY SHEET 2.5:
Match the characteristics in column B with the correct intelligence in column A in Table 1 on page 32 in the appendix.

TABLE 1

Multiple Intelligences.

	COLUMN A Intelligence	COLUMN B Characteristics	
1	Verbal / Linguistic	Thinks rhythmically and in tunes. Likes music and dance. Often taps and hums	A
2	Logical / Mathematical	Thinks in images. Likes drawing and observing. Does well at mind-mapping, puzzles, graphics	B
3	Spatial	The ability to understand and apply the technological process to identify needs and solve problems creatively.	C
4	Musical / Rhythmic	Thinks in words. Likes reading, writing, listening & speaking. Does well with books, dialogues, and debates.	D
5	Body / Kinesthetic	Thinks best alone. Likes individual self-paced and managed activities. Reflective and quiet	E
6	Interpersonal	Work with nature / investigations	F
7	Intrapersonal	Thinks through sensations. Likes sport, drama, movement, physical activity	G
8	Naturalistic	Thinks best with others. Likes co-operative & group activities. Good at interactive, people centred activities	H
9	Technological	Likes reasoning. Likes to organise and interpret data, Does well at mathematics & science problem solving	I

ACTIVITY 2.6: TEACHING STYLES AND LEARNING STYLES

Complete the table on page 33 in the Appendix in groups by indicating what teaching and learning style are best suited for each multiple intelligence for Agricultural Subjects.

Multiple Intelligences

CHARACTERISTICS	TEACHING STYLE/TEACHING STYLE
Thinks in words. Likes reading, writing, listening & speaking. Does well with books, dialogues, debates.	
Likes reasoning. Likes to organise and interpret data, Does well at maths & science problem solving	
Thinks in images. Likes drawing and observing. Does well at mind-mapping, puzzles, graphics	
Thinks rhythmically and in tunes. Likes music and dance. Often taps and hums	
Thinks through sensations. Likes sport, drama, movement, physical	
Thinks best with other. Likes co-operative & group activities. Good at interactive, people centred activities	
Thinks best alone. Likes individual self-paced and managed activities. Reflective and quiet	
Creating an understanding and meaning through the world, excursions and research	
The ability to understand and apply the technological process to identify needs and solve problems creatively.	

ACTIVITY 2.7: WORKSHEET UNPACKING THE LEARNING OUTCOMES AND ASSESSMENT STANDARDS OF THE THREE AGRICULTURE SUBJECTS

Divide in 12 groups and complete the table on page 36 in the Appendix in groups by indicating what teaching and learning style are best suited for each multiple intelligence for Agricultural Subjects.

Learning Outcomes allocated to groups

Groups	Learning Outcomes
1	Agricultural Management Practices LO1
2	Agricultural Management Practices LO2
3	Agricultural Management Practices LO3
4	Agricultural Management Practices LO4
5	Agricultural Technology LO1
6	Agricultural Technology LO2
7	Agricultural Technology LO3
8	Agricultural Technology LO4
9	Agricultural Sciences LO1
10	Agricultural Sciences LO2
11	Agricultural Sciences LO3
12	Agricultural Sciences LO4

ACTIVITY WORKSHEET 2.7

Group	Assessment Standards	Write down the key words to explain what learners have to demonstrate (do, know, understand and apply). Also refer to the relevant content and context.	Ideas for an activity	Progression per grade
1 Agricultural Management Practices	LO1:			
	AS1			
	AS2			
	AS3			
	AS4			
	AS5			
2 Agricultural Management Practices	LO2:			
	AS1			
	AS2			
	AS3			
	AS4			
	AS5			
3 Agricultural Management Practices	LO3:			
	AS1			
	AS2			
	AS3			
	AS4			

4 **Agricultural Management Practices**	**LO4:**			
	AS1			
	AS2			
	AS3			
	AS4			
	AS5			
5 **Agricultural Technology**	**LO1:**			
	AS1			
	AS2			
	AS3			
	AS4			
	AS5			
6 **Agricultural Technology**	**LO2:**			
	AS1			
	AS2			
	AS3			
	AS4			
	AS5			
7 **Agricultural Technology**	**LO3:**			
	AS1			
	AS2			
	AS3			
	AS4			
	AS5			
	AS6			

	AS7			
	AS8			
	AS9			
8 **Agricultural Technology**	**LO4:**			
	AS1			
	AS2			
	AS3			
	AS4			
	AS5			
	AS6			
	AS7			
	AS8			
	AS9			
9 **Agricultural Sciences**	**LO1:**			
	AS1			
	AS2			
	AS3			
	AS4 (Grade 11)			
10	**LO2:**			
	AS1			
	AS2			

Agricultural Sciences	**AS3**			
	AS4			
	AS5			
	AS6			
	AS7 (G11 &12)			
	AS8 (G&12)			
	AS9 (G12)			
	AS10 (G12)			
11 Agricultural Sciences	**LO3:**			
	AS1			
	AS2			
	AS3			
	AS4 (G11&12)			
12 Agricultural Sciences	**LO4:**			
	AS1			
	AS2			
	AS3			
	AS4			
	AS5 (G10&11)			

ACTIVITY WORKSHEET 2.8: PROFESSIONAL DEVELOPMENT PROGRAMME

- Describe the actions you should take to address the content, methodology and assessment gaps that you have identified
- Indicate time frames for self-development to meet the requirements to teach the three Agriculture subjects effectively

		Time Frame
New Content gaps (List topics, themes, concepts)		
Methodology gaps		
Assessment gaps		

ACTIVITY 2.9: CASE STUDY 1:

1. In your group carefully study the case study on the next page and answer the questions below.
2. Record your answers on the news print / transparencies provided.
3. Select a member of your group to report back

CASE STUDY 1

In traditional farming each village has a few small fields. People grow a mixture of locally adapted crops in alternating rows. This provides a range of foods through the year for the small community. These **endemic** plant varieties have been naturally selected and are fairly resistant to the pests and diseases of that region. Each village keeps cattle and goats for meat and milk. The waste from these animals is used as fertilizer on the fields to replace the minerals needed for healthy plant growth. The fibre in this manure also improves the soil structure and water retention.

Modern farming is usually organised by commercial companies rather than village communities. Feeding an increasing population through artificially selected high yielding varieties and making a profit by using efficient methods are important. These needs encourage the 'unnatural' practice of planting a single, often alien, variety of crop plant over large areas of land. This enables the use of machines for planting and harvesting. These **monocultures** in large open fields are very 'unnatural' and provide an ideal environment for the rapid spread of plant **Pathogens** (disease-causing organisms) able to destroy that variety of plant. Large quantities of chemical fertilizer and pesticides have to be used which damage other animals and plants and do not improve the soil structure.

Questions

1 Briefly explain the two types of practices mentioned in the Case Study.

2 What do you think are the advantages and disadvantages of each type of practice?

3 Which of these types of farming systems is more environmentally friendly?

4 Why was it necessary for a change in farming systems?

5 Is there a place for each of these farming systems in South Africa?

6 List words that you don't know the meaning of and discuss them in your groups.

Activity 2.10: Case Study 2

3. In your group carefully study the case study on the next page and answer the questions below.
4. Record your answers on the news print / transparencies provided.
5. Select a member of your group to report back

Case Study 2

Dr. Martin Monk and Sally Johnson from King's College **London** did the following investigation. Their results are shown in Table 1

Wheat has been cultivated for over 4500 years and grains were found in the tombs of the ancient Egyptians. It is an important source of food all over the world. For the last hundred years it has been artificially bred to produce high yielding varieties. This history has been characterised by the uptake and replacement of a succession of varieties, each lasting for a few years until devastated by new strains of disease.

Table 1: Height and yield according different grain varieties.

Variety	**Year variety was first grown**	**Height (cm)** (length of stem)	**Grain yield** (tonnes per hectare)	**Total biomass** (tonnes per hectare)
Little Joss	1908	142	6.0	16.5
Holdfast	1935	126	6.0	16.5
Capella Desprez	1953	110	6.7	15.9
Maris Huntsman	1972	106	7.5	16.3
Norman	1980	84	8.7	17.1

Questions

1. Plot bar charts to show height and grain yields of the five varieties.
2. Identify the pattern illustrated by the bar graphs.
3. State the relationship between the height and the yield in each variety?
4. Is there any common pattern visible?
5. Use this information which variety to plant and give reasons for your answer?

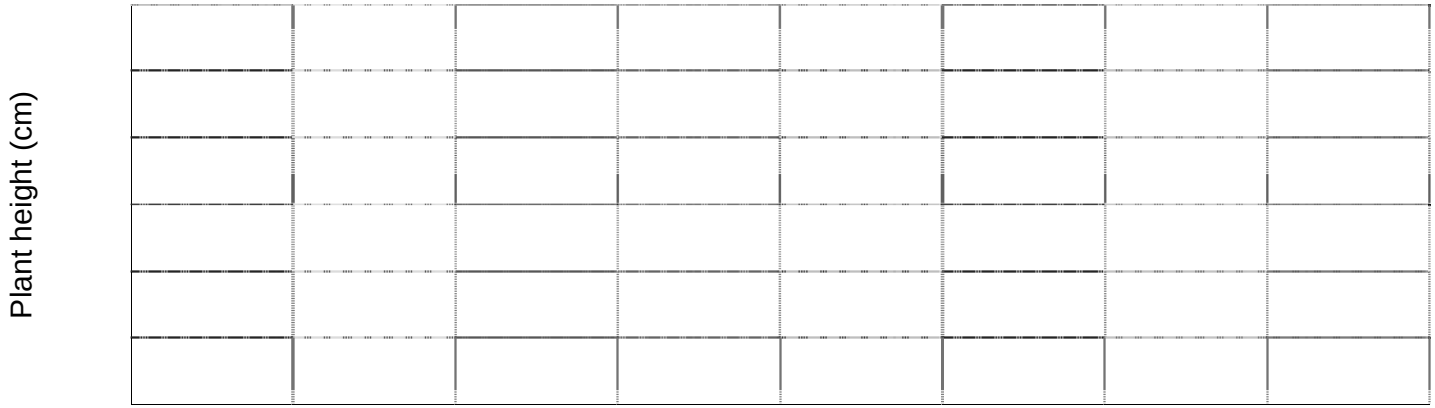


Figure 1: Case study 2

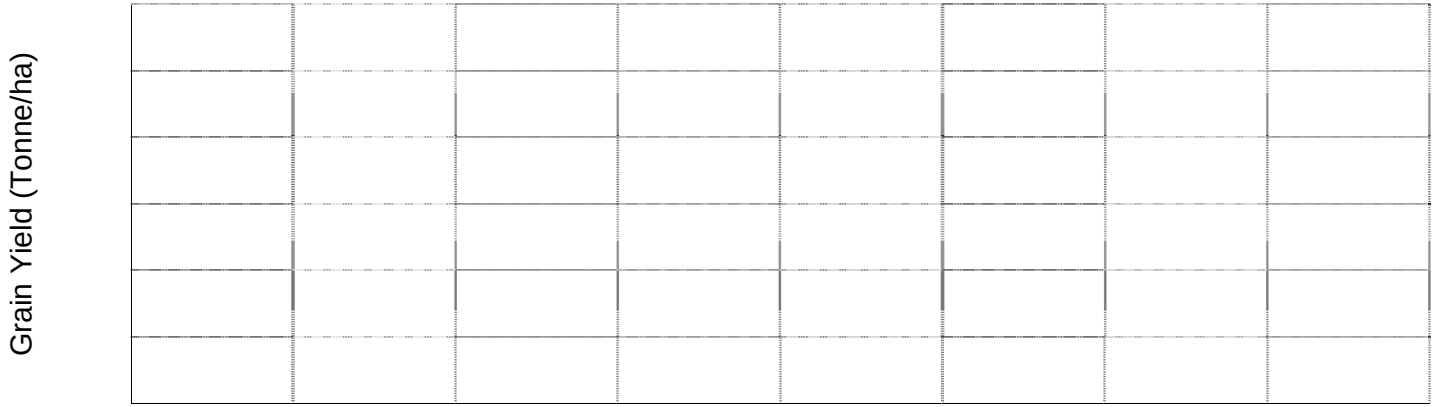


Figure 2: Case study 2

ACTIVITY 2.11: BLOOM'S TAXONOMY
ACTIVITY SHEET

Bloom's taxonomy identifies the following 6 levels of cognitive skills.

- - Recall of Knowledge
- - Comprehension
- - Application
- - Analysis
- - Evaluation
- - Synthesis

} Higher Intellectual abilities

The following table gives a summary of the different categories of complexity according to Bloom's taxonomy.

Categories of complexity	**Description of categories**	**Some examples of cognitive skills**
Basic Cognitive skills	Merely assessing the recall of **basic knowledge**	Give labels; List, name, state or identify functions, Concepts, processes, mechanisms, etc.
Comprehension	More than recall of facts including **understanding** and **insight** of **routine** and **familiar** content/ situations	Describe or explain concepts, processes, mechanisms; Make direct deductions from data given; do calculations, etc.
Application	Application of abstractions and generalisations to **new, novel or unfamiliar** situations	Interpreting data; Explaining adaptations or environmental factors influencing effectiveness; draw flow charts or mind maps to illustrate processes or mechanisms; constructing tables and graphs to organise and present data; drawing apparatus used to investigate concepts; identifying and control variables; communicate findings; applying formulae; etc.
Higher Intellectual Abilities	➢ Analysis of data and pattern recognition ➢ Evaluation of data against given criteria ➢ Synthesis of data	Problem solving, hypothesising, designing experiments, designing and implementing action plans

ACTIVITY WORKSHEET 2.12: LEVELS OF COMPLEXITY

1. Study Table 2 on page 44 under appendix documents.
   - In pairs identify which level of Bloom's taxonomy appears to be addressed by the following extracts from the assessment standards. Use the verb to guide you.
   - Complete the table below.

2. The facilitator will choose groups at random to give feedback.

TABLE 2

In Table 2 below, COLUMN I contains a list of extracts from assessment standards across all grades. Match the level of Bloom's taxonomy as mentioned in Table 1 above with the extracts in COLUMN I and write the level in Column II.

	COLUMN I CERTAIN ASSESSMENT STANDARDS	**COLUMN II** LEVEL ACCORDING TO BLOOM'S TAXONOMY
A	Plan and investigate certain aspects related to agriculture,	
B	Collect, organise, process and evaluate the collected information in order to solve problems through responsible decision-making using effective communication	
C	Use information communication technology skills related to agricultural production practices	
D	Investigate, identify and analyse animal nutritional, reproductive and protective components for animal production	
E	Identify and describe selected ecological regions in the world	
F	Know and distinguish between the different animal groupings and breeds in South Africa and the main areas of production	
G	Interpret, categorise and analyse the contested nature of agricultural knowledge in different fields	
H	Understand and explain the processing of various agricultural products (local and global) for marketing purposes	
I	Analyse and evaluate indigenous agricultural knowledge and describe its contribution to agricultural enterprises	
J	Describe how agricultural practices have changed over time	
K	Understand and explain the impact of global agriculture on local production	
L	Investigate and describe the socio-economic impact of HIV/AIDS and other human diseases on the agricultural industry	

ACTIVITY 2.13: Designing assessment tools

TIME: 90 minutes

1. Use the information from the worksheet completed during **Activity 2.7 (p35)** to develop your own scoring rubric on newsprint/flipchart**.**
2. Report back on work done.

INTRODUCTORY INFORMATION ON RUBRICS

How to develop a rubric:

- Develop criteria from the Learning Outcomes and Assessment Standards.
- List criteria in a column on the left of the rubric grid.
- For each criterion develop level descriptors.
- Start with the descriptor level that indicates that the criterion has been ACHIEVED. Then develop descriptors for other levels of achievement (above and below).
- Avoid overly negative or offensive wording at the lowest levels of achievement.
- Use the level descriptors for formative assessment and feedback.
- For summative assessment the rubric may be changed into a scoring rubric by allocating marks to the different descriptors.

An easy way of changing a rubric into a scoring rubric is to count the number of criteria and multiply it with the levels. It is also possible to weight those criteria, which you consider to be more important than the others. For example, you might think that some of the criteria are worth more marks than the others.

EXAMPLE OF RUBRIC DESIGNING:

CRITERIA DESCRIPTION	LEVELS of COMPETENCE			
	Poor	***Fair***	***Good***	***Excellent***
Criterion 1				
Criterion 2				
Criterion 3				
Criterion 4				

Use AS's & knowledge areas to describe the knowledge, skills, attitudes and values.

Descriptors outlining the achieved performance.

- Avoid overly negative or offensive wording at the lowest levels of achievement.
- Use the level descriptors for formative assessment and feedback.
- Each level descriptor should indicate a distinctly different level of performance.
- The rubric should challenge learners to perform at a high level of academic achievement.
- For summative assessment the rubric may be changed into a scoring rubric by allocating marks to the different descriptors.

EXAMPLE of a SCORING RUBRIC:

CRITERIA DESCRIPTION	LEVELS of COMPETENCE				Score
	Poor(1)	***Fair***(2)	***Good***(3)	***Excellent***(4)	
Criterion 1				X	4
Criterion 2			X		3
Criterion 3			X		3
Criterion 4		X			2
				Total Score Obtained	**12**

If certain criteria are weighted more than others, more marks (e.g. x2) can be allocated to those criteria.

The 12/16 means that the learner obtained a score of 75%. For reporting purposes at a later stage, marks should be converted to percentages, which in turn will be converted to the corresponding rating code.

ACTIVITY 2.14: LTSM
TIME: 60 minutes
1. Complete the table by identifying the minimum subject LTSM for the Agricultural Subjects.

AGRICULTURAL SCIENCES	AGRICULTURAL MANAGEMENT PRACTICE	AGRICULTURAL TECHNOLOGY

SESSION 3

ACTIVITY 3.5: LESSON PLAN FORMAT

Lesson plan format for Agricultural Subjects

Teacher:								School: _____													
Duration of program:								Grade: 10								Class:					
Critical Outcomes	1	2	3	4	5	6	7	Learning Outcomes		Assessment Standards											
Developmental Outcomes	1	2	3	4	5				1	1	2	3	4	5							
Integrated learning outcomes									2	1	2	3	4	5	6	7	8	9	10		
from other subjects									3	1	2	3	4	5							
Knowledge Area:									4	1	2	3	4								

Sub-content:	By Whom	Tools	Assessment Strategies: Test based	Observation Based	Task based
			•	•	•
Prior Knowledge			•	•	•
			•	•	•

Teachers actions	Learners activities	Resources	Assessment Evidence	Estimated time
	Activity 1 Activity 2 Activity 3			

Expanded opportunities	Enrichment
•	•
Special needs	Homework
•	•