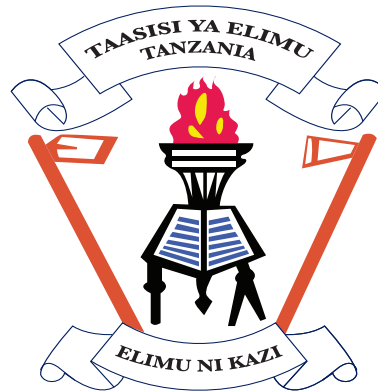


MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

TANZANIA INSTITUTE OF EDUCATION



**AGRICULTURE SYLLABUS FOR ORDINARY LEVEL
SECONDARY EDUCATION**

FORM I – IV

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DECLARATION

The Agriculture syllabus is approved for use in Secondary Schools in Tanzania.

Approved by Dr Lyabwene M. Mtshobane
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1.0 Introduction

This Agriculture Syllabus is a revised version that replaces the 1997 syllabus. The revision process has focused on the paradigm shift from Content Based to Competency Based Curriculum. Moreover, it has taken into consideration the current social, political, cultural, economical, global, technological changes and cross cutting issues. Some of the topics in the old syllabus have been replaced with new topics.

The teaching and learning processes in using this syllabus should be learner-centred and activity oriented, thereby enhancing meaningful learning. The specific objectives, teaching and learning strategies have been designed to give students more opportunity to acquire, develop and strengthen their skills, knowledge and change their attitudes as well as broadening their scope for future development and self-employment.

2.0 Objectives of Education and Training in Tanzania

Objectives of Agriculture Syllabus reflect the general objectives of education in Tanzania, which are to:

- a) guide and promote the development and improvement of the personalities of the citizens of Tanzania, their human resources and effective utilization of those resources in bringing about individual and national development;
- b) promote the acquisition and appreciation of culture, customs and traditions of the people of Tanzania;
- c) promote the acquisition and appropriate use of literacy, social, scientific, vocational, technological, professional and other forms of knowledge, skills and attitudes towards the development and improvement of the condition of man and society;
- d) develop and promote self-confidence and inquiring mind, understanding and respect for human dignity and human rights and readiness to work hard for personal self-advancement and national development;
- e) promote and expand the scope of acquisition, improvement and upgrading of mental, practical, productive and other skills needed to meet the changing needs of industry and the economy;

- f) enable every citizen to understand and uphold the fundamentals of the national constitution as well as protecting human and civil rights, obligations and responsibilities; and
- g) promote love for work, self and wage employment and improved performance in the production and service sectors.

3.0 Objectives of Secondary Education

Objectives of Agriculture Syllabus reflect the general objectives of secondary education in Tanzania, which are to:

- a) consolidate, broaden and develop a deeper understanding of the ideas and concepts acquired at the primary level;
- b) enhance and further develop an appreciation for cultural values including national unity, identity, democracy, ethics, personal integrity, readiness to work, human rights, customs, traditions, civic responsibilities and obligations;
- c) develop linguistic ability and effective use of communication skills in Kiswahili, English, and at least one foreign language;
- d) develop readiness for tertiary and higher education, vocational, technical and professional training;
- e) inculcate a sense and ability for self-study, self-confidence and self advancement in new frontiers of science and technology, academic and occupational knowledge and skills; and
- f) develop readiness to join the world of work.

4.0 General Subject Competencies

By the end of the four (4) years, the student should be competent in:

- a) applying agricultural knowledge and skills in combating various agricultural challenges in daily life;
- b) using relevant information on agricultural science and production for self-study and lifelong learning;
- c) applying sense of responsibility towards the environment and scientific agricultural practices for sustainable use of resources;
- d) applying skills of scientific investigation and experimentation in producing agricultural products; and
- e) practising an enterprising attitude, skills and knowledge in agricultural activities.

5.0 General Subject Objectives

By the end of the four (4) years, the student should be able to:

- a) demonstrate an understanding of the concepts and principles of agricultural science and production;
- b) examine the importance of self-confidence and self-advancement in agricultural science and production;
- c) analyse the world in which they live through meaningful and sustainable scientific agricultural activities;
- d) plan and run agricultural enterprises for income generation; and
- e) apply agricultural principles and practices for lifelong learning.

6.0 Structure and Organization of the Syllabus Content

This syllabus has two sections. The first section comprises class level competencies and class level objectives. The second section is the syllabus content and presented in the matrix table and it includes; topics, sub-topics specific objectives, teaching and learning strategies, teaching and learning resources, assessment criteria/tools and number of periods.

6.1 Class level competencies

These describe the skills, knowledge and attitude expected to be attained by the learner during and after completion of a section in a particular class.

6.2 Class level objectives

The class level objectives are stated in general terms to indicate the scope of content to be covered within each class. For each competency intended to be achieved, one or more objectives have been stated in order to achieve it.

6.3 Content matrix

This is made up of the following columns; topics/ sub-topics, specific objectives, teaching and learning strategies, teaching and learning resources, assessment and number of periods.

6.3.1 Topics

Topics are general contents of the subject matter that are expected to be taught in order to develop the intended competencies. They have been arranged according to the class levels. Both block and spiral arrangements of topics have been used.

6.3.2 Sub-topics

These are smaller units of the topic which have been arranged in a logical order to facilitate learning.

6.3.3 Specific objectives

Specific objectives are expected learning outcomes in classroom instruction. They focus to attain competencies within the cognitive, psychomotor and affective domains.

6.3.4 Teaching and learning strategies

These are methods that are used by the teachers and students in the teaching and learning process. The whole teaching and learning process should be participatory and interactive, where the student learns by doing a series of activities and participate in learning processes effectively. The teacher has to play the role of a facilitator in promoting and guiding students to ensure effective learning.

The suggested teaching and learning (T/L) strategies in this syllabus are not exhaustive. Therefore, teachers and students are encouraged to use any other relevant strategies which suit their T/L environment.

6.3.5 Teaching and learning resources

These are materials used by the teachers and students during the teaching and learning of respective topics/sub-topics in line with specific objectives. The suggested teaching and learning resources in this syllabus are not exhaustive, so teachers and students are advised to use multiple teaching and learning resources which are relevant and convenient for effective teaching and learning. The teacher should work with students to improvise alternative resources available in their environment.

6.3.6 Assessment

The suggested assessment strategies in this syllabus are based on the specific instructional objectives. The given questions help the teacher to assess whether the intended specific objective has been met or not. The formative and summative assessment approaches should be geared towards mastering all the competencies and skills developed within the course. Instrument of assessment should ensure that all the levels of cognitive, psychomotor and affective domains are observed.

6.3.7 Number of periods

This is an estimated number of periods to be used to teach a given sub-topic. Each period has 40 minutes. The number of periods has taken into account the time needed to adequately cover the respective topic. Some topics need more time than others depending on their nature and weight. The number of periods for teaching this subject is six (6) per week.

FORM I

CLASS LEVEL COMPETENCIES

By the end of Form I, the student should have ability to:

- a) apply the concepts and appreciate the role of agriculture in daily life;
- b) use appropriate farm tools in producing agricultural products;
- c) maintain various farm tools and machinery used in agricultural production;
- d) apply the knowledge of soil physical properties in crop production; and
- e) apply knowledge of crop and livestock farming systems in agricultural production.

CLASS LEVEL OBJECTIVES

By the end of Form I, the student should be able to:

- a) explain the concepts and role of agriculture in economic development;
- b) describe the procedures of maintaining farm tools and machinery used in agricultural production;
- c) analyse the effect of soil physical properties on crop production; and
- d) assess various crop and livestock farming systems practiced in Tanzania.

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
1.0 INTRODUCTION TO AGRICULTURE	1.1 The concept of Agriculture	The student should be able to:	The teacher to guide the students to:	<ul style="list-style-type: none"> • Flip chart/manila sheet • Marker pens for summarizing responses • Charts depicting various agricultural activities 	Is the student able to explain the meaning of agriculture?	12
		a) Explain the meaning of agriculture.	<ul style="list-style-type: none"> i) Explain the meaning of agriculture. ii) Conclude the meaning of agriculture. 			
	b) Outline the branches of agriculture.	The teacher to guide the students in groups to:	Charts showing branches of agriculture	Is the student able to outline the branches of agriculture?		
		c) Relate Agriculture with other subjects.	The teacher to guide the students in groups to:	Wall pictures/ charts illustrating the relationship between agriculture and other subjects	Is the student able to relate agriculture with other subjects?	
			<ul style="list-style-type: none"> i) Discuss the relationship of Agriculture with other subjects like Physics, Chemistry, Biology, Mathematics, Geography, and Business studies. ii) Summarise their responses and share in plenary discussion 			

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Explain the application of agriculture in daily life.	The teacher to guide the students to: i) Explain the application of agriculture in daily life. ii) Summarise their responses.	Wall charts and examples depicting application of agriculture in daily life	Is the student able to explain the application of agriculture in daily life?	
	1.2 Role of Agriculture in Economic Development	The student should be able to: a) Explain the meaning of terms economy and development in agriculture.	The teacher to guide students in groups to: i) Discuss the meaning of the terms economy and development in agriculture. ii) Present their responses in plenary discussion.	Wall charts showing the meaning of economy and development in agriculture	Is the student able to explain the meaning of terms economy and development in agriculture?	18
		b) Explain the basic contributions of agriculture to the economy of family and local community.	The teacher to guide the students in groups to: i) Explain the contribution of agriculture to the economy of family and local communities. ii) Compare the analysis from case studies and contribution of agriculture to the economy of their families and communities.	Case studies on contributions of agriculture to the economy of local communities	Is the student able to explain the basic contributions of agriculture to the economy of the family and local community?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) Present their responses in the plenary discussion.	Case studies on contributions of agriculture to local communities	Is the student able to analyse the basic contribution of agriculture to the family and local community?	
		c) Explain the importance of agriculture to Tanzanian economic development.	The teacher to guide the students in groups to: i) Discuss the importance of agriculture to Tanzanian economic development. ii) Present their responses in plenary discussion.	Charts depicting products generated from agricultural sector	Is the student able to explain the importance of agriculture in Tanzanian economic development?	
2.0 INTRODUCTION TO CROP PRODUCTION	2.1 The Concept of Crop Production	The student should be able to: a) Explain the meaning of the terms crop and crop production.	The teacher to guide the students to brainstorm the meaning of the terms crop and crop production.	<ul style="list-style-type: none"> • Flip charts • Pictures/Slides of various crops • Sample of various crops 	Is the student able to explain the meaning of terms crop and crop production?	24

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Classify agricultural crops.	<p>The teacher to guide students in plenary session to:</p> <p>i) Use biological knowledge and identify criteria for classifying crop plants.</p> <p>ii) Discuss the botanical, descriptive and agricultural bases for classifying agricultural crops.</p> <p>iii) Classify and record crop plants found in their family, school and community farms.</p> <p>iv) Collect various crops, crop products and crop pictures and prepare them for exhibition and thereafter store them.</p>	<ul style="list-style-type: none"> • Actual crop plants • Wall charts, pictures or brochures showing crop plants classified in botanical, descriptive and agricultural classification • Students inventories of crops observed from their family, school and community farms 	Is the student able to classify agricultural crops?	
		c) Explain the importance of agricultural crops.	The teacher to guide students to discuss the importance of agricultural crops to their families, local communities and the nation and present their views.	<ul style="list-style-type: none"> • Actual plants or pictures of various crop plants and crop products • Charts showing exports and earnings from crops 	Is the student able to explain the importance of agricultural crops?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.2 Cropping Systems	The student should be able to: a) Explain the meaning of cropping system.	The teacher to guide the students to: i) Brainstorm on the meaning of cropping systems. ii) Summarise their responses and conclude.	Wall charts/video clips/brochures portraying cropping systems	Is the student able to explain the meaning of cropping system?	24
		b) State the criteria used in classifying cropping systems.	The teacher to guide the students in Think-Pair and Share to: i) State the criteria for classifying cropping systems. ii) Summarise their responses and conclude.	Video clips/Wall charts/brochures portraying cropping systems	Is the student able to state the criteria used in classifying cropping systems?	
		c) Classify the major cropping systems.	Using the wall charts or brochures, the teacher to guide the students to: i) Classify the cropping systems in the school and their locality. ii) Summarise their work and conclude.	<ul style="list-style-type: none"> • Wall charts, Video clips or brochures portraying cropping systems • Actual field visits 	Is the student able to classify the major cropping systems?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Describe the major features of the main cropping systems.	The teacher to guide the students in groups to: i) Find out the major features and principles of shifting, continuous, mono-culture, inter planting, crop rotation and present their responses in plenary discussion. ii) Practise at least one common cropping system in the area.	Pictures/charts or brochures portraying cropping systems	Is the student able to describe the major features of the main cropping systems?	
		e) State the advantages and disadvantages of each cropping systems.	The teacher to guide students in Think-Pair and Share to: i) State each of the crop farming systems and find out its advantages and disadvantages. ii) Present their responses in gallery walk for discussion and conclusion.	Wall charts or brochures portraying cropping systems	Is the student able to state the advantages and disadvantages of each cropping systems?	
3.0 INTRODUCTION TO LIVESTOCK PRODUCTION	3.1 The Concept of Livestock Production	The student should be able to: a) Explain the meaning of the terms livestock and livestock production.	The teacher to guide the students to brainstorm the meaning of the terms livestock and livestock production.	<ul style="list-style-type: none"> • Pictures/ photographs of various domestic animals • Real or live animals 	Is the student able to explain the meaning of the terms livestock and livestock production?	24

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		<p>b) Describe different classes of livestock and their major types.</p>	<p>The teacher to display wall pictures or leaflets to guide the students to:</p> <ol style="list-style-type: none"> i) List different classes of livestock and their types. ii) Classify livestock on wall pictures. 	<p>Wall pictures and leaflets showing major livestock classes and their types</p>	<p>Is the student able to describe different classes of livestock and their types?</p>	
		<p>c) Identify the common breeds of different types of livestock.</p>	<p>The teacher to display wall pictures/or leaflets of different breed and guide students to:</p> <ol style="list-style-type: none"> i) List different classes and breeds from major types of livestock such as Cattle, Poultry, Goat, Sheep, Rabbit and Pigs and their general characteristics. - Identify and compare them. ii) Visit a livestock unit/farm to observe different livestock classes and breeds and guide them in identifying the common breeds of different types of livestock. 	<ul style="list-style-type: none"> • Actual livestock breeds • Flip Charts • Wall pictures and/ or leaflets showing major livestock breeds 	<p>Is the student able to identify the common breeds of different types of livestock?</p>	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Explain the importance of livestock in Tanzania.	The teacher to use questioning strategies to enable the students to: i) State the importance of livestock in their families and local communities. ii) State the importance of livestock in Tanzania.	<ul style="list-style-type: none"> Actual or pictures of various livestock products Wall charts showing exports and earnings from the livestock industry 	Is the student able to explain the importance of livestock in Tanzania?	
	3.2 Livestock Farming Systems	The student should be able to: a) Define the term livestock farming systems.	The teacher with the aid of pictures to guide the students to: i) Define livestock farming system ii) Conclude their responses.	Pictures depicting different livestock farming systems	Is the student able to define the term livestock farming systems?	24
		b) Classify major livestock farming systems practiced in Tanzania.	The teacher to guide the students to study major livestock farming systems commonly found in Tanzania and then to classify the livestock farming systems in their local communities.	Samples of case studies of livestock farming systems	Is the student able to classify major livestock farming systems practiced in Tanzania?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Describe the major features of each livestock farming system.	The teacher to guide the students in groups to: i) Discuss the major features of each livestock farming system. ii) Present their responses in a gallery walk for discussion and conclusion.	<ul style="list-style-type: none"> Wall pictures and/or brochures depicting livestock farming systems Actual field visit 	Is the student able to describe the major features of each livestock farming system?	
		d) Describe the challenges facing each livestock farming system in Tanzania.	The teacher to use questioning strategies to guide students to state the challenges facing each livestock farming system.	Wall pictures and/or brochures depicting livestock farming systems	Is the student able to describe the challenges facing each livestock farming system?	
		e) Suggest ways to overcome the challenges of each livestock farming system.	The teacher to use questioning strategies to guide students to suggest ways or measures to overcome the challenges of each livestock farming system.	Wall pictures and/or brochures depicting livestock farming systems	Is the student able to suggest ways to overcome the challenges of each livestock farming system?	
4.0 MECHANIZATION IN AGRICULTURE	4.1 The Concept of Farm Mechanization	The student should be able to: a) Explain the meaning of farm mechanization.	The teacher to guide students to brainstorm the meaning of farm mechanization.	Pictures/video clips depicting various farm activities performed by machines	Is the student able to explain the meaning of farm mechanization?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain the importance of farm mechanization.	The teacher to guide students to: i) Observe pictures/video clips depicting various mechanized versus non-mechanized farm activities ii) Explain the importance of farm mechanization.	Pictures/video clips showing various mechanized activities versus non-mechanized activities	Is the student able to explain the importance of farm mechanization?	
		c) Identify farm activities that can be mechanized.	The teacher to guide students in Think-Pair Share to lead student to identify various farm activities that can be mechanized.	Pictures/ photographs and video clips showing various mechanized activities versus non-mechanized activities	Is the student able to identify farm activities that can be mechanized?	
	4.2 Basic Farm Tools	The student should be able to: a) Identify farm tools that are commonly used by farmers.	The teacher to guide students to: i) Display various farm tools used for land clearing, land cultivating, planting, harvesting, livestock production and workshop tools. ii) Observe and identify farm tools that are commonly used by farmers.	Real farm tools, Charts/pictures depicting farm and workshop tools	Is the student able to identify farm tools that are commonly used by farmers?	6

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Use basic farm tools properly.	The teacher to guide students to: i) Demonstrate the proper use of basic farm tools. ii) Practise how to use farm tools. iii) Assess their performance in the activities performed in section (ii) with the aid of prepared assessment guideline.	<ul style="list-style-type: none"> • Farm tools • Tool shed/store 	Is the student able to use basic farm tools properly?	
		c) Demonstrate storage of simple farm tools.	The teacher to create activities for students to: i) Perform practical activities on storage of simple farm tools in the school tool shed. ii) Assess their performance in the activities performed in section (i) with the aid of prepared assessment guideline.	<ul style="list-style-type: none"> • Farm tools • Tool shed • Pictures depicting good arrangement of farm tools in a tool shed/store 	Is the student able to demonstrate storage of simple farm tools?	
	4.3 The Farm Workshop	The student should be able to: a) Explain the meaning of farm workshop.	The teacher to guide students with the aid of actual farm workshop or pictures to brainstorm the meaning of farm workshop.	<ul style="list-style-type: none"> • Actual farm workshop with essential basic tools • Pictures/video clips depicting farm workshop 	Is the student able to explain the meaning of farm workshop?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain the function of farm workshop in relation to farm operations.	i) The teacher to guide students to visit a farm workshop and explore various activities performed in a farm and then ask them to relate various workshop activities with farm operations. ii) Use questioning strategies to enable student understand the function of farm workshop in relation to farm operations.	Actual farm workshop/pictures showing activities of maintaining general farm tools	Is the student able to explain the function of farm workshop in relation to farm operations?	
		c) Describe the general safety precautions in handling basic farm workshop tools.	i) The teacher to use questioning strategies to guide students to describe the general safety precautions in handling basic farm workshop tools. ii) The teacher to guide students to demonstrate safety precautions in handling basic farm workshop tools.	Actual farm workshop and workshop tools	Is the student able to describe the general safety precautions in handling basic farm workshop tools	
		d) Identify basic farm workshop tools.	i) The teacher to guide students in displaying workshop tools in groups such as metal work tools and woodwork tools. ii) Teacher to use questions and answers method to asses students ability to identify the basic farm workshop tools.	Essential farm workshop tools	Is the student able to identify basic farm workshop tools?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		e) Demonstrate use and storage of basic farm workshop tools.	The teacher to guide students to: i) Perform practical activities on: - Using the basic farm workshop tools. - Storing basic farm workshop tools. ii) Assess their performance on the activities performed in section (i) with the aid of prepared assessment guideline.	Actual farm workshop which is fully equipped	Is the student able to demonstrate use and storage of basic farm workshop tools?	
	4.4 Basic Farm Machinery	The student should be able to: a) Explain the meaning of farm machinery.	The teacher to guide the students to explain the meaning of farm machinery.	Pictures/video clips showing farm machineries	Is the student able to explain the meaning of farm machinery?	18
		b) Identify various machines commonly used in the farm.	The teacher to guide the students to: i) Observe pictures/posters or watch video/ clips to identify various farm machines. ii) Discuss the uses of various farm machines. iii) Visit a mechanized farm and identify the various machines commonly used in the farm.	<ul style="list-style-type: none"> • Actual farm machines • Pictures/video clips showing farm machines and their uses 	Is the student able to identify the various machines commonly used in the farm?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Explain the general practices of maintaining farm machinery.	The teacher to guide the students to: i) Discuss the general practices of maintaining farm machinery. ii) Present their responses to their peers to give comments.	<ul style="list-style-type: none"> Real farm machinery 	Is the student able to explain the general practices of maintaining farm machinery?	
		d) Outline the factors to consider in selection of farm machinery.	The teacher to use questioning strategies to guide the students to: i) Explain the important factors to consider in selecting farm machinery.	Flip charts and marker pens for recording the responses	Is the student able to outline the factors to consider in the selection of farm machinery?	
	4.5 Farm Power	The student should be able to: a) Explain the meaning of farm power.	The teacher to guide the students to: i) Brainstorm the meaning of the term farm power. ii) Summarise their responses and conclude.	<ul style="list-style-type: none"> Natural or artificial sources of power (e.g. chemical, solar, wind, water, human and animal power) 	Is the student able to explain the meaning of farm power?	6
		b) Analyse the sources of farm power.	The teacher to guide the students to: i) Observe the wall charts and/or pictures and identify sources of farm power. ii) Identify benefits and challenges of each source of farm power. iii) Carry out field trip to identify sources of farm power.	<ul style="list-style-type: none"> Natural or artificial sources of power (e.g. chemical, solar, wind, water, human and animal power) 	Is the student able to analyse the sources of farm power?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) Present their responses and conclude.	<ul style="list-style-type: none"> • Wall charts and/or pictures showing various sources of farm power • Pictures showing solar power generation equipment, draught animals, pictures of geothermal generators, wind mills 		
5.0 INTRODUCTION TO SOIL SCIENCE	5.1 The concept of soil	The student should be able to:	The teacher to guide the students to:	Soil samples and diagrams depicting soils	Is the student able to explain the meaning of soil and its origin?	18
		a) Explain the meaning of soil and its origin.	i) Brainstorm on the meaning of soil and its origin. ii) Explain the meaning of soil and its origin.			
		b) Identify soil constituents and their proportions.	i) Through think-pair share the teacher to guide students to identify major constituents of soil and their proportions. ii) The teacher to lead students to make remarks and conclude.	Soil samples, diagrams/wall charts/pictures showing ideal soil constituents and their proportions	Is the student able to identify soil constituents and their proportions?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Explain the sources and forms of each soil constituent.	i) By using soil samples and charts the teacher to guide students in explaining the sources and forms of soil constituents. ii) The teacher to guide students to make remarks and conclude.	Various parent rocks, Soil samples and charts showing soil constituents.	Is the student able to explain the sources and forms of each soil constituent?	
		d) Analyse soil development process and horizons.	The teacher to guide the students in groups to: i) Observe soil pit to identify top soil, sub-soil, parent material and bed rock. ii) Discuss the effects of soil horizons on crop production. iii) Present group deliberations in plenary session for summary and conclusion.	<ul style="list-style-type: none"> • Various parent rocks • Soil pit • Wall charts/ pictures and/or slides showing soil horizons • Soil profile diagrams • Soil auger 	Is the student able to analyse soil development process and horizons?	
	5.2 Soil texture, structure and porosity	The student should be able to: a) Explain the concept of texture, structure and porosity of soil.	The teacher to guide students to: i) Carry out soil sedimentation experiment and observe soil separates. ii) Distinguish the texture of different soils by feel method. iii) Break large lumps of soils and make observations to familiarise with the concept of soil structures.	<ul style="list-style-type: none"> • Soil samples • Graduated measuring cylinders • Water • Hand hoe or spade to collect soil samples 	Is the student able to explain the concept of texture, structure and porosity of soil?	24

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) Carry out simple experiment to determine worthiness of soil structure and porosity in crop production.			
		b) Explain the relationships between texture, structure and porosity of soil.	The teacher to guide the students to observe pictures illustrating the relationship between soil particles and pore spaces and show their relationship of soil texture, structure and porosity.	<ul style="list-style-type: none"> • Soil samples • Graduated measuring cylinders • Water • Hand hoe or spade to collect soil samples. • Hand shovel • Filter pad 	Is the student able to explain the relationships between texture, structure and porosity of soil?	
		c) Relate soil physical properties with crop production.	<p>The teacher to guide the students in groups to:</p> <p>i) Relate soil physical properties with crop production.</p> <p>ii) Present the report for plenary discussion.</p> <p>iii) Visit the farm areas to observe the soil texture and structure and then identify the relationships between textures, structure and porosity of soil.</p>	<ul style="list-style-type: none"> • Pictures illustrating the relationship between soil particles and pore spaces • Soil triangles/ sieves 	Is the student able to relate soil physical properties with crop production?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Describe different soil types and their properties.	<p>The teacher to guide students to make visual observation of soils around the school environment and other soil samples then:</p> <p>i) Describe their properties.</p> <p>ii) Perform an experiment to determine capillarity and water retention of different types of soil.</p> <p>iii) Compare the results of capillarity and water retention of different soil types.</p> <p>iv) Use experiment results and wall charts to find out the relationships between soil types and physical properties of soil.</p> <p>v) Share observations and results in a plenary session.</p> <p>vi) Assess their performance on the activities they performed in section (ii-v) with the aid of assessment guideline.</p>	<ul style="list-style-type: none"> • Sandy, clay and loamy soils • Capillary tubes • Cotton wool • Water troughs • Ruler • Stop watch • Hand shovel • Funnel 	Is the student able to describe different soil types and their properties?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Describe factors affecting physical properties of soil.	The teacher to guide students to: i) Discuss the factors affecting physical properties of soil. ii) Summarise their responses and conclude.	<ul style="list-style-type: none"> • Wall charts depicting factors affecting physical properties of soil 	Is the student able to describe factors affecting physical properties of soil?	
		e) Illustrate how management practices affect physical properties of soil.	The teacher to: i) Guide the students using observation of the school farm and wall charts/pictures to illustrate how management influence physical properties of soil. ii) Guide students to discuss their findings, deliberations and conclude.	<ul style="list-style-type: none"> • School farm • Wall charts and/or pictures showing the effect of various land use practices on physical properties of soil 	Is the student able to illustrate how management practices affect physical properties of soil?	

FORM II

CLASS LEVEL COMPETENCIES

By the end of Form II, the student should have the ability to:

- a) apply managerial skills in agricultural production; and
- b) use the principles of crop production in producing crop products.

CLASS LEVEL OBJECTIVES

By the end of Form II, the student should be able to:

- a) evaluate the factors of production in agriculture;
- b) develop knowledge of farm management and decision making in agricultural production; and
- c) observe the principles of crop production for increased crop productivity.

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
1.0 FACTORS OF PRODUCTION	1.1 Land	The student should be able to: a) Explain the meaning of Land as a factor of production.	The teacher to guide students to: i) Discuss the meaning of Land as a factor of production ii) Brainstorm on the importance of Land as a production resource	Wall Charts illustrating the land, labour, capital and entrepreneurship	Is the student able to explain the meaning of Land as a factor of production	6
		b) Describe the methods of increasing land value	The teacher to guide students to: i) Discuss the methods of increasing land value ii) Consolidate their responses and conclude.	Wall charts illustrating the land	Is the student able to describe the methods of increasing the value of Land?	
	1.2 Labour	The student should be able to a) Explain the meaning of Labour as a factor of production.	The Teacher to guide students to: i) Discuss the meaning of Labour as a factor of production ii) Consolidate their responses and conclude.	Wall chart illustrating farm labour	Is the student able to explain the meaning of Labour as a factor of production?	
		b) Describe the importance of labour as a factor of production	The teacher to guide the students to: i) Brainstorm the importance of Labour in production process ii) Consolidate their discussion and conclude	Wall chart illustrating labour in a farm	Is the student able describe the importance of Labour as a factor of production?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.3 Capital	The student should be able to: a) Describe the meaning of capital as a factor of production	The teacher to guide the students to: i) Use leading questions to guide students to explain the meaning of capital. ii) Consolidate their discussion and make conclusion.	Wall chart illustrating capital	Is the student able to explain the meaning of capital as a factor of production?	
		b) Explain the importance of capital in production process	The teacher to guide the students to: i) Describe the importance of capital in production process ii) Consolidate and conclude	Wall chart to illustrate the importance of capital in production process	Is the student able to explain the importance of capital in production process?	
	1.4 Entrepreneurship	The student should be able to: a) Explain the meaning of entrepreneurship as a factor of production	The teacher to guide the students to: i) Brainstorm the meaning of entrepreneurship as a factor of production ii) Consolidate the discussion and conclude.	Wall chart to illustrate the meaning of entrepreneurship as a factor of production.	Is the student able to explain the meaning of entrepreneurship as a factor of production?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe the function of entrepreneurship in production process	The teacher to guide the students to : i) Discuss the function of entrepreneurship in production process ii) Describe the entrepreneurship process in production of agricultural products iii) The teacher to give the remarks and conclude.	Wall chart to illustrate entrepreneurship in the production process.	Is the student able to describe the function of entrepreneurship in production process?	
	1.5 The concept of Scarcity.	The student should be able to: a) Explain the meaning of scarcity in relation to needs, wants, goods and services.	i) Using posters the teacher to guide students to brainstorm the meaning of scarcity in relation to needs, wants, goods and services. ii) The teacher to guide students to explain the meaning of scarcity in relation to needs, wants, goods and services.	Wall charts illustrating the concept of scarcity in relation to needs, wants, goods and services	Is the student able to explain the meaning of scarcity in relation to needs, wants, goods and services?	6
		b) Relate scarcity with prices of goods and services.	Guide the students in pairs to: i) Create lists of scarce goods and services and place estimated prices on the items in their lists.	Flip charts to list goods and services	Is the student able to relate scarcity with prices of goods and services?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) Discuss the relationship between scarcity and prices of goods and services.			
		c) Explain how scarcity of goods, services and resources influence people to make choices about needs and wants.	Teacher to guide the students to: i) List scarcity situations which they face every day in the use of the available resources. ii) Display the lists and discuss them in plenary session for sharing and conclusion.	Posters depicting needs, wants, goods, services and productive resources	Is the student able to explain how scarcity of goods, services and resources influence people to make choices about needs and wants?	
2.0 BASICS OF FARM MANAGEMENT	2.1 The Concept of Farm Management	The student should be able to: a) Explain the meaning of farm management.	The teacher to guide the students to brainstorm the meaning of farm management.	Wall charts depicting farm management activities	Is the student able to explain the meaning of farm management?	12
		b) Explain the scope of farm management.	The teacher to use charts and questioning strategies to guide the students to explain the scope of farm management.	Charts showing the scope of farm management	Is the student able to explain the scope of farm management?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Describe the principles of farm management.	The teacher to guide the students to describe the principles of farm management.	Charts showing the principles of farm management	Is the student able to describe the principles of farm management?	
		d) Describe the basic functions of farm management.	The teacher to guide the students to: i) Discuss in groups the basic functions of farm management. ii) Present in plenary session and the teacher to conclude their responses.	Charts showing the basic functions of farm management	Is the student able to describe the basic functions of farm management?	
	2.2 Decision making in Farm Management	The student should be able to: a) Explain the meaning of decision making.	The teacher to guide the students to: i) Brainstorm the meaning of decision making. ii) Provide feedback on the responses and conclude.	Flip charts and marker pens to note the students' responses	Is the student able to explain the meaning of decision making?	6
		b) Describe the basic steps in the decision making process.	i) The teacher to guide the students to discuss the basic steps in the decision making process. ii) The teacher provide feedback on responses and conclude.	Wall charts illustrating the basic steps in decision making process	Is the student able to describe the basic steps in the decision making process?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) State the types of farm management decisions.	The teacher to guide the students in think-pair and share to; i) State the types of farm management decisions. ii) Present their responses for discussions.	Wall charts depicting farm management decisions	Is the student able to state the types of farm management decisions?	
		d) Describe the key points to consider in selecting an appropriate farm enterprise.	The teacher to guide the students to: i) Discuss the key points in choosing farming enterprises. ii) Use the key points to choose the farming enterprise that suits their school.	Wall charts showing key points in selecting an enterprise successfully	Is the student able to describe the key points to consider in selecting an appropriate farming enterprise?	
	2.3 Risks and uncertainties in farming business	The student should be able to: a) Define the terms risk and uncertainty.	The teacher to guide the students to brainstorm the meaning of the terms risk and uncertainty.	Wall charts showing incidences of risks and uncertainties in farming	Is the student able to define the terms risk and uncertainty?	6
		b) Explain the factors that cause risks and uncertainties in farming business.	The teacher to guide the students in groups to: i) Discuss the factors that cause risks and uncertainties in farming business.	Wall charts showing factors that cause risks and uncertainties in farming	Is the student able to explain the factors that cause risks and uncertainties in farming business?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) Present in plenary session and the teacher to conclude.			
		c) Describe the types of risks that affect farming business.	i) The teacher to guide the students to discuss the types of risks that affect farming business. ii) The teacher and students to conclude the discussion in plenary session.	Flip charts and marker pens to note the responses	Is the student able to describe the types of risks that affect farming business?	
		d) Describe methods of overcoming the effects of risks and uncertainties in farming.	i) The teacher to use questions and answers method to guide students to describe the methods of overcoming the effects of risks and uncertainties in farming. ii) The teacher and students to conclude the discussion in plenary session.	Flip charts and marker pens to note the responses	Is the student able to describe methods of overcoming the effects of risks and uncertainties in farming?	
	2.4 Farm Records and Accounting	The student should be able to a) Explain the meaning of farm records.	The teacher to guide the students to brainstorm the meaning of farm records.	<ul style="list-style-type: none"> • Flip charts and marker pens to note the responses • Farm record templates 	Is the student able to explain the meaning of farm records?	18

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Identify the basic types of farm records in agricultural production.	i) The teacher to guide students to observe pictures and wall charts and brainstorm on types of records to be kept in such farms. ii) The teacher and students to clarify and conclude the responses on farm inventory, farm diary, labour, production and sales records.	<ul style="list-style-type: none"> • Pictures and wall charts showing various assets and activities carried out on the farm • Farm record templates 	Is the student able to identify the basic types of farm records in agricultural production?	
		c) Explain the benefits of keeping farm records in farming business.	i) The teacher to guide the students in plenary session to recall and mention the types of records discussed above. ii) The teacher guide students in groups to explain the benefits of keeping farm records in farming business. iii) The teacher to lead students to prepared farm record.	<ul style="list-style-type: none"> • Wall charts showing the basic types of farm records • Actual farm records 	Is the student able to explain the benefits of keeping farm records in farming business?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Explain the meaning of farm accounting.	i) The teacher to guide the students to brainstorm the meaning of farm accounting. ii) Using students responses, the teacher to support students to clarify and conclude.	Templates of farm accounts	Is the student able to explain the meaning of farm accounting?	
		e) Describe basic types of farm accounts in agricultural production.	The teacher to guide students to: i) Describe types of farm accounts in agricultural production. ii) Consolidate their responses in relation to balance sheet (statement of financial position), net worth statement and gross margin analysis. iii) Prepare balance sheet (statement of financial position), net worth statement and gross margin analysis.	Templates of balance sheet, net worth statement and gross margin analysis	Is the student able to describe basic types of farm accounts in agricultural production?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.5 Valuation and depreciation of farm assets	<p>The student should be able to:</p> <p>a) Explain the meaning of depreciation and valuation of farm assets.</p>	<p>The teacher to guide the students to:</p> <p>i) Brainstorm the meaning and importance of depreciation and valuation of farm assets.</p> <p>ii) Consolidate their responses and conclude.</p>	<p>Flip charts and marker pens to note the responses</p>	<p>Is the student able to explain the meaning of depreciation and valuation of farm assets?</p>	6
		<p>b) Explain the causes of depreciation of farm assets.</p>	<p>The teacher to use questions and answers method to guide students to:</p> <p>i) Explain the causes of depreciation of farm assets.</p> <p>ii) Consolidate their responses and conclude the causes for depreciation of farm assets.</p>	<p>Flip charts and marker pens to note the responses</p>	<p>Is the student able to explain the causes of depreciation of farm assets?</p>	
		<p>c) Describe the common methods of valuating and estimating depreciation of farm assets.</p>	<p>The teacher to use questions and answers strategy to guide students to:</p> <p>i) Describe the common methods of valuating and estimating depreciation of farm assets.</p> <p>ii) Perform a simple valuation of an assets.</p> <p>iii) Calculate depreciation by straight line method.</p>	<p>Illustrations depicting methods of valuating and estimating depreciation of farm assets</p>	<p>Is the student able to describe the common methods of valuating and estimating depreciation of farm assets?</p>	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
3.0 PRINCIPLES OF CROP PRODUCTION	3.1 Choice of Suitable Land and Planning for Crop Production	<p>The student should be able to:</p> <p>a) Analyse the factors to consider in choosing suitable land for crop production.</p>	<p>The teacher to guide the students in groups to:</p> <p>i) Discuss important factors/ features to consider in choosing the land for crop production.</p> <p>ii) Categorize their deliberations in relation to soil characteristics, topography, and climate of the place, availability and reliability of source of water, accessibility and biotic factors.</p> <p>iii) Present their work in plenary session for discussions.</p>	<ul style="list-style-type: none"> • Wall charts showing factors to consider in choosing the land for crop production • Land and soil 	<p>Is the student able to analyse the factors to consider in choosing the land for crop production?</p>	12
		<p>b) Explain important points to consider in physical and financial planning of the farm for crop production.</p>	<p>The teacher to use questions and answers methods to guide the students to:</p> <p>i) Explain important points to consider for physical and financial planning of the farm for crop production.</p> <p>ii) Present the work in gallery walk for sharing and discussion.</p>	<ul style="list-style-type: none"> • Flip charts showing points to consider for physical and financial planning • Chart showing financial planning 	<p>Is the student able to illustrate important points to consider for physical and financial planning of the farm for crop production?</p>	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.2 Selection of Suitable Crop and Variety	The Student should be able to: a) Select suitable types and varieties of crops.	The teacher to guide the students to: i) Outline factors to consider in selecting the suitable type and varieties of crops to grow. ii) Summarise their deliberations on the factors in relation to climatic, biological, edaphic, relief and socio- economic factors.	<ul style="list-style-type: none"> • A map showing distribution of crop plants in Tanzania • Pictures/video clips showing various crop plants and their varieties 	Is the student able to select suitable types and varieties of crops to grow?	6
		b) Differentiate local, composite, hybrid and Genetically Modified (GM) varieties of crops.	The teacher to guide the students through library search to: i) Find out the distinctive characteristics of local, composite, hybrid and genetically modified varieties of crops. ii) Present their findings for sharing and discussion.	Articles on local, composite, hybrid and GM varieties of crops	Is the student able to differentiate local, composite, hybrid and genetically modified varieties of crops?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Argue for and against the use of local, composite, hybrid and genetically modified varieties of crops.	The teacher to use questioning strategies to guide the students to: i) Debate on the advantages and limitations of using local, composite, hybrid and genetically modified crops' varieties. ii) Summarise the concepts.	<ul style="list-style-type: none"> Articles on GM and local, composite, hybrid varieties of crops Genetically modified crops 	Is the student able to argue for and against the use of local, composite, hybrid and genetically modified varieties of crops?	
		d) Choose a suitable land in the school area for raising a crop.	i) The teacher to guide the students in groups in surveying the school area and choose a suitable land for raising a crop(s) of choice. ii) With the aid of prepared assessment guideline the students to assess their performance in the activities they performed in section (i).	<ul style="list-style-type: none"> Map of a school farm The school farm 	Is the student able to choose a suitable land in the school farm for raising crops?	
		e) Develop physical and financial plans for raising a crop(s) of choice.	The teacher to guide the students in groups to: i) Develop physical and financial plans for raising a crop(s) of choice. ii) Present their group tasks in a plenary session.	Samples of physical and financial plans	Is the student able to develop physical and financial plans for raising a crop(s) of choice?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.3 Land Preparation	The student should be able to: a) Find out the right time for preparing land for various types of crops.	The teacher to guide the students to: i) Use their experience, consult resource persons and the library search to find out the right time for preparing land for various types of crops. ii) Brainstorm the methods of land preparation. iii) Present their findings in plenary session.	Wall charts showing crop production calendar	Is the student able to find out the right time for preparing land for various types of crops?	6
		b) Explain the purpose of tillage operations.	The teacher to guide the students to: i) Brainstorm the meaning and purposes of tillage operations. ii) Summarise the purpose of tillage operations.	<ul style="list-style-type: none"> • Tilled land • Untilled land • Tillage implements 	Is the student able to explain the purpose of tillage operations?	
		c) Describe the forms of tillage operations.	The teacher to guide the students to: i) Visit tilled lands and/or a display of pictures of tilled land to observe the various forms of tillage.	<ul style="list-style-type: none"> • Land plots tilled in various forms • Pictures/video clips showing land tilled in various forms 	Is the student able to describe the forms of tillage operations?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) Discuss the forms of tillage operations and their advantages and disadvantages with respect to ploughing, harrowing, mounding, ridging, bed making, inter-tillage, grading and terracing; and minimum tillage. iii) Associate the different tillage implements used in various tillage operations. iv) Present the work in a plenary session.	<ul style="list-style-type: none"> • Tillage implements and hand tools, like ploughs, harrows, hand hoe, cultivators and spike-tooth harrow • Pictures or models of tillage implements 		
		d) Prepare land for planting suitable crop(s) of choice.	The teacher to guide the students to: i) Make a choice on the form of tillage based on the available tillage implement and the crop(s) of choice. ii) Prepare land for planting crop(s) of choice. iii) Use prepared assessment guideline to assess the activities performed in section (i) and (ii).	<ul style="list-style-type: none"> • Tillage implements and hand tools • Land • Seeds/planting materials 	Is the student able to prepare land for planting suitable crop(s) of choice?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.4 Planting	<p>The Student should be able to:</p> <p>a) Describe types of planting materials.</p>	<p>Teacher to guide students in groups to observe planting materials/pictures of planting materials and:</p> <p>i) Describe types of planting materials.</p> <p>ii) Explain the advantages and limitations, and criteria for their selection.</p>	<ul style="list-style-type: none"> • Various planting materials such as seeds, crowns, stem cuttings, splits, bulbs and suckers. • Pictures/ video clips of various planting materials 	<p>Is the student able to describe types of planting materials?</p>	12
		<p>b) Determine time of planting various classes of crops.</p>	<p>i) The teacher to guide the students to consult resource persons, conduct a library search and their own experiences to:</p> <ul style="list-style-type: none"> - Determine appropriate time for planting various classes of crops. - Present their findings in plenary session for discussions and sharing. <p>ii) Guide students to make reflections on the determinants of timely planting for various</p>	<ul style="list-style-type: none"> • Crop production calendars • Local climate data 	<p>Is the student able to determine time of planting various classes of crops?</p>	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			classes of crops with respect to rainfall, temperature, occurrence of diseases and pests, marketing, crop farming system and/or availability of labour and equipment.			
		c) Describe methods of planting.	The teacher to guide the students to consult resource persons, conduct a library search and use their own experiences to: i) Describe methods of planting and factors determining the choice of planting methods. ii) Categorize methods of planting into: generative methods (such as broadcasting, drilling and precision) and vegetative methods (such as marcotting, air layering, grafting, budding, tissue culture and use of cuttings and splits).	<ul style="list-style-type: none"> • Video clips/ Pictures illustrating various planting methods • School farm or a nearby farm • The various planting materials 	Is the student able to describe methods of planting?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		<p>d) Determine sowing depth, seed rate and spacing.</p>	<p>i) The teacher to guide the students to consult resource persons, conduct a library search and use their own experiences to:</p> <ul style="list-style-type: none"> - Determine sowing depth, seed rate and spacing between stands ideal for various crops. - Make inferences for the activities done. <p>ii) Conduct trials of sowing seeds in different depths, different sets of number of seeds per stand and spacing between stand while keeping other factors constant hence observe and record the development of plants.</p> <p>iii) Assess students performance in the activities they performed in section (ii) with the aid of prepared assessment guideline.</p>	<ul style="list-style-type: none"> • Various planting materials • Planting tools/ equipment 	<p>Is the student able to determine sowing depth, seed rate and spacing?</p>	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		e) Plant the materials of crop(s) of choice in school farm.	The teacher to guide the students to: i) Plant crop(s) of choice in school and home using quality planting materials while keeping proper records. ii) Assess students performance in the activities they performed in section (i) with the aid of prepared assessment guideline.	<ul style="list-style-type: none"> • Various planting materials • Planting tools/ implements • Machines 	Is the student able to plant the materials of crop(s) of their choice in school farm?	
	3.5 Maintenance of soil fertility	The Student should be able to: a) Describe the causes of loss of soil fertility.	i) The teacher to guide the students to conduct a library search to find the causes of loss of soil fertility and describe them. ii) Teachers to use questioning strategies to guide students to describe how soil erosion, leaching, burning and weeds cause soil erosion and loss of soil fertility.	<ul style="list-style-type: none"> • Posters/wall charts/ pictures showing situations which lead to loss of soil fertility • Actual sites depicting causes of loss of soil fertility 	Is the student able to describe the causes of loss of soil fertility?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe the methods of maintaining soil fertility.	The teacher to: i) Guide the students to visit a farm to observe different methods of soil fertility management practices and then to prepare a report for presentation and discussion. ii) Guide the students in groups to categorise methods of maintaining soil fertility. iii) Guide the students to observe the posters/ clips on soil fertility management practices and discuss methods of maintaining soil fertility.	<ul style="list-style-type: none"> • Posters/video clips showing soil fertility management practices • Farms depicting soil fertility management practices 	Is the student able to describe the methods of maintaining soil fertility?	
		c) Carry out soil conservation practises.	The teacher to guide the students to:- i) Assess needs, plan and carry out soil conservation practises. ii) Perform practices on soil conservation around their school compound.	<ul style="list-style-type: none"> • Soil conservation structures/ good farming practices • Posters/video clips showing various soil conservation practises 	Is the student able to carry out soil conservation practises?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) Assess their performance in the activities they performed in section (i) and (ii) with the aid of prepared assessment guideline.			
	3.6 Maintaining soil moisture and water supply	The Student should be able to: a) Explain the concept of optimum soil moisture levels for crop growth.	The teacher to guide the students to: i) Brainstorm on the effects of imbalanced moisture levels on crop growth. ii) Categorize the effects in relation to soil moisture deficit and excessive water levels.	<ul style="list-style-type: none"> • Video clips/ animations illustrating different moisture levels • Pictures of crops affected by excessive water versus deficit of soil moisture 	Is the student able to explain the concept of optimum soil moisture levels for crop growth?	12
		b) Describe methods of determining soil moisture levels.	The teacher to guide students to: i) Brainstorm on the methods of determining soil moisture levels. ii) Determine soil moisture level by appearance and feel method.	Illustrations depicting methods of determining soil moisture levels	Is the student able to describe methods of determining soil moisture levels?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Identify critical stages of crops in relation to moisture requirements.	The teacher to guide the students to: i) Use their experience, consult resource persons and literature search to identify critical stages of crops in relation to moisture requirements. ii) Present their findings for sharing and discussion.	<ul style="list-style-type: none"> Tables/wall charts showing critical stages of various crops in relation to moisture requirements 	Is the student able to identify critical stages of crops in relation to moisture requirements?	
		d) Describe methods of conserving soil moisture.	The teacher to guide students to: i) Brainstorm the methods of maintaining optimum water balance for crops ii) Brainstorm the methods of conserving soil moisture.	<ul style="list-style-type: none"> Mulching materials such as dry grasses, plastic sheets Videos showing various methods of conserving soil moisture 	Is the student able to describe methods of conserving soil moisture?	
		e) Apply method of conserving soil moisture.	The teacher to guide the students to: i) Apply the methods of conserving soil moisture. ii) Present and then teacher to conclude.		Is the student able to Apply methods of conserving soil moisture?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		f) Explain the management of excessive water levels and deficit soil moisture levels.	The teacher to guide students to: i) Brainstorm on how excessive water in soil and deficit moisture levels can be managed. ii) Explain the roles of drainage and water supply as management strategies.	<ul style="list-style-type: none"> Videos showing drainage and irrigation/ water supply operations A farm visit to see irrigation schemes. 	Is the student able to explain management of excessive water levels and deficit soil moisture levels?	
	3.7 Weeding and Weed Control	The Student should be able to: a) Explain the concepts of weed, weeding and weed control.	The teacher to guide the students to: i) Brainstorm the meaning of weed, weeding and weed control. ii) Differentiate the concepts weed, weeding and weed control.	<ul style="list-style-type: none"> Weeds in the school farm or farms around the school. Pictures/video of various weeds. 	Is student able to explain the concepts of weed, weeding and weed control?	12
		b) Describe the basic principles of weed control.	The teacher to guide students in groups to: i) Discuss the meaning, basic principles and factors affecting effectiveness of weed control. ii) Present their responses in plenary session for sharing and discussion.	Charts showing principles of weed control	Is the student able to describe the basic principles of weed control?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Examine weed control methods.	<p>The teacher to guide the students in groups to:</p> <ul style="list-style-type: none"> i) Discuss various methods and techniques that can be used to control weeds. ii) Categorize methods into cultural, physical/mechanical, biological and chemical weed control methods. iii) Practise weed control using various methods including integrated weed management. iv) Assess their performance in the activities they performed in section (iii) with the aid of prepared assessment guideline. v) Reflect on how they learned weed control methods and suggest the most suitable method of weed control in a particular crop and locality. 	<ul style="list-style-type: none"> • Herbicides • Mulch • Weed control tools and implements • School farm 	Is the student able to examine weed control methods?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.8 Control of Crop Pests	The student should be able to: a) Explain the meaning of crop pest.	The teacher to guide the students in groups to: i) Brainstorm the meaning of crop pest. ii) Present their responses in plenary session for sharing and discussions.	<ul style="list-style-type: none"> • Pictures/videos showing various crop pests • Actual crop pests 	Is the student able to explain the meaning of crop pest?	12
		b) Explain the effects of pests on crop production, food security and safety.	The teacher to guide the students to: i) Explain the effects of pests on crop production and present their responses in plenary session for discussion. ii) Summarise and the teacher to conclude their responses based on direct and indirect effects of pests.	<ul style="list-style-type: none"> • Actual affected crop plants and produce • Pictures/posters depicting effects of crop pests 	Is the student able to explain the effects of pests on crop production, food security and safety?	
		c) Describe Pest Control Methods.	The teacher to guide students to: i) Brainstorm the methods of controlling crop pests. ii) Conduct library search and consult with local resource persons to identify pest control methods.	<ul style="list-style-type: none"> • Relevant pesticides • Various pest control materials and gadgets • Posters/videos showing pest control methods 	Is the student able to describe pest control methods?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) Reflect on how they learned pest control methods with respect to cultural, physical, biological and chemical pest control methods. iv) Carry out crop pests control practices. v) Assess their performance in the activities they performed in section (iv) with the aid of prepared assessment guideline.			
	3.9 Control of Crop Diseases	The Student should be able to: a) Explain the meaning of crop disease.	i) The teacher to guide the students in groups to discuss the meaning of crop disease. ii) The teacher and students to summarise the meaning of crop diseases.	<ul style="list-style-type: none"> Videos/pictures showing plant diseases Crop plants affected by diseases 	Is the student able to explain the meaning of crop disease?	12
		b) Describe the common symptoms/signs of crop diseases.	The teacher to guide students to: i) Observe/ watch pictures/ videos of crop plants or sections affected by diseases and identify disease symptoms/signs.	<ul style="list-style-type: none"> Crop plants or sections affected by diseases Posters/pictures/ videos showing plant disease symptoms/signs 	Is the student able to describe the symptoms/signs of crop diseases?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) Carry out field visits and collect diseased plants and sections and analyse the symptoms/signs of crop diseases. iii) Observe the diseased plants or sections of the plant and group them according to symptoms/signs.	<ul style="list-style-type: none"> Articles on crop diseases 		
		c) Describe the causes of crop diseases.	The teacher to guide the students to: i) Discuss causes of crop diseases and present their deliberations in plenary session for sharing and discussions. ii) Categorize pathogenic and non-pathogenic causes of crop diseases.	<ul style="list-style-type: none"> Diseased plants or diseased plant sections Posters/videos showing plant diseases and their causes Articles on crop diseases 	Is the student able to describe the causes of crop diseases?	
		d) Describe disease control methods.	The teacher to guide the students to use their own experience, contact resource persons in their locality and library search to: i) Find out the methods of controlling crop diseases and present their findings for discussion.	<ul style="list-style-type: none"> Crop disease control techniques and practices Articles/posters on crop diseases 	Is the student able to describe the disease control methods?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> ii) Describe the cultural and chemical, legislative control of crop diseases and integrated disease management. iii) Carry out crop disease control practices. iv) Select the best practices of crop disease control. v) Assess their performance in the activities performed in section (iii) and (iv) with the aid of prepared assessment guideline 			
	3.10 Harvesting and post-harvest handling of field and horticultural crops.	<p>The Student should be able to:</p> <ul style="list-style-type: none"> a) Determine criteria for harvesting crops. 	<p>The teacher to guide the students to:</p> <ul style="list-style-type: none"> i) Brainstorm criteria for harvesting different crops. ii) Concretize their responses in relation to quality and quantity of economic sections of the crop, intended utilization of the crop and post-harvest handling/storage of the produce. 	Flip charts/ manila cards showing criteria of harvesting crops	Is the student able to determine criteria for harvesting crops?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Determine the maturity/ harvesting stage and methods of harvesting various crops.	The teacher to guide the students to: i) Use their own experience, contact resource persons in their locality and a library search to find out the ideal harvesting time, stage and methods for various crops common in their locality. ii) Elaborate the importance of timely harvesting.	<ul style="list-style-type: none"> • Articles on crop harvesting • Wall charts showing ideal time, stage and methods of harvesting 	Is the student able to determine maturity/ harvesting stage and methods for various crops?	
		c) Examine the challenges in the harvesting of crops.	The teacher to use questioning strategies to guide the students to: i) Discuss the challenges in harvesting crops and suggest measures to overcome the challenges. ii) Make reflections on how well they identified the challenges and conclusions.	<ul style="list-style-type: none"> • Articles on crop harvesting • Wall charts showing challenges in harvesting crops 	Is the student able to examine the challenges in the harvesting of crops?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Analyse the post-harvest practises for different crops.	The teacher to guide the students to use their own experience, contact resource persons in their locality and a library search to: i) Analyse post-harvest practices for different crops commonly found in their locality. ii) Prepare summary of their analysis and make presentations. iii) Make reflections and conclusions considering processing, grading, packaging, storage and marketing of common crops as post-harvest practices.	<ul style="list-style-type: none"> • Flow charts showing the post-harvest operations of various crops • Articles on crop harvesting • Actual crop produce 	Is the student able to analyse the post-harvest practises for different crops?	
	3.11 Crop Records and Accounts	The Student should be able to a) Keep the basic records and accounts of the crop(s) of their choice.	The teacher to guide the students in groups to: i) Keep records and accounts of the crop(s) of their choice. ii) Present their findings for discussions, reflections and conclusions.	Templates of records and accounts of the crop(s) of their choice	Is the student able to keep the basic records and accounts of the crop(s) of their choice?	6

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		<p>b) Assess the basic records and accounts of the crop(s) of their choice.</p>	<p>The teacher to guide the students to:</p> <p>i) Assess the records and accounts of the crop(s) of their choice.</p> <p>ii) Explain strengths and weaknesses of accounts of the crop(s) of their choice.</p>	<p>Records and accounts of the crop(s) of choice</p>	<p>Is the student able to assess the basic records and accounts of the crop(s) of their choice?</p>	
		<p>c) Plan for the next crop production cycle by using experience gained from the previous season.</p>	<p>The teacher to guide the students in groups to:</p> <p>i) Reflect on the basic records and accounts of the crop(s) of their choice and using them to plan for next crop production cycle.</p> <p>ii) Present their work in plenary for sharing and discussion.</p>	<ul style="list-style-type: none"> • Records and accounts of the crop(s) of their choice • Flip charts and marker pens to note the responses • Crop calendar 	<p>Is the student able to plan for the next crop production cycle by using experience gained from the previous season?</p>	
4.0 CROP HUSBANDRY	4.1 Production of Cereal Crops	<p>The student should be able to:</p> <p>a) Explain the meaning of cereal crops.</p>	<p>The teacher to guide the students in groups to:</p> <p>i) Explain the meaning of cereal crops.</p> <p>ii) Present their works for sharing and discussions.</p>	<ul style="list-style-type: none"> • Pictures/videos depicting cereal crops. • Actual cereal crops. 	<p>Is the student able to explain the meaning of cereal crops?</p>	6

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Growing of at least three cereal crops including maize, paddy and sorghum.	The teacher to guide students in groups to: i) Discuss how to grow cereal crops of their choice relating to the agro-ecological zones where the school is located focusing on nutritional importance and uses, recommended varieties, ecology and agronomic practices. ii) Raise the selected cereal crop from land preparation to harvesting. iii) Present their work to class for discussion.	<ul style="list-style-type: none"> Field of a selected cereal crop Sample of the selected cereal crops Wall charts depicting production process of the selected cereal crop 	Is the student able to grow at least three cereal crops including maize, paddy and sorghum?	
		c) Manage post-harvest practices of a selected cereal crop.	The teacher to guide students to: i) Discuss the post-harvest practices and marketing of selected cereal crops. ii) Reflect the practices and conclude.	<ul style="list-style-type: none"> Produce of the selected cereal crops Processing equipment for the selected cereal crops Storage structure/ packaging materials for the selected cereal crops 	Is the student able to manage post-harvest practices of a selected cereal crops?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Compare production methods of the selected cereal crops at local, national and international levels.	The teacher to guide Students in groups to: i) Search in a library the variation in production operations, challenges and yields for selected crops at local, national and international levels. ii) Compare production of the selected cereal crops at local, national and international levels. iii) Present findings in plenary session for sharing and discussion.	<ul style="list-style-type: none"> Physical library E-library 	Is the student able to compare production methods of the selected cereal crops at local, national and international levels?	
	4.2 Production of Pulse (legumes) Crops	The student should be able to: a) Describe the meaning of pulse crops.	The teacher to guide students in groups to: i) Describe the meaning of pulse crops. ii) Present their works in plenary for sharing and discussion.	<ul style="list-style-type: none"> Pictures/videos depicting pulse crops Students' own experience 	Is the student able to explain the meaning of pulse crops?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Grow at least three pulse crops including cow-peas, pigeon peas and common beans	The teacher to guide students in groups to: i) Discuss how to grow the pulse crops of their choice relating to the agro-ecological zones where the school is located, focusing on nutritional importance and uses, recommended varieties, ecology, agronomic and post-harvest practices. ii) Raise the selected pulse crop from land preparation to harvesting.	<ul style="list-style-type: none"> • Field of selected pulse crops • Sample of pulse crops • Wall charts depicting production process of a selected pulse crops 	Is the student able to grow at least three pulse crops?	
		c) Manage post-harvest practices.	The teacher to guide students to: i) Discuss the meaning post-harvest practices and marketing of the selected pulse crops. ii) Reflect their practices and conclude.	<ul style="list-style-type: none"> • Produce of the selected pulse crops • Processing equipment for the selected pulse crops • Storage structures/ packaging materials for the selected pulse crops 	Is the student able to manage post-harvest practices of the selected crops?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Compare production methods of the selected pulse crops at local, national and international levels.	The teacher to guide students in groups to: i) Find out variations between local and international levels in aspects like production operations, challenges and yield for the selected pulse crops. ii) Present findings in plenary session for sharing and discussion.	<ul style="list-style-type: none"> • Physical library • E-library 	Is the student able to compare production method of the selected pulse crops at local, national and international levels?	

FORM III

CLASS LEVEL COMPETENCIES

By the end of Form III, the student should have ability to:

- a) apply principles of crop production in producing crop products;
- b) manage soil properties for appropriate agricultural production and productivity; and
- c) apply principles of livestock production in raising livestock.

CLASS LEVEL OBJECTIVES

By the end of Form III, the student should be able to:

- a) adhere to the principles of crop production in producing crop products;
- b) recognise soil properties for agricultural production and productivity; and
- c) adhere to the principles of efficient livestock production.

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
1.0 CROP HUSBANDRY	1.1 Production of horticultural crops	The student should be able to: a) Describe the meaning of horticultural crops.	The teacher to guide the students in groups to: i) Describe the meaning of horticultural crops. ii) Present their works in plenary session for sharing and discussion.	Video clips/ pictures depicting common horticultural crops	Is the student able to explain the meaning of horticultural crops?	12
		b) Grow at least three horticultural crops including tomato, amaranthus (mchicha) and okra.	The teacher to guide the students to: i) Discuss on detailed production of the horticultural crops of choice relating to the agro-ecological zones of the school location, focusing on nutritional importance and uses, recommended varieties, ecology, agronomic practices and other factors. ii) Raise the selected horticultural crops from land preparation to harvesting.	<ul style="list-style-type: none"> • Field of the selected horticultural crops • Sample of horticultural crops • Wall charts depicting production process of the selected horticultural crops 	Is the student able to grow at least three horticultural crops including tomato, amaranthus (mchicha) and okra?	
		c) Manage post-harvest practices of a selected horticultural crop.	The teacher to guide students to: i) Discuss the post-harvest practices and marketing of a selected horticultural crop. ii) Reflect its practices and conclude.	<ul style="list-style-type: none"> • Actual crop products • Packaging • Preservatives • Crop production • Packaging materials 	Is the student able to manage post-harvest and marketing of the selected horticultural crop?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Compare production of the selected horticultural crops at local, national and international levels.	The teacher to guide students to: i) Make a library search to find out variation in aspects like production operations, challenges and yields for the selected horticultural crops. ii) Present findings in plenary session for sharing and discussion.	<ul style="list-style-type: none"> Physical library E-library 	Is the student able to compare production of the selected horticultural crops at local, national and international levels?	
	1.2 Production of Oil Crops	The student should be able to: a) Explain the meaning of oil crops.	The teacher to guide the students in groups to: i) Explain the meaning of oil crops. ii) Present their works in plenary session for sharing and discussion.	Video clips/ pictures depicting common oil crops	Is the student able to explain the meaning of oil crops?	12
		b) Grow at least three oil crops including sunflower, groundnut and simsim.	The teacher to guide the students in groups to: i) Discuss in detail about the production of the oil crops of choice relating to the agro-ecological zone where the school is located, focusing on nutritional importance and uses, recommended varieties, ecology, agronomic practices and other factors. ii) Raise the selected oil crops from land preparation to harvesting.	<ul style="list-style-type: none"> Trip to selected oil crop field Sample of oil crops Wall charts depicting production process of the selected oil crops 	Is the student able to grow oil crops including sunflower, groundnut and simsim?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Manage post-harvest practices of the selected oil crops.	The teacher to guide students to: i) Discuss the post-harvest practices and marketing of the selected oil crops. ii) Reflect their practices and conclude.	<ul style="list-style-type: none"> Actual crop products Packaging Preservatives 	Is the student able to manage post harvest practices of the selected oil crops?	
		d) Compare the production of the selected oil crops at local, national and international levels.	The teacher to guide students to: i) Use a library search to find out variation in aspects like production operations, challenges and yields of the selected oil crops. ii) Present findings in plenary session for sharing and discussion.	<ul style="list-style-type: none"> Physical library E-library Pictures depicting international production of the crop 	Is the student able to compare production of the selected oil crops at local, national and international levels?	
	1.3 Production of Root Crops	The student should be able to: a) Describe the meaning of root crops.	The teacher to guide the students in groups to: i) Describe the meaning of root crops. ii) Present their works in plenary for sharing and discussion.	Video clips/ pictures depicting common root crops	Is the student able to explain the meaning of root crops?	12
		b) Grow at least three root crops including cassava, irish and sweet potatoes.	The teacher to guide the students in groups to: i) Discuss on detailed production of the root crops of choice relating to the agro-ecological zone where the school is located, focusing on nutritional importance and uses, recommended varieties, ecology, agronomic practices and other factors.	<ul style="list-style-type: none"> Field of the selected root crops Sample of root crops Wall charts depicting production process of the selected root crops 	Is the student able to grow cassava, irish and sweet potatoes?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) Raise the selected root crops from land preparation to harvesting.			
		c) Manage post-harvest practices of selected root crops.	The teacher to guide students to: i) Discuss post-harvest practices and marketing of the selected root crops. ii) Reflect their practices and conclude.	<ul style="list-style-type: none"> Actual crop products Packaging materials Preservatives 	Is the student able to manage the post-harvest practices of selected root crops?	
		d) Compare the production of the selected root crops at local, national and international levels.	The teacher to guide students to: i) Use a library search to find out variation in aspects like production operations, challenges and yields for the selected root crops. ii) Present findings in plenary session for sharing and discussion.	<ul style="list-style-type: none"> Physical library E-library Pictures depicting international production of the crop 	Is the student able to compare production of the selected root crops at local, national and international levels?	
	1.4 Production of Perennial Crops	The student should be able to: a) Explain the meaning of perennial crops.	The teacher to guide the students in groups to: i) Describe the meaning of perennial crops. ii) Present their works in plenary for sharing and discussion.	Video clips/ pictures depicting common perennial crops	Is the student able to explain the meaning of perennial crops?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Grow at least three perennial crops including cashew-nut, coffee and mango.	The teacher to guide students in groups to: i) Discuss in detail the production of the perennial crops of their choice relating to the agro-ecological zone where the school is located, focusing on nutritional importance and uses, recommended varieties, ecology, agronomic practices and other factors. ii) Raise the selected perennial crops from land preparation to harvesting.	<ul style="list-style-type: none"> Field of the selected perennial crops Sample of perennial crops Wall charts depicting production process of the selected perennial crops 	Is the student able to grow at least three perennial crops including cashew-nut, coffee and mango?	
		c) Manage post-harvest practices of the selected perennial crops.	The teacher to guide students to: i) Discuss the post-harvest practices and marketing of the selected perennial crops. ii) Reflect their practices and conclude.	<ul style="list-style-type: none"> Actual crop products Packaging Preservatives 	Is the student able to manage the post-harvest practices of the selected perennial crops?	
		d) Compare the production of the selected perennial crops at local, national and international levels.	The teacher to guide students to: i) Use a library search to find out variations in aspects like production operations, challenges and yields for the selected perennial crops. ii) Present findings in plenary session for sharing and discussion.	<ul style="list-style-type: none"> Physical library E-library 	Is the student able to compare production of the selected perennial crops at local, national and international levels?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
2.0 SOIL PRODUCTIVITY	2.1 Soil Fertility	The student should be able to: a) Explain the concept of soil fertility, plant nutrients/elements and their importance to plant growth.	The teacher to guide the students to: i) Brainstorm the meaning of soil fertility, plant nutrients/elements. ii) Discuss the meaning of the concept macro and micro nutrients. iii) Classify essential plant nutrients into macro and micro-nutrients.	Wall charts showing the list of plant nutrients/elements	Is the student able to explain the concept of soil fertility nutrients/elements and their importance to plant growth?	6
		b) Describe the roles of macro and micro-nutrients in plant growth.	The teacher to guide the students in library search to: i) Find out the roles of macro and micro-nutrients. ii) Share their findings in plenary session for discussion.	<ul style="list-style-type: none"> • Healthy plants and plant sections • Crop plants with deficiency signs of macro and micro-nutrients • School farm or nearby farm 	Is the student able to describe the roles of macro and micro-nutrients in plant growth?	
		c) Describe the deficiency symptoms of macro and micro-nutrients in the plants and their management.	Using field visits, teacher to guide the students to observe and: i) Identify deficiency symptoms of macro and micro-nutrients in plants and plants' sections. ii) Select appropriate fertilizers for correct application.	<ul style="list-style-type: none"> • Crop plants with deficiency signs of macro and micro-nutrients • Various fertilizers • School farm and nearby farms • Pictures/video 	Is the student able to describe the deficiency symptoms of macro and micro-nutrients in the plants and their management?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Show the relationship of soil fertility with soil colloids.	The teacher to guide the students to: i) Brainstorm the meaning of soil colloids. ii) Show the relationship between soil colloids and soil fertility.	Wall charts/video clips depicting soil colloids and its relationship with soil properties	Is the student able to show the relationship of soil fertility with soil colloids?	
		e) Describe the relationship of soil fertility with exchange capacity, base saturation, pH and soil productivity.	The teacher to guide the students in pairs to: i) Read the texts/observe the figures and describe the concepts of exchange capacity, base saturation, pH and show their relationship with soil fertility and productivity. ii) Present their responses in gallery walk for sharing and discussion.	<ul style="list-style-type: none"> Articles/Texts illustrating soil fertility, exchange capacity, base saturation and pH and their relationships Figures illustrating simplified representation of exchange capacity Soil test Kit 	Is the student able to describe the relationship of soil fertility with exchange capacity, base saturation and pH?	
	2.2 Soil Organic Matter	The student should be able to: a) State the role of organic matter in the soil.	i) The teacher to guide students to revisit the concept of organic matter as a constituent of soil.	<ul style="list-style-type: none"> Wall charts showing the properties of different soils Samples of organic manure 	Is the student able to state the role of organic matter in the soil?	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) The teacher to guide the students in groups to discuss the effects of organic matter on soil physical and chemical properties as well as microbial activities.			
		b) Describe the methods of adding organic matter to the soil.	i) The teacher to guide students to brainstorm various methods that organic matter can be added in the soil. ii) Using think-pair and share, the teacher to guide students to describe the strengths and weaknesses of the methods.	<ul style="list-style-type: none"> • Wall showing ways of adding organic matter to the soil • Samples of organic manure 	Is the student able to describe the methods of adding organic matter to the soil?	
		c) Explain the concept of Carbon-Nitrogen (C: N) ratio.	The teacher to: i) Use questions and answers session to guide students to describe the concept of Carbon-Nitrogen (C: N) ratio. ii) Guide students to discuss the role of C: N ratio on decomposition and maintenance of soil organic matter. iii) Guide students to conduct a library search on sources of organic matter.	<ul style="list-style-type: none"> • Wall charts showing C:N ratios of various organic materials • Selected piece of land • Hand hoe • Spade, Machete • Different organic materials 	Is the student able to explain the concept of Carbon- Nitrogen (C: N) ratio?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
3.0 PRINCIPLES OF LIVESTOCK PRODUCTION	3.1 Selection of Suitable Livestock Type and Breed	The Student should be able to:	The teacher to guide the students in groups to discuss factors to consider in choosing the type of livestock for production with emphasis to cattle, poultry, goat, sheep, pig and rabbit.	<ul style="list-style-type: none"> • Brochures/ posters showing different types and breeds of livestock for production • Actual farm animals 	Is the student able to describe the factors to be considered in choosing the type and breed of livestock for production?	12
		a) Describe the factors to be considered in choosing type of livestock for production.				
		b) Describe the factors to consider in choosing suitable breed from the selected livestock type.	The teacher to guide the students to describe factors to consider in choosing livestock breed from livestock type selected.	Wall charts depicting the breed/types of livestock	Is the student able to describe the factors to consider in choosing suitable breed from the selected livestock type?	
		c) Describe the important points to consider in physical and financial planning for livestock enterprise.	The teacher to: <ul style="list-style-type: none"> i) Use questioning strategies to guide students to discuss the important points to consider in physical and financial planning for livestock enterprise. ii) Support students to elaborate their responses and conclude. 	Samples of physical and financial plans	Is the student able to describe the important points to consider in physical and financial planning for the livestock enterprise?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Choose suitable type and breed of livestock to raise in the school locality.	The teacher to guide the students in groups to: i) Choose with justification the type and breed of livestock to raise in the school locality. ii) Present their work in a gallery walk for sharing and discussion. iii) Summarise their responses and conclude.	Wall charts showing livestock types and breeds	Is the student able to choose suitable type and breed of livestock to raise in the school locality?	
		e) Develop physical and financial plans for raising livestock of choice.	The teacher to guide the students in groups to: i) Develop physical and financial plans for raising livestock of choice. ii) Reflect their responses and conclusion.	Samples of physical and financial plans	Is the student able to develop physical and financial plans for raising livestock of choice?	
	3.2 Livestock Housing	The Student should be able to a) Explain the purpose of livestock housing.	The teacher to guide the students to: i) Brainstorm the purposes of housing livestock. ii) Clarify their responses and conclude.	Wall charts/video clips showing the purposes of livestock housing	Is the student able to explain the purpose of livestock housing?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe the characteristics of appropriate housing for different types of livestock.	The teacher to guide the students to: i) Discuss the characteristics of appropriate housing for livestock with emphasis to cattle, poultry, goat, pig, sheep and rabbit. ii) Elaborate their responses and reach conclusion.	<ul style="list-style-type: none"> Livestock houses Wall charts/pictures of livestock houses depicting the appropriate characteristics 	Is the student able to describe the characteristics of appropriate housing for different types of livestock?	
		c) Describe different housing designs for various types of livestock.	The teacher to guide students in groups to observe slides/pictures of livestock houses and: i) Discuss appropriate housing designs for specific livestock according to their natural behaviours. ii) Present their responses for sharing and discussion.	Wall chart/pictures of livestock houses depicting various designs	Is the student able to describe the housing designs for various types of livestock?	
	3.3 Feeding of Livestock	The Student should be able to:- a) State the functions and sources of feed nutrients and water to livestock.	The teacher to guide students to: i) Brainstorm the functions and sources of feed nutrients and water to livestock ii) Elaborate and conclude emphasizing on the functions and sources of carbohydrates, proteins, vitamins, minerals, fats and oils as well as water..	<ul style="list-style-type: none"> Wall charts showing major functions and sources of feed nutrients and water Feed samples 	Is the student able to state the functions and sources of feed nutrients and water to livestock?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe digestive systems of livestock.	The teacher to guide students to: i) Carefully observe the digestive systems of ruminants and non-ruminants and relate the organs to their feeding. ii) Summarise the features of the organs in ruminants and non-ruminants livestock in plenary session. iii) Summarise their responses and conclude.	Actual/drawings/pictures of digestive systems of ruminants and non-ruminants	Is the student able to describe digestive systems of livestock?	
		c) Analyse the types of livestock feeds.	The teacher to guide students to: i) Observe the charts and discuss the types of livestock feeds and the criteria for feed selection. ii) Do simple practical on animal feed preparation and preservation of fodder; hay and silage. iii) Make reflections on their responses and conclude.	<ul style="list-style-type: none"> • Wall charts showing different livestock feeds • Feed samples • Sickles, machetes, • Mowers, Baller 	Is the student able to analyse the types of livestock feeds?	
		d) Examine systems of feeding large animals.	The teacher to guide the students to: i) Visit nearby livestock farms to observe stall feeding and pasture grazing systems of feeding. ii) Discuss their observations and conclude. iii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> • Wall charts showing different livestock feeds and feeding • Posters/pictures depicting livestock feeding systems 	Is the student able to examine the systems of feeding large animals?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		e) Describe supplementary feeding.	The teacher to guide students to: i) Brainstorm the meaning of supplementary feeding. ii) Discuss the categories of animals to be given common supplementary feeds. iii) Formulate supplementary feeds using locally available farm resources. iv) Make reflections of their responses and reach conclusion.	<ul style="list-style-type: none"> • Various supplementary feeds for livestock • Ration composition guides 	Is the student able to describe supplementary feeding?	
		f) Describe a good feeding practice.	The teacher to guide students in questions and answers session to: i) Explain features of good livestock feeding practice. ii) Use the features for example, balanced ration, enough and safe water, feed preparation, feeding time to practice good feeding. iii) Make reflections of their responses and reach conclusion.	<ul style="list-style-type: none"> • Various livestock feeds • Actual animal feeding, trough/ drinker • Feed samples • Pictures/wall charts depicting good feeding practices • Video 	Is the student able to describe a good feeding practice?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.4 Management of livestock health	The Student should be able to: a) Explain the meaning of animal health.	The teacher to guide students in groups to: i) Brainstorm the meaning of animal health. ii) Summarise the meaning of animal health responses and reach conclusion.	<ul style="list-style-type: none"> • Pictures/ slides showing healthy and diseased animals • Live animals 	Is the student able to explain the meaning of animal health?	12
		b) Describe the conditions of healthy and unhealthy animals.	The teacher to guide students to: i) Discuss the general signs of healthy and unhealthy animal. ii) Visit the school livestock unit or nearby livestock farms and observe the general signs of healthy and unhealthy animals. iii) Write a report of the visit and present to class for discussion.	<ul style="list-style-type: none"> • Cards showing healthy and unhealthy animals • Health conditions standard tables 	Is the student able to describe the conditions of healthy and unhealthy animals?	
		c) Explain the causes of poor health in livestock.	The teacher to guide students in groups to: i) Describe the causes of poor health in livestock. ii) Present their responses for sharing and discussions.	<ul style="list-style-type: none"> • Wall charts depicting unhealthy environments for livestock • Livestock unit/ farm 	Is the student able to explain the causes of poor health in livestock?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) Conclude the causes of poor health in livestock by emphasizing on; poor feeding, poor hygienic conditions of the animal housing, parasite infestations, injuries due to poor handling and disease causing organisms/ pathogens with particular emphasis to cattle, poultry, goats, sheep, pigs and rabbits.			
		d) Analyse the approaches to managing livestock health.	The teacher to guide students in groups to: i) Discuss the major approaches to manage livestock health. ii) Present their work in gallery walk for sharing and discussion emphasizing on preventive and curative measures. iii) Conduct a mini project to find out the common livestock diseases in their communities, their symptoms, control, treatments, source of drugs, who provides treatment and prepare a short report. iv) Share their findings and reflect what they have learnt in plenary discussion.	<ul style="list-style-type: none"> • Posters/pictures showing approaches to manage livestock health • Presentations summaries • Video 	Is the student able to analyse the approaches to managing livestock health?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		e) Describe the proper management of internal and external parasites.	The teacher to guide students to: i) Brainstorm the meaning of internal and external parasites. ii) Use their experience, contact resource persons and literature to find out proper management of internal and external parasites. iii) Present their findings in plenary session for sharing and discussions. iv) Elaborate and conclude their responses by emphasizing on suitability of the management.	<ul style="list-style-type: none"> Wall charts/ video clips showing management of internal and external parasites School livestock unit portraying management practices of internal and external parasites 	Is the student able to describe the proper management of internal and external parasites?	
	3.5 Reproduction and Breeding of Livestock	The Student should be able to; a) Describe reproductive systems of different classes of livestock.	i) Using think-pair and share the teacher to guide the students to observe male and female reproductive systems of farm animals such as cattle, poultry, goat, sheep, pig and rabbit to identify their major features and functions. . ii) The students and teacher to summarise the major features of male and female reproductive organs.	<ul style="list-style-type: none"> Actual male and female reproductive systems of farm animals Pictures of male and female reproductive systems of farm animals 	Is the student able to describe reproductive systems of different classes of livestock?	18

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe the reproduction cycles for breeding different classes of livestock.	The teacher to guide students to: i) Observe the reproductive cycles of farm animals and discuss their meaning and significance in breeding different classes of animals. ii) Elaborate their responses by emphasizing on the heat period for the selected livestock. iii) Discuss the reproductive cycles and their relationship with breeding of particular animals. iv) Visit the school livestock unit or nearby livestock farm to identify animals which are on heat. v) Make reflections and conclusion.	<ul style="list-style-type: none"> • Charts showing reproductive cycles of farm animals • School livestock unit or nearby livestock farm 	Is the student able to describe the reproduction cycles for breeding different classes of livestock?	
		c) Describe breeding and management practices of pregnant livestock.	i) Students in groups to discuss the factors to consider in determining the season for breeding and delivery of offspring from the selected livestock while considering general practices in management of livestock breeding.	<ul style="list-style-type: none"> • Breeding calendars for various farm animals • Wall charts depicting breeding of various farm animals 	Is the student able to describe breeding and management practices of pregnant livestock?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) The teacher and students to conclude by providing recommendations regarding proper determination of the breeding season, management of pregnant and delivery of offspring from the selected livestock.			
		d) Analyse the techniques of breeding farm animals.	The teacher to guide students in plenary session to: i) Discuss the natural mating and artificial insemination (A.I) techniques of livestock breeding while analysing their strengths and challenges. ii) Elaborate and reflect their responses with emphasis on recommendations of proper methods and techniques of breeding livestock.	<ul style="list-style-type: none"> Actual animals or pictures depicting techniques of breeding farm animals A.I kit 	Is the student able to analyse the techniques of breeding farm animals?	
		e) Assess the livestock breeding systems.	The teacher to guide students to: i) Discuss systems of livestock breeding. ii) Reflect their responses with respect to inbreeding, line breeding, out breeding, cross breeding and upgrading systems while identifying the strengths and challenges of each system.	<ul style="list-style-type: none"> Presentations summaries Charts showing livestock breeding systems 	Is the student able to assess the livestock breeding systems?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.6 Handling of Livestock Products.	The Student should be able to: a) Explain the importance of proper handling of livestock products.	Using questioning strategies to guide students to: i) Discuss the importance of proper handling of livestock products. ii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> Charts showing livestock products Storage equipment for livestock products Actual livestock products 	Is the student able to explain the importance of proper handling of livestock products?	6
		b) Describe methods of proper handling of livestock products.	The teacher to guide students in groups to: i) Discuss methods of proper handling of products from selected farm animals (cattle, goat, sheep poultry, pig and rabbits) and present their deliberations. ii) Make reflections of their responses and conclude.	Wall charts showing guidelines for proper handling of livestock products	Is the student able to describe the methods of proper handling of livestock products?	
	3.7 Recording and Accounting	The Student should be able to a) Keep the basic records and accounts of the livestock of their choice.	The teacher to guide students in groups to: i) Prepare records and accounts of livestock production activities of their choice. ii) Present their work in gallery walk for sharing and discussion. iii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> Actual records Templates of/ or records and accounts of the livestock of their choice 	Is the student able to keep the basic records and accounts of the livestock of their choice?	6

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Assess the basic records and accounts of the selected livestock.	The teacher to guide students to: i) Assess the records and accounts of the selected livestock to identify strengths and weaknesses. ii) Make reflections of their responses and conclude.	Records and accounts of livestock of their choice	Is the student able to assess the basic records and accounts of the selected livestock?	
		c) Plan for the next livestock production cycle.	The teacher to guide students in groups to: i) Reflect on the basic records and accounts of the selected livestock and plan for the next livestock production cycle. ii) Presents their reports in plenary for sharing and discussion. iii) Make reflections of their responses and conclude.	Records and accounts of livestock of their choice.	Is the student able to plan for the next livestock production cycle?	
4.0 ANIMAL HUSBANDRY	4.1 Poultry Farming	The Student should be able to: a) Explain the concept of poultry.	The teacher to guide students to: i) Brainstorm the meaning of the term poultry with the aid of pictures. ii) Discuss in plenary session, the types, breeds and importance of poultry. iii) Make reflections of their responses and conclude.	Wall charts and/or pictures showing various types and breed of poultry	Is the student able to explain the concept of poultry?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe systems of poultry production.	i) Using pictures, the teacher to guide the students to identify systems of rearing poultry and factors to consider in selecting the suitable system. ii) The teacher to guide students to visit poultry keepers practising different rearing systems to observe systems of poultry production. iii) The teacher to guide students to prepare a report of the visits on the systems of rearing poultry while considering the suitability of each system.	<ul style="list-style-type: none"> • Pictures showing different poultry rearing systems • Poultry farms 	Is the student able to describe systems of poultry production?	
		c) Practise managerial operations in poultry production.	i) The teacher to guide students to discuss the meaning of incubation, types and selection of eggs. ii) Using pictures or actual poultry farm to guide students to discuss and practise the managerial operations of: <ul style="list-style-type: none"> - Rearing layers from a day-old chicks to end of the productive life. - Rearing broiler from a day-old chicks to slaughtering weight. iii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> • Pictures showing various management practices in poultry • Poultry farm equipped with facilities and other supplies 	Is the student able to practise managerial operations in poultry production?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.2 Dairy Animal Farming	The Student should be able to: a) Explain the concept of dairy farming.	i) Using pictures the teacher to guide students to brainstorm the meaning, roles and limitation of dairy farming in Tanzania. ii) The teacher to use questions and answers method to guide students to elaborate and make reflections on the meaning, role and limitations of dairy farming in Tanzania.	<ul style="list-style-type: none"> Actual dairy animals Pictures showing dairy animals Chart showing products and by-product 	Is the student able to explain the concept of dairy farming?	18
		b) Describe the types and breeds of dairy animals.	The teacher to guide students to: i) Brainstorm the types and breeds of dairy animals. ii) Summarise the type and breeds of dairy animals.	<ul style="list-style-type: none"> Actual dairy animals Pictures showing dairy breeds of cattle and goat 	Is the student able to describe the types and breed of dairy animal?	
		c) Practise managerial operations in dairy farming.	The teacher to guide students in groups to: i) Discuss the managerial practices in dairy cattle farming, focusing on selection of breeding stock, rearing of calf- heifers/cows, lactating cows, bull management, calf rearing and weaning, culling and selection and breeding. ii) Discuss managerial operations in dairy goat farming with focusing on selection of breeding stock, management of breeding stock and kids.	<ul style="list-style-type: none"> Wall charts depicting managerial practices in dairy farming Dairy equipment, facilities and supplies A well-organized dairy farm 	Is the student able to practise managerial operations in dairy farming?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) Make reflections of their responses and conclude.			
		d) Demonstrate milking techniques and procedures	The teacher to guide the students in groups to: i) Explain rules and procedures to follow in hand and machine milking. ii) Visit a dairy cattle/goat and observe milking procedures. iii) Summarise and write a report for discussion.	<ul style="list-style-type: none"> • Dairy animals • Dairying equipment, facilities and supplies. • Artificial udder 	Is the student able to demonstrate milking techniques and procedures?	
		e) Explain the factors affecting milk yield and quality.	The teacher to guide the students to: i) Brainstorm on milk components and discuss the factors affecting milk yield and quality. ii) Make reflections of their responses and conclude.	Wall pictures showing the factors	Is the student able to explain the factors affecting milk yield and quality?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.3 Meat Production	The Student should be able to: a) Explain the concept of meat production.	Using pictures the teacher to guide students to: i) Brainstorm the concept of meat production and the role of meat production in Tanzania and its limitations. ii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> Chart showing classes of different animals such as beef cattle, pigs, broilers etc 	Is the student able to explain the concept of meat production?	12
		b) Describe the types of animals kept for meat production.	Using pictures the teacher to guide the students to: i) Brainstorm the types of animals kept for meat. ii) Make conclusion while considering pig, cattle, goat and their breeds.	<ul style="list-style-type: none"> Actual meat animals Wall charts showing meat animal breeds: pig, beef cattle and goat 	Is the student able to describe the types of animals kept for meat production?	
		c) Practise the managerial operations in meat production.	The teacher to guide students in groups to: i) Discuss the managerial practices in meat production with respect to cattle, pig, goat, rabbit and poultry. ii) Practise the basic managerial operations in meat production. iii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> Pictures depicting various managerial practices in meat production Meat production equipment, facilities supplies 	Is the student able to demonstrate managerial practices of animals kept for meat?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Describe the procedure for slaughtering.	i) The teacher to guide students: <ul style="list-style-type: none"> - In think - pair and share students to explain the procedure for stunning, slaughtering, skinning and dressing an animal. - To visit an abattoir/slaughter-house to familiarise themselves with procedure for slaughtering. - To write report of their visit for sharing and discussion. 	<ul style="list-style-type: none"> • Pictures depicting slaughtering procedure for animals kept for meat such as cattle, goats, pigs and rabbit • Slaughter house/slab 	Is the student able to describe the procedure for slaughtering?	
		e) Outline factors affecting meat yield and quality.	i) The teacher to guide students to brainstorm on factors affecting yield and quality of meat ii) With the aid of wall charts, teacher to guide the students to identify the factors which affect meat yield and carcass quality. iii) Make reflections of their responses and conclude.	Wall charts depicting the factors affects meat yield and affecting quality.	Is the student able to outline factors affecting meat yield and quality?	
	4.4 Aquaculture	The Student should be able to: a) Explain the concept of aquaculture.	The teacher to guide students to: i) Brainstorm the meaning of aquaculture. ii) Explain the importance of fish production. iii) Discuss the systems of aquaculture and types of fisheries. iv) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> • Pictures/ slides showing different types of fish • Flip chart showing the importance of fishing and types of fisheries • Actual fish pond 	Is the student able to explain the concept of fish farming (aquaculture)?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe managerial practices in fish farming.	i) With the aid of charts/pictures and resource persons the teacher to guide students to describe the procedures for fish pond construction and stocking.	<ul style="list-style-type: none"> • Wall charts/ pictures depicting different types of fisheries • Actual fishery in ponds, dams, rivers 	Is the student able to describe managerial practices in fish farming?	
			ii) Students to visit a nearby fish pond to learn how to manage fish and fish pond. iii) Students in groups to observe the fish harvesting gears and practise harvesting, processing and preservation. iv) Students to write report of their visit for discussion and lesson reflections.	<ul style="list-style-type: none"> • Fishery equipment, facilities and supplies 		

FORM IV

CLASS LEVEL COMPETENCIES

By the end of Form IV, the student should have ability to:

- a) apply marketing skills to market agricultural products.
- b) use the basic skills of agro-forestry for sustainable agricultural production.
- c) apply farm structures knowledge for improving agricultural productivity.
- d) evaluate contemporary issues in agricultural production.

CLASS LEVEL OBJECTIVES

By the end of Form IV, the student should be able to:

- a) examine the marketing of agricultural products.
- b) develop knowledge on agro-forestry for sustainable agricultural production and management of land.
- c) demonstrate the basic skills of farm structures for improved productivity.
- d) managing the use of Genetically Modified Organisms (GMOs) for sustainable agricultural production.

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
1.0 AGRICULTURAL DEVELOPMENT IN TANZANIA	1.1 Basic Facts of Agriculture in Tanzania	The Student should be able to: a) Assess the objectives of the Tanzania agricultural sector.	The teacher to guide students to: i) Search, collect and assess information from various sources on the objectives of the Tanzania agricultural sector as well as suitable and available land for agricultural productivity. ii) Organise the collected data and prepare portfolios. iii) Compare their data with regional and international objectives/data. iv) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> Portfolios Articles on facts of agriculture in Tanzania 	Is the student able to assess the objectives of the Tanzania agricultural sector?	18
		b) Compare the status of agricultural production and proportion of population involved in agricultural production.	The teacher to guide students to: i) Search and collect information from various sources on the proportion of the population engaged in agricultural and non-agricultural sectors. ii) Use their portfolios to compare the status of agricultural production and proportion of population involved in agricultural production.	<ul style="list-style-type: none"> Portfolios Articles on state of agriculture in Tanzania and other countries 	Is the student able to compare the status of agricultural production and proportion of population involved in agricultural production?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) Compare the Tanzania's data with regional and international trends. iv) Make reflections of their responses and conclude.			
		c) Analyse food, cash crops and livestock production trends.	The teacher to guide students to: i) Conduct a project to analyse the food, cash crops and livestock production in their villages, districts and regions. ii) Prepare reports and share with them in plenary session and add them in the portfolios. iii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> • Portfolios • Articles on trends of agricultural production in Tanzania • Wall charts on the crops and livestock production trends 	Is the student able to analyse food and cash crops, and livestock production trends?	
		d) Explain the distinguishing characteristics of agricultural sector and non-agricultural sector.	The teacher to guide students to: i) Brainstorm the basic distinguishing characteristics of agricultural sector from non-agricultural (industrial) sector. ii) Summarize their responses for conclusion and reflections.	Wall charts showing the interactions between agricultural and non-agricultural sectors	Is the student able to explain the distinguishing characteristics of agricultural sector and non-agricultural sector?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		e) Explain the relationship between agricultural and non-agricultural sectors.	The teacher to guide students in pairs to think and share: i) Relationship between agricultural and non-agricultural sector. ii) Responses in plenary while other students giving comments.	Wall charts illustrating the relationship between agricultural and non-agricultural sector	Is the student able to explain the relationship between agricultural and non-agricultural sectors?	
	1.2 Types of Farming and Farming Systems in Tanzania	The student Should be able to: a) Differentiate the types of farming from farming systems.	The teacher to use questioning strategies to guide students to: i) Distinguish types of farming from farming systems. ii) Summarise their deliberations for reflections.	Articles on types of farming and farming systems	Is the student able to differentiate the types of farming from farming systems?	6
		b) Describe the types of farming in Tanzania.	Using questions and answers method to guide students to: i) Identify the types of farming in Tanzania. ii) Discuss the basic characteristics of subsistence, small and large scale types of farming iii) Elaborate their responses and conclude.	Wall charts/Video clips illustrating types of farming	Is the student able to describe the types of farming in Tanzania?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.3 Tanzania land tenure systems	<p>The student should be able to:</p> <p>a) Explain the meaning of land tenure.</p>	<p>The teacher to guide students to:</p> <p>i) Brainstorm the meaning of land tenure.</p> <p>ii) Clarify their responses and conclude.</p>	<ul style="list-style-type: none"> • Articles on land tenure • Students own experiences 	<p>Is the student able to explain the meaning of land tenure?</p>	6
		<p>b) Describe the land tenure systems in Tanzania.</p>	<p>The teacher to use questions and answers method to guide the students to:</p> <p>i) Describe systems of land tenure in their localities and in the nation.</p> <p>ii) Discuss the factors that have influenced adoption of various land tenure systems.</p> <p>iii) Present their responses in plenary for discussion, and conclusion.</p>	<p>Articles on land tenure systems</p>	<p>Is the student able to describe the land tenure systems in Tanzania?</p>	
		<p>c) Describe the problems encountered in the current land tenure arrangements in Tanzania.</p>	<p>The teacher to guide the students in groups to:</p> <p>i) Discuss problems encountered in the current land tenure arrangements in Tanzania.</p> <p>ii) Present their responses for sharing and discussion.</p> <p>iii) Suggest means of solving the problems in the plenary discussion.</p>	<ul style="list-style-type: none"> • Articles on land tenure systems • Portfolios 	<p>Is the student able to describe the problems encountered in the current land tenure arrangements in Tanzania?</p>	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.4 Land use Patterns in Tanzania	The Student should be able to: a) Explain the meaning of land use patterns.	The teacher to guide students to: i) Brainstorm the meaning of land use patterns. ii) Clarify their responses and conclude.	<ul style="list-style-type: none"> Articles on land use patterns Map of Tanzania showing land use Patterns 	Is the student able to explain the meaning of land use patterns?	12
		b) Explain the factors influencing land use patterns.	The teacher to guide students to: i) Brainstorm the factors influencing land use patterns. ii) Describe the influence of climatic and social factors on land use patterns in their localities. iii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> Articles on land use patterns Map of Tanzania showing land use Charts illustrating land use patterns in Tanzania 	Is the student able to explain the factors influencing land use patterns?	
		c) Analyse the major land use patterns in Tanzania.	The teacher to guide students in groups to: i) List different land use patterns in Tanzania. ii) Discuss the characteristics of various land use patterns in Tanzania. iii) Carry out thorough investigation of various maps of Tanzania and find out how land is used in various sections of Tanzania.	<ul style="list-style-type: none"> Maps of Tanzania showing land use Patterns Charts illustrating land use patterns in Tanzania Physical and e-library 	Is the student able to analyse the major land use patterns in Tanzania?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) Share their findings in plenary session while others giving comments.			
2.0 AGRICULTURAL MARKETING	2.1 The Concept of Agricultural Marketing	The Student should be able to a) Explain the meaning of the terms market and marketing.	The teacher to guide students to: i) Brainstorm the meaning of the terms market and marketing. ii) Clarify their responses and conclude on the meaning of the terms market and marketing.	<ul style="list-style-type: none"> • Articles on market and marketing • Wall chart depicting market and marketing 	Is the student able to explain the meaning of the terms market and marketing?	12
		b) Outline the basic functions of agricultural marketing.	The teacher to guide students to: i) Discuss the basic functions of agricultural marketing and activities under each function. ii) Elaborate their responses by emphasizing on the exchange, physical and facilitating functions.	Posters showing the basic functions and activities of agricultural marketing	Is the student able to outline the basic functions of agricultural marketing?	
		c) Explain the principles guiding agricultural marketing.	The teacher to guide students in pairs to: i) Think and share the principles guiding agricultural marketing. ii) Present their responses in plenary for discussion. iii) Make reflections of their responses and conclude.	Posters/wall charts depicting principles of agricultural marketing	Is the student able to explain the principles guiding agricultural marketing?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Describe the agricultural marketing participants and chains.	i) The teacher to use questions and answers method to guide students to describe the participants and chains in agricultural marketing. ii) Students to visit a nearby agricultural market place to observe the participants and chains. iii) Students to write reports on their visit of sharing and personal reflections.	Flow charts illustrating marketing participants and chains	Is the student able to describe the agricultural marketing participants and chains?	
		e) Describe the challenges facing agricultural marketing.	The teacher to guide students to: i) Discuss the challenges facing agricultural marketing. ii) Suggest ways of solving the challenges. iii) Summarise their responses and conclude.	Posters/Wall charts depicting the challenges facing agricultural marketing.	Is the student able to describe challenges facing agricultural marketing?	
	2.2 Theory of Demand and Supply in Agricultural Marketing	The Student should be able to a) Describe the concept of demand and supply as key factors in price determination.	The teacher to guide the students to: i) Observe supply and demand curves and discuss how the demand and supply of products/services determine prices of the respective products/services. ii) Elaborate their responses and make a conclusion.	Chart showing supply and demand schedules and curves	Is the student able to describe the concept of demand and supply as key factors in price determination?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Illustrate the break-even point.	<p>The teacher to guide students to:</p> <ul style="list-style-type: none"> i) Brainstorm the meaning of break-even point. ii) Explain the importance of break-even point in determining sales for profit or loss. iii) Illustrate break-even point. iv) Make reflections of their responses and conclude. 	<ul style="list-style-type: none"> • Charts/cards illustrating the formula for calculating break-even point • Graphs depicting break-even points 	Is the student able to illustrate the break-even point?	
		c) Use the break-even point to predict market environment of a commodity/ service.	<p>The teacher to guide students to:</p> <ul style="list-style-type: none"> i) Recollect the records of selected crops and livestock produced in the school to calculate break-even points. ii) Predict market environment of selected crops/livestock by using break-even point. iii) Clarify how break-even point is used to determine market prices. iv) Make reflections and conclusion. 	<ul style="list-style-type: none"> • Livestock and crop production records/trends • Graphs depicting break-even points 	Is the student able to use the break-even point to predict market environment of a commodity/ service?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.3 Market access and marketing of agricultural commodities	The Student should be able to a) Describe the major stages involved in marketing of agricultural commodities	The teacher to use questions and answers method to guide students to: i) Brainstorm the major stages involved in agricultural commodities in marketing. ii) Clarify their responses with emphasis to assembly, transportation, storage, grading, classification, processing, packaging, distribution, and retailing stages. iii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> • Wall charts illustrating the major stages in agricultural commodities in marketing • Value added agricultural supplies 	Is the student able to describe the major stages involved in marketing of agricultural commodities?	18
		b) Describe the marketing of basic agricultural commodities in Tanzania.	The teacher to guide students in groups to: i) Describe the marketing of basic agricultural commodities showing the main participants involved and their roles. ii) Present their work in gallery walk. iii) Make reflections of their responses and conclusion while emphasizing on commodities/services produced in Tanzania.	Wall charts showing marketing of various agricultural products	Is the student able to describe the marketing of basic agricultural commodities in Tanzania?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Assess the barriers of the present Tanzania agricultural marketing systems.	The teacher to guide students in pair : i) Think and share the principal stages of agricultural commodities in marketing systems and find out the inadequacies of the present Tanzania agricultural marketing systems. ii) Present their responses in plenary for discussion. iii) Make reflections on their responses and conclude.	<ul style="list-style-type: none"> • Wall charts showing marketing of various agricultural products • Wall charts illustrating the major stages in agricultural commodities marketing 	Is the student able to assess the barriers of the present Tanzania agricultural marketing system?	
		d) Suggest the possible improvements of the Tanzania agricultural marketing systems.	The teacher to use questions and answers method to guide students to: i) Revisit the identified inadequacies and suggest possible solutions to improve Tanzania agricultural marketing systems. ii) Make reflections of their responses and conclude.	Charts for illustrating solutions to improve agricultural marketing systems	Is the student able to suggest possible improvements of Tanzania agricultural marketing systems?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
3.0 AGRO-FORESTRY	3.1 The concept of Agro-forestry	The Student should be able to: a) Explain the meaning of agro-forestry.	With the aid of posters/pictures the teacher to guide students to: i) Brainstorm the meaning of agro-forestry. ii) Clarify their responses and conclude.	Posters/pictures depicting agro-forestry	Is the student able to explain the meaning of agro-forestry?	8
		b) Explain the importance of agro-forestry in land management.	The teacher to use questioning strategies to guide students to: i) Explain the importance of agro-forestry in land management. ii) Make reflections of their responses and conclude.	Pictures/videos showing agro-forestry practices in various situations	Is the student able to explain the importance of agro-forestry in land management?	
		c) Describe the forms of agro-forestry.	With the aid of pictures/videos the teacher to guide students to: i) Describe the forms of agro-forestry ii) Discuss the advantages and disadvantages of each form of agro-forestry iii) Present their deliberations in plenary session while others giving comments. iv) Make reflections of their responses and conclude.	Pictures/videos showing forms of agro-forestry	Is the student able to describe the forms of agro-forestry?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.2 Establishment and Management of Trees	The Student should be able to: a) Identify appropriate trees and shrubs for different uses.	The teacher to guide students to: i) Visit a nearby agro-forestry farms so as to get exposure to different trees and shrubs for various uses. ii) Make reflections on field trips and revisit the different uses of trees in their locality. iii) Identify appropriate trees and shrubs for different uses in their locality.	Pictures/slides showing trees for different uses	Is the student able to identify appropriate trees and shrubs for different uses?	18
		b) Prepare a tree nursery.	i) The teacher to guide the students to brainstorm the meaning and the importance of having their own tree nursery. ii) With the assistance of a resource person the teacher to guide students to prepare tree nursery.	Tree nursery facilities, tools and supplies	Is the student able to prepare a tree nursery?	
	3.3 Bee-keeping	By the end of this sub-topic the student should be able to: a) Explain the concept of bee-keeping in relation to forest crop production.	The teacher to guide students to: i) Brainstorm the meaning of bee-keeping in relation to forest crop production. ii) Explain the importance of bee-keeping in relation to forest crop production. iii) Make reflections of their responses and conclude.	Pictures/videos showing bees and bee products.	Is the student able to explain the concept of bee-keeping in relation to forest crop production?	18

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe the major bee-keeping methods	i) The teacher to guide students to use their experience and with the aid of pictures to describe the bee-keeping methods. ii) The teacher to support the students to clarify their responses with emphasis to traditional and modern methods of bee-keeping. iii) The teacher to use questioning strategies to guide the students to explain strengths and challenges of traditional and modern methods of bee-keeping. iv) With the aid of resource person guide students to carry out a simple practical activity on design and preparation of the traditional and modern/ commercial beehive. v) With the aid of prepared assessment guideline the teacher to guide students to assess the activities performed in section (i).	<ul style="list-style-type: none"> • Actual traditional and modern bee hives • Pictures showing traditional and modern beehive 	Is the student able to describe the major bee-keeping methods?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Demonstrate managerial practices in bee-keeping.	i) With the help of pictures/ videos the teacher to guide students to: <ul style="list-style-type: none"> - Explain the meaning of apiary. - Discuss the management and operation of an apiary. - Describe the major bee enemies and the methods of controlling them. - Describe the gears required for honey harvesting and processing. - Make reflections of their responses and conclude. 	<ul style="list-style-type: none"> • Apiary equipment, facilities, tools and supplies • Honey harvesting gears 	Is the student able to demonstrate managerial practices in bee-keeping?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) Students under guidance to visit apiary site and practise honey harvesting and processing. iii) With the aid of prepared assessment guideline the teacher to guide students to assess the activities performed in section (ii). iv) With the aid of resource person guide students to carry out a simple practical activity on design and preparation of the traditional and modern/ commercial beehive. v) With the aid of prepared assessment guideline the teacher to guide students to assess the activities performed in section (iv).			
4.0 FARM STRUCTURES	4.1 The Concept of Farm Structures	By the end of this sub-topic the student should be able to: a) Describe the farm structures and their uses.	The teacher to guide students to: i) Brainstorm the meaning of farm structures. ii) Describe farm structures for various purposes. iii) Clarify their responses with emphasis on structures for various livestock, storage of farm produce, green houses, beehives and fish ponds.	<ul style="list-style-type: none"> • Posters/ pictures depicting farm structures • Study tour to various places 	Is the student able to describe farm structures and their uses?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe the basic considerations in selecting the site and design for farm structures.	The teacher to guide students to: i) Discuss the basic considerations in selecting the site and design for farm structures. ii) Clarify their responses with emphasis to soil type, topography, services, security, prevailing winds and position of the sun as the basic considerations in siting farm structures.	Posters/pictures depicting the considerations	Is the student able to describe basic considerations in selecting the site and design for farm structures?	
		c) Examine the materials for constructing farm structures.	The teacher to guide students to: i) Observe the building materials so as to identify them. ii) Discuss the choice of construction materials for various livestock, storage structures, green houses, beehives and fish ponds. iii) Clarify their responses emphasizing on factors to consider when choosing materials for construction.	<ul style="list-style-type: none"> • Actual building materials • Wall charts showing building materials 	Is the student able to examine the materials for constructing farm structures?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Explain the general maintenance practices of farm structures.	The teacher to use questions and answers method to guide students to: i) State the general maintenance practices of farm structures. ii) Elaborate and conclude on their responses.	Wall charts depicting maintenance of various farm structures	Is the student able to explain the general maintenance practices of farm structures?	
	4.2 Farm Fencing	The Student should be able to: a) Explain the meaning and importance of farm fencing.	The teacher to guide students to: i) Brainstorm the meaning of farm fencing. ii) Explain the importance of farm fencing. iii) Clarify and conclude on their responses.	Actual farm fences and pictures/posters showing different farm fences	Is the student able to explain the meaning and importance of farm fencing?	12
		b) Describe types of farm fences.	The teacher to guide students to observe actual farm fences or pictures/posters of farm fences, and: i) Discuss their suitability for different purposes. ii) Discuss advantages and disadvantages of each type of farm fence. iii) Make reflections and conclusion of their responses with emphasise on living and non-living fences.	Actual fences and pictures/posters showing different farm fences	Is the student able to describe types of farm fences?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Describe appropriate materials for farm fencing.	The teacher to guide students to: i) Identify materials for farm fencing and describe them. ii) Discuss in groups the strengths and weaknesses of farm fencing materials. iii) Clarify their responses and conclude.	<ul style="list-style-type: none"> • Farm fencing materials • Actual farm fences and pictures showing different farm fences 	Is the student able to describe appropriate materials for farm fencing?	
		d) Construct a simple farm fence.	The teacher to guide students in groups to: i) Design a simple farm fence. ii) Collect relevant materials for construction. iii) Use a set of materials and tools to construct a simple farm fence as per plan. iv) With the aid of prepared assessment guideline the teacher to guide students to assess the activities performed in section (iii).	Farm fencing materials and tools	Is the student able to construct a simple farm fence?	
5.0 CONTEMPORARY ISSUES IN AGRICULTURE	5.1 Genetically Modified Organisms (GMOs)	By the end of this sub-topic the student should be able to: a) Explain the meaning of Genetically Modified Organisms (GMOs).	The teacher to use questions and answers method to guide students to: i) Brainstorm the meaning of the term Genetically Modified Organisms (GMOs).	Articles on GMOs	Is the student able to explain the meaning of Genetically Modified Organisms (GMOs)?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) Clarify and conclude on the meaning of Genetically Modified Organisms (GMOs).			
		b) Differentiate (GM) crops from selective bred crops.	<p>The teacher to guide students through library search to:</p> <ul style="list-style-type: none"> - Find out the differences between GM crops and selective bred crops. - Present their findings for and discussion. <p>iii) A teacher to invite a resource person/guest speaker to discuss the differences between GM crops and selective bred crops.</p> <p>iv) Students to make reflections on the discussion and conclude.</p>	<ul style="list-style-type: none"> • Articles on GM crops • Physical and e-library 	Is the student able to differentiate GM crops from selective bred crops?	
		c) Explain the Prons and Cons of using GM Crops.	<p>The teacher to guide students to:</p> <p>i) Debate on the use of GM crops versus conventional crops.</p> <p>ii) Make reflections of their responses and enable conclusion.</p>	<ul style="list-style-type: none"> • Articles on GM crops • E-library 	Is the student able to explain the Prons and Cons of using GM Crops?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	5.2 Agriculture and Environmental Management	By the end of this sub-topic the student should be able to: a) Explain the meaning of concepts of environment.	With the aid of pictures the teacher to guide students to: i) Brainstorm the concepts of environment. ii) Discuss the impact of agricultural development on environment and the vice versa. iii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> Charts showing environmental management Actual/simulated environment 	Is the student able to explain the meaning of concepts of environment?	18
		b) Describe the causes of environmental degradation.	The teacher to guide students in groups to: i) Brainstorm the meaning of environmental degradation and its causes. ii) Clarify their responses emphasizing on causes like overgrazing, deforestation, soil erosion, irrigation, waste disposal, pollution settlements etc. iii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> Charts showing environmental degradation Articles on environmental degradation 	Is the student able to describe the causes of environmental degradation?	
		c) State the effects of environmental degradation on agricultural production.	The teacher to guide students to: i) Discuss effects of environmental degradation on agricultural production.	Charts depicting effects of environmental degradation on agriculture	Is the student able to state the effects of environmental degradation on agricultural production?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) Present their responses for sharing and discussion. iii) Conclude by emphasizing on direct and indirect effects of environmental degradation on agricultural production.			
		d) Carry out the environmental management practices for sustainable agriculture.	The teacher to guide students to: i) Carry out the environmental management practices for sustainable agriculture. ii) With the aid of prepared assessment guideline the teacher to guide students to assess the activities performed in section (i).	Equipment, tools and supplies for environmental management	Is the student able to carry out the environmental management practices for sustainable agriculture?	
	5.3 Organic Farming	The Student should be able to: a) Explain the meaning of organic farming.	The teacher to guide students to: i) Brainstorm the meaning of organic farming both in livestock and crop production. ii) Clarify their responses showing how it contributes to a healthy environment, food and humans as producers and consumers.	<ul style="list-style-type: none"> • Articles on organic farming • Physical and e-library 	Is the student able to explain the concept of organic farming?	12

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Differentiate between organic farming and conventional farming.	The teacher to guide students in groups to: i) Distinguish organic farming from conventional farming. ii) Present their responses while others making comments. iii) Make reflections of their responses and conclude.	Articles on organic farming	Is the student able to differentiate between organic farming and conventional farming?	
		c) Analyse the general principles of organic farming.	The teacher to guide students through library search to: i) Find out the general principles of organic farming. ii) Present their findings in plenary session for sharing and discussion. iii) Make reflections of their responses and conclude.	<ul style="list-style-type: none"> • Articles on principles of organic farming • Physical and e-library 	Is the student able to analyse the general principles of organic farming?	
		d) Explain the Prons and Cons of using organic farming.	The teacher to guide students to: i) Debate on the use of organic versus conventional farming. ii) Make reflections of their responses and reach conclusion.	Articles on organic farming	Is the student able to explain the Prons and Cons of using organic farming?	