



KENYA INSTITUTE OF CURRICULUM DEVELOPMENT
A Skilled and Ethical Society

SENIOR SCHOOL CURRICULUM DESIGN

AGRICULTURE

GRADE 11

OCTOBER, 2025

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NATIONAL GOALS OF EDUCATION

Education in Kenya should:

1. Foster nationalism and patriotism and promote national unity.

Kenya's people belong to different communities, races and religions, but these differences need not divide them. They must be able to live and interact as Kenyans. It is a paramount duty of education to help young people acquire this sense of nationhood by resolving conflicts and promoting positive attitudes of mutual respect which enable them to live together in harmony and foster patriotism in order to make a positive contribution to the life of the nation.

2. Promote the social, economic, technological and industrial needs for national development.

Education should prepare the youth of the country to play an effective and productive role in the life of the nation.

a) Social Needs

Education in Kenya must prepare children for changes in attitudes and relationships which are necessary for the smooth progress of a rapidly developing modern economy. There is bound to be a silent social revolution following in the wake of rapid modernization. Education should assist our youth to adapt to this change.

b) Economic Needs

Education in Kenya should produce citizens with the skills, knowledge, expertise and personal qualities that are required to support a growing economy. Kenya is building up a modern and independent economy which is in need of an adequate and relevant domestic workforce.

c) Technological and Industrial Needs

Education in Kenya should provide learners with the necessary skills and attitudes for industrial development. Kenya recognizes the rapid industrial and technological changes taking place, especially in the developed world. We can only be part of this development if our education system is deliberately focused on the knowledge, skills and attitudes that will prepare our young people for these changing global trends.

3. Promote individual development and self-fulfilment

Education should provide opportunities for the fullest development of individual talents and personality. It should help children to develop their potential interests and abilities. A vital aspect of individual development is the building of character.

4. Promote sound moral and religious values.

Education should provide for the development of knowledge, skills and attitudes that will enhance the acquisition of sound moral values and help children to grow up into self-disciplined, self-reliant and integrated citizens.

5. Promote social equity and responsibility.

Education should promote social equality and foster a sense of social responsibility within an education system which provides equal educational opportunities for all. It should give all children varied and challenging opportunities for collective activities and corporate social service irrespective of gender, ability or geographical environment.

6. Promote respect for and development of Kenya's rich and varied cultures.

Education should instill in the youth of Kenya an understanding of past and present cultures and their valid place in contemporary society. Children should be able to blend the best of traditional values with the changing requirements that must follow rapid development in order to build a stable and modern society.

7. Promote international consciousness and foster positive attitudes towards other nations.

Kenya is part of the international community. It is part of the complicated and interdependent network of peoples and nations. Education should therefore lead the youth of the country to accept membership of this international community with all the obligations and responsibilities, rights and benefits that this membership entails.

8. Promote positive attitudes towards good health and environmental protection.

Education should inculcate in young people the value of good health in order for them to avoid indulging in activities that will lead to physical or mental ill health. It should foster positive attitudes towards environmental development and conservation. It should lead the youth of Kenya to appreciate the need for a healthy environment.

THE SENIOR SCHOOL IN THE COMPETENCY BASED CURRICULUM

Senior School is the fourth level of Basic Education in the Competency Based Curriculum (CBC) that the learner shall proceed to after the Pre-Primary School, Primary School and Junior School levels. The essence of Senior School is to offer learners a pre-tertiary/university/pre-career experience in which the learners have an opportunity to choose pathways, tracks and subjects where they shall have demonstrated interest and/or potential at the earlier levels. Senior School comprises three years of education for learners generally in the 16-18 years age bracket and lays the foundation for further education and training at the tertiary level and the world of work. In the CBC vision, learners exiting this level are expected to be *engaged, empowered and ethical citizens* ready to participate in the socio-economic development of the nation.

At this level, the learner shall take seven (7) learning areas as recommended by the *Presidential Working Party on Educational Reforms* (PWPER, 2023). These shall comprise **four compulsory learning areas** namely: English, Kiswahili, Essential Mathematics/Core Mathematics and Community Service Learning (CSL). Learners will choose between Core Mathematics (for learners pursuing the Science Technology Engineering and Mathematics Pathway) and Essential Mathematics (for learners pursuing the non-STEM pathways). The learner will select three learning areas depending on their career choice, aptitude, interest and personality with guidance by the Senior School career teacher.

LEARNING OUTCOMES FOR SENIOR SCHOOL

By the end of Senior School, the learner should be able to:

1. communicate effectively and utilise information and communication technology across varied contexts,
2. apply mathematical, logical and critical thinking skills for problem solving,
3. apply basic research and scientific skills to manipulate the environment and solve problems,
4. exploit individual talents for leisure, self-fulfilment, career growth, further education and training,
5. uphold national, moral and religious values and apply them in day-to-day life,
6. apply and promote health care strategies in day-to-day life,
7. protect, preserve and improve the environment for sustainability,
8. demonstrate active local and global citizenship for harmonious co-existence,
9. demonstrate appreciation of diversity in people and cultures,
10. manage pertinent and contemporary issues responsibly.

TABLE 1: LIST OF SUBJECTS AT SENIOR SCHOOL

Core Subjects	Arts & Sports Science	Social Sciences	Science, Technology, Engineering & Mathematics (STEM)
1. English 2. Kiswahili/KSL 3. Core Mathematics/ Essential Mathematics 4. Community Service Learning (CSL)	5. Sports and Recreation 6. Music and Dance 7. Theatre and Film 8. Fine Arts	9. Literature in English 10. Indigenous Languages 11. Fasihi ya Kiswahili 12. Sign Language 13. Arabic 14. French 15. German 16. Mandarin Chinese 17. Christian Religious Education 18. Islamic Religious Education 19. Hindu Religious Education 20. Business Studies 21. History and Citizenship 22. Geography	23. Biology 24. Chemistry 25. Physics 26. General Science 27. Agriculture 28. Computer Studies 29. Home Science 30. Aviation 31. Building Construction 32. Electricity 33. Metalwork 34. Power Mechanics 35. Woodwork 36. Media Technology 37. Marine and Fisheries Technology

Note:

- Physical Education (PE) and Information Communication and Technology (ICT) will be offered to all learners to facilitate learning, enjoyment and acquisition of life skills.
- Every school shall offer Pastoral/Religious Programme of Instruction (P/RPI) to enhance moral, spiritual and character development of the learners.
- There shall be one (1) lesson for personal or group study to deepen knowledge and enhance skills in areas of choice by the learners.

Table 2 provides guidelines on distribution of lessons at Senior School.

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TABLE 2: LESSON DISTRIBUTION AT SENIOR SCHOOL

Subjects	No of Lessons Per Week (40 minutes per lesson)
Core Subjects 4	
1. English	5
2. Kiswahili	5
3. Essential Mathematics/Core Mathematics	5
4. Community Service Learning	3
Elective Subjects	
5. Elective 1	5
6. Elective 2	5
7. Elective 3	5
* Physical Education	3
* ICT Skills	2
* PPI	1
* Learner Personal /Group Study	1
Total Number of Lessons	40

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ESSENCE STATEMENT

Agriculture is the Science and art of growing crops and raising animals for food, fiber, medicinal extracts, among other products and services with the aim of sustaining human life. Its inclusion in the school curriculum is anchored on the United Nations Sustainable Development Goal number 2 on zero hunger. Learners taking Agriculture in Senior school will build on the agricultural competencies attained in Junior School. The Agriculture curriculum targets development of competencies in crop production, animal production, agricultural technologies and entrepreneurship applicable in varied social-economic and environmental contexts.

The curriculum will be implemented through learner-centered pedagogies such as experiential learning, collaborative learning, cooperative learning, problem-based learning and project based learning. The curriculum prepares the learner for agricultural related education and training in middle level colleges and university for career development. The acquired skills will also be applied in life-long contexts to address food and nutrition security, employment, environmental conservation and mitigation of climate change.

The curriculum forms foundation for learners to pursue careers in farm management, agri-business management, horticulture, agricultural economics, agricultural engineering, agriculture biotechnology, agriculture education and extension, agronomy, soil science, plant science, and animal science related careers such as animal health, veterinary medicine, animal production and food and dairy technology. Additionally, the learner has an opportunity to develop skills for entrepreneurship in agriculture value chain.

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GENERAL LEARNING OUTCOMES

By the end of Senior School, the learner should be able to:

1. Apply agricultural principles in logical and critical thinking skills to solve contextual challenges in the society.
2. Apply basic research and scientific skills to manipulate the environment and solve contemporary agricultural problems.
3. Employ individual talents to utilise agricultural resources for leisure, career and economic growth, further education and training.
4. Use ICT and production technologies effectively in varied agricultural processes.
5. Apply and promote healthy interventions in environmental care through agricultural practices.
6. Protect, preserve and improve the environment for agriculture and socio-economic sustainability.
7. Manage pertinent and contemporary challenges responsibly through agriculture and environmental interventions.

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SUMMARY OF STRANDS AND SUB STRANDS

Strands	Sub Strands
1.0 Crop Production	1.1 Inorganic fertilisers
	1.2 Water conservation
	1.3 Vegetative propagation
	1.4 Agroforestry
	1.5 Crop Protection: Pest control
	1.6 Crop production structures
2.0 Animal Production	2.1 Digestive systems of animals
	2.2 Animal health: Parasite control
	2.3 Structures in Animal production
	2.4 Aquaculture
	2.5 Rearing selected animals
	2.6 Livestock products
3.0 Agricultural Technologies and Entrepreneurship	3.1 Powered tools and equipment
	3.2 Management of agro-byproducts
	3.3 Agribusiness accounts

STRAND 1.0: CROP PRODUCTION

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Crop Production	1.1 Inorganic fertilisers • Soil nutrients • Categories of fertilisers • Soil sampling • Soil pH amendment	By the end of the sub strand the learner should be able to: - describe the role of nutrients in healthy crop growth, - categorize inorganic fertilisers used in crop production, - carry out soil sampling for analysis, - apply inorganic fertiliser for crop production, - propose soil amendment practices for crop production, - acknowledge the importance of inorganic fertilisers in crop production.	Learner is guided to: • use print and non-print sources to acquire information to discuss the role of nutrients required by plants (micronutrient: <i>manganese, copper, zinc, boron and iron</i>; macronutrients: <i>Nitrogen, Potassium, phosphorus, Calcium, Magnesium, and Sulphur</i>), • discuss chemical elements (Nitrogen, Phosphorus, Potassium) used to classify fertilisers, then observe and categorise samples of inorganic fertilisers into <i>straight and compound fertilisers</i>. • conduct soil sampling and prepare samples for analysis (sampling sites, sampling methods, sampling procedure, sample preparation), • compute and apply correct amount of fertiliser required for a given crop field. • search for information on ways of amending soil pH to improve crop production (<i>acidic soil; alkaline soil</i>).	How do inorganic fertilisers influence crop production?

			make class presentations on importance of inorganic fertilisers in crop production.	
Core Competences to be developed:				
Communication and collaboration: learner speaks clearly and effectively when discussing the major roles of plant nutrients.				
Values:				
Responsibility: learner observes safety when applying fertilisers using the appropriate methods.				
Pertinent and Contemporary Issues (PCIs):				
Environmental awareness: learner observes safety when applying artificial fertilisers to crops.				

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Crop Production	1.2 Water conservation <i>Methods of irrigation</i> <i>Importance of irrigation</i>	By the end of the sub strand the learner should be able to: - describe methods of irrigation in crop production, - apply efficient approaches to irrigation in crop production, - appreciate the importance of irrigation in crop production.	Learner is guided to: - search for information from digital and print resources to describe the methods of irrigation in crop production (sprinkler, drip, basin, flooding, furrow), - demonstrate how irrigation is done on crops in ways that conserve water, - make class presentations on the importance of irrigation in crop production.	How does efficient irrigation of crops conserve water?
Core Competences to be developed:				
Critical thinking and problem solving: evaluation and decision making as the learner applies efficient approaches to irrigation of crops.				
Values:				
Integrity: learner makes prudent use of resources (water) when irrigating crops.				
Pertinent and Contemporary Issues (PCIs):				
Environmental conservation: learner conserves water and maintains environmental well-being through irrigation.				

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Crop Production	1.3 Vegetative propagation • <i>Methods of vegetative propagation</i> • <i>Use of vegetative propagation</i>	By the end of the sub strand the learner should be able to: a) describe the methods of vegetative propagation in crop production, b) carry out vegetative propagation in crop production, c) appraise the use of vegetative propagation in crop production.	Learner is guided to: • search for information from print and digital media to illustratively describe the methods of vegetative propagation in crop production (grafting, budding, layering, use of cuttings, use of natural propagules such as suckers, slips, crown, splits, rhizomes, tubers, bulbs and bulbils), • follow instructions from a resource person to carry out vegetative propagation in crop production, • make discussions and presentations on the pros and cons of vegetative propagation in crop production.	How is vegetative propagation carried out?
Core Competences to be developed: Digital literacy: surfing skills as the learner searches for information on various methods of vegetative propagation from digital media.				
Values: Respect: learner appreciates the resource person during facilitation on vegetative propagation.				
Pertinent and Contemporary Issues (PCIs): Environment and technology: learner uses various propagation technologies to improve crop production.				

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Questions
1.0 Crop Production	1.4 Agroforestry • <i>Characteristics of Agroforestry</i> • <i>Natural regeneration</i> • <i>Agroforestry trees</i> • <i>Importance of agroforestry</i>	By the end of the sub strand the learner should be able to: a) examine the characteristics of agro-forestry trees for conservation of the environment, b) describe natural regeneration approach in environmental restoration, c) grow agroforestry trees for conservation of the environment, d) appreciate the importance of agro-forestry in conserving the environment.	Learner is guided to: • take an excursion to discern the characteristics of various agroforestry trees in the environment, • search for information on the use of natural regeneration of vegetation in environmental restoration, • select suitable agroforestry trees (forest trees, fodder trees or shrubs, fruit trees), establish and manage a nursery bed, transplant seedlings, manage and utilise the growing trees or shrubs, • search for information and make presentations on importance of agro-forestry in conserving the environment.	1. Why should we practice agroforestry? 2. How do agroforestry trees conserve environment?
Core competencies to be developed: Citizenship: social-cultural sensitivity as learner grows agroforestry trees for environmental conservation.				
Values: Responsibility: learner demonstrates persistence in taking care of agroforestry trees.				
Pertinent and contemporary issues (PCIs): Environmental conservation: learner conserves the environment through growing appropriate agroforestry trees.				

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Crop Production	1.5 Crop Protection: Pest control - Categories of pests - Control of pests - Economic importance of pests	By the end of the sub strand the learner should be able to: - examine categories of pests in crop production, - control pests in crop production, - appreciate the economic importance of pests in crop production.	Learner is guided to: - observe and identify pests to categorise them by: <i>field and storage pests, stage of growth attacked, parts of crop attacked, biological grouping of pests (mites, nematodes, molluscs, insects, birds and rodents)</i>, - identify pests in crops and crop produce and apply applicable control measures (<i>physical control, chemical control, biological control, legislative control, cultural and integrated approaches</i>), - make class presentations on the economic importance of pests in crop production.	- How are pests important in crop production? - How can pests be controlled in crop production?
Core competencies to be developed Learning to learn: skills in seeking information as learner examines categories of crop pests and appropriate control measures.				
Values Responsibility: accountability as learner prudently uses various resources in the control of crop pest.				
Pertinent and Contemporary Issues (PCIs): Safety and security: personal safety, safety of others and the environment as learner uses pesticides responsibly to control crop pests.				

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Crop Production	1.6 Crop Production Structures - Structures in crop production - Construction materials - Construction of structures	By the end of the sub strand the learner should be able to: - describe various structures used in crop production, - propose appropriate materials for construction of a crop production structure, - construct a structure for a specified crop production purpose, - adopt the use of crop production structures in various production practices.	Learner is guided to: - use digital and non-digital resources to study and describe the use and parts of various crop production structures (shadenet house, greenhouse, granary), - observe crop production structures and suggest appropriate materials for their construction, - develop sketch designs and construct either a model of a crop production structure or actual useable structure, - display constructed models of crop production structures to appreciate their use in crop production processes.	How can structural facilities enhance crop production processes?
Core Competencies to be developed: - Critical thinking and problem solving: observation, evaluation and decision-making skills as learner determines appropriate materials for construction of crop production structures. - Creativity and imagination: skills in undertaking creativity tasks when designing and constructing a crop production structure or a model.				
Values: - Responsibility: learner develops accountability when undertaking tasks in construction of crop production structure or model. - Respect: learner recognises peers when displaying models of crop production structures.				

Pertinent and Contemporary Issues (PCIs):

Financial literacy: assessment of materials and cost implications as learner suggests appropriate materials for construction of a crop production structure.

Suggested Assessment Rubric

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to describe the role of nutrients for healthy crop growth (manganese, copper, zinc, boron, iron, nitrogen, phosphorus, potassium, calcium, magnesium, sulphur)	The learner describes the role of more than <i>ten</i> nutrients for healthy crop growth.	The learner describes the role of <i>eight to ten</i> nutrients for healthy crop growth.	The learner describes the role of <i>four to seven</i> nutrients for healthy crop growth.	The learner describes the role of less than <i>four</i> nutrients for healthy crop growth.
Ability to describe methods of irrigation in crop production (sprinkler, drip, flooding, basin, furrow).	The learner describes <i>five</i> methods of irrigation in crop production.	The learner describes <i>four</i> methods of irrigation in crop production.	The learner describes <i>two to three</i> methods of irrigation in crop production.	The learner describes less than <i>two</i> methods of irrigation in crop production.
Ability to carry out vegetative propagation in crop production (grafting, budding, layering, cuttings, suckers, splits, rhizomes, tubers, bulbs).	The learner carries out <i>nine</i> vegetative propagation methods in crop production.	The learner carries out <i>seven to eight</i> vegetative propagation methods in crop production.	The learner carries out <i>four to six</i> vegetative propagation methods in crop production.	The learner carries out less than <i>four</i> vegetative propagation methods in crop production.
Ability to grow agroforestry	The learner	The learner	The learner	The learner

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Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
trees for environmental conservation (select agroforestry trees, establish nursery, manage nursery, transplant seedlings, care for young trees).	procedurally carries out <i>five</i> steps in growing agroforestry trees.	procedurally carries out <i>four</i> steps in growing agroforestry trees.	procedurally carries out <i>three</i> steps in growing agroforestry trees.	procedurally carries out less than <i>three</i> steps in growing agroforestry trees.
Ability to control pests in crop production (<i>physical controls, chemical controls, cultural and integrated approaches</i>).	The learner successfully controls pests using <i>four</i> methods in crop production.	The learner successfully controls pests using <i>three</i> methods in crop production.	The learner successfully controls pests using <i>two</i> methods in crop production.	The learner successfully controls pests using less than <i>two</i> methods in crop production.
Ability to describe structures used in crop production (<i>shadenet house, green house, granary</i>).	The learner describes <i>three</i> structures used in crop production.	The learner describes <i>two</i> structures used in crop production.	The learner describes <i>one</i> structure used in crop production.	The learner partially describes <i>one</i> structure used in crop production.

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STRAND 2.0: ANIMAL PRODUCTION

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Animal Production	2.1 Digestive systems of animals • <i>Ruminants digestive system</i> • <i>Non-ruminants digestive system</i> • <i>Poultry digestive system</i>	By the end of the sub strand the learner should be able to: a) describe digestive systems of animals, b) relate the digestive systems of animals to appropriate type of animal feeds, c) appreciate diversity of digestive systems of animals to their productivity.	Learner is guided to: • use print and non-print resources to describe digestive systems (<i>main parts and functions</i>) of farm animals (<i>cattle-ruminant, pig- non-ruminant, chicken-poultry</i>), • compare how effective ruminant animals such as cattle digest vegetative feed materials in comparison to pigs and poultry, • discuss in groups and make class presentations on how productivity of animals (cattle, pigs and poultry) would be affected if fed on similar vegetative feeds.	1. How do farm animals extract nutrients from feeds? 2. Why are various farm animals fed on different types of feed?
Core Competences to be developed: Critical thinking and problem solving: evaluation skills as learner relates effectiveness of different digestive systems to feeds provided to animals.				
Values: Unity: cooperation as learner displays team spirit when making group presentations on how type of feed affects productivity of animals.				
Pertinent and Contemporary Issues (PCIs): Animal welfare: learner determines appropriate feeds for different animals based on type of digestive system.				

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Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Animal Production	2.2 Animal Health: Parasite control • <i>Categories of parasites</i> • <i>Lifecycle of parasites</i> • <i>Control of parasites</i> • <i>Harmful effects of parasites</i>	By the end of the sub strand the learner should be able to: a) describe parasites affecting animal production, b) illustrate the lifecycle of parasites in animal production, c) control parasites in animal production, d) acknowledge the harmful effects of parasites in animal production.	Learner is guided to: • observe specimen of parasites that attack animals (internal parasites and their effects: <i>tapeworms, roundworms, liverflukes</i> and external parasites and their effects: <i>ticks, fleas, tsetseflies, keds, mites</i>) and respective animals attacked, • present summarised illustration/details of the lifecycle of parasites (<i>one host tick, pork tapeworms, liverflukes</i>) in farm animals, • discuss measures of parasite control and apply relevant control measures in animal production, • make class presentations on harmful effects of parasites in animal production.	1. How do parasites affect animal production? 2. How are parasites controlled in animal production?
Core competencies to be developed Creativity and imagination: imaginative creation as learner illustrates the lifecycles of parasites using charts.				
Values Respect: learner appreciates ideas from others during class presentations on harmful effects of parasites on animals.				
Pertinent and contemporary issues Animal welfare: learner improves animal well-being by applying appropriate parasite control measures.				

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Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Animal production	2.3 Structures in Animal production - Structures in livestock production - Siting of structures - Construction of structures - Importance of livestock structures	By the end of the sub strand the learner should be able to: - describe structures used in livestock production, - analyse factors to consider in siting livestock production structures, - construct a structure for specified animal production purpose, - appreciate the importance of various structures in animal production.	Learner is guided to: - take an excursion in the community to study various livestock production structures (fence, animal houses;- zero grazing structure, poultry house-deep litter, rabbit hutch, pigsty, goat pen), - observe and discuss factors considered in the selection of sites for various livestock production structures, - develop sketch designs and construct either model of an animal production structure or actual useable structure, - display the constructed livestock production structures or models to appreciate their importance.	How are farm structures used in livestock production processes?
Core Competences to be developed: Creativity and imagination: skills in making connections as learner designs, sketches and constructs animal production structures.				
Values: Integrity: learner uses materials prudently when constructing animal production structures.				
Pertinent and Contemporary Issues (PCIs): Environmental awareness: learner re-uses materials in the environment when constructing animal production structures and models.				

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Animal Production	2.4 Aquaculture - Fish farming - Management practices in fish farming - Innovative approaches to fish farming.	By the end of the sub strand the learner should be able to: - describe fish farming in animal production, - carry out management practices in fish rearing, - appreciate innovative approaches to fish farming.	Learner is guided to: - use digital devices or print resources to acquire information and discuss fish farming (factors to consider in siting a fish pond, types of reared fish, construction of a fish pond, stocking a fish pond), - follow instructions of a resource person to participate in management practices of a fish pond (routing management of fish pond; fish harvesting), - take a field trip or search for information on digital resources to study innovative fish rearing approaches (cage, recirculating aquaculture system), management and harvesting practices.	How are fish reared?
Core Competences to be developed: Digital literacy: surfing skills as learner searches for information on fish farming from digital resources.				
Values: Integrity: learner adheres to laid down procedures when managing a fish pond.				
Pertinent and Contemporary Issues (PCIs): Environmental care: learner takes deliberate care of the environment by preventing water pollution when managing fish pond.				

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Animal production	2.5 Rearing Selected Animals • <i>Management practices</i>	By the end of the sub strand the learner should be able to: a) describe the management practices in animal rearing, b) carry out routine management practices in animal rearing, c) develop responsibility in the rearing of selected animals.	Learner is guided to: • use digital and non-digital resources to search for information on management practices (importance and how to carry out sanitation, identification, hoof trimming, castration, teat clipping, dehorning, teeth clipping, docking, debeaking) in animal rearing, • carry out applicable routine management practices such as feeding, watering, sanitation and record keeping in animal rearing, • keep a journal of activities carried out in the rearing of a domestic animal such as a goat, sheep, pig or cattle.	How do we rear domestic animals?
Core Competences to be developed: Learning to learn: skill of self-discipline as learner seeks advice, information and support on management practices of animals.				

Values: • Peace: learner displays tolerance when carrying out applicable routine management practices in animal rearing. • Love: learner portrays caring attitude towards others while carrying out routine management practices in animal rearing.
Pertinent and Contemporary Issues (PCIs): Animal welfare: learner acts with consciousness and care to prevent cruelty on animals while carrying out routine management practices.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Animal production	2.6 Livestock Products - Obtaining products: wool shearing - Obtaining products: Milking	By the end of the sub strand the learner should be able to: - explain the considerations in obtaining selected livestock products, - carry out milking from a dairy animal, - adopt hygiene practices in clean milk production.	Learner is guided to: - use print and non-print resources to search for information on how to obtain wool and milk from domestic animals (safety; shearing and milking technique; record keeping; storage), - milk a goat, cattle or camel to obtain clean milk using appropriate procedure and technique, - make class presentations on hygiene practices in clean milk production (pre-milking, during milking and post-milking practices).	How do we obtain clean products from animals?
Core Competences to be developed: Self-efficacy: self-confidence as the learner obtains clean milk from a dairy animal.				
Values: Responsibility: observing care of self as learner milks a dairy animal.				
Pertinent and Contemporary Issues (PCIs): Consumer protection: learner observes hygiene when milking an animal.				

Suggested Assessment Rubric

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to describe digestive systems of animals (<i>cattle, pig, poultry</i>).	The learner describes digestive systems of <i>three</i> animals.	The learner describes the digestive systems of <i>two</i> animals.	The learner describes the digestive system of <i>one</i> animal.	The learner gives incomplete description of the digestive system of <i>one</i> animal.
Ability to describe parasites affecting animal production (<i>tapeworms, roundworms, liverfluke, ticks, fleas, tsetseflies, keds, mites</i>).	The learner describes <i>eight</i> parasites affecting animal production.	The learner describes <i>six to seven</i> parasites affecting animal production.	The learner describes <i>four to five</i> parasites affecting animal production.	The learner describes less than <i>four</i> parasites affecting animal production.
Ability to describe structures used in livestock production (<i>fences, zero grazing structure, poultry house, rabbit hutch, pigsty, goat pen</i>).	The learner describes <i>six</i> structures used in livestock production.	The learner describes <i>four to five</i> structures used in livestock production.	The learner describes <i>two to three</i> structures used in livestock production.	The learner describes less than <i>two</i> structures used in livestock production.
Ability to describe fish farming in animal production (<i>factors to consider in siting a fish pond, types of reared fish, construction of a fish pond, stocking a fish pond</i>).	The learner describes <i>four</i> aspects of fish farming in animal production.	The learner describes <i>three</i> aspects of fish farming in animal production.	The learner describes <i>two</i> aspects of fish farming in animal production.	The learner describes less than <i>two</i> aspects of fish farming in animal production.
Ability to carry out routine management practices in	The learner carries out <i>four</i> routine	The learner carries out <i>three</i> routine	The learner carries out <i>two</i> routine	The learner carries out less than <i>two</i> routine

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
animal rearing (<i>feeding, watering, sanitation, and record keeping</i>).	management practices in rearing a selected dairy animal.	management practices in rearing a selected dairy animal.	management practices in rearing a selected dairy animal.	management practices in rearing a selected dairy animal.
Ability to explain considerations of obtaining selected livestock products (<i>safety, shearing technique, milking technique, record keeping, storage</i>).	The learner explains <i>five</i> considerations of obtaining selected livestock products.	The learner explains <i>four</i> considerations of obtaining selected livestock products.	The learner explains <i>two to three</i> considerations of obtaining selected livestock products.	The learner explains less than <i>two</i> considerations of obtaining selected livestock products.

STRAND 3.0: AGRICULTURAL TECHNOLOGIES AND ENTREPRENEURSHIP

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Agricultural Technologies and Entrepreneurship	3.1 Powered Tools and Equipment • <i>Sources of power</i> • <i>Powered tools and equipment</i> • <i>Maintenance practices</i> • <i>Safety in use of powered tools and equipment</i>	By the end of the sub strand the learner should be able to: - identify sources of power used on tools and equipment, - describe powered tools and equipment used for various agricultural tasks, - carry out selected agricultural tasks using powered tools and equipment, - carry out appropriate maintenance practices on selected powered tools and equipment, - appreciate the safety measures in the use of powered tools and equipment.	Learner is guided to: • discuss the use of solar, electricity, animal and fuel as sources of power for tools and equipment, • use online resources to search for information on powered tools and equipment used for various agricultural tasks: identification and uses (<i>gardening tools such as soil augers and grass cutters; livestock production equipment such as chaff cutter and milking machine; assembling and disassembling tools such as power drills and hand-held circular saw</i>), • conduct various agricultural tasks such as grass cutting, chaff cutting, drilling and screwing using powered tools and equipment, • carry out maintenance practices such as <i>cleaning, sharpening blades, lubrication, part replacements, parts</i>	How do powered tools and equipment contribute to efficiency of agricultural production operations?

			<i>adjustment</i>) on selected powered tools and equipment with help of a resource person, discuss and practise the care and safety in use of powered tools and equipment.	
Core Competences to be developed: Self-efficacy: self-confidence as learner accomplishes tasks using powered tools and equipment.				
Values: - Responsibility: learner shows obligation to duty when assigned tasks on maintenance practices of selected powered tools and equipment. - Respect: learner accommodates diverse opinions of others when discussing the sources of power for tools and equipment.				
Pertinent and Contemporary Issues (PCIs): Safety: learner observes safety of self and others when conducting agricultural tasks using powered tools and equipment.				

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Agricultural Technologies and Entrepreneurship	3.2 Management of Agro-byproducts <i>Agricultural by-products and their uses</i> <i>Value addition of agricultural by-products</i>	By the end of the sub strand the learner should be able to: - explain the uses of various agricultural by-products for economic purposes, - add value to agricultural by-products for economic purposes, - embrace utilisation of agro-byproducts in farming.	Learner is guided to: - search for information on how to utilize agricultural by-products such as fruit and vegetable remains, husks, shells, crop debris to the benefit of the farm. - use available agricultural by-products such as fruit and vegetable remains, husks, shells, and crop debris to prepare utilisable products such as manure, fuels, animal feed and animal beddings, - utilise or sell the value-added by-products to embrace the benefits of alternative uses of agricultural refuse.	How can agricultural by-products be utilised profitably?
Core Competences to be developed: Creativity and imagination: learner generates ideas on how to utilise agro-byproducts for economic purposes.				
Values: Responsibility: learner demonstrates obligation to duty when carrying out value addition of agro-byproducts for economic purposes.				
Pertinent and Contemporary Issues (PCIs): Financial literacy: learner carries out value addition of agro-byproducts that can generate income.				

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Agricultural Technologies and Entrepreneurship	3.3 Agri-business Accounts • Documents in agri-business transactions • Role of agribusiness accounts.	By the end of the sub strand the learner should be able to: a) describe documents used in agri-business transaction, b) prepare documents used in agri-business transaction, c) acknowledge the role of agri-business accounts in agricultural entrepreneurship.	Learner is guided to: • visit an agricultural enterprise to familiarize with documents such as <i>quotation, purchase order, service order, delivery note, invoice, receipt, journal, cashbook, debtor register, creditor register used in agri-business transactions</i> , • use provided template to prepare samples of documents used in agribusiness transactions such as <i>journal, cashbook, debtor register and creditor register</i> , • make presentations on the uses of various documents in agribusiness transactions.	How is documentation of agri-business transactions done?
Core Competences to be developed: Creativity and imagination: learner uses creative skills when preparing samples of documents used in agricultural accounting.				
Values: Integrity: learner develops a sense of accountability in financial matters when preparing samples of documents for agribusiness accounts.				
Pertinent and Contemporary Issues (PCIs): Financial literacy: learner familiarises with documents used in agri-business transactions when preparing sample accounting				

documents.

Suggested Assessment Rubric

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to carry out selected agricultural tasks using powered tools and equipment: (<i>grass cutting, chaff cutting, drilling, screwing</i>).	The learner carries out <i>four</i> agricultural tasks using powered tools and equipment.	The learner carries out <i>three</i> agricultural tasks using powered tools and equipment.	The learner carries out <i>two</i> agricultural tasks using powered tools and equipment.	The learner carries out less than <i>two</i> agricultural tasks using powered tools and equipment.
Ability to add value to agricultural by-products for economic purposes: to produce:- (<i>manure, fuels, animal feed and animal beddings</i>).	The learner adds value to agricultural by-products to produce <i>four</i> final products.	The learner adds value to agricultural by-products to produce <i>three</i> final products.	The learner adds value to agricultural by-products to produce <i>two</i> final products.	The learner adds value to agricultural by-products to produce less than <i>two</i> final products.
Ability to prepare documents used in agri-business transaction: (<i>journal, cashbook, debtor register and creditor register</i>).	The learner prepares <i>four</i> documents used in agri-business transaction.	The learner prepares <i>three</i> documents used in agri-business transaction.	The learner prepares <i>two</i> documents used in agri-business transaction.	The learner prepares less than <i>two</i> documents used in agri-business transaction.

APPENDIX 1: LIST OF ASSESSMENT METHODS, LEARNING RESOURCES AND NON-FORMAL ACTIVITIES

Strand	Sub strand	Suggested assessment methods	Suggested learning resources	Suggested non-formal activities
1.0 Crop Production	1.1 Inorganic fertilisers	• Practicals on fertiliser application. • Oral questions.	Samples of inorganic fertilisers Soil testing kits Assorted gardening tools and equipment Digital devices.	Visits to ASK show
	1.2 Water conservation	• Observation of learning tasks.	Basic irrigation equipment (sprinklers; drip kit)	Field visits and excursions to irrigated lands
	1.3 Vegetative propagation	• Practicals on propagation.	Grafting kit Propagation plant materials	Field excursions to established nurseries.
	1.4 Agroforestry	• Project on agroforestry tree establishment.	Assorted tree seeds	Environmental club activities
	1.5 Crop Protection: Pest control	• Observation of learning tasks.	Assorted pesticides Chart or preserved pest specimen	Young Farmers Club activities

Strand	Sub strand	Suggested assessment methods	Suggested learning resources	Suggested non-formal activities
	1.6 Crop Production Structures	• Project on construction of structures or models.	Assorted basic construction materials Assorted assembling and disassembling tools and equipment.	Visit to Agricultural institutions.
2.0 Animal Production	2.1 Digestive systems of animals	• Practicals • Observation of assigned tasks.	Charts/models of digestive systems.	Visit to slaughter house.
	2.2 Animal Health: Parasite control	• Written tasks • Observation of assigned learning tasks.	Charts/preserved specimen of animal parasites.	Excursion to neighbouring farmers.
	2.3 Structures in Animal Production	• Project	Charts/model of animal structures.	Excursion to neighbouring farmers.
	2.4 Aquaculture	• Practical task • Oral questions.	Fish pond/ aquarium.	Excursion to established fisheries.
	2.5 Rearing of selected animal	• Project • Journal on project activities.	Domestic animals (goat, sheep, pig, cattle or camel). Assorted livestock production tools and equipment.	Excursion to neighbourhood farmers.

Strand	Sub strand	Suggested assessment methods	Suggested learning resources	Suggested non-formal activities
	2.6 Livestock products	• Practical on milking • Observation of assigned task.	Sample of animal products (wool, milk). Milking equipment. Wool shearing equipment.	Excursion to neighbouring farmers.
3.0 Agricultural Technologies and Entrepreneurship	3.1 Powered tools and equipment	• Observation of assigned task • Home assignment.	Samples of powered tools and equipment (a drill, a chaff cutter, a grass cutter).	Visit to machine repair workshops
	3.2 Management of Agro-byproducts	• Oral question • Practical.	Agricultural wastes/by-products from the local environment.	Visit to agro-based industry
	3.3 Agribusiness accounts	• Written assignment • Oral questions.	Samples of documents used in agribusiness transactions.	Visit to a farm business

APPENDIX 2: CROP PESTS TO BE STUDIED

1. Aphids
2. Whiteflies
3. Bean flies
4. Mites
5. Scales
6. Cutworms
7. Locusts
8. Armyworms
9. Moths
10. Mealybugs
11. Thrips
12. Bollworms
13. Stainers
14. Leaf miners
15. Loopers
16. Beetles (weevils and grain borers, pod borers)
17. Fruit flies
18. Nematodes
19. Birds (Weaver bird, mouse bird, Sudan dioch or Quelea bird)
20. Rodents (Squirrels, moles, mice and rats).
21. Slugs and snails.