



MINISTRY OF EDUCATION

UPPER PRIMARY LEVEL DESIGNS

LEARNING AREA: AGRICULTURE

GRADE 5

NOVEMBER 2019



KENYA INSTITUTE OF CURRICULUM DEVELOPEMENT

ESSENCE STATEMENT

Kenya requires competent manpower for its agro-based economy. Agriculture for upper primary level will build on competencies introduced in Early Years Education under Environmental Activities contributing to human capacity development. The learning experiences will involve active learner participation conducted through practical and experiential learning activities to develop applicable competencies for sustainable agriculture. The curriculum will focus on developing skills for production of indigenous and exotic crops and domestic animals through innovative agricultural practices and use of limited resources to enhance food security. The acquired knowledge, skills and attitudes will form a foundation for development of agricultural competencies for lower secondary and beyond.

General learning outcomes

By the end of upper primary, the learner should be able to:

1. Participate actively in agricultural activities for environmental conservation.
2. Use scarce agricultural resources through innovative practices to contribute towards nutrition and food security.
3. Rear small domestic animals as profitable agricultural enterprise for self-sustainability and economic development.
4. Apply technological skills, digital and media resources to enhance sustainable agricultural practices.
5. Appreciate agriculture as a worthy niche for hobby, career development, further education and training.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
1.0 Conserving our Environment	1.1 Soil Conservation (9 lessons) 1.1.1 Soil Recovery	By the end of the sub strand the learner should be able to; a) give the meaning of soil erosion in the environment b) give the meaning of soil recovery in the environment c) identify sites for erosion deposition by runoff in the community d) collect soil from erosion deposition for farming purposes e) demonstrate usefulness of recovered soil for growing of crops f) show genuine interest in soil conservation activities and growing of crops.	<ul style="list-style-type: none"> • Learners to tour the school and neighbourhood, identify eroded sites and discuss their understanding of soil erosion • Learners to discuss and present ideas on how eroded soil could be collected and use9d for farming purposes. • Learners to tour the school and neighbourhood, identify and list places where soil is deposited by runoff water. • Learners to collect soil from deposition sites using applicable methods to recover it for growing crops. • Learners use the recovered soil to grow crops of their choice in the school. • Learners to collaborate with parents and guardians to recover and use eroded soil from deposition sites to appreciate the importance of conserving soil from erosion. 	<ol style="list-style-type: none"> 1. Why do we conserve soil from erosion? 2. What is the importance of recovering eroded soil?
	1.1.2 Soil Improvement	By the end of the sub-strand the	• Learners to discuss and	

		<p>learner should be able to;</p> <p>a) identify sites for soil improvement in the school or community</p> <p>b) construct organic waste pit for soil improvement</p> <p>c) demonstrate use of plant remains for soil improvement.</p>	<p>identify sites in the school and community that have poor soil for crop growth.</p> <ul style="list-style-type: none"> • Learners to construct a pit, a site or a structure for damping plant residue and food remains and organic kitchen wastes in school. • Learners to plant crop in a residual pit to observe and appreciate soil improvement from accumulated organic wastes. • Learners to collaborate with parents and guardians to recover eroded soil and use organic waste pits to improve soil for kitchen gardening. 	<ol style="list-style-type: none"> 1. What materials should we dump in an organic waste pit? 2. How can we improve the soil using crop remains? 3. What is the difference between organic waste pit and compost heap?
<p>Core competencies to be developed: Critical thinking and problem solving in determining contextual soil recovery procedures, sites for soil improvement in the school and applying the knowledge to improve their solve soil's fertility.</p>				
<p>PCIs: Environmental awareness: Soil as a resource in the environment, organic wastes as useful resources in agriculture; Financial literacy in re-cycling of organic waste for soil improvement.</p>			<p>Values: Collective responsibility in maintaining clean living environment through activities for soil improvement.</p>	
<p>Links to other subjects: Science and technology in construction of organic waste pit and experimenting by growing a crop on the pit to observe soil improvements.</p>			<p>Suggested community service learning activities: Learners to raise community awareness on soil recovery and improvements for utilization in agriculture during environmental days in the locality.</p>	

Assessment rubrics

Indicator	Exceeds expectation	Meets expectation	Approaches expectation	Below expectation
Identifying soil deposition points	Correctly and proficiently identifies soil deposition sites resulting from runoff in the community	Correctly identifies the soil deposition sites resulting from runoff in the community	Identifies some soil deposition sites resulting from runoff in the community	Identifies, with assistance, a soil deposition site resulting from runoff in the community
Meaning of recovering soil from deposition points	Correctly and proficiently gives meaning of soil recovery in the environment	Correctly gives meaning of soil recovery in the environment	Attempts to give meaning of soil recovery in the environment	Attempts to give meaning of soil recovery in the environment when probed
Constructing organic pit	Correctly and innovatively constructs and uses organic pit structure for soil improvement	Correctly constructs and uses organic pit structures for soil improvement	Attempts to construct and use some organic pit structure for soil improvement	Attempts with external guidance to construct and or use some organic pit structure for soil improvement
Demonstrating soil improvement	Correctly and creatively demonstrates soil improvements resulting from soil recovery and improvements.	Correctly demonstrates soil improvements resulting from soil recovery and improvements.	Makes some meaningful attempts to demonstrate soil improvements resulting from soil recovery and improvements.	Makes some attempts to demonstrate soil improvements resulting from soil recovery and improvements with some guidance.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
1.0 Conserving our Environment	1.2. Water conservation (7 lessons)	By the end of the sub strand the learner should be able to; a) find information on conservation of water in farming practices b) identify different ways of conserving water in farming practices c) practice water conservation within the school compound d) store photos on water conservation obtained from digital resources and magazines e) demonstrate importance of conserving water in farming practices.	<ul style="list-style-type: none"> • Learners to use devices that have appropriate software to search for information on water conservation. • In groups, learners share on the information acquired on water conservation. • In pairs, learners to brainstorm or share experiences on importance of conserving water and how to conserve water in farming activities. • Learners watch video clips and cuttings from magazines on various water conservation practices in farming (<i>Mulching, shading, cover cropping</i>). • In groups, learners practice various ways of conserving water in farming (<i>Mulching, shading, cover cropping</i>) within the school. • In groups learners to experiment on mulching (mulch some crops and leave others un-mulched and compare moisture conservation). • Learners visit neighbouring farms to observe how water is conserved in the farm during farming activities. • Compile and store photos in digital 	<ol style="list-style-type: none"> 1. What happens when we do not conserve water in the soil? 2. What farming practices can help to conserve water in the soil?

			<p>devices or printed copies on methods of water conservation.</p> <ul style="list-style-type: none"> • Individual learners to make presentations on photos acquired and stored. • Learners to collaborate with their parents and guardians to practice shading, mulching and cover cropping for water conservation. 	
<p>Core competencies to be developed: Digital literacy through use of digital devices and resources to search for useful information on water conservation activities and applying the gained knowledge to solve water conservation in their environmental contexts.</p>				
<p>PCIs: Life skills: recognizing water as a scarce resource in the environment and applying appropriate measures to conserving the water.</p>			<p>Values: Personal commitment and sense of responsibility in initiatives and activities of water conservation.</p>	
<p>Links to other subjects: Science and technology in re-use of waste organic materials for mulching purposes and construction of shades for plants.</p>			<p>Suggested community service learning activities: Learners to use songs and recitation verses to raise community awareness on water conservation practices during tree planting days in the locality.</p>	

Assessment rubrics

Indicator	Exceeds expectation	Meets expectation	Approaches expectation	Below expectation
Acquiring information on water conservation in farming practices	Proficiently presents correct information on water conservation in farming practices and justifies some ways in the local contexts	Presents correct information on water conservation in farming practices	Presents some information on water conservation in farming practices	Attempts, with probing, to present some information on water conservation in farming practices
Conserving soil water	Correctly and proficiently demonstrates soil water conservation practices	Correctly demonstrates soil water conservation practices	Sometimes demonstrates soil water conservation practices	Rarely demonstrates soil water conservation practices
Identifying ways of conserving water in farming practices	Correctly and proficiently identifies different ways of conserving water in farming practices	Correctly identifies different ways of conserving water in farming practices	Identifies some ways of conserving water in farming practices	Identifies some ways of conserving water in farming practices when probed

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
1.0 Conserving our Environment	1.3. Living better with wild animals (5 lessons)	By the end of the sub strand the learner should be able to; <ol style="list-style-type: none"> a) identify measures that can be carried out in the community to live better with wild animals b) control small wild animals in the local environment c) demonstrate care when relating with wild animals for personal health and safety d) appreciate importance of living better with wild animals. 	<ul style="list-style-type: none"> • In groups, learners to discuss and share experiences on measures that people in the community can take to live better with wild animals by reducing damages caused by wild animals without killing the wild animals. • Learners to watch video clips or listen to a resource person on methods of controlling wild animals and importance of living better with wild animals. • In groups, learners practice various methods of controlling small wild animals (<i>use of sounds, repellent crops, use of other repellants</i>). • Learners to watch video on how to safely handle animals to avoid dangers of contracting animal diseases and injuries (physical injuries from animals and avoid diseases such as rabies) 	<ol style="list-style-type: none"> 1. What are the measures for wild animal conservation? 2. What methods are used to control small wild animals?

			from animal bites).	
Core competencies to be developed: Critical thinking and problem solving in use of locally available materials and methods to solve wild animals menace where the wild animals destroy crops and domestic animals.				
PCIs: Conserving animal diversity: Conservation of small wild animals in the environment; Safety and security in securing self and domestic animals from harm; Animal welfare in living with wild animals without killing and mistreating them.			Values: Appreciating National diversity: appreciating the value of wild animals in Kenya and living better with them in the various environmental contexts.	
Links to other subjects: Science and technology (innovating methods of keeping off small wild animals from destroying crops and domestic animals).			Suggested community service learning activities: Learners to involve local wildlife office to initiate community mobilization activity towards conserving wildlife and living better with the animals.	

Assessment rubrics

Indicator	Exceeds expectation	Meets expectation	Approaches expectation	Below expectation
Identifying measures for wild animals conservation in the community	Correctly and proficiently identifies measures for wild animals conservation in the community	Correctly identifies measures for wild animals conservation in the community	Identifies some measures for wild animals conservation in the community	Makes attempts to identify some measures for wild animals conservation in the community when probed
Controlling small wild animals from the farm	Innovatively controls small wild animals against crops and domestic animals in the local environment.	Controls small wild animals against crops and domestic animals in the local environment.	Makes attempts to control small wild animals against crops and domestic animals in the local environment.	Makes attempts to control small wild animals against crops and domestic animals in the local environment when guided.
Demonstrating care when relating with wild animals for personal health and safety	Proficiently demonstrates adequate care when relating with wild animals for personal health and safety.	Demonstrates adequate care when relating with wild animals for personal health and safety.	Demonstrates some care when relating with wild animals for personal health and safety.	Demonstrates some care when relating with wild animals for personal health and safety if prompted.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
1.0 Conserving our Environment	1.4 Growing Fruits (Climbers) (15 lessons) 1.4.1 Planting materials	By the end of the sub strand the learner should be able to: a) identify various climbing fruits in the environment b) identify suitable planting materials for establishing climbing fruits c) identify where materials for planting climbing fruits can be obtained in the environment d) collect suitable planting materials for climbing fruits from the local environment.	<ul style="list-style-type: none"> • Learners use stimulus material such as media, print and realia to identify various climbing fruits which include but not limited to passion fruits, grapes, kiwi and various types of berries such as raspberries, blackberries, blueberries, goose berries. • Learners to discuss suitable planting materials for climbing fruits such as passion fruits, berries, kiwi and grapes. • In groups, learners to suggest where planting materials for climbing fruits could be obtained. • With help of the parents or guardians, learners to collect suitable planting materials for climbing fruits. 	<ol style="list-style-type: none"> 1. What are the planting materials for climbing fruit plants? 2. Where could you obtain planting materials for climbing fruit plants?
	1.4.2 Planting	By the end of the sub strand the learner should be able to; a) prepare planting materials for establishing climbing fruits in the school or at home b) establish planting materials for climbing	<ul style="list-style-type: none"> • In groups, learners to prepare suitable planting materials for climbing fruit plants such as to various varieties of passion fruits, grapes, kiwi and berries. • Learners to plant the selected planting materials on suitably 	<ol style="list-style-type: none"> 1. How can we prepare planting materials for climbing fruit plants? 2. How are climbing fruit plants

		fruits on a suitable site.	prepared site. <i>The site could be on the ground or appropriate container, on a plot or along the fence.</i>	established?
	1.4.3 Care for young climbing fruit plants	By the end of the sub strand the learner should be able to; a) protect young climbing fruit plants from excessive sun heat and physical damage b) support climbing fruit vines using appropriate materials c) water the young fruit plants on the established site d) apply manure and fertilizer to the established climbing fruit plants e) protect the young climbing fruit crops from weeds.	<ul style="list-style-type: none"> • In groups, learners construct shades to protect young fruit plants from damages. • In groups, learners water the young fruit plants. • Learners to apply manure and fertilizer to the fruit plants. • Learners to weed for the fruit plants. • Learners to use appropriate materials to support the climbing fruit vines. • Learners to engage their parents or guardians and other community members in growing climbing fruit plants. 	How can we take care of climbing fruit plants after planting?
Core competencies to be developed: Self-efficacy while conducting selected activities in the project (engaging one-self in the entire process of growing the climbing fruits and enjoying the fruits when ripe)				
PCIs: Health and nutrition: personal health and nutrition from consumption of varieties of fruits on regular basis from own fruit plants (the climbing fruits) that may be grown in varied home contexts; Food security: engaging in initiatives contributing to food production while growing the fruits.			Values: Responsibility and accountability: all learners engaging in the projects for growing the climbing fruits to share tasks (responsibility) and be accountable to the group for daily dutiful performance of the tasks while managing	

	the climbing fruit plants.
Links to other subjects: Health, Food and Nutrition in recognizing the value of fruits in the diet; Science and technology in use of technology to water fruit plants and to construct support structures.	Suggested community service learning activities: Learners to demonstrate and offer some fruit seedlings to community members during environmental conservation days and sensitize them on using them alongside other agricultural enterprises for soil conservation, nutrition and food security.

Assessment rubrics

Indicator	Exceeds expectation	Meets expectation	Approaches expectation	Below expectation
Identifying and collecting planting materials	Correctly and proficiently identifies and collects suitable planting materials for establishing climbing plants	Correctly identifies and collects suitable planting materials for establishing climbing fruit plants	Identifies and collects some suitable planting materials for establishing climbing fruit plants	Identifies and collects some suitable planting materials for establishing climbing fruit plants with some guidance.
Preparing planting material and establishing climbing fruits	Adequately and expertly prepares planting material and correctly and innovatively establishes the materials for climbing fruit plants on suitable site	Adequately prepares planting material and correctly establishes the materials for climbing fruit plants on suitable site	Prepares some planting material and establishes the materials for climbing fruit plants on suitable site	With guidance, prepares some planting material and establishes the materials for climbing fruit plants on suitable site
Caring for climbing fruit plants	Correctly and innovatively protects, plant supports and appropriately manages the climbing fruit plants	Correctly protects, plant supports and appropriately manages the climbing fruit plants	Makes some protection, some plant supports and some attempts to manage the climbing fruit plants	Makes some protection, some plant supports and some attempts to manage the climbing fruit plants with guidance.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
1.0 Conserving our Environment	1.5 Conservation Project: Managing climbing fruit plants (9 lessons)	By the end of the sub strand the learner should be able to; a) care for climbing fruit plants in the environment b) identify right stage for harvesting climbing fruits to avoid wastage c) harvest fruits appropriately to reduce damages d) demonstrate understanding of the importance of consuming fruits for nutrition.	<ul style="list-style-type: none"> • In groups, learners to take care of the established climbing fruit plants by carrying out appropriate activities such as protective shed around the fruit plants, watering, manuring, removing excess branches and training the fruit plant. • In groups, learners share experiences on how to identify a mature fruit of climbing fruit plants • In groups, learners to carry out harvesting of climbing fruits. • Learners to assist parents or guardians in the activities for caring for climbing fruit crops at home. 	<ol style="list-style-type: none"> 1. What activities are carried out in the management of climbing fruit plants? 2. When are fruits ready for harvesting? 3. How are fruits from climbing fruit plants harvested?
Core competencies to be developed: Self-efficacy: developing an empowered self in the project process to produce their own food (fruits) and in managing the climbing fruit project contributing to their own nutritional supplement.				
PCIs: Life skills: developing project skills for self reliance through the climbing fruit project; Food security: contributing to community foods through fruits production.			Values: Unity of purpose and cooperation at work achieved through delegation of responsibilities in the project while managing climbing fruit plants.	
Links to other subjects: Home Science (preparation of fruits for consumption and appreciating the nutritional value of fruits in the diet.			Suggested community service Learning activities: Learners to initiate outlet points for sale and sensitization of community members on fruit plants and how to establish.	

Assessment rubrics

Indicator	Exceeds expectation	Meets expectation	Approaches expectation	Below expectation
Caring for established climbing fruit plants	Correctly and innovatively takes care of established climbing fruit plants	Correctly takes care of established climbing fruit plants	Takes some caring practices care of established climbing fruit plants	Takes some caring practices care of established climbing fruit plants when prompted to do the activity
Identifying right stage for harvesting climbing fruits to avoid wastage.	Correctly and proficiently identifies right stage for harvesting climbing fruits to avoid wastage	Correctly identifies right stage for harvesting climbing fruits to avoid wastage	Makes attempts to identify right stage for harvesting climbing fruits to avoid wastage	Makes attempts to identify right stage for harvesting climbing fruits to avoid wastage when given some prompts.
Harvesting fruits at the right stage to reduce damage	Correctly and skillfully harvests fruits at the right stage to reduce damage	Correctly harvests fruits at the right stage to reduce damage	Harvests some fruits at the right stage to reduce damage	With some guidance, harvests some fruits at the right stage to reduce damage

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
2.0 Domestic Animals	2.1 Uses of Domestic animals (3 lessons)	By the end of the sub strand the learner should be able to; a) identify the uses of various domestic animals to human beings b) relate various domestic animals to their uses c) appreciate the importance of domestic animals to human beings.	<ul style="list-style-type: none"> ● In pairs learners to brainstorm and share experiences on the uses of domestic animals (<i>bees, rabbits, camels, fish, pigs, donkeys, dogs, cats and horses</i>). ● Learners visit the neighbouring farms to explore various uses of domestic animals. ● In groups, learners to match domestic animals to their uses. ● Learners watch video clips on various types of domestic animals and their uses. 	1. How are domestic animals important to human beings?
Core competencies to be developed: Digital literacy in searching and storing photos and information on small domestic animals using digital devices; Communication and collaboration in sharing and consulting with other learners and facilitators on how to access and store information using digital devices.				
PCIs: Animal welfare: Appreciating small domestic animals as part of the ecosystem. Career awareness: while searching for information, learners get information linking keeping of domestic animals to various careers in agriculture.			Values: Care and concern for others while seeking and sharing information on domestic animals and their uses to various communities in Kenya.	
Links to other subjects: Home science (linking animal products to their nutritive value in the diet).			Suggested community service learning activities: Learners to visit some elderly persons in the community to be enlightened on cultural values attached to various domestic animals in their community.	

Assessment rubrics

Indicator	Exceeds expectation	Meets expectation	Approaches expectation	Below expectation
Identifying uses of domestic animals	Correctly and proficiently identifies uses of various domestic animals to human beings	Correctly identifies uses of various domestic animals to human beings	Identifies some uses of domestic animals to human beings	Identifies some uses of domestic animals to human beings when probed.
Relating domestic animals to their uses	Adequately and proficiently relates domestic animals to their specific uses	Adequately relates domestic animals to their specific uses	Relates some domestic animals to their specific uses	Relates some domestic animals to their specific uses when guided.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
3.0 Gardening Practices	3.1 Indigenous food crops (9 lessons)	By the end of the sub strand the learner should be able to; a) give the meaning of indigenous food crops in the community b) identify types of indigenous food crops grown in Kenya c) display various types of indigenous food crops for identification purposes d) demonstrate understanding of the importance of indigenous food crops to nutrition, health and food security.	<ul style="list-style-type: none"> • In pairs, learners to brainstorm on the meaning and importance of indigenous food crops. • In groups, learners to brainstorm and share experiences on types of indigenous food crops (<i>indigenous vegetables such as pig weeds and black night shade, indigenous cereals such as millet and sorghum, and indigenous root crops such as yams and cassava</i>). • Learners to visit the neighbouring environment to identify the various indigenous food crops (<i>vegetables, cereals and root crops</i>). • Learners to collect, preserve and mount identifiable parts such as leaf specimen of various indigenous food crops on manilla paper such as indigenous vegetables: pig weed, pumpkin, black night shade, spider weed; indigenous cereals: millet, sorghum and; indigenous root crops: Cassava, yams, sweet potato, arrow roots. 	<ol style="list-style-type: none"> 1. What types of indigenous crops are found in the community? 2. Why are indigenous crops important?
Core competencies to be developed: Communication and collaboration in group activities while searching and mounting displays of indigenous food crops; Creativity and imagination in developing displays of specimen of indigenous food crops on manila surfaces.				

PCIs: Healthy and Nutrition in adopting change in eating habits, achieved while discussing the value of indigenous crops to human beings; Food security in realizing the contribution of indigenous crops to current food status in the country.	Values: National diversity: while learning about varieties of indigenous foods treasured by various Kenyan communities, the learner appreciates importance of national diversity.
Links to other subjects: Home Science while appreciating nutritional value and importance of indigenous food crops.	Suggested community service learning activities: learners to visit elderly persons in the community to be enlightened on the various indigenous food crops valued by the community.

Assessment rubrics

Indicator	Exceeds expectation	Meets expectation	Approaches expectation	Below expectation
Meaning of indigenous food crops	Adequately and proficiently explains the meaning of indigenous food crops in the community	Adequately explains the meaning of indigenous food crops in the community	Makes attempt to explain the meaning of indigenous food crops in the community	Makes attempt to explain the meaning of indigenous food crops in the community when probed.
Identifying types of indigenous food crops grown in Kenya	Correctly and proficiently identify the types of indigenous food crops grown in Kenya	Correctly identify the types of indigenous food crops grown in Kenya	Identify some types of indigenous food crops grown in Kenya	Identify some types of indigenous food crops grown in Kenya with some guidance.
Displaying indigenous crops	Competently and creatively displays identified types of indigenous food crops on a manila chart	Competently displays identified types of indigenous food crops on a manila chart	Displays some identified types of indigenous food crops on a manila chart	Displays some identified types of indigenous food crops on a manila chart with extra assistance.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
3.0 Gardening Practices	3.2 Vegetable Gardening Practices (15 lessons)	By the end of the sub strand the learner should be able to; <ol style="list-style-type: none"> a) identify gardening practices for vegetables b) establish a nursery bed for vegetables c) take care of a nursery bed for vegetables d) transplant seedlings from a vegetable nursery to a suitable site e) sell surplus vegetable seedlings to earn income f) take care of growing vegetable crop after transplanting g) use correct tools and equipment appropriately in taking care of growing vegetables to ensure safety of self and others h) determine appropriate stage of harvesting vegetables i) harvest vegetable crops appropriately to avoid damage j) appreciate the importance of growing vegetables for nutrition and food security. 	<ul style="list-style-type: none"> • In groups, learners brainstorm and share experiences on importance of growing vegetables. • In groups, learners brainstorm and share experiences on gardening practices of vegetables such as mulching, watering, thinning, weeding, removal of pests and diseased plants or parts. • Learners watch video clips on how to prepare nursery bed and sow vegetable seeds into the nursery bed. • In groups, learners prepare a suitable nursery bed for planting vegetables. • In groups, learners to sow vegetable seeds on the prepared nursery bed. • In groups, learners take care of the nursery bed (<i>mulching, watering, thinning, uprooting weeds, removing pests and</i> 	<ol style="list-style-type: none"> 1. What are the gardening practices for vegetables? 2. Why should we grow vegetables?

			<p><i>diseased plants</i>).</p> <ul style="list-style-type: none"> • In groups, learners transplant vegetables into a prepared seedbed. • Learners to sell surplus vegetable seedlings to the community. • In groups, learners take care of the established vegetable crop using correct tools and equipment appropriately. • In groups, learners to brainstorm on appropriate stage of harvesting vegetables. • In groups, learners to harvest vegetables for consumption and nutrition. • Learners to sell surplus vegetables to the community. • Learners to assist parents and guardians in the activities for growing vegetables and maintaining tools and equipment at home. 	
<p>Core competencies to be developed: Self-efficacy in own contribution to production and sale of vegetables and starting to make financial gains from their own efforts and initiatives.</p>				
<p>PCIs: Safety: safe handling and use of tools and equipment to ensure personal</p>			<p>Values: Team work in group activities and tasks on</p>	

safety and that of others; Career link to occupations and entrepreneurship opportunities in agri-business; Financial literacy: selling, making incomes and expenditures from surplus vegetable seedlings.	growing and selling of vegetables.
Links to other subjects: Home Science (linking the nutritional value of vegetables to the actual vegetables that the learners grow); Science and technology (importance of maintaining of tools and equipment to make work easier).	Suggested community service Learning activities: Learners to sensitize community members on the value of using wide variety vegetables for nutrition and food security through community open days.

Assessment rubrics

Indicator	Exceeds expectation	Meets expectation	Approaches expectation	Below expectation
Establishing a nursery bed	Correctly and proficiently follows the right procedure in establishing a vegetable nursery bed	Correctly follows the right procedure in establishing a vegetable nursery bed	Partially follows the right procedure in establishing a vegetable nursery bed	Partially follows the right procedure in establishing a vegetable nursery bed with some guidance.
Taking care of vegetable seedlings in a nursery bed	Adequately and innovatively takes care of vegetable seedlings in a nursery bed	Adequately takes care of vegetable seedlings in a nursery bed	Partially takes care of vegetable seedlings in a nursery bed	Partially takes care of vegetable seedlings in a nursery bed when guided.
Transplanting vegetable seedlings	Correctly and proficiently follows the procedure in transplanting vegetable seedlings	Correctly follows the procedure in transplanting vegetable seedlings	Partially follows the procedure in transplanting vegetable seedlings	Partially follows the procedure in transplanting vegetable seedlings when assisted.
Care for vegetable crop in the seedbed	Correctly and proficiently takes care of vegetable crops in a seed bed	Correctly takes care of vegetable crops in a seed bed	Partially takes care of vegetable crops in a seed bed	Partially takes care of vegetable crops in a seed bed when guided.
Choice of tools and equipment	Correctly and proficiently selects and explains the	Correctly selects appropriate tools and	Correctly selects some appropriate tools and	Correctly selects some appropriate tools and

	choice of appropriate tools and equipment for taking care of vegetable crops	equipment for taking care of vegetable crops	equipment for taking care of vegetable crops	equipment for taking care of vegetable crops when guided.
Using tools and equipment appropriately to ensure safety	Responsibly and skillfully uses correct tools and equipment appropriately while taking care vegetable crops and ensuring safety	Responsibly uses correct tools and equipment appropriately while taking care vegetable crops and ensuring safety	Partially uses correct tools and equipment appropriately while taking care vegetable crops and ensuring safety	Partially uses correct tools and equipment appropriately while taking care vegetable crops and ensuring safety when assisted.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
3.0 Gardening Practices	3.3. Innovative Gardening (18 lessons) 3.3.1 Vertical and Horizontal gardening	By the end of the sub strand the learner should be able to; a) distinguish between horizontal and vertical innovative gardening b) prepare innovative gardens for sowing vegetable seeds c) sow vegetable seeds in the innovative gardens d) show interest in growing of crops using innovative gardening.	<ul style="list-style-type: none"> • In groups, learners to brainstorm on the difference between horizontal and vertical innovative gardening. • Learners watch or observe stimulus materials (video clips, pictures, and photographs) on innovative gardening practices showing various crops in innovative gardens (<i>vertical and horizontal gardens</i>). • In groups, learners to identify suitable ways and materials (<i>sacks, walls, plastic pipes and plastic bottles</i>) for practicing innovative gardening. • In groups, learners to discuss how innovative gardening can be practiced and where they could locate the innovative gardens. • In groups, learners to prepare innovative gardens (vertical and horizontal types) for sowing vegetables (<i>sacks, plastic bottles, walls, plastic pipes</i>). • In groups, learners to sow vegetable materials in the innovative gardens. • In groups, learners discuss the importance of innovative gardening. • Learners to collaborate with parents and guardians to establish innovative gardens for growing vegetables at home. 	<ol style="list-style-type: none"> 1. How can gardening be done on vertical and horizontal spaces? 2. What materials can be used to construct innovative gardens?

	<p>3.3.2 Innovative gardening project</p>	<p>By the end of the sub strand the learner should be able to;</p> <ol style="list-style-type: none"> a) find information on innovative gardening b) identify the gardening practices for vegetables in innovative gardens c) carry out the gardening practices for vegetables in innovative gardens d) store photo records on activities carried out on innovative gardening e) harvest vegetables from innovative gardens f) show responsibility in growing crops in innovative gardens at home and school. 	<ul style="list-style-type: none"> • In groups, learners to use digital and print resources to acquire information on innovative gardening. • In groups, learners discuss and make presentations to share experiences on innovative gardening practices for vegetables such as gardening practices they carried out, harvest and produce made from the gardens, importance of innovative gardens and how they resolved encountered challenges. • Learners watch video clip on innovative gardening practices carried out on vegetables. • In groups, learners carry out gardening practices on vegetables in the innovative gardens. • In groups, learners harvest vegetables from the innovative gardens. • In groups, learners to use digital devices to keep records on vegetable gardening practices such as practices done and dates of the practices, date of harvest and amount of harvest. • Learners to make pictorial presentations on the various milestones of the innovative garden project (such as photos showing the activities in planting, weeding, watering and harvesting of vegetables in the innovative gardens). • Learners to collaborate with parents and 	<ol style="list-style-type: none"> 1. How can we care for innovative vegetable gardens? 2. How are vegetables harvested?
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			guardians to establish innovative vegetable gardens and keep records at home.	
Core competencies to be developed: Creativity and imagination in designing and preparing innovative gardens; Digital literacy in searching and compiling data on innovative gardens that have been done by others.				
PCIs: Environmental protection (re-use of waste plastic, metal and wood waste materials in preparing innovative gardens); Food security (contributing to community food production through innovative gardening).			Values: Personal responsibility and initiative while participating in innovative gardening activities.	
Links to other subjects: Science and technology (use of technology and innovations); Mathematics (use of measurements in preparing innovative gardens).			Suggested community service learning activities: Learners to liaise with community agriculture extension officers to develop innovative gardens for demonstration purposes to convince community members to adopt the technique for wide variety of vegetable production to enhance food nutrition and security at household level.	

Assessment rubrics

Indicator	Exceeds expectation	Meets expectation	Approaches expectation	Below expectation
Preparing horizontal and vertical gardens	Correctly and skillfully prepares suitable horizontal and vertical gardens for sowing vegetables	Correctly prepares suitable horizontal and vertical gardens for sowing vegetables	Partially prepares suitable horizontal and or vertical gardens for sowing vegetables	Partially prepares suitable horizontal and or vertical gardens for sowing vegetables when guided.
Establishing a vegetable crop in horizontal and vertical gardens	Correctly and skillfully establishes a vegetable crop using seeds in horizontal and vertical gardens	Correctly establishes a vegetable crop using seeds in horizontal and vertical gardens	Partially establishes a vegetable crop using seeds in horizontal and vertical gardens	Partially establishes a vegetable crop using seeds in horizontal and vertical gardens, with some guidance.
Carrying out routine practices on horizontal and vertical gardens	Correctly and skillfully carries out routine practices on vegetable crops in horizontal and vertical gardens	Correctly carries out routine practices on vegetable crops in horizontal and vertical gardens	Partially carries out some routine practices on vegetable crops in horizontal and vertical gardens	Partially carries out some routine practices on vegetable crops in horizontal and vertical gardens with guidance.
Harvesting vegetables from innovative gardens	Correctly and skillfully harvests the vegetables at the right stage	Correctly harvests the vegetables at the right stage	Harvests some vegetables at the right stage	Harvests some vegetables at the right stage with some guidance.
Participating in innovative garden project activities	Actively and enthusiastically participates in all project activities for growing vegetable crops in horizontal and vertical gardens	Actively participates in all project activities for growing vegetable crops in horizontal and vertical gardens.	Fairly participates in some project activities for growing vegetable crops in horizontal and vertical gardens.	Fairly participates in some project activities for growing vegetable crops in horizontal and vertical gardens when followed or prompted.