REPUBLIC OF KENYA

MINISTRY OF EDUCATION

JUNIOR SECONDARY SCHOOL CURRICULUM DESIGN

GRADE 7

AGRICULTURE

KENYA INSTITUTE OF CURRICULUM DEVELOPMENT
2021

First Published in 2021

ISBN: …….

Published and printed by Kenya Institute of Curriculum Development

FOREWORD

Curriculum is a tool which a country employs to empower its citizens. The Kenya Institute of Curriculum Development in meeting its core mandate *'to develop curriculum and curriculum support materials'* has spearheaded curriculum reforms in the education sector. The reforms are based on rigorous research, monitoring and evaluation activities conducted on the 8-4-4 system of education to inform the Competency Based Curriculum through a phase-in phase-out model. The reforms were informed by the Summative Evaluation Survey (2009), Needs Assessment Study (2016) and the Task Force Report on Re-alignment of Education Sector (2012), 21st century learning and approaches, the East Africa Protocol on harmonisation of education, among many others.

The curriculum reforms aim at meeting the needs of the Kenyan society by aligning the curriculum to the Constitution of Kenya 2010, the Kenya Vision 2030 and the East African Protocol, among other policy requirements as documented by the Sessional Paper No. 1 of 2019 on 'Reforming Education and Training in Kenya for Sustainable Development'. The reforms adopted the Competency-Based Curriculum (CBC) to achieve development of requisite knowledge, skills, values and attitudes that will drive the country's future generations as documented by the Basic Education Curriculum Framework (BECF). Towards achieving the mission of the Basic Education, the Ministry of Education has successfully and progressively rolled out curriculum implementation for Early Years Education, Grades 4 and 5. The roll out for Grade 6 and Junior Secondary (Grade 7-9) will subsequently follow.

It is my hope that the curriculum designs for Grade 7 will guide the teachers, among other educational stakeholders, for progressive achievement of the curriculum vision which seeks to have engaged, empowered and ethical citizens.

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PREFACE

The Government of Kenya embarked on the national implementation of the Competency Based Curriculum in January, 2019 for Early Years Education (Pre-Primary 1 and 2, and Lower Primary Grade 1, 2 and 3). The implementation progressed to Upper Primary (Grade 4, 5 and 6) based on the reorganization of the Basic Education structure. Grade 7 curriculum furthers implementation of the Competency-Based curriculum to Junior Secondary education level. This level marks the zenith of Middle School education whose main feature is to offer a broad opportunity for the learner to explore talents, interests and abilities before selection of pathways and tracks in Senior Secondary education level.

The Grade 7 curriculum designs for the respective learning areas will enable the development of twenty first century competencies. Ultimately, this will lead to the realization of the vision and mission of the Competency-Based curriculum as documented in the Basic Education Curriculum Framework (KICD, 2017).

It is my hope that all government agencies among other stakeholders in education will use the designs to guide effective and efficient implementation of the learning activities as well as provide relevant feedback on various aspects of the curriculum. Successful implementation of the Grade 7 curriculum will be a significant milestone towards realization of the curriculum mission 'Nurturing Every Learner's Potential'.

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ACKNOWLEDGEMENT

The Kenya Institute of Curriculum Development (KICD) Act Number 4 of 2013 (Revised 2019) mandates the Institute to develop curricula and curriculum support materials for basic and tertiary education and training, below the university. The curriculum development process for any level involves thorough research, international benchmarking, and robust stakeholder engagement. Through this systematic and consultative process, KICD conceptualised the Competency Based Curriculum (CBC) as captured in the Basic Education Curriculum Framework (BECF). The CBC responds to the demands of the 21st Century and the aspirations captured in the Constitution of Kenya 2010, Kenya Vision 2030, East African Commission Protocol and the United Nations Sustainable Development Goals.

The Kenya Institute of Curriculum Development has developed the Grade 7 curriculum designs taking cognisance of the tenets of the CBC, key among them being the need to ensure that learners are provided with learning experiences that call for higher order thinking, thereby ensuring they become engaged, empowered and ethical citizens as articulated in the BECF Vision. The Grade 7 designs also provide opportunities for learners to develop the core competencies as well as engage in Community Service Learning. The designs present assessment rubric linked to sub strands in the individual subjects. Teachers are encouraged to use varied assessment tools when assessing learners.

KICD obtains its funding from the Government of Kenya to enable the achievement of its mandate and implementation of the Government and Sector (Ministry of Education (MoE) plans. The Institute also receives support from development partners targeting specific programmes. The Grade 7 curriculum designs have been developed with the support of the World Bank through the Kenya Secondary Education Quality Improvement Program (SEQIP) commissioned by the MoE. The Institute is grateful for the support accorded to the process by the Government of Kenya, through the MoE and the development partners for the policy, resource, and logistical support.

I acknowledge the KICD curriculum developers and other staff, teachers and all the educators who participated, as panelists, in the development of the designs. I also appreciate the contribution of the Semi-Autonomous Government

Agencies (SAGAs) and representatives of various stakeholders for their various roles in the development of the Grade 7 curriculum designs.

My special thanks to the Cabinet Secretary, Ministry of Education; the Principal Secretary State Department of Early Learning and Basic Education; the Secretary, Teachers' Service Commission (TSC) and the Chief Executive Officer, Kenya National Examinations Council (KNEC) for their support in the process. Finally, I am grateful to the KICD Governing Council for their consistent guidance during the development of the curriculum designs. The Institute assures all curriculum implementers, parents, and other stakeholders that the designs will ensure effective implementation of the CBC at Grade 7.

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TIME ALLOCATION

	Subject	**Number of Lessons Per Week (40 minutes per lesson)**
1.	English	5
2.	Kiswahili/KSL	4
3.	Mathematics	5
4.	Integrated Science	4
5.	Health Education	2
6.	Pre-technical and Pre-career Studies	5
7.	Social Studies	3
8.	Religious Education (CRE/IRE/HRE)	2
9.	Business Studies	3
10.	Agriculture	3
11.	Life Skills Education	1
12.	Physical Education and Sports	2
13.	Optional Subject	3
14.	Optional Subject	3
	Total	**45**

NATIONAL GOALS OF EDUCATION

Education in Kenya should:

i) 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 removing 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.

ii) 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.

iii) Promote individual development and self-fulfillment

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.

iv) 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.

v) **Promote social equality 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.

vi) 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.

vii) 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.

viii. 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.

LEARNING OUTCOMES FOR MIDDLE SCHOOL

By end of Middle School, the learner should be able to:
1. Apply literacy, numeracy and logical thinking skills for appropriate self-expression.
2. Communicate effectively, verbally and non-verbally, in diverse contexts.
3. Demonstrate social skills, spiritual and moral values for peaceful co-existence.
4. Explore, manipulate, manage and conserve the environment effectively for learning and sustainable development.
5. Practise relevant hygiene, sanitation and nutrition skills to promote health.
6. Demonstrate ethical behaviour and exhibit good citizenship as a civic responsibility.
7. Appreciate the country's rich and diverse cultural heritage for harmonious co-existence.
8. Manage pertinent and contemporary issues in society effectively.
9. Apply digital literacy skills for communication and learning.

ESSENCE STATEMENT

Kenya Vision 2030 recognizes Agriculture as a core factor to development of the country's economy. The vision resonates with the United Nations Sustainable Development Goal No. 2 which aims *to end hunger, achieve food security, improve nutrition and promote sustainable agriculture.* The vision is further aligned to the Comprehensive Africa Agriculture Development Programme (CAADP) which aim to achieve sustainable food production systems through resilient agricultural practices for food security and nutrition. This therefore calls for education that develops agricultural competencies to provide competent manpower for Kenya's agro-based economy.

Agriculture for Junior Secondary level will build on competencies introduced in Upper Primary curriculum contributing to human capacity development. The learning experiences will involve active learner participation conducted through practical, project and Community Service Learning (CSL) activities to develop applicable competencies for sustainable agriculture. The curriculum will focus on developing knowledge, skills and attitudes for conservation of agricultural environment, crop production, and animal production through innovative agricultural technologies using limited

resources to enhance food security. The acquired knowledge, skills and attitudes will form a broad-spectrum foundation for development of agricultural competencies for senior school and beyond.

SUBJECT GENERAL LEARNING OUTCOMES

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

1. Participate actively in activities for conservation of agricultural environment.
2. Use scarce agricultural resources through innovative practices to contribute towards health, nutrition and food security.
3. Grow crops and rear animals as profitable agricultural enterprises through sustainable and ethical practices for self-reliance and economic development.
4. Apply existing and emerging technology in agriculture, 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 1.0: CONSERVING AGRICULTURAL ENVIRONMENT

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
1.0 Conserving Agricultural Environment	**1.1 Soil pollution control** **(6 lessons)**	By the end of the sub strand the learner should be able to: a) explain the causes of soil pollution in farming, b) control soil pollution in agricultural environment, c) promote safe farming practices to prevent soil pollution, d) demonstrate responsibility in using safe farming practices to conserve soil.	Learner is guided to: • form groups, find out and discuss causes of soil pollution in farming such as excessive use of artificial fertilizers, agricultural chemicals and plastic wastes. • search and watch a video clip on causes of soil pollution. • engage in safe soil pollution control practices such as safe disposal of used chemical containers and plastic wastes. • create awareness messages against dumping of soil pollutants, safe disposal of used chemical containers and plastic wastes and use of correct types and amounts of farm chemicals and fertilizers.	1. How do farming practices cause soil pollution? 2. How can we control soil pollution through agricultural practices?

Core competencies to be developed:

- Citizenship: social and civic skills in preserving the environment as learners create awareness in the community to ensure safe disposal of agricultural wastes for clean environment.

Link to values:

- Responsibility as learners promote safe farming practices to conserve the soil.

Pertinent and contemporary issues (PCIs):

- Environmental protection and conservation: as learners create awareness in the community against dumping of agricultural wastes.

Link to other subjects:

- Integrated science in relating environmental pollutants to soil pollution.

Assessment rubric

Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to explain causes of soil pollution in farming.	Illustratively explains the causes of soil pollution in farming.	Explains the causes of soil pollution in farming.	Partially explains the causes of soil pollution in farming.	When guided, attempts to explain the causes of soil pollution in farming.
Ability to control soil pollution in agricultural environment.	Creatively controls soil pollution in agricultural environment.	Controls soil pollution in agricultural environment.	Partially controls soil pollution in agricultural environment.	With guidance, attempts to control soil pollution in agricultural environment.

Ability to promote safe farming practices to prevent soil pollution.	Creatively promotes safe farming practices to prevent soil pollution.	Promotes safe farming practices to prevent soil pollution.	Partially promotes safe farming practices to prevent soil pollution.	With guidance, attempts to promote safe farming practices to prevent soil pollution.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
1.0 Conserving Agricultural Environment	**1.2 Water conservation measures** (9 lessons)	By the end of the sub strand the learner should be able to: a) outline the importance of water conservation in farming, b) construct water retention structures to conserve surface runoff, c) use minimum tillage practices to conserve water in farming, d) appraise water conservation measures in agricultural environment.	Learner is guided to: • work in pairs to discuss the importance of water conservation in farming (such importance to include making water available longer after the rains). • discuss ways of conserving surface runoff to prevent damage of property and collect it in structures such as *water retention ditches, earth basins and water retention pits.* • search for information on minimum tillage practices for water conservation in farming; to include practices such as slashing weeds, restricted cultivation and mulching. • take an excursion to	1. How can we conserve surface runoff for farming? 2. How can we practice minimum tillage to conserve soil moisture?

			evaluate community farming activities for water conservation. ***Project:*** In groups, learners to construct structures for water conservation such as *water retention ditches, earth basins and retention pits, then plant a crop such as bananas, sugarcane, napier grass and arrowroots.*	
Core competencies to be developed: • Critical thinking and problem solving: researching skills as learners observe, analyse available information on water conservation challenges in agricultural environment and problems (problem area in the environment), design and construct appropriate runoff retention structures to solve the challenge.				
Link to values: • Unity in group initiative when constructing water retention ditches and pits.				
Pertinent and contemporary issues (PCIs): • Environmental protection and conservation in construction of retention ditches and retention pits for water conservation in the local environment.				
Link to other subjects: • Integrated science as the learners use tools, equipment and technology to construct water conservation structures.				

Assessment rubric				
Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to outline importance of water conservation in farming.	Analytically outlines the importance of water conservation in farming.	Outlines the importance of water conservation in farming.	Partially outlines the importance of water conservation in farming.	Outlines the importance of water conservation in farming when guided.
Ability to construct water retention structures to conserve surface runoff.	Creatively constructs water retention structures to conserve surface runoff.	Constructs water retention structures to conserve surface runoff.	Partially constructs water retention structures to conserve surface runoff.	With assistance, constructs water retention structures to conserve surface runoff.
Ability to use minimum tillage for water conservation in farming.	Manageably uses minimum tillage practices for water conservation in farming.	Uses minimum tillage practices for water conservation in farming.	Partially uses minimum tillage practices for water conservation in farming.	When guided, uses minimum tillage practices for water conservation in farming.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
1.0 Conserving Agricultural Environment	**1.3 Agroforestry** (9 lessons)	By the end of the sub strand the learner should be able to: a) explain the meaning of agroforestry in conserving the environment, b) describe the importance of agro-forestry in conserving the environment, c) examine the characteristics of agro-forestry trees for conservation of the environment, d) choose appropriate agroforestry trees for conserving environment, e) establish agroforestry trees for conservation of the environment, f) embrace the use of agroforestry in conserving the environment.	Learner is guided to: • work in pairs to discuss their understanding of the term agro-forestry. • work in groups to search for information on importance of agro-forestry using digital and print resources and make presentation in class. • take a field excursion to observe the uses of various trees as grown in crop and pasture fields. • watch a video clip on agroforestry trees as used in crops and pasture fields. • make presentations on characteristics of a	1. Why should we practice agroforestry? 2. How do agroforestry trees conserve environment? 3. How can we identify and agroforestry tree?

			good agroforestry tree such as ability to grow alongside crops, fast growing, and multiple uses. • explore the environment and choose agroforestry trees that can provide planting material for establishing agroforestry. ***Project:*** *As a class, learners to establish and manage at least one agroforestry tree in the school compound and prepare a schedule of responsibilities to take care of the tree until it is fully established.*	
Core competencies to be developed: • Self-efficacy: leadership skills as learner set goals, assign and execute tasks in the agroforestry class project.				
Link to values: • Responsibility while caring for the class project until the planted agroforestry trees are fully established.				

Pertinent and contemporary issues (PCIs):

- Environmental awareness, protection and conservation in establishing agroforestry trees to conserve and improve the environment within the school.

Link to other subjects:

- Social studies as learners expound their knowledge and skills in environmental conservation through agroforestry.

Assessment rubric

Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to describe the importance of agroforestry in conserving the environment.	Illustratively describes the importance of agroforestry in conserving the environment.	Describes the importance of agroforestry in conserving the environment.	Partially describes the importance of agroforestry in conserving the environment.	When guided, attempts to describe the importance of agroforestry in conserving the environment.
Ability to choose appropriate agroforestry trees for conserving the environment.	Justifiably chooses appropriate agroforestry trees for conserving the environment.	Chooses appropriate agroforestry trees for conserving the environment.	Chooses some appropriate agroforestry trees for conserving the environment.	With guidance, chooses some appropriate agroforestry trees for conserving the environment.
Ability to establish agroforestry trees for conservation of environment.	Creatively carries out activities in establishing agroforestry trees for conservation of environment.	Carries out activities in establishing agroforestry trees for conservation of environment.	Carries out some activities in establishing agroforestry trees for conservation of environment.	With guidance, carries out some activities in establishing agroforestry trees for conservation of environment.

STRAND 2.0: CROP PRODUCTION

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
2.0 Crop Production	**2.1 Preparation of planting site** **(7 lessons)**	By the end of the sub strand the learner should be able to: a) identify planting site for crops in the school environment, b) examine planting site in relation to planting material, c) prepare site for establishing selected planting material, d) show responsibility in preparing site for selected planting material.	Learner is guided to: • take excursion in the school compound to identify suitable sites for planting crops. The sites to include *ground sites, container sites, on walls, along the fence or along the driveways.* • observe provided planting materials and suggest appropriate preparation of their planting sites. The suggestions to include fine *tilth for small seeds, medium tilth for medium sized seeds, course tilth for large planting materials like tubers, suckers and cuttings.* • prepare suitable sites for establishing selected planting materials on the identified areas. The sites to include *selected containers and ground seedbeds.* ***Practical activity:*** *As a class, learners to*	1. How can we prepare different types of planting sites? 2. How does planting material determine planting site preparation?

			prepare a suitable planting site in readiness for establishing a crop of their choice.	

Core competencies to be developed:

- Critical thinking and problem solving: evaluation and decision making skill as the learners explore the school compound, identify and prepare a suitable planting site for a given planting material.

Link to values:

- Unity as the learners discuss and work in groups in the activity tasks for identifying and preparing planting sites.

Pertinent and contemporary issues (PCIs):

- Safety of self and others as the learners observe and practice personal safety and safety of others while working with tools and equipment in preparing planting sites.

Link to other subjects:

- Pre technical and Pre career studies as learners work with various tools and equipment in preparing planting sites.

Assessment rubric

Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to identify planting sites for establishing crops in the school environment.	Creatively identifies sites for planting crops in the school environment.	Identifies sites for planting crops in the school environment.	Identifies some sites for planting crops in the school environment.	When guided, identifies some sites for planting crops in the school environment.
Ability to examine planting site in relation to planting material.	Critically examines planting site in relation to the planting material.	Examines planting site in relation to the planting the material.	Examines planting site in relation to some planting material.	With guidance, examines planting site in relation to some planting material.

Ability to prepare site for establishing selected planting material	Creatively prepares site for establishing selected planting material.	Prepares site for establishing selected planting material.	Partially prepares site for establishing selected planting material.	With guidance, prepares site for establishing selected planting material.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
2.0 Crop Production	**2.2 Crop establishment** **(7 lessons)**	By the end of the sub strand the learner should be able to: a) categorize planting materials used for establishing various crops, b) select suitable planting materials for crop establishment, c) describe the methods of planting various crop materials, d) determine appropriate time of planting different types of propagation materials, e) predict appropriate time of planting using digital information centres, f) establish a selected planting material in a planting site	Learner is guided to: • search for information on types of planting materials, collect and categorize planting materials as either seeds or vegetative materials. • analyze and select from provided samples of planting materials such as *overgrown woody cuttings, middle woody cuttings, young immature cuttings, mature seeds of different sizes, damaged seeds, wrinkled seeds, chemically treated seeds, and young immature seeds.* • discuss and make presentations on how different materials are planted in a seedbed using methods such as *dibbling, drilling and broadcasting.* • discuss factors determining appropriate time of planting such	1. How can planting materials be selected? 2. How can selected planting materials be established?

			as *soil moisture, onset of rain, timed market, staggered planting and time of harvesting.* • search for information using digital devices, digital apps and corporate websites on expected time for onset of the rain to predict time of planting. ***Practical activity:*** *As a class, learners to establish a crop of their choice on the site prepared in the previous sub strand (Preparation of planting site) and take care of the crop after germination.*	
Core competencies to be developed: • Learning to learn: researching skills as learners engage in searching and discovery learning process in searching for information, categorizing planting materials, analysing materials for planting, conducting practical activities and making observations on germination and growth of selected crops. • Digital literacy: connecting and interacting skills as learners use digital devices, select appropriate websites and application software to search for information for predicting time of planting.				
Link to values: • Unity while working in teams to conduct practical activities and class presentations on establishing a crop from planting materials.				
Pertinent and contemporary issues (PCIs): • Social cohesion will be developed as the learners work in groups and interact, consult and conduct the practical				

activities of establishing a selected crop.
Link to other subjects: • Integrated science as learners apply scientific concept of germination and viability of planting materials.

Assessment rubric				
Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to categorize planting materials used for establishing various crops.	Justifiably categorizes planting materials used for establishing various crops.	Categorizes planting materials used for establishing various crops.	Partially categorizes planting materials used for establishing various crops.	When guided, attempts to categorize planting materials used for establishing various crops.
Ability to select suitable planting materials for crop establishment.	Critically, selects suitable planting materials for crop establishment.	Selects suitable planting materials for crop establishment.	Selects some suitable planting materials for crop establishment.	With guidance, selects some suitable planting materials for crop establishment.
Ability to describe the methods of planting various crop materials on a seedbed.	Illustratively describes the methods of planting various crop materials on a seedbed.	Describes the methods of planting various crop materials on a seedbed.	Partially describes the methods of planting various crop materials on a seedbed.	With guidance, attempts to describe the methods of planting various crop materials on a seedbed.
Ability to determine appropriate time of planting different	Analytically determines appropriate time of	Determines appropriate time of planting different	Partially determines appropriate time of planting different types	With guidance, attempts to determine appropriate time of

types of propagation materials.	planting different types of propagation materials.	types of propagation materials.	of propagation materials.	planting different types of propagation materials.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
2.0 Crop Production	**2.3 Crop Management** (9 lessons)	By the end of the sub strand the learner should be able to: a) differentiate between a weed and a crop in a cultivated field, b) carry out weeding using physical methods, c) carry out earthing up for a suitable crop, d) carry out thinning and gapping for optimum plant spacing, e) carry out hardening on a suitable crop, f) appreciate importance of various management practices in crop production.	Learner is guided to: • take an excursion to a field with growing crops, observe and differentiate weeds from crops. • use digital devices to take photos of various weeds, compile and make class presentations about the compiled work. • carry out weeding on a selected crop using physical methods such as uprooting weeds, tilling and slashing. • observe the geminated crop, carry out thinning and use the thinned-out plants to gap the wide spaces. • carry out earthing up for a suitable crop. • carry out hardening on a suitable crop. • Discuss the importance of management practices carried out in crop production.	1. What management practices should be carried out in crop production? 2. Why is it important to carry out crop management practices? 3. How can we carry out management practices in crop production?

			Practical activity: *As a class, learners to carry out management practices (at the opportune time) on a crop of their choice.*	

Core competencies to be developed:

- Digital literacy: designing and creating skills as learners take photos of weeds, compile the photos and use digital devices to make class presentations.

Link to values:

- Respect for one another as learners carry out the various management practices for the group project.

Pertinent and contemporary issues (PCIs):

- Lifeskills: Planning and decision making skills as the learners plan and commit themselves to carry out tasks in management practices during practical lesson activities.

Link to other subjects:

- Social studies as learners relate various management practices of selected crops to the elements of weather in their locality.

Assessment rubric

Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to carry out weeding using physical methods.	Timely carries out weeding using physical methods.	Carries out weeding using physical methods.	Partially carries out weeding using physical methods.	When guided, carries out weeding using physical methods.
Ability to carry out earthing up for	Creatively carries out earthing up for a	Carries out earthing up for a suitable crop.	Partially carries out earthing up for a suitable	With guidance, carries out earthing up for a

growing a suitable crop.	suitable crop.		crop.	suitable crop.
Ability to carry out hardening for a suitable crop.	Justifiably carries out hardening on a suitable crop.	Carries out hardening on a suitable crop.	Partially carries out hardening on a suitable crop.	With guidance, attempts to carry out hardening on a suitable crop.

STRAND 3.0: ANIMAL PRODUCTION

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
3.0 Animal Production	**3.1 Animal Handling** (6 lessons)	By the end of the sub strand the learner should be able to: a) examine forms of animal handling in the community, b) defend animals against mistreatment in the community, c) handle animals humanely in the community, d) create awareness on importance of humane treatment of animals in the community.	Learner is guided to: • explore the community and share experiences on forms of animal handling (*humane and inhumane treatments of animals in the community*). • discuss and analyze inhumane treatments such as *beating, poor restraining, inappropriate castration, poor transport methods, inappropriate harnessing, inhumane slaughtering, overloading draught animals, and over working.* • suggest solutions for defending animals against inhumane treatments. Such solutions to include proper handling, safe harnessing and castration using approved methods. • use digital resources to search for information on how various animals should be handled and apply the knowledge to defend animals against mistreatment in the community.	1. What are the safe ways of handling animals? 2. Why is it important to handle animals in humane ways?

			• role play and dramatize humane handling of various animals in the community. • develop messages to create community awareness on importance of humane treatment of animals. ***Practical activity:*** *Learners to use safe animal (docile) to demonstrate humane and safe handling of animals.*	
Core competencies to be developed: • Communication and collaboration: speaking and teamwork skills as learners consult and speak influentially to the community leadership and community members on appropriate handling of animals during school open days.				
Link to values: • Love as learners demonstrate humane treatment of animals to the community through school open days.				
Pertinent and contemporary issues (PCIs): • Animal welfare as the learners develop and disseminate messages to defend animals against inhumane treatment in the community.				
Link to other subjects: • Integrated science as learners relate the body parts used to handle the animals to the functions, sensitivity and safety of the animal.				

Assessment rubric				
Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to defend animals against mistreatment in the community.	Creatively defends animals against mistreatment in the community.	Defends animals against mistreatment in the community.	Partially defends animals against mistreatment in the community.	With guidance, defends animals against mistreatment in the community.
Ability to handle animals humanely in the community.	Manageably handles animals humanely in the community.	Handles animals humanely in the community.	Partially handles animals humanely in the community.	With assistance, handles animals humanely in the community.
Ability to create awareness on importance of humane treatment of animals in the community.	Analytically creates awareness on importance of humane treatment of animals in the community.	Creates awareness on importance of humane treatment of animals in the community.	Partially creates awareness on importance of humane treatment of animals in the community.	With guidance, attempts to create awareness on importance of humane treatment of animals in the community.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
3.0 Animal Production	**3.2 General Management of Pets** (6 lessons)	By the end of the sub strand the learner should be able to: a) identify pets reared in the community, b) describe factors considered in selecting a pet for rearing, c) explain how to acquire a pet for rearing, d) describe various management practices in rearing of pets, e) appreciate various management practices of rearing pets.	Learner is guided to: • visit the community and explore the pets that are reared by various households • acquire information from resource persons on animals reared as pets in the community • search for information from print and digital resources on factors to consider in choosing a pet for rearing such as social, economic, safety and legal factors • discuss various ways of acquiring a pet for rearing such as buying from other community members, gifts, and inheritance • take an excursion in the community, observe pets and acquire information on management practices such as feeding, housing, sanitation, parasite and disease control	1. How can we rear pets? 2. How can we choose pets for rearing?

			• view a video clip on selected management practices such as feeding, housing, sanitation, parasite and disease control	

Core competencies to be developed:

- Learning to learn: researching skills as the learners work collaboratively, take excursion and discover various factors considered in choosing an appropriate pet for rearing and the management practices carried out on the pets.

Link to values:

- Respect for community values and existing laws as learners appreciate factors to consider in ownership of pets.

Pertinent and contemporary issues (PCIs):

- Animal welfare as the learners appreciate the importance of various management practices in rearing of pets.

Link to other subjects:

- Social studies as learners appreciate community values, existing laws and by-laws in rearing of animals.

Assessment rubric

Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to describe factors considered in choosing a pet for rearing.	Illustratively describes factors considered in choosing a pet for rearing.	Describes factors considered in choosing a pet for rearing.	Describes some factors considered in choosing a pet for rearing.	When guided, attempts to describe some factors considered in choosing a pet for rearing.
Ability to explain how to acquire a pet for	Justifiably explains how to acquire a pet	Explains how to acquire a pet for	Partially explains how to acquire a pet	With guidance, attempts to explain

rearing.	for rearing.	rearing.	for rearing.	how to acquire a pet for rearing.
Ability to describe various management practices in rearing of pets.	Analytically describes various management practices in rearing of pets.	Describes various management practices in rearing of pets.	Describes some management practices in rearing of pets.	When guided, attempts to describe some management practices in rearing of pets.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
3.0 Animal Production	**3.3 Preparation of Animal Products** (6 lessons)	By the end of the sub strand the learner should be able to: a) sort and grade eggs for various purposes, b) process raw honey from the combs, c) pack processed honey for storage and use, d) embrace the value of preparing animal products for use, storage and marketing.	Learner is guided to: • work in groups to analyse sampled eggs, brainstorm on factors to consider when grading eggs, then sort and grade the eggs. • process a provided sample of raw honey from combs using crushing and straining method. • pack the processed honey in appropriate containers such as *plastic, glass or aluminium containers.* • discuss the importance of sorting and grading eggs and processing of raw honey.	1. Why should we sort and grade eggs? 2. How can raw honey be processed?
Core competencies to be developed: • Critical thinking and problem solving: evaluation and decision making skills as learners assess the problem of unprocessed honey and devise ways of processing raw honey from the combs.				
Link to values: • Integrity in applying ethical methods of preparing animal products.				
Pertinent and contemporary issues (PCIs): • Financial literacy as learners add value of honey from raw to semi processed honey and as they sort and grade eggs				

for various purposes.

Link to other subjects:

- Pre technical and pre career studies as learners use technology in processing of animal products.

Assessment rubric

Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to sort and grade eggs for various purposes.	Analytically sorts and grades eggs for various purposes.	Sorts and grades eggs for various purposes.	Partially sorts and grades eggs for various purposes.	When guided, sorts and grades eggs for various purposes.
Ability to process raw honey from the combs.	Skillfully processes raw honey from the combs.	Processes raw honey from the combs.	Partially carries out processing of raw honey from the combs.	When guided, carries out processing of raw honey from the combs.
Ability to pack processed honey for storage and use.	Creatively packs processed honey for storage and use.	Packs processed honey for storage and use.	Attempts to pack processed honey for storage and use.	When guided, packs processed honey for storage and use.

STRAND 4.0: AGRICULTURE AND TECHNOLOGY

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question (s)
4.0 Agriculture and Technology	**4.1 Off-season Cropping Techniques** (9 lessons)	By the end of the sub strand the learner should be able to: a) discuss meaning of off-season cropping as a farming technique, b) explain the importance of off-season cropping in Agriculture, c) choose appropriate technology to support off-season cropping, d) describe appropriate techniques used in off-season cropping, e) appreciate the importance of off-season cropping techniques and technologies for food security.	Learner is guided to: • form pairs to brainstorm the meaning of off-season cropping and then share in plenary • search for the meaning of off-season cropping using print and digital resources • discuss the importance of off-season cropping and in a plenary share derived points such as continuous supply of food, regular income and high market value • search for information on applicable technologies for off-season cropping such as *innovative drip irrigation and container gardening* • discuss the off-season crop production techniques such as *timed planting, staggered planting and succession*	1. How can we ensure a continuous supply of vegetables in farming? 2. Why should we practice off-season cropping in farming?

			planting • discuss the importance of off-season crop production techniques and technologies.	

Core competencies to be developed:

- Critical thinking and problem solving: open mindedness and creativity skills as learners deduce appropriate off-season techniques and technologies for continuous food supply in the community.

Link to values:

- Respect as learners make presentations on appropriate techniques and technologies for off-season cropping.

Pertinent and contemporary issues (PCIs):

- Environmental awareness and food security issues as learners analyse food security challenges and determine appropriate off-season cropping techniques to solve them.

Link to other subjects:

- Pre technical and pre career studies as learners integrate off-season techniques and technologies in the community for continuous food supply.

Assessment rubric

Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to explain the importance of off-season cropping in Agriculture.	Illustratively explains the importance of off-season cropping in Agriculture.	Explains the importance of off-season cropping in Agriculture.	Partially explains the importance of off-season cropping in Agriculture.	When guided, attempts to explain the importance of off-season cropping in Agriculture.
Ability to choose	Justifiably chooses	Chooses	Chooses some	With guidance, chooses

appropriate technology to support off-season cropping.	appropriate technology to support off-season cropping.	appropriate technology to support off-season cropping.	appropriate technology to support off-season cropping.	some appropriate technology to support off-season cropping.
Ability to describe appropriate techniques used in off-season cropping.	Graphically describes appropriate techniques used in off-season cropping.	Describes appropriate techniques used in off-season cropping.	Describes some appropriate techniques used in off-season cropping.	With guidance, attempts to describe some appropriate techniques used in off-season cropping.

COMMUNITY SERVICE LEARNING (CSL) PROJECT

Project Title: Framed Suspended Gardens

The CSL project is based on strand 4.0 (Agriculture and technology), sub strand 4.1 Off-season cropping techniques. The project seeks to deepen understanding of the concept and skills for growing crops that are off-season (not dependent on the rainfall seasons) supported on limited space. It will provide the learners with opportunity to practise the knowledge gained in the classroom to benefit themselves and infuse some knowledge and skills to the immediate community through the school fraternity.

The learners should be guided and facilitated to make the planning, organisation and implementation of the project activities. It should be conducted by learners in large groups and preferably as a class project with well laid out tasks to ensure active participation of all members.

Project guidelines

*Duration***:** the project can be started at any chosen time within grade 7 calendar, preferably after covering the sub strand off-season cropping techniques provided that key project implementation tasks are achieved before the end of grade 7. Project duration will depends on the type of crop chosen, crop variety, desired stage of maturity and climate of the locality.

Prior concepts: the learners will have adequate prior concepts, knowledge and skills acquired from previous grades and the previous sub strand *(4.1 off-season cropping techniques).*

Required Resources

Time: The project can be started at any chosen time within the grade 7 calendar provided that it ends before the end of grade 7. Duration depends on the type of crop chosen, crop variety, desired stage of maturity and climate. Key active project activities should be completed within three weeks within the 9 lessons or earlier.

Materials: the project assumes minimal costs. To enable this, adopt the use of locally available materials in the school environment and capitalize on re-use to conserve the environment. Metal bars or wooden posts/timber pieces or plastic tube remains from construction works can be used for assembling the framing structure of their choice.
Project design: provoke learners to develop innovative framing and container designs. Encourage creativity in designing; siting; choice of crop; crop establishment method and management to cater for variations across the years and to reduce duplication.

Integration of Learning and Community Service
Food security is a challenge in every community due to over-reliance on rainfall seasons. The challenge compounds food nutrition in both rural and urban households. Learners will address the need for accessibility of quality food by contributing to its production at household level. This will progressively contribute to food security and nutrition in the community.

Use of framed structure gardening technique through the project will involve and infuse knowledge, skills and attitude to learners and the school community to adopt alternative options to food production other than rain-fed seasons. Furthermore, the technique can be adopted in any household despite limitation of agricultural space occasioned by contemporary life and diminishing land parcels.

Strand	Sub Strand	Project Outcomes	Suggested Learning Experiences	Key Inquiry Question
4.0 Agriculture and Technology	**4.2 Framed Suspended Gardens** **(9 lessons)**	By the end of the sub strand the learner should be able to: a) identify off-season crops suitable for suspended gardening, b) discuss and document proposed project plan for framed suspended garden, c) select suitable site for framed structure suspended garden, d) design framed structure for suspended gardens, e) construct framed structures for suspended gardens, f) establish and manage selected off-season crop on suspended gardens, g) persuade the school	Learners are guided to: • identify suitable crops that meet the following criteria: *- Can be established on a suspended garden on framed structures sited in small spaces such as along the drive way, pathways or any other place in the school that receives regular visitors.* *- Can enhance beauty.* *- Can grow within a short period of time (not a perennial crop).* • identify suitable site in the school compound to prepare framed structures for suspended gardens. • design and sketch plans for framed suspended gardens. • source for materials (locally available materials such as	1. How can we innovatively grow crops in limited space? 2. How can we prepare a framed suspended garden?

		community to adopt off-season cropping techniques for food security, h) evaluate the project in relation to the project objectives.	wires, wooden planks, metal bars and poles) to construct framed suspended garden. • assign themselves tasks towards construction of the framed structures, establishment and management of selected off-season crops on the suspended garden. • carry out assigned tasks to implement the project. • carry out assigned tasks in management of the project Community involvement: - Learners to: • create educative messages on the project to pass to the community. • get community feedback by use of a feedback box installed at the project site. Project Evaluation: • Learners to evaluate the	

			achievements, challenges and experiences of the project and suggest what could have been done better. Project reflection: • Learners to share lessons learnt from implementation of the project and the feedback provided by the community through class presentations.	

Core competencies to be developed:

- Self-efficacy: self-awareness and planning skills as learners plan, implement and manage various tasks in the CSL project activities such as designing, siting, construction, crop establishment and management on the suspended gardens.
- Critical thinking and problem solving: interpretation and inferencing skill as learners articulate problems of crop growing on limited spaces, formulate and implement solution to solve the problem through suspended gardens.
- Creativity and imagination: observation and making connection skills as learners design, sketch framed structures and innovatively site the structures for aesthetic purposes within the school compound.

Link to values:

- Unity as learners carry out team work activities while planning, implementing and managing the suspended garden project.

Pertinent and contemporary issues (PCIs):

- Environmental protection and conservation as learners re-use locally available materials to construct framed suspended gardens.

Link to other subjects: • Pre technical and pre career studies as learners apply hands-on skills to design, construct and manage framed suspended garden project.				
Assessment rubric				
Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to design framed structures for suspended gardening.	Graphically designs framed structures for suspended gardening.	Designs framed structures for suspended gardening.	Partially designs framed structures for suspended gardening.	When guided, attempts to design framed structures for suspended gardening.
Ability to construct framed structures for suspended gardening in the school.	Creatively constructs framed structures for suspended gardening in the school.	Constructs framed structures for suspended gardening in the school.	Partially constructs framed structures for suspended gardening in the school.	With guidance, attempts to construct framed structures for suspended gardening in the school.
Ability to establish and manage selected off-season crop on suspended gardens.	Creatively establishes and manages selected off-season crop on suspended gardens.	Establishes and manages selected off-season crop on suspended gardens.	Partially establishes and manages selected off-season crop on suspended gardens.	When assisted, attempts to establish and manage selected off-season crop on suspended gardens.
Ability to persuade the school community to adopt off-season cropping techniques for food security.	Manageably persuades the school community to adopt off-season cropping techniques for food security.	Persuades the school community to adopt off-season cropping techniques for food security.	Partially persuades the school community to adopt off-season cropping techniques for food security.	With guidance, attempts to persuade the school community to adopt off-season cropping techniques for food security.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
4.0 Agriculture and Technology	**4.3 Value Addition Techniques** (7 lessons)	By the end of the sub strand the learner should be able to: a) explain the meaning of value addition in crop produce, b) examine ways of adding value on crop produce, c) process a selected crop produce to add value, d) appreciate the importance of value addition on crop produce.	Learner is guided to: • use digital devices to search and share information on meaning and examples of value addition in crop produce. • discuss ways of adding value to crop produce such as *potatoes, mangoes, vegetables, cassava, groundnuts, simsim, sweet potatoes and pumpkins.* • process a provided sample of crop produce such as *potatoes, mangoes, vegetables, cassava, groundnuts, simsim, sweet potatoes and pumpkins* to add value using appropriate methods like *drying and frying.* • compare the processed crop produce with raw crop produce in terms of *monetary value and storage life.*	1. Why do we add value to crop produce? 2. How can we add value to crop produce?

			Practical activity: *Learners to select a crop produce of their choice and process the produce for value addition using applicable technique.*	

Core competencies to be developed:

- Critical thinking and problem solving: evaluation and decision making skills as the learners search for information and select a suitable method of adding value to a crop produce.

Link to values:

Integrity as the learners observe hygiene and safety standards during processing of crop produce.

Pertinent and contemporary issues (PCIs):

- Nutrition, health and food security as learners process crop produce to increase shelf life and reduce food spoilage through value addition processes.

Link to other subjects:

- Pre-technical and pre-career studies as learners use technology to process crop produce.

Assessment rubric

Indicator	**Exceeds expectation**	**Meets expectation**	**Approaches expectation**	**Below expectation**
Ability to explain the meaning of value addition in crop produce.	Illustratively explains the meaning of value addition in crop produce.	Explains the meaning of value addition in crop produce.	Partially explains the meaning of value addition in crop produce.	When guided, attempts to explain the meaning of value addition in crop produce.

Ability to examine ways of adding value to crop produce.	Justifiably examines ways of adding value to crop produce.	Examines ways of adding value to crop produce.	Examines some ways of adding value to crop produce.	With guidance, attempts to examine some ways of adding value to crop produce.
Ability to process a selected crop produce to add value.	Skillfully processes a selected crop produce to add value.	Processes a selected crop produce to add value.	Partially processes a selected crop produce to add value.	With guidance, processes a selected crop produce to add value.

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 Conserving Agricultural Environment	1.1 Soil pollution control	• Written assignment. • Observation of learning activities.	Relevant video clips on causes of soil pollution. Manilla papers and marker pens to create posters on soil pollution control.	Learners to initiate campaigns in and out of school to sensitise parents and community members on protecting soil from pollution.
	1.2 Water conservation measures	• Oral assessment • Observation of learning activities • Group project portfolio on preparation of water conservation structures.	Garden tools such as jembes, fork jembes, spade, panga, slasher. Others: Mulch materials, digital resources and planting materials such as banana suckers and sugarcane.	Learners to initiate water harvesting and conservation measures against runoffs in or near the school.
	1.3 Agroforestry	• Written tests • Graded observation of group work activities • Project portfolio in establishment of one-tree project.	Topical video clips on agroforestry trees used in crops and pasture fields. Garden tools such as jembes, fork jembes, spade, panga, slasher.	Learners to initiate *one-tree project* in or near the school.

			Print materials with information and photos on agroforestry.	
2.0 Crop Production	2.1 Preparation of Planting site	• Written assignment • Graded observation • Oral assessment	Samples of seeds of various sizes and assorted vegetative planting materials. Suitable planting sites such as on the walls of buildings, along fence lines and driveways in the school. Suitable containers for making planting site. Manure. Garden tools and equipment such as jembes, pangas and slashers	Learners to initiate display sites/crop museum in or near the school.
	2.2 Crop establishment	• Written tests • Graded observation of group work activities • Project portfolio in establishment of a crop on the prepared planting site.	Samples of seeds and vegetative planting materials (both appropriate and inappropriate) for learners to select the right ones for sowing or planting. Digital devices and related	

			accessories. Garden tools and equipment such hoes, panga, planting line and tape measure.	
	2.3 Crop management	• Written tests • Graded observation of group work activities • Project portfolio in management (thinning, gapping weeding and earthing-up) of established crops. • Project report	Digital devices to search for information and take photos, garden tools and equipment to carry out management practices.	
3.0 Animal Production	3.1 Animal Handling	• Written assignment • Graded observation of learner demonstrations • Oral assessment on animal handling.	Photos, video clips on humane ways of handling animals.	
	3.2 General management of Pets	• Written assignment • Oral assessment on factors considered in selecting a pet.	Print materials and digital resources on common pets.	Learners to observe pets in the community, noting down the common

	3.3 Preparation of animal products	• Written assignment • Graded observation • Oral assessment on animal rearing practices.	Photos and video clips on domestic animals and farm with domestic animals. Video clips on management practices of pets.	management practices accorded to them.
4.0 Agriculture and Technology	4.1 Off-season cropping techniques 4.2 Framed suspended gardens	• Graded oral assessment • Written tests • Project journal on CSL project activities (activities in construction and establishment of framed suspended garden).	Video clips on crops growing on simple drip irrigation and assorted planting materials of crops that grow in the locality. Organic manures, organic mulch materials, gardening tools and equipment. Materials for constructing framed suspended gardens: pieces of wood, wire and strings, containers.	Learners to initiate beautification project through club activities of the school using crop plants on framed suspended gardens.
	4.3 Value addition techniques	• Oral assessment • Written tests • Graded observation on learner project activities and participation levels.	Crop produce that can be used for value addition, examples: potatoes, mangoes, vegetables, cassava, groundnuts, simsim, sweet potatoes, pumpkins. Utensils such as frying pan, spoons and knives	Learners extended activities on value addition of main crops produce available in the locality through school clubs.

APPENDIX 2: GUIDELINES ON RESOURCES AND RESOURCE UTILIZATION FOR AGRICULTURE CURRICULUM

The following resources are required across various stands in the curriculum not only for Grade 7 Agriculture but also in other Grades among other subject areas in Junior secondary education level. Agriculture curriculum considers them as key resources and therefore gives these special guidelines:

1. **Land (this refers to any space for agricultural activities for the curriculum purposes).**

- The curriculum activities **DO NOT** demand for extensive land in schools for the learners to develop the agricultural competencies. The designed activities could be implemented on **any available space** within the school or outside the school as may be deemed appropriate.
- The activities suggested in the curriculum have considered space as a limited resource in Agriculture. The curriculum therefore recommends utilization of any available space in the school compound including but not limited to the following spaces: ***small plots of land in or out of the school compound, area along the fence, space along the drive-ways, space in front or behind the classrooms, space on top of large concrete buildings (with special consideration on learner safety), hanging space on walls or hanging framework among others***.
- The spaces mentioned above could appropriately be used with container gardens and ornamental beds (***Note that ornamental beds are not limited to flower plants; the concept is applicable to any crop in this curriculum***).
- Wise and innovative designing, planning and utilization of available space including establishing ***limited number of plants*** is highly encouraged provided the learners are exposed to a practical and experiential learning of curriculum concepts.

2. **Water**

- Water is a natural and critical resource in Agriculture. The curriculum recommends that all schools should prioritize water harvesting and storage to avail this critical resource throughout the year. Prioritize water conservation in all suggested activities.

3. **Planting materials**

- The curriculum recommends use of available materials in the local environment. Where planting is suggested, the curriculum gives a broad option within the category specified in the learning outcome or learning experiences. Allow learners to adopt what is best suited and available in their local environment.

4. **Digital devices**

- The curriculum suggests use of digital devices to search for information including photos, videos and illustrations to guide concretization of concepts and provoke innovativeness of the learners. Appropriate devices should have internet connectivity and connective accessories. The devices should be used with guidance of the teacher to ensure safety and security of the learners and the devices.
- Digital devices are required across the curriculum as support tool to access and share information. They are suggested in several sub stands but may be used in all the sub strands in the curriculum. Digital devices, resources and related accessories include but not limited to: computer, laptop, tablet, smart phone, digital camera, flash disks, DVDs, memory card, internet connectivity devices, projector, external memory drive, connectivity cables, source of power and printer.

5. **Assorted farm tools and equipment**

- These tools and equipment may be used selectively based on the actual task to be carried out in the learning process.
- The tools and equipment include but not limited to the following common tools: hammer, pliers, knife, garden trowel, panga, jembe, slasher, spade, shovel, wheel barrow, manure fork, fork jembe, tape measure, string, secateurs, pruning saw and watering can. The tools and equipment should be shared across the Grades in the Junior secondary level. The number of tools should not be a major hindrance since their utilization is based on the particular activity to be carried out during the lesson or project time. Project activities could best be carried out in organized learner-groups.