KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

A Skilled and Ethical Society

DIPLOMA IN TEACHER EDUCATION
PRE-PRIMARY AND PRIMARY

AGRICULTURE
CURRICULUM DESIGN

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INTRODUCTION

The development of the curriculum for Diploma in Teacher Education for the Pre-Primary and Primary level **(DTE–PP&P)** is a critical milestone in the implementation of Competency Based Curriculum (CBC) in Kenya. The curriculum designs herein have been developed to prepare the teacher trainee to be able to effectively guide the learners at the Pre-Primary and Primary School level; that is from Pre-Primary One (PP1) to Grade Six (G6) in Basic Education.

It is envisaged that the teacher educator will guide the teacher trainees appropriately to embrace the shift from the Objective-Based to the Competency Based Curriculum which is hinged on use of learner-centred pedagogy for realisation of the stated expected learning outcomes. In addition, the emphasis on formative assessment to facilitate learning should be underscored as the basis for determining learner aptitude and performance. Other key aspects that have been introduced include structured micro-teaching, a longer period for the practicum and the introduction of specific Professional Courses that ensure congruence with the CBC vision, mission, pillars and guiding principles as enshrined in the *Basic Education Curriculum Framework* (KICD, 2017).

The DTE-PP&P curriculum seeks to develop the teacher to act as a facilitator in the learning process taking into consideration the different abilities and learning styles of individual target learners. The curriculum has been designed with emphasis on experiential and reflective learning to develop appropriate Pedagogical Content Knowledge (PCK); hence, the emphasis on integrated content and pedagogy for the student teachers while at college. This is to ensure that the student teacher is given adequate time to practice how to facilitate learning of the different strands prescribed in the curriculum designs.

The Curriculum designs for the DTE-PP&P are packaged according to courses of training as follows:

Professional Learning areas

1. Child Development and Psychology
2. Curriculum Studies
3. Educational Resources
4. ICT Integration in Education
5. Educational Assessment
6. Research Skills
7. Inclusive Education
8. Educational Leadership and Management
9. Sociological and Philosophical Foundations of Education
10. Historical and Comparative Foundations of Education
11. Micro Teaching
12. Practicum

Integrated Content and Pedagogy Learning areas

1. English
2. Kiswahili
3. Mathematics
4. Science and Technology
5. Agriculture
6. Home Science
7. Religious Education: CRE/IRE/HRE

8. Social Studies
9. Physical and Health Education
10. Art and Craft
11. Music
12. Indigenous Language
13. Foreign Languages: French/ Arabic/ German/ Mandarin (Chinese)/ KSL

REGULATIONS FOR DIPLOMA IN TEACHER EDUCATION -PRE-PRIMARY AND PRIMARY (DTE-PP&P)

Entry Requirements

The entry requirements for the Diploma in Teacher Education – Pre-Primary and Primary shall be **C Plain** Mean Grade in the Kenya Certificate of Secondary Education examination (KCSE) or its equivalent (as equated by the Kenya National Examinations Council (KNEC). The Special Needs Candidates (SNE) could be admitted with **C Minus (-)** Grade in KCSE or equivalent

Duration of Training

The duration for the Diploma in Teacher Education – Pre-Primary and Primary shall be **three years**.

Subjects Offered

The trainee undertaking the Diploma in Teacher Education – Pre-Primary and Primary (DTE –PP&P) shall take **ALL** courses specified in the DTE- PP&P curriculum; which includes Professional Courses and learning areas (subjects) related to the content in the Pre-Primary and Primary School Curriculum.

Micro-Teaching and Practicum

Micro Teaching shall be undertaken as a course and shall be a pre-requisite for the Practicum; hence a course design has been developed for it. There shall be two (2) school term practicum sessions for which guidelines shall be developed.

Award of the Diploma

To be awarded the Diploma in Teacher Education – Pre-Primary and Primary (DTE-PP&P), the candidate must achieve the following:

i) Complete the required hours for coursework and pass the stipulated assessment as directed by the Kenya National Examinations Council (KNEC).

ii) Complete the required hours for the Practicum and pass the stipulated assessment as directed by the Kenya National Examinations Council (KNEC).

Note: If the student teacher fails to meet the requirements for award of the Diploma in Teacher Education – Pre-Primary and Primary (DTE –PP&P) he/she will be allowed to repeat the specific component or learning area failed.

Grading

The Diploma in Teacher Education – Pre-Primary and Primary (DTE PP&P) shall be graded as stipulated by the Kenya National Examinations Council (KNEC).

TABLE 1: DISTRIBUTION OF PROFESSIONAL LEARNING AREAS

	SUBJECT	TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6	Sub Total	TERM 7 Micro Teaching - Subject Practicals	TERM 8	TERM 9	TOTAL FOR COURSE
PROFESSIONAL LEARNING AREAS												**PROFESSIONAL LEARNING AREAS (420 Hours)**
1.	**Child Development and Psychology**	10	10	10	10	10	10	60				
2.	**Curriculum Studies**	30	20	20	20			90				
3.	**Educational Resources**	10	10	10				30				
4.	**ICT Integration in Education**	10	10	10				30				
5.	**Educational Assessment**	10	10	10				30				
6.	**Research Skills**	10	10	4				24				
7.	**Inclusive Education**	10	10	10				30				
8.	**Educational Leadership and Management**				10	10	10	30				
9.	**Sociological and Philosophical Foundations of Education**				10	10	10	30				
10.	**Historical and Comparative Foundations of Education**				10	10	10	30				
11.	**Micro Teaching**	30						30				
SUB TOTAL		**120Hrs**	**80Hrs**	**80Hrs**	**60Hrs**	**40Hrs**	**40Hrs**	**414Hrs**				

TABLE 2: DISTRIBUTION OF CONTENT + PEDAGOGY (SUBJECTS)

CONTENT + PEDAGOGY (SUBJECTS)												
	SUBJECT	**TERM 1**	**TERM 2**	**TERM 3**	**TERM 4**	**TERM 5**	**TERM 6**	**SUB TOTAL**	**TERM 7 Micro Teaching - Subject Practicals**	**TERM 8**	**TERM 9**	**TOTAL FOR COURSE**
1	**English**	24	34	34	35	29	30	186	30	Practicum	Practicum	
2	**Kiswahili**	20	20	20	20	20	20	120	20			**CONTENT& PEDAGOGY (SUBJECTS) (1680 Hrs)**
3	**Mathematics**	30	30	30	30	30	30	180	30	300 Hours	300 Hours	
4	**Science and Technology**	20	20	20	20	20	20	120	30			**+ PRACTICUM (600Hrs)**
5	**Agriculture**	20	20	20	20	20	20	120	20			
6	**Home science**	20	20	20	20	20	20	120	20			
7	**Religious Education:- (CRE, IRE, HRE)**	20	20	20	20	20	20	120	20			
8	**Social Studies**	20	20	20	20	20	20	120	20			
9.	**Physical and Health Education**	10	10	10	30	30	30	120	30			
10.	**Art and craft**	10	30	30	10	20	20	120	20			
11.	**Music**	10	20	20	20	20	30	120	20			
12.	**Indigenous Languages**	10	20	20	20	30	20	120	20			
13	**Foreign Languages: French/ Arabic/ German/ Mandarin (Chinese)/ KSL**	10	10	10	30	30	30	120	20			
SUB TOTAL		230 Hrs	270 Hrs	270 Hrs	290 Hrs	310 Hrs	310 Hrs	1686Hrs				
TOTAL		**350**	**350**	**350**	**350**	**350**	**350**	**2100**	**300**	**300**	**300**	**3000 HRS**

NATIONAL GOALS OF EDUCATION

Education in Kenya should:

1. **Foster nationalism and patriotism and promote national unity.**
   Kenya's people belong to different communities, races and religions, but these differences need not divide them. They must be able to live and interact as Kenyans. It is a paramount duty of education to help young people acquire this sense of nationhood by 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.

2. **Promote the social, economic, technological and industrial needs for national development.**
   Education should prepare the youth of the country to play an effective and productive role in the life of the nation.
   a) **Social Needs**
      Education in Kenya must prepare children for changes in attitudes and relationships which are necessary for the smooth progress of a rapidly developing modern economy. There is bound to be a silent social revolution following in the wake of rapid modernization. Education should assist our youth to adapt to this change.
   b) **Economic Needs**
      Education in Kenya should produce citizens with the skills, knowledge, expertise and personal qualities that are required to support a growing economy. Kenya is building up a modern and independent economy which is in need of an adequate and relevant domestic workforce.
   c) **Technological and Industrial Needs**
      Education in Kenya should provide learners with the necessary skills and attitudes for industrial development. Kenya recognizes the rapid industrial and technological changes taking place, especially in the developed world. We can only be part of this development if our education system is deliberately focused on the knowledge, skills and attitudes that will prepare our young people for these changing global trends.

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

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

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

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

7. **Promote international consciousness and foster positive attitudes towards other nations.**
   Kenya is part of the international community. It is part of the complicated and interdependent network of peoples and nations. Education should therefore lead the youth of the country to accept membership of this international community with all the obligations and responsibilities, rights and benefits that this membership entails.

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

LEVEL LEARNING OUTCOMES FOR DIPLOMA IN TEACHER EDUCATION - PRE-PRIMARY AND PRIMARY (DTE–PP&P)

By the end of the course the teacher trainee should be able to:

1. Model appropriate behaviour and values for Pre-Primary and Primary school learners to emulate for development of good citizenship
2. Communicate and collaborate effectively with learners, peers, parents and the community to create a conducive learning environment.
3. Use appropriate pedagogical approaches to facilitate learning for Pre-Primary and Primary school learners in and out of the classroom
4. Apply inclusive practices to support all Pre-Primary and Primary school learners including those with disabilities and special educational needs
5. Employ ICT skills in the learning process to enhance digital literacy
6. Employ appropriate assessment approaches to promote effective learning
7. Identify and nurture learner's potential and talents for appropriate placement and transition into Junior School.
8. Develop environmental conservation skills in Pre-Primary and Primary school learners to promote education for sustainable development
9. Create innovative and effective solutions to challenges in the learning process.
10. Integrate pertinent and contemporary issues in learning to enable learners to cope with daily challenges.

ESSENCE STATEMENT

Kenya is mainly dependent on an agro-based economy that requires competent manpower for sustainable development. Kenya Vision 2030 aims to transform the country into a rapidly industrializing middle-income nation with an "innovative, commercially-oriented and modern Agriculture sector". The vision is in line with the Sustainable Development Goal No. 2 and the Comprehensive Africa Agriculture Development Programme (CAADP) which aim to achieve sustainable food production systems that implement resilient agricultural practices for food security and nutrition.

Teacher training forms Kenya's basic foundation for labour and capacity development towards food security and economic development. Diploma in Teacher Education – Pre-Primary and Primary (DTE –PP&P) Agriculture curriculum aims at developing competent teachers (facilitators of learning) to achieve the country's vision of a steady and stable agro-based economy through education. This is informed by Piaget's theory of constructivism which argues that an individual's knowledge which lead to behavioral change is based upon their experiences. Agriculture curriculum for Teacher Education will develop a teacher who is empowered to facilitate acquisition of knowledge, skills, values and attitudes for the learners in primary school for lifelong Agricultural competencies while maintaining environmental sustainability.

GENERAL LEARNING OUTCOMES

By the end of the course, the primary teacher trainee should be able to:

1. Develop Agricultural knowledge, skills, values and attitudes towards diverse sustainable Agricultural production practices.
2. Apply knowledge and pedagogical skills to facilitate learners to acquire competencies of rearing domestic animals for self-empowerment and economic development.
3. Apply knowledge and pedagogical skills to facilitate learners to acquire competencies of growing crops using innovative practices that contribute towards food security and self-reliance.
4. Develop professional skills to implement and manage learning of Agriculture.
5. Plan and manage Agricultural learning enterprises in the schools.
6. Apply digital and technological skills to facilitate learning of Agriculture.
7. Appreciate Agriculture as a worthy niche for hobby, career formation and further education and training.

STRAND 1.0 AGRICULTURE AND ENVIRONMENT

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
1.0 Agriculture and Environment	**1.1. Overview of Agriculture** **(4 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) discuss the importance of Agriculture in Kenya, b) relate the key natural resources to Agricultural production in Kenya, c) justify agriculture as a learning area in primary education, d) compile the main objects of upper primary agriculture from the general learning outcomes, e) deduce aspects of Agriculture from the pri-primary and lower primary Environmental activities curriculum designs,	Teacher trainees to: • Through discussion and literature review, develop the meaning and importance of Agriculture and its origin. • Research on the key natural resources that influence Agricultural production *(Soil, living organisms, water and rainfall, temperature, sunlight, relative humidity and wind).* • Study the essence statement in upper primary agriculture curriculum design and derive justification for agriculture curriculum for the level. • Study, derive and compile the main objects of learning agriculture at upper primary as	How does Agriculture curriculum in primary education relate to Agriculture productivity in Kenya?

		f) Appreciate the role of Agriculture in the economic development of a country.	stated in the general learning outcomes in the curriculum designs. • **Pedagogical practice:** Analyse and list learning activities related to farming from the curriculum designs for Environmental activities for PP1, PP2 and grades 1, 2 or 3.	
1.0 Agriculture and Environment	**1.2. Agricultural Resources in School Environment** **(5 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) investigate the sources of water in the environment b) describe activities that can be carried out by learners to conserve water in the environment c) determine learner-based activities for conserving soil d) analyse characteristics of plants growing in the	Teacher trainees to; • Tour, discuss and map out sources of water in the nearby school environment. • Brainstorm, research and compile a list of learner school-based activities that could be adopted for conserving water in the school environment. • Discuss and enumerate appropriate activities that the learners could carry out to conserve soil in primary school. • Explore the community to observe	What resources in primary schools could be used for Agricultural activities?

		school environment e) explain potential learner-based activities for conserving plants in the school environment f) analyse the core competencies in the pre-primary and lower primary Environmental activities curriculum designs g) relate core competencies to learner activities for conservation of environment h) Demonstrate caring attitude towards conservation of agricultural resources in the environment.	plants in their habitats and analyse them using the following plant characteristics *(poisonous/ non-poisonous, thorny/ non-thorny, edible/ non-edible, harmful /non-harmful).* • Brainstorm and enumerate activities that learners could carry out to conserve plants in the school environment. • Read and report on the core competencies in the various strands of pre-primary and lower primary Environmental activities curriculum designs and how they relate to actual learner activities for conservation of environment. • **Pedagogical practice:** *develop a proposal and guidelines on how a teacher can plan, organise and coordinate field excursion or nature walk to identify agricultural resources in a*	

			primary school environment.	
1.0 AGRICULTURE AND ENVIRONMENT	**1.3. School-based Agro-Environmental Enterprises** (4 hours)	By the end of the sub strand, the teacher trainee should be able to: a) discuss learner-based activities for income generation opportunities in school environment, b) initiate a learner-based income generating project in the school environment, c) relate specific learning outcomes to learning experiences in grade 1-3 Environmental Activities curriculum designs, d) appreciate the role of income generation activities in schools.	Teacher trainees to; • Explore, discuss and share on potential agricultural projects they can initiate for pupils' income generation activities in the school environment. • Develop simple business plan for identified agricultural-based project showing when to start the enterprise, what will be required, roles to be played and who to carry responsibilities in a primary school set up. • Match specific learning outcomes to their corresponding suggested learning experiences in sub strands of grade 1- 3 Environmental Activities curriculum design, then suggest alternative applicable learning experiences for varied contexts of learning.	1. What is the significance of learner-based environmental enterprises? 2. What viable learner-based enterprises could be initiated in primary school?

			• **Project:** *visit a neighbouring primary school, identify potential enterprise opportunities, narrow down to single enterprise, and then develop a simple business plan that could be used to implement an agricultural and environment-based project.* • **Pedagogical practice:** *conduct a class discussion on important, relevant and viable school-based agro-environmental enterprises in their local contexts.*	

Core competencies to be developed:

- Learning to learn and reflective practice as teacher trainees discover business opportunities that could be carried out while practising agricultural activities in primary school and also in developing business plans for implementing agricultural-based enterprises. The reflective practice will be developed as the teacher trainees evaluate achievements and challenges of implemented business plan.
- Pedagogical content knowledge as teacher trainees conduct a discussion on viable school-based agro-enterprises in their local context.

Values:

Responsibility in task allocation as trainees develop an agro- based environmental enterprise.

Suggested Formative Assessment Rubric

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to discuss the importance of Agriculture in Kenya.	Discuses more than 5 reasons to show importance of Agriculture in Kenya.	Discusses 5 reasons to show importance of Agriculture in Kenya.	Discusses 2 -4 reasons to show importance of Agriculture in Kenya.	Discusses one reason or none to show importance of Agriculture in Kenya.
Ability to compile the main objects of upper primary agriculture from the general learning outcomes.	Compiling 6 main objects of upper primary agriculture from the general learning outcomes.	Compiles 5 main objects of upper primary agriculture from the general learning outcomes.	Compiles 3 or 4 main objects of upper primary agriculture from the general learning outcomes.	Compiles 2 or less than 2 main objects of upper primary agriculture from the general learning outcomes.
Ability to describe learner-based activities for conserving water.	Describes, in depth, learner -based activities for conserving water sources in school and explains learner's tasks in the conservation.	Describes learner -based activities for conserving water sources in school.	Describes, partially, learner-based activities for conserving water sources in school.	Describes, partially, learner l-based activities for conserving water sources in school when given prompts.

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to analyse characteristics of plants growing in the school environment.	Extensively and critically analyses plants in the school environment as thorny, harmful, poisonous and edible.	Analyses plants in the school environment as thorny, harmful, poisonous and edible.	Analyses plants in the school environment as thorny, harmful, and either poisonous or edible.	Partially analyses plants in the school environment as thorny and harmful.
Ability to Explain learner-based activities for conserving plants in the school environment.	Explains, in depth, many potential learner-based activities for conserving plants in the school environment.	Explains many potential learner-based activities for conserving plants in the school environment.	Explains few potential learner-based activities for conserving plants in the school environment.	Explains few potential learner-based activities for conserving plants in the school environment only when given prompts.
Ability to discuss learner-based activities for income generation opportunities in school environment.	Discuses, in depth, many learner-based activities for income generation opportunities in school environment	Discuses many learner-based activities for income generation opportunities in school environment	Discuses few learner-based activities for income generation opportunities in school environment	Partially ddiscuses few learner-based activities for income generation opportunities in school environment.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
1.0 Agriculture and Environment	**1.4 Soil Composition** **(4 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) investigate components of a garden soil sample, b) relate components of soil to its productivity in Agriculture c) conduct a micro-lesson on how to explore presence of air in a sample of garden soil, d) conserve soil to preserve its components.	Teacher trainees to; • Carry out experiments to investigate presence of components (air, water, organic matter, living organisms and soil particles) of a garden soil sample. • Discuss role of the investigated soil components to productivity of agricultural soil. • **Pedagogical practice:** *volunteer and facilitate peers to carry out an experiment to explore presence of air in a given soil sample.*	1. What makes a quality fertile soil? 2. How do the soil components influence productivity of soil in Agriculture?
1.0 Agriculture and Environment	**1.5. Soil Physical Properties** 4 hours	By the end of the sub strand, the teacher trainee should be able to: a) describe the physical properties of soil in the environment,	Teacher trainees to; • Brainstorm on physical properties of soil. • Explore the physical properties of sand, clay and loam soil samples using capillarity, water	How can we investigate physical properties of soil?

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
		b) investigate the physical properties of provided soil samples, c) critique Suggested Key Inquiry Questions in selected sub strands of grade 4 Agriculture curriculum design, d) Appreciate the importance of various physical properties of soil.	holding capacity and physical textural feel. • Search and watch video clips showing soil physical properties such as capillarity, colour and drainage then present their findings. • Conduct field excursion in the institution and its neighbouring community to collect, study and categorise available soils based on their physical properties. • **Pedagogical practice:** Study and critique Suggested Key Inquiry Questions in selected sub strands of grade 4 curriculum design for appropriateness and suggest alternative KIQs.	
1.0 Agriculture and Environment	**1.6. Soil Uses in Agriculture**	By the end of the sub-strand, the teacher trainee should be able to:	Teacher trainees to; • Discuss the uses of soil in Agriculture and share their	How do physical properties of soil influence its

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	(3 hours)	a) Describes the uses of soil in Agriculture, b) investigate the relationship between physical properties of soil and their uses in Agriculture, c) explain the values to be acquired by learners as they learn uses of soil, d) relate physical properties of soil to their Agricultural uses, e) Appreciate the relationship between physical properties of soil and its uses.	experiences. • Search the internet and watch video clips on agricultural activities carried out in different types of soils (sand, clay and loam). • Present exemplary video clips in the classroom to elicit discussion on uses of different types of soils in Agriculture. • Deduce a list of values from the grade 4 Agriculture curriculum designs on the sub strand of soil conservation and explain how the values can be acquired by the learners. • **Pedagogical practice:** *facilitate a class discussion on how relevant values can be acquired by learners as they learn uses of soil* .	Agricultural uses?

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
1.0 Agriculture and Environment	**1.7. Soil Erosion Control** **(5 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) describe meaning of soil erosion in the environment, b) explain the effects of soil erosion on agriculture, c) analyse types of soil erosion in the environment, d) control soil erosion in the environment, e) Explain how to mainstream selected pertinent and contemporary issues embedded in upper primary Agriculture curriculum designs,	Teacher trainees to; • Discuss to derive contextual meaning of soil erosion with relevant examples in the environment. • Discuss the effects of soil erosion in agricultural context. • Make field excursion in the environment to explore erosion sites, observe effects of soil erosion and analyse types of soil erosion (*splash, rill, sheet, gully, wind and river bank erosion*). • Search and watch video clips on different types of soil erosion and their effects on the environment. • Simulate occurrence of various types of soil erosion such as use of air blower for sheet erosion, watering can for splash erosion	1. How can soil erosion be controlled? 2. What is the essence of soil erosion control in the environment?

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
		f) appraise soil conservation in the environment.	and running tap for rill erosion. • Search and watch a video clip on methods of controlling soil erosion. • Identify eroded sites and carry out appropriate soil erosion control measures. • Study, list and explain how the various PCIs will be learnt from the upper primary agriculture curriculum designs in the sub strand *soil Conservation.* • **Pedagogical practice**: Identify selected PCIs embedded in upper primary Agriculture curriculum design and explain how they can be mainstreamed in a lesson.	
1.0 Agriculture and Environment	**1.8 Soil Recovery** **(5 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) discuss the concept of	Teacher trainees to; • Tour the institution and the community, identify eroded sites and discuss how the eroded soil	1. Why should we recover eroded soil? 2. How does soil

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
		soil recovery in the environment, b) describe how eroded soil can be recovered in the environment, c) identify sites of erosion deposition by runoff in the community, d) *Participate in a community service learning initiative to recover soil from deposition sites for agricultural purposes.*, e) deduce community service learning activities from Upper Primary Agriculture curriculum designs, f) Appreciate the importance of	can be put back to agricultural use. • Discuss and present ideas on how soil deposited due to erosion could be collected and used for farming purposes. • Tour the institution and the community, identify and map out places where soil is deposited by runoff. Trainees to present their findings in a plenary. • Discuss ways of recovering soil and then collect soil from deposition sites and use it in crop demonstration plots. **Pedagogical practices:** Collaborate with the community to recover and use soil from deposition sites to sensitise community on importance of soil recovery; *Identify* suitable CSL	recovery contribute to soil conservation?

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
		recovering soil in the environment.	activities in selected sub strands of Agriculture curriculum designs in grade4, 5 and 6. .	
1.0 Agriculture and Environment	**1.9 Organic Manures in Soil Conservation** **(5 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) describe types of organic manures used in farming, b) explain factors that influence quality of organic manure for farming, c) prepare organic manures for farming, d) develop an assessment tool for formative assessment from a selected sub strand in upper Agriculture curriculum designs,	Teacher trainees to; • Discuss types of organic manures used in farming • Brainstorm on factors that influences the quality of each type of organic manure *(Green manure, compost manure and farmyard manure).* • Search and watch video clips on methods of preparing organic manures (green manure, farmyard manure and compost manure). • Prepare compost manure using heap and pit methods. • Develop an assessment tool such as checklist, assessment rubric, rating scale, written test,	1. How are organic manures prepared? 2. Why are organic manures used in farming? 3. How does use of organic manures contribute to environmental conservation?

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
		e) Appreciate the importance of organic manure in soil conservation.	questionnaire, observation schedule for assessing performance of learners in a selected sub strand in Upper Agriculture curriculum design. • Apply the prepared manure on existing crop garden to appreciate its importance in soil conservation. • **Project:** *prepare organic manure using any applicable method.* • **Pedagogical practice:** *facilitate guided group discussions on importance of organic manure as a form of environmental conservation.*	

Core competencies to be developed:

- Critical thinking and problem solving as teacher trainees determine appropriate soil conservation measures and while carrying out activities in soil erosion control, recovery and fertility improvement.
- Citizenship and leadership as teacher trainees conduct peers in community service learning initiative to recover soil from

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
deposition sites for agricultural purposes. • Assessment competency as teacher trainees design a checklist to be used to monitor learners' during preparation of compost manure.				
Values: Patriotism as teacher trainees take initiative towards soil erosion control and soil recovery activities in the community.				

Suggested Formative Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to investigate presence of components of a garden soil sample (air, water, organic matter, living organisms and mineral particles)	Innovatively investigates the presence of 5 components of a garden soil sample	Investigates the presence of components of a garden soil sample.	Investigates the presence of 3 -4 components of a garden soil sample.	Investigates the presence of 2 or less than 2 components of a garden soil sample.
Ability to describe physical properties of soil from provided samples (capillarity, texture, water holding capacity and colour)	Illustratively and with examples, describes all the required physical properties of soil.	Describes most of the physical properties of soil.	Describes few physical properties of soil.	Describe few physical properties of soil leaving out essential details.
Ability to analyse types of soil erosion in the	Critically and illustratively analyses 5 types of soil	Analyses 5 types of soil erosion in the	Analyses 3-4 types of soil erosion in the	Analyses 2 or less than 2 types of soil erosion in the

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
environment(*splash, rill, sheet, gully, wind and river bank erosion*).	erosion in the environment.	environment	environment	environment when probed
Ability to describe how eroded soil can be recovered in the environment,	In depth, describes how eroded soil can be recovered in the environment,	Describes how eroded soil can be recovered in the environment,	Partially describes how eroded soil can be recovered in the environment,	Partially describes with details that require corrections how eroded soil can be recovered in the environment
Ability to prepare organic manures for farming (compost, green and farm yard manure)	Creatively prepares all the 3 organic manures	Prepares all the 3 types of organic manures.	Prepares 2 types of organic manures.	Prepares 1 type of organic manure.
Ability to develop an assessment tool for formative assessment from a selected sub strand in upper Agriculture curriculum designs.	Develops an elaborate and appropriate assessment tool for formative assessment from a selected sub strand in upper Agriculture curriculum designs.	Develops an appropriate assessment tool for formative assessment from a selected sub strand in upper Agriculture curriculum designs.	Develops an assessment tool with few missing details for formative assessment from a selected sub strand in upper Agriculture curriculum designs	Develops an assessment tool with many missing details for formative assessment from a selected sub strand in upper Agriculture curriculum designs

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Agriculture and Environment	**1.10 Water Uses in Agriculture** **(4 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) describe common uses of water in Agriculture, b) use water responsibly in Agricultural practices, c) explain core competencies to be developed by learners from selected sub strands in Upper Primary Agriculture curriculum design, d) appreciate the importance of water in Agriculture.	Teacher trainees to; • visit institutions and community to observe uses of water in Agriculture, discuss and share, information through plenary presentations, • use ICT devices to acquire ideas on uses of water in Agricultural practices, • participate in agricultural activities requiring effective use of water, • discuss and deduce additional (*other than the stipulated*) core competencies that could be developed by learners in selected sub strands in Upper Primary Agriculture curriculum designs, • **Pedagogical practice:** Explain	How does water usage contribute to conservation of Agriculture environment?

			how relevant core competencies can be mainstreamed when facilitating lessons water for farming in lower primary Environmental Activities.	
1.0 Agriculture and Environment	**1.11 Water Conservation** **(6 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) describe methods of harvesting and conserving water for farming, b) apply agronomic measures to conserve soil moisture in a crop garden, c) develop functional structures and models to conserve water in farming, d) Facilitate an ICT integrated lesson on	Teacher trainees to; • brainstorm, research and acquire information on methods of harvesting and conserving water in the environment such as water ponds, water pans, dams, rock catchment, water tanks, water retention ditches and water retention pits (zai pits) and share their experiences, • *practise agronomic measures of soil moisture conservation such as mulching, shading, cover cropping* and minimum tillage in a crop garden,	What is the rationale of water conservation in Agriculture?

		innovations in water harvesting and conservation, e) Appreciate the importance of various water conservation structures in farming.	• design and develop innovative structures for conserving water such as simple *drip irrigation equipment, automated animal watering systems, water retention ditch, water retention pit (zai pit) and sunken beds.* • **Project:** *Design and develop a water conservation model and or structure of your choice.* • **Pedagogical practice:** *facilitate a model ICT integrated lesson on innovations in water harvesting and conservation.*	
Core competencies to be developed • Self-efficacy as teacher trainees designs a structure or model for water conservation in farming. • Digital literacy skills as teacher trainees prepare and facilitates a model ICT integrated lesson on innovations in water harvesting and conservation.				
Values Responsibility as teacher trainees apply appropriate agronomic practices to conserve soil moisture in a crop garden.				

Suggested Formative Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to describe common uses of water in Agriculture	Describes more than 6 common uses of water in Agriculture.	Describes 6 common uses of water in Agriculture.	Describes 4-5 common uses of water in Agriculture.	Describes 3 or less than 3 common uses of water in Agriculture.
Ability to explain core competencies to be developed by learners from selected sub strands in Upper Primary Agriculture curriculum design,	Elaborately explains the core competencies to be developed by learners from a selected sub strand in Upper Primary Agriculture curriculum design	Explains the core competencies to be developed by learners from a selected sub strand in Upper Primary Agriculture curriculum design	Explains leaving out few details the core competencies to be developed by learners from a selected sub strand in Upper Primary Agriculture curriculum design	Explains leaving out many details the core competencies to be developed by learners from a selected sub strand in Upper Primary Agriculture curriculum design
Ability to describe methods of harvesting and conserving for farming.	Describes more than 6 methods of harvesting and conserving for farming.	Describes 6 methods of harvesting and conserving for farming.	Describes 4-5 methods of harvesting and conserving for farming.	Describes 3 or less than 3 methods of harvesting and conserving for farming.
Ability to apply agronomic measures to conserve soil moisture in a crop garden.	With justification, applies 4 agronomic measures to conserve soil moisture in a crop garden.	Applies 4 agronomic measures to conserve soil moisture in a crop garden.	Applies 2-3 agronomic measures to conserve soil moisture in a crop garden.	Applies 1 or less than 1 agronomic measure to conserve soil moisture in a crop garden.

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to develop functional structures and models to conserve water in farming.	Innovatively develops functional structures and models to conserve water in farming.	Develops functional structures and models to conserve water in farming.	Partially develops functional structures and models to conserve water in farming.	With prompts, partially designs functional structures and models to conserve water in farming.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
1.0 Agriculture and Environment	**1.12 Conserving Wild Animals in Agriculture** **(6 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) describe damages caused by wild animals on farming enterprises, b) control wild animals using safe methods, c) deduce lesson activities from the specific learning outcomes of grade 5 curriculum design, d) acknowledge the importance of conserving wild animals in the environment.	Teacher trainees to: • search and watch video clip showing damages caused by various wild animals, then brainstorm and describe common damages caused by various wild animals on farming enterprises in local contexts, • brainstorm and practice safe methods of controlling wild animals such as use of *scarecrows, smell repellents, physical barriers, innovative sound devices, use of fire and smoke, use of innovative light devices, safe traps and rodent deflectors,* • discuss, develop and present in plenary lesson activities befitting the provided number of lessons in selected sub strands of grade 5 curriculum design.	1. How can community contribute to conservation of wild animals? 2. How can farming communities coexist with wild animals?

			• **Project:** *design and develop a structure or model for repelling wild animals from farming enterprises and provide report on the project.* • **Pedagogical practice:** Suggest lesson activities *from the specific learning outcomes in a given sub strand of grade 5 curriculum design to show how the suggested time may be utilised.*	
	1.13. Plant Conservation in Agriculture **(5 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) explain importance of plant diversity in agricultural environment, b) use plants in the environment for various agricultural purposes, c) conduct online deliberation on plant	Teacher trainees to: • brainstorm and discuss the importance of plant diversity in agricultural environment, • use various plants in the environment to demonstrate their importance such as food production, *mulching, cover cropping, shading, fencing, organic manure, mitigating effects of global warming, bee keeping and animal habitat*, • conduct online meeting to deliberate on viable plant conservation	Why is it important to conserve plants diversity in the environment?

		conservation activities in the local context, d) practise plant conservation in the local context, e) facilitate a lesson on care of plants in pre-primary Environmental Activities, f) appreciate importance of plant diversity in environmental conservation.	activities that can be carried out in the local context, • carry out plant conservation activities such as establishing botanical garden or caring for endangered species of plants in the institution or community, • Use digital devices to search and present information on plant conservation. • **Pedagogical practice:** *facilitate a micro lesson using songs to explain care of plants to PP2 learners.*	

Core competencies to be developed:

- Digital literacy skills as teacher trainees engage in an online meeting to discuss possible plant conservation activities in the local context.
- Citizenship and leadership as teacher trainees carry out plant conservation activities and as they design and develop a structure or model for controlling wild animals in the community to enhance harmonious coexistence with wild animals.

Values:

Patriotism as teacher trainees conserve plants and wild animals in their locality for environmental sustainability.

Suggested Formative Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to describe damages caused by wild animals on farming enterprises	Describes, in depth, many damages caused by wild animals on farming enterprises .	Describes many damages caused by wild animals on farming enterprises	Describes few damages caused by wild animals on farming enterprises	Partially describes few damages caused by wild animals on farming enterprises.
Ability to use plants in the environment for various agricultural purposes	Uses plants in the environment for more than 7 agricultural purposes.	Uses plants in the environment for 7 agricultural purposes	Uses plants in the environment 4-6 agricultural purposes.	Uses plants in the environment for 3 or less than 3 agricultural purposes when guided
Ability to conduct online deliberations on plant conservation activities in the local context	Effectively and creatively conducts online deliberations on plant conservation activities in the local context	Effectively conducts online deliberations on plant conservation activities in the local context.	Conducts online deliberations on plant conservation activities in the local context but require some little improvement.	Conducts online deliberations on plant conservation activities in the local context but requires major improvement.

STRAND 2.0 DOMESTIC ANIMALS

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
2.0 Domestic Animals	**2.1. Domestic Animals in Kenya** **(4 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) discuss contextual meaning of domestic animals in Kenya, b) categorise domestic animals based on their key products, c) identify key physical features in male and female domestic animals, d) develop learning experiences from specific learning outcomes in grade 5 Agriculture curriculum design, e) justify keeping of male and female domestic animals in farming.	Teacher trainees to: • discuss their understanding of domestic animals (*domestic animals and domesticated animals*) and enumerate the domestic animals found in Kenya through sharing of experiences from different regions, • Research and read on domestic animals and categorise them based on their key products and uses, • use ICT devices, search and observe photographs showing distinct physical features of male and female domestic animals. Trainees to make presentation on their findings in plenary. **Pedagogical practice**.	1. What is the value of domestic animals in Kenya? 2. How can learners identify male and female domestic animals?

			• Use specific learning outcomes for a selected sub strand in grade 5 curriculum design to develop learning experiences to be undertaken by learners in a series of lessons.	
2.0 Domestic Animals	**2.2. Uses of Domestic Animals** **(4 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) categorise domestic animals according to their uses b) use appropriate pedagogies to facilitate a lesson related to agriculture in lower primary Environmental Activities, c) appreciate the economic importance of domestic animals kept by farmers.	Teacher trainees to: • study the grade 4 and 5 curriculum designs and identify the progressive categorisation of animals based on their uses, • prepare a digital learning resource to facilitate a model agriculture lesson in the strand domestic animals for upper primary education. Role play how the resource can be used in a lesson. **Pedagogical practice** • Use pedagogies appropriate for lower primary school learners such as songs, stories, role play and games to facilitate a lesson related to agriculture in lower primary	What is the essence of rearing domestic animals?

			Environmental Activities.	
2.0 Domestic Animals	**2.3 Rearing Domestic Animals** **(6 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) describe routine practices in rearing domestic animals, b) rear domestic animals for learning purposes, c) describe learner centred pedagogies to facilitate lessons on rearing of domestic animals in upper primary schools, d) appreciate the value of various routine management practices in rearing of domestic animals.	Teacher trainees to: • brainstorm routine practices in rearing of various domestic animals and present in a plenary, • **Group project:** *carry out a project on rearing a selected domestic animal such as poultry and rabbits.* • **Pedagogical practices:** Discuss how to plan and conduct learner centred pedagogies such as project, practicals and field visits to facilitate lessons on rearing of domestic animals in upper primary education.	How are domestic animals reared?

Core competencies to be developed:

- Communication and collaboration as teacher trainees brainstorm routine rearing practices and make presentations.
- Digital literacy skills as teacher trainees prepare a digital learning resource to facilitate learning on uses of domestic animals in upper primary school.
- Pedagogical content knowledge as teacher trainees come up appropriate pedagogies for facilitating lessons on importance of

domestic animals and rearing of domestic animals for grade 3 and upper primary school learners respectively.
Values: • Unity as teacher trainees work together while facilitating a model group discussion using ICT devices to show uses of various domestic animals. • Responsibility as teacher trainees carry out routine rearing practices to take care of domestic animals.

Suggested Formative Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability categorise domestic animals according to their uses.	Categorises all domestic animals according to their uses.	Categorises most of the domestic animals according to their uses.	Categorises few domestic animals according to their uses.	Categorises few domestic animals according to their uses only when given clues.
Ability to describe routine practices in rearing domestic animals.	Describes all the routine practices in rearing domestic animals.	Describes most of the routine practices in rearing domestic animals.	Describes few routine practices in rearing some domestic animals.	Describes few routine practices in rearing some domestic animals leaving out essential details.
Ability Use appropriate pedagogies to facilitate a lesson related to agriculture in lower primary Environmental Activities.	Uses 4 or more than 4 appropriate pedagogies to facilitate a lesson related to agriculture in lower primary Environmental Activities.	Uses 3 appropriate pedagogies to facilitate a lesson related to agriculture in lower primary Environmental Activities.	Use 2 appropriate pedagogies to facilitate a lesson related to agriculture in lower primary Environmental Activities.	Uses 1 or less than 1 appropriate pedagogy to facilitate a lesson related to agriculture in lower primary Environmental Activities.

STRAND 3.0 GARDENING PRACTICES

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 Gardening Practices	**3.1. Tools and Equipment in Agriculture** **(5 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) categorise tools and equipment used in farming activities based on their purpose, b) use tools and equipment safely and appropriately in Agricultural activities, c) carry out general maintenance practices on tools and equipment for safe use, d) develop Key Inquiry Questions for lessons from a specific sub strand in Agriculture curriculum designs, e) appreciate the importance of	Teacher trainees to: • observe and identify samples of tools and equipment used for various farming activities, • analyse the tools and equipment to deduce their correct basic uses in farming activities. Categorise them according to their use, • research, discuss and carry out safe and appropriate use, and general (basic) maintenance practices of tools and equipment, • analyse and break down selected key inquiry question provided in a sub strand of grade 5 agriculture curriculum design and develop leading questions that could be used in a lesson to achieve the	Why is it important to use tools and equipment appropriately and safely?

		tools and equipment used in Agriculture.	lesson learning outcomes, • **Pedagogical practice:** Develop KIQs for a series of lessons in a specific sub strand selected in Agriculture curriculum designs for upper primary.	
Core competencies to be developed: Self-efficacy as teacher trainees use tools and equipment to carry out relevant maintenance practices.				
Values: Responsibility as teacher trainees observe safety as they use tools and equipment in agricultural activities.				

Suggested Formative Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to categorise tools and equipment used in farming activities based on their purpose	Categorise all the tools and equipment used in farming based on their purpose from a provided sample or list.	Categorises most the tools and equipment used in farming based on their purpose from a provided sample or list.	Categorises few tools and equipment used in farming based on their purpose from a provided sample or list.	Categorises few tools and equipment used in farming based on their purpose from a provided sample or list only when given a hint.
Using tools and equipment safely and appropriately in	Uses all tools and equipment safely and appropriately in	Uses most tools and equipment safely and appropriately in	Uses few tools and equipment safely and appropriately in	Uses few tools and equipment safely and appropriately in

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Agricultural activities,	Agricultural activities.	Agricultural activities.	Agricultural activities.	Agricultural activities only when given a lot of guidance.
Ability to develop Key Inquiry Questions for lessons from a specific sub strand in Agriculture curriculum designs,	Develops Key Inquiry Questions meeting all the criteria for lessons from a specific sub strand in Agriculture curriculum designs	Develops Key Inquiry Questions meeting most of the criteria for lessons from a specific sub strand in Agriculture curriculum designs	Develops Key Inquiry Questions meeting few criteria for lessons from a specific sub strand in Agriculture curriculum designs	Develops Key Inquiry Questions which are largely of low order skills for lessons from a specific sub strand in Agriculture curriculum designs.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 Gardening Practices	**3.2 Growing of fruits** **(9 hours)**	By the end of the sub-strand, the teacher trainee should be able to: a) categorise fruit plants according to their growth and morphology, b) explain the importance of growing fruits in the environment, c) collect and prepare planting materials for fruit growing, d) establish and manage a nursery bed for raising planting materials for fruit plants, e) establish fruit plants in a seedbed using appropriate planting materials, f) carry out various	Teacher trainees to: • identify fruit plants from the following categories (*fruits from woody trees, creeping plants and climber plants*), • categorise fruit plants based on their growth habbits and related management practices (*climbers, creepers, woody trees*), • discuss the importance of growing fruits for food security and nutrition and environmental conservation, • collect and prepare planting materials such as *seeds, stem cuttings, vine cuttings and splits* for establishing fruit plants, • prepare a seedbed or planting site for growing fruit plants, • use ICT devices to search for information on growing and management practices of woody fruit	1. Why do farmers grow fruits? 2. How are fruits grown in your community?

		management practices in growing fruits, g) harvest and prepare fruits for various uses, h) develop learning experiences that lead to acquisition of values identified in selected sub strands of Upper Primary Agriculture curriculum designs. i) appreciate importance of growing of fruits in their community.	trees, creepers and climber fruit plants and share in a plenary. Trainees to care for the growing fruit plants, • harvest and prepare fruits for various uses such as immediate consumption, sale or preservation. • **Project**: *establish and manage a fruit plant of their choice (from climbers, creepers or woody fruit trees).* **Pedagogical practice** suggests learning experiences in a lesson and explain how they will lead to acquisition of values identified in selected sub strands of grade 6 Agriculture curriculum design.	
Core competencies to be developed: • Critical thinking and problem solving as trainees establish, manage and solve challenges associated with production of fruits. • Pedagogical content and knowledge as trainees develop learning experiences that lead to acquisition of values identified in selected sub strands of Upper Primary Agriculture curriculum designs.				
Values: Social justice as teacher trainees share tasks equally while carrying out a project on growing of fruit plants.				

Suggested Formative Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to categorise fruit plants according to their growth and morphology.	Categorises all fruit plants according to their growth and morphology beyond the list provided.	Categorises all of the fruit plants according to their growth and morphology from a provided list.	Categorises most fruit plants according to their growth and morphology from a provided list.	Categorises few fruit plants according to their growth and morphology from a provided list.
Ability to establish and manage a nursery bed for raising planting materials for fruit plants.	Excellently establishes and manages a nursery bed for raising planting materials for fruit plants by carrying out all the required practices.	Establishes and manages a nursery bed for raising planting materials for fruit plants by carrying out all the required practices.	Establishes and manages a nursery bed for raising planting materials for fruit plants but neglects few practices.	Establishes and manages a nursery bed for raising planting materials for fruit plants but neglects many practices. .
Ability to develop learning experiences that lead to acquisition of values identified in selected sub strands of Upper Primary Agriculture curriculum designs.	Creatively develops learning experiences that lead to acquisition of values identified in selected sub strands of Upper Primary Agriculture curriculum designs.	Develops learning experiences that lead to acquisition of values identified in selected sub strands of Upper Primary Agriculture curriculum designs.	Develops learning experiences that lead to partial acquisition of values identified in selected sub strands of Upper Primary Agriculture curriculum designs.	Develops learning experiences that lead to partial acquisition of values identified in Upper Primary Agriculture curriculum designs only when given a lot guidance.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 Gardening Practices	**3.3 Cereals, Legumes and Vegetables** **(7 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) categorise crop produce into legumes, cereals and vegetables, b) grow a selected cereal, legume and vegetable in seedbed. c) develop an identification resource for cereals, legumes and vegetables, d) develop a scheme of work from a selected sub strand in Agriculture curriculum design, e) appraise contribution of legumes, cereals	Teacher trainees to: • collect, observe and categorise samples of crop and crop produce into legumes, cereals and vegetables, • search information on appropriate field management practices such as irrigation, weed control, fertilizer and manure application, pest and disease control, training and trellising and harvesting at appropriate stages applicable in the production of cereals, legumes and vegetables. • **Project:** *grow a selected cereal, legume and vegetable crop in a single seedbed (the single seedbed could be a small plot or container garden) and carry out the necessary field management practices. Develop a report showing the activities, challenges and success of the project.*	1. Why do we grow legumes, cereals and vegetables? 2. How can we grow legume, cereals and vegetables productively?

		and vegetables to food security and nutrition in Kenya.	• **Pedagogical practices:** Make an identification album by mounting crop parts such as leaves, stem, roots, flowers and seeds for use in facilitating a lesson on identification of legumes, cereals and vegetables; develop a scheme of work from a selected sub strand in Agriculture curriculum design(grade 4, 5 or 6).	
Core competencies to be developed: • Communication and collaboration as trainees conduct group project on growing a selected cereal, legume or vegetable. • Pedagogical content knowledge as a trainees facilitate a simulated lesson activity on observing and categorising provided samples of legumes, cereals and vegetables and as they develop a scheme of work				
Values: Respect as trainees make suggestions on how to develop a scheme of work for the sub strand on growing vegetables..				

Suggested Formative Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to categorise crop produce into legumes, cereals and vegetables.	Categorises more crop produce into legumes, cereals and vegetables than what is provided in a list.	Categorises all crop produce into legumes, cereals and vegetables from a provide list.	Categorises most of crop produce into legumes, cereals and vegetables from a provide list.	Categorises few crop produce into legumes, cereals and vegetables from a provide list.
Ability to grow a selected cereal, legume and vegetable crop in a seedbed.	Innovatively grows selected legume, cereal and vegetable crop in a seedbed and carries out all the required field practices.	Grows selected legume, cereal and vegetable crop in a seedbed and carries out all the required field practices.	Grows selected legume, cereal and vegetable crop in a seedbed but fails to carry a few field practices.	Grows selected legume, cereal and vegetable crop in a seedbed but fails to carry many field practices. .
Ability to develop a scheme of work from selected sub strand in Agriculture curriculum design.	Develops a scheme of work from a selected sub strand in Agriculture curriculum design with all the necessary details.	Develops a scheme of work from a selected sub strand in Agriculture curriculum design with most of the necessary details .	Develops a scheme of work from a selected sub strand in Agriculture curriculum design but leaves out few details.	Develops a scheme of work from a selected sub strand in Agriculture curriculum design but leaves out many details.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 Gardening Practices	**3.4 Indigenous Crops** **(5 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) discuss indigenous crops grown in the community, b) explain the benefits of indigenous crops towards food security and nutrition, c) prepare herbarium of indigenous crops for identification, d) grow selected indigenous crops in the institution, e) carry out a community service learning activity from a selected sub strand in Upper Primary	Teacher trainees to; • Brainstorm on contextual meaning of indigenous crop and enumerate the various indigenous crops in the community. • Research on the benefits of indigenous crops found in the community • Source, prepare and store photos or preserved specimens (herbarium) of indigenous crops. • Read, discuss and present in plenary the importance of indigenous crops towards nutrition and food security. • Search for information on growing of indigenous crops and then share their findings in plenary and use the information to grow a selected indigenous crop in the institution. • Analyse selected sub strand in upper	1. What are indigenous crops? 2. How are indigenous crops grown in your community? 3. Why are indigenous crops grown?

		Agriculture curriculum designs, f) acknowledge gardening of indigenous crops for food security and nutrition.	primary agriculture curriculum design and carry out applicable community service-learning activity in their community. • **Project:** *grow a selected indigenous crop on the ground or container garden.* **Pedagogical practice:** *Plan and carry out a community service learning activity from a selected sub strand in Upper Primary Agriculture curriculum design,*	

Core competencies to be developed:

- Digital literacy skills as teacher trainees search for information on growing of indigenous crops and as they source, prepare, and store photos of indigenous crops and present in a plenary.
- Learning to learn and reflective practice as they research on the nutritional and society value and health benefits of the various indigenous crops that may have been assumed as of less value.
- Self-efficacy as teacher trainees successfully execute a community service learning activity that that they had planned.

Values:

Respect of diversity of natural resources including indigenous food crops valued by specific communities.

Pertinent and contemporary issues:

Biodiversity conservation as trainees grow various indigenous crops in the institution.

Suggested Formative Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to discuss indigenous crops grown in the community.	Discusses, in depth, all the indigenous crops grown in the community.	Discusses all indigenous crops grown in the community.	Discusses indigenous crops grown in the community but leaves out a few crops.	Discusses indigenous crops grown in the community but leaves out many crops.
Ability to grow selected indigenous crops in the institution.	Innovatively grows selected indigenous crops in the institution and carries out most of the required caring practices.	Grows selected indigenous crops in the institution and carries out most of the required caring practices.	Grows selected indigenous crops in the institution but fails to carry out a caring practices	Attempts to grow some selected indigenous crops in the institution but fails to carry out many caring practices.
Ability to carry out a community service learning activity from a selected sub strand in Upper Primary Agriculture curriculum designs.	Ccarries out a community service-learning activity from a selected sub strand in Upper Primary Agriculture curriculum designs and deeply reflect on the lessons learnt.	Carries out a community service-learning activity from a selected sub strand in Upper Primary Agriculture curriculum designs and reflect on the lessons learnt.	Partially carries out a community service-learning activity from a selected sub strand in Upper Primary Agriculture curriculum designs and reflect on lessons learnt.	Partially carries out a community service-learning activity from a selected sub strand in Upper Primary Agriculture curriculum design but does not reflect on lessons learnt.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 Gardening Practices	**3.5 Storage of Crop Produce** **(7 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) describe methods of preparing crop produce for safe storage, b) prepare crop produce for storage, c) manage stored crop produce to reduce spoilage d) develop authentic tasks on a selected sub strand in Upper Primary Agriculture curriculum designs, e) appreciate the importance of proper storage of crop produce	Teacher trainees to; • Discuss methods of preparing crop produce for storage. • Research on innovative methods of safe storage of crop produce. Share findings in a class presentation. • organise and lead peers in an excursion to observe and discuss status of storage facilities of crop produce in the community. • Discuss and simulate ways of managing crop produce in a storage facility. • **Project:** prepare crop produce for storage using methods such *as cleaning, threshing, winnowing, drying and processing* or design and construct a model of a storage facility. • **Pedagogical practice:** Analyse a sub strand such as preservation of cereals	1. Why is crop produce stored? 2. How is stored crop produce managed?

		for food security.	and pulses in grade 5 Agriculture curriculum design and develop suitable authentic tasks that learners can carry out during the lessons.	

Core competencies to be developed.

- Critical thinking and problem solving as trainees apply skills and technologies to resolve the challenge of loss of agricultural produce during storage.
- Pedagogical content knowledge as teacher trainees develop authentic tasks that learners can carry out during the lessons.

Values

- Integrity as trainees observe hygiene while preparing and managing crop produce to reduce spoilage.

Suggested Formative Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to describe methods of preparing crop produce for storage.	Describes, in depth, methods of preparing crop produce for storage.	Describes methods of preparing crop produce for storage.	Partially describes methods of preparing crop produce for storage.	Partially describes methods of preparing crop produce for storage only when prompted.
Ability to prepare crop produce for storage.	Innovatively prepares crop produce for storage.	Prepares crop produce for storage.	Partially prepares crop produce for storage.	Partially prepares crop produce for storage only when prompted.

Ability to develop authentic tasks on a selected sub strand in Upper Primary Agriculture curriculum designs.	Innovatively develops adequate authentic tasks on a selected sub strand in Upper Primary Agriculture curriculum designs.	Develops adequate authentic tasks on a selected sub strand in Upper Primary Agriculture curriculum designs. .	Develops insufficient authentic tasks on a selected sub strand in Upper Primary Agriculture curriculum designs.	Develops insufficient tasks some of which are not authentic on a selected sub strand in Upper Primary Agriculture curriculum designs.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 Gardening Practices	**3.6. Innovative Gardening** **(8 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) explain the concept innovative gardening in agriculture, b) design and construct innovative gardens to address farming challenges, c) carry out innovative gardening practices in the local environment, d) practise soilless gardening techniques on ornamental plants, e) develop assessment	Teacher trainees to; • Brainstorm and share experiences on the concept innovative gardening such as *use of small space, container gardening, vertical and horizontal gardening practices and discuss their contribution to food security and nutrition.* • Use the environment, print and digital resources, to compile video clips, photographs, text and illustration on various forms of innovative gardens and gardening practices such as *use of small space, container gardening, vertical gardening and horizontal gardening practices and* make presentations in plenary to share acquired information. • Design innovative garden in their local contexts including container gardens, hanging gardens, vertical and horizontal	Why is innovative gardening important?

		tools for assessing a selected project in Upper Primary Agriculture curriculum designs, f) acknowledge innovative gardening for food security and nutrition.	gardens and moisture gardens. • Research and experiment the practice of alternative gardening techniques (soilless gardening such as hydroponics and aeroponic gardening) using locally prepared nutrient solutions and plant support materials. • **Project:** develop innovative garden structures designed in previous activity and carry out related gardening practices such as container gardening, soilless gardening, ornamental cropping, moisture bed, vertical and horizontal gardening. • **Pedagogical practice:** Develop assessment tools such as *observation schedule of project milestones, observation check list, learner's portfolio and journal* to assess a selected project in Upper Primary Agriculture curriculum design.	

Core competencies to be developed:

- Creativity and innovation as trainees design and develop innovative gardens applicable in their local contexts.
- Digital literacy skills as trainees search for information and models of innovative gardening, store the acquired information and make presentation in plenary.
- Citizenship and leadership as trainees discuss and demonstrate how innovative gardening can address the challenge of food

insecurity and nutrition in the community. • Assessment competency as teacher trainees develop assessment tools for assessing a selected agriculture project for upper primary school.
Values: Love as trainees share video clips, photographs, text, illustrations and ideas on various forms of innovative gardening and as they support one another while practising soilless gardening.

Suggested Formative Assessment Rubrics

Level **Indicators**	**Exceeds Expectations**	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Ability to explain the concept innovative gardening in agriculture.	Explains by giving many examples the concept innovative gardening in Agriculture.	Explains the concept innovative gardening in Agriculture.	Partially explains the concept innovative gardening in Agriculture.	Partially explains the concept innovative gardening in Agriculture only when probed.
Ability to design and construct innovative gardens to design innovative gardens to address farming challenges.	Innovatively designs and constructs an innovative garden to design innovative gardens to address farming challenges.	Designs and constructs an innovative garden to design innovative gardens to address farming challenges.	Partially designs and constructs an innovative garden to design innovative gardens to address farming challenges.	Partially designs and constructs an innovative garden to address farming challenges only when give external assistance.

Ability to carry out selected innovative gardening practices in the local environment.	Skillfully carries out selected innovative gardening practices in the local environment.	Carries out selected innovative gardening practices in the local environment.	Partially carries innovative gardening practices in the local environment.	Partially carries innovative gardening practices in the local environment only when prompted.
Ability develop assessment tools for assessing a selected project in Upper Primary Agriculture curriculum designs.	Develops comprehensively appropriate assessment tools for assessing a selected project in Upper Primary Agriculture curriculum designs.	Develops appropriate assessment tools with most of the essential details for assessing a selected project in Upper Primary Agriculture curriculum designs.	Develops assessment tools but missing few essential details for assessing a selected project in Upper Primary Agriculture curriculum designs	Develops assessment tools but missing may details for assessing a selected project in Upper Primary Agriculture curriculum designs.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 Gardening Practices	**3.7 Organic Farming** **(5 hours)**	By the end of the sub strand, the teacher trainee should be able to: a) explain organic farming concept in Agricultural production, b) justify organic farming in promoting health and a conducive environment, c) explain practices of organic farming in the local contexts, d) practise organic farming for a selected crop in the institution, e) prepare and present a micro-lesson on a selected sub strand in grade 6 Agriculture curriculum design, f) appreciate the importance of organic farming in environmental conservation.	Teacher trainees to; • Visit a nearby farm or farmer to observe, conceptualise and contextualise organic farming. • Brainstorm on the concept of organic farming and its importance in promoting health and environmental conservation. • Use digital devices to acquire information on organic practices. Device ways of sharing the information with the peers. • **Project:** grow crops using organic farming practices such as using of organic manures, organic foliar feeds and organic pesticides, cultural, physical measures of weed control, among others). • **Pedagogical practice:** *prepare a*	Why is organic farming important in growing food crops?

			micro-lesson from grade 6 agriculture curriculum design and present to peers for critique.	

Core competencies to be developed

- Pedagogical content knowledge as trainees prepare, present and critique a micro-lesson on a selected sub strand in grade 6.
- Digital literacy skills as trainees search for information on organic farming practices, store the acquired information and share with the peers.
- Self-efficacy as learners appreciate critique after presenting a micro-lesson and makes improvement on the micro-lesson.

Values

Integrity as trainees learn to declare the true status of food farming practices and level of use or non-use of agro-chemicals.

Suggested Formative Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to explain organic farming concept in Agricultural production	Explains comprehensively organic farming concept in Agricultural production	Explains organic farming concept in Agricultural production	Explains partially organic farming concept in Agricultural production	Explains partially organic farming concept in Agricultural production only when given clues.
Ability to explain practices of organic farming in the local contexts.	Elaborately explains practices of organic farming in the local contexts.	Explain practices of organic farming in the local contexts.	Partially explains practices of organic farming in the local contexts.	Partially explains practices of organic farming in the local contexts

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to practise organic farming for a selected crop in the institution(such as use of organic manures, organic foliar feeds and organic pesticides, cultural measures and physical methods of weed control, among others).	Innovatively practices organic farming for a selected crop in the institution.	Practices organic farming for a selected crop in the institution.	Practices organic farming for a selected crop in the institution but leaves out a few practices.	Practices organic farming for a selected crop in the institution but leaves out many practices.
Ability to prepare and present a micro-lesson from grade 6 agriculture curriculum.	Creatively prepares and presents a micro-lesson from grade 6 agriculture curriculum design within allocated time.	Prepares and presents a micro-lesson from grade 6 agriculture curriculum design within allocated time.	Prepares and presents a micro-lesson from grade 6 agriculture curriculum design within allocated time but omits a few steps.	Prepares and presents a micro-lesson from grade 6 agriculture curriculum design beyond the allocated time and omits many steps.