THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

735 AGRICULTURE TEACHING METHODS

Time: 3 Hours **ANSWERS** **Year: 2010**

Instructions

1. This paper consists of section A and B with a total of sixteen questions.

2. Answer all questions in section A and four questions from section B.

1. Give four characteristics of a good teaching and learning aid.

A good teaching and learning aid should be clear and simple, ensuring that students can easily understand the information without confusion. Overly complex materials may hinder learning rather than enhance it.

It must be relevant to the lesson objectives, meaning it should directly support the topic being taught and help students grasp the concepts being explained.

The aid should be durable and reusable, allowing it to be used multiple times without excessive wear and tear, making it cost-effective for classroom use.

It should be interactive and engaging, capturing students' attention and encouraging active participation in the learning process, which improves retention and understanding.

2. Mention four advantages of a Block Teaching Practice as a part of training to a student teacher.

It provides practical classroom experience, allowing student teachers to apply their theoretical knowledge in real-life teaching situations and build confidence.

Block Teaching Practice helps student teachers develop effective classroom management skills, such as handling student behavior, maintaining discipline, and organizing lessons efficiently.

It enhances lesson planning and delivery skills, ensuring that student teachers learn how to prepare structured lesson plans and use appropriate teaching methods.

The practice provides constructive feedback from mentors, allowing student teachers to identify their strengths and areas for improvement, which enhances their professional growth.

3. State the difference between formative and summative evaluation as used in teaching Agriculture.

Formative evaluation is conducted during the learning process to monitor student progress and provide ongoing feedback. It helps teachers adjust their teaching strategies to improve student understanding. Examples include quizzes, classroom discussions, and assignments.

Summative evaluation is conducted at the end of a learning period to measure student achievement against set objectives. It determines overall learning outcomes and is used for grading. Examples include final exams, standardized tests, and end-of-term assessments.

4. State four objectives of establishing a school farm as a laboratory in a biased Agriculture Secondary School.

A school farm provides hands-on experience where students can apply theoretical knowledge in real agricultural practices such as crop production and livestock management.

It serves as a demonstration site for agricultural techniques, including modern farming methods, soil conservation practices, and sustainable agricultural innovations.

A school farm enhances research and experimentation, allowing students to test different farming techniques, fertilizers, and pest control methods to understand their effects.

It helps in income generation by producing crops and livestock products that can be sold, making the farm self-sustainable while supporting school activities.

5. List four importance of a lesson plan.

A lesson plan ensures structured teaching, helping teachers organize content logically to deliver lessons effectively.

It guides time management, allowing teachers to allocate appropriate durations for each topic and avoid unnecessary delays or rushing.

Lesson planning enhances student engagement, as it includes activities that cater to different learning styles, making learning interactive.

It helps in assessment preparation, ensuring that evaluation methods align with the learning objectives, allowing teachers to track student progress effectively.

6. State the four qualities of a good agriculture textbook.

A good agriculture textbook should be comprehensive and accurate, covering all syllabus topics in detail with correct and up-to-date information.

It must be well-illustrated, using diagrams, charts, and photographs to enhance understanding of complex agricultural concepts.

The language used should be clear and simple, ensuring that students of different academic levels can easily comprehend the material.

A good textbook should include practical examples and exercises, allowing students to apply the knowledge gained through hands-on activities and self-assessment.

7. Give four advantages of using a real object as a teaching and learning aid when teaching Agriculture science.

Real objects provide firsthand experience, allowing students to touch, observe, and interact with actual items such as seeds, tools, or plants, making learning more engaging.

They enhance memory retention, as students can recall concepts better when they have seen and handled real-life materials rather than just theoretical descriptions.

Using real objects improves understanding, especially in technical subjects like agriculture, where visualizing concepts such as soil texture or animal anatomy is essential.

They make learning more practical and relevant, linking classroom knowledge to real-world applications, which is crucial for agricultural education.

8. List four different methods used to assess pupils' achievement attained from a class of Agriculture science.

Written tests and exams evaluate students' theoretical knowledge on agricultural concepts, ensuring they understand fundamental principles.

Practical assessments involve hands-on activities such as planting crops, identifying pests, or handling farm tools to measure students' ability to apply knowledge.

Oral questioning and discussions help teachers assess students' understanding through verbal responses, encouraging critical thinking and participation.

Project-based assessment requires students to conduct agricultural experiments or farm projects, allowing evaluation of their problem-solving and research skills.

9. List the four components of a lesson plan excluding the preliminary information.

The lesson objectives state what students should achieve by the end of the lesson in terms of knowledge, skills, and attitudes.

The teaching methods and strategies outline how the teacher will deliver the lesson, including lectures, demonstrations, group work, or practical activities.

The teaching and learning materials section lists the resources needed for effective teaching, such as textbooks, diagrams, farm tools, and real objects.

The assessment and evaluation component specifies how student learning will be measured, whether through quizzes, observations, or practical demonstrations.

10. Note-taking is a good teaching technique.

(a) Describe six guidelines that pupils should follow when taking notes during a lesson.

Students should listen actively to the teacher's explanations before writing to ensure they capture key ideas rather than copying every word.

Using abbreviations and symbols helps in writing faster and efficiently summarizing lengthy explanations without missing essential points.

Organizing notes logically and neatly makes revision easier, as well-structured notes allow students to locate information quickly.

Highlighting important concepts and definitions using underlining or color coding helps in distinguishing key points for future reference.

Writing in one's own words rather than copying directly improves understanding and retention, as students process and interpret information.

Reviewing and revising notes after class ensures clarity, allowing students to fill in gaps and reinforce learning before the next lesson.

(b) Name other two teaching techniques which can be used when teaching Agriculture Science.

Demonstration method: This involves showing students how to perform agricultural tasks practically, such as grafting plants or using farming tools.

Field trips: Taking students to farms or agricultural research centers allows them to observe real-life farming practices and technologies.

11. Summary of the Guest Speaker's Talk on Dairy Nutrition – "Feeds and Feeding."

The speaker emphasized that dairy cattle require balanced diets to produce high-quality milk, including proteins, carbohydrates, fats, vitamins, and minerals.

Cattle should have access to fresh water at all times, as water is essential for digestion, nutrient absorption, and milk production.

Types of dairy feeds include roughages (hay, silage, pasture), concentrates (grains, oilseeds), and supplements (minerals, vitamins) to ensure optimal growth and lactation.

Proper feeding schedules should be followed, with cows being fed at regular intervals to maintain good health and prevent digestive disorders.

The guest highlighted disease prevention in feeding, explaining that contaminated feed can cause health issues such as bloating, acidosis, and mastitis.

Efficient feeding management includes monitoring body condition scores, adjusting diets based on milk yield, and ensuring proper feed storage to prevent spoilage.

12. Suppose that you are teaching Form Three pupils about "Farm Records." Make a concise summary of the meaning and importance of Farm Records that you will target your pupils to know by the end of the lesson.

Meaning of Farm Records:
Farm records refer to the systematic documentation of all farming activities, including financial transactions, production data, input usage, and farm operations. These records help farmers track progress, manage resources efficiently, and make informed decisions for improved productivity and profitability.

Importance of Farm Records:

Monitoring farm performance: Farm records help in evaluating the efficiency of production activities, identifying strengths and weaknesses, and planning improvements.

Facilitating financial management: Keeping records of income and expenses enables farmers to determine profitability, control costs, and budget effectively.

Assisting in decision-making: By analyzing past records, farmers can decide which crops or livestock enterprises are more productive and profitable.

Enhancing access to credit: Well-maintained farm records serve as proof of farm performance, increasing the chances of securing bank loans and grants.

Aiding in taxation and insurance claims: Records help farmers calculate taxes and provide evidence for compensation in case of insured losses.

Supporting research and extension services: Agricultural officers use farm records to offer tailored advice and improve farming practices.

13. A school farm is a very important teaching/learning resource for Agriculture Science. Write at least six importances you will present to your Head of School to convince him/her to establish a school farm in your school.

Provides hands-on learning experiences: A school farm allows students to apply theoretical agricultural knowledge in practical situations, reinforcing classroom learning.

Improves students' agricultural skills: Through real-life engagement in farming activities, students develop essential skills in crop production, livestock management, and agribusiness.

Enhances scientific research and experimentation: The farm serves as a laboratory where students can test different farming techniques, fertilizers, and pest control methods.

Promotes environmental awareness and conservation: Students learn sustainable farming practices such as soil conservation, organic farming, and agroforestry.

Generates income for the school: The farm can produce food, seedlings, or livestock for sale, providing funds for school activities and reducing dependency on external funding.

Encourages career development in agriculture: Exposure to real farming operations helps students explore career opportunities in agriculture, agribusiness, and agricultural sciences.

14. Imagine that you are a soil scientist who has been invited as a guest speaker on "Soil Conservation." Prepare a presentation by using the following headings:

(a) Meaning of Soil Erosion:

Soil erosion is the gradual removal of the topsoil layer due to natural forces like wind and water or human activities such as deforestation and overgrazing. It reduces soil fertility and affects agricultural productivity.

(b) Agents of Soil Erosion:

Water erosion: Rainfall, runoff, and rivers wash away soil, causing gullies, rills, and sheet erosion.

Wind erosion: Strong winds blow loose soil particles, especially in dry and arid regions.

Human activities: Deforestation, improper farming methods, and overgrazing accelerate soil erosion.

(c) Effects of Soil Erosion:

Loss of soil fertility: Topsoil, which contains essential nutrients and organic matter, is washed away, reducing crop yields.

Destruction of farm structures: Erosion can create deep gullies that make land unsuitable for farming and damage irrigation systems.

Water pollution: Eroded soil particles carry pesticides and fertilizers into water bodies, causing pollution and harming aquatic life.

Increased risk of natural disasters: Erosion contributes to landslides and desertification, making land unproductive.

(d) Control of Soil Erosion:

Afforestation and reforestation: Planting trees helps to hold soil in place and reduce the impact of rain and wind.

Contour farming: Plowing along the natural land contours slows water runoff and reduces soil loss.

Terracing: Creating step-like structures on slopes minimizes water runoff and prevents erosion.

Cover cropping: Growing crops such as legumes between main crops protects the soil from direct rain impact and improves soil fertility.

Mulching: Applying organic matter like dry grass or leaves on the soil surface conserves moisture and reduces erosion.

15. (a) Show a layout of a lesson plan.

A lesson plan generally includes the following components:

Lesson Plan Layout:

1. Preliminary Information

Subject: Agriculture Science

Class: Form Three

Topic: Soil Conservation

Sub-topic: Methods of Soil Conservation

Time: 40 minutes

2. Lesson Objectives

By the end of the lesson, students should be able to:

Define soil conservation and its importance.

Identify different methods of soil conservation.

Explain how each method helps to prevent soil erosion.

3. Teaching and Learning Materials

Charts showing soil erosion types and conservation methods.

Video demonstration of contour farming.

Soil samples from different farm areas.

4. Teaching Methods

Discussion method

Demonstration method

Question and answer method

5. Lesson Introduction

Link: Reviewing previous knowledge on soil types.

Motivate: Showing images of severely eroded land to capture students' interest.

Overview: Briefly explaining the importance of soil conservation.

6. Lesson Development

Teacher explains different soil conservation methods using diagrams and demonstrations.

Students analyze soil erosion effects based on provided examples.
Group discussion on how soil erosion affects agricultural productivity.

7. Lesson Conclusion

Summary of key points discussed.

Students answer review questions on soil conservation methods.

8. Assessment and Evaluation

Short quiz on soil conservation techniques.

Practical assignment: students identify areas prone to erosion around the school and suggest conservation methods.

(b) “Link,” “Motivate,” and “Overview” are very important in lesson introduction. Describe the role of each one.

Link: The link connects the new topic to students’ prior knowledge. It helps in activating students’ memory and making learning progressive rather than abrupt. For example, before teaching soil conservation, a teacher can review soil types and how they affect farming.

Motivate: Motivation grabs students' attention and interest in the lesson. This can be done through a short story, an interesting question, or real-life examples. For instance, showing pictures of eroded farms and their impact on food production can encourage students to learn about soil conservation.

Overview: The overview provides a brief explanation of what will be covered in the lesson. It sets expectations for students and helps them understand the structure of the lesson. For example, stating that the lesson will cover soil erosion causes, effects, and control methods gives students a roadmap for learning.