

### 3.7 HOME SCIENCE (441)

The Home Science Examination for the year 2018 assessed the students' level of mastery of competences through one theory paper and two practical papers. The two practical papers assess the performance levels of students by giving tasks and requiring the candidates to display their competences in Clothing Construction and Foods and Nutrition respectively. The theory paper required candidates to respond to questions ranging from low order thinking skills to high order thinking skills. The questions tested candidates' ability to:

- a) recall facts and information;
- b) understand concepts, principles;
- c) apply the previously learnt knowledge in new situations;
- d) analyze information in order to come up with solutions of issues affecting the society;
- e) create new products.
- f) make judgements.

The report analyses the expected responses, the weaknesses of the candidates in the poorly performed items. It goes further to give recommendation to the teachers on how to improve the teaching and learning processes.

#### **Paper 1 (441/1) Home Science Theory**

This is a theory paper which covers all units of the syllabus namely: Foods and Nutrition; Clothing and Textiles; Laundry; Home Care; Health education; Consumer Education.

The paper comprises three sections worth 100 marks as follows:

**Section A:** consists of short structured questions worth 40 marks.

**Section B:** consists of one compulsory question worth 20 marks. It tests mastery of practical skills in home management.

**Section C:** consists of three essay questions worth 20 marks each. Candidates are required to answer any two out of the three questions.

#### **Paper 2 (441/2) Clothing Construction Practical**

This is a practical paper that assesses the extent to which candidates have acquired the skills in clothing construction. The task requires that the candidates use the provided pattern pieces to lay, cut out and construct the garment using the specified processes. The paper is worth **45 marks**.

#### **Paper 3 (441/3) Foods and Nutrition Practical**

This is a practical paper that assesses the extent to which candidates have acquired the skills in making appropriate food choices that adhere to the principles of nutrition and individual food requirements. Candidates are required to prepare and serve food and drink from the given ingredients. Assessment is done by the Home science teachers at the school. The paper is worth 25 marks.

#### **3.7.1 CANDIDATES GENERAL PERFORMANCE**

The table below shows the candidature and the overall performance in the KCSE Home Science examination in the last four years.

**Table 15: Candidates' Performance in the last four years.**

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
2015	1	13,603	100	55.05	12.52
	2		45	26.54	7.67
	3		25	13.56	3.04
	Overall		170	91.92	23.23
2016	1	14,673	100	55.65	14.18
	2		45	26.54	7.69
	3		25	13.6	3.02
	Overall		170	95.37	24.89
2017	1	15,508	100	52.74	12.52
	2		45	26.3	7.63
	3		25	12.93	3.07
	Overall		170	91.92	22.17
2018	1	16,612	100	60.02	13.45
	2		45	27.43	8.6
	3		25	14.76	2.7
	Overall		170	102.21	24.75

**Observations from the above table:**

- i) Performance of paper 1 (theory) presents a normal performance with a mean of 60.02 and a standard deviation of 13.45. This shows that this year's cohort performed above average in the theory paper, a good indication of mastery of content in Home Science. The standard deviation indicates a good spread of the candidates' ability, a good indication that the paper discriminated well among the candidates.
- ii) The Clothing Construction practical paper presents a good mean and a moderate standard deviation.
- iii) In the school based Foods and Nutrition practical the candidates posted a very good mean with a very low standard deviation showing that almost all the candidates have the same ability.
- iv) For computation of this year's final score, all the three papers were graded separately and then combined to give a final grade for the subject.

**Analysis of the poorly performed questions**

**3.7.2 Home Science Paper 1 (441/1)**

**SECTION A**

**Question 5**

Distinguish between meal planning and meal management.

**Requirement**

To differentiate between meal planning and meal management.

### **Weaknesses**

Most candidates were having difficulties distinguishing meal planning from meal management.

### **Expected responses**

Meal planning involves deciding what is to be eaten by individuals in order to meet their nutritional requirements while meal management involves acquiring ingredients, preparing, cooking and serving the food.

### **Advice to teachers**

Emphasize on these terms during the practical sessions to enhance retention of concepts.

### **Question 7**

Identify two ways of sterilising a baby's feeding equipment.

### **Requirement**

To give the ways used to sterilize a baby's feeding equipment.

### **Weaknesses**

Some candidates gave ways of disinfecting equipment instead of sterilization.

### **Expected responses**

- (i) Boiling
- (ii) Using sterilizing solutions.

### **Advice to teachers**

Put emphasis on the answering of questions by preparing candidates to pay attention to key terms in the question.

### **Question 15**

State two purposes of steeping a soiled handkerchief in cold salty water.

### **Requirement**

To explain why a handkerchief is steeped in cold salty water

### **Weaknesses**

Some candidates did not take into consideration the key terms in the question of 'steeping in cold salty water' and gave reasons for steeping clothes.

### **Expected responses**

- (i) To dissolve/loosen the mucus and thus make it easier to clean the handkerchief.
- (ii) To disinfect the handkerchief.

### **Advice to teachers**

Put emphasis on reading the question carefully.

### **Question 17**

A pleat is constructed by making folds to form three layers of fabric. Name two such layers.

### **Requirement**

To name the layers that are formed when making folds on a fabric during garment construction.

### **Weaknesses**

Majority of the candidates were limited in naming the type of layers of fabric formed when making folds.

### **Expected responses**

- (i) Surface (top).
- (ii) Underfold (fold back)
- (iii) Base (resting place)

### **Advice to teachers**

Conduct clothing construction practical frequently so as to expose learners to the clothing construction processes and thus enhance the application of knowledge.

### **Question 20**

State three reasons why cotton fabric is popularly used for table linen.

### **Requirement**

To explain why most table linen are made of cotton.

### **Weaknesses**

Some candidates had difficulties relating the desirable properties of cotton as contributing to the popularity of using cotton table linen.

### **Expected responses**

It;

- (i) is strong and can withstand frequent washing.
- (ii) takes in starch easily.

- (iii) withstands high temperatures
- (iv) comes in a variety of colours/dyes easily
- (v) is easy to care for.

### **Advice to teachers**

Teach the topic on textiles in detail to ensure mastery of the content. Expose the students to applying learnt knowledge in different contexts

### **Question 21**

Differentiate between conspicuous and inconspicuous seams.

### **Requirement**

To show the differences between conspicuous and inconspicuous seams.

### **Weaknesses**

Some candidates could not clearly show how a conspicuous seam is different from an inconspicuous seam. They confused the seam that usually shows on the right side with the one that does not show on the right side.

### **Expected responses**

Conspicuous seams are used to join two pieces of fabrics together with the stitches showing on the right (RS) of garment to give a decorative effect while inconspicuous seams are used to join two pieces of fabric together without the stitches showing on the right side (RS) of the garment.

### **Advice to teachers**

Teachers need to expose learners to practical sessions where they make different types of seams.

### **Question 22**

22. Your sister who is a nurse is unwell and has requested you to assist her with household chores. Describe the procedure you would follow to:
- (a) Thoroughly clean her white canvas shoes without shoe laces.
  - (b) Wash and starch her nurse's cap using boiling water starch.

### **Requirement**

- (a) To describe the procedure for thorough cleaning white canvas shoes which do not have shoe laces.
- (b) To describe the procedure for washing and starching a nurse's cap using boiling water starch.

### **Weaknesses**

- (a) Some candidates could not describe the correct procedure of cleaning canvas shoes. A few candidates explained use of polish instead of whitener for the canvas shoes.

- (b) The correct procedure for washing a nurse's cap was not well described. Some candidates had real difficulties describing the preparation of boiling water starch.

### Expected responses

#### (a) Procedure for thorough cleaning white canvas shoes without shoes laces.

- Protect the work surface ( $\frac{1}{2}$ ).
- Scrub ( $\frac{1}{2}$ ) the inside ( $\frac{1}{2}$ ) and outside ( $\frac{1}{2}$ ) of the shoes with cold soapy water ( $\frac{1}{2}$ ) using a scrubbing brush ( $\frac{1}{2}$ ).
- Rinse thoroughly ( $\frac{1}{2}$ ) in warm ( $\frac{1}{2}$ ) water.
- Final rinse ( $\frac{1}{2}$ ) in cold ( $\frac{1}{2}$ ) water.
- Remove excess water ( $\frac{1}{2}$ ).
- Use a sponge/piece of cloth ( $\frac{1}{2}$ ) to apply whitener ( $\frac{1}{2}$ ).
- Dry ( $\frac{1}{2}$ ) in a warm place ( $\frac{1}{2}$ ) slightly inclined ( $\frac{1}{2}$ ).
- Turn to ensure all parts are dry ( $\frac{1}{2}$ ).
- Store appropriately ( $\frac{1}{2}$ ).

#### (b) Procedure for washing and starching a nurse's cap using boiling water starch.

- Soak ( $\frac{1}{2}$ ) the cap in cold water ( $\frac{1}{2}$ ).
- Wash in hot ( $\frac{1}{2}$ ) soapy water ( $\frac{1}{2}$ ) using friction ( $\frac{1}{2}$ ) method.
- Rinse in warm water ( $\frac{1}{2}$ ).
- Final rinse in cold water ( $\frac{1}{2}$ ) squeeze out excess water ( $\frac{1}{2}$ ).
- Use cold water ( $\frac{1}{2}$ ) and starch powder ( $\frac{1}{2}$ ) to make a smooth paste ( $\frac{1}{2}$ ) in a clean container ( $\frac{1}{2}$ ).
- Gradually add boiling water ( $\frac{1}{2}$ ) to the paste, stirring vigorously ( $\frac{1}{2}$ ) to obtain a clear ( $\frac{1}{2}$ ) solution.
- Add equal amount of cold water ( $\frac{1}{2}$ ).
- Immerse ( $\frac{1}{2}$ ) the cap in the starch solution and allow it to absorb ( $\frac{1}{2}$ ) the starch.
- Squeeze out excess starch ( $\frac{1}{2}$ ).
- Dry the cap in the sun ( $\frac{1}{2}$ ).
- Iron with a hot iron ( $\frac{1}{2}$ ).
- Store appropriately ( $\frac{1}{2}$ ).

### Advice to teachers

More exposure to practical sessions on laundry work are essential in enhancing the acquisition of competencies in laundry work.

### Question 23(b)

Explain three benefits of providing a diet rich in vegetables.

### Requirement

To explain the importance of including vegetables in a diet.

### **Weaknesses**

Some candidates had challenges explaining the benefits of consuming a diet that has plenty of vegetables.

### **Expected responses**

- Vegetables provide roughage which assists in digestion.
- Vegetables are low in calories therefore preventing obesity.
- Vegetables provide vitamins for protection against diseases and infections.
- Vegetables provide minerals which are vital for strong bones and functioning of other body systems.
- Vegetables have a variety of colour making the meal attractive and thus stimulate appetite.

### **Advice to teachers**

Teach the learners to respond to questions by taking ample time to read and understand the key terms in the stem of the questions. Put in more time in conducting Food and Nutrition practical lessons for effective mastery of content.

### **Question 24(a)**

Explain two factors to consider when choosing a wooden clothes' drying rack.

### **Requirement**

To explain factors that are important in the choice of a wooden rack used for drying clothes.

### **Weakness**

Some candidates were not familiar with the term wooden drying rack.

### **Expected response**

- (i) The cost should be affordable.
- (ii) It should be smooth to avoid damaging delicate fibres.
- (iii) The design should be one that can be folded easily when not in use.
- (iv) The size should be one that can accommodate the wash.

### **Advice to Teachers**

It is evident that learners perform poorly in laundry questions and therefore teachers need to use other medium of teaching such as electronic, magazines that expose learners to laundry equipment that may be not be easily found in their immediate environment.

### **Question 25(a)**

Highlight six precautions to take when using electricity in the house.

### **Requirement**

To give precautions that should be taken as one uses electricity in the house.

## Weaknesses

Most candidates gave the ways of conserving electricity.

## Expected responses

- (i) Sockets should not be overloaded.
- (ii) Electric wires should be properly insulated to avoid accidents.
- (iii) Electric switches should not be handled with wet hands to avoid electric shock.
- (iv) Always put off electric devices when not in use.
- (v) The electric sockets should not be poked with objects especially metallic.
- (vi) Observe regular maintenance of electric equipment.
- (vii) Use a three pin plug or an adaptor.

## Advice to teachers

Teach the learners to respond to questions appropriately.

## GENERAL COMMENTS ON PAPER 441/1- HOME SCIENCE THEORY

This paper tests all units in the syllabus.

From the responses the learners gave, it is evident that learners are not exposed to adequate practical lessons, since most of the questions that required them to apply their practical skills were poorly performed. There is need to balance the teaching so as to emphasize all units in the syllabus in order to produce learners who have competencies in the subject and are able to progress well with their careers in Home Science related subjects in future.

It is also important to advise learners to read the questions carefully and take note of the key terms so that they can respond to the questions appropriately.

### 3.7.3 Paper 2 (441/2) Clothing Construction

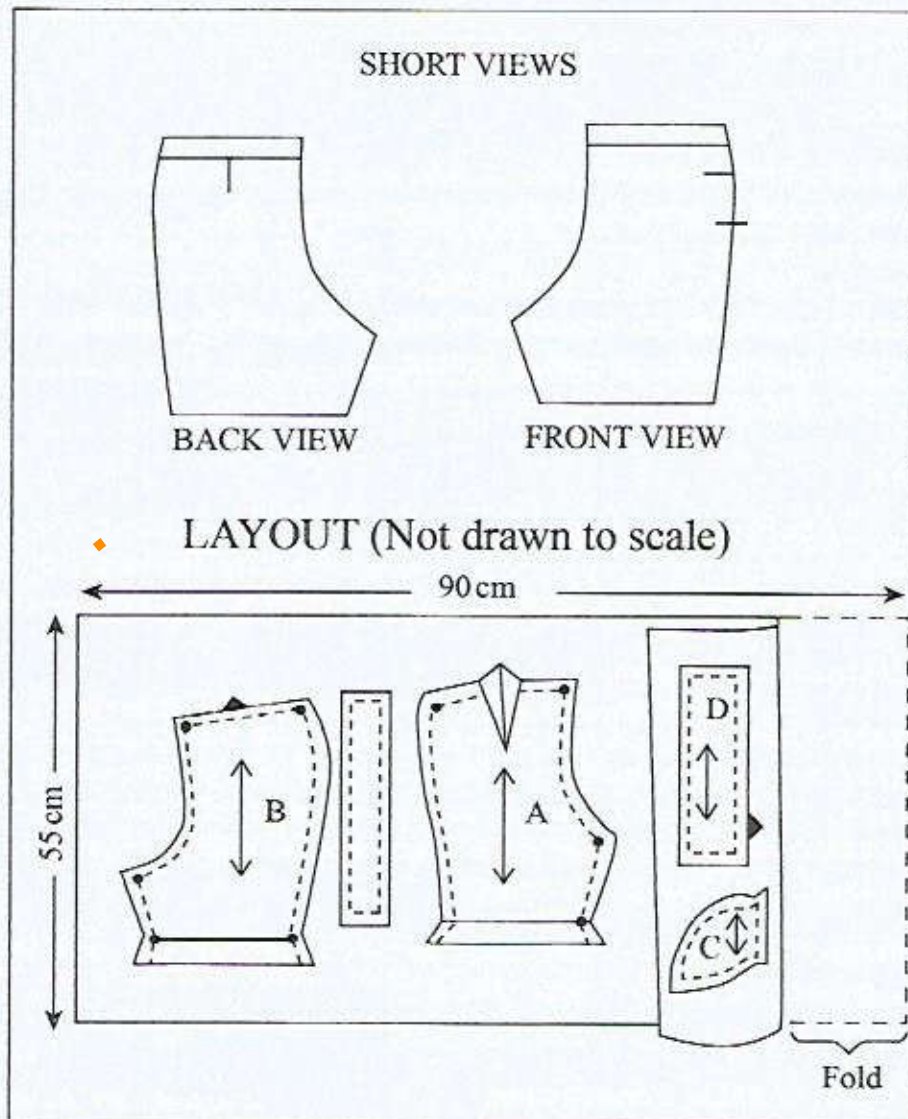
This is a practical paper where candidates are required to demonstrate their competencies in clothing construction by making a sample of a garment as per the instructions. Patterns, garment views and a layout which is not drawn to scale are provided to the candidates for use in the examination.

#### THE TEST

Using the materials provided, cut out and make the **LEFT SIDE** of the boy's short to show the following processes:

- (a) Cutting out.
- (b) Making of the back dart.
- (c) Making of the inner leg seam using a French seam.
- (d) Attaching the in-seam pocket.
- (e) Working of the side seam using an open seam and neatening the section below the pocket.
- (f) Preparing and attaching the interfaced waistband. (Do not trim the seam). (i) Tack the back part waistband using even tacking. (ii) Top stitch the edge of waistband.
- (g) Managing the hem. Machine stitch half of the hem. (Do not remove tacking stitches).
- (h) Overall presentation.





### Weaknesses

1. Some of the candidates lacked mastery of skills in clothing construction and time management, therefore not attempting some of the processes.
2. In making of the back dart, some candidates had difficulties in coming up with the correct length of the dart.
3. Some candidates had challenges in making the inner leg seam using a French seam. They have not mastered the art of making a good knife edge. Trimming of the allowance not well done. The correct size and position of the fell seam was not attained by many candidates.
4. A few candidates did not snip and reinforce the top and bottom of the in-seam pocket.
5. The test required candidates to neaten the open seam of the section below the pocket. Some candidates neatened the whole seam thus using up a lot of time while others failed to neaten. A few candidates made a plain seam instead of the open seam. Some candidates did not press open the seam.
6. Some candidates did not display the right competencies in the attachment of the waistband.

Making of even tacking on the back waistband as well as top stitching was not well done

7. Some candidates failed to cut out correctly the pattern pieces and thus matching of some of the parts when joining was a challenge. Candidates should be more accurate as they transfer the markings on the pattern pieces onto the fabric.
8. Some candidates were required to manage the hem by machine stitching half of the hem, some had difficulties making the right turnings during the process of making a hem.

### **Advice to teachers**

1. There is a great improvement in the extent to which learners have exhibited their clothing construction skills. There is still need to conduct more practice in clothing construction so as to build confidence in the candidates and thus enhance a good examination environment.
2. Learners should be trained on managing their time when undertaking the test so as to finish all the tasks in the test. ♦
3. Learners should practice using sewing machines more frequently so as to produce quality stitches and consequently quality garments.
4. Advocate for adequate equipment and materials in the schools to ensure the learners have more practice and thus improve their competencies in clothing construction. Lack of enough equipment and tools makes the candidates panic and also waste time and this could contribute to poor performance.

### **3.7.3 Home Science Paper 3 (441/3) Foods and Nutrition Practical**

#### **THE TEST**

#### **THE TEST**

Your two teenage brothers are coming home from school for their mid-term break. Using the ingredients listed below, prepare, cook and present one course lunch for the three of you. Include a nutritious drink.

#### **Ingredients:**

Maize flour/wheat flour/rice  
Chicken/green grams/beef  
Cabbage/dark green leafy vegetables  
Fruits in season  
Cooking oil  
Salt  
Green pepper  
Sugar  
Coriander  
Tomatoes  
Onions  
Spices

## **Requirement**

Candidates were required to write a plan on how to conduct the test by identifying the dishes and writing their recipes, writing the order of work and making a list of the foodstuff and equipment they would use.

## **Weaknesses**

1. Some candidates did not write good plans that will guide them during the actual practical. They lacked the logical sequence of events.
2. Challenges in writing accurate food estimates for the portions being cooked for. Most ingredients were ordered in excess.
3. Challenges in choosing the appropriate menus for the individual requirements as per the question.
4. Failing to follow the correct procedures during the preparation and cooking of identified dishes.
5. Failure to preserve nutrients in the preparation of foods and nutritious drinks.
6. The table setting was not well done; some of the cutlery, flatware and glassware were not placed in the right positions. Some of the centre pieces were not appropriate.
7. Food, kitchen and personal hygiene was not entirely observed throughout the practical.
8. There was wastage of resources (fuel, water, ingredients) during the preparation and cooking of food and drink.
9. Poor time management caused some of the candidates not to finish cooking all the dishes and clear up properly.

## **Advice to teachers**

1. Put more emphasis in the writing of plans to ensure that learners write a logical sequence of events, accurate food estimates, appropriate food choices, correct procedures for the preparation of food and drink.
2. Emphasize the importance of hygiene
3. Lead learners in appreciating proper use of all resources
4. Practice the writing of plans, preparation and cooking of food and drink more frequently for the learners to acquire the required competencies
5. Organize field visits to hotels, restaurants and food chain stores/ food outlets in order to get mentorship from the practicing food industry personnel. Organization skills can easily be observed in the functional food outlets.
6. Invite resource persons to talk/ demonstrate to learners on the culinary art skills.
7. Emphasize time management to ensure learners complete writing the plans and practical.