

3.7 HOME SCIENCE (441)

The Home Science Examination for the year 2019 assessed the students' level of mastery of competences through one theory paper and two practical papers. The two practical papers assessed 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 process.

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, cook 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 14: Candidates' Performance in the last four years

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
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
2019	1	19,154	100	52.00	11.97
	2		45	30.00	6.88
	3		25	12.00	2.50
	Overall		170	94.00	20.35

Observations from the above table:

- i) Performance of paper 1 (theory) presents a normal performance with a mean of 52.00 and a standard deviation of 11.97. This shows that this years' 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 Foods and Nutrition practical which is school based 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 1**

List four separating tools used in the kitchen.

Requirement

To name separating tools that are used in the kitchen.

Weaknesses

Some of the candidates had difficulties identifying small kitchen tools that are used for separating food items.

Expected responses

- (a) Flour sieve
- (b) Tea sieve/strainer
- (c) Draining spoon
- (d) Colander
- (e) Conical strainer

Advice to teachers

Emphasize the classification of kitchen tools during the practical sessions to enhance retention of concepts. Exposure to more activities requiring use of the different types of tools.

Question 5

Differentiate between chemical and biological raising agents

Requirement

To show their understanding of the different types of raising agents used in flour mixtures.

Weaknesses

Candidates could not bring out the differences between the chemical and biological raising agents.

Expected responses

Biological raising agents are microorganisms which when subjected to fermentation produce carbon dioxide and alcohol while chemical raising agents produce carbon dioxide by heating a mixture which sodium bicarbonate or baking powder has been added.

Advice to teachers

Put emphasis on the comprehension of what raising agents are, their functions in flour mixtures and how the different types of raising agents work.

Question 7

State two measures to be taken in preventing bed sores on a bed-ridden patient.

Requirement

To show the understanding of what bed sores are and ways of preventing them in bed-ridden patients.

Weaknesses

Some candidates mistook bed sores and gave ways of preventing infectious diseases.

Expected responses

- Massage the hip and back muscles.
- Change the patient's positions regularly.
- Ensure that the bedding is dry all the time.
- Keep skin dry.
- Use of a special mattress.

Advice to teachers

Put emphasis on reading the question carefully.

Question 14

Differentiate between spotting and sponging.

Requirement

To show the differences of spotting and sponging.

Weaknesses

Some candidates were limited in differentiating the two special treatment methods used in laundry work.

Expected responses

Spotting is treatment given to dark-coloured garments which happen to accidentally get soiled on small areas and need immediate cleaning while sponging is treatment given to garments made from wool and clothes made of heavy dark coloured fabrics that are soiled on the surface only.

Advice to teachers

Conduct more practical sessions in laundry work.

Question 18

State two limitations of using silk in garment construction.

Requirement

To identify the undesirable properties of silk as a fibre that make it unpopular for garment construction.

Weaknesses

Some candidates had difficulties relating the undesirable properties of silk as contributing to the limited regular use of the fibre in construction of garments.

Expected responses

- It is slippery.
- It is delicate/frays easily.
- It is damaged by high temperatures so will not withstand pressing as required during construction process.
- It may spot when damp pressing during construction.

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. Conduct more practical sessions on identification of fabrics made from different fibres. Advise students to read questions carefully.

Question 22(a)

Describe three uses of trimmings in garment construction.

Requirement

To show how trimmings are used in the process of garment construction.

Weaknesses

Most candidates gave responses on the removal of excess fabric which is commonly called trimming raw edges instead of the uses of trimmings in garment construction.

Expected responses

- As a decoration as they come in different colours, shapes, sizes.
- Gives a professional look when it is well tailored/finished.
- Emphasize style/features when fixed on appropriate parts of the garment
- Disguise faults.
- As a style feature e.g. lace collars.

Advice to teachers

Teachers need to expose learners to practical sessions in garment construction. They can use variety of resources to expose the students to garment construction processes such as videos, design magazines and even realia.

Question 22 (b)

Explain three advantages of knitted fabrics

Requirement

To show why the knitted fabrics are popularly used.

Weaknesses

Most candidates did not give relevant responses, an indication of limitations in this topic on textile fibres, their properties, uses and care of the knitted fabrics.

Expected responses

- Are warm therefore suitable for cold weather.
- Crease resistant therefore can maintain original shape.
- Is porous therefore comfortable to wear.
- Easy to clean/laundry therefore saves time.

Advice to teachers

More exposure to practical sessions on textile fibres and laundering of different fabrics are essential in enhancing the acquisition of competencies in textile fibres and laundry work.

GENERAL COMMENTS ON PAPER 441/1 - HOME SCIENCE THEORY

1. This paper tests all units in the syllabus.
2. Home Science is a practical subject and therefore a lot of practice is necessary to acquire competencies. Further there is need to vary the pedagogical approaches so that learners can get maximum benefit; this includes using field visits, videos, magazines, resource persons and the use of realia. From the responses the learners gave in some questions, it is evident that learners are not given adequate exposure to practical lessons, since most of the questions that required them to apply their practical skills were poorly performed.
3. It was also observed that learners have challenges in applying knowledge and skills in different contexts.
4. 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.
5. It is also important to advise learners to read the questions carefully and take note of the key terms of the tasks so that they can respond to the questions appropriately.

3.7.3 Home Science Paper 2 (441/2) Clothing Construction

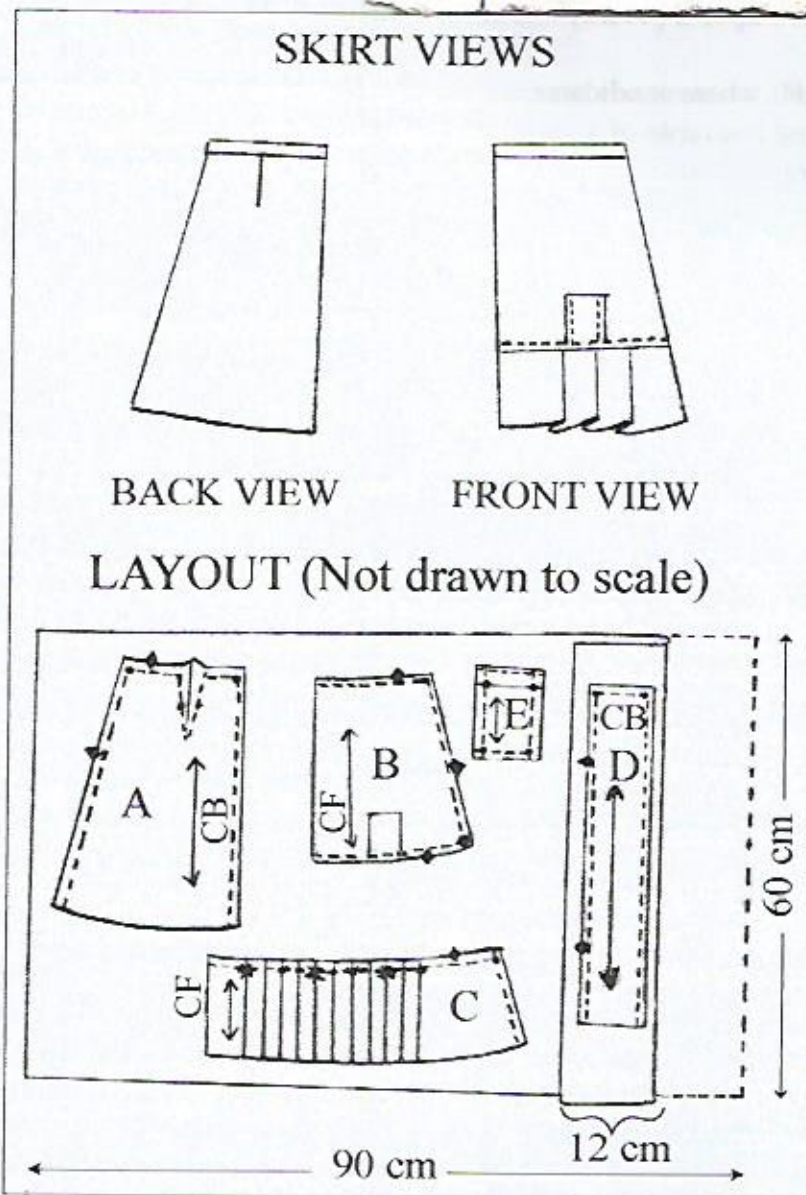
This is a practical paper where candidates are required to demonstrate their competencies in clothing construction by making a sample of a garment as per the instructions. Patterns, garment views and a layout which is not drawn to scale are provided to the candidates for use in the examination.

THE TEST

Using the materials provided, cut out and make the **LEFT HALF** of a girl's skirt to show the following processes:

- (a) Cutting out.
- (b) Making the dart at the back skirt.
- (c) Preparing and attaching the pocket on the upper skirt front. (**Do not turn the lower seam allowance of the pocket. Stitch pocket sides only.**)
- (d) Preparing knife pleats on the lower skirt front.
- (e) Joining the upper skirt front to the lower skirt front using an overlaid seam. Neaten one third of the overlaid seam using loop stitches.
- (f) Making the skirt side seam using an open seam.
- (g) Preparing and attaching the waistband. (**Do not trim the seam allowance.**) Top stitch the waistband edge. Hold the waistband in place using tacking stitches and finish half of the back piece using hemming stitches. (**Do not remove the tacking stitches.**)
- (h) OMIT
The management of the skirt hem.
- (i) Overall presentation.

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Weaknesses

- A few candidates lacked mastery of skills in clothing construction and time management, therefore not attempting some of the processes.
- Some candidates had challenges in cutting smooth edges and on straight grain of the fabric.
- In making of the patch pocket, many candidates had a challenge, they missed out on the instructions of not turning the lower seam allowance of the pocket and stitching only the pocket sides. Reinforcement of the pocket was also poorly done.
- In making of knife pleats, some candidates did not follow the right direction while others made knife pleats.
- Some candidates did not display the right competencies in the making of the overlaid seam. Some folded the underlay onto the overlay, others worked plain seams, while others made loop stitches using double thread. Some candidates also used overcasting stitches.

- In making the waistband, the test required candidates to tack the waistband in place using tacking stitches and finishing half of the back piece using hemming stitches. However, some candidates displayed weakness by not following these instructions.
- Some candidates failed to obtain the correct pieces of garment when cutting 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 and exercise precision when cutting out the fabric.

Advice to teachers

- Improvement in the extent to which learners exhibited their clothing construction skills continues to be observed and this trend should continue.
- 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. Also there needs to be emphasis in reading the instructions given in the test as some are usually exceptions to the rules of clothing construction.
- To achieve smooth edges when cutting out fabric, it is advisable to provide sharp scissors and appropriate fabric.
- Learners should be trained on managing their time when undertaking the test so as to finish all the tasks in the test.
- Learners should practice using sewing machines more frequently so as to produce quality stitches and consequently quality garments.
- 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.

3.7.4 Home Science Paper 3 (441/3) Foods and Nutrition Practical

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.

General Observation

Schools should follow the instructions that require them to start the first practical session on the first day as scheduled in the timetable. Also the practical sessions should be spread out in the 3 days for those schools with a big candidature. This ensure reliability of scores by not conducting too many sessions in one day which is a strain to the Home Science teacher assessing and also denying the students adequate time to prepare between shifts.

Weaknesses

- Some candidates did not write good plans that will guide them during the actual practical. They lacked the logical sequence of events.
- Failure to write accurate food estimates for the portions being cooked for. Most ingredients were ordered in excess.
- Choosing the appropriate menus for the individual requirements as per the question.
- Failing to follow the correct procedures during the preparation and cooking of identified dishes.
- Failure to preserve nutrients in the preparation of food and nutritious drinks.
- 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.
- Food, kitchen and personal hygiene was not entirely observed throughout the practical.
- There was wastage of resources (fuel, water, ingredients) during the preparation and cooking of food and drink.
- Poor time management caused some of the candidates not to clear up properly.

Advice to teachers

- Put more emphasis in the writing of plans to ensure that learners write a logical sequence of events, accurate food estimates, appropriate menu choices for the individual requirements, correct procedures for the preparation of food and drink.
- Emphasize the importance of hygiene (Personal, Food and Kitchen).
- Lead learners in appreciating proper use of all resources.
- Practice the writing of plans, preparation and cooking of food and drink more frequently for the learners to acquire the required competencies.
- 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.
- Invite resource persons to talk/ demonstrate to learners on the culinary art skills.
- Emphasize time management to ensure learners complete writing the plans and practical.