

3.7 HOME SCIENCE (441)

The Home Science examination for the year 2022 aimed at establishing the achievement of the learning outcomes. A theoretical approach was used to assess paper one while the other two papers were assessed through practicals. The theory paper required candidates to respond to questions ranging from low order thinking skills to high order thinking skills in all the units of the Home Science curriculum. The questions tested the 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 items.
- f) make judgements on meal management, food choices, health and home issues.

The two practical papers (papers 2 & 3) 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 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 the five units of the syllabus namely: Foods and Nutrition; Clothing and Textiles; Laundry; Home Management (Home Care and Health Education); and Consumer Education.

The paper comprised three sections worth **100 marks** as follows:

Section A: Comprised short, structured questions worth **40 marks**.

Section B: Comprised one compulsory essay question worth **20 marks**. It tested mastery of practical skills in home management with emphasis on laundry, cleaning different surfaces in the home and cleaning items used at home made from different materials.

Section C: Comprised three essay questions worth **20 marks each**. Candidates were 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 required the candidates to 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 were 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 for the last four years.

Table 16: Candidates' performance in the last four years

	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
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
2020	1	21,355	100	52.00	
	2		45		
	3		25		
	Overall		170	93.98	20.16
2021	1	26,496	100	58.42	15.24
	2		45	30.15	8.72
	3		25	14.36	3.05
	Overall		170	102.93	27.01
2022	1	29,102	100	56.22	14.16
	2		45	28.62	7.63
	3		25	13.8	2.87
	Overall		170	97.79	21.76

Observations from the above table:

- (i) Performance of paper 1 (Theory) presents a normal performance with a mean of 56.22 and a standard deviation of 14.16. This shows that this year's cohort performed above average in the theory paper, a good indication of mastery of the 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 (28.62) and a moderate standard deviation (7.63), an indication that most of the students have a good mastery of clothing construction skills.
- (iii) The school-based Foods and Nutrition practical posted a good mean of 13.8 with a very low standard deviation (2.87) showing that almost all the candidates have the same ability in the practical.
- (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. The maximum score for the three combined papers was 170 marks. Overall, the subject recorded a mean score of 97.79/170 and a standard deviation of 21.76.

Analysis of the poorly performed questions

3.7.2 Home Science Paper 1 (441/1)

SECTION A

Question 2

Requirement

To give two reasons why it is not advisable to wash eggs before storing them in the refrigerator

Weaknesses

Many candidates were unable to get the correct answers.

Expected responses

- Washing makes the shells porous and hence making the eggs susceptible to bacteria.
- It increases the moisture absorption rate.
- It increases the rate of absorption of smells from other foods in the refrigerator.
- It increases the spoilage rate.

Advice to teachers

Encourage candidates to read widely and acquire general knowledge in various areas in the subject.

Question 3

Requirement

To state two ways in which marasmus can be managed.

Weaknesses

Some candidates confused the disorder with kwasiorkor.

Expected responses

- Give plenty of fluids.
- Provide meals that are easily digestible since the body is weak
- Give a balanced diet
- Give foods in small amounts
- The feeding should be done at regular intervals.

Advice to teachers

Teach the mal-nutritional diseases and disorders well.

Question 6

Requirement

To define the term weaning.

Weaknesses

Many candidates did not demonstrate that weaning is a gradual process.

Expected responses

- Weaning is the gradual introduction of solid/semi-solid foods to a baby to compliment the mother's breast milk.

Advice to teachers

Teach the topic on weaning well.

Question 8

Requirement

To highlight two causes of bruises that may occur at home.

Weaknesses

Many candidates could not comprehend about bruises

Expected responses

- Hitting the head against a wall.
- Hitting open doors, lockers, drawers, cabinets
- By slamming doors
- Rubbing the skin against a rough surface
- Falling on a rough surface/ground

Advice to teachers

Teachers should teach well about the common accidents in the home.

Question 10

Requirement

To define the term soft furnishings and give two examples found in the home.

Weaknesses

Candidates were unable to give the meaning of, and even examples of soft furnishings.

Expected responses

- Soft furnishings are items in the home that are made from fabrics. Examples curtains, chair covers, table cloths, table mats, door mats, floor mats etc.

Advice to teachers

Clarify the meaning of soft furnishings, and give relevant examples to candidates.

Question 12

Requirement

To differentiate between direct and indirect light.

Weaknesses

Some candidates thought that direct light is the light from the sun while indirect light is the light that is covered.

Expected responses

- Direct light is the type of lighting where most of the light spreads downwards while in indirect lighting, light is diverted onto a surface and is then reflected.

Advice to teachers

Teach the topic on methods of providing lighting well.

Question 18

Requirement

To state three functions of facings in clothing construction.

Weaknesses

It was evident that many candidates did not understand what facings are.

Expected responses

- Are decorative
- Provide thickness/firmness/body
- Add strength/increase the lifespan

Advice to teachers

Teach the sub topic on facings adequately, both in theory and in clothing construction practicals.

Question 19

Requirement

To give the purpose of grainline when constructing a garment.

Weaknesses

Most candidates were unable to clearly bring out the purpose.

Expected responses

- The grainline helps guide you on where to place sewing patterns on woven fabrics.

Advice to teachers

Other than teaching on what pattern marks look like and their names, teach also their purposes

Question 25

Requirement

- a) To explain three disadvantages associated with living in a temporary house.

Weaknesses

Candidates mistook temporary houses to rented houses.

Expected responses

- Privacy is limited since there are fewer rooms/they are not fully partitioned.
- They may not be safe/security may be compromised since they are not strongly constructed.
- They are not durable and therefore may require frequent repairs/they leak during heavy rains.
- They are associated with low social status leading to low self esteem.
- They may be uncomfortable due to extreme temperatures/ are poorly ventilated/materials are loose

Advice to teachers

Advice candidates to be open minded, and to read questions well.

General Comments on Paper 441/1- Home Science Theory

This paper tests all units in the syllabus.

To effectively apply Home Science in the real world contexts, students need to be exposed to experiences that arouse their creativity and imagination, giving them opportunities to solve problems every day at home and in the society. Home Science being a practical subject requires a lot of practice in order to acquire competencies. Further there is need to vary the pedagogical approaches so that students can get maximum benefit; this includes using realia, digital and print media, field visits and resource persons. From the responses given by students in some questions, it is evident that students are not given adequate exposure to practical lessons, since most of the questions that required them to apply their practical skills were poorly performed. It was also observed that students have challenges in applying knowledge and skills in different contexts. There is need to balance the teaching so as to emphasize all units in the syllabus in order to produce candidates who have competencies in the subject and are able to progress well with their careers in Home Science related careers in future.

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

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3.7.3 Home Science Paper 2 (441/2) CLOTHING AND 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.

GIRL'S DRESS

A pattern of a girl's dress is provided. You are advised to study the sketches, instructions and layout carefully before you begin the test.

MATERIALS PROVIDED

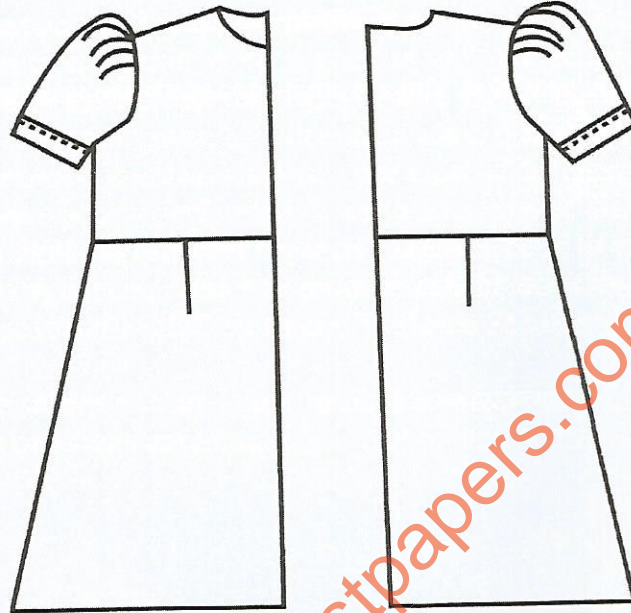
1. Pattern Pieces
 - A. Bodice front
 - B. Bodice back
 - C. Skirt back
 - D. Skirt front
 - E. Sleeve
 - F. Sleeve facing
 - G. Front neck facing
 - H. Back neck facing
2. Plain lightweight, light coloured cotton fabric 60 cm long by 90 cm wide.
3. Sewing thread to match the fabric.
4. One large envelope.

THE TEST

Using the materials provided, lay, cut out and make one side of a girl's dress to show the following processes:

- (a) Cutting out. (10½ marks)
- (b) Making of the front and back skirt darts. (11 marks)
- (c) Making of the shoulder seam using a french seam. (7 marks)
- (d) Making of the side seam on the bodice and skirt using an open seam. (13 marks)
- (e) Preparing and attaching the sleeve; holding down the sleeve facing using long and short tacking stitches. (**Do not remove the gathering stitches at the crown**). (19½ marks)
- (f) Attaching the bodice to the skirt using a plain seam. (10 marks)
- (g) Preparing and attaching the facings to the neckline. (9 marks)
- (h) Finishing the dress hem with tacking stitches and holding down a **quarter** of the hem using hemming stitches. (4½ marks)
- (i) Overall presentation. (5½ marks)

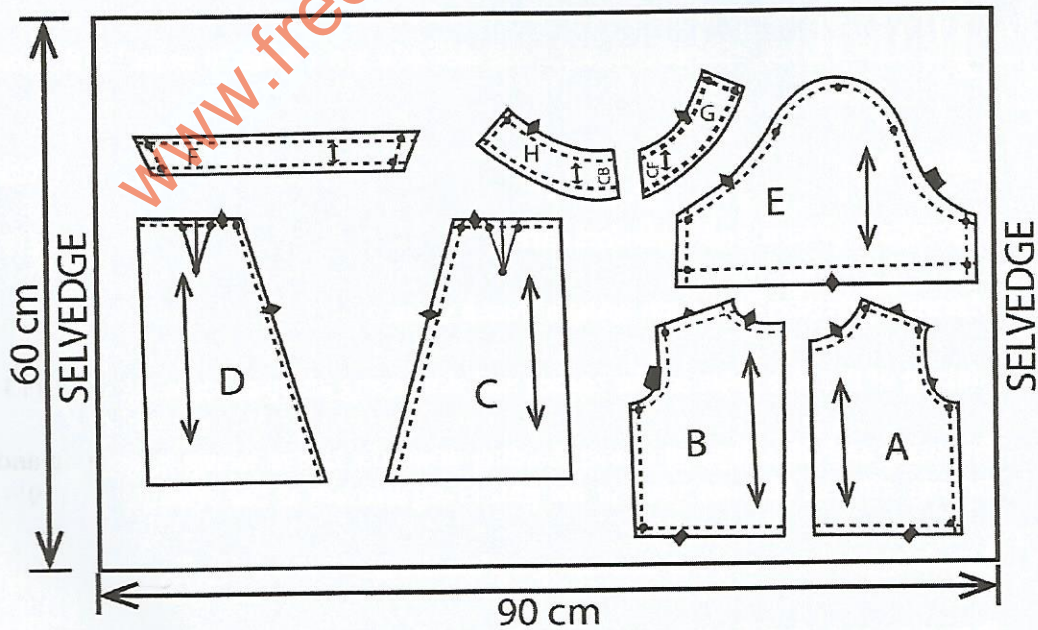
GIRL'S DRESS



FRONT

BACK

LAYOUT (NOT DRAWN TO SCALE)



Weaknesses

- A few candidates lacked mastery of skills in clothing construction and time management, therefore failed to attempt some of the processes.
- Some candidates had challenges in cutting smooth edges and on straight grain. Teachers should train candidates on how to grain and cut fabric smoothly. More practice is required and ensuring that there is provision of sharp cutting out scissors.
- In making of the shoulder seam using a french seam, some candidates were unable to obtain a good knife edge, while others did not get the correct size and evenness of the seam. More practice is required in order to make french seams correctly.
- Candidates were required to use make an open seam on the side of the article. Many of them did not press the seam open, and the seam was not correct in size.
- Reinforcement of the dart was not done by some candidates. Some candidates also pressed the dart in the wrong direction.
- In preparing and attaching the sleeve, candidates were required to hold the sleeve down with long and short tacking. Many candidates made even tacking stitches instead of short and long tacking.
- Majority of the candidates did not edge stitch the facing before attaching it to the neckline, neither were they able to make catch stitches. Many forgot to do the first turning at the edge of the facing. There is need therefore to practice making facings correctly, as well as working hand stitches.
- 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 students 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.

Students should be trained on managing their time when undertaking the test so as to finish all the tasks in the test.

Students should practice using sewing machines more frequently so as to produce quality stitches and consequently quality garments.

More practice of making different types of seams is required and making the correct choice for the different materials and type of garment.

Home Science teachers should advocate for adequate equipment and materials in the schools to ensure the students have more practice and thus improve their competencies in clothing construction. Lack of enough equipment and tools makes the candidates to panic and also waste time and this could contribute to poor performance.

Using a contrasting colour of thread to the fabric would be a good practice that can enhance the visibility during marking.

3.7.4 Home Science Paper 3 (441/3) FOODS AND NUTRITION PRACTICAL

THE TEST

You have visited your aunt over the weekend and she has asked you to prepare breakfast for her two children aged 4 and 6 years.

Using the ingredients listed below, prepare, cook and serve the breakfast for them. Include porridge, a nutritious drink and two breakfast food items. Use plate service.

Ingredients:

- Porridge flour/maize flour/millet flour
- Self raising flour or wheat flour and baking powder/yeast
- Eggs
- Milk
- Fruits in season
- Margarine
- Sugar
- Salt
- Oil
- Tomatoes
- Onions
- Green pepper

PLANNING SESSION – 30 minutes

For each task listed below, use separate sheets of paper and a carbon paper to make duplicate copies then proceed as follows:

1. Identify the dishes and write their recipes;
2. Write your order of work;
3. Make a list of the foodstuff and equipment you will require.

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 big candidature. This will 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 would 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 foods 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).
- Guide students in appreciating proper use of all resources.
- Practice the writing of plans, preparation and cooking of food and drink more frequently for the students 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 students on the culinary art skills.
- Emphasize on proper time management to ensure students complete writing the plans and carrying out the practical.