

3.7 HOME SCIENCE (441)

The Home Science Examination for the year 2020 aimed at establishing the levels of learning outcomes. The practical approach was used to assess two papers while one paper was assessed through a theory paper. 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 in all the units of Home Science curriculum. 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 items.
- f) make judgements on meal management, food choices, health and home issues.

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 with emphasis on laundry, cleaning different surfaces in the home and cleaning items used at home made from different materials.

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 15: Candidates' Performance in the last four years

	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
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
2020	1	21,355	100	93.98	20.16
	2		45		
	3		25		
	Overall		170		

Candidates' overall performance in Home Science in the years 2017, 2018, 2019 and 2020.

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 an indication that most of the students have
- iii) The school-based Foods and Nutrition practical posted a very good mean with a very low standard deviation 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.

Analysis of the poorly performed questions

3.7.2 Home Science Paper 1 (441/1)

SECTION A

Question 3

Highlight one benefit of thawing frozen foods thoroughly before cooking.

Requirement

To highlight the benefit of thawing frozen foods thoroughly before cooking.

Weaknesses

Some of the candidates could not relate the effect of thawing with cooking food.

Expected responses

To ensure that heat penetrates the food adequately and kills any harmful bacteria.

Advice to teachers

Teach in more details the principles of food preservation with practical examples that students can relate with.

Question 5

Differentiate between batter and dough in cookery.

Requirement

To show their understanding of the different types of flour mixtures.

Weaknesses

Candidates could not bring out the differences between the batter and dough as well differentiated in the topic of flour mixtures.

Expected responses

Batters are flour mixtures of flowing consistency while doughs are flour mixtures of dropping or stiff consistency.

Advice to teachers

Conducting practical sessions could help bridge this knowledge gap since candidates are more likely to remember what they have practiced.

Question 7

Give the meaning of the term adolescence.

Requirement

To show the understanding of the different physiological stages.

Weaknesses

Some candidates gave responses on the changes that take place in adolescence instead of explaining the term.

Expected responses

It is the period between childhood and adulthood where girls and boys experience physical, emotional and social changes within their bodies.

Advice to teachers

Put emphasis on reading the question carefully.

Question 12

State two ways in which desirable habits in children are formed.

Requirement

To show how healthy habits are formed in children.

Weaknesses

Some candidates concentrated on issues of child play rather than the formation of desirable habits.

Expected responses

- Observations.
- Imitations
- Repeated practice.

Advice to teachers

Emphasize the reading of questions carefully by the students to fully understand the requirement of the task.

Question 13

State four pieces of information that should be included in an invoice of goods sold.

Requirement

To identify the information that is included in an invoice.

Weaknesses

Some candidates gave information that is found in receipts and on the labels of products thus showing that they did not fully understand what an invoice is and how and when it is used.

Expected responses

- Name and address of the seller.
- Date of the sale.
- An exact description of the goods.
- Quantity of goods sold.
- Price charged.

Advice to teachers

Teach consumer education in more detail with emphasis on demonstration and role play. Study tours where students can be exposed to the use of receipts, invoices would help a great deal in retention and application of the knowledge.

Question 16

List two special treatments given to garments after washing.

Requirement

To show understanding of the special laundry processes that are used to treat garments after washing.

Weaknesses

Some candidates gave responses on laundry processes without showing discretely those processes that occur after the washing of clothes.

Expected responses

- Fabric conditioning.
- Starching.
- Blueing.

Advice to teachers

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

Question 19

State two points that should be observed to ensure that cutting out scissors work effectively.

Requirement

To show how to care for cutting out scissors for effectiveness

Weaknesses

Most candidates did not give relevant responses. Some of them gave points to consider when buying a pair a pair of cutting out scissors instead of points to observe when using pair of cutting out scissors.

Expected responses

- Do not use for cutting hair, paper.
- Hold them correctly when in use.
- Do not drop them.
- Wipe after use.

Advice to teachers

Reading questions carefully should be emphasized. Also train students to practically care for needlework tools and equipment.

Question 21

Identify four pattern pieces that you would draft in preparation for making an apron

Requirement

To demonstrate knowledge of different pattern pieces as one of the processes of constructing a garment.

Weaknesses

- Some candidates could not name the pattern pieces an indication of inadequate skills in clothing construction.

Expected responses

- Skirt piece
- Front bodice.
- Neck band.
- Waistband.
- Pocket.
- Frill.

Advice to teachers

Conduct more practical lessons in clothing construction.

Question 23

- Explain three advantages of planning meals in a family.
- Explain four general rules to be observed when drying foods ready for storage.
- Describe three ways in which you can advertise a new recipe that your class has developed.

Requirement

- To demonstrate why planning meals for a family is important.
- To expound on good practices of drying food before storing them.
- To show how one can advertise a new recipe that has been developed.

Weaknesses

- Some candidates gave responses on balanced diet instead of advantages of a planning meals.
- There was confusion between drying and storing foods, therefore not showing the importance of drying foods thoroughly before they can be stored.
- Responses majored on methods of advertisement rather than demonstrating how a student can apply the skills to advertise their new recipe. It required application of creativity and imagination competencies of the learners.

Expected responses

- Social media – social sites like facebook, twitter, Instagram, whatsapp can be used to advertise the new recipe.
- Word of mouth – the recipe can be given to students, teachers, family to advertise by word of mouth.
- Print media – the recipe can be advertised in newspapers, school magazines, journals, brochures and leaflets.
- Science fairs – the recipe can be advertised during school science fairs.
- Electronic media – the recipe can be advertised through the television and radio.

Advice to teachers

Emphasize the application of learnt knowledge and skills and encourage creativity among students. Expose to practical ways of advertisements instead of just learning theoretically such as role play and projects.

Question 24

- (a) Explain four rules to be observed when patching a garment.
- (b) Describe three ways in which a faced slit opening can be made decoratively.

Requirement

- (a) To explain the rules that should be followed when patching garments.
- (b) To show how one can make a faced slit opening decoratively

Weaknesses

- (a) Limited knowledge on patching garments
- (b) A great proportion of students did not demonstrate having knowledge of what a faced slit opening is.

Expected responses

- Stitching a zip fastener between the garment and the facing.
- Edge stitching the opening and closing it with button and loop.
- Shaping the outer edge of facing and using it on the right side of the garments.
- Using a facing with contrasting colours on the right side of garments, turning the facing to the right side and catching it down with decorative stitches.
- Turning facing to the right side and edge stitching.
- Turning facing to the wrong side and stitching from the right side particularly with a contrasting colour of thread.

Advice to teachers

More practical sessions are necessary for students to relate with reality. Opportunities to allow students to be creative in designing garments would enhance the acquisition of their skills.

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 students need to be exposed to experiences that arouse their creativity and imagination, giving opportunities to solve problems everyday 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 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. It was also observed that learners 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 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 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

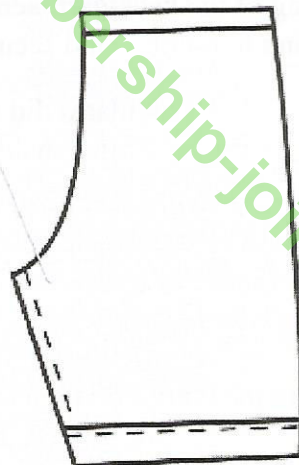
Using the materials provided, lay, cut out and make **one half** of a pair of shorts to show the following:

- (a) Cutting out; (13 marks)
- (b) Making of the back dart; (5 marks)
- (c) Preparing and attaching the back pocket; (13½ marks)
- (d) Joining the inner leg seam using a double stitched seam; (8½ marks)
- (e) Joining the side seam using a french seam; (11 marks)
- (f) Preparing and attaching the facing at the short lower edge hem; (17 marks)
- (g) Preparing and attaching the waistband (**do not interface**). Holding the waistband down using even tacking stitches; (15 marks)
- (i) Finishing the **back waistband only** using hemming stitches; (3 marks)
- (j) Overall presentation. (4 marks)

BOY'S SHORT

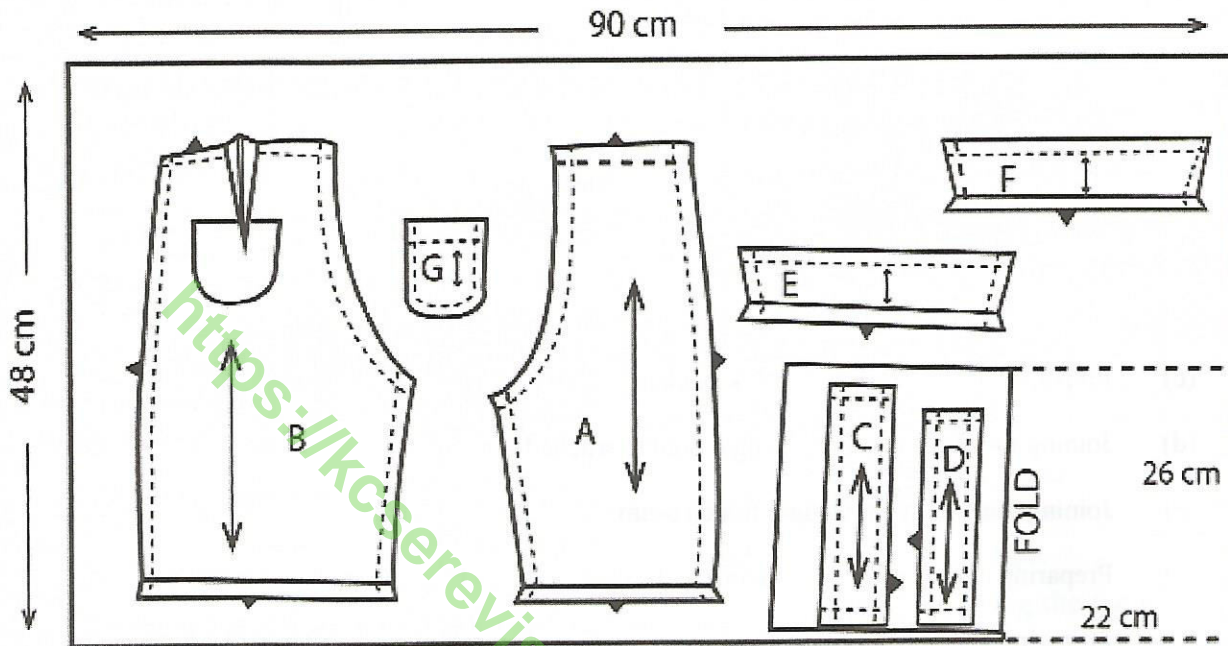


BACK VIEW



FRONT VIEW

LAYOUT NOT DRAWN TO SCALE



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. More practice is required and ensuring that there is provision of sharp cutting out scissors.
- In making of the back dart, achieving the correct length and width was a challenge. The skill of tapering to nothing and securing threads needs to be enhanced.
- Majority of the candidates did not make the top facing and round edges correctly. There is need therefore to practice making different shapes of patch pockets.
- In making of double stitched seam, some candidates made the wrong type of seam and could not obtain the flatness required on the wrong side while others made knife pleats. Making the French seam was not well done by some as raw edges were showing and had difficulties achieving the knife edge.
- In making the waistband, the test required candidates to prepare by joining the two pieces and attach by holding down the waistband in place using even tacking stitches and finishing half of the back piece using hemming stitches. Some candidates displayed difficulties in following these instructions. Challenges in securing the ends while finishing with hemming stitches. Using a double thread when hemming was also another area that requires attention.
- 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.

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

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.

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 are expecting your Aunt who is from a post-natal clinic for lunch.

Using the ingredients listed below, prepare, cook and present a **one course meal**, using **two** cooking methods for the two of you. Include a nutritious drink for the two of you.

Ingredients:

- Fruits in season
- Tomatoes
- Onions
- Salt
- Potatoes/rice/maize flour
- Sugar
- Beef/chicken/green grams
- Fat/oil
- Lemon
- Carrots
- Green leafy vegetables

PLANNING SESSION – 30 minutes

Use separate sheets of paper for each task listed below 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.

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 big candidature. This ensure reliability of scores by not conducting too many sessions in one day which is a strain to the Home 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 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).
- 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.