

3.7 HOME SCIENCE (441)

The 2017 Home Science examination assessed the acquisition and application of knowledge, skills and competencies as specified in the syllabus. This year's report analyses the performance of candidates, both in the theory and practical papers. It concentrates on the items where candidates' performance was below expectation.

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.

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 uses 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. It also assesses the extent to which learners have mastered the art of cookery and food service. The learner's ability to observe hygiene and safety are also assessed. Candidates are required to prepare and serve a meal from the given ingredients. Assessment is done by the Home science teachers at the school. The paper is worth 25 marks.

3.7.1 GENERAL PERFORMANCE OF THE CANDIDATES

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
2014	1	13,474	100	54.57	11.69
	2		45	26.55	7.04
	3		25	13.36	2.56
	Overall		170	94.38	18.55
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

Candidates overall performance in Home Science in the years 2014, 2015, 2016 and 2017.

Observations from the above table:

- (i) Performance of paper 1 (theory) presents a normal performance with a mean of 52.74 and a standard deviation of 12.52. This shows that candidates statistically fit well in the normal curve where performance of majority of candidates is average. The standard deviation indicates a good spread of the candidates' ability. The clothing practical paper present a good mean but have a moderate standard deviation, however in the school based foods and nutrition practical the standard deviation is too low showing that the almost all the candidates have the same ability.
- (ii) For computation of this year's final score, all 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 6

Outline three qualities of a well groomed person.

Requirement

To outline qualities of a well groomed person.

Weaknesses

Most candidates supplied the principles of grooming instead of describing the qualities of a well groomed person.

Expected responses

Qualities of a well-groomed person

- (a) Is Clean
- (b) Is healthy
- (c) Dresses well
- (d) Practices proper etiquette

Advice to teachers

Emphasize on reading the questions keenly to pick out the tasks being sought.

Question 7

Highlight the importance of weaning a baby gradually.

Requirement

To give the reasons why introduction of new foods to a baby should be done gradually

Weaknesses

Candidates gave the importance of weaning and not why it is important to wean gradually.

Expected responses

Importance of weaning a baby gradually

It;

- (a) gives time for the baby to get used to the new food
- (b) allows time to observe any reactions/allergies to the new food
- (c) dresses well
- (d) practices proper etiquette

Advice to teachers

Put emphasis on the answering of questions by paying attention to key terms in the question.

Question 11

Describe a manhole in relation to a sewage system.

Requirement

To describe a manhole

Weaknesses

Most candidates did not understand what a manhole is as they gave irrelevant responses

Expected responses

Description of manhole

A manhole is a concrete pit which serves as the meeting point for two or more drains carrying waste water from bathrooms, kitchens, toilets.

Advice to teachers

Cover all areas of the syllabus and also vary the instructional methods. Field visits and use of electronic medium among other methods would be suitable to give the students exposure to the drainage systems. Schools that have a good drainage system should be taught using realia.

Question 14

Identify four types of repairs done on clothes.

Requirement

To identify the repairs that is usually done on clothes

Weaknesses

Majority of the candidates were limited in their variety of types of repairs as most of them just identified patching and darning.

Expected responses

Types of repairs done on clothes

- (a) Darning
- (b) Patching
- (c) Fixing hanging hems/gaping hems
- (d) Replacement of fasteners
- (e) Reinforcing of buttonholes

Advice to teachers

Expose the learners to other types of repairs. Use of electronic media would provide the variety.

Question 18

Name four areas on a garment where interfacings are used.

Requirement

To name areas where interfacings are used on garments

Weaknesses

Majority of candidates lacked mastery of the term interfacing.

Expected responses

Areas on a garment where interfacings are used

- (i) Collars
- (ii) Waist band
- (iii) Cuffs
- (iv) Facings
- (v) Belts

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. Having more practical lessons on constructing interfacings would improve in the retention of the concept.

Question 19

State two uses of embroidery scissors.

Requirement

To state how the embroidery scissors are used

Weaknesses

Some candidates did not display any competencies on the use of embroidery scissors.

Expected responses

Uses of embroidery scissors

For:

- (i) Cutting embroidery threads
- (ii) Snipping edges
- (iii) Cutting buttonholes

Advice to teachers

Teachers need to expose learners to needlework tools that are not commonly used in the course of their study through electronic and print media.

Question 21 (b)

You are planning to attend your brother's wedding party.

Describe the procedure you would follow to thoroughly clean the leather handbag with polyester lining that you will use.

Requirement

To describe the procedure for thorough cleaning a leather handbag that has a polyester lining

Weaknesses

There are candidates who did not describe the cleaning of the two different materials (*leather and polyester*). They concentrated more on the cleaning of the leather part of the bag. In practice most leather bags have a lining made of different materials.

Expected responses

Thorough cleaning a leather handbag with a polyester lining

- Protect the work surface ($\frac{1}{2}$) with old newspaper ($\frac{1}{2}$) or other material.
- Empty ($\frac{1}{2}$) the handbag of its contents.
- Brush the top ($\frac{1}{2}$) of the handbag.
- Wipe ($\frac{1}{2}$) the polyester lining ($\frac{1}{2}$) using a cloth wrung ($\frac{1}{2}$) out of warm ($\frac{1}{2}$) soapy ($\frac{1}{2}$) water.
- Wipe ($\frac{1}{2}$) the lining with a clean cloth wrung ($\frac{1}{2}$) out of clean ($\frac{1}{2}$) warm water ($\frac{1}{2}$).
- Wipe ($\frac{1}{2}$) the leather handbag with a damp cloth.
- Apply cream ($\frac{1}{2}$) sparingly ($\frac{1}{2}$) and evenly ($\frac{1}{2}$) using a clean rag ($\frac{1}{2}$).
- Leave for a few minutes ($\frac{1}{2}$) for the cream to set on the leather.
- Rub ($\frac{1}{2}$) firmly with a clean cloth ($\frac{1}{2}$).
- Use a clean fluffy ($\frac{1}{2}$) cloth to buff ($\frac{1}{2}$) the handbag.
- Stuff ($\frac{1}{2}$) before storing.

Advice to teachers

Paying attention to the tasks of the question would help the candidates answer correctly. More practice using real household items would improve mastery of content on their care.

Question 23(a)

Describe three ways in which a facing can be used to create a decorative effect.

Requirement

To show ways in which facings are used to make garments decorative

Weaknesses

Some candidates did not understand the term facing and consequently could not explain how they can be used to decorate garments.

Expected responses

Ways in which a facing can be used to create a decorative effect:

- (i) Shaping the edges in a decorative way such as scalloping.
- (ii) Cutting the facing on a different grain from that of the garment section.
- (iii) Turning the facing to the right side of the garment and then caught down with a decorative stitch.
- (iv) Using a different colour of fabric from that of the garment.
- (v) Using fabrics of different texture.

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 practical lessons for effective mastery of content. Also empower the learners in exploring their environment by having a keen interest on latest trends and fashions through the electronic media, fashion magazines and observing what people wear.

Question 23(b)

Explain four rules to observe when removing stains from a garment.

Requirement

To explain the rules to be followed when removing stains from garments

Weakness

Some candidates did not have mastery of the topic on removing stains.

Expected responses

Rules to observe when removing stains from a garment

- (i) Remove stains when they are still fresh. Stains will get fixed with time and therefore become difficult to remove.
- (ii) Identify the kind of stain and type of fabric affected in order to use a suitable stain remover.
- (iii) If type of stain is unknown, start with milder stain removal methods such as soaking according to fabric, then later use solutions of milder reagents.
- (iv) Once the stain has been removed, rinse the article well to remove traces of the reagent.
- (v) Work from outside towards the inside to avoid spreading the stain.

Advice to Teachers

It is evident that learners perform poorly in laundry items and therefore teachers need to put more emphasis on imparting the practical skills of removing different types of stains.

Question 23(c)

Outline **three** remedies for each of the following machine faults;

- (i) Needle breaking (ii) Fabric puckering

Requirement

To outline how one would manage needle breaking and puckering of fabric when using a sewing machine

Weaknesses

Most candidates gave the causes of machine faults instead of how to prevent further needle breaking and fabric puckering.

Expected responses

Remedies for machine faults

(i) Needle breaking

- Fix the needle in the correct position firmly.
- Replace the needles as it may have been defective.
- Check to ensure that the size of needle is appropriate for thickness and density of fabric.
- Check to ensure that the pressor foot is inserted correctly.
- Avoid sewing over pins.

(ii) Fabric puckering;

- Lower the thread tension especially for fine fabrics.
- Lower the pressor foot pressure.
- Stretch the fabric under the pressor foot manually.
- In case of multiple stitching sew in one direction only.
- Reduce the sewing speed.

Advice to teachers

Teach the learners to respond to questions appropriately to the questions asked. Put in more time in conducting practical lessons for effective mastery of content as learners are easily able to answer questions with their practical experiences.

Question 24(a)

Describe the functioning of each of the following:

- (i) Electric Air fan (ii) Air conditioner

Requirement

To describe how an electric air fan and air conditioner works

Weakness

Some candidates could not differentiate the functioning of an air fan and an air conditioner.

Expected responses

Functioning of:

(i) Electric Air Fans

These are devices that are fitted with rotary fan blades and operated using electricity. When the fan blades are set into rotation the fan sets the air inside a room into currents.

(ii) Air conditioner

This is a device that absorbs stale air from the inside of a room and replaces it with fresh cooled air from the outside of a room.

Advice to teachers

While teaching on equipment that may not be available in the schools, the teachers could use electronic media/visual aids to explain how the equipment work.

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 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

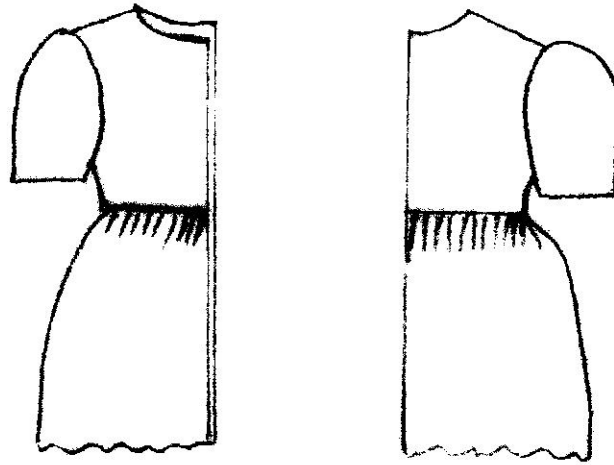
This is a practical paper where candidates are required to demonstrate their competencies in clothing construction by making a sample of a garment as per the instructions. Patterns, garment views and a layout which is not drawn to scale are provided to the candidates for use in the examination.

THE TEST

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

- (a) Cutting out.
- (b) Making of the shoulder seam using an open seam.
- (c) Joining the back neck facing to the extended front facing. Attaching the facing to finish the neckline
- (d) Making the bodice side and underarm seam using a french seam.
- (e) Preparing and attaching the sleeve to the armhole. Neaten a quarter of the armhole seam from the underarm seam using loop stitches. Manage the sleeve hem with tacking stitches.
- (f) Preparing the skirt using gathers and attaching it to the bodice.
- (g) Neatening the free-edge of the facings.
- (h) Overall presentation.

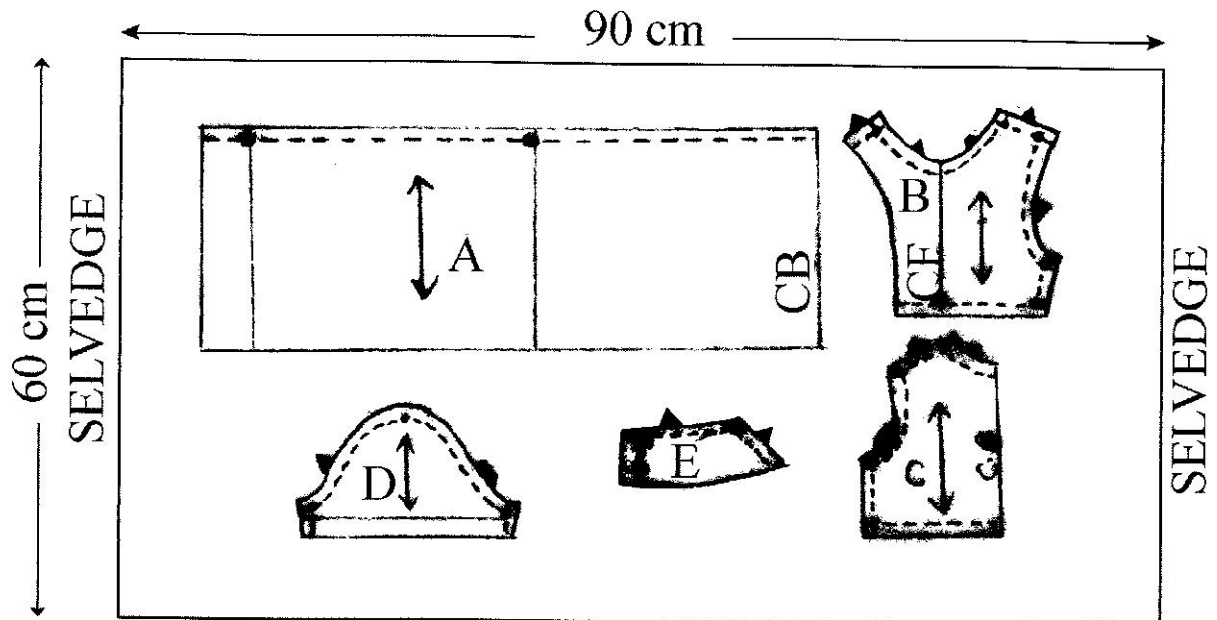
DRESS VIEW



FRONT VIEW

BACK VIEW

LAYOUT (Not drawn to scale)



Weaknesses

- ❑ Some of the candidates lack mastery of skills in clothing construction and time management, therefore not attempting some of the processes.
- ❑ There are candidates who have not mastered the art of straight smooth cutting and graining of the fabric.
- ❑ A few candidates failed to join the front and back facings. Under stitching, and the joining of the bodice and skirt was not well done.
- ❑ Candidates were required to make the bodice side and underarm seam using a french seam; however most of them made the french seam on either the bodice or underarm. Practically the seam used on the both areas should be the same.
- ❑ Easing on the sleeve was poorly done.

- ❑ Some candidates could not differentiate loop from oversewing stitches.
- ❑ Some candidates failed to prepare gathers by working the two lines of stitchery and ended up making pleats on the skirt.
- ❑ Some candidates used hemming stitches to neaten the free edges of the facings instead of edge stitching.

Advice to teachers

More practice in clothing construction processes such as making the : types of seams, handmade stitches, under stitching, easing, gathers, edge finishing, should be encouraged so that the learners acquire skills and confidence to perform tasks well.

The teachers and learners should develop a positive attitude towards the clothing and textiles topics.

Learners should be trained on managing their time when undertaking 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

You have invited your two nephews aged 9 and 10 years for a weekend lunch. Using the ingredients listed below, prepare, cook and serve a one course meal for them. Include a nutritious drink.

Ingredients:

Rice/potatoes, cooking oil, salt, sugar, beef/peas, carrots, tomatoes, cabbage/green leafy vegetables, onions, dhania, green pepper, fruits in season.

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

- ❑ 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 food choices, 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.
- ❑ Lead learners to always 'clear as they go'.