

# **Home Science**

**For Rwandan Schools**

**Senior 2**

**Teacher's Guide**



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# CONTENT MAP

TOPIC AREA

**1**

## HOME MANAGEMENT

	<i>Subtopic Area 1: Personal health, etiquettes and home care</i>	<i>Subtopic Area 2: Interior decoration</i>
	<b>Unit 1: Home care</b>	<b>Unit 2: Colours in decoration</b>
<b>Number of periods</b>	6	9
<b>Introduction</b>	This unit introduces learners to the topic of home management. It highlights different types of soils, handling different types of soils, identifying appropriate cleaning materials, tools and cleaning products and using cleaning materials, tools and cleaning products safely.	This unit introduces learners to identifying decorative accessories, using decorative accessories to carry out simple decoration, explaining the basic decoration methods and applying the decoration arrangement techniques in their daily lives.
<b>Classroom organisation</b>	Whole class orientation, groups seated in semi-circles or circles, pair-work depending on the content area or practical activities plus field visits.	Whole class orientation, groups seated in semi-circles or circles, pair-work depending on the content area and practical activities.
<b>Equipment and materials required</b>	Computers with internet connection, reference books, brooms, brushes, buckets, dusters, dust pans, mops, mop buckets, floor clothes, scouring pad, brooms, basins, sponges, gloves, masks, furniture, walls, windows, floors, disinfectants, water and detergents.	Computers with internet connection, reference books colours, materials for making ornaments such as beads, threads, pins, paper, markers, pencils, paints, paint brushes, ropes, flowers, textiles, wall hangings, wall clocks, curtains, cushions, lampstands, lamps, etc.

<b>Activities</b>	<ul style="list-style-type: none"> <li>● Collecting different types of cleaning equipment and materials.</li> <li>● Observation of house cleaning materials and equipment.</li> <li>● Practical activities involving cleaning.</li> </ul>	<ul style="list-style-type: none"> <li>● Collecting different types of materials for making decorative items.</li> <li>● Observations on use of ornaments and colours as used in interior decoration.</li> <li>● Practical activities on interior decoration.</li> </ul>
<b>Generic competences to be practised</b>	<p>Cooperation and interpersonal skills</p> <p>Research skills</p> <p>Communicating in English</p> <p>Critical thinking and problem solving skills</p> <p>Lifelong skills</p>	<p>Cooperation and interpersonal skills</p> <p>Critical thinking</p> <p>Problem solving</p> <p>Lifelong skills</p> <p>Communication skills</p> <p>Creativity and innovation</p>
<b>Cross-cutting issues to be addressed</b>	<p><b>Peace and Values Education</b></p> <p><b>Environment and Climate</b></p> <p><b>Safety measures</b></p>	<p><b>Peace and Values Education</b></p> <p><b>Financial education</b></p> <p><b>Environment and sustainability</b></p> <p><b>Safety measures</b></p>
<b>Language practice</b>	<p>As learners present their findings.</p> <p>During discussions either in groups or in pairs.</p> <p>As learners do research activities.</p>	<p>As learners present their findings</p> <p>During discussions either in groups or in pairs</p> <p>During research activities</p>
<b>Vocabulary acquisition</b>	<p>Terms referring to different types of soils such as dust, stain, tarnish, fixed dirt, grease, etc and materials for soils removal such as</p>	<p>Terms such as hue, intensity, shades, tints, colour schemes, analogous, monochromatic, triadic harmonies among others.</p>



	solvents, grease absorbents, acids, alkalis, bleaches, salt, vacuum cleaner among others.	
<b>Study skills</b>	Doing research, reporting, drawing conclusions and note-taking.	Carrying out practicals, doing research, reporting, drawing conclusions and note-taking.
<b>Revision</b>	Self-assessment and unit competence tests provided in the Student's Book and extended exercises in the Teacher's Guide.	Self-assessment and unit competence tests provided in the Student's Book and extended exercises in the Teacher's Guide.
<b>Formative assessment</b>	<p>To assess knowledge and understanding, let learners do Self-evaluation Tests in the Student's book.</p> <p>Gauge learner's <b>communication, cooperation, critical thinking and problem solving</b> abilities as they carry out group activities.</p> <p>Ask probing questions on attitude change towards Home science.</p>	<p>To assess knowledge and understanding, let learners do Self-evaluation Tests in the Student's book.</p> <p>Gauge learner's <b>communication, cooperation, critical thinking and problem solving and creativity and innovation</b> abilities as they carry out group discussions and carry out practicals.</p> <p>Ask probing questions on attitude change towards decoration.</p>
<b>Learning outcomes</b>	<p>To be able to:</p> <ol style="list-style-type: none"> <li>Explain the different types of soils.</li> <li>Handle different types of soils.</li> <li>Identify appropriate cleaning materials, tools and cleaning products.</li> <li>Use cleaning materials, tools and cleaning products safely.</li> </ol>	<p>To be able to:</p> <ol style="list-style-type: none"> <li>Identify decorative accessories.</li> <li>Use decoration accessories in simple decoration.</li> <li>Explain the basic decoration methods.</li> <li>Apply the decoration arrangement techniques.</li> </ol>

	<b>Subtopic Area 1: Nature of textile fibres and fabrics</b>	<b>Subtopic Area 2: Stitches and seams</b>
	<b>Unit 3: Characteristics of Fabrics</b>	<b>Unit 4: Seams</b>
<b>Number of periods</b>	<b>8</b>	<b>10</b>
<b>Introduction</b>	This unit will equip learners with knowledge on different fabrics, how to classify different fabrics and their characteristics.	The unit aims at helping learners to acquire knowledge about definition of seams, the common types of seams used in garment construction, the points to consider in the choice of seams and the methods used in making different types of seams.
<b>Classroom organisation</b>	Whole class orientation, groups seated in semi-circles or circles, pair-work depending on the content area or practical activities plus field visits.	Whole class orientation, groups seated in semi-circles or circles, pair-work depending on the content area and practical activities and a visit to a tailoring shop.
<b>Equipment and materials required</b>	Computers with internet connection, reference books, fabrics of different types, source of heat, acid and alkali solutions and microscope.	Computers with internet connection, reference books, garments of different fabrics, hand needles, sewing thread and sewing machines.
<b>Activities</b>	<ul style="list-style-type: none"> <li>● Collecting pieces of fabrics.</li> <li>● Observation of different fabrics.</li> <li>● Touching different fabrics to feel their texture.</li> <li>● Observation of fabrics under the microscope</li> <li>● Burning test</li> <li>● Solubility test</li> </ul>	<ul style="list-style-type: none"> <li>● Collecting different garments</li> <li>● Identification of different seams for different fabrics</li> <li>● Demonstrations on use of sewing machine</li> <li>● Stitching/sewing using sewing machine.</li> </ul>

<p><b>Generic competences to be practised</b></p>	<p>Cooperation and interpersonal management and life skills</p> <p>Communication in English</p> <p>Critical thinking/problem solving skills</p> <p>Lifelong skills</p>	<p>Cooperation, interpersonal management and life skills</p> <p>Critical thinking/Problem solving skills</p> <p>Lifelong skills</p> <p>Communication in English</p> <p>Creativity and innovation</p>
<p><b>Cross-cutting issues covered</b></p>	<p><b>Gender education</b></p> <p><b>Standardisation culture</b></p> <p><b>Peace and Values Education</b></p> <p><b>Financial education</b></p> <p><b>Environment and sustainability</b></p> <p><b>Inclusive education-</b></p>	<p><b>Gender education</b></p> <p><b>Standardisation culture</b></p> <p><b>Peace and Values Education</b></p> <p><b>Financial education</b></p> <p><b>Environment and sustainability</b></p> <p><b>Inclusive education-</b></p>
<p><b>Language practice</b></p>	<p>As learners present their findings.</p> <p>During discussions either in groups or in pairs.</p> <p>As learners do research activities.</p>	<p>As learners present their findings</p> <p>During discussions either in groups or in pairs</p> <p>During research activities</p>
<p><b>Vocabulary acquisition</b></p>	<p>Terms referring to different types of fabrics such as cotton, wool, silk, asbestos, viscose rayon, acetate rayon, nylon, acrylics, polyester, etc.</p>	<p>Terms referring to seams such as, French seam, double-stitched seam, open-neatened seam, plain seam, corner seams, machine-felled seams.</p>
<p><b>Study skills</b></p>	<p>Carrying out practical activities, doing research, reporting, drawing conclusions, note-taking.</p>	<p>Carrying out practical activities, doing research, reporting, drawing conclusions, note-taking.</p>

<b>Revision</b>	Self-assessment tests and Test your competence provided in the Student's Book and extended exercises in the Teacher's Guide.	Self-assessment tests and unit competence tests provided in the Student's Book and extension exercises in the Teacher's Guide.
<b>Formative assessment</b>	<p>To assess knowledge and understanding, let learners do Self-evaluation Tests in the Student's book.</p> <p>Gauge learner's <b>communication, cooperation, critical thinking and problem solving</b> abilities as they carry out group activities.</p> <p>Ask probing questions on attitude change towards cloth making.</p>	<p>To assess knowledge and understanding, let learners do Self-evaluation Tests in the Student's book.</p> <p>Gauge learner's <b>communication, cooperation, critical thinking and problem solving and creativity and innovation</b> abilities as they carry out group discussions and carry out practical activities.</p> <p>Ask probing questions on attitude change towards cloth making.</p>
<b>Learning outcomes</b>	<p>To be able to:</p> <ul style="list-style-type: none"> <li>(a) Define fabric</li> <li>(b) Classify fabrics</li> <li>(c) Discuss characteristics, and uses of fabrics and fabric identification.</li> </ul>	<p>To be able to:</p> <ul style="list-style-type: none"> <li>(a) Define a seam.</li> <li>(b) State the common types of seams used in garment construction.</li> <li>(c) Explain the points to consider in choice of seams.</li> <li>(d) Describe the methods of making the different types of seams.</li> </ul>

	<b>Subtopic Area 1: Food hygiene and food safety</b>	<b>Subtopic Area 2: Principles of good nutrition</b>
	<b>Unit 5: Food safety techniques</b>	<b>Unit 6: Food nutrients utility and meal plans</b>
<b>Number of periods</b>	<b>8</b>	<b>10</b>
<b>Introduction</b>	This unit will equip learners with knowledge on food safety procedures according to Hazard Analysis Critical Control Point (HACCP).	This unit is meant to help learners categorise food nutrients utility according to life stages, explain meal plan principles and apply meal plan principles on basic menu formats and construction.
<b>Classroom organisation</b>	Whole class orientation, groups seated in semi-circles or circles, pair-work depending on the content area and factory visits.	Whole class orientation, groups seated in semi-circles or circles, pair-work depending on the content area practical activities involving meal preparation.
<b>Equipment and materials required</b>	Computers with internet connection, reference books, pictures of various food thermometers., food processing factory	Computers with internet connection, reference books, recipes for different groups of people, cooking equipment and materials, food service equipment.
<b>Activities</b>	<ul style="list-style-type: none"> <li>● Collecting different types of pictures showing various food thermometers.</li> <li>● Observation of food thermometers.</li> <li>● Waste disposal to show different ways of doing it.</li> </ul>	<ul style="list-style-type: none"> <li>● Collecting different types of recipes.</li> <li>● Analysis of the recipes.</li> <li>● Practical activities on meal preparation and presentation to different groups of people.</li> </ul>

<p><b>Generic competences to be practised</b></p>	<p>Cooperation and interpersonal management and life skills</p> <p>Communication in English</p> <p>Critical thinking/problem solving skills</p> <p>Lifelong skills</p> <p>Research skills</p>	<p>Cooperation, interpersonal management and life skills</p> <p>Critical thinking /Problem solving skills</p> <p>Lifelong skills</p> <p>Communication in English</p> <p>Creativity and innovation</p>
<p><b>Cross-cutting issues to be addressed</b></p>	<p><b>Gender education</b></p> <p><b>Standardisation culture</b></p> <p><b>Peace and Values Education</b></p> <p><b>Financial education</b></p> <p><b>Environment and sustainability</b></p> <p><b>Inclusive education</b></p> <p><b>Safety measures</b></p>	<p><b>Gender education</b></p> <p><b>Standardisation culture</b></p> <p><b>Peace and Values Education</b></p> <p><b>Financial education</b></p> <p><b>Environment and sustainability</b></p> <p><b>Inclusive education</b></p> <p><b>Safety measures</b></p>
<p><b>Language practice</b></p>	<p>As learners present their findings.</p> <p>During discussions either in groups or in pairs.</p> <p>As learners carry out research activities.</p>	<p>As learners present their findings</p> <p>During discussions either in groups or in pairs</p> <p>As learners carry out research activities.</p>
<p><b>Vocabulary acquisition</b></p>	<p>Terms such as HACCP, hazard, pH values, the various food thermometers, refuse, garbage, landfill.</p>	<p>Terms such as, invalids, satiety value, meal planning, adolescents, infants, recommended daily allowances, etc.</p>

<b>Study skills</b>	Carrying out practical activities, doing research, reporting, drawing conclusions, note-taking.	Carrying out practical activities, doing research, reporting, drawing conclusions, note-taking.
<b>Revision</b>	Self-assessment tests and Test your competence provided in the Student's Book and extended exercises in the Teacher's Guide.	Self-assessment tests and unit competence tests provided in the Student's Book and extension exercises in the Teacher's Guide.
<b>Formative assessment</b>	<p>To assess knowledge and understanding, let learners do Self-evaluation Tests in the Student's book.</p> <p>Gauge learner's <b>communication, cooperation, critical thinking</b> and <b>problem solving</b> abilities as they carry out group activities.</p> <p>Ask probing questions on attitude change towards food hygiene and food safety.</p>	<p>To assess knowledge and understanding, let learners do Self-evaluation Tests in the Student's book.</p> <p>Gauge learner's <b>communication, cooperation, critical thinking</b> and <b>problem solving</b> and <b>creativity and innovation</b> abilities as they carry out group discussions and carry out practical activities.</p> <p>Ask probing questions on attitude change towards human nutrition</p>

<p><b>Learning outcomes</b></p>	<p>To be able to:</p> <ul style="list-style-type: none"> <li>(a) Categorise food safety procedures according to Hazard Analysis Critical Control Point (HACCP).</li> <li>(b) Comply with food safety procedures according to Hazard Analysis Critical Control Point (HACCP).</li> <li>(c) Embrace the food safety procedures and contribute positively to the society.</li> </ul>	<p>To be able to:</p> <ul style="list-style-type: none"> <li>(a) Categorise the food nutrients utility according to life stages.</li> <li>(b) Balance food nutrients' utility according to life stages.</li> <li>(c) Explain meal plan principles.</li> <li>(d) Apply meal plan principles on basic menu format and construction.</li> </ul>
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	<b>Subtopic Area 1: Basic hot and cold dishes</b>	<b>Subtopic Area 2: Basic pastry and bakery</b>
	<b>Unit 7: Cooking methods</b>	<b>Unit 8: Bread Making Techniques</b>
<b>Number of periods</b>	<b>16</b>	<b>15</b>
<b>Introduction</b>	This unit will equip learners with the ability to explain the reasons for cooking food, choice of cooking methods, methods of cooking, advantages and disadvantages of various cooking methods, precautions and suggested foods for cooking using the different methods.	This unit brings learners to the understanding of why wheat flour is mainly used for making bread, the factors which affect bread quality, the types/varieties of breads, the ingredients used in bread making, the steps of making bread, the common faults in bread making and also how to make different varieties of bread.
<b>Classroom organisation</b>	Whole class orientation, groups seated in semi-circles or circles, pair-work depending on the content area and practical activities.	Whole class orientation, groups seated in semi-circles or circles, pair-work depending on the content area practical activities and a visit to a bakery.
<b>Equipment and materials required</b>	Different food materials, cooker/oven, other cooking equipment, food service equipment, etc.	Different types of wheat flour, cooker/oven, other baking equipment, ingredients for bread making, food service equipment, a bakery.
<b>Activities</b>	<ul style="list-style-type: none"> <li>● Class discussions</li> <li>● Observations</li> <li>● Food preparation and cooking</li> <li>● Field trips to hotels and restaurants.</li> </ul>	<ul style="list-style-type: none"> <li>● Class discussions</li> <li>● Observations</li> <li>● Bread making</li> <li>● Field trips to hotels, restaurants, bakery and supermarket.</li> </ul>

<b>Generic competences covered</b>	<p>Communication in English Cooperation, interpersonal management and life skills Critical thinking/Problem solving skills Creativity and innovation</p>	<p>Communication in English Cooperation, interpersonal management and life skills Critical thinking/Problem solving skills Creativity and innovation</p>
<b>Cross-cutting issues covered</b>	<p><b>Gender education</b> <b>Standardisation culture</b> <b>Peace and Values Education</b> <b>Financial education</b> <b>Environment and sustainability</b> <b>Inclusive education</b> <b>Safety measures</b></p>	<p><b>Gender education</b> <b>Standardisation culture</b> <b>Peace and Values Education</b> <b>Financial education</b> <b>Environment and sustainability</b> <b>Inclusive education</b> <b>Safety measures</b></p>
<b>Language practice</b>	<p>As learners present their findings.  During discussions either in groups or in pairs.  As learners carry out research activities.</p>	<p>As learners present their findings.  During discussions either in groups or in pairs.  As learners carry out research activities.</p>
<b>Vocabulary acquisition</b>	<p>Terms referring to different methods of cooking such as, boiling, steaming, stewing, frying, broiling, grilling, poaching., etc</p>	<p>Terms such as gluten, proofing, self-rising, yeast, kneading, scaling, fermentation, baking among others.</p>
<b>Study skills</b>	<p>Carrying out practical activities, doing research, reporting, drawing conclusions, note-taking.</p>	<p>Doing research, presentation, drawing conclusion, practical activities and note-taking.</p>

<b>Revision</b>	Self-assessment tests and Test your competence provided in the Student's Book and extended exercises in the Teacher's Guide.	Self-assessment tests and unit competence tests provided in the Student's Book and extension exercises in the Teacher's Guide.
<b>Formative assessment</b>	<p>To assess knowledge and understanding, let learners do Self-evaluation Tests in the Student's book.</p> <p>Gauge learner's <b>communication, cooperation, critical thinking and problem solving</b> abilities as they carry out group activities.</p> <p>Ask probing questions on attitude change towards food preparation.</p>	<p>To assess knowledge and understanding, let learners do Self-evaluation Tests in the Student's book.</p> <p>Gauge learner's <b>communication, cooperation, critical thinking and problem solving and creativity and innovation</b> abilities as they carry out group discussions and carry out practical activities.</p> <p>Ask probing questions on attitude change towards breads and bread making.</p>
<b>Learning outcomes</b>	<p>To be able to:</p> <ul style="list-style-type: none"> <li>a) Give reasons for cooking food.</li> <li>b) Explain the choices for of cooking methods.</li> <li>c) Describe the methods of cooking.</li> <li>d) Identify the advantages and disadvantages of the different methods of cooking,</li> <li>e) Take precautions when using cooking methods.</li> </ul>	<p>To be able to:</p> <ul style="list-style-type: none"> <li>a) Explain why wheat flour is mainly used for making bread.</li> <li>b) Describe the factors that affect bread quality.</li> <li>c) Describe the types of breads and how to make them.</li> <li>d) Discuss the ingredients used in bread making.</li> <li>e) Know the common faults in bread making and avoid them.</li> <li>f) Make quality bread.</li> </ul>

This teacher's guide has been written to help teachers guide learners to learn Home Science in the most enjoyable and captivating manner. You are reminded to always arouse the curiosity of learners as you teach. Some things that you may do before you go for a lesson include:

- Go through the expected learning outcomes – this should help guide the manner of teaching.
- Read through the unit for the lesson in advance to get an overview of the content required.
- Form a mental picture of the teaching situation and the ways in which you will interact with learners when dealing with the suggested activities.
- Collect the materials that will be needed during the lesson in advance.
- In some cases, try out the suggested activities/ experiments in advance to avoid embarrassments like - the experiment failing to work during the lesson.

**Remember:** The suggested teaching activities in this book are just a guide. You may not need to follow them to the letter! Feel free to incorporate other innovative teaching methods that will help in delivering the intended content optimally.

### 1.1 Organisation of the book

This teacher's guide is organised into **two** main sections. **Part 1** is the general introduction section detailing pedagogical issues. **Part 2** is the main topics area. It gives the details of the expected learning **units** as organised in the learner's book. The main elements of Part 2 are:

- **Unit heading** – this is accompanied by some text in the learner's book to motivate the learners. Also, the total number of lessons per unit is given.
- **Key Unit Competence:** This is the competency which will be achieved once learners have met all the learning objectives in the unit.
- **Unit Outline** is a quick summary of the subtopics covered under the unit.

- **Learning Objectives:** The content, in this area, is broken down into three categories of learning objectives, that is, knowledge and understanding; skills; attitudes and values.
  - **Knowledge and understanding:** As in the existing curriculum, knowledge and understanding is very important.
  - **Skills:** It is through the skills that learners apply their learning and engage in higher order thinking. These skills relate to the upper levels of Bloom’s taxonomy and they lead to deep rather than surface learning.
  - **Attitudes and values:** Truly engaging with the learning requires appropriate attitudes and values that relate to the unit.
- **Links to other subjects:** It is important for learners to gain an understanding of the interconnections between different subjects so that learning in each subject is reinforced across the curriculum. This platform does exactly that. It prepares the teacher to pass this information to the learners so that they are aware!
- **Assessment Criteria:** This is meant to evaluate whether learners have succeeded in achieving the Key Unit Competence(s) intended. This section will help the teacher in assessing whether the unit objectives have been met.
- **Background information:** This is the introduction part of the unit. It aims at giving insights to the teacher on the subject matter.
- **Additional information for the teacher:** This section gives more information than what the syllabus recommends for purposes of preparing the teacher to answer tough questions from learners.
- **Learning Activities:** These are given per lesson and have these sub-sections:
  - Lesson titles
  - Specific objectives of the lesson
  - Materials and learning resources
  - Teaching methodology

- Suggested teaching/learning approach
- Generic competencies covered
- Cross-cutting issues covered
- Special needs and multi-ability learning
- Answers to self-evaluation exercises

These are repeated across all lessons until the end of the unit followed by the answers or tips on the test your competence questions at the end of every unit.

## 1.2 The Structure of the syllabus

Home science is taught and learned in Senior Secondary as an **elective subject**. At every level, the syllabus is structured in **Topic Areas**, and then further broken down into **Units**. The units have the following elements:

- Unit is aligned with the Number of lessons.
- Each Unit has a Key Unit Competency whose achievement is pursued by all teaching and learning activities undertaken by both the teacher and the learners.
- Each Unit Key Competency is broken into three types of

Learning Objectives as follows:

- *Type I*: Learning Objectives relating to Knowledge and Understanding. These are associated with Lower Order Thinking Skills or **LOTS**.
- *Type II and Type III*: These Learning Objectives relate to acquisition of skills, Attitudes and Values. They are associated with Higher Order Thinking Skills or **HOTS**. – These Learning Objectives are actually considered to be the ones targeted by the presently reviewed syllabus.

- Each Unit has a **Content** area which indicates the scope of coverage of what a teacher should teach and learner should learn in line with stated learning objectives.
- Each Unit suggests Learning Activities that are expected to engage learners in an interactive learning process as much as possible (learner-centered and participatory approach).
- Finally, each Unit is linked to Other Subjects, its Assessment Criteria and the Materials (or

Resources) that are expected to be used in teaching and learning process.

In all, the syllabus of Home science for Senior Secondary has four topic areas. They are:

**Topic 1:** Home management

**Topic 2:** Textile fibres and fabrics

**Topic 3:** Food hygiene and nutrition

**Topic 4:** Food preparation and service

As for units, there are a total of **8** units in Home science Senior 2 (**S2**).

### **1.3 Background Information on new curriculum**

The goal to develop a competence-based society, the globalisation process, particularly the growth of the world market, and competition at the global level, as well as a shift from knowledge-based to competence-based curriculum necessitated a comprehensive review of the national curriculum to address the required skills in the Rwandan education system.

It is against this background that the Home science syllabus at senior secondary level was reviewed to ensure that the syllabus is responsive to the needs of the learner with a shift from knowledge-based learning to competence-based learning.

Competence-based learning refers to systems of instruction, assessment, grading, and academic reporting that are based on learners demonstrating that they have acquired and learned the prerequisite knowledge, skills and attitudes as they progress through their education. Apart from being integrative, the newly revised syllabus guides the interaction between the teacher and the learner in the learning process. It further puts greater emphasis on skills a learner should acquire during each unit of learning. As a competence-based syllabus, it elaborates on the three aspects of **knowledge, skills** and **attitudes** in Home science.

### **1.4 Rationale of Teaching and Learning Home Science**

Teaching Home science is critical for establishing a foundation for further success in Home science and for coping with the demands of the 21st century. Not only in developed countries but also in developing countries such as Rwanda, the love and interest for Home science has to be cultured in the learners.

Above all, the rationale of teaching and learning of Home science is embedded in the need for learners to have a greater awareness of the role of Home science

in everyday life. Home science at senior school enables the learner to develop competences which have great impact on the society in general.

Learners have to be prepared to be active and responsible citizens. With this regard, Home science strives to equip learners with an understanding of Home science concepts according to their cultural, environmental, economic, political and social contexts. At the centre of teaching and learning of Home science, hands on activities will play a key role, which in turn, should contribute significantly towards improving learner's achievement, motivation, technological literacy and test scores.

### **1.5 Types of Competences and their acquisition**

Competences are statements of the characteristics that learners should demonstrate which indicate that they are prepared and have the ability to perform independently in professional practice. The two types of competences envisaged in this curriculum are **basic** and **generic** competences.

#### **a) Basic competences**

Basic competences are addressed in the stated broad subject competences and in objectives highlighted year on year basis and in each of units of learning.

They include:

#### **i) Literacy**

- Reading a variety of texts accurately and quickly.
- Expressing ideas, messages and events through writing legible texts in good hand-writing with correctly spelt words.
- Communicating ideas effectively through speaking using correct phonetics of words.
- Listening carefully for understanding and seeking clarification when necessary.

#### **ii) Numeracy**

- Computing accurately using the four mathematical operations.
- Manipulating numbers, mathematical symbols, quantities, shapes and figures to accomplish a task involving calculations, measurements and estimations.
- Use numerical patterns and relationships to solve problems related to everyday activities like commercial context and financial management.
- Interpreting basic statistical data using tables, diagrams, charts and graphs.

#### **iii) ICT and digital competences**

- Locating, extracting, recording and interpreting information from various sources.
- Assessing, retrieving and exchanging information via internet or cell phones.



- Using cell phones and internet for leisure and for money transactions.
  - Using computer keyboard and mouse to write and store information.
  - Using information and communication technologies to enhance learning and teaching (all subjects)
- iv) ***Citizenship and national identity***
- Relating the impact of historical events on past and present national and cultural identity.
  - Understanding the historical and cultural roots of Rwandan society and how the local infrastructure functions in relation to the global environment.
  - Demonstrating respect for cultural identities and expressing the role of the national language in social and cultural context.
  - Advocating for the historical, cultural and geographical heritage of the nation within the global dimension.
  - Showing national consciousness, a strong sense of belonging and patriotic spirit.
  - Advocating for a harmonious and cohesive society and working with people from diverse cultural backgrounds.
- v) ***Entrepreneurship and business development***
- Applying entrepreneurial attitudes and approaches to challenges and opportunities in school and in life.
- Understanding the obligations of the different parties involved in employment.
  - Planning and managing micro projects and small and medium enterprises.
  - Creation of employment and keeping proper books of accounts.
  - Risk-taking in business ventures and in other initiatives.
  - Evaluating resources needed for a business.
- vi) ***Science and technology***
- Apply science and technology skills to solve practical problems encountered in everyday life including efficient and effective performance of a given task.
  - Develop a sense of curiosity, inquisitiveness and research to explain theories, hypotheses and natural phenomena
  - Reason deductively and inductively in a logical way.
  - Use and experiment with a range of objects and tools of science and technology and draw appropriate conclusions.
- b) **Generic competences**
- The generic competencies are competences that must be emphasized

and reflected in the learning process. They are briefly described below and teachers must ensure that learners are engaged in tasks that help them to acquire the competences.

**1. Critical thinking and problem solving skills:** The acquisition of such skills will help learners to think imaginatively, innovatively and broadly and be able to evaluate and find solutions to problems encountered in their surroundings.

**2. Creativity and innovation:** The acquisition of such these skills will help learners to take initiatives and use imagination beyond knowledge provided in classroom to generate new ideas and construct new concepts.

**3. Research skills:** This will help learners to find answers to questions based on existing information and concepts and use it to explain phenomena from gathered information.

**4. Communication in official languages:** Teachers, irrespective of being language teachers should ensure the proper use of the language of instruction by learners (which is **English** at Primary 4 level). The teachers should communicate clearly and confidently and convey ideas effectively through spoken and written English by applying

appropriate grammar and relevant vocabulary.

**5. Cooperation, inter personal management and life skills:** This will help the learner to cooperate in a team in whatever task assigned and to practice positive ethical moral values and while respecting rights, feelings and views of others. Perform practical activities related to environmental conservation and protection. Advocate for personal, family and community health, hygiene and nutrition and responding creatively to a variety of challenges encountered in life.

**6. Lifelong learning:** The acquisition of such skills will help learners to update knowledge and skills with minimum external support. The learners will be able to cope with evolution of knowledge advances for personal fulfillment in areas that are relevant to their improvement and development.

### **Home Science as a subject and developing the competences**

The national policy documents based on national aspirations identify some ‘basic Competences’ alongside the ‘Generic Competences’ that will develop **higher order critical thinking skills** and help the learner learn.

Home science for application in real life. The nature of learning activities which are mainly inquiry oriented contribute to the achievement of those competences. Through observation, experimentation, and presentation of information during the learning process, the learner will not only develop deductive and inductive skills, but he/she will also acquire cooperation and communication, critical thinking and problem-solving skills. This will be realised when learners make presentations leading to inferences and conclusions at the end of the unit. This will be achieved through learner group work and cooperative learning of Home science, which in turn will promote interpersonal relations and teamwork.

The manipulation of apparatus and data during class experiments and undertaking of project work by learners will involve analytical and problem-solving skills directed towards innovation, creativity and research activities by learners.

The acquired knowledge in learning Home science should develop a responsible citizen who adapts to better attitudes and develops confidence in reasoning independently. The learner should show concern of individual attitudes, environmental protection and

comply with the scientific method of reasoning. The scientific method should be applied with the necessary rigor, intellectual honesty to promote critical thinking while systematically pursuing the line of thought.

### **1.6 Cross-cutting issues to be infused during learning**

These are emerging issues, which need to be incorporated in the learning process. Each of the cross-cutting issues has its own important programme of learning reflecting key national priorities. This learning is integrated into the syllabuses of subjects across the curriculum rather than each issue having a dedicated timetable slot of its own. As a result of this integration, the learning activities in the units of subjects across the curriculum incorporate all the learning associated with the cross-cutting issues. The eight cross-cutting issues are:

#### **a) *Peace and Values Education***

The need for Peace and Values Education in the curriculum is obvious. Peace is clearly critical for society to flourish and for every individual to focus on personal achievement and their contribution to the success of the nation. Values education forms a key element of the strategy for ensuring young people recognize the importance of contributing to society,

working for peace and harmony and being committed to avoiding conflict.

#### **b) Financial Education**

Financial education makes a strong contribution to the wider aims of education. It makes learning relevant to real life situations. It aims at a comprehensive financial education program as a precondition for achieving financial inclusion target and improves the financial capability of Rwandans. Financial education has a key role of not only improving knowledge of person but also transforming this knowledge into action. It provides the tools for sound money management practices on earnings, spending, saving, borrowing and investing. Financial education enables people to take appropriate financial services both formal and informal that are available to them and encourages financial behaviours that enhance their overall economic well-being.

#### **c) Standardisation culture**

Standardisation Culture develops learners' understanding of the importance of standards as a pillar of economic development and in the practices, activities and lifestyle of the citizens. It is intended that the adoption of standardisation culture should have an impact upon health improvement,

economic growth, industrialisation, trade and general welfare of the people. While education is the foundation and strength of our nation, standards are one of the key pillars of sustainable economic development.

#### **d) Genocide studies**

Genocide Studies provides learners with an understanding of the circumstances leading to the genocide and the remarkable story of recovery and re-establishing national unity. Genocide Studies helps learners to comprehend the role of every individual in ensuring nothing of the sort ever happens again.

The intent of a cross-cutting curriculum around the topic of genocide is to fight against genocide, genocide denial and any genocide ideology; and to equip learners with a more fundamental and comprehensive understanding of the genocide, thereby preventing further human rights violations in future and enabling Rwanda's population of young people to more competently and thoughtfully enter the workforce. So, it needs to be emphasised.

#### **e) Environment and sustainability**

The growing awareness of the impact of the human race on the environment has led to recognition of the need to ensure our young people understand

the importance of sustainability as they continually become responsible for the world around them. Hence Environment and Sustainability is a very important cross-cutting issue. Learners need basic knowledge from the natural sciences, social sciences and humanities to understand and interpret principles of sustainability. They also need skills and attitudes that will enable them in their everyday life to address the environment and climate change issue and to have a sustainable livelihood.

**f) Gender education**

There is a strong moral imperative to afford every individual their basic human rights and gender inequality results in women and girls being treated less favourably than men. A strongly negative impact of unequal treatment, which affects the nation as a whole, is the fact that it results in women being held back and their talents and abilities not being fully realised. With a good understanding of the principles of Gender Equality, it is intended that future generations will ensure that the potential of the whole population is realised.

**g) Comprehensive sexuality education (HIV/AIDS, STI, Family planning, Gender equality and reproductive health)**

Comprehensive sexuality education,

which is age appropriate, gender sensitive and life skills based can provide learners with the knowledge and skills to make informed decisions about their sexuality and life style. Few young people receive adequate preparations for their sexual lives. This leaves them potentially vulnerable to coercion, abuse and exploitation, unintended pregnancy and sexually transmitted infections (STIs) including HIV/AIDS. Many approach adulthood faced with conflicting and confusing messages about sexuality and gender. This is often exacerbated by embarrassment, silence, disapproval and open discussion of sexual matters by adults (parents, teachers) at very time when it is most needed.

Comprehensive sexuality education supports a rights-based approach in which values such as respect, acceptance tolerance, equality, empathy and reciprocity are inextricably linked to universally agreed human rights. A clear message concerning these dangers and how they can be avoided, from right across the curriculum, is the best way to ensure that young people understand the risks and know how to stay healthy.

**h) Inclusive education**

Inclusive education involves ensuring all learners are engaged in education

and that they are welcomed by other students so that everyone can achieve their potential. Inclusive practice embraces every individual regardless of gender or ability including those with learning difficulties and disabilities. The almost focus of inclusive curriculum is on ensuring participation in education of learners with different learning styles and other difficulties. To be successful, it entails a range of issues including teacher's positive attitudes, adapting the learning resources, differentiation of teaching and learning methods and working together. Overall, the benefits of an inclusive curriculum extend to all learners.

### **1.7 Special needs education and inclusivity**

All Rwandans have the right to access education regardless of their different needs. The underpinnings of this provision would naturally hold that all citizens benefit from the same menu of educational programs. The possibility of this assumption is the focus of special needs education. The critical issue is that we have persons/ learners who are totally different in their ways of living and learning as opposed to the majority. The difference can either be emotional, physical, sensory and intellectual

learning challenges traditionally known as mental retardation. These learners equally have the right to benefit from the free and compulsory basic education in the nearby ordinary/mainstream schools. Therefore, the schools' role is to enrol them and also set strategies to provide relevant education to them. The teacher therefore is requested to consider each learner's needs during teaching and learning process. Assessment strategies and conditions should also be standardised to the needs of these learners. Also, ensure that you include learners with special educational needs in classroom activities as much as possible.

The special needs children can fall in any of the following common categories:

- Physical difficulties
- Visual difficulties
- Hearing difficulties
- Mental difficulties
- Genocide traumatised learners

The teacher should identify such cases and help facilitate the affected learners learning. For example, learners with visual and hearing difficulties should sit near the teacher's table for easy supervision and assistance. The following are some suggestions on how to support special needs children in your class.

**(a) Learners with physical difficulties**

In this group of learners, the affected areas are normally some body parts, especially the limbs. There may be partial or total loss of use of the limbs. In case the legs are affected, the learners will need assistance during activities that involve movement. This could be during a nature walk and other activities that learners have to stand for some reason. The teacher should organize for the learner's ease of movement around. The learner should also be given time to catch up with the others.

In case the hands are affected, the learners should be given more time to finish their work. In both cases, the learners should not be pressurised to do things that can cause injury or ridicule.

**(b) Learners with visual difficulties**

These learners normally have problems with their eyesight. They should sit in a position where they are able to see the chalkboard without straining

**Note:** The learner could be longsighted or short sighted.

The material to be observed should be brought closer to the learner and a magnifying lens used where necessary. The teacher should use large diagrams, charts and labels. In some cases, the

learners can be allowed to touch and feel whatever they are looking at. Other learners can assist by reading aloud. The lighting system in the classroom can also be improved.

The teacher should read aloud most of the things he/she writes on the chalkboard.

**(c) Learners with hearing difficulties**

The affected part in this case is the ear. The learner should have **hearing aids**. The teacher should use as many visual aids as possible. They should also project their voice and always talk while facing the learners. Use of gestures and signs while talking helps the learner figure out what the teacher is saying as well.

**(d) Learners with speech difficulties**

A common example in a normal class is the **stammerer**. They always speak with a lot of difficulties. The teacher should be patient with them and encourage such learners to express themselves in their own way. Such learners should be given more written exercises.

**(e) Learners with mental difficulties**

The teacher should try to identify the nature and level of the mental difficulty. Learners with mental difficulties should then be given special assistance and attention at an individual level. They can

be given special tests or assessments. In general, all the learners with difficulties should be reinforced promptly. This encourages and motivates them. The teacher and the rest of the class should never ridicule learners with any of the difficulties. Note that generally, people with any kind of disability can be very sensitive to any kind of negative comments or criticism.

*Remind them that **'Disability is not inability'**.*

The teacher should avoid giving privileges where the learners do not deserve them. Treat them fairly but not with undue favours. In extreme cases it can be recommended for the learners to join a special school.

**(f) Genocide traumatised learners**

Studies have shown that learners from families that were affected by genocide suffer post-traumatic stress disorder (PTSD). As such, they need to be treated as a special case. As a teacher, you need to be careful when dealing with such learners. Also, you will need to be in control especially when the topic under discussion touches on genocide issues. Any language that may elicit emotional reactions from learners either by fellow learners or by the teacher him or herself should be avoided.



**2.1 Understanding the teaching process**

Although the process of teaching aims at guiding the learners on how, rather than what to learn, the process of discovering or finding out cannot exist without content or something to be found out. For example, a teacher cannot teach about classification without something to classify, for instance. On the other hand, nothing can be classified without knowledge of the materials to be classified. It is, therefore, necessary for the teacher to strike a balance between giving some information and guiding the learners to discover on their own through investigations.

**Problem-solving in Agriculture**

In order to apply problem solving, learners need certain skills. The process of problem solving can be seen as a continuous chain through the following steps:

1. Identifying the problem
2. Collecting information and making relevant observations
3. Making predictions, building a theory or a hypothesis
4. Designing practical activities
5. Carrying out or doing the practical activities
6. Recording the results.
7. Analysing results
8. Making conclusions after comparing predictions with results.
9. Communicating or reporting and exchange of information.

Most often, we do not consciously think about each of these steps every time we try to solve a practical problem. The approach we use to solve our daily problems many times becomes a habit. It is during the early years of our lives that basic patterns of behaviour are established. Therefore, it is very important for learners to master the skills of problem-solving. These skills should be applied many times over to solve problems at the learner's own level of understanding and interest.

Among the basic skills necessary for carrying out the process of scientific problem-solving are:

- Asking questions.
- Collecting relevant information.
- Making predictions.
- Constructing and collecting apparatus and materials.

- Sorting and classifying.
- Recording of information and results.
- Reporting and exchange of information (communication).

Let us briefly discuss each of them.

### **(a) Asking questions**

Learners should be encouraged to ask any question(s) which arise from their work. It is the responsibility of the teacher to help the learners to find answers to their questions or problems through their own observations and experiments.

Instead of giving answers directly, the teacher should help to put the learners in a situation whereby they can find out the answers for themselves. Sometimes, the nature of the learners' questions makes this impossible. In such a case, the teacher should give an honest answer and research to find the answer.

### **(b) Collecting information**

We can use all our senses to learn more about the world around us. Learners should be encouraged to observe keenly, listen, feel, smell and even taste with caution. Sometimes information can be obtained from suitable reference materials and experts. Whatever the source, careful gathering of information

is a major step in problem-solving. It may also lead to discovery of new problems which will need solving.

### **(c) Making predictions or hypotheses**

Predicting is not the same as guessing. We make a prediction only after careful consideration of the information available to us. In other words, because we observed that certain things took place in the past, we suppose that certain other things will happen in the future. For example, if the position of the shadow of a flag post is marked on the ground at 9.00 am, 10.00 am and 11.00 am in the morning, then the learners can predict where the shadow will fall at noon with some level of accuracy.

### **(d) Construction and collection of apparatus and materials**

Practical activities in Home science most often require apparatus, equipment and other materials. These can be acquired through collection and construction using locally available materials.

### **(e) Sorting and classifying**

Learners should be given an opportunity to group things in ways they themselves believe are suitable. The process of sorting and arranging things gives learners valuable practice in decision-making.

Through classifying, patterns may

emerge which may help to solve problems and unveil new ones.

### ***(f) Recording of information***

Learners should be encouraged to keep a record of what they do as well as what they observe. These records may be in the form of drawings, charts, models or reports. When records are analysed, conclusions and appropriate decisions can be made.

### ***(g) Drawing conclusions***

A skilful teacher can help the learners to look for simple cause and effect relationships based on observations made or the results obtained from an experiment analysed.

A conclusion may be the solution to a problem and sometimes may lead to new problems.

### ***(h) Reporting and exchange of information (Communication)***

Learners should be made to realise that they can learn from one another. They should be encouraged to exchange information through reports, displays and discussions.

The conclusions made from an investigation should be communicated to other people who may use it to solve practical problems.

## **2.2 Important attitudes in learning of Home Science**

### ***a) In learners***

There are certain useful attitudes, which the teacher should help to develop in the learners as they carry out practical activities in Home science. Home science as a practical discipline is expected to make an impact on a learner's general behaviour.

The nature of this method of teaching demands that learners be honest with themselves as they record results and make unbiased conclusions. They should be aware of the danger involved in making generalisations out of limited information. They should be open-minded and able to distinguish between propaganda and truth.

Some of the attitudes that learners should develop include:

- **Practical approach** to problem solving. Learners should seek answers to their questions and problems by carrying out investigations wherever possible.
- **Responsibility** – A learner should be responsible enough to effect tasks apportioned and take good care of apparatus during and after an investigation.
- **Cooperation** – Learners will often be working in groups while

carrying out investigations and need therefore to cooperate with all other members of the group.

- **Curiosity** – Learners should have a curious attitude as they observe things and events around them. This is the first step towards solving a problem.
- **Self-confidence** – Learners should have the will to attempt to solve a problem. The feeling of self-confidence can be strengthened in learners if they experience many small successes that win approval and encouragement from the teacher. The problems which learners attempt to solve should not be so difficult that they lead to frustration.
- **Honesty** – As they make observations, record, analyse results and draw conclusions.
- **Patience** – Learners should be patient for the results of an experiment which may take time to manifest.

#### **b) In teachers**

- Engage learners in variety of learning activities
- Apply appropriate teaching and assessment methods
- Adjust instructions to the level of the learner

- Creativity and innovation
- Makes connections/relations with other subjects
- Show a high level of knowledge of the content
- Develop effective discipline skills manage adequately the classroom
- Good communicator
- Guide and counsel
- Passion for teaching and learning

### **2.3 Philosophy of teaching Home Science**

In the teaching of Home science, two definite approaches or techniques have been used. The first is the **passive traditional** approach where the teacher is the central figure around whom all other things revolve. In this setup, the teacher talks and issues commands. The learners sit and listen. The teacher treats the learners like an 'empty pot' waiting for information to be poured into it. A small amount may enter, some will stay in while the rest evaporates. This teacher-centred approach **has no place** in our schools today.

In the second approach, which we call the dynamic or **activity-oriented** approach and which is being advocated for, the learners are active participants in the learning process. They are the doers

and the materials and apparatus they work with are the tellers. The teacher's role is that of a guide and facilitator in the learning process. Home science is a practical subject and learners understand it best by doing.

### **(a) Learner's role in learning Home Science**

Learning takes place only when the learner has internally digested and assimilated the material to be learnt. As such, learning is a highly personal and individual process. It therefore means that a learner must be actively engaged in the learning exercise.

For active participation in learning, the learner must:

- (a) Develop curiosity, powers of observation and enquiry by exploring the local environment.
- (b) Raise questions about what is observed.
- (c) Suggest solutions to those questions and carry out investigations to search for answers.
- (d) Manipulate a variety of materials in search of patterns and relationships while looking for solutions to problems.

The competence-based approach considers the learning process to involve the construction of meaning

by learners. Simply, it emphasises the need for learners to think about activities in order to make sense of and understand the new agricultural concepts being introduced. In this new dispensation, learners are in the driver's seat, which implies they will construct their knowledge by posing questions, planning investigation, conducting their own experiments, analysing and communicating results. More specifically, when engaging in inquiry, learners will describe objects and events, ask questions, construct explanations, test those explanations against current scientific knowledge and communicate their ideas to others. By so doing, the learners will take ownership of the learning process.

Learners' activities are indicated against each learning unit reflecting their appropriate engagement in the learning process. Even though they may not necessarily take place simultaneously in each and every Home science lesson and for all levels, over time learners get involved in the following activities:

- Observing and, where possible, handling and manipulating real objects;
- Pursuing questions which they have identified as their own even if introduced by the teacher;

- Taking part in planning investigations with appropriate controls to answer specific questions;
- Using and developing skills of gathering data directly by observation or measurement and by using secondary sources;
- Using and developing skills of organising and interpreting data, reasoning, proposing explanations, making predictions based on what they think or find out;
- Working collaboratively with others, communicating their own ideas and considering others' ideas;
- Expressing themselves using appropriate scientific terms and representations in writing and talk;
- Engaging in lively public discussions in defense of their work and explanations;
- Applying their learning in real-life contexts;
- Reflecting self-critically about the processes and outcomes of their inquiries.

During this reciprocal interaction, what learners will acquire is not only content knowledge, but a number

of skills including how to approach a problem, identifying important resources, designing and carrying out hands-on investigations, analysing and interpreting data, and, perhaps most importantly, recognising when they have answered the question or solved the problem.

### **(b) Teacher's role in learning and teaching**

The teacher is one of the most important resources in the classroom. The teacher's role is central to the successful implementation of the learning programme in the school. The role of the teacher will remain critical however, instead of being the "sage on the stage", the teacher will rather be "**the guide on the side**" who acts as facilitator in a variety of ways which include:

- Encouraging and accepting learner autonomy and initiative;
- Using raw data and primary sources, along with manipulative, interactive and physical materials;
- Using cognitive terminology such as classify, analyse, predict and create when framing tasks.
- Allowing learner responses to drive lessons, shift instructional strategies and alter content;

- Familiarising themselves with learners' understandings of concepts before sharing their own understandings of those concepts;
- Encouraging learners to engage in dialogue, both with the teacher and one another;
- Engaging learners in experiences that pose contradictions to their initial hypotheses and then encouraging discussion;
- Providing time for learners to construct relationships and create metaphors
- Nurturing learners' natural curiosity.
- Organising the classroom to create a suitable learning environment.
- Preparing appropriate materials for learning activities.
- Motivating learners to make them ready for learning.
- Co-ordinating learners' activities so that the desired objectives can be achieved.
- Assessing learners' activities and suggesting solutions to their problems.
- Assisting learners to consolidate their activities by summarising the key points learnt.

From time to time, the teacher should interact with the learners individually or in groups to diagnose their weaknesses and frustrations, appraise their efforts, imagination and excitement. This will assist and guide them in the task of learning. The teacher must make an effort to teach learners how to team up but still have each learner directly involved in working with materials, consulting with the teacher and with fellow learners. Remember that whatever you do during the class, the interests of the learner remain paramount!

Therefore the teacher should allow and encourage the learners to:

- Explore their local environment.
- Ask questions about things and events.
- Make observations.
- Perform simple investigations and experiments to seek answers to their questions.
- Talk to each other and to the other learners about their experiences, interests, problems, successes and even frustrations.
- Play and make models of things that interest them.

There is no doubt that knowledge in Home science is increasing at such a rapid rate that it is impossible for any



teacher to teach, or any learner to learn all the information available on any particular topic, within the time allocated. As an alternative, the teacher should take on a strategy that is practical and time-saving. It involves equipping the learners with skills, which they can use to find out information and solutions to problems in Home science and in their daily lives. We therefore advocate the teaching of Home science as a process, combined with providing basic facts, which are appropriate in content to the age and stage of mental development of learners under his/her charge. The skills which the teacher must endeavour to introduce and promote in his /her learners include:

*observing, comparing, classifying (sorting), recording, predicting, experimenting, measuring, controlling variables, collecting data, recognising patterns and relationships, analysing and interpreting data, making conclusions (inferring) and communicating.*

These skills, used in conjunction with the introduction of basic facts in Home science that will form a firm foundation which learners can build more as they learn both inside and outside of school.

Education at school is about learning. The process of organising learners' learning so as to achieve the aims and

objectives of the curriculum involves bringing together the needs and characteristics of the learners. To do this, the skills, knowledge and experience of the teacher are all required within any given learning situation.

## **2.4 Teaching resources**

These refer to things that the teacher requires during the teaching process.

They include:

- The classroom
- Textbooks
- Wall charts and wall maps
- Materials and apparatus
- Various tools and equipment
- Science kit
- Models
- Resource persons
- Social facilities such as health centres, other learning institutions, community organisations, etc
- Enterprises such as agricultural farms, industries, among others.

### **a) Classroom as a learning environment**

A classroom generally refers to the place where learning takes place. Learners learn from everything that happens around them, such as the things that they hear, see, touch, taste, smell and play with. It is therefore important for the teacher to make his/her classroom an



attractive and stimulating environment. This can be done by:

- Carefully arranging the furniture and desks.
- Putting up learning and teaching aids on the walls. Examples are wall charts or pictures or photographs.
- Displaying models
- Having a display corner in the classroom where learners display their work.
- Securing a storage area

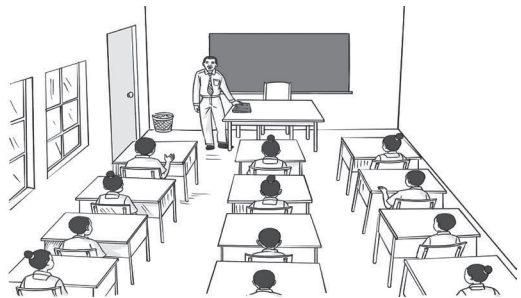
The materials in the classroom should get the learners thinking and asking questions about what is around them and encourage them to do worthwhile activities.

### **Classroom organisation**

A well-organised classroom is an asset to good Agriculture teaching but there is no one correct style to suit all classrooms and situations. However, the teacher should consider the following factors when organising the classroom:

- (a) Furniture should be well arranged so as to allow free movement of learners and the teacher.
- (b) Set a corner for storing materials so as not to obstruct learners or distract them.
- (c) The number of learners in the class and their ages.

- (d) Learners should be reasonably spread out so that they do not interfere with one another's activities.
- (e) The series of lessons or activities going on for a number of days or weeks such as individual or group work or whole class.
- (f) Classroom itself, that is, positions of windows, doors such that learners face the lighted areas of the room.
- (g) Personal preferences. But these should be in the interest of the learners especially where you normally stand, you should be able to communicate with all learners, and also have a general view of all learners in the class.



*Sample classroom setting*

### **Grouping learners for learning**

Most of the Home science activities are carried out in groups and therefore the teacher should place 2 or 3 desks against each other and then have a group of learners sitting around those desks.

In certain activities, the teacher may wish to carry out a demonstration. In this case, the learners should be sitting or standing in a semi-circle, or arranged around an empty shape of letter “U” such that each learner can see what the teacher is doing clearly and without obstruction or pushing. If the learners are involved in individual work, each learner can work on the floor or on the desk or a portion of the desk if they are sharing. In this case, they need not face each other.

Grouping learners for learning has increasingly become popular in recent years. In fact, the shift from knowledge-based to a competence curriculum will make grouping the norm in the teaching process. Grouping learners can be informed by one or all of the following:

- (a) Similar ability grouping
- (b) Mixed ability grouping
- (c) Similar interests grouping
- (d) Needs grouping
- (e) Friendship grouping
- (f) Sex grouping

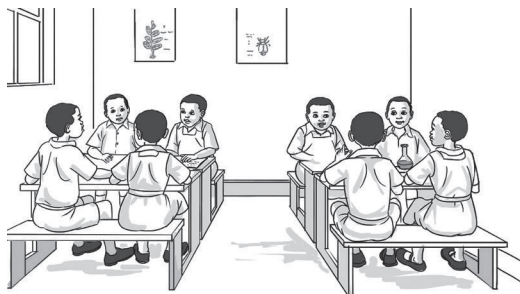
In Home science, groupings are commonly those of types (a), (b), (c) and Grouping learners has several advantages such as:

- (a) The individual learner’s progress and needs can easily be observed
- (b) The teacher-learner relationship is enhanced
- (c) A teacher can easily attend to the needs and problems of a small group
- (d) Materials that were inadequate for individual work can now easily be shared
- (e) Learners can learn from one another
- (f) Cooperation among learners can easily be developed
- (g) Many learners accept correction from the teacher more readily and without feeling humiliated when they are in a small group rather than the whole class
- (h) Learners’ creativity, responsibility and leadership skills can easily be developed
- (i) Learners can work at their own pace

The type of “grouping” that a teacher may choose depends on:

- (a) The topic or task to be tackled.
- (b) The materials available.
- (c) Ability of learners in the class (fast, average, slow).

However, the teacher must be flexible enough to adjust or change his/her type of grouping to cope with new situations.



*Group in a classroom setting*

There is no fixed number of learners that a group must have. This again will be dictated by such factors as the task to be done, the materials, characteristics of learners in your class, size and the space available. However, groups should on average have between **four to seven learners**. You can also resort to pair work depending on the nature of the content being taught at the time.

There is no one method or approach to teaching that is appropriate to all lessons. A teacher should, therefore, choose wisely the method to use or a combination of methods depending on the nature of the topic or subtopic at hand.

### ***Safety in the classroom***

Learners in senior secondary need to be aware of the safety measures they should consider when handling potentially dangerous objects. The teacher is therefore advised to take strict

safety precautions whenever learners are in class or outside the classroom. Some areas that need consideration as far as safety is concerned include:

- During tasting and smelling things
- When using tools and equipment
- During experiments, demonstrations involving use of fire or harmful chemicals
- When handling glass apparatus
- When handling sharp or pointed objects like machete, pair of scissors, razorblade, knife, etc.
- During nature walks and field visits. Learners should avoid handling poisonous plants and harmful animals, etc.

Remember, according to Rwanda laws, the teacher is responsible for the safety of the learners during the period he/she is handling them.

### **(b) Apparatus and materials**

For learners to study Home science through the activity method, a number of materials and apparatus are required. The important role played by materials in learning has been felt for centuries. This is noted for instance in the old Chinese proverb that says:

- *What I hear I forget*
- *When I see I remember*
- *When I do I understand*

Since Home science is largely a practical subject, materials help the teacher to convey his/ her points, information or develop skills, simply and clearly, and to achieve desired results much faster.

Most of the materials that a teacher requires for Home science activities can be collected from the local environment.

Many others can be improvised while some will have to be purchased. Whether collected, improvised or purchased, there are certain materials that are valuable to have around almost all the time. These include:

- **Tools:** *decorative materials*
- **Containers:** *Tins, gourds, bottles, coconut shells, jars, shells, calabashes a cartons etc.*
- **Powders:** *Salt, sugar, flour, soap, powder, ash e.t.c.*
- **Liquids:** *Water, kerosene, methylated spirit, used engine oil, cooking oil, ink etc*
- **Colours:** *for example, from flowers, leaves, roots and stems, charcoal, dyes and chalk.*
- **Soils:** *Clay, loam, sand and gravel.*

Others include pieces of wood and sticks of various sizes, wires, ropes, nails, pins, thorns, grass stalks, growing plants like peas, beans, maize, seeds and cuttings of various plants.

The teacher should organise a place within the school for the proper storage of Home science materials and in labelled boxes.

Encourage learners to collect and bring as many materials and apparatus to the school as they can. This will continuously replenish your materials and apparatus collection.

### **Improvisation**

If each learner is to have a chance of experimenting, cheap resources must be made available. Expensive, complicated apparatus may not always be available in most schools. Such sophisticated equipment made by commercial manufacturers are usually expensive and majority of schools cannot afford them. The teacher is therefore advised to improvise using locally available materials as much as possible. Improvisation should however not be regarded as a cheap substitute of proper laboratory equipment. Many of the great masters of Science used improvised apparatus and many great discoveries have been made using improvised equipment.

### **Timing of topics and the local weather pattern**

Certain topics are best studied during a particular weather condition than at

other times. For instance, rapid growth of plants is best observed during the rainy season. Soil erosion by water and siltation are best studied during the rainy season. Certain insects appear only during the dry weather while others emerge with the onset of the rains. Nature walks and visits are best done when the weather is sunny and dry. The teacher should therefore think ahead while making the scheme of work so that the prevailing weather pattern is considered. This will ensure that suitable activities for learning Agriculture are planned for with the weather in mind.

However, a good scheme of work should be sufficiently flexible to cope with unexpected situations and can be altered or modified to suit certain circumstances.

### **c) Resource persons**

A resource person refers to anybody with better knowledge on a given topic area. Examples include animal health practitioners such as veterinary doctors, farmers, agricultural extension officers, environmental specialists among others. Depending on the topic under discussion, the teacher can organise to invite a resource person in that area to talk to learners about the topic. The learners should be encouraged to ask as many

questions as possible to help clarify areas where they have problems.

### **d) Models**

A model refers to a three-dimensional representation of an object and is usually much smaller than the object. Several models are available commercially in shops. Examples include model of the heart, skin, lungs, eye, ears, among others. These can be purchased by schools for use during practicals.

## **2.5 Teaching methods**

There is a variety of possible ways in which a teacher can help the pupils to learn. These include:

- (a) Direct exposition
- (b) Discovery or practical activity
- (c) Group, class or pair discussion
- (d) Project method
- (e) Educational visit/ field trips
- (f) Teacher demonstration
- (g) Experimentation

The particular technique that a teacher may choose to use is influenced by several factors such as:

- The particular group of learners in the class
- The skills, attitudes and knowledge to be learned
- Learning and teaching aids available
- The local environment
- The teacher's personal preference

- The prevailing weather
- The requirements of the Agriculture syllabus

### **(a) Direct exposition**

This is the traditional way of teaching whereby the teacher explains something while the learners listen. After the teacher has finished, the learners may ask questions. However, remember that in competence-based curriculum, this technique should be used very minimally.

### **(b) Guided discovery**

In this technique, the teacher encourages learners to find out answers to problems by themselves. The teacher does this by:

- Giving learners specific tasks to do
- Giving learners materials to work with
- Asking structured or guided questions that lead learners to the desired outcome

Sometimes learners are given a problem to solve and then left to work in an open-ended manner until they find out for themselves.

With the introduction of the new curriculum, this is the preferred method of teaching.

### **(c) Group or class discussion or pair work**

In this technique, the teacher and learners interact through question and

answer sessions most of the time. The teacher carefully selects his questions so that learners are prompted to think and express their ideas freely, but along a desired line of thought. Discussion method should take learners from known to unknown in a logical sequence; and works well with small groups of learners. The disadvantage of this method is that some learners maybe shy or afraid to air their opinions freely in front of the teacher or their peers. This may give them more confident learners a chance to dominate the others. However, the method should be embraced as it intends to eliminate the lack of confidence in learners. Further, it is hoped that it will help improve interpersonal and communication skills in learners.

### **(d) Project method**

In this approach, the teacher organises and guides a group of learners or the whole class to undertake a comprehensive study of something in real life over a period of time such as a week or several weeks.

Learners using the project method of studying encounter real-life problems which cannot be realistically brought into a normal classroom situation. A project captures learners'

enthusiasm, stimulates their initiative and encourages independent enquiry. The teacher, using the project method, must ensure that the learners understand the problem to be solved and then provides them with the necessary materials and guidance to enable them carry out the study. In upper primary, a teacher can use the project method for topics, which cannot be adequately studied during the normal time-tabled school lessons.

#### *Disadvantages*

If a project is not closely supervised, learners easily get distracted and therefore lose track of the main objective of their study. Studying by the project method does not work well with learners who have little or no initiative.

#### **(e) Educational visits and trips/nature walks**

This is a lesson conducted outside the school compound during which a teacher and the learners visit a place relevant to their topic of study. An educational visit/nature walk enables learners to view their surroundings with a broader outlook that cannot be acquired in a classroom setting. It also allows them to learn practically through first-hand experience. In all “educational visit/nature walk lessons”, learners are

likely to be highly motivated and the teacher should exploit this in ensuring effective learning. However, educational visits are time-consuming and require a lot of prior preparation for them to succeed. They can also be expensive to undertake especially when learners have to travel far from the school.

#### **(f) Demonstration lessons**

In a demonstration, the teacher shows the learners an experiment, an activity or a procedure to be followed when investigating or explaining a particular problem. The learners gather around the teacher where each learner can observe what the teacher is doing. It is necessary to involve the learners in a demonstration, for example by:

- Asking a few learners to assist you in setting up the apparatus.
- Requesting them to make observations
- Asking them questions as you progress with the demonstration.

This will help to prevent the demonstration from becoming too teacher-centred.

#### ***When is a demonstration necessary?***

A teacher may have to use a demonstration, for example when:

- The experiment/procedure is too advanced for learners to perform.



- The experiment/ procedure is dangerous
- The apparatus and materials involved are delicate for learners to handle.
- Apparatus and equipment are too few

## 2.6 Planning to teach

The two most important documents in planning to teach are the schemes of work and the lesson plan.

### a) Scheme of work

A scheme of work is a collection of related topics and subtopics drawn from the syllabus and organized into lessons week by week for every term. It is also a forecast or plan that shows details under these subheadings:

- Week
- Key unit competency
- Lesson
- Learning objectives
- Learning resources and reference materials
- Teaching methods and techniques
- Observations/self-evaluation
- Comments from school director (DOS)

In addition, the schemes of work show the day when a specific lesson will be taught and how long it is intended to take.

**Week** - Refers to the week in the term e.g. 1, 2, 3 etc.

**Key unit competency** - Gives the competence learners are expected to achieve at the end of the unit.

**Lesson** - Refers to the lesson being taught in that week e.g. lesson 1, 2, 3 and 4 etc. This shows whether the lesson is a single or a double lesson.

**Date** - The day when the lesson will be taught.

**Subtopic** - A subset of the topic which is a smaller component of the unit e.g. under the topic plants, one could have 'parts of a plant' as a sub-topic.

**Objective** – What learners are expected to achieve at the end of the lesson.

**Learning resources** - Any materials that will be used by the learner and the teacher for learning and teaching.

**References** - Books or other materials that will be consulted or used in the teaching process. Books that pupils will use should also be shown here; indicating the actual pages.

**Observations/self-evaluation** - This should be a brief report on the progress of the lesson planned in the scheme of work. Such reports could include: 'taught as planned'. 'Not taught due to abrupt visit by Country Director of Education.' 'Children did not follow the lesson, it will be repeated on... (specific date).'

**Comments from director of school** – Space left for comments by the school director.



The following is a sample scheme of work for your familiarisation.

## Unit Plan/Scheme of work

**Academic Year:** 2017

**Term:** 1

**School:** Fawe Girls High School

**Subject:** Home Science

**Teacher's Name:** Angela Iribagiza

**Class:** Senior 2 **Number of periods per week:** 2

Dates/ Weeks	Unit title	Lesson title + Evaluation	Learning objectives (copied or adapted from the syllabus depending on the bunch of lesson) + Key unit competence	Teaching methods & Evaluation procedures	Resources & References	Observations
Week 1	<b>Unit 2:</b> Colours in decoration	<b>Lesson 1:</b> Types of decorative accessories (1 Period)	<p><b>Knowledge and Understanding:</b></p> <ul style="list-style-type: none"> <li>Identify the various types of decorative accessories.</li> <li>Explain the basic decoration methods.</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>Use decoration accessories in simple decoration.</li> <li>Apply the decoration arrangement techniques.</li> </ul> <p><b>Attitudes and Values:</b></p> <ul style="list-style-type: none"> <li>Choose decorative accessories.</li> <li>Comply with basic decoration rules.</li> </ul>	<ul style="list-style-type: none"> <li>Guided discovery</li> <li>Group discussions</li> <li>Pair work</li> <li>Research</li> <li>Presentations</li> <li>Practical activities</li> <li>Question and answer</li> </ul>	Threads, pins, paper, markers, pencils, paints and painting, brushes, ropes, flowers; decoration textiles such as cotton, nylon, polyester; internet, pictures and audio-visual aids textbooks and the internet.	Comment on the effectiveness of the teaching process based on your evaluation of the lesson. For example, learners with low vision had challenges manipulating the decorative accessories during the practical activity - remedial teaching is necessary.
Week 2		<b>Lesson 2:</b> Use of haberdasheries in decoration (2 Periods)	<p><b>Knowledge and Understanding:</b></p> <ul style="list-style-type: none"> <li>Identify the decorative accessories, which fall under haberdasheries.</li> <li>Explain the basic decoration under use of haberdasheries as a decorative method.</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>Use haberdasheries in simple decoration.</li> <li>Apply the decoration arrangement techniques.</li> </ul> <p><b>Attitudes and Values:</b></p> <ul style="list-style-type: none"> <li>Choose appropriate haberdasheries for decoration.</li> <li>Comply with basic decoration rules.</li> </ul>	<ul style="list-style-type: none"> <li>Guided discovery</li> <li>Group discussions</li> <li>Pair work</li> <li>Research</li> <li>Presentations</li> <li>Practical activities</li> <li>Question and answer</li> </ul>	Items such as paper, ribbons, laces, textiles, threads, beads, ropes and flowers; audio-visual aids textbooks and the internet.	

Week 3	<p><b>Lesson 3:</b> Use of soft furnishings accessories in decoration (2 Periods)</p>	<p><b>Knowledge and Understanding:</b></p> <ul style="list-style-type: none"> <li>Identify the decorative accessories, which fall under soft furnishings.</li> <li>Explain the basic decoration under use of soft furnishing accessories.</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>Use soft furnishings in simple decoration.</li> <li>Apply the decoration arrangement techniques.</li> </ul> <p><b>Attitudes and Values:</b></p> <ul style="list-style-type: none"> <li>Choose appropriate soft furnishings for decoration.</li> <li>Comply with basic decoration rules.</li> </ul>	<ul style="list-style-type: none"> <li>Guided discovery</li> <li>Group discussions</li> <li>Pair work</li> <li>Research</li> <li>Presentations</li> <li>Practical activities</li> <li>Question and answer</li> </ul>	<p>Wall hangings, wall pictures, wall clocks, lamps, lampshades, mirrors, audio-visual aids textbooks and the internet.</p>	
Week 4	<p><b>Lesson 4:</b> Use of paintings in decoration (2 Periods)</p>	<p><b>Knowledge and Understanding:</b></p> <ul style="list-style-type: none"> <li>Identify the decorative accessories, which are required under use of paintings as a decoration method.</li> <li>Explain the basic decoration techniques under use of paintings.</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>Use soft paintings in simple decoration.</li> <li>Apply the decoration arrangement techniques.</li> </ul> <p><b>Attitudes and Values:</b></p> <ul style="list-style-type: none"> <li>Choose appropriate paints and colours in decoration using paintings.</li> <li>Comply with basic decoration rules.</li> </ul>	<ul style="list-style-type: none"> <li>Guided discovery</li> <li>Group discussions</li> <li>Pair work</li> <li>Research</li> <li>Presentations</li> <li>Practical activities</li> <li>Question and answer</li> </ul>	<p>Paints &amp; brushes Pens &amp; pencils, metal ruler, Paper, Stanley Knife, audio-visual aids textbooks and the internet.</p>	
Week 5	<p><b>Lesson 5:</b> Use of colour harmony and colour schemes in decoration (2 Periods)</p>	<p><b>Knowledge and Understanding:</b></p> <ul style="list-style-type: none"> <li>Identify the decorative accessories, which are required under use of colour harmony and colour schemes as a decoration method.</li> <li>Explain the basic decoration techniques under use of colour harmony and colour schemes.</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>Use colour harmony and colour schemes in simple decoration.</li> <li>Apply the decoration arrangement techniques.</li> </ul> <p><b>Attitudes and Values:</b></p> <ul style="list-style-type: none"> <li>Choose appropriate colour schemes when decorating.</li> <li>Comply with basic decoration rules.</li> </ul>	<ul style="list-style-type: none"> <li>Guided discovery</li> <li>Group discussions</li> <li>Pair work</li> <li>Research</li> <li>Presentations</li> <li>Practical activities</li> <li>Question and answer</li> </ul>	<p>Paints of different colours, audio-visual aids textbooks and the internet.</p>	

		<b>Summative Evaluation 1</b>	<b>Key unit competence:</b> After studying this unit, learners should be able to demonstrate use of colours and basic decoration methods in simple decoration	<b>Evaluation procedures:</b> <ul style="list-style-type: none"> <li>· Give oral exams to gauge learner attitude and values</li> <li>· Give written tests to evaluate learner understanding of the concepts taught.</li> <li>· Allow learners to participate in practical activities as you assess skills acquisition.</li> </ul>		
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## b) Lesson plan

A lesson plan is a detailed outline of how the teacher intends to carry out a specific lesson.

### Important sub-headings of a Lesson Plan

#### 1. **Administrative details**

Date.....

Subject.....

Class.....

Time.....

Roll.....

#### 2. **Topic area**

Broad area that is to be studied, taken from the syllabus.

#### 3. **Sub-topic area**

A smaller topic of the topic about which a lesson will be taught.

#### 4. **Key unit competence**

This is/are the competence(s) that the learner is expected to achieve at the end of the unit.

#### 5. **Learning Objectives**

These represent what the teacher anticipates pupils to achieve by the end of the lesson. Objectives should be clear and specific. They should also be stated in behavioral terms that is, in a way that the outcome can be seen, displayed or measured. In science,

one should distinguish between knowledge, skill and attitude objectives.

#### 6. **Learning/teaching resources**

Any materials and apparatus that the pupils and the teacher will use during the lesson.

#### 7. **References**

Any resources consulted or used by the teacher to prepare the lesson as well as any books that the pupils will use during the lesson.

#### 8. **Introduction**

This is the start of the lesson. The teacher should motivate the pupils by creating learning situations that interest pupils e.g. posing a problem, telling an amusing but relevant story or episode, showing an object or picture that arouse their interest. The introduction should link what the pupils have already learnt with what they are going to learn.

#### 9. **Presentation/lesson development**

This should mainly include the activities that pupils and the teacher will perform in order to achieve the stated objectives;

as well as the questions that pupils will answer as they do the various activities.

It is convenient to distinguish between the pupils' and teacher's activities under two columns.

**10. Summary/conclusion: (Consolidation)**

This is the step in which the lesson activities are tied up or consolidated to emphasise the main points, summarise the

lessons or make conclusions. The summary should correspond to the objectives stated for that lesson.

**11. Comments/self-evaluation**

Teacher should write remarks on whether the objectives were achieved or not and what he or she intends to do to improve on the weak points noted during the lesson.

## Sample Competence – based lesson plan

**School Name:** Fawe Girls High School    **Teacher's name:** Angela Iribagiza

Term	Date	Subject	Class	Unit N°	Lesson N°	Duration	Class size
1	11 /02/ 2017	Home Science	S2	2	2 of 5	80 minutes	35
<b>Type of special educational needs to be catered for in this lesson and number of learners in each category</b>				Learners with low vision (3) Learners with hearing problems (2) Learners with language difficulty (4) Slow learners (5) High achievers (6)			
<b>Unit title</b>		Colours in Decoration					
<b>Key Unit Competence</b>		To be able to demonstrate the use of colours and basic decoration methods in simple decoration.					
<b>Title of the lesson</b>		Use of haberdasheries as a method of decoration.					
<b>Instructional Objective</b>		Using haberdashery decoration task, the learner should be able to properly identify haberdashery accessories for decoration and properly apply decoration procedures of haberdashery accessories.					
<b>Plan for this Class (location: in / outside)</b>		In the Home Science workshop/laboratory. Use both individual and group activities. The number per group should be informed by the size of the class and availability of resources.					
<b>Learning Materials (for ALL learners)</b>		Items such as manila paper, ribbons, lace, textiles of various types, threads, beads, ropes and flowers and tools such as pair of scissors, Stanley's knife, pins, meter rule, paper trimmer, among others.					
<b>References</b>		Longhorn Home Science Senior 2 Student's book, computer with internet connection and any other reference material on Home Science.					

Timing for each step	Description of teaching and learning activity		Generic competences and cross cutting issues to be addressed plus a short explanation
	Teacher activities	Learner activities	
Introduction (10 minutes)	Using the materials provided, learners practice decorating a venue and making an attractive birthday invitation card as the teacher guides them.		
	<p>Teacher shows learners pictures of a decorated (A) and non decorated (B) house and asks questions.</p> <p><b>Sample Questions</b></p> <ul style="list-style-type: none"> <li>- How do the houses look?</li> <li>- Why is it so?</li> </ul>	<p>Learners observe the pictures and answer the questions.</p> <p><b>Answers to Sample Questions</b></p> <ul style="list-style-type: none"> <li>- A - looks attractive, B - does not look attractive.</li> <li>- A is attractive because it is decorated while B is not decorated.</li> </ul>	

**a) Generic competences**

**Critical thinking and problem solving skills:** Foster this competence by guiding learner's work for example, as they watch and comment about the video. Let them discover the solutions to the various challenges they come across by themselves through group discussions and research.

**Cooperation, interpersonal management and life skills:** Ensure that all learners are actively engaged in discussions and during presentations. Also learners of different abilities should be paired up and roles allocated depending on their abilities.

**Communication in official languages:** This competence will come about as learners discuss and present their work to the entire class during presentations. Correct their vocabulary, pronunciation as well as body language as they present.

<p><b>Development of the lesson (50 minutes)</b></p>	<p>Showing video about professional decoration using various haberdasheries.</p> <p>Teacher assist learners to form groups of five.</p> <p>Teacher asks learners to discuss and present what they saw in the video.</p> <p>Teacher gives a decoration task (decorating school meeting room) using various haberdasheries for example, ribbons, laces, beads, flowers, etc.</p>	<p>Learners watch the video, listen and comment about the video.</p> <p>Learners form groups of five.</p> <p>Learners discuss and present what they observed in the video like: a house decor using haberdashery accessories such as ribbons, laces, beads, flowers, etc.</p> <p>Learners decorate meeting room using the haberdasheries i.e. laces, ribbons, beads, flowers, etc.</p>	<p><b>Research skills:</b> Guide the acquisition of this competence as learners look for information from various sources.</p> <p><b>Lifelong skills:</b> Active participation in the practical activities will help learners develop these skills, which they can use in future to earn a living. Ensure that all learners are serious with the activities.</p> <p><b>Creativity and innovation:</b> Interior decoration in itself is an area that requires a lot of creativity. Give tasks that encourage learners to think and come up with good ideas. For example, how can you improve on the decorated meeting room? Guide learners on where and how they can improve.</p> <p><b>b) Cross-cutting issues</b></p> <p><b>Standardization culture:</b> Emphasize on the need to use good and quality items during meeting room decoration. Also, stress the need to follow standard procedures at all times.</p> <p><b>Peace and values education:</b> Bring to the attention of learners the need to accommodate other people's opinions. Additionally, ensure that discipline is observed at all times in the various groups.</p> <p><b>Inclusive learning:</b> Ensure that all learners, irrespective of their physical shortcomings, participate in the learning process meaningfully so as to achieve their potential.</p> <p><b>Gender education:</b> Let learners appreciate the fact that study of home science can lead to career paths irrespective of gender. Both males and females can earn a living through becoming interior decoration specialists. Emphasize by giving examples of role models in both males and females in the society where the learners live.</p>
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<p><b>Conclusion: (20 minutes)</b></p> <p><b>a) Summary</b></p>	<p>Teacher recaps the key steps in decoration using haberdasheries.</p>	<p>Learners listen to the teacher and take short notes.</p>	<p><b>Environment and sustainability:</b> Bring to the attention of learners the need to conserve the environment. They should avoid throwing waste decorative accessories any how and use them sparingly. Also all waste tools and materials used in decoration should be appropriately disposed.</p>
<p><b>b) Assessment</b></p>	<p>Teacher gives oral questions on use of haberdasheries in decoration.</p> <p><b>Sample questions:</b></p> <ol style="list-style-type: none"> <li>1. Which haberdashery accessories did you use in decorating the meeting room?</li> <li>2. Explain the procedure you used during decoration of the meeting room using haberdashery accessories?</li> </ol>	<p>Learners answer oral questions on use of haberdasheries in decoration.</p> <p><b>Answers to sample questions</b></p> <ol style="list-style-type: none"> <li>1. Ribbons beads, flowers, laces, etc.</li> <li>2. Room decoration procedures include: trimming the various haberdasheries, folding, designing and arranging them attractively and fixing them.</li> </ol>	
<p><b>Teacher self-evaluation</b></p>	<p><b>The teacher asks questions such as:</b></p> <ol style="list-style-type: none"> <li>1. Who can be able to decorate his/her room?</li> <li>2. Who is interested in decoration?</li> <li>3. Can you start your own decoration business?</li> </ol> <p>After weighing the level of understanding of learners based on answers to the questions above, I conclude that the lesson was successfully taught!</p>		

Assessment is the process of evaluating the teaching and learning processes through collecting and interpreting evidence of individual learner's progress in learning and to make a judgment about a learner's achievements measured against defined standards. Assessment is an integral part of the teaching and learning processes. In the new competence-based curriculum assessment must also be competence-based; whereby a learner is given a complex situation related to his/her everyday life and asked to try to overcome the situation by applying what he/she learned.

### 3.1 Types of assessment

The two types of assessment that will be employed in the new curriculum are **formative** and **summative** assessment.

#### a) Formative and continuous assessment (assessment for learning)

Formative or continuous assessment involves formal and informal methods used by schools to check whether learning is taking place. When a teacher is planning his/her lesson, he/she should

establish criteria for performance and behavior changes at the beginning of a unit. Then at the end of every unit, the teacher should ensure that all the learners have mastered the stated key unit competencies basing on the criteria stated, before going to the next unit. The teacher will assess how well each learner masters both the subject matter and the generic competencies described in the syllabus and from this, the teacher will gain a picture of the all-round progress of the learner. The teacher will use one or a combination of the following:

- Observation to judge the extend of skills acquisition
- Written tests
- Oral questions
- Project work
- Attitude change – this can be done by asking probing questions and checking body language as learners respond to the questions.

#### (i) Written tests

Under this, learners are given questions or tasks and are required to respond in writing. Examples of written tests are:

short answer type questions, structured type questions, filling blanks, multiple choice questions, true-false questions and matching items.

**(ii) Practical work or Activity**

In this category, learners are required to perform a task or solve a problem practically. The teacher then assesses the finished work by looking at the materials used, procedures followed, whether it works or not or whether it is finished. He or she then awards marks accordingly.

**(iii) Observation**

This involves the teacher observing learners as they perform a practical task to assess acquisition of skills and attitude change. The teacher checks ability of the learner to measure, classify, communicate findings, etc. He or she also assesses the learner's curiosity, patience, team and co-operation spirit among others.

**(iv) Oral questions or interviews**

Asking learners questions which require a verbal response such as naming parts of a house or explanations of a process such as cleaning can also be used to assess a learner's level of competence.

**(v) Drawing**

This involves asking learners to draw something they have observed or learnt

about. They can also collect data and draw graphs and interpret the graph and give conclusions. This helps to assess their skill in communication through recording.

**(vi) Project work**

In a project, learners undertake a comprehensive study of something in real life over a period of time such as several weeks or even months after which they present a report. In project work, let learners begin from planning stage (come up with a schedule of events), execute the plan, analyse the results and look back (reflect on the challenges encountered during the project and come up with solutions to those challenges (problem-solving skills).

A teacher can use one or several of these assessment methods depending on the subtopic being studied or the purpose for which assessment is required.

**When should the teacher assess the learning progress?**

The teacher should decide whether to assess learners at the end of the lesson or at any other appropriate time when enough content has been covered. The general criteria to use to gauge learner achievement in the various generic competency areas is given in the following table.

Name of Learner	COMM	I&C	CT	RS	LL	PS	C&I
A	Red	Blue	Yellow	Blue	Red	Green	Yellow
B	Yellow	Red	Blue	Yellow	Blue	Red	Blue
C	Green	Blue	Red	Yellow	Blue	Red	Yellow
D	Yellow	Green	Yellow	Red	Yellow	Yellow	Green
E	Red	Blue	Yellow	Blue	Yellow	Red	Blue
F	Blue	Yellow	Red	Yellow	Blue	Green	Red
G	Yellow	Green	Blue	Yellow	Red	Blue	Green

**KEY:** Red – Poor

Green – Good

Yellow – Excellent

Blue – Average

COMM – Communication in English

I & C – Interpersonal skills & Co-operation

CT – Critical Thinking

RS – Research Skills

LL – Lifelong skills

PS – Problems solving skills

C & I – Creativity & Innovation

Allocate marks for each colour and calculate the marks that the learner has attained. Grade the learners based on how they have scored here and in the various tests given to assess skills acquisition and attitude change.

### **b) Summative assessment (assessment of learning)**

When assessment is used to record a judgment of a competence or performance of the learner, it serves a summative purpose. Summative assessment gives a picture of a learner's competence or progress at any specific moment. The main purpose of summative assessment is to evaluate whether learning objectives have been achieved and to use the results for

the ranking or grading of learners, for deciding on progression, for selection into the next level of education and for certification. This assessment should have an integrative aspect whereby a student must be able to show mastery of all competencies.

It can be internal school based assessment or external assessment in the form of national examinations. School based summative assessment should take place once at the end of each term and once at the end of the year. School summative assessment average scores for each subject will be weighted and included in the final national examinations grade. School based assessment average grade will

contribute a certain percentage as teachers gain more experience and confidence in assessment techniques and in the third year of the implementation of the new curriculum it will contribute 10% of the final grade, but will be progressively increased. Districts will be supported to continue their initiative to organize a common test per class for all the schools to evaluate the performance and the achievement level of learners in individual schools. External summative assessment will be done at the end of P6.

### ***Item writing in summative assessment***

Before developing a question paper, a plan or specification of what is to be tested or examined must be elaborated to show the units or topics to be tested on, the number of questions in each level of Bloom's taxonomy and the marks allocation for each question. In a competency based curriculum, questions from higher levels of Bloom's taxonomy should be given more weight than those from knowledge and comprehension level.

Before developing a question paper, the item writer must ensure that the test or examination questions are tailored towards competency based assessment by doing the following:

- Identify topic areas to be tested on from the subject syllabus.

- Outline subject matter content to be considered as the basis for the test.
- Identify learning outcomes to be measured by the test.
- Prepare a table of specifications.
- Ensure that the verbs used in the formulation of questions do not require memorization or recall answers only but testing broad competencies as stated in the syllabus.

### **3.2 Record keeping**

This is gathering facts and evidence from assessment instruments and using them to judge the student's performance by assigning an indicator against the set criteria or standard. Whatever assessment procedures used shall generate data in the form of scores which will be carefully be recorded and stored in a portfolio because they will contribute for remedial actions, for alternative instructional strategy and feed back to the learner and to the parents to check the learning progress and to advice accordingly or to the final assessment of the students.

This portfolio is a folder (or binder or even a digital collection) containing the student's work as well as the student's evaluation of the strengths

and weaknesses of the work. Portfolios reflect not only work produced (such as papers and assignments), but also it is a record of the activities undertaken over time as part of student learning. The portfolio output (formative assessment) will be considered only as enough for three years of Advanced level. Besides, it will serve as a verification tool for each learner that he/she attended the whole learning before he/she undergoes the summative assessment for the subject. The results from the portfolio will contribute 50% on summative assessment of each year.

### **3.3 Reporting to parents**

The wider range of learning in the new curriculum means that it is necessary to think again about how to share learners' progress with parents. A single mark is not sufficient to convey the different expectations of learning, which are in the learning objectives. The most helpful reporting is to share what students are doing well and where they need to improve.

**Refer to Learner's Book pages 1 - 28**

## Key Unit Competency

After studying this unit, the learners should be able to identify and safely use cleaning materials, tools and cleaning products.

### Unit Outline

- 1.1 Types of soils.
- 1.2 Cleaning materials, tools and cleaning products
- 1.3 Associated health and hygiene risks

### Learning objectives

In order to live comfortably, we generally need to be mindful of the

state of our households. Taking care of our households involves many things. Abiding to the fact that we are now embracing a competence based curriculum, learners should acquire knowledge and a good understanding of Home Science as a subject. On top of that, they should also obtain various skills, have a positive change of attitude towards Home Science and other related life aspects. Above all, learners also need to subscribe to certain values concerning Home science that area acceptable in the society they live in. Emphasise these major aspects during the learning process.

**Table 1.1: Knowledge, skills and values to be attained**

Knowledge and understanding	Skills	Attitudes and values
<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Explain different types of soils.</li> <li><input type="checkbox"/> Identify appropriate cleaning materials, tools and cleaning products.</li> </ul>	<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate the different types of soils.</li> <li><input type="checkbox"/> Use cleaning materials, tools and cleaning products safely.</li> </ul>	<p>By the end of this unit, the learner should develop:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Ability to detect and handle different types of dirt.</li> <li><input type="checkbox"/> A positive attitude towards using cleaning materials, tools and cleaning products responsibly.</li> </ul>

## Links to other subjects

The content under this topic is closely related to Chemistry and Biology. Issues to do with hygiene and diseases are covered in Biology. In Chemistry manufacture of soaps and soapless detergents are covered. Point out these relationships to learners.

## Formative assessment method

You will test knowledge and understanding, skills acquisition and attitude change.

- To assess knowledge and understanding of the various concepts – use self-evaluation test questions and Test your Competence questions at the end of the unit. You can also formulate your own questions.
- To test skills acquisition – Observe learners as they carry out the activities in this unit. Also, some questions on the self-evaluation test and Test your Competence exercise can be used.
- To assess attitude change – you can use probing questions to find out the various stands of the learners concerning this topic in Home Science. Also, during discussion sessions and activities, you can observe the body language of

the learners. Specific questions from the Test your Competence exercises can also help in assessing attitude change in learners.

You should decide when to assess learners. This can be done during the lesson, at the end of the lesson or at any other appropriate time as you deem fit.

## Background information

A house, or shelter, is a basic necessity for all human beings. It is therefore important to keep it in clean and tidy. The cleanliness and orderliness of a home should therefore be ensured by all inhabitants of that particular home. Living in dirty and unpleasant conditions is a major health hazard. For proper comfort, health and safety, we should keep our surroundings free from dirt.

## Additional information for the teacher

### Abrasives

- Type to be bought should be suitable for the surface to be cleaned; harsh abrasives scratch and damage some surfaces spoiling their appearance.
- Store powders in their tins free from moisture; if stored in a different container then label it to avoid confusion.



- Steel wool and scouring pads should be washed and well rinsed before storing; to prevent rusting, store steel wool under clean water in a container.
- Abrasives can be improvised by using ash or sand and sisal (sieve and store in a clean container), egg shell (crushed), maize cobs (apply soap and use it to remove dirt from surfaces).

### **Grease solvents**

- Hydrocarbons that contain hydrogen and carbon can be used to dissolve grease and remove stains when cleaning surfaces in the home.
- Acetone (removes lipstick and nail varnish), Benzene (dissolves paint), Methylated spirit (dissolves chlorophyll, biro, medicine and varnish stains), Paraffin (removes banana sap) and Turpentine (removes paint).
- They highly flammable and poisonous therefore should be used outside or in well ventilated rooms away from open flames; wear protective gloves when handling solvents.
- After use store in containers with tight fitting lids (to prevent evaporation) preferably outside

the main house and away from children.

### **Grease absorbents**

- Fine powders such as chalk that are spread on surfaces to take in and remove grease from fabrics and other surfaces; blotting paper too can be used to take in/absorb grease.
- Spread and allow to stay for about 30 minutes then lightly brush off the surface using a soft brush.
- After use store in a clean dry container with a tight fitting lid.

### **Acids**

- Mild acids (citric acid, vinegar & oxalic acid) are commonly used to remove stains when cleaning surfaces and fabrics in the home.
- Avoid buying and using concentrated acids, they may be harmful to surfaces, fabrics and users skin.
- Citric acid and vinegar are good at removing stains from metals; oxalic acid is used to remove rust stain from fabrics
- They should be thoroughly rinsed off the surface because they tend to damage the article if not rinsed off.

- Store in containers with tight fitting lids away from children; if a different container is used for storage and then it must be well labelled.

### **Alkalis**

- They are also known as bases, use in diluted form as concentrated ones are corrosive.
- Ammonia (for cleaning carpets, household brushes and cushion surfaces, it easily emulsifies grease), Borax (removes stains from delicate fabrics of animal origin such as wool and silk), Sodium bicarbonate (softens hard water for laundry work) and Sodium hydroxide (removes fatty grease from cookers, ovens and sinks).
- Use sparingly to avoid damaging the surfaces.
- Store in containers with well-fitting lids away from children's reach.

### **Bleaches**

- These are substances that improve the white colour of fabrics specifically those made from linen and cotton.
- Hypochlorite is the most widely used bleach for laundry work.
- Use carefully and store in dry containers with a tight fitting lid.

### **Salt**

- Used in removal of stains (blood and ink) from textile fabrics and to shine tarnished metals.
- Use sparingly and thoroughly rinse off from the article after use.
- Store in clean dry containers with tight fitting lid; salt stored in moist places absorbs moisture and become damp.

### **Generic competences to be covered**

- Critical thinking – As learners brainstorm about pictures on pages 1, 2, etc and as they answer probing questions.
- Problem solving – as learners answer probing questions, for example in self-test exercises.
- Communicating in English – as learners discuss in their groups and as they write notes and reports.
- Co-operation and interpersonal skills – as learners interact in their groups and as they do presentations.
- Research skills – as learners do research Activities in the learner's book.
- Life-long learning - as learners practice using cleaning tools and materials.

## Cross-cutting issues

- **Safety measures:** The learners should be careful concerning the materials for removal of dirt from surfaces. Learners who do not know how to use the vacuum cleaner should be guided, acids and other agents can also be dangerous if carelessly handled.
- **Money matters:** Learners should be cautioned about taking care of surfaces in order to protect them from stains as they are expensive to remove. Learners can also be encouraged to take good care of clothes in order to serve them for long hence saving money for other uses.
- **Corrupt practices:** Learners should be encouraged to live honestly. They should be discouraged from stealing the cleaning resources.
- **Environmental issues** - Learners should be encouraged to maintain environmental hygiene by ensuring proper disposal of waste water to avoid water logging the surrounding.
- **Gender issues:** Male and female students should equally participate in the lesson.
- **Attitude change:** Learners should be encouraged to

appreciate different methods of cleaning different surfaces. They should be made to appreciate a clean environment.

### ***Activities to support the manner of tackling multi-ability learning and physically challenged learners***

- Peer teaching.
- Giving remedial teaching to slow learners.
- Allow enough time to slow learners to complete their work.
- Identify the learners with hearing and visually impaired and have them sit in front of the class so that proper attention can be given to them.
- Arrange the room to enable easy movement for the physically and visually impaired learners.
- Assign some students to be in charge of the physically and visually impaired learners. For example, carrying their equipment, food materials, etc.

## 1.1 Types of soils

*Refer to learner's book pages 2-11*

### **Periods 1 and 2: Types of soils**

#### ***Specific objectives***

By the end of this lesson, learners should be able to:

- Explain different types of soils.
- Demonstrate the different types of soils.
- Detect and handle different types of soils.

### **Suggested materials and learning resources**

- Learner's book
- Internet
- Library

### **Suggested teaching methodology**

- Class/group discussions
- Question and answer session
- Guided discovery

### **Generic competences to be covered**

- **Critical thinking** – As learners brainstorm about pictures on pages 1, 2, etc and as they answer probing questions.
- **Problem solving** – as learners answer probing questions, for example in self-test exercises.
- **Communicating in English** – as learners discuss in their groups and as they write notes and reports.
- **Co-operation and interpersonal skills** – as learners interact in their groups and as they do presentations.
- **Research skills** – as learners do research for example in Activity

1.3 page 8 in the learner's book.

- **Life-long learning** - as learners practice using cleaning tools and materials, for example Activity 1.2 page 7.

### **Suggested teaching/learning resources**

- Relevant text books and information on dirt and cleaning materials.
- Computers with internet connection.
- Display of different cleaning agents and materials
- Improvised materials.

### **Suggested teaching /learning approaches**

- You may introduce this unit through a brainstorming session on Fig 1.1 pictures A and B on page 1 of student's book. Guide the learners into appreciating a clean and tidy classroom as opposed to a dirty one. Let them discuss why this is the case and come to a conclusion. Such a conclusion can be – to avoid diseases and to feel comfortable. They should then predict what they will learn in this unit based on the answers to the probing questions.
- Put the learners in groups of 5 students then guide them through the discussion on page 2. They

should come up with summary points and share their findings with other class members. Fig A is a tarnished trophy and Fig B is a blood-stained jeans trouser.

- At this point, you can now introduce the various types of soils, that is:
  - Dust
  - Stain
  - Fixed dirt and
  - Tarnish
- Guide learners into discovering these types of soils and how to remove them. Refer to suggested activities on pages 2 – 11 in the student's book.
- Emphasize important areas such as:
  - The principles of stain removal
  - What to do and what not to do
  - Various cross-cutting issues

Seek to know more about the learner understanding of the various concepts by asking probing questions. You may refer to self-evaluation exercises 1.1-1.5 pages 5-11 in the student's book.

### **Answers to Self Evaluation Test 1.1 (Page 5)**

1. What other things do you know that get dusty?
  - Surfaces like walls, windows, etc.
  - Fabrics used for clothes

- Our hands
2. What are some of the dangers caused by dust?
    - If inhaled, dust can cause respiratory infections.
    - Infections as a result of bacterial microorganisms that thrive in dusty conditions.
    - When allowed to accumulate, dust can spoil the appearance of a surface.
  3. Practice removing dirt from dusty surfaces in your classroom.
    - Students can dust the class furniture, the walls, windowsills and any other equipment in the classroom.

### **Answers to Self-Evaluation Test 1.2 (Page 5)**

1. Give other examples of fixed dirt found either at your home or at school.
  - Ink stains on school uniform.
  - Food or blood stains on fabrics.
  - Tarnish on trophies.
2. What can we do to avoid fixed dirt?
  - Remove stains immediately they occur to prevent them from becoming permanent.
  - Proper cleaning of washing or cleaning of surfaces and fabrics to prevent discoloration.

### Answers to Self Evaluation Test 1.3 (Page 8)

1. What other types of stains do you always come across?

- Beverage (tea, coffee, cocoa) stains.

- Fruit stains.
- Protein (blood, egg and milk) stains.
- Mildew stains (fungal growth on damp fabrics)
- Oil-based stains

2. What do you do to remove these types of stains?

Type of stain	Method of removing
Beverage (tea, coffee, cocoa) stains	<ul style="list-style-type: none"> <li>▪ For white cottons and linen, pour hot water through the stain and wash in the usual way; if coloured, soak immediately in cold water to loosen the stain.</li> <li>▪ If stain is dry, cover with borax then treat as above.</li> </ul>
Fruit stains	<ul style="list-style-type: none"> <li>▪ For white linen and cotton, cover the stain with salt to prevent spreading, pour boiling water through it and wash in the normal way. Boiling after washing facilitates further removal of the stain.</li> <li>▪ For coloured fabrics, try first soaking in warm water then wash, if this fails, soak in dilute hydrogen peroxide solution and wash as usual.</li> </ul>
Protein (blood, egg and milk) stains	<ul style="list-style-type: none"> <li>▪ For washable fabrics, soak the stain in cold water with a little salt to loosen the stain (avoid hot water as this cooks and fixes the stain); wash the garment as usual.</li> <li>▪ For non-washable fabrics, cover stain with paste of starch or powder and leave it to absorb the stain before washing.</li> </ul>
Mildew stains (fungal growth on damp fabrics)	<ul style="list-style-type: none"> <li>▪ For white cottons and linens, use a solution of potassium permanganate then soak in salts of lemon to remove the brown discoloration. This too can be removed by dampening the fabric and placing it in the sun.</li> <li>▪ Home dry cleaning solutions can be used for non-washable fabrics.</li> </ul>
Oil-based stains	<ul style="list-style-type: none"> <li>▪ Dip in a grease solvent such as paraffin, turpentine or petrol to loosen the stain then wash procedurally.</li> </ul>

3. What can you do to minimise stain accidents?

- Remove discoloration while still fresh, they get fixed with time and become stains.

### Answers to Self Evaluation Test 1.4 (Page 9)

1. Where else have you come across a tarnished surface?

- It is a common problem on metals; trophies, cutlery, aluminum pails or basins.
2. How do you normally remove tarnish when you find it at home or at school?
    - Dust the surface to remove loose dust.
    - Rub the surface with a cut lemon or cloth wrung out of vinegar.
    - Carefully work in circular motions starting from inside to the outside to cover the tarnish.
    - Allow sometime for the stain to loosen.
    - Rub with a soft cloth to remove the discoloration.
    - Polish and buff to give a glossy finish.
  3. How can you protect surfaces from tarnish?
    - Items such as cutlery or trophies to be kept for a long time should be well covered with soft paper and stored in a dry place.
    - Keep surfaces dry - free from dampness.
    - Polish surfaces to give a protective covering and prevent tarnish stains.

**Answers to Self Evaluation Test 1.5 (Page 11)**

1. Which types of soil are common in your home and school? Specify

where these types of soils are normally found.

*Assess student answers based on the environment where they are. Otherwise in general, the answers should include dust, tarnish, fixed dirt among others.*

2. Explain how you would clean a painted wall that has mud stains stuck on it.
  - High-dust the wall to remove loose dust and cobwebs.
  - Low-dust, paying attention to the skirting board.
  - Use a cleaning cloth wrung out of warm soapy water, clean in circular motions, a small section at a time, overlapping the sections to ensure all areas are covered.
  - Rinse each section with a cloth wrung out of clean water to remove traces of soap and dirt.
  - Give a final rinse using a damp cloth wrung out of clean water that has a disinfectant.
  - Dry each section with a clean dry duster to remove all the water marks.
  - Buff to give a glossy finish.
  - In case of very dirty walls, first cleaning should be done from down upwards to prevent tear marks caused by dirt water trickling down the wall; rinsing should however be done from up down not to soil the already cleaned parts

3. Why is it important to first remove stains from an article before washing it in detergent?
    - During washing, stains are likely to spread and cause more discoloration therefore they are best removed before washing.
  4. Explain why it is advantageous that tarnish is different from rust. (Explain the differences and also why tarnish is easier to deal with than rust).
    - Unlike rust, tarnish is a thin layer of corrosion or chemical reaction that forms over metals in the presence of moisture and oxygen. It only affects the top few layers of the surface. The layer of tarnish seals and prevents the underlying layers from reacting. The tarnished surface will normally have a dull, gray or black film or coating.
    - Being just a top layer, tarnish is easily removed by use of salts of lemon.
- Identify appropriate cleaning materials, tools and cleaning products.
  - Use cleaning materials, tools and cleaning products appropriately to do cleaning.

### Suggested materials and learning resources

- Learner's book
- Dust bins
- Sanitary bins
- Glass cloth
- Mops
- Brushes
- Dusters
- Dust pans
- Brooms
- Buckets
- Basins
- Sponges
- Gloves
- Masks

Cleaning products such as furniture polish, glass cleaner, liquid soap, toilet cleaner, multipurpose cleaner, disinfectant, floor polish and air freshener.

### Improvisations that can be done by the teacher

The teacher can use locally available materials to improvise such as lemon juice, ash, egg shells, sand and leaves as cleaning agents.

### Suggested teaching methodology

- Discussions

## 1.2 Cleaning materials, tools and cleaning products

Refer to learner's book pages 12-23

### Periods 3 and 4: Cleaning materials, tools and cleaning products

#### Specific objectives

By the end of this lesson, learners should be able to:



- Question and answer session
- Guided discovery
- Practical activities

### **Suggested teaching/learning resources**

- Relevant books and information on dirt and cleaning materials.
- Computers with internet connection.
- Display of different cleaning agents and materials
- Improvised materials.

### **Suggested teaching /learning activities**

- Introduce the lesson by asking probing questions such as ‘What materials or things do you use when cleaning at home?’ Refer to discussion corner on page 12 of student’s book. Hint: Picture A – Bar soaps, B – Bucket, C – Powder soap.
- You can then introduce cleaning tools and materials. You should have planned in advance to avail these tools and materials during the lesson.
- List the various tools and materials in the chalkboard. Then narrow down to each tool/material and explain how it works and how it can be taken care of. Let learners interact with the tools and

materials. Show them how to use them then let them practice using them. Ensure you give all students the opportunity to use the tools. Choose some of the learners to help those with various physical challenges. Let them do Activities 1.4 – 1.7 in the student’s book pages 13 -17.

- Guide learners to carry out activity 1.8 and 1.9 in the Student’s book page 19-20. Let them share their list of cleaning products with fellow class members.
- Plan to bring the various products used for cleaning in class. Let learners see and identify what they are and what they are used for. (Activity 1.10 page 21).
- Wind up the topic by guiding learners to carry out Activity 1.11 on page 23 of Student’s book.
- Bring to the attention of learners the various cross-cutting issues raised in the student’s book i.e. money matters and health matters.

Wrap up the lesson by giving learners homework on various cleaning products and their uses. Find out their attitude to cleaning and staying in a clean and tidy environment. Handle different cases accordingly, for example, bring out the need to keep our environment clean for those with negative attitude.

## Answers to Self Evaluation Test 1.6 (Page 23)

Match the following cleaning tools, materials and products with their correct uses.

Name	Use
Soap	Made from natural oils and fats and used with water for washing and cleaning.
Foam mop	For mopping tiled floors; used with detergent.
Dust pan	For collecting dirt after sweeping
Bleach	Improving the white colour of fabrics.
Dustbin	Where rubbish is thrown before being disposed of.
Broom	Sweeping smooth surfaces and removing cobwebs.
Detergent	Loosening and emulsifying dirt so that it is easier to remove from a surface
Water	Main solvent used when cleaning various surfaces and articles.
Clothe brush	Removing loose dirt from clothes and upholstered furniture.
Cleaning clothes	Pieces of cloth used for dusting and wiping various surfaces

### 1.3 Associated health and hygiene risks

Refer to student's book pages 23-25

#### Periods 5 and 6: Associated health and hygiene risks

##### Specific objectives

By the end of this lesson, learners should be able to state health and hygiene risks associated with cleaning materials, tools and products.

##### Suggested materials and learning resources

- Learner's book
- Reference books
- Gloves
- Rubber shoes
- Capes

##### Suggested teaching methodology

- Discussions
- Question and answer session
- Guided discovery

- Practical activities

##### Suggested teaching/learning resources

- Relevant books and information on dirt and cleaning materials.
- Computers with internet connection.
- Display of different cleaning agents and materials
- Improvised materials.

##### Suggested teaching /learning activities

- Introduce the lesson by way of a case study (see Activity 1.12 in Students book page 23).  
*Iron sheet A is corroded due to acid rain.*  
*Iron B is new and in good shape.*
- Other cleaning products just like acid can cause corrosion. They can corrode the skin as we use them. Assess student answers during the

activity and ensure that they bring out this point.

- Let learners understand that other than corrosion, there are other health risks associated with cleaning products.
- Guide learners to discover the health and hygiene risks. Refer to Table 1.7 page 24 in the student's book.
- Allow learners to propose how they can avoid such risks. Correct them accordingly. You can then let them try out what they have suggested.
- Wind up the lesson by guiding learners to do Activity 1.13 page 25 student's book in order to appreciate why dressing appropriately is important.

### Answers to Test your competence 1

Refer to student's book page 26-27

1. (i) The type of stain - that is whether the stain is acidic, alkaline, water-based or oil-based.
- (ii) The type of fabric or surface where the stain is found.
- (iii) It should not corrode the user's hands.
- (iv) It should be friendly to the environment.
- (v) It should not be highly inflammable.
- (vi) It should not have serious effects when inhaled.

2. (i) We should use them with a lot of care as some of them are highly inflammable.
  - (ii) Grease solvents should be used in well ventilated rooms as some of them are poisonous when inhaled.
  - (iii) Friction should be minimised as this may weaken the fabric.
3. (a) Dust consists of minute particles of fluff, hair, soot and soil.
  - (b) It is found in the air and on exposed surfaces.
  - (c) – By closing doors and windows.  
– By removing it frequently when it settles.
4. Ask learners to carry out activities in (a), (b), (c) and (d) at home.
5. (a) False                      (b) True  
(c) False                      (d) False
6. (a) – Rinse it off with cold water.  
If it is sticky, use cold water, a scouring pad and soap.  
– Then clean the chopping board with warm soapy water, rinse in warm and finally in cold water.  
– Drain it to dry and store appropriately.
  - (b) – Run boiling water through the stain until it is removed.  
– Then launder the table cloth normally.
  - (c) Rub it with metal polish, sand paper, steel wool or emery paper.
7. Because the bristles can hurt the user.

8.

W	A	S	H	I	N	G	S	O	A	P
L	M	E	S	X	S	T	A	R	C	H
X	O	G	V	L	C	B	L	S	W	P
A	P	W	Q	E	M	L	T	T	U	L
R	V	V	I	N	E	G	E	R	D	Q
O	W	U	B	S	S	Z	V	M	X	Z
B	Z	M	R	T	R	O	S	O	A	P

9. (i) Polishing them well.

(ii) Drying them completely after cleaning.

10. I will advise him or her to change her attitude and explain the importance of staying in a clean and hygienic environment. (To avoid health risks and diseases)

11. Basins and buckets are not used for collecting dust. We use a dustpan and a brush instead.

12. (i) Wooden surfaces

(ii) Leather surfaces

13. (i) To avoid making the clothes dirty.

(ii) To avoid contamination.

(iii) To avoid getting harmed by chemicals

14. (i) Proper plan for cleaning the compound.

(ii) Ensuring that the toilets are cleaned.

(iii) Ensuring adequate supply of clean water in the school.

(iv) Maintaining proper environmental safety by making it free from tall grass, wood splints, broken bottles, old tins, plastic containers and polythene bags.

15. – Use water sparingly without it.

– Use only enough soap or detergent.

– Take appropriate care of cleaning tools and materials to ensure that they last for long.

*Refer to Learner's Book pages 29 - 54*

## Key Unit Competency

After studying this unit, the learners should be able to demonstrate the use of colours and basic decoration methods in simple decoration.

### Unit Outline

2.1 Types of decorative accessories

2.2 Basic decoration methods

### Learning objectives

In order to live comfortably, we generally need to be mindful of the state of our households. Taking care of our

households involves many things. Abiding to the fact that we are now embracing a competence based curriculum, learners should acquire knowledge and a good understanding of Home science as a subject. On top of that, they should also obtain various skills, have a positive change of attitude towards Home science and other related life aspects. Above all, learners also need to subscribe to certain values concerning Home science that are acceptable in the society they live in. Emphasise these major aspects during the learning process.

**Table 2.1: Knowledge, skills and values to be attained**

Knowledge and understanding	Skills	Attitudes and values
<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Identify the decorative accessories.</li> <li>▪ Explain the basic decoration methods.</li> </ul>	<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Use decoration accessories in simple decoration.</li> <li>▪ Apply the decoration arrangement techniques.</li> </ul>	<p>By the end of this unit, the learner should:</p> <ul style="list-style-type: none"> <li>▪ Choose decorative accessories appropriately.</li> <li>▪ Comply with basic decoration methods.</li> </ul>

## Links to other subjects

This topic encompasses decoration methods and use of colour in decoration. It is therefore closely related to the topic of dispersion of white light in Physics and drawing and painting in fine arts. Learners need to appreciate this as they pursue a career in these areas.

## Formative assessment method

You will test knowledge and understanding, skills acquisition and attitude change.

- To assess knowledge and understanding of the various concepts – use self-evaluation test questions and Test your Competence questions at the end of the unit. You can also formulate your own questions.
- To test skills acquisition – Observe learners as they carry out the activities in this unit. Also, some questions on the self-evaluation test and Test your Competence exercise can be used.
- To assess attitude change – you can use probing questions to find out the various stands of the learners concerning this topic in Home Science. Also, during discussion sessions and activities, you can observe the body language of

the learners. Specific questions from the Test your Competence exercises can also help in assessing attitude change in learners.

You should decide when to assess learners. This can be done during the lesson, at the end of the lesson or at any other appropriate time as you deem fit.

## Background information

### Basic decoration methods

Though reasons for decorating a home may vary with each individual, community or society, decorating and patterning makes rather plain surfaces at home more appealing to the eye and improves the overall view. A wide range of decorative accessories can be used in various shapes and colours to add aesthetic value to a home. This can be done in a variety of ways:

#### **a) Use of haberdasheries**

Haberdasheries comprise of additional decorative trimmings useful in adding décor to the accessories used in the home. They include items such as paper, ribbons, laces, textiles, threads, beads, ropes and flowers.

#### **b) Use of soft furnishing accessories**

These group of accessories may be purely decorative or both decorative and functional. They include wall

hangings, wall pictures, wall clocks, lamps, lampshades, mirrors, among others.

### **c) Use of paintings in decoration**

When doing paintings as a method of home decoration, a wide range of tools and materials can be used. Relying completely on ready-made materials can be quite expensive therefore it is wise to explore local materials and improvised tools. Carpentry workshops and sawmills are good points where one can find various sized cut off wood blocks that may cost little or nothing.

Scrapes of fabrics from tailors can also come in handy in home decoration especially as a stuffing material.

Home decoration tools and materials widely used include paint and painting brushes, pins, pencils, markers, manila papers, scissors, razor blades, textile threads, newspapers and soft paper.

### **d) Colour schemes and decoration**

Colour becomes visible in the presence of light. Colour is an important aspect of interior decoration. It can be used to describe a room in different ways. colours which blend well with natural light are most suitable for interior decoration. The general background information on the choice and use of colours and colour schemes is an

important aspect of making the room suitable for its purpose.

### **Generic competences to be covered**

- **Critical thinking** – As learners brainstorm about pictures on pages 29, 30, e.t.c and as they answer the probing questions.
- **Problem solving** – as learners answer probing questions, for example in discussion corners, research activities and self-test exercises.
- **Communicating in English** – as learners discuss in their groups and as they write notes and reports and do presentations.
- **Co-operation and interpersonal skills** – as learners interact in their groups and as they do presentations.
- **Research skills** – as learners do research for example in Activity 2.3 page 33 and 2.5 page 37 in the student's book.
- **Life-long learning** - as learners participate in various activities and as they do project work, for example on page 50.

### **Cross-cutting issues**

**Safety measures:** the learner should be careful concerning use of the cutting

out tools when making ornamental accessories. The teacher should guide the slow learners and control the use of the equipment.

**Money matters:** Learners should be encouraged to use the locally available materials to make decorative accessories which can be sold to earn money.

**Corrupt practices:** Learners should be discouraged from stealing clothe.

**Environmental issues** - the pieces of materials for making accessories should be disposed well to avoid making the environment dirty.

**Gender issues:** male and female students should equally participate in the lesson.

**Attitude change:** the learner should be encouraged to appreciate different types of colour schemes and accessories for interior decoration.

### **Improvisations that can be done by the teacher**

The teacher can collect small pieces of materials in the school or home to use them in making different decorative items. Examples are flowers, dyes, banana fibre, leaves, seeds of different plants etc.

### **Activities to support the manner of tackling multi-ability learning and physically challenged learners**

- Peer teaching.
- Giving remedial teaching to slow learners.
- Allow enough time to slow learners to complete their work.
- Draw the flow chart colour wheel of t and colour combinations on the chalk board clearly for those with hearing abilities.
- Identify the learners with hearing and visually impaired and have them sit in front of the class so that proper attention can be given to them.
- Arrange the room to enable movement easy for the physically and visually impaired learners.
- Assign some students to be in charge of the physically and visually impaired learners.

## **2.1 Types of decorative accessories**

Refer to learner's book pages 30 - 31

### **Lesson (Period 1): Types of decorative accessories**

#### **Specific objectives**

By the end of this lesson, learners should be able to:

- Identify decorative accessories.
- Use decoration accessories in simple decoration.

#### **Suggested teaching /learning resources**

- Relevant books and information on colour and interior decoration.



- Computers with internet connection.
- Display of different colours
- Pictures of interior decoration in the house.
- Materials for making decorative items.

### **Suggested teaching /learning methods**

- Discussions.
- Guided discovery.
- Question and answer session.

### **Suggested teaching /learning activities**

- You may introduce this unit through a brainstorming session on pictures A and B on page 29 of student's book. Let them give answers to the probing questions asked in a discussion forum. Guide the learners into appreciating a well-decorated and tidy room as opposed to a dirty or disorganized one. They should then predict what they will learn in this unit based on the answers to the probing questions.
- With the introduction above, you can now introduce the first subtopic which is on "types of decorative accessories.
- Lead a class discussion on what decoration is. Allow learners time to do research on the meaning of the word. They can then report

back on what the word means. Let them think about how they can decorate their homes or houses.

- Put the learners in groups of 5 students then guide them through the questions in the discussion corner on page 30. They should come up with summary points and share with the rest of their classmates.
- You may also plan to bring the various decorative accessories in class. Refer learners to activity 2.1 page 31 in the student's book. Initiate a discussion on what they are and their use. Find out from learners what their feelings are were it that those items were not available in the world today.
- Let the learners write short notes as you discuss the importance of each item and their uses. Give each one a chance to read what they have written to the rest of the class.
- Remember to highlight the various cross-cutting issues during the lesson. Remind them of the benefits of choosing quality items. Also, remember to mix able and disadvantaged students in the various groups. Also, ensure all learners participate during the lesson irrespective of gender or physical state of the body. Remember, disability is not inability.

## Answers to Self Evaluation Test 2.1

- (a) Give four functional decorative accessories you know.  
Lamps, mirrors, wall clocks, curtains, cushions, etc.  
(b) Explain how they are used.
  - Lamps – as source of lighting in the house
  - Mirrors – when used in bedroom and bathroom during grooming.
  - Wall clocks – when used for telling time.
  - Curtains – to prevent too much light from entering the house.
  - Cushion – for resting the head in the living room.(c) Lamps – use lamps of different colours.
  - place on chandeliers
  - Mirrors – Place parallel to one another.
  - Wall clocks – when carefully blended with wall hangings.
  - Curtains – when matched with wall colours.
  - Cushions – when different colours are used.
- Dull colours do not reflect light hence the room will appear dark.
- To give an impression that the restaurant/hotel room is big.

### 2.2 Basic decoration methods

Refer to student's book pages 31 – 50.

#### Periods 5, 6, 7, 8 & 9: Basic decoration methods

##### Specific objectives

By the end of the lesson, learners should be able to:

- Explain the basic decorative methods.
- Apply the decoration arrangement techniques

##### Suggested teaching/learning resources

- Threads of different types, colouring items, pins, manila paper, markers, pencils, flowers, scissors, ropes, ribbons and other decorative accessories.
- Learner's book
- Reference materials

##### Suggested teaching methodology

- Class/group discussions
- Guided discovery
- Practical activities
- Question and answer sessions

##### Suggested teaching/ learning activities

#### Lesson 2(Periods 2 & 3): Use of haberdasheries in decoration

- You may begin this lesson by reminding learners what they learnt in the previous lesson on types of decorative accessories. You can then introduce the content of this lesson, which is, 'use of haberdasheries in decoration.
- Guide learners to carry out Activity 2.2 on page 32 of student's book. Guide them to come up with a list of tools and the various decorative methods.

- Introduce the concept of haberdasheries by way of a research Activity. See page 33 of the student's book.
- Guide learners to appreciate the various haberdasheries and their use in decoration. You can bring a variety of things decorated with different haberdasheries in class. Let learners compare them and come up with a list of those items used in the decoration. Assess and correct them accordingly.
- Take learners through the process of making invitation cards as explained in student's book pages 35-37.
- Give learners an Activity on preparing a birthday card. See page 37 students book.
- Evaluate student work and correct them accordingly clarifying the various uses of the different soft furnishings.
- Emphasize the fact that the accessories can be both decorative and functional and give examples in each case.

#### ***Lesson 4 (Periods 6 & 7): Use of painting in decoration***

#### ***Lesson 3 (Periods 4 & 5): Use of soft furnishing accessories in decoration***

- You may begin this lesson through a brainstorming session on what soft furnishing accessories are. Further, guide learners to carry out Research Activity 2.5 on page 37 of student's book.
- Organize for learners to do a class presentation on their findings.
- Let the students try to assemble the various accessories in the classroom with a view to decorate it.
- Refer learners to the pictures on page 40 of student's book. Ask them to say what is used to decorate the house.
- You can then introduce the concept of painting using paintbrushes as a method of decoration.
- Ask learners if they have ever seen anything decorated using painting. Find out what their feelings on use of paintings as decoration method is.
- Stress the fact that painting can act as a career for earning a living so, there is need for seriousness when dealing with this lesson.
- Help learners to collect painting items and give them a painting activity. Let them draw various decorative objects of their choice. You should then guide them to use the various paintings they have done to decorate their classroom.

### **Lesson 5 (Periods 8 & 9): Use of colour harmony and colour schemes in decoration**

- Introduce this lesson through a brainstorming session on what colour scheme and colour harmony is.
- Allow learners to engage in a discussion given on page 42 of student's book. Let the learners identify the various colours in the colour wheel. Answers are:

1 – Yellow, 2 – Red, 3. Blue, 4 - Orange, 5 – Violet/Purple, 6 – Green, 7 – Yellow, - 8 – Yellow-orange, 9 – Orange, 10 - Red Orange, 11- Red, 12 – Red violet, 13 – Violet, 14 – Blue violet, 15 – Blue, 16 – Blue Green, 17 – Green, 18 – Yellow green.
- Explain the various characteristics of colour. Help learners to distinguish between hue, colour intensity and value of colour.
- At this point, you can bring out the concept of the different types of colours i.e. primary, secondary and tertiary. Let learners carry out a small activity on mixing of colours. Bring the different colours to class. Allow learners to mix:
  1. *A primary colour with another primary colour.*
  2. *A secondary colour with another secondary colour.*
  3. *A primary colour with another secondary colour.*
- Let them compare the resultant colour with the colour scheme on page 43 and identify the colours.
- At this point you can introduce the types of colour schemes.
- Ask learners to do research on types of colour schemes from the library. They can also use internet search engines. Refer to Activity 2.9 page 44 in the student's book. Let them give examples of each colour scheme.
- Back in class, bring pictures showing the various colour schemes. Let learners identify them based on their research findings. Correct them as is appropriate.
- Summarise by explaining the different types of colour schemes, their advantages and disadvantages and where they can be used. Refer to student's book pages 44 – 46.
- Explain the concept of colour proportions and colour effects.
- Guide learners to analyse the picture on page 47 in the student's book. Let them comment about the choice of colour and the items in the picture.
- At this point, you can let learners know that walls can be used both for decoration and as background.

- Lead the learners to carry out Activity 2.10 in the student's book. Let them summarise their points then share with other class members.
- Explain the facts to consider when choosing interior colour of walls. Refer to page 48 of student's book.

### ***Furniture and fixtures***

- Bring to the attention of learners the fact that furniture and fixtures can also be used to enhance the appearance of the room based on choice and how they are used.
- Refer learners to the Fig. 2.30 and 2.31 pages 49 and 50 of the student's book respectively. Discuss with them how the various fixtures and furniture have been used to improve the appearance of the toilet and the room respectively.
- Wind up this topic by giving learners a housing project. They should plan and implement their plan on how they will construct and eventually decorate the house. Assess the project at the end of the project period and award marks accordingly.

### ***Answers to Self Evaluation Test 2.2 (Page 43)***

1. (a) Yes (b) Yes (c) Yes
2. (a) Are the basic where all colours are obtained by mixing them. They are Red, Blue and Yellow.

- (b) These are colours obtained when two secondary colours are mixed together. Examples are:

Orange = Red + yellow

Green = Blue + yellow

Violet/purple = Red + Blue

- (c) Are colours obtained when a primary and a secondary colour are mixed together. Examples are:  
Yellow-Orange = Yellow + Orange  
Red-Orange = Red + Orange  
Yellow-Green = Yellow + Green  
Blue-Green = Blue + Green  
Blue-Violet = Blue + Violet  
Red-Violet = Red + Violet

### ***Answers to Self Evaluation Test 2.3 (Page 47)***

1. What types of colour schemes do you see in the following areas around you?
  - a) **Your classroom** – Monochromatic, analogous, triadic, complementary and split complementary depending on the classroom where the learner is. Assess to ascertain.
  - b) **At home** - Monochromatic, analogous, triadic, complementary and split complementary depending on the classroom where the learner is.
  - c) **Rwandan flag** - Triadic

### Answers to Self Evaluation Test 2.4 (Page 49)

1. Answers will depend on the type of house the learner stays. In general some examples are:

Furniture	Fixtures
Tables	Bathtubs
Chairs	Towel hangers
Bed	Toilet bowl
Cupboard	Sinks

2. By carefully choosing the colours that blend well depending on the function of the room or house.

### Answers to Self Evaluation Test 2.5 (Page 50)

1. Why is knowledge on colour schemes important during decoration?  
It helps in proper mixing of colours in order to come up with attractive articles.
2. What colour combination would you think of in a house with orange walls?  
Yellow and violet
3. Why would it be inappropriate to have very bright colours in an office setting?  
Because the lighting from outside will be reflected inside the room leading to poor vision.

### Answers to Test your competence 2 (Pages 52–53)

1. (i) **Monochromatic colour scheme.**  
This is a one colour plan. One colour is used together with its

tints and shades. For example; red, pink or maroon.

- (ii) **Analogous colour scheme.**  
This is two colour scheme. Two colours which are adjacent to each other in the colour wheel are used. For example; violet and blue violet, yellow and yellow green.
- (iii) **Complementary colour scheme** - This involves use of two colours opposite each other in the colour scheme. For example red and blue.
- (iv) **Split complementary colour scheme** – which involve use of a hue of one given colour and combining it with the colours on either side of its compliment. This basically means using colours that form a Y on the colour wheel.
2. Assess the birthday cards made by learners. Advise them to keep it and use it to invite fellow learners during his/her birthday celebrations.
3. (i) Pictures  
(ii) Decorative mirrors  
(iii) Wall clocks  
(iv) Lamps like chandeliers
4. (a) Monochromatic colour scheme - less expensive and not labour intensive  
(b) Triadic harmony - the most beautiful and attractive. Because of this, it is often preferred.

5. **The intensity of natural light** in many ways influences the choice of colours for house decoration. The colours chosen must blend well with the available natural light.

**Bright light** will make colours like red, yellow and green appear more intense while dull natural lighting will make them appear less intense.

**Light colours** make a room appear larger and warmer while dull colors make it appear small and cold.

**Rooms which receive limited natural light** require to be painted with bright colours

6. **Tint** is the light intensity of a colour e.g pink is a tint of red.

**Shade** is the dark intensity of a colour e.g maroon is a shade of red.

7. Advise learners to inform their parents or guardians to assess their work.

8. (a) True (b) True  
(c) False (d) False

9. (i) To ensure that I achieve the objective of each room.

(ii) Colour can be stressful when badly used. It can also be restful when used well.

10. (i) Blue and green. They are cool colours. They are also very peaceful.

(ii) White can also be used because it symbolizes purity.

11. **The living room** is used for resting. It should be made warm hence warm colours like cream should be used.

**The bathrooms and toilets** should have cool colours used on them such as blue and green.

**The bedrooms** should be made comfortable by use of warm colours. Cool colours should also be used in the rooms which receive a lot of natural light.

12. Assess learners' work and allocate positions for hanging the work in the classroom. The hangings should be removed after some time.

13. (i) Because many people now appreciate colour and design.

(ii) Because of civilisation.

(iii) Because of development in technology. People are able to appreciate what is happening in other countries in terms of interior design.

14. (i) — (b) (ii) — (d)

(iii) — (a) (iv) — (c)

15. (a) A primary and another primary colour

(b) A primary and a secondary colour

(c) (i) Green

(ii) Violet/Purple

(iii) Orange

(iv) Blue – Green

(v) Red – Violet

16. First, I will choose the method to use for decoration. They can be:

(i) Use of haberdesheries

(ii) Use of soft furnishings

(iii) Paintings

(iv) Use of colour schemes and colour harmony.

**Note:** I can also use a combination of these methods.

I will then look for the materials and tools that are needed; work on an action plan and go ahead and decorate the room.

In decorating the room, I will avoid wastage in order to save costs.



*Refer to Learner's Book pages 55 - 74*

## Key Unit Competency

After studying this unit, the learners should be able to understand and explain the characteristics of different fabrics and conduct appropriate experiments with them.

### Unit Outline

3.1 Classification of fabrics

3.2 Characteristics of different fabrics

### Learning objectives

In order to live comfortably, we generally need to be mindful of the state of

our households. Taking care of our households involves many things. Abiding to the fact that we are now embracing a competence-based curriculum, learners should acquire knowledge and a good understanding of Home Science as a subject. On top of that, they should also obtain various skills, have a positive change of attitude towards Home Science and other related life aspects. Above all, learners also need to subscribe to certain values concerning Home Science that are acceptable in the society they live in. Emphasise these major aspects during the learning process.

**Table 3.1: Knowledge, skills and values to be attained**

Knowledge and understanding	Skills	Attitudes and values
<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Identify different fabrics.</li> <li>▪ Explain typical characteristics of fabrics.</li> </ul>	<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Classify characteristics of different fabrics.</li> <li>▪ Experiment on fabric textures.</li> </ul>	<p>By the end of this unit, the learner should:</p> <ul style="list-style-type: none"> <li>▪ Observe fabrics classification.</li> <li>▪ Comply with fabrics characteristics.</li> </ul>

## Links to other subjects

Fabrics are actually natural polymers. As such, knowledge of Chemistry in types of polymers and how to manufacture them comes in handy. Also, properties of fabrics are covered in Physics under elasticity. Make learners aware of these for them to inter-relate the concepts.

## Formative assessment method

You will test knowledge and understanding, skills acquisition and attitude change.

- To assess knowledge and understanding of the various concepts – use self-evaluation test questions and Test your Competence questions at the end of the unit. You can also formulate your own questions.
- To test skills acquisition – Observe learners as they carry out the activities in this unit. Also, some questions on the self-evaluation test and Test your Competence exercise can be used.
- To assess attitude change – you can use probing questions to find out the various stands of the learners concerning this topic in Home Science. Also, during discussion sessions and activities, you can observe the body language of the learners. Specific questions

from the Test your Competence exercises can also help in assessing attitude change in learners.

You should decide when to assess learners. This can be done during the lesson, at the end of the lesson or at any other appropriate time as you deem fit.

## Background information

Fabrics are made from different fibres. To understand the characteristics of fabrics, it is necessary to understand the fibres from which they are made. The fibres are classified according to the origin and characteristics.

The two major classification of fibers are: Natural fibres which include, cotton, linen, wool and silk, jute and asbestos. The natural fibers are obtained from materials which exist naturally. These fibres are absorbent. Asbestos is not commonly used but is made for industrial purpose such as fire clothes and theatre line. The asbestos fibre is special in that, it does not catch fire and is resistant to bacteria and viruses.

The other category of fibres are the artificial fibres. These are made from treatment of the natural materials with chemicals or just made from pure chemicals. Artificial fibres are very strong and less absorbent than the natural fibres.

## **Types of fabrics**

Some examples of fabrics which we commonly use in cloth making include:

- Cotton
- Wool
- Silk
- Linen
- Polyester
- Rayon

### **(a) Cotton**

Cotton is produced by the cotton plant. When the cotton plant grows and matures, it produces cotton balls. These are then picked and processed into yarn. The yarn is what is spun into a cotton fabric.

#### *Examples of cotton fabrics*

Lawn, calico, flannelette, drill, jinja, denim, Gingham, muslin, organdie, cambric, hair cord, pique, poplin, khaki, corduroy, terry toweling and voile.

### **(b) Wool**

Wool is obtained from the fleece of sheep in Rwanda. Sometimes, it can also be obtained from mohair goat and rabbits. The common sheep which produces wool is the merino sheep. NOTE: Wool is a protein fibre.

#### *Examples of woollen fabrics*

Tweed, mohair, gabardine, whipcord, serge, jersey, felt, woollen clothes and worsteds.

### **(c) Silk**

Silk is produced from the secretions of silkworms. The silkworms feed on mulberry trees. The worms secrete the silk thread. The threads are then harvested and put in hot water. The hot water helps to unwind the thread. The threads are then twisted to form yarn.

#### *Examples of silk fabrics*

Taffeta, chiffon, brocade, velvet, satin, Crepe de-Chine, faille, georgette, organza and silk jersey.

### **(d) Linen**

Linen fibre is obtained from the stem of flax plants. It is a cellulosic fibre. It is from this fibres that yarn is made. The yarn is eventually used for making linen fabrics.

#### *Examples of linen fabrics*

Damask, crash, toweling, dress and suiting fabrics, linen/polyester canvas, cambric and huckaback.

### **e) Nylon**

This is an example of a synthetic fibre from the polyamide family.

### **(f) Polyester**

Polyester fibre is derived from coal, air, water and petroleum. When mixed with other chemicals, they form polyester. It resembles nylon fabric.

#### *Examples of polyester fabrics*

Jersey, terylene, lawn, suiting, polyester/woollen blends, polyester/ cotton blends and trevira.

### **(g) Rayon**

There are two types of rayon. Viscose rayon and acetate rayon.

#### *i) Viscose rayon*

Viscose rayon is made by treating wood pulp to make fibre. The fibre is then spun into a yarn which then is what makes the fabric.

#### *Examples of viscose rayon materials include:*

Damask, satin and velvet, flannel, lace, taffeta, gabardine.

#### *ii) Acetate rayon*

Acetate rayon is made by treating cotton linters with chemicals instead of wood pulp.

### **Generic competences to be covered**

**Critical thinking** – As learners brainstorm about the pictures on page 55 and as they answer the probing questions in discussion corners and in activities.

**Problem solving** – as learners answer probing questions, for example in discussion corners, research activities and self-test exercises.

**Communicating in English** – as learners discuss in their groups and as they write notes and reports and do presentations.

**Co-operation and interpersonal skills** – as learners interact in their groups and as they do presentations.

**Research skills** – as learners do research to find out answers to various questions.

**Life-long learning** - as learners participate in various practical activities and as they take care of various fabrics.

### **Cross-cutting issues**

**Safety measures:** The learner should be careful concerning use of the cutting tools as well as the sewing machine. The teacher should guide the slow learners and control the use of the equipment.

**Money matters** - Learners should be informed about re-using different fabrics or pieces of the same to make improvised items which can be sold to earn money. For example, use of old clothes to make cushions.

Learners can also be encouraged to take good care of clothes in order to serve them for long hence saving money for other uses.

**Corrupt practices:** Learners should be discouraged from stealing cloths.

**Environmental issues** – The pieces of scrape fabrics should be disposed well to avoid making the environment unsightly.

**Gender issues:** Male and female students should equally participate in the lessons.

**Attitude change:** The learners should be encouraged to appreciate different types of fabrics and their uses.

### **Improvisations that can be done by the teacher**

The teacher can collect small pieces of fabrics from old clothes in the school or at home. He/she collect them from the tailors around.

### **Activities to support the manner of tackling multi-ability learning and physically challenged learners**

- Peer teaching.
- Giving remedial teaching to slow learners.
- Allow enough time to slow learners to complete their work.
- Draw the flow chart of the textile fibres on the chalk board clearly for those with hearing abilities.
- Identify the learners with hearing and visually impaired and have them sit in front of the class so that proper attention can be given to them.

- Arrange the room to enable movement easy for the physically and visually impaired learners.
- Assign some students to be in charge of the physically and visually impaired learners. For example, carrying their equipment, food materials etc.

## **3.1 Classification of fabrics**

*Refer to student's book pages 56-57*

### **Periods 1 and 2: Classification of fabrics**

#### **Specific objectives**

By the end of the unit, learners should be able to:

- Define the term fibre.
- Highlight the different types of fibres for making fabrics.
- Describe the classification of textile fibres.

#### **Suggested teaching /learning resources**

- Relevant books and information on seams.
- Computers with internet connection.
- Display of different fabrics, like cotton, linen, rayon, wool, polyester, silk, nylon
- Materials for fiber identification
- A variety of pieces of clothes

## Teaching methodology

- Class/ group discovery
- Guided discovery
- Practical activities
- Question and answers sessions

## Suggested teaching /learning methods

- Class/ group discussion
- Research
- Presentation
- Practical work
- Note taking

## Suggested teaching /learning activities

- Obviously, learners at this stage have come across a variety of fabrics in their lives. You may begin by jogging their memories by allowing them to make a comparison between the nature of fabrics they used to put on when they were young and now.
- You can then show them the photographs on page 55 of Student's book. Let them answer the probing questions and then predict what they are likely to learn in this unit.
- At this point, you can introduce the first sub-topic which is on classification of fabrics. But first, let them do research to find out what fabric is. They can share their

findings in a discussion forum.

- As preparation for this lesson, you should have told learners to carry some pieces of clothes from home. Put learners in groups of five. Allow them to carry out Activity 3.1 page 56 of Student's book. Ask learners to share with the rest the criteria they used to group the pieces of clothes.
- You can then introduce the concept of natural and artificial fibres. Lead a discussion on what the two terms mean. Allow learners to link what they learnt from other subjects to this.
- At this point, you may introduce the flow-chart on page 57 of Student's book. Explain the various types of fibres under each category giving examples.
- Allow learners to draw the flow-chart in their exercise books. You may draw it leaving gaps for them to fill.
- Give further exercises as you wind up on the topic. Refer to self-Evaluation Tests 3.1 and 3.2 pages 56 and 57 respectively.

## **Answers to Self Evaluation Test 3.1 (Page 56)**

1. Fill in the table below with the correct origins of the fabrics listed

(artificially made, animal or plant).

Fabric	Origin
Cotton	Cotton plant
Rayon	Treating cotton pulp with chemicals
Jute	Sisal
Linen	Flax plant
Polyester	Chemicals/hydrocarbons
Silk	Silk worm
Nylon	Hydrocarbons/chemicals
Wool	Merino sheep

### Answers to Self Evaluation Test 3.2 (Page 57)

1. What fabrics are common in your household?
  - Cotton
  - Nylon
  - Polyester
  - rayons
  - Linen
  - Acrylics
2. Differentiate between natural and artificially made fibres.
  - Natural fibres originate from materials which occur naturally like plants and animals for example, wool, cotton plant, sisal fibres, etc.
  - Artificial fibres come from treating natural fibres with chemicals or purely from chemicals
3. (a) Which is the best fibre for babies?
  - Cotton and wool(b) Explain your answer in 3(a) above.

- Because cotton is strong and so can withstand washing.

- Cotton is warm.

- Cotton is resistant to moth attack and alkalines.
- Wool is warm and hence can keep the child warm.

## 3.2 Characteristics of different fabrics

Refer to student's book pages 58 – 70

### Periods 3, 4, 5, 6, 7 and 8:

### Characteristics of different fabrics

#### Specific objectives

By the end of this lesson, learners should be able to:

- Describe the characteristics of different fabrics.
- Explain the identification and care of every type of fabric.

#### Suggested materials and learning resources

- Different fabrics like cotton, linen, wool, polyester, silk, rayon and nylon.
- Clothes made of the fabrics above.
- Learner's book
- Reference materials

#### Suggested teaching methodology

- Class/group discussions
- Guided discovery
- Practical activities
- Question and answer sessions

### **Suggested teaching /learning resources**

- Relevant books and information on seams.
- Computers with Internet connection.
- Display of different fabrics
- Materials for fiber identification
- A variety of pieces of clothes

### **Suggested teaching/ learning activities**

- You may begin this lesson by reminding learners what they learnt in the previous lesson on classification of fabrics. Ask them whether they think all the fabrics they learnt about have the same characteristics and if they are used to do same things.
- Guide learners to carry out Activity 3.2 page 58 in the student's book. After observing and feeling the appearances of the various clothes, allow learners to go to the library to do more research on the characteristics of various fabrics. They should compile a report and present to the rest of the class.
- At this point, you can narrow down to individual fabrics:

### **a) Cotton (Refer to student's book page 58)**

- Cotton is not a common plant so most learners may not have seen it. Begin by showing them the picture of cotton plantation, cotton ball and cotton yarns on page 58 in the student's book. You may also briefly explain the process of obtaining cotton yarn from cotton ball – in a cotton factory. You may plan for a visit to such a factory.
- Put learners in pairs and let them talk about what they think are the characteristics of cotton. They should also find out how clothes made of cotton can be taken care of.
- Guide learners to discover the characteristics of cotton as highlighted in Activity 3.3 the student's book page 58-59. Show them pictures and real cotton fabrics for them to see and have a feel. Let them summarize by writing short notes in their exercise books.
- Let learners state the smell of cotton when burnt, its appearance, how it behaves when dissolved in hydrochloric and nitric acids, draw how the cotton fibres look like when observed through a microscope in their exercise books.



**b) Wool (Refer to student's book page 60)**

- Begin by asking learners what they think wool is and where it comes from. Let them know that wool is obtained from merino sheep though it can also be obtained from some types of goats (in form of mohair) and rabbits. Show them the picture of merino sheep on page 60 in the student's book. You may also briefly explain the process of obtaining wool yarn from wool – in a factory. You may plan for a visit to such a factory.
- Put learners in pairs and let them talk about what they think are the characteristics of wool. They should also find out how clothes made of wool can be taken care of.
- Guide learners to discover the characteristics of wool as highlighted in Activity 3.4 the student's book page 60. Show them pictures and real woolen fabrics for them to see and have a feel. Let them summarize by writing short notes in their exercise books.
- Let learners state the smell of wool when burnt, its appearance, how it behaves when dissolved in a solution of caustic soda and sodium hypochloride bleach and draw how the woolen fibres look like when observed through a microscope in their exercise books.

**c) Silk (Refer to student's book page 61)**

- Begin by asking learners what they think silk is and where it comes from. Let them know that silk is obtained from Silk worm which feeds on mulberry trees. Show them the picture of silkworm on page 62 in the student's book. You may also briefly explain the process of obtaining silk yarn from silk – in a factory. You may plan for a visit to such a factory.
- Put learners in pairs and let them talk about what they think are the characteristics of silk. They should also find out how clothes made of silk can be taken care of.
- Guide learners to discover the characteristics of silk as highlighted in Activity 3.5 of the student's book page 62. Show them pictures and real silk fabrics for them to see and have a feel. Let them summarize by writing short notes in their exercise books.
- Let learners state the smell of silk when burnt, its appearance, how it behaves when dissolved in sodium hypochloride bleach, hydrochloric acid, sulphuric acid and caustic soda solution and draw how the silk fibres look like when observed through a microscope in their exercise books.

**d) Linen (Refer to student's book page 63)**

- Begin by asking learners what they think linen is and where it comes from. Let them know that linen is obtained from flax plant. You may also briefly explain the process of obtaining linen yarn from linen fibres – in a factory. You may plan for a visit to such a factory.
- Put learners in pairs and let them talk about what they think are the characteristics of linen. They should also find out how clothes made of linen can be taken care of.
- Guide learners to discover the characteristics of linen as highlighted Activity 3.6 in the student's book page 63. Show them pictures and real linen fabrics for them to see and have a feel. Let them summarize by writing short notes in their exercise books.
- Let learners state the smell of linen when burnt, its appearance, how it behaves when dissolved in concentrated nitric, sulphuric and hydrochloric acids and draw how the linen fibres look like when observed through a microscope in their exercise books.

**e) Nylon (Refer to student's book page 64-66)**

- Begin by asking learners what they think nylon is and where it comes

from. Let them know that nylon is a synthetic fabric from family of organic compounds known as polyamides. You may plan for a visit to a factory that manufactures nylon.

- Put learners in pairs and let them talk about what they think are the characteristics of nylon. They should also find out how clothes made of nylon can be taken care of.
- Guide learners to discover the characteristics of nylon as highlighted in Activity 3.7 the student's book page 65. Show them pictures and real nylon fabrics for them to see and have a feel. Let them summarize by writing short notes in their exercise books.
- Let learners state the smell of nylon when burnt, its appearance, how it behaves when dissolved in formic acid and draw how the nylon fibres look like when observed through a microscope in their exercise books.

**f) Polyester (Refer to student's book pages 66-67)**

- Begin by asking learners what they think polyester is and where it comes from. Let them know that polyester is a synthetic fabric made by burning a mixture of coal, petroleum, air and water. You may plan for a visit to a factory that

manufactures polyester.

- Put learners in pairs and let them talk about what they think are the characteristics of polyester. They should also find out how clothes made of polyester can be taken care of.
- Guide learners to discover the characteristics of polyester as highlighted in Activity 3.8 the student's book page 66. Show them pictures and real polyester fabrics for them to see and have a feel. Let them summarize by writing short notes in their exercise books.
- Let learners state the smell of polyester when burnt, its appearance, how it behaves when dissolved in concentrated sulphuric acid and draw how the polyester fibres look like when observed through a microscope in their exercise books.

### **g) Rayon (Refer to student's book pages 67-70)**

There are two types of rayon: Viscose rayon and Acetate rayon. Bring this to the attention of learners.

#### **i) Viscose rayon**

- Begin by asking learners what they think viscose rayon is and where it comes from. Let them know that viscose rayon is a synthetic fabric made from treated pulp. You may plan for a visit to a factory that manufactures viscose rayon.
  - Put learners in pairs and let them talk about what they think are the characteristics of viscose rayon. They should also find out how clothes made of viscose rayon can be taken care of.
- Guide learners to discover the characteristics of viscose rayon as highlighted in Activity 3.9 the student's book page 68. Show them pictures and real viscose rayon fabrics for them to see and have a feel. Let them summarize by writing short notes in their exercise books.
  - Let learners state the smell of viscose rayon when burnt, its appearance, how it behaves when dissolved in concentrated sulphuric acid and draw how the polyester fibres look like when observed through a microscope in their exercise books.

#### **ii) Acetate rayon**

- Begin by asking learners what they think acetate rayon is and where it comes from. Let them know that acetate rayon is a synthetic fabric made by treating cotton linters with chemicals. You may plan for a visit to a factory that manufactures acetate rayon.
- Put learners in pairs and let them talk about what they think are the characteristics of acetate rayon. They should also find out how clothes made of acetate rayon can be taken care of.
- Guide learners to discover the characteristics of acetate rayon as highlighted in Activity 3.10 the student's book page 69. Show them pictures and real acetate rayon fabrics for them to see and have a feel. Let them summarize by writing short notes in their exercise books.
- Let learners state the smell of

acetate rayon when burnt, its appearance, how it behaves when dissolved in concentrated sulphuric acid and draw how the polyester fibres look like when observed through a microscope in their exercise books.

- Finally, to summarize the sub-topic, guide the learners to carry out Activity 3.11 page 70 in the student's book. From the tests, learners should be able to group the pieces of clothes accordingly. Check to confirm that their grouping is accurate. Correct as is appropriate.

Remember to highlight the various cross-cutting issues during the lessons. Remind learners of the benefits of choosing quality items as well conserving our environment. Also, remember to mix able and disadvantaged students in the various activities. Also, ensure all learners participate during the lessons irrespective of gender or physical state of the body. Remember, disability is not inability.

### **Answers to Self Evaluation Test 3.3 (Page 70)**

1. Discuss the characteristics of natural fibres.
  - Natural fibres are strong.
  - They crease badly except silk and linen.
  - Natural fibres are absorbent.
2. Explain why wool is not commonly used in making school uniforms.
  - Wool shrinks badly.
  - It is affected by alkalines, which are contained in most soaps yet school

- uniforms are washed frequently.
  - Wool is easily destroyed by moths hence its storage is not easy.
  - Wool takes too long to dry.
  - Wool is not easy to remove stains.
3. Explain why polyester is a popular fibre in the cloth making industry.
    - Polyester is a strong fibre.
    - It can be blended with other fibres to improve its quality.
    - Polyester is resistant to alkalines.
    - Polyester is easy to wash and remove stains.
    - It is warm.
  4. Discuss the properties of polyester which differentiates it from nylon and cotton.
    - Polyester has high affinity for dyes.
    - It is not destroyed by long exposure to sunlight.
    - Polyester is resistant to abrasion.
  5. What are the advantages of blending various fibres together?
    - It improves their undesirable characteristics to make them desirable.
  6. Which fabrics would be most appropriate for making curtains of a house?
    - Polyester      ▪ Polyester blends.

### **Answers to Test your competence 3**

Refer to student's book page 71-73

1. (a) An apron should be made by use of a **poplin** fabric. Poplin is a made by blending cotton and polyester. It is strong to with stand constant washing. Poplin

does not crease, it is a smooth fabric.

- (b) An official shirt should be made from a fabric which has a cotton blend with an artificial fibre. This prevents it from creasing and shrinking.
- (c) Cotton is the best fabric for making bed sheets. Cotton is strong and warm. It can also withstand constant washing. White cottons can be boiled to bleach and remove stains as they can withstand high temperatures.
- (d) They should be made from polyester and nylon as they are strong and resistant to strong sunrays.
- (e) A chair back is constantly subjected to abrasion. It should not be made from nylon as it does not resist abrasion. It should be made from poplin because it is strong and not silvery.

2. (a) Natural  
(b) Artificial  
(c) Natural
3. Baby clothes should be made from cotton because it is absorbent, warm and resistant to constant washing.

4. Because it is made from acrylic/wool. These fibres do not catch fire easily. They also do not burn out of flame therefore they control the flames of fire.
5. – They are manufactured hence can be combined with natural fibres to improve quality.  
– Can be made in a variety of colours.  
– Are strong hence long-lasting.  
– Are elastic hence can retain original shape.

6.

C	O	T	T	O	N	R
L	W	S	C	R	E	A
I	Z	O	D	W	G	Y
N	Y	B	O	X	J	O
E	M	S	I	L	K	N
N	Y	L	O	N	P	Q

7. (a) True (b) False  
(c) False (d) True  
(e) False (f) True
8. (i) Cotton  
(ii) Linen  
(iii) Silk  
(iv) Wool  
These fibres have very high affinity for dyes.
9. (a) The white marking were mildew. It develops on cotton and linen clothes when they are stored when not completely dry.  
(b) Either cotton or linen.

10. In the table below, match the fabrics with their correct characteristics.

Fabric	Characteristics
(a) Wool	Soft to touch, readily takes in dyes, dissolves in hydrochloric and nitric acids.
(b) Linen	Stronger than cotton, lustrous, frays badly and is highly flammable.
(c) Nylon	It is resistant to abrasion, extremely strong, neither shrinks nor stretches and is not absorbent.
(d) Silk	It is not flammable, it makes warm fabrics, very lustrous, resistant to creasing and is damaged by high temperatures.
(e) Cotton	Highly absorbent, does not burn easily, it turns yellow upon long exposure to the sun and has a natural crimp.

11. Wool, cotton, acetate rayon, silk and linen.

12. C

13. (a) Wool becomes harsh/rough.

(b) Acetate rayon swells.

(c) Nylon piles/ balls/ becomes rough on the surface.

(d) Linen develops mildew stains.

(e) Viscose rayon turns yellow and rots/becomes torn.

14. C

15. A

16. (a) Acrylic (b) Cotton

(c) Linen (d) Nylon

17. (i) Synthetic fibres are not absorbent hence make the wearer uncomfortable. An example is acrylic.

(ii) Synthetic fibres are poor heat conductors hence generate and hold static electricity. This makes clothes to cling onto the body e.g. nylon.

(iii) Synthetic fibres are not warm hence cannot be used for making warm clothes. For example nylon.

(iv) Synthetic fibres are light in weight. For example nylon.

18. Guide learners to carry out this activity, evaluate their performance and award marks accordingly.

**Refer to Learner's Book pages 75 - 93**

## Key Unit Competency

After studying this unit, learners should be able to explain and make different types of seams.

### Unit Outline

4.1 Types and functions of seams

4.2 Techniques of seams

### Learning objectives

In order to live comfortably, we generally need to be mindful of the state of our households. Taking care of our households involves many

things. Abiding to the fact that we are now embracing a competence-based curriculum, learners should acquire knowledge and a good understanding of Home Science as a subject. On top of that, they should also obtain various skills, have a positive change of attitude towards Home Science and other related life aspects. Above all, learners also need to subscribe to certain values concerning Home Science that are acceptable in the society they live in. Emphasise these major aspects during the learning process.

**Table 4.1: Knowledge, skills and values to be attained**

Knowledge and understanding	Skills	Attitudes and values
<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Explain types and functions of seams.</li> <li>▪ Classify seaming techniques.</li> </ul>	<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Make simple objects using seaming techniques.</li> </ul>	<p>By the end of this unit, the learner should:</p> <ul style="list-style-type: none"> <li>▪ Recognise and appreciate different types and functions of seams.</li> </ul>

### Links to other subjects

Construction of seams involve handling of fabrics. Fabrics being polymers are learnt about in Chemistry. On the other hand, the action of seam construction and decoration of fabrics is learnt about under fine arts. Therefore, Home Science is inter-related to Chemistry and fine arts. Remind learners about these inter-relationships.

## Formative assessment method

You will test knowledge and understanding, skills acquisition and attitude change.

- To assess knowledge and understanding of the various concepts – use self-evaluation test questions and Test your Competence questions at the end of the unit. You can also formulate your own questions.
- To test skills acquisition – Observe learners as they carry out the activities in this unit. Also, some questions on the self-evaluation test and Test your Competence exercise can be used.
- To assess attitude change – you can use probing questions to find out the various stands of the learners concerning this topic in Home Science. Also, during discussion sessions and activities, you can observe the body language of the learners. Specific questions from the Test your Competence exercises can also help in assessing attitude change in learners.

You should decide when to assess learners. This can be done during the lesson, at the end of the lesson or at any other appropriate time as you deem fit.

## Background information

A seam is a method of joining two different fabrics together. A seam can be used to join the front and the back part of the garment to make the side seam, join the front and the back at the shoulder to make the shoulder seam, to join a yoke to the skirt or blouse or even used for joining the frill on the lower edge of garments.

Different seams have different effects on garments and are determined by a number of factors. The weight of the fabric, use of the garment, position of the seam and type of the garment are some of the factors which determine seam choice.

## Generic competences to be covered

- **Critical thinking** – As learners brainstorm about pictures on page 75 and as they answer the probing questions.
- **Problem solving** – as learners answer probing questions, for example in discussion corners, research activities and self-test exercises.
- **Communicating in English** – as learners discuss in their groups and as they write notes and reports and do presentations.



- **Co-operation and interpersonal skills** – as learners interact in their groups and as they do presentations.
- **Research skills** – as learners do research for example in Activity 4.1 page 76 in the student’s book.
- **Life-long learning** - as learners participate in various practical activities involving making of seams.

### **Suggested teaching/ learning activities**

- You may begin this lesson by reminding learners what they learnt in the previous unit on the characteristics of fabrics. Ask them what they think fabrics are used for. Their answers should include making clothes. At this point, you can introduce the concept of seams.
- Refer the learners to the pictures on page 75 of student’s book. Ask them to say what those are. Also, guide them to answer the probing questions about the pictures.
- Allow learners time to research about what a seam is and the various types of seams. They can go to the library or do internet search. Refer to Activity 4.1 page 76 of student’s book. Let them share

their findings. You can then wrap up by giving the definition of a seam.

- At this point, introduce the various types of seams: open, French, overlaid and machine-felled. **Remember** – you may need to demonstrate how to come up with each of seams. At worst, organize to show learners a video of how these seams are made.

#### **a) Open seam – Period 1 ( refer to learners book page 76)**

- By now, learners already know what seam is. You can take advantage and straight away introduce open seam as the most basic seam.
- Show learners examples of cases where this seam is used and why.
- Take learners through the process of making an open seam. Refer to page 77 of student’s book. You can also show a video or physically demonstrate how an open seam is made using a sewing machine.
- Wrap up by giving the characteristics of a good open seam.

#### **b) French seam – Period 2 ( refer to learner’s book page 77)**

- Begin by defining what a French seam is. Show learners an example for them to appreciate French seam.

- Show learners examples of cases where this seam is used and why.
  - Take learners through the process of making a french seam. Refer to page 78 of student's book. You can also show a video or physically demonstrate how a french seam is made using a sewing machine.
  - Wrap up by giving the characteristics of a good open French seam.
- c) **Overlaid seam – Period 3 ( refer to learner's book page 78)**

- Begin by defining what an overlaid seam is. Show learners an example for them to appreciate an overlaid seam.
- Show learners examples of cases where this seam is used and why.
- Take learners through the process of making an overlaid seam. Refer to page 79 of student's book. You can also show a video or physically demonstrate how an overlaid seam is made using a sewing machine.
- Wrap up by giving the characteristics of a good overlaid seam.

- d) **Machine-felled seam – Period 4 ( refer to learner's book page 79)**
- Begin by defining what an overlaid seam is. Show learners an example for them to appreciate an overlaid seam.

- Show learners examples of cases where this seam is used and why.
- Take learners through the process of making a machine-felled seam. Refer to page 80 of student's book. You can also show a video or physically demonstrate how a machine-felled seam is made using a sewing machine.
- Wrap up by giving the characteristics of a good overlaid seam.

Wind up the subtopic by giving learners a variety of clothes to identify the various seams used. Refer to Activity 4.2 page 81 of student's book.

### **Cross-cutting issues**

**HIV and AIDS:** This is a practical based chapter where the learners will be required to use sharp objects like needles and scissors which can easily cause harm. They should be sensitized about accidents like these which may cause infection if the blood comes into contact with that of an infected learner.

**Safety measures:** The learner should be careful concerning use of cutting tools and sewing tools. The teacher should guide the slow learners and control the use of the equipment.

**Corrupt practices:** Learners should be discouraged from stealing fabrics and sewing equipment/tools. The teacher should act as a role model.

**Environmental hygiene:** The pieces of scrape fabrics should be disposed well to avoid making the environment unsightly.

**Gender issues:** Male and female students should equally participate in the lessons.

**Attitude change:** Learners should be encouraged to appreciate the different types of seams and their uses.

### **Improvisations that can be done by the teacher**

In the absence of the sewing machine, the teacher can guide the students to make the seams by use of hand needles and suitable threads.

### **Activities to support multi-ability learning and physically challenged learners**

- Peer teaching.
- Giving remedial teaching/practice to slow learners.
- Allow enough time to slow learners to complete their work.
- Write the steps of working out the seams on the chalk board clearly for those with hearing abilities.
- Identify learners with hearing difficulties and those who are visually impaired and have them sit in front of the class so that proper attention can be given to them.
- Arrange the room to enable

movement easy for the physically and visually impaired learners.

- Assign some students to be in charge of the physically and visually impaired learners. For example, carrying their equipment, food materials, etc.

## **4.1 Types and functions of seams**

*Refer to learner's book pages 76 - 81*

### **Periods 1, 2 3 and 4: Types and functions of seams**

#### **Specific objectives**

By the end of this lesson, learners should be able to:

- Define a seam.
- Highlight the different types of seams.
- State the functions of the various types of seams.
- Demonstrate the working of the different seams.

#### **Suggested teaching/learning resources**

- Relevant books and information on seams.
- Sewing machine
- Sewing needles
- Computers with internet connection.

- Videos on how to make different seams.
- Different clothes joined using different seams.

### **Suggested teaching /learning methods**

- Class/ group discussion.
- research
- presentation
- Practical work
- Note taking

## **4.2 Techniques of seams**

*Refer to student's book pages 81 - 89*

### **Periods 5,6,7 & 8:Techniques of seams**

#### **Specific objectives**

By the end of this lesson, learners should be able to:

- Explain the working of different seams
- Develop seams using different techniques

#### **Suggested materials and learning resources**

- Different materials for making clothes like cotton, linen, wool, polyester, silk, nylon, etc.
- Sewing machine
- Needles, pair of scissors, etc
- Videos on how to make seams

- Learner's book
- Reference materials

### **Suggested teaching methodology**

- Class/group discussions
- Guided discovery
- Practical activities
- Question and answer sessions

### **Suggested teaching/ learning activities**

This lesson is more of a continuation of the previous one. Here, you will narrow down to how to make straight, exposed, corner, curved, enclosed and princess seams.

#### **a) Straight seams ( Refer to learner's book page 82)**

- Begin by defining what a straight seam is. Show learners examples of straight seams.
- Take the learners through the steps of making straight seams. Refer to Student's book pages 82–84. You can also show a video on the same.
- As you demonstrate how to make straight seams, remember to highlight critical areas such as backstitch functions, how to guide the fabric through the sewing machine, among others.
- Wind up the lesson by giving a practical exercise on how to make a straight seam. Refer to Activity 4.4 in the student's book page 84.

**b) Corner seams ( refer to learner's book page 84)**

- Begin by defining what a corner seam is. Show learners examples of corner seams.
- Take the learners through the steps of making corners seams. Refer to Student's book pages 84 - 86. You can also show a video on the same.
- As you demonstrate how to make corner seams, remember to highlight critical areas such as top edges not meeting, how to guide the fabric through the sewing machine, among others.
- Wind up the lesson by giving a practical exercise on how to make a corner seam. Refer to Activity 4.5 in the student's book page 86.

**c) Curved seams ( Refer to learner's book page 86)**

- Begin by defining what a curved seam is. Show learners examples of curved seams for example, those found at the shoulder of a shirt or blouse.
- Take the learners through the steps of making curved seams. Refer to Student's book pages 86 - 87. You can also show a video on the same.
- As you demonstrate how to make curved seams, remember to emphasize on critical areas.

- Wind up the lesson by giving a practical exercise on how to make a curved seam. Refer to Activity 4.6 in student's book page 87.

**d) Princess seams ( Refer to learner's book page 87)**

- Begin by defining what a princess seam is. Show learners examples of princess seams on a piece of cloth.
- Take the learners through the steps of making princess seams. Refer to Student's book pages 87 - 88. You can also show a video on the same.
- As you demonstrate how to make princess seams, remember to emphasize on critical areas.
- Wind up the lesson by giving a practical exercise on how to make a princess seam. Refer to Activity 4.7 in the student's book page 89.

### 4.3 Choice of seams

Refer to student's book pages 89 - 90

#### Periods 9 & 10: Choice of seams

##### Specific objectives

By the end of this lesson, learners should be able to:

- Describe the factors determining choice of seams
- Make appropriate decisions on what seam to use where

## Suggested materials and learning resources

- Videos on how to make different seams.
- Different pieces of clothes.
- Computers with internet connection.
- Learner's book
- Sewing machine
- Reference materials
- Sewing needles

## Suggested teaching methodology

- Class/group discussions
- Guided discovery
- Question and answer sessions

## Suggested teaching/ learning activities

- You may introduce this lesson through discussion groups – refer to the discussion corner on page 89 of student's book. Put learners in groups of four. Let them brainstorm about the factors to consider when choosing seams. They should come up with a write-up on the same then share their findings with the rest of the class.
- Assess learners presentations and correct accordingly. Refer to student's book page 89.

Wrap up the topic by reminding learners about the various types of seams and why and where they are used. Also, highlight the characteristics of a good seam. Refer to student's book page 90.

## Answers to Test your competence 4 (Page 90)

1. A method of joining two or more pieces of fabric
2. (a) Machine-felled seam  
(b) French seam  
(c) Open seam  
(d) Open seam
3. (a) French seam – Trousers  
(b) Curved seam – Shoulder region
4. Check that the learner has appropriately named and described the seams on their clothes.
5. French seam is a conspicuous seam while a princess seams add decorative and add touch and elegance.
6. (a) Straight seams

A straight seam is seam that is in **straight line**. Steps to follow when making straight seams include:

### Step 1

- Lay two pieces of fabric to be joined with the right sides together. Align the edges you would like to sew. Push out all the wrinkles and smooth the fabric flat.
- Starting at one end of the seam, match the corners and pin them together.

### Step 2

Work your way down the edge to be sewn pinning the two pieces of fabric together.

**Note:** The closer the pins are, the more stable the fabric will be. However, you will have to stop to remove each pin as you sew. If you're just getting started, use a pin every inch or two of fabric.

### Step 3

- Make sure the settings on your sewing machine are set to sew a straight stitch.
- Slide the corner of your fabric into the sewing machine, directly under the hole in the presser foot.
- Align the edge of your fabric with the edge of the presser foot.

**Note:** This will act as a guide while you sew. It will help you keep your seam straight. In this case, it will leave a quarter-inch seam allowance. You can use a different guide if you would like to.

- Lower the presser foot using the presser foot lever.

### Step 4

- Engage your backstitch function.

**Note:** Backstitch functions vary widely between machines and can come in the form of buttons, levers, and knobs. See your sewing machine manual for instructions on your backstitch function.

- Depress the pedal slowly. This will start the sewing machine sewing backwards.
- Sew two or three stitches backwards.
- Release the pedal.
- Release your backstitch function.

### Step 5

- Depress the pedal and sew slowly forward, guiding the fabric with your hands as you go.

**Note:** When guiding the fabric through a sewing machine, you should not be pushing or pulling. The machine will feed the fabric in at the right speed. Your job is merely to guide the fabric so the seam remains straight.

- Keep the fabric aligned to the edge of the presser foot as you sew.
- Stop before you reach each pin. Pull the pins out, being careful not to misalign the fabric.

### Step 6

- When you come to the end of your seam, engage the backstitch function.
- Sew two or three stitches backwards.
- Release the backstitch function and sew forward off the fabric.
- Turn the balance wheel until the needle is up.

### Step 7

Lift the presser foot up.

### Step 8

- Pull the fabric out of the sewing machine.

**Note:** The threads are still attached to the sewing machine, so be careful not to pull too far or tangle the threads.

- Clip the threads as close to the fabric as possible.
- Turn your seam right side out and admire your work.

7. To avoid the movement of the fabric during sewing.
8. A
9. (a) False                      (b) True  
(c) False                      (d) True
10. W- Hem line, X- Right side,  
Y- Cutting line, Z- Fold line
11. (a) – (ii)                      (b) – (i)  
(c) – (iv)                      (d) – (iii)
12. Remind him that the world has changed. We are living in the 21<sup>st</sup> Century where no career belongs to a certain gender. What is important in life is that you

are able to work honestly, earn enough money and take care of your family.

13. – Types of fabric
  - What the garment will be used for
  - Position of the seam on the garment
  - Style of the garment
  - The desired effect
14. Check that the learner has a good plan for the dressmaking project. Guide learners as they carry out the project. They should then present finished dresses to you for assessment. (The project can last for a term).



*Refer to Learner's Book pages 94-112*

### Key Unit Competency

After studying this unit, learners should be able to understand and apply health and safety procedures in the handling and preparation of food in compliance with Hazard Analysis Critical Control Point (HACCP).

### Unit Outline

- 5.1 Hazard Analysis and Critical Control Point (HACCP)
- 5.2 Food safety procedures
- 5.3 Appropriate handling and disposal of garbage

### Learning objectives

In order to live comfortably, we generally need to be mindful of the state of our households. Taking care of our households involves many things. Abiding to the fact that we are now embracing a competence-based curriculum, learners should acquire knowledge and a good understanding of Home Science as a subject. On top of that, they should also obtain various skills, have a positive change of attitude towards Home Science and other related life aspects. Above all, learners also need to subscribe to certain values concerning Home Science that are acceptable in the society they live in. Emphasis these major aspects during the learning process.

**Table 5.1: Knowledge, skills and values to be attained**

Knowledge and understanding	Skills	Attitudes and values
By the end of this unit, the learner should be able to: <ul style="list-style-type: none"> <li>▪ Categorise food safety procedures according</li> </ul>	By the end of this unit, the learner should be able to: <ul style="list-style-type: none"> <li>▪ Comply with food safety procedures and according</li> </ul>	By the end of this unit, the learner should: <ul style="list-style-type: none"> <li>▪ Embrace the food safety procedures</li> </ul>

to Hazard Analysis and Critical Control Point (HACCP).	to Hazard Analysis and Critical Control Point (HACCP).	and contribute to the society.
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### Links to other subjects

This topic is about food safety procedures and how to ensure that the foods that we eat are safe. It is therefore closely related to food science and technology, Biology, under communicable diseases and measurements in Physics. Learners should be guided to identify the inter-relationships so as to know where to borrow from.

### Formative assessment method

You will test knowledge and understanding, skills acquisition and attitude change.

- To assess knowledge and understanding of the various concepts – use self-evaluation test questions and Test your Competence questions at the end of the unit. You can also formulate your own questions.
- To test skills acquisition – Observe learners as they carry out the activities in this unit. Also, some questions on the self-evaluation test and Test your Competence exercise can be used.
- To assess attitude change – you can use probing questions to find out

the various stands of the learners concerning this topic in Home Science. Also, during discussion sessions and activities, you can observe the body language of the learners. Specific questions from the Test your Competence exercises can also help in assessing attitude change in learners.

You should decide when to assess learners. This can be done during the lesson, at the end of the lesson or at any other appropriate time as you deem fit.

### Background information

The level of moisture and enzymes which is found in most foods causes it to deteriorate and become unfit for human consumption; if taken in, it may cause effects ranging from mild discomfort to fatal food poisoning. This unit discusses food safety procedures in compliance with Hazard Analysis and Critical Control Point (HACCP); a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling,

to manufacturing, distribution and consumption of the finished product.

The HACCP system is a scientific and systematic approach to identify, assess and control of hazards in the food production process thus providing a preventive and cost-effective approach in food safety.

### **Generic competences to be covered**

**Critical thinking** – As learners brainstorm about pictures on page 94 and as they answer the probing questions.

**Problem solving** – as learners answer probing questions, for example in discussion corners, research activities and self-test exercises.

**Communicating in English** – as learners discuss in their groups and as they write notes and reports and do presentations.

**Co-operation and interpersonal skills** – as learners interact in their groups and as they do presentations.

**Research skills** – as learners do research. for example, in Activity 5.1 page 95 in the student's book.

**Life-long learning** - as learners participate in various practical activities involving making of seams.

### **Cross-cutting issues**

**Standardisation culture:** This is unit which takes a lot of concern on the quality of food we purchase and eat. Learners should be encouraged to ensure good quality food when making purchases.

**Safety measures:** the learner should be careful concerning purchase of food which might have adverse health effect.

**Environmental hygiene:** the pieces of food and wrap or scrape papers should be disposed well to avoid making the environment unsightly.

**Gender issues:** male and female students should equally participate in the lessons.

**Attitude change:** the learner should be encouraged to appreciate health concerns on the food that we eat.

### **Activities to support multi-ability learning and physically challenged learners.**

- Peer teaching.
- Giving remedial teaching to slow learners.
- Allow enough time for slow learners to complete their work.
- Write the steps of checking for food safety on the chalk board clearly for those with hearing disabilities.

- Challenges learners with hearing and those who are visually impaired should be made to sit in front of the class so that proper attention can be given to them.
- Arrange the room to enable movement easy for the physically and visually impaired learners.
- Assign some students to be in charge of the physically and visually impaired learners.

## 5.1 Hazard Analysis and Critical Control Point (HACCP)

Refer to student's book pages 95 - 105

**Periods 1, 2, 3, 4, 5, & 6:**

### *Specific objectives*

By the end of this unit, learners should be able to:

- Categorise food safety procedures according to Hazard Analysis Critical Control Point (HACCP).
- Comply with food safety procedures according to Hazard Analysis Critical Control Point (HACCP).
- Embrace the food safety procedures and contribute to the society.

### **Suggested teaching methodology**

- Class/group discussions

- Guided discovery
- Question and answer sessions

### **Suggested teaching/learning resources**

- A variety of thermometers for storing food
- Relevant books and information on food safety.
- Computers with internet connection.
- Display pictures of equipment required to check for food safety.

### **Suggested teaching /learning methods**

- Class/ group discussion
- Research
- Presentation
- Note taking

### **Suggested teaching /learning activities**

- This is a relatively new area for learners. Therefore, you may begin by allowing learners to do research about hazard analysis and critical control point (HACCP). Refer to activity 5.1 page 95 of student's book.
- Let learners compile a report on what HACC is, its role and how it will help bring about food safety. Let them write the report and do presentations in turns to the rest of the class.

- Emphasize the need to keep foods safe and how to do that. At this point, you can introduce the 7 principles of HACCP. Take them through one by one as you highlight important points.
- You can make them recite these in form of a poem for them to remember. Hang the principles on the classroom noticeboard for them to be reading all the time.
- You may also organize a visit to the nearest quality assurance office or invite a resource person to tell learners more about HACCP.

## 5.2 Food Safety Procedures

Refer to student's book page 96

### *Use of food thermometer in ensuring food safety*

- Find out from learners what they already know about a thermometer. Ask probing questions like: 'what is a thermometer? What is it used for?'
- Introduce the various food thermometers. Refer to learner's book pages 97 – 99. Let learners know that they function like any other thermometer that they know.
- Let learners research about the temperatures at which various

foods should be cooked. Refer to activity 5.2 page 99 of student's book. Let learners study and discuss the various recommended temperatures for various foods given on that page. They should compare the values in this table with their findings and correct themselves accordingly.

- For each thermometer, let the learners draw it in their exercise books, explain the usage considerations; then allow learners to manipulate the various thermometers, if they are available. You can also demonstrate how they are used or show a video of the thermometers being used.

### *Care of thermometer*

- Like any other equipment, tool or machine, thermometers also need maintenance. This will ensure that the thermometer stays for long. Find out from learners what they know about how to maintain a thermometer. Let them engage in a discussion session on this. They should summarize their points and share with the rest of the class.
- At this point, you can introduce the points given on page 100 of the student's book. You can demonstrate how to safely keep a thermometer that you may be having in school. For example, if

a glass one, always ensure it is returned in its storage sheath, etc.

### **Calibrating a thermometer**

- Explain to learners what calibration is. You can also make them research about why this is important.
- You can then demonstrate the two ways of calibrating a thermometer given on pages 101 – 102 of student's book.

### **Requirements for food refrigeration**

- Inform learners that refrigeration is one way of preserving food. Ask them if they have ever come across a refrigerator. Ask them what it is used for.
- You can then inform learners that one of the reasons why foodstuffs go bad is because of the activity of micro-organisms. Emphasize the fact that these micro-organisms require optimum temperature in order to survive. They become inactive under too low temperatures and get killed in too high temperatures.
- Inform the learners that a fridge works based on low temperature principle. At these temperatures, the micro-organisms become inactive and therefore cannot make foods go bad.
- Go through the points highlighted

on page 103 in the student's book. Let them understand the fact that these points are important if the foods were to remain safe.

### **Use-by dates**

- Allow learners to carry out Activity 5.5 on page 104 of student's book. Ask learners whether they have ever seen similar labels and what their use is. Help them to interpret what are in the labels.
- Emphasize need to always look out for expiry, sell by and packing dates on products before they buy them or use them.

## **5.3 Appropriate handling and disposal of garbage**

*Refer to student's book pages 105 - 109*

### **Periods 7 & 8: Appropriate handling and disposal of garbage**

#### **Specific objectives**

By the end of this lesson, learners should be able to handle and dispose of garbage appropriately.

#### **Suggested materials and learning resources**

- A landfill, compost pit, incinerator, dustbins.
- Learner's book
- Reference materials

#### **Suggested teaching methodology**

- Class/group discussions

- Guided discovery
- Question and answer sessions

### **Suggested teaching/ learning activities**

- This lesson is about how to dispose of wastes. Ask probing questions such as ‘ how do you treat wastes at home? Is that the correct way of treating wastes?’ You can then put learners in groups of five to discuss the discussion corner on page 106 of student’s book. Let them summarize main points and share with the rest of the class.
- Introduce the two types of wastes: **organic** and **inorganic**. Explain how each is supposed to be treated and why. At this point, you can introduce the concept about biodegradable wastes and how it affects disposal of wastes.
- Inform learners about the various methods of treating wastes i.e.
  - Recycling/reuse
  - Composting
  - Use of landfills
  - Safe burning - incineration
- Explain the differences between them emphasizing which method should be used when and why.

End the lesson by emphasizing the 3Rs principle i.e. Recycle, Re-use and Reduce as the best way of managing

wastes.

### **Answers to Self Evaluation Test 5.1 (96)**

1. Give a summary of why adherence to the HACCP plan is important to participants in the food processing and manufacturing industry.
  - To provide a preventive and cost-effective approach to food safety.
  - To control biological, chemical or physical property hazards in the food processing and production industry; thus render food safe for consumption are also assessed.
  - To eliminate or reduce food hazards to an acceptable level.
  - To be able to establish and take corrective action to ensure safety in the event critical control points are not as per the planned sequence.
  - Establish good record system that can be useful in identifying trends in a particular operation that could result in deviation of the HACCP plan.

### **Answers to Self Evaluation Test 5.2 (Page 105)**

1. Why is it necessary to ensure correct temperatures of foods while they are being cooked?
  - To ascertain food safety for consumption.

2. A student bought a packet of milk and found it leaking. What would you advise her to do and why?

- Under the consumer rights, such milk should be returned back to the vender if it is within easy reach; incase it is far, the consumer should check the contact information on the package and communicate to the concerned authority by writing a complain on the same, stating clearly the date of purchase, time, quantity, packaging and receipt number.

3. Which thermometer would be the most convenient for checking the temperature of roasting meat? Give reasons for your answer(s).

- Thermocouple; Fairly fast, working within 2 to 5 seconds, they too are useful in checking internal temperatures of thick foods that is characteristic of roasted meat. They too can be calibrated for accuracy.
- Thermometer fork combination; though can't be calibrated, they are fast working within 2 to 10 seconds and are a combination of both cooking and food thermometer.

4. Give examples of businesses or industries that you think need to

consider the HACCP plan in their daily operations

- Dairy (milk and its products) processing firms.
- Meat and its products (sausages, ham, bacon ) industries.
- Ideal, any food processing firm needs to adhere to HACCP plan for safety of consumers.

### **Answers to Self Evaluation Test 5.3 (Page 109)**

1. Name the two types of garbage or wastes. What is the difference between them?

- Organic - refuse originating from living matter and can rot with time (e.g. plant leaves, food remains, etc)
- Inorganic - refuse of mineral origin that does not decay (e.g. polythene papers, glass, plastics, etc)

2. Distinguish between:

**(a) Recycling** - use of chemicals to treat inorganic refuse and make it useful again such as use of waste paper to make tissue rolls or serviette, etc.

- **Re-use**; converting waste refuse into a usable material, for example, plastic tins can be re-used as storage facilities in the home, etc.



(b) **A landfill** - large scale burying of refuse whereas **compost** is a big hole dug to take up organic refuse that is allowed to decay and be used as manure.

3. What factors should you consider when disposing garbage?

- The pit should be dug away from the main house to control flies that are usually attracted by rotting material.
- A shade can be placed over the pit to help prevent loss of nutrients through evaporation in case the refuse is to be used for manure.

4. A good landfill should have some features including:

- It must have a liner at the base and sides to prevent spread of toxic liquids (leachate) or landfill gas into the environment.
- Have a leachate collection and treatment facility to restrict contamination of soil and water.
- Have a landfill gas collection facility to avoid explosions. The gas produced can also be used for energy generation.
- Have a fenced buffer zone and green belt around the facility to reduce odour and serve as a visual barrier.
- A final cover system at the top at closure of landfill to prevent infiltration of water.

- Safety provisions and basic amenities such as roads, lighting, water supply, protective gear, toilets and so on.

### Answers Test your competence 5 (Page 110)

1. Food safety ensure that the food that we eat is safe and that the overall population of Rwanda remains healthy for maximum productivity.
2. Burying biodegradable is controlled
  - Burning (use of incinerator)
  - Use to feed domestic animals
  - Used for making compost manure
  - Recycling
  - Reusing
3. “Doneness” refers to when a food is cooked to a desired state and indicates the sensory aspects of foods such as texture, appearance, and juiciness.
4. **Analysis of hazards** - to identify any hazardous biological, chemical, or physical property in raw materials and processing steps, and to assess their likelihood of occurrence and potential to render food unsafe for consumption.
  - **Determine critical control points** - a procedure in food

manufacturing process at which control can be applied and, as a result, a food safety hazard can be prevented, eliminated, or reduced to an acceptable level.

- **Establish monitoring procedures for critical control points** - planned sequence of observations to assess whether a critical control point is under control and to produce an accurate record for future use in verification. Monitoring can warn the plant if there is a trend towards loss of control so that it can take action to bring the process back into control before the limit is exceeded.
- **Establish limits for critical control points** – criterion which separates acceptability from unacceptability, examples of limits for critical control point are time, temperature, humidity, water activity and pH value, the limits should be measurable.
- **Establish corrective actions** – an action taken when the results of monitoring at the critical control point indicate that the limit is exceeded, i.e. a loss of control.
- **Establish verification procedures** – application of methods, procedures, tests and other evaluations, in addition to monitoring,

to determine compliance with the HACCP plan. Some examples of verification are the calibration of process monitoring instruments at specified intervals, direct observation of monitoring activities, and corrective actions.

- **Establish a record system** – Accurate and complete HACCP records are very helpful for documentation.

5. Guide the learners as they calibrate the thermometer.

To calibrate an instrument means determining, checking or rectifying its graduations to make it more accurate when measuring. This can be done using ice and boiling water.

- Most food thermometers have a calibration guide inside the package. Check it for instructions.
- **How to treat using ice:**
  - Fill a large glass with finely crushed ice.
  - Add clean tap water to the top of the ice and stir well.
  - Immerse the food thermometer stem a minimum of 2 inches into the mixture, touching neither the sides nor the bottom.
- **How to treat with boiling water**
  - Bring a pot of clean tap water to a full boil.
  - Immerse the stem of a food thermometer in the boiling water - minimum of 2 inches and

wait for at least 30 seconds.

6. (a) Blanching is boiling vegetables for one minute to kill bacterial and inactivate enzymes. Blanching also makes the vegetables to shrink hence this reducing their volume, this reduces their bulk during storage.
  - (b) Liquid food expand during freezing. This may cause breaking of the container used for packaging.
7. Learners to practice storing food safely at home. They should inform their parents to supervise this exercise.

## 8. Thermocouple

They reach and display the final temperature very rapidly within 2 to 5 seconds; the temperature is indicated on a digital display.

### ▪ Thermistors

They use a resistor (a ceramic semi-conductor bonded in the tip with temperature sensitive epoxy) to measure temperature.

### ▪ Oven cord thermometers

This food thermometer allows the cook to check the temperature of food in the oven without opening the oven door; it can be left in the oven to verify that the oven is heating to the desired temperature.

Can measure temperatures from 100 to 600 °F.

9. B
10. Learners should be instructed to practice taking care of a kitchen thermometer at home. They should inform their parents to supervise them. Some of the things they can do include wash carefully by hand in hot soapy water.
  - Do not immerse the thermometers in water.
  - Avoid using very hot water as this may melt some plastic parts of the thermometer.
  - Thermometer probes are sharp and should be stored with the probe in the stem sheath.
  - Some glass thermometers are sensitive to rough handling and should be stored in their packaging for extra protection or in a location where they will not be jostled.
11. For proper documentation and future reference.
12. (a) Manufacture and expiration dates.  
(b) Best before date
13. Quality assurance and standard procedure method.

*Refer to Learner's Book pages 113-127*

## Key Unit Competency

After studying this unit, learners should be able to select and prepare foods that best suit different life stages based upon nutrient value.

### Unit Outline

6.1 Food nutrient utility and life stages

6.2 Principles for meal planning

### Learning objectives

In order to live comfortably, we generally need to be mindful of the state of our households. Taking care

of our households involves many things. Abiding to the fact that we are now embracing a competence-based curriculum, learners should acquire knowledge and a good understanding of Home Science as a subject. On top of that, they should also obtain various skills, have a positive change of attitude towards Home Science and other related life aspects. Above all, learners also need to subscribe to certain values concerning Home Science that are acceptable in the society they live in. Emphasise these major aspects during the learning process.

**Table 6.1: Knowledge, skills and values to be attained**

Knowledge and understanding	Skills	Attitudes and values
<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Categorise the food nutrients utility according to life stages.</li> <li>▪ Explain the meal plans principles.</li> </ul>	<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Balance food nutrients' utilities according to the life stages.</li> <li>▪ Apply meal plan principles on the basic menu format and construction.</li> </ul>	<p>By the end of this unit, the learner should:</p> <ul style="list-style-type: none"> <li>▪ Pay attention to food nutrients' utility according to life stages.</li> <li>▪ Maintain a positive attitude towards meal planning and contribute to the society.</li> </ul>

## Links to other subjects

This topic is about food nutrients and meal planning. Therefore, it borrows heavily from Biology under balanced diet and deficiency diseases and organic Chemistry. It also shares content with physical quantities in Physics when it comes to knowing right quantities of food that should be served in a balanced diet.

## Formative assessment method

You will test knowledge and understanding, skills acquisition and attitude change.

- To assess knowledge and understanding of the various concepts – use self-evaluation test questions and Test your Competence questions at the end of the unit. You can also formulate your own questions.
- To test skills acquisition – Observe learners as they carry out the activities in this unit. Also, some questions on the self-evaluation test and Test your Competence exercise can be used.
- To assess attitude change – you can use probing questions to find out the various stands of the learners concerning this topic in Home Science. Also, during discussion sessions and activities, you can observe the body language of

the learners. Specific questions from the Test your Competence exercises can also help in assessing attitude change in learners.

You should decide when to assess learners. This can be done during the lesson, at the end of the lesson or at any other appropriate time as you deem fit.

## Background information

Meal planning is an important aspect in food management. It ensures that the meals are balanced, foods are prepared in correct quantities to avoid wastage and ensure satiety. Meal planning ensures that meals are presented attractively. All meals should be planned to cater for every special group of members in the family. These covers a variety of people whose nutritional requirements are a little higher or lower than the normal daily allowances such as expectant/lactating mothers, children, the elderly, invalids, convalescents, adolescents and manual workers.

## Generic competences to be covered

- **Critical thinking** – As learners brainstorm about the picture on page 113 and as they answer the probing questions.
- **Problem solving** – as learners answer probing questions, for example in discussion corners,

research activities and self-test exercises.

- **Communicating in English** – as learners discuss in their groups and as they write notes and reports and do presentations.
- **Co-operation and interpersonal skills** – as learners interact in their groups and as they do presentations.
- **Research skills** – as learners do research for example in discussion corner on page 114 in the student's book.
- **Life-long learning** - as learners participate in various practical activities involving preparing meals for example in activity 6.3 page 115 of student's book.

### **Cross-cutting issues**

**Health concerns.** This is a unit which is concerned with ensuring balanced diet and specific nutritional needs for different categories of people in the home. Learners should be encouraged to identify the special groups of people in the family before planning for the meals.

**Safety measures:** The learner should be careful concerning purchase of food and preparation. The teacher should ensure that the learners are safe to avoid cuts and fire outbreaks.

**Environmental hygiene:** The pieces of food and scrapes found during food preparation and cooking should be disposed of properly to avoid making the environment unsightly.

**Gender issues:** male and female students should equally participate in the lesson.

**Attitude change:** the learner should be encouraged to appreciate different categories of people in the home and their nutritional needs.

### **Activities to support multi-ability learning and physically challenged learners.**

- Peer teaching.
- Giving remedial teaching to slow learners.
- Allow enough time for slow learners to complete their work.
- Write the categories of special people in the home on the chalk board clearly for those with hearing abilities.
- Identify the learners with hearing problems and visually impaired ones and have them sit in front of the class so that proper attention can be given to them.
- Arrange the room to enable easy movement for the physically and visually impaired learners.

- Assign some students to be in charge of the physically and visually impaired learners.

## 6.1 Food nutrients utility and life stages

Refer to student's book pages 113 - 120

### Periods 1,2,3,4,5,6 & 7: Meals for different categories of people

#### Specific objectives

By the end of this unit, learners should be able to:

- Categorise the food nutrients utility according to life stages.
- Balance food nutrients' utility according to life stages.

#### Suggested teaching /learning resources

- A variety of foodstuff.
- Relevant books and information on food and nutrition.
- Cooking utensils and equipments.
- Computers with internet connection.
- Source of heat.
- Recipes for special groups.

#### Suggested teaching /learning methods

- Class/group discussions
- Guided discovery
- Question and answer sessions
- Practical activity

#### Suggested teaching /learning activities

- Guided discovery
- Class/group discussion.
- Research
- Presentation
- Question and answer.

#### Suggested teaching/ learning activities

- You may introduce this topic by asking learners probing questions on page 113 of learner's book. Assess their answers then inform them that in this topic, they will learn about the various categories of people in the family and how to plan for their meals.
- Put learners in groups of five. Allow them to carry out a discussion as per the discussion corner on page 114 of student's book. Guide them as they answer the questions.
- Let the learners write a report of their findings and share with the rest of the class members.
- At this point, you can introduce the various categories of people i.e.
  - Infants – young children under the age of 2 years
  - Expectant/lactating mothers
  - The elderly
  - Teenagers - adolescents
  - Invalids – sick people
  - Convalescents – people who are recovering from sickness

**Note:** Cover each of these groups per period/lesson.

- Invite a resource person (nutritionist) to talk to learners about the various categories of people and the types of meals they should be given. Refer to Activity 6.1 page 114 of student's book. Alternatively, you can plan to visit a local health centre for learners to find out for themselves.
- Let learners come up with notes during the visit or as the nutritionist explains the various points. They can then share what they wrote with the other members of the class.
- Tackle meals for the different groups of people per lesson, that is, infants, young children, pregnant/expectant mothers, teenagers and elderly people. Each lesson should be preceded by an activity of learners coming up with a list of foods for breakfast, lunch and supper. Refer to Activities 6.2-6.6 pages 114-119 of student's book.

### **Answers to Self Evaluation Test 6.1 (Page 118)**

1. Which are your favorite meals?
  - The teacher should help students choose the meal within the acceptable guidelines on choice of meal i.e balanced, suitable and

varied in terms of flavour, colour and texture.

- Help the students generate relevant recipes for the meals chosen.
2. Describe how you like them served.
    - The teacher should assist students on appropriate ways of serving meals keeping in mind garnishing for savory dishes and decoration for sweet dishes.
    - Allow students too to try out various ways of meal service including plate service, family meal service, buffet service and tray/trolley service.
    - Students can be allowed to arrange various flowers for center pieces when setting the table
    - Do the actual setting of the table/tray.

## **6.2 Meal plans principles**

*Refer to student's book pages 120 - 125*

### **Periods 6,9 & 7: Principles of meal planning**

#### **Specific objectives**

By the end of this lesson, learners should be able to:

- Explain meal-planning principles.
- Apply meal-planning principles on basic menu formats and construction.



## **Suggested materials and learning resources**

- A variety of foodstuffs.
- Cooking utensils and equipment.
- Source of heat.
- Learner's book.
- Recipes for special group.
- Reference materials.

## **Suggested teaching methodology**

- Class/group discussions
- Guided discovery
- Question and answer sessions
- Practical activities

## **Suggested teaching/ learning activities**

- Let learners carry out Activity 6.7 on page 120 of student's book in groups of five.
- Let learners come up with the points that they think should be considered when planning meals. They should write them down in their notebooks.
- Give details as highlighted in table 6.1 in student's book page 120. Narrow down to the Recommended Dietary Allowance (RDA) for various nutrients as explained in the table.
- You can then narrow down to the various types of meals i.e. breakfast, lunch and supper.

- Let learners brainstorm about what these meals should be made of and why. Go through the various types of meals with them highlighting important points.
- Wrap up by explaining the other types of meals i.e. luncheon and brunch. Refer to student's book page 124 for details. You may also differentiate between formal meals and the other types of meals. Refer to content on page 125 of student's book.

Finalize this topic by giving learners an assignment of developing a three-day meal menu for the family putting into consideration the various people that make up the family. Refer to Activity 6.3 page 125 of student's book. Assess student work and award marks accordingly.

## **Answers to Self Evaluation Test 6.2 (Page 125)**

1. Which is your favorite meal of the day?
  - Though students may choose various meals of the day, the teacher should help them understand the role played by each one of the meals served in the course of the day.
  - Help the students understand why some meals like supper have to be light while breakfast must be

detailed to prepare the body for the day's tasks.

- Explain too the value of taking healthy snacks in between the meals.
- It is a common practice in developing countries for people to start their day without breakfast only to take very heavy and in most cases poorly balanced mid-day meal - assist the students to understand the value of small but regular meals through the day as opposed to one sumptuous meal in a day.

2. Give reasons for your answer?

Use the reasons given to help the students understand the value of adopting healthy eating habits including taking balanced meals, healthy snacking, taking plenty of nutritious drinks alongside water and blending diet with exercises for proper blood circulation, burning excess fat and toning up of muscles.

### Answers to Test your competence 6 (Page 126)

1. What is a balanced diet?

- This is the food, which has all the food nutrients in their right proportion.

2. When planning meals, we should consider a number of factors. Name them.

#### ▪ **Fuel available**

▪ **Foods in season** – foods and vegetables are cheaper and fresh when in season than out of season; fresh foods have a high nutritive value.

▪ **Availability of money:** this determines the type of foods to be purchased.

▪ **Climate or time of the year** - warm foods are required during cold weather to keep the body warm while cold foods are required for warm seasons.

▪ **Availability of time** to prepare the foods. This determines the type of food to be included in the menu.

▪ **Occasions** – for example, funerals, birthdays, graduations, anniversaries, and weddings among others. They require great variety in choice and style of presentation as many different people are catered for.

▪ **Knowledge or skills of the cook** – one should plan for what they can best prepare to ensure satisfactory results.

▪ **Variety** - colour, texture and flavour to prevent monotony of unattractive meals that may be less palatable.

- **Satiety value** - Ensure the quantity of food planned for is sufficient for all members partaking of the meal.
3. Which categories of people require meal planning?
- Young children
  - Teenagers
  - Expectant mothers
  - Lactating mothers
  - Manual workers
  - The elderly people
  - Convalescents
  - Invalids
4. Your sister has just got a baby girl. Advise her on the types of meals she should prepare for her baby.
- Balanced meals.
  - Meals with plenty of fluids.
  - Should take fresh fruits and vegetables.
  - The meals should have high quantities of protein and calcium for milk production.
  - The meal should meet the satiety value of the mother.
5. Assuming your brother's wife is pregnant. He wants to do food shopping for her. Advise him on the kinds of foods the wife currently needs.

The meals should have:

- High level of proteins such as: meat, milk, eggs, cheese and other animal products.
- Calcium and phosphorus and vitamin D are essential for the development of the skeletal framework of the fetus and to ensure healthy bones and teeth of the mother. For example: milk, whole grain cereals pulses and green leafy vegetables.
- Iron in adequate amounts for the child to store their own iron stores to last them for the first six months of life and to guard against anemia during delivery. Foods such as red meat, liver, egg yolk; fruits, juices and salads to provide vitamin C, which promote absorption of iron.
- Enough iodine for proper functioning of the thyroid gland and to guard against goiter; use of iodized salt is recommended.
- Protective foods (vitamins and minerals) to nourish the foetus. Foods such as fresh fruits and leafy vegetables.
- Plenty of fruits and vegetables to provide roughage and guard against constipation, which may be common during pregnancy. Lactating mothers require proper intake of fluids- at least 2 liters daily to increase volume of breast milk.

6. What factors will determine the nutritive requirements of an individual?

- Age of the person - that is, if it is a young child, teenager or the elderly.
- State of health - that is, if the person is sick or not.
- Occupation - that is, for manual workers, they need more energy-giving foods.
- Tests and preferences of the person

7. What are the main characteristics of a meal that is supposed to be eaten as supper?

- It must be balanced.
- Light and easy to digest as there is no much body activity at night.

8. A Senior 3 home Science student is sick and he does not want to eat. What can he do to the food to make it comfortable to eat?

The food should:

- be easy to digest.
- not have too much fat.
- not be over-spiced and over-seasoned.

- be served in small quantities and in dainty bowls.
- should have plenty of fresh fruits and vegetables.
- have plenty of fluids.

9. Describe a well-balanced breakfast meal while giving your own examples.

- Assess student answers to ascertain that it is balanced. Examples of foods given should be determined by the local environment of the student.

10. Differentiate between:

a) Dinner and supper

Dinner is a formal heavy meal taken in the late afternoon or early evening while supper is the last meal of the day.

b) Brunch and luncheon

A luncheon is a formal meal and may have up to five courses. Brunch is commonly served during mid-morning to cater for both breakfast and lunch.

11. Find out if the task was carried out by assessing student write up on factors considered and the challenges the student faced. You may also find out from the parent or guardian if the task was carried out.

*Refer to Learner's Book pages 128-143*

### Key unit competency

After studying this unit, learners should be able to identify and apply a variety of cooking methods.

### Unit Outline

#### 7.1 Types of cooking methods

#### Learning objectives

In order to live comfortably, we generally need to be mindful of the state of our households. Taking care of our households involves many things. Abiding

to the fact that we are now embracing a competence-based curriculum, learners should acquire knowledge and a good understanding of Home Science as a subject. On top of that, they should also obtain various skills, have a positive change of attitude towards Home Science and other related life aspects. Above all, learners also need to subscribe to certain values concerning Home Science that are acceptable in the society they live in. Emphasise these major aspects during the learning process.

**Table 7.1: Knowledge, skills and values to be attained**

Knowledge and understanding	Skills	Attitudes and values
<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Identify types of cooking related to boiling, frying, baking, grilling, roasting, broiling, poaching and smoking.</li> <li>▪ Define food items best suited to different types of cooking.</li> </ul>	<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Apply cooking food using different methods of cooking.</li> <li>▪ Describe recipe items that are used.</li> </ul>	<p>By the end of this unit, the learner should:</p> <ul style="list-style-type: none"> <li>▪ Appreciate the value of cooking.</li> <li>▪ Balance ingredients related to recipe and contribute to society.</li> </ul>

## Links to other subjects

This topic is about cooking food. Food stuffs are obtained from Agricultural products and the whole concept of foods and nutrients is studied in Biology. It therefore goes without say that the content here is related to Agriculture and Biology. Also, in cooking quantities are involved. Therefore, some knowledge of Physics under physical quantities is essential.

## Formative assessment method

You will test knowledge and understanding, skills acquisition and attitude change.

- To assess knowledge and understanding of the various concepts – use self-evaluation test questions and Test your Competence questions at the end of the unit. You can also formulate your own questions.
- To test skills acquisition – Observe learners as they carry out the activities in this unit. Also, some questions on the self-evaluation test and Test your Competence exercise can be used.
- To assess attitude change – you can use probing questions to find out the various stands of the learners concerning this topic in Home

Science. Also, during discussion sessions and activities, you can observe the body language of the learners. Specific questions from the Test your Competence exercises can also help in assessing attitude change in learners.

You should decide when to assess learners. This can be done during the lesson, at the end of the lesson or at any other appropriate time as you deem fit.

## Background information

Cooking is a method of application of heat on food to make it palatable for human consumption. Food is also cooked to:

- Improve its appearance.
- Kill disease-causing micro-organism.
- Make food easy to digest.

More methods of cooking food and the various methods of cooking are further discussed in learner's book pages 128-143.

## Generic competences to be covered

- **Critical thinking** – As learners brainstorm about the pictures on page 128 and as they answer the probing questions.

- **Problem solving** – as learners answer probing questions, for example in discussion corners, research activities and self-test exercises.
- **Communicating in English** – as learners discuss in their groups and as they write notes and reports and do presentations.
- **Co-operation and interpersonal skills** – as learners interact in their groups and as they do presentations.
- **Research skills** – as learners do research for example in Activity 7.1 page 129 in the student’s book.
- **Life-long learning** - as learners participate in various practical activities involving preparing different foods for example in activities 7.2, 7.3, etc pages 131 – 140 of student’s book.

### ***Cross-cutting issues***

***HIV and AIDS:*** This is a practical based chapter where learners will be required to use sharp objects in the kitchen which can easily cause cuts and pricks. They should be sensitized about accidents like cuts which may cause infection if the blood comes into contact with that of an infected learner.

***Corrupt practices:*** Learners should be discouraged from stealing both raw and cooked food from the kitchen. The teacher should act as a role model.

***Environmental hygiene:*** The kitchen refuse should be disposed well to avoid making the environment unsightly.

***Gender issues:*** Male students should be encouraged to participate in the lesson.

***Attitude change:*** The learner should be encouraged to appreciate the locally available food materials.

### ***Activities to support multi-ability learning and physically challenged learners***

- Peer teaching.
- Giving remedial teaching to slow learners.
- Allow enough time for slow learners to complete their work.
- Write the recipes on the chalk board clearly for those with hearing abilities.
- Identify the learners with hearing problem and those who are visually impaired and have them sit in front of the class so that proper attention can be given to them.
- Arrange the room to enable movement easy for the physically challenged and visually impaired learners.

- Assign some students to be in charge of the physically and visually impaired learners. For example, carrying their equipment, food materials, etc.

## 7.1 Types of cooking methods

Refer to student's book pages 128-141

### Specific objectives

By the end of the chapter, learners should be able to:

- Give reasons for cooking food.
- Highlight the different methods of cooking food.
- Describe the above mentioned methods of cooking food.
- Explain the precautions to be taken in applying the different cooking methods.
- Suggest suitable foods for the different cooking methods.
- Prepare and cook dishes using the different cooking methods.

### Suggested teaching /learning resources

- Foodstuffs, equipment and ingredients required for preparing and cooking local dishes.
- Recipes for local dishes.
- Relevant books and information on cooking local dishes.

- Computers with internet connection.

### Suggested teaching/learning methods

- Class/ group discussion.
- Practical work to make various dishes
- Question and answer method
- Guided discovery

### Suggested teaching/learning activities

- Introduce this unit by showing learners the foods on page 128 of their book. Ask them how they think the foods were made. You may also physically carry some foods from home to show them or alternatively, ask them to come with packed food from home.
- Assess their answers to the questions then let them predict what they will learn in this unit.
- Inform them that in this topic, they will learn about the various methods of cooking.
- At this point, you can put learners in groups of five. Let them carry out the activity 7.1 on page 129. This will give them an idea of the various cooking methods. They can do research in the library or the internet to come up with better answers.



- Allow them to write short notes on their findings then share with the rest of the class members.
- At this point, you can come in and highlight the various reasons why cooking is necessary. Emphasize the fact that food should be well-cooked to prevent diseases.
- You can then introduce the various methods of cooking but before that, ask learners which factors they think would influence the method of cooking to be chosen. You may again organize for a discussion session on this. Wrap up by highlighting the various factors as shown on page 130 of student's book.
- You can now introduce the methods of cooking. Inform learners that all methods of cooking are grouped into two: moist-heat and dry-heat. Explain the two terms then go ahead and discuss each method.

**a) Boiling (2 periods) - page 130**

- You can introduce this method by asking learners how they cook Irish potatoes or even boiled bananas at home. Let them explain in detail what they do.
- Clarify that this is the boiling method of cooking. You can then let learners list down the types

of foods that are boiled. Correct them accordingly.

- Let learners carry out an activity on boiling Irish potatoes. They should list down the things they did during boiling. These form the steps of boiling.
- Let learners compare the steps they came up with, with those on page 131 of student's book. They should correct themselves and write down the correct steps.
- You can wrap up by highlighting the advantages and disadvantages of boiling as a method of cooking.

**b) Frying (2 periods) - page 132**

- You can introduce this method by asking learners how they cook meat or eggs at home. Let them explain in detail what they do.
- At this point, you can inform learners that frying can be categorized into three:
  - Dry-fat fry
  - Shallow-fat fry
  - Deep-fat fry
- Ask learners to explain what they think each one means. Take your time to clarify the different frying methods of cooking. Refer to student's book pages 132 -133.

- You can then let learners list down the types of foods that are dry-fried, shallow-fried and deep-fried. Correct them accordingly.
- Let learners carry out Activity 7.4 on page 133 of student's book to discover the steps followed during boiling after which you can highlight the advantages and disadvantages of frying as a method of cooking.
- The learners should be guided to come up with the steps of frying during the activity.

**c) Poaching (2 periods) - page 134**

- You can introduce this method by asking learners to list the various ways of cooking eggs. Let them say whether they are dry-heat or wet-heat.
- Remind learners that this is yet another moist-heat method of cooking. You should emphasize the fact that the same steps are followed as in boiling only that this is done at lower temperatures.
- Let learners list down foods that can be poached. Their answers should include eggs and fish.
- Go through the rules that should be observed when poaching food after which you can highlight the

advantages and disadvantages of poaching as a method of cooking.

- Wrap up this lesson by leading a practical session on poaching eggs.

**d) Baking (2 periods) - page 135**

- Introduce this method of cooking by reminding learners about wet-heat and dry-heat methods of cooking. Allow them to say what the difference between the two is.
- You can then let them know that baking is the first example of dry-heat cooking method.
- You can introduce this method by asking learners how they think bread is cooked. Let them carry out Activity 7.5 on page 135 to discover the steps followed when baking. They should conclude that baking is the method used to cook bread.
- Go through the rules that should be observed when baking food as explained on pages 135 - 136 of student's book after which you can highlight the advantages and disadvantages of baking as a method of cooking.
- Go through the list of ingredients on bread making and the method of making bread on page 136-137 of student's book to familiarise the learners.

- Wrap up this lesson by leading the practical session on baking cakes. Refer to Activity 7.6 page 136-137 in the student's book.

**e) *Grilling (2 periods) - page 137***

- You can introduce this method by asking learners what they think grilling is.
- Let them carry out Activity 7.7 to discover the steps followed during grilling. They can do this activity in two groups. They should conclude that grilling is the method of cooking whereby radiant heat from a metal grid is used to cook food such as meat or chicken.

**f) *Roasting (2 periods) - page 138***

- You can introduce this method by asking learners whether they have ever roasted any food. Let them carry out Activity 7.8 on page 138 to discover the steps followed when roasting.
- Let learners list down foods that can be roasted. Their answers should include maize and meat.
- Go through the rules that should be observed when roasting food as explained on page 139 of student's book after which you can highlight

the advantages and disadvantages of baking as a method of cooking.

**g) *Broiling (2 periods) - page 140***

- You can introduce this method by asking learners whether they have ever heard of the term broiling. Let them carry out Activity 7.9 on page 140 in two groups. They should come up with a list of steps followed when broiling.
- Let learners list down foods that can be broiled. Their answers should include fish and meat.
- Go through the rules that should be observed when broiling food then highlight the advantages and disadvantages of broiling as a method of cooking.

**h) *Smoking (2 periods) - page 141***

- You can introduce this method by asking learners whether they have ever smoked any food. How does it taste?
- Let learners list down foods that can be smoked. Their answers should include fish, chicken and meat.
- Wrap up this lesson by leading a practical session on smoking fish.

## **Answers to Self Evaluation Test 7.1 (Page 130)**

1. Give other reasons for cooking food you know

The students may come up with more varied answers than what is given in the students' text; so, the teacher should allow a healthy class interaction and participation as he/she tries to link the points to the key reasons why we cook food. Answers may include:

- To kill germs - Raw food is highly likely to contain disease-causing micro-organisms.
- To improve the appearance of the food - make it more palatable.
- To improve the flavour or taste of food.
- To help make food tender - make them easy to chew by softening their fibers.

## **Answers to Test your competence 7 (Page 142)**

1. Explain how cooking can be used to improve one's life in general.
  - To maintain good health.
  - For growth and development.
  - To protect one from diseases.
2. What factors must be considered when selecting cooking methods?

- The life-stage and health condition of the consumer of the meal.
- The available time.
- The available fuel or cooking resources.
- The available cooking equipment.
- The skill and knowledge for the cooking method.
- Type of food to be cooked.

3. What cooking methods would be more appropriate for baby food? Explain why.

- Boiling
- Boiling makes food soft and moist for easy chewing .
- Steaming
- Steaming makes food easy to digest and is a moist method.

4. Use True or False to answer the following methods.

- (a) Boiled food is crunchy and has a good appearance. FALSE
- (b) Frying is moist method of cooking. TRUE
- (c) Fried foods are easy to digest. FALSE
- (d) Baking preserves the nutrients in the food. TRUE
- (e) Grilling is the best method for

cooking food for the sick. FALSE

(f) Broiling and roasting are one and the same thing. FALSE

(g) Baked foods are easy to digest. TRUE

5. You want to bake a cake. Explain the rules you must consider when baking the cake.

- The ingredients must be weighed accurately.
- Use good quality ingredients.
- The oven must be pre-heated before putting the food in the oven.
- Observe the recommended time for cooking.
- Food must be tested for readiness before removing it from the oven.
- Baked food must be cooked before serving.

6. (a) Why would a poached egg be healthier than a fried egg?

- Poached foods are easy to digest.
- Poached foods do not have fat therefore they are the best for weight watchers.
- Fried foods take long to digest.
- The fat in the food adds calories to the body which might cause one to become overweight.

(b) Why is roasting a popular cooking method compared to most others?

- Roasted food has a good appearance.
- Roasted food has a good taste.
- Roasting is a fast method of cooking.

7. Which one is the odd one out?

- (a) Baking
- (b) Broiling
- (c) Boiling
- (d) Baking

8. Why must pan-fried fish and meat be cut into pieces when being cooked?

Pan-fried fish is cut into small pieces to allow it to cook faster.

Cutting it makes the heat to penetrate into the flesh hence avoids overcooking the outer parts.

9. Fill in the gaps.

- (a) Frying
- (b) Baking
- (c) Frying, poaching and steaming
- (d) Baking, broiling, grilling, roasting

10. (a) What foods must be baked only?

- Good quality cuts of meat
- Cakes
- Bread

(b) Why do you think baking is the only appropriate way of cooking these foods?

- Because cakes and bread cannot be cooked using any other method.
- Baking/oven roasting makes food to have a good colour and taste.

11. Your friend wants to start a bakery. What equipment must she have in her bakery?

- Cooker
- Weighing scale
- Mixer
- Stirring rod
- Measuring spoons and cups
- Spatula
- Water jug
- Baking tins
- Skewer

12. Complete the following sentences.

- (a) Grilling method of cooking is closely related to broiling and roasting methods.
- (b) Poaching, boiling and stewing are

the best methods for cooking food for the sick.

- (c) Baking, frying, grilling, and broiling methods make the food to have a good appearance, its tasty and is crunchy.
- (d) Stewing method is the best method for cooking tough cuts of meat.

13. Use the following table to match the following characteristics with the correct cooking method.

Cooking method	Method
Roasting	Food is cooked over glowing charcoal.
Boiling	Food is completely immersed in water.
Baking	Food is cooked using radiant heat in an enclosed space.
Dry-frying	Cooking food on a pan without fat/oil.
Deep-fatfrying	Cooking food when immersed completely in hot oil.
Poaching	Cooking food over simmered boiling water.

14. Check whether the learners can plan and look for categories given using the recommended method for each.

*Refer to Learner's Book pages 144-163*

## Key Unit Competency

By the end of this unit, learners should be able to bake a variety of breads.

### Unit Outline

8.1 Types of bread

8.2 Bread making

8.3 Cooking bread

### Learning objectives

In order to live comfortably, we generally need to be mindful of the state of our households. Taking care of our households involves many

things. Abiding to the fact that we are now embracing a competence based curriculum, learners should acquire knowledge and a good understanding of Home Science as a subject. On top of that, they should also obtain various skills, have a positive change of attitude towards Home Science and other related life aspects. Above all, learners also need to subscribe to certain values concerning Home Science that are acceptable in the society they live in. Emphasise these major aspects during the learning process.

**Table 8.1: Knowledge, skills and values to be attained**

Knowledge and understanding	Skills	Attitudes and values
<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Distinguish types of breads.</li> <li>▪ Explain steps used in bread making.</li> </ul>	<p>By the end of this unit, the learner should be able to:</p> <ul style="list-style-type: none"> <li>▪ Apply techniques used in making bread appropriately.</li> </ul>	<p>By the end of this unit, the learner should:</p> <ul style="list-style-type: none"> <li>▪ Make bread following all steps.</li> <li>▪ Appreciate the end result of the products.</li> </ul>

### Links to other subjects

As the name suggests this topic is about making bread. To make bread, various ingredients will be weighed. Therefore, knowledge of physical quantities in Physics will

come in handy. Also, bread being food, balanced diet and biology knowledge are of essence.

### **Formative assessment method**

You will test knowledge and understanding, skills acquisition and attitude change.

- To assess knowledge and understanding of the various concepts – use self-evaluation test questions and Test your Competence questions at the end of the unit. You can also formulate your own questions.
- To test skills acquisition – Observe learners as they carry out the activities in this unit. Also, some questions on the self-evaluation test and Test your Competence exercise can be used.
- To assess attitude change – you can use probing questions to find out the various stands of the learners concerning this topic in Home Science. Also, during discussion sessions and activities, you can observe the body language of the learners. Specific questions from the Test your Competence exercises can also help in assessing attitude change in learners.

You should decide when to assess learners. This can be done during the

lesson, at the end of the lesson or at any other appropriate time as you deem fit.

### **Background Information**

Flour mixtures are made mainly using wheat flour. Other ingredients such as liquid may be added to form a thin mixture (batter) or soft or a stiff mixture (dough). Different flours give different products in terms of texture and flavor.

Wheat flour is commonly used because it contains a high content of gluten. Gluten is the elastic substance which makes wheat flour to become stretchy when hydrated. The high amount of gluten is desirable for bread making because of its excellent elastic characteristics. This is required in bread making to ensure a well set product.

The teacher is expected to build on the knowledge gained in other grades to explain the scientific principles this branch of cookery is based on. During practical lessons, the teacher is expected to stress on proper use of equipment, as well as the importance of safety and hygiene at work. Economical use of ingredients as well as improvisation of equipment should be stressed throughout the topic.



### ***Additional information to the teacher***

Wheat flour is graded as strong, medium or soft. Strong flour contains high content of gluten hence unsuitable for bread making. Soft flour has low gluten content and is suitable for making cakes. Medium flour is all purpose flour and is commonly used for making a variety of flour mixtures.

The starch component in the flour makes it to thicken during cooking hence giving the product its shape and form. Dry heat gelatinizes starch giving it its characteristic of sweet taste and brown crust.

### ***Changes that take place when baking yeast mixtures***

- Expansion of gas in cells created during fermentation process thus raising the bread.
- Evaporation of alcohol produced takes place at 175°F (82.5°C).
- Carbon dioxide is released until the temperature of 140°F (66°C) when yeast is killed thus its activity is stopped. Granules swell and become fixed in gluten network thus gelatinized starch supports the structure of the product.
- Gel formation draws moisture from gluten and causes it to dry.

- Coagulation or setting of gluten starts at 165°F (77.8°C) and continues until the product is ready.
- Sugar and starch are dextrinized to form brown sweet crust.

### ***Various reasons for using sugar in flour mixtures***

- Sweetener.
- Assists in the creaming and whipping process.
- Provides a good grain and texture in the product.
- Aids the retention of moisture and prolongs freshness of the product (keeping quality).
- Promotes a good crust colour of the baked product.
- Adds nutritive value.

### ***Uses of eggs in flour mixtures***

- Raising agent.
- Adds colour.
- Improves flavor.
- Adds nutritive value.
- Improves the keeping quality of the product.

### ***Uses of salt in cookery***

- Improves on the taste-flavour.
- Helps to control the action of yeast during fermentation process.

- Has strengthening effect on gluten.
- Modifies the crust colour of baked item.
- Prevents growth of undesirable bacteria in the dough during raising stage.

### Generic competences to be covered

- **Critical thinking** – As learners brainstorm about the pictures on page 145 and as they answer the probing questions.
- **Problem solving** – as learners answer probing questions, for example in discussion corners, research activities and self-test exercises.
- **Communicating in English** – as learners discuss in their groups and as they write notes and reports and do presentations.
- **Co-operation and interpersonal skills** – as learners interact in their groups and as they do presentations.
- **Research skills** – as learners do research for example in Activity 8.1 page 146 in the student's book.
- **Life-long learning** - as learners participate in various practical activities involving preparing

bread, for example in activities 8.2, 8.3 etc pages 148 and 155 of student's book.

### Cross-cutting issues

- **Environmental hygiene practices:** Proper use of dustbin and disposal of refuse should be emphasised.
- **Gender issues:** Male students should be encouraged to participate in this lesson and where possible, they should be provided with appropriate protective clothing.
- **Safety:** This should be emphasised to protect infection from cuts and infectious diseases.
- **Honesty:** Carrying/stealing food prepared should be discouraged. The teacher should exhibit a high degree of integrity.

### Suggested teaching and learning resources

- Display of equipment, utensils and ingredients to be used when making flour mixtures. Flow chart on the ingredients necessary for the growth of yeast.
- Previous work done on food and kitchen hygiene, nutrient conservation, kitchen equipment and utensils.
- Recipes.

### ***Improvisations which can be done by the teacher***

The teacher should be able to improvise the following equipment:

- The oven – a big sauce pan/pot with a lid can be filled half way with sand.
- Baking sheets- sauce pans can be used in place of baking tins.
- A charcoal oven can be used as the source of heat.

### ***Activities to support multi-ability learning and physically challenged learners***

- Peer teaching: use fast learners to assist slow learners.
- Assign extra work to fast learners while giving remedial teaching to the other learners.
- Given enough time to slow learners to complete their work.
- Write the recipes on the chalk board clearly for those with hearing abilities.
- Prepare clear chats for the students to be able to refer from them.
- Identify the learners with hearing and visually impaired and have them sit in front of the class so that proper attention can be given to them.

- Arrange the room to enable movement easy for the physically and visually impaired learners.
- Assign some students to be in charge of the physically and visually impaired learners. For example, carrying their equipment.
- Use adapted syllabus for the visually impaired learners.

### ***Specific objectives***

By the end of the lessons, the learners should be able to:

- State the different types of flour used in flour mixtures.
- Explain the why gluten is an important aspect of flour used for bread making
- Describe yeast as an important ingredient in bread making.
- Prepare flour mixture for bread making.
- Make bread.

### ***Teaching and learning methods***

- Class discussion on:
  - (i) Flour mixtures and general points to be considered when making them.
  - (ii) The changes that take place in flour mixtures when making them.
  - (iii) Display and observation of equipment and ingredients to be used.

- Teacher to demonstrate on various mixtures and how they are used.
- Learners to practice on the skills demonstrated.
- Guided discovery

### **Suggested teaching/ learning activities**

- Introduce this unit by showing learners the picture on page 144 of their book. Ask them how they think the bread was made. You may also physically carry some bread from home to show them or alternatively, ask them to come with some bread from home.
- Assess their answers to the questions then let them predict what they will learn in this unit.
- You can then introduce the different types of bread (simple and complex bread). Let learners carry out the discussion corner on page 145 of their book. Elaborate on the difference between simple and complex bread. Refer to text on student's book paper 145-146.
- Let learners do research on what they will require in order to make bread. Refer to Activity 8.1 page 146 of student's book. Let them come up with a list of ingredients for making bread. Go through the list together with them as you give the function of each ingredient.
- Emphasize the importance of balancing bread ingredients. Go through each point as highlighted in the learner's book pages 146 – 147.
- At this point, you can put learners in groups of five. Let them brainstorm about the steps to follow when making bread. They can do research on this in the library or the internet. You can also show learners a video on bread-making. From the video, they should come up with a list of steps of bread making.
- Let learners carry out Activity 8.2 pages 148 – 152 of their book. You may need to emphasize the precautions to take during bread making.
- You may now go straight and demonstrate how to make various types of breads. Begin by giving the recipe then the method. Use a demonstration before you give a practical activity on bread making.
- Demonstrate how to make these breads: basic/normal bread, chocolate bread and butter bread. Refer to Activities 8.3, 8.4 and 8.5 in student's book pages 155 – 160.
- Wind up by highlighting the qualities of well-baked bread. Refer to student's book page 155.

- You may also highlight common mistakes which lead to badly baked breads as highlighted in student's book page 160 - 161.

You can then give a practical activity for students to make a simple bread (Refer to Activity 8.2 pages 148 - 149 of student's book).

### Answers to Test your competence 8 (Page 162)

1. Discuss the difference between bread and cake.

Bread	Cake
Use strong wheat flour	Uses weak wheat flour.
Yeast is used as a raising agent.	Uses baking powder dor raising agent.
It is fermented.	It is not fermented.
It is given time to prove.	It is not proven.
Uses little sugar.	Uses a lot of sugar/
Baking time is short.	Takes longer to cook.
Has a shorter shelf life.	It takes longer before going bad.
Sour taste is pleasant.	Sour taste is not pleasant.
Uses very little fat.	Uses a lot of fat.

2. Name the two types of breads. What is the difference between them?

- Simple bread – basic bread made using simple ingredients.
- Complex bread – in addition to basic ingredients, it is made using other ingredients like additives, flavours and nuts.

3. Explain why bread is cooked in a lot of heat for the first five minutes of baking.

- To maximize the action of yeast.

4. Explain the significance of using

ascorbic acid in bread making.

- Improves flavor of bread and makes the gluten stronger.

5. Match the description with process

- a) – iv);                      b) – iii);  
c) – ii);                      d) - i)

6. D      7. Assess students as they make bread. Refer to Activity 8.2 on page 148 for the steps

8. a) True                      b) False  
c) False                      d) False  
e) False                      f) False  
g) False

9. Bread making can be a source of income, therefore it is a skill anyone should learn and appreciate.
10. Assess student proposed plan and determine viability.

Allow them to carry out the project under guidance of their parents. Let them report about the success of the project.

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