

Food Technology Form 1

Food Technology

Form 1

Tatenda R Murefu
Njabuliso Ncube

SAMPLE





Food Technology Form 1

Published by
Gramsol Books
46 Kwame Nkrumah Avenue,
Harare. 2021
www.gramsol.com
Tel. 0864 420 9124

© Gramsol Books

The moral rights of the authors have been asserted.

Publisher: Sandura Tafadzwa
Managing Editor: Mbono Njabulo
Development editor: Hikwa Clemencia
Typeset by Muzasi Christina
Cover by Chikanga Francis
Printed by Gramsol Books

ISBN: 978-1-77929-782-2

Legal Notice

All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form, or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission from the Gramsol Books.

You must not circulate this book in any other binding or cover and you must impose this same condition on any inquirer.

Acknowledgements

The publisher and authors would like to acknowledge and thank the following for photographs and copyright material:

Pexels / Pixabay / Unsplash / Pics4learning / Getty Images / flickriver.com / www.winemag.com / eggs.ca / niddk.nih.gov / fsis.usda.gov / vegsoc.org / uptodate.com / www.gln.org / pinterest.com / afktravel.com / onthegas.org / lexico.com / nap.edu / beaumont.org / gmanetwork.com / health.harvard.edu / kefalosfood.com / pastemagazine.com / sielearning.tafensw.edu.au / meatandeducation.com / dreamstime.com / .quora.com / specialtyfoodingredients.eu / theculinarypro.com / cookinglight.com / biscuitstobrownies.com / ledfordsppestcontrol.com / japansenoodles.nl / www.mythirtyspot.com / maximumsurvival.net / perfectlysealed.com / alibaba.com / latourangelle.com / princessstafadzwa.com / cancertrust.wordpress.com / thespruceeats.com / mccormick.com / chowhound.com / thespruceeats.com / princessstafadzwa.com / foodal.com / cookinglight.com / webstaurantstore.com / walmart.com / www.aliexpress.com / amazon.co.uk / www.williams-sonoma.com / sweetandsavory.co / food-hacks.wonderhowto.com / www.foodsafety.com.au / northamericanpharmcal.com / blogs.ext.vt.edu / tupperware4sale.com / news.com.au / app.croneri.co.uk / subpng.com / zimbabweyp.com / niwa.co.nz / researchgate.net / humanillnesses.com / cedars-sinai.org / cdc.gov /

Although we have tried to trace and contact all copyright holders before publication, this has not been possible in all cases. If notified the publisher will rectify any errors or omissions at the earliest opportunity.

Contents	
Book Features	
TOPIC 1	The kitchen
	1
TOPIC 2	Kitchen equipment
	22
TOPIC 3	Food
	34
End of term one assessment	42
TOPIC 4	Nutrition
	44
TOPIC 5	Methods of cooking
	50
TOPIC 6	Meal planning and food service
	62
End of term two assessment	66
TOPIC 7	Flour mixtures
	68
TOPIC 8	Gender
	85
TOPIC 9	Enterprising
	91
TOPIC 10	Health and physical development
	95
End of term three assessment	99
Glossary	102
Index	104

Book Features



Catchy opening images captivate the learner

Vibrant images throughout the book

Types of meals

There are three types of meals that can be served per day. These are namely: breakfast, lunch, and supper.

Breakfast



Fig. 6.1 A continental breakfast

This is considered the first meal of the day, and is usually served between 6-9am. It is the first meal taken after one rises from a night's sleep and is often undertaken before the day's work. The ingredients and size of the meal are dependent on individual taste, among.

Lunch



Fig. 6.2 Lunch

Lunch is referred to as the midday meal of varying size depending on the culture. Originally, lunch or luncheon was related to a small meal that is eaten in small quantities at any time of the day or night. However, during the 20th century, it became focused toward being a small or mid-sized meal eaten at midday. Lunch is the second formal meal of the day after breakfast.

Supper



Figure 6.3 Traditional supper serving for a Zimbabwean household

Dinner is a light or informal evening meal served around 6pm to 7pm. On largely class-based distinctions, supper can refer to a late-evening snack. The difference between supper and dinner is that "supper" is an informal family meal whilst "dinner" is a formal affair. Supper can also refer to the largest meal of the day. In Zimbabwe, some traditional supper servings include: maize meal/ sadza/ isishwala with free range chicken stew and green leafy vegetables.

Activity 6.1

1. Discuss the differences between the following:
 - a) Breakfast and Lunch
 - b) Supper and Dinner

Dinner



Fig. 6.4 Dinner meal options served in hotels around Zimbabwe

Dinner usually refers to the most significant, and important, meal of the day, which can be the noon or the evening meal. Usually when people say "dinner", they mean an evening

In-text activities keep the learners busy

Book Features

Revision Exercise

Structured Questions
Answer the following questions in full.

- (a) What is cooking? (2)
(b) Define the terms:
(i) Moist cooking method (2)
(ii) Dry cooking method (2)
(iii) Frying (2)
- Complete the table below giving one advantage and disadvantage of each cooking method.

Cooking method	Advantages	Disadvantages
Baking		
Roasting		
Steaming		
Boiling		

10. Explain any five (5) reasons for cooking food (10)

11. Suggest a method that you would use to cook any edible insect available in your area (giving reasons for the chosen method). (5)

12. Group the following cooking methods into moist, dry and combined methods: Boiling, roasting, grilling, steaming, poaching, toasting, frying, baking, stewing, blanching, sautéing, steaming, frying. (5)

13. What are the advantages and disadvantages of using microwave? (Zimbabwe) (10)

Total = 45 marks

Varied exercises at the end of each topic

Activity 4.3

Plan a balanced lunch for you and your classmates to eat when travelling for a trip. Make sure to include indigenous foods in your meal.

Topic Summary

- There are different meals that can be eaten per day which includes commonly: breakfast, lunch, supper, and dinner.
- As the first meal of the day, breakfast has to be a nutritious attractive meal that should essentially provide 1/3 or 1/4 of the day's dietary requirement.
- In order to identify the right type of foods and quantities to use, meal planning has to be done.
- Meal planning encompasses planning for meals to provide all nutrients in the right amounts and proportions in order to promote adequate nutrition. These nutrient requirements will vary according to age, sex and physical activity of an individual.
- Because meal planning requires taking into consideration things like digestibility, palatability, and many other factors, it becomes both an art and a science.
- Meal planning economises labour, time and fuel and helps in avoiding monotony in one's meals because it allows for one to select different foods from the same food group.

Topic summaries at the end of each topic

Revision Exercise

Structured Questions
Answer all the questions in full.

- Copy and complete the table giving five (5) examples of each category.

	Plant sources	Animal sources
Indigenous		
Foreign/Exotic		

2. Give the indigenous names of the following foods:
A) Pumpkin leaves
B) Cow peas leaves
C) Native cucumbers

3. State five (5) foreign sources of foods adopted and used in Zimbabwe. (5)

4. Explain the role of foods placed in the fruits category in the human body. (5)

5. The Government of Zimbabwe is encouraging local farmers to grow small grains in Zimbabwe. In support of the Government, state the benefits of growing small grains. (5)

Total marks = 50

End of term one assessment

Paper 1

Section A
Answer all parts of Section A in the spaces provided.
You are advised to spend about half an hour in this section.

- (a) Name three (3) types of kitchens. (3)
(b) Outline any three (3) reasons why we eat food. (3)
(c) Explain the importance of good personal hygiene in the kitchen. (2)
(d) State three (3) good personal hygiene practices that should be adopted. (3)
(e) Identify any two (2) kitchen hygiene practices that should be performed in the kitchen. (2)
(f) Name two (2) mechanical equipment found in kitchens. (2)
(g) List three (3) pests that can be found in the kitchen. (3)
(h) Explain the procedures to follow when cleaning the following kitchen equipment:
Sieves (2)
Fridge (2)
Ovens (2)

(i) In order to help with food security in the country, use of indigenous foods is being encouraged. Using examples, give benefits of using indigenous fruits and vegetables. (4)

Section B
Answer any four questions. Write your answers in the spaces provided.

- (a) List any four (4) protein foods. (2)
(b) Outline three (3) advantages of a well-organised kitchen. (3)
(c) Suggest any three (3) factors affecting the food habits in Zimbabwe. (3)
(d) Name any two (2) indigenous and any two non-indigenous vegetables.
Indigenous: (4)
Non-indigenous: (4)
(e) Suggest why it is important to learn and

End of term revision tests help with assessment



LOVE is ^{slowly} patient,
it always ^{protects} ^{always} ^{always} ^{LOVE} ^{fails} ^{1 Corinthians 13:4-7}

Topic 1

The kitchen

Objectives

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

- define a kitchen.
- describe types of kitchens and their layouts.
- describe the workflows in an indigenous and a modern kitchen.
- state advantages and disadvantages of each type kitchen.
- observe safety precautions in the kitchen.
- explain the importance of personal, kitchen and food hygiene.
- distinguish the different types of kitchen surfaces.

Introduction

Human beings have been cooking since the beginning of time. The stoves for cooking were often in open places to allow smoke to escape. Most cooking, would be outside, although food preparation could take place nearby or in the same space. The kitchen has evolved over time. There are now many types of kitchen and layouts available.

Satellite kitchen



Fig. 1.4 Satellite kitchen

In certain instances, where a venue is far from the main kitchen, already prepared food items are taken and served with little or no further processing. Some foods may be re-heated at the satellite kitchen. The nature of service at this type of kitchen demands very few pieces of equipment to be available, for example, microwaves.

Display kitchen



Fig. 1.5 A domestic display kitchen and a restaurant display kitchen (from left)

A display kitchen is a type of kitchen where the food is prepared in full or partial view of

the customers. The sound and aroma released by the food being prepared serves to attract customers and stimulate appetites. The chefs put on their best show in hygienic practices, skill, and decorations to entertain customers. The kitchen is also called a 'show kitchen' because the art of food preparation is being used to convince the customer to buy.

Live kitchen



Fig. 1.6 A Chef demonstrating a skill in a live kitchen

A live kitchen is similar to the display kitchen as the marketing strategy of exposing part of the food preparation process to the customer is maintained. The outlet decides on the best parts of the operation that would be the most enticing. Customers get to choose their food on a menu and see it being prepared. In most cases, the food may be displayed and taken around the room in movable trolleys called *gueridon trolleys*.

Kitchen layouts

There are two main styles of kitchen layout, namely, the Foreign or standing layout and the Indian style or sitting type kitchen

Foreign or standing types

Foreign or standing type examples include the:

- a) One wall/ strip Kitchen
- b) U-shaped Kitchen
- c) Corridor Kitchen or Two Wall Kitchen
- d) L-shaped Kitchen
- e) Broken U-shaped Kitchen
- f) Island Shaped Kitchen



Figure 1.22 Composting of leftover foods

- Contamination can occur when cooked food or food that is eaten raw is mixed with unclean raw food i.e. meat or unwashed vegetables. It is necessary to use different cutting boards and knives for raw and cooked food to avoid cross contamination. Cross contamination may occur even in the refrigerator hence care should be taken to make sure that cooked food is adequately covered. Hands should also be washed after handling food such as raw eggs or meat before touching cooked food.



Fig 1.23 Covering of foods to keep out microorganisms

- Foods should be stored at the correct temperatures to avoid spoilage. Consumption should be on a First In First Out (FIFO) basis to ensure that food is used before expiry date is reached. All expired food should not be consumed.
- Old, damaged and unused equipment should be removed from the kitchen as it harbours insects and pests.



Fig. 1.24 Common kitchen insects

- Dish towels and hand towels should be washed regularly and dried to avoid cross contamination. Where many people are supposed to dry hands, it is advisable to use paper towels or electronic hand driers instead of hand towels to avoid the spread of diseases.

Activity 1.4



In pairs, inspect each other's personal hygiene and note down the advice you would give to make the person appear better.



Fig. 1.25 A hand drier used instead of hand towels

Food Hygiene

All basic raw materials for food production are obtained from the farm or field for example meat, milk, maize and flour. If food is contaminated or damaged in any way, it poses a threat to the quality of the final product. To ensure that quality is maintained, food has to be handled in a hygienic manner right from

Revision Exercise

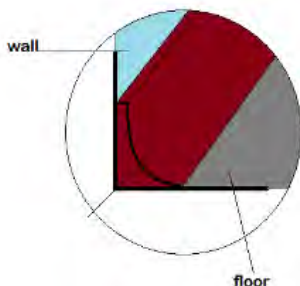


Section A

Multiple Choice

Choose the correct answer from the given questions.

1. A kitchen is _____ .
A. a room for eating
B. a room for watching television
C. a room where food is prepared
D. a room for storing garden tools
2. Hands should be washed in _____ .
A. clear water
B. running water
C. tap water
D. warm, clean, soapy water
3. Old unused kitchen equipment should be _____ .
A. removed
B. covered
C. put in a corner
D. put inside a cupboard
- 4.



This feature in a kitchen wall is called a

- A. corner
 - B. curved corner
 - C. coved wall
 - D. none of the above
5. Cholera is spread through the ways below except _____ .
- A. sex
 - B. handshaking
 - C. contaminated food
 - D. unsafe water sources [5]

Section B

Answer all the questions in full.

1. Define the term hygiene. [2]
2. State any five (5) ways of maintaining personal hygiene. [5]
3. List any five (5) layouts for a modern kitchen. [5]
4. State three (3) disadvantages of a two wall kitchen. [3]
5. Describe the work flow in a modern kitchen. [6]
6. Briefly explain why food hygiene is important in the kitchen. [4]
7. Describe how you would ensure the safety of chefs in a busy restaurant kitchen. [10]
8. What advice would you give to an entrepreneur who wishes to set up a food outlet near a local bus terminus to ensure that his customers do not get cholera. [10]

[50marks]

Different kitchen equipment

Traditionally, kitchen equipment is classified into two main categories that is small and large. For ease of identification, small equipment are pieces of equipment that can be stored in a drawer. Large equipment are those that do

not fit in a drawer. For modern equipment, it may be necessary to further classify them as mechanical or non-mechanical based on the presence of moving parts.

Equipment may also be classified according to use i.e. cutting, cooking, cooling and cleaning.

Table 2.1: Showing examples of small kitchen equipment

Small Equipment	
Egg lifter 	Whisk 
Measuring cups 	Grater 
Measuring jug 	Metal Bowls 

What is Food?

Food is any solid or liquid substance that is consumed to provide the body with nutrients

necessary for growth, repair and to maintain normal function. A balanced diet is a diet that contains all the required nutrients in their right quantities for the body to function well.

Food Groups

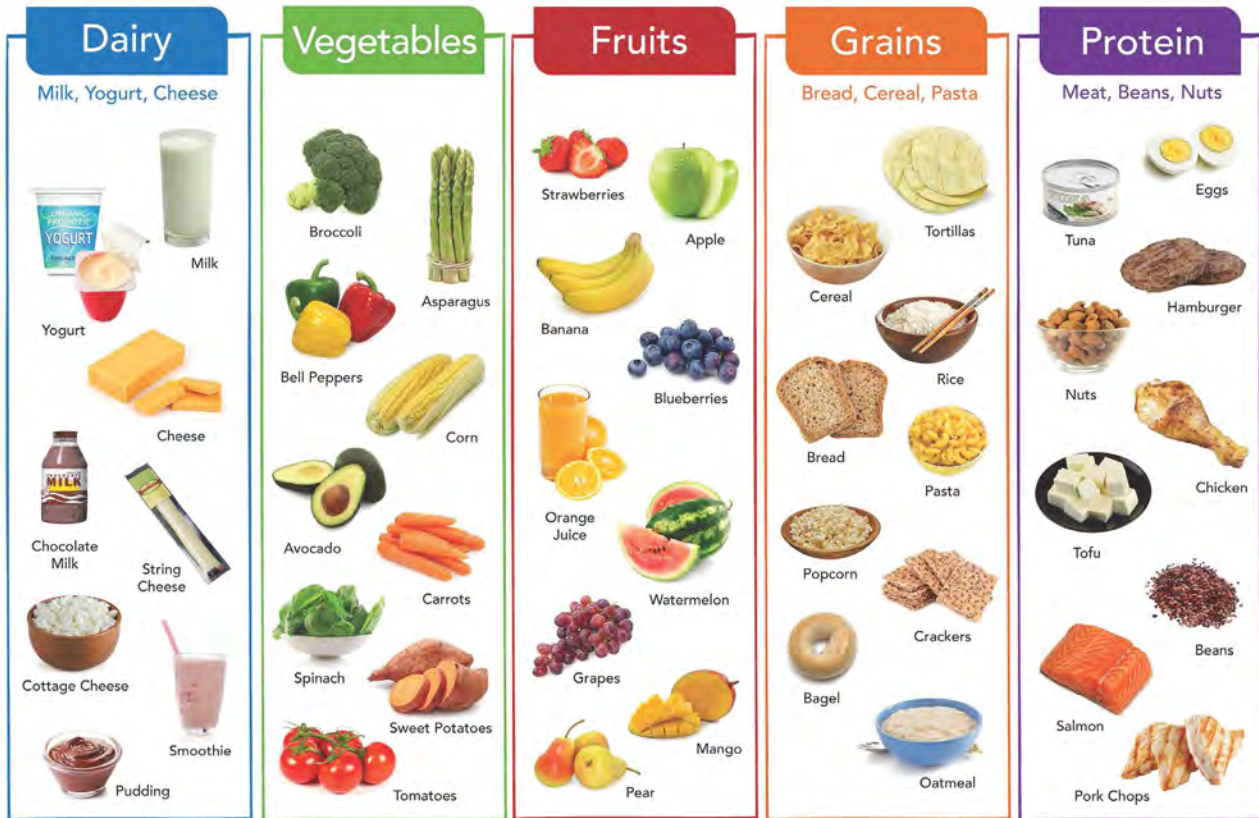


Fig 3.1 Different food groups

Dairy



Fig. 3.2 Showing a cow and milk based products

In Zimbabwe the most commercialised milk source is that of dairy cattle. From this milk we get a varied of products that include milk, yoghurt, milk based beverages, cheeses, cream and ice cream. Dairy products are the best sources of calcium. They also supply protein,



Fig. 3.11 A 'Macho' rugby player and a model like appearance

Social events and entertainment

Certain events are associated with certain types of foods. For example, parties, weddings, or picnics may serve a certain type of menu for the guests to eat. At social events, the individual

preferences of guests are not prioritised and the menu is drafted according to general food tolerance. This means that the food served is what most people eat occasionally and what they can eat without falling sick. Therefore, even if one does not particularly like the food, they just eat because it is being served.



Fig. 3.12 Foods served at weddings and gatherings

Topic Summary



- Food is any solid or liquid substance that is consumed to provide the body with nutrients necessary for growth, repair and maintenance of normal function.
- Foods can be classified into different food groups including dairy, vegetables, fruits, grains and proteins.
- Plant food sources include grains, fruits and vegetables, legumes while most animal sources provide protein, fat and milk and milk products.
- A balanced diet is a diet that contains all the required nutrients in their right quantities for the body to function well.
- Food sources can be indigenous such as foods that grow naturally in Zimbabwe. These include rapoko, millet, maize, wild animals, and domestic animals as well as most wild fruits.
- Locally available foods may include imported foods from other countries like rice, some exotic fruits like coconuts, kiwi, avocado, apples. Some may locally be produced to meet demand.
- To meet the growing demand for food some genetically modified foods may be used.
- Eating patterns in Zimbabwe are influenced by culture, religion and incomes.
- Indigenous foods are cheaper to produce, have high nutritional value, maintain cultural values and easy to produce i.e. some may grow and reproduce naturally with minimal interventions needed.

Revision Exercise



Structured Questions

Answer all the questions in full.

- Copy and complete the table giving five (5) examples of each category

	Plant sources	Animal sources
Indigenous		
Foreign/Exotic		

[20]

- Give the indigenous names of the following foods:

- Pumpkin leaves
- Cow pea leaves
- Native cucumbers

- Pumpkins
- Black jack
- Mopane worms
- Locusts
- Mice
- Goat
- Sweet potato

[10]

- State five (5) foreign sources of foods adopted and used in Zimbabwe. [5]
- Explain the role of foods placed in the fruits category in the human body. [5]
- The Government of Zimbabwe is encouraging local farmers to grow small grains in Zimbabwe. In support of the Government, state the benefits of growing small grains. [5]

[Total marks= 50]

End of term one assessment

Paper 1

Section A

Answer all parts of Section A in the spaces provided.

You are advised to spend about half an hour in this section.

- (a) Name **three (3)** types of kitchens. [3]
(b) Outline any **three (3)** reasons why we eat food. [3]
(c) Explain the importance of good personal hygiene in the kitchen. [2]
(d) State **three (3)** good personal hygiene lifestyles that should be adopted. [3]
(e) Identify any **two (2)** kitchen hygiene practices that should be performed in the kitchen. [2]
(f) Name **two (2)** mechanical equipment found in kitchens. [2]
(g) List **three (3)** pests that can be found in the kitchen. [3]
(h) Explain the procedures to follow when

cleaning the following kitchen equipment:

- Stoves [2]
Fridge [2]
Ovens [2]

- In order to help with food security in the country, use of indigenous foods is being encouraged. Using examples, give benefits of using indigenous fruits and vegetable.[4]

Section B

Answer any four questions. Write your answers in the spaces provided.

- (a) List any **four (4)** protein foods. [2]
(b) Outline **three (3)** advantages of a one wall or strip kitchen. [3]
(c) Suggest any **three (3)** factors affecting the food habits in Zimbabwe. [3]
(d) Name any **two (2)** indigenous and any two non-indigenous vegetables.
Indigenous:
Non-indigenous: [4]



Fibre	All wholemeal foods Fruit and vegetables	Prevents constipation Makes passage of food easy along the digestive system	Constipation if only refined foods are eaten
-------	---	--	--

Table 4.3: The Vitamins

Vitamin		Function	Source	Deficiency
Vitamin A (Retinol)		For proper function of the eyes. Healthy skin and lining of internal organs.	<ul style="list-style-type: none"> Yellow and orange fruits e.g. pumpkin, carrot and mangoes Green leafy vegetables Meat and milk and fish products 	Poor night vision
Vitamin B complex	B1 (thiamine) B2 (Riboflavin) B3 (Niacin) B5(Pantothenic acid) B6 (Pyridoxine) B7 (Biotin) B9 (Folic acid) B12 (Cobalamin)	-Helps body organs to function normally -Use of carbohydrate in the body. -Helps in digestion and improves appetite - Proper function of nervous system.	<ul style="list-style-type: none"> Milk Poultry Fish Whole grain cereals and pulses. Green leafy vegetables. Meat 	Pellagra (niacin) Beriberi (thiamine)
Vitamin C (ascorbic acid)		Protects the body from diseases.	Citrus fruits	Scurvy
Vitamin D (calciferol)		Helps in absorption of calcium and phosphorous. Formation and maintenance of strong bones and teeth.	Sunlight Meat, milk, fish and fortified foods	Deficiency leads to rickets
Vitamin E (tocopherol)		Prevents oxidation	All cereals, pulses and vegetable oils	
Vitamin K		Necessary for blood clotting	Green leafy vegetables, eggs and liver	

Undernourishment is also called undernutrition. It is a physical condition characterised by a nutritional disorder resulting from insufficient food intake and/or poor absorption of nutrients consumed. It involves being underweight for one's age, too short for one's age, dangerously thin for one's height and deficient in vitamins and minerals.

Over feeding is also called overnutrition. It is the form of malnutrition that happens when you take in more of a nutrient or nutrients than you need every day. Eating too much food with no exercise, over time will cause you to gain weight. Being overweight or obese is a risk factor for cardiovascular disease, some types of cancer, and diabetes.

food does not come in direct contact with water. A pressure cooker is used to steam food. A pressure is a special pot that has two compartments used for steaming. The bottom compartment holds the boiling water while top compartment is like a colander that has small holes which allow the steam to reach the food

Roasting



Fig. 5.8 Different kinds of roasting (pot roast, spit and oven respectively)

This is a cooking method where dry heat from an open flame, oven or other heat source is used to cook food. The food is coated with fat and turned around for even cooking. Roasting gives a characteristic brown colour and crisp flavour to food. Goat, beef, chicken, fish or mutton can be prepared by roasting. Some kebabs also are made in this manner. There are three different kinds of roasting which are namely: spit, oven and pot roasting.

Grilling or Broiling

Grilling is a cooking method that applies heat on the food surface from underneath, above or on the side. One of the common methods characterising most braai areas in Zimbabwe and some African countries is the 'gango' grilling style. Electric grills and hot plates are also available. You can also prepare pizzas, chips or grilled potatoes.



Fig 5.11 Broiling of fish

Baking

This method combines the effect of dry heat and that of steam which is produced while the food is cooked. It involves use of an oven. Baked foods are crisp, brown on top, soft and porous inside. Baked foods include pies, bread, cakes and other confectionery items.



Fig. 5.12 Baked muffins

Toasting

Bread slices are usually put between two heating elements and browned on both sides to produce toasted bread. Automatic toasters are also available which prevent burning or blackening of the bread.



Fig. 5.13 Toasting

Topic 6

Meal planning and food service

Objectives

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

- define terms.
- state types of meals.
- plan simple balanced meals.

Introduction

Meal planning can be referred to as taking the time to plan nutritious meals for a specified time nutrition for every member of a household within the available resources. Whilst available resources cover what the household has to offer from time, money and energy. Meal planning will aid in meeting nutritional requirements for the different household individuals. It also helps in decision making on what to eat each day for each meal. All in all, meal planning not only helps fulfil nutritional requirements, but also makes food preparation economical and caters to individual food preferences. It also saves energy, time and money; and lastly, helps for left-over food utilisation.

activity.



Fig. 7.3 Raising agents (from left - yeast, baking soda, baking powder)

Sugar

Sugar gives the product flavour, causes the browning as well as tenderising the gluten. It also helps in increasing volume by the incorporation of air into the fat and it provides food for the yeast. It also contributes to the volume of the product. Sugar also functions in increasing moistness and tenderness. It helps to delay the staling of the final product. It functions in browning of the outer crust of baked goods through caramelisation and non-enzymatic browning. Types of sugar used in baking includes raw sugar, white sugar, powdered sugar, and brown sugar.



Fig. 7.4 Different types of sugar

Table 7.1: Effects of too much or too little sugar

Too much sugar	Too little sugar
Baked product might fall	Dry product
Lower volume	Reduced browning

Course texture	Lower volume
Gummy texture	Less tenderness
Excess browning of crust	
Too sweet	

Salt

Like sugar, salt enhances the flavour of a flour product. Salt is added to flour mixtures for producing a firmer dough. It helps in improving the volume, texture, cell structure evenness and shelf-life. However, excess salt inhibits yeast activity, decreases volume and reduce carbon dioxide production. Too little salt results in a flowing sticky dough, low volume, uneven texture, lack of colour and bland taste. Types of salt used in food includes fortified table salt, unrefined sea salt, light salt and gourmet salt.



Fig. 7.5 Types of salt that is used in food

Eggs

They add nutrients to the product, assisting in the browning of the product and adding flavour and colour. Too many eggs in flour mixtures result in a tough, rubbery, as well as a dense texture. On the other hand, too little egg results in insufficient volume, poor textural strength, colour, flavour and nutritive value.



Fig. 7.6 Picture showing eggs

ingredients include flour, salt, butter, fat, and water to bind the dough together. Shortcrust pastry is used for production of tarts and for making quiche. The processing method involves mixing the fat and flour, adding water and rolling out the paste. To mix the fat and flour, the rubbing in method with the use of fingers or a pastry blender can be used. Care must be taken to blend the mixture thoroughly before adding any liquid, to ensure that fat coats the flour granules adequately. But also care has to be taken not to overmix. An indication of overmixing is the development of long strands that toughen the pastry. Coating the flour granules with fat results in a short, tender pastry.



Fig. 7.14 Vegetable tart and Tomato, cheese, bacon quiche

Flaky pastry

This is another simple pastry, and is known to expand during baking due to the number of layers used. The dough will bake into a crisp, buttery pastry which has the “puff” developed by the shard-like fat which creates layers. These layers expand in the heat when baked. It is used to make products like pasties, turnovers, sausage rolls, and plaits.



Fig 7.15 Sweet flaky pastry products and sausage rolls (savory flaky pastry product)

Puff pastry

Puff pastry is a multi-layered pastry that expands or puffs up when baked. The ingredients used are flour, butter, salt and

water. These ingredients, specifically the water and fat which expand as they turn to steam upon heating, will help in the rising of the pastry. Resulting product is light, flaky and tender. Puff pastry can be used in beef wellington, steak and kidney pie and other pies, strudel even in sausage rolls.



Fig 7.16 Picture showing Savoury puff pastry products and Beef wellington

Choux pastry



Fig 7.17 Choux pastry product with cream filling and drizzled chocolate

This is a very light pastry often filled with cream, and is closer to a dough than other pastries, hence why it can be piped into various shapes. Production of choux starts with mixing milk or water with butter, after which the mixture is heated to melt the butter. Flour and eggs can be added to enrich the pastry. The dough is then piped onto baking sheets and allowed to bake until the dough has expanded. After expansion, the pastry is taken out and a hole is made, to allow steam to leave the pastry. After, the pastry is put back in the oven to bake, dry-out and become crisp. The pastry is filled with various flavours of cream and topped with chocolate. Choux pastries can also be filled with savoury fillings like cheese, tuna, or

Raising agents

A raising agent or leavening agent is any one of a number of substances used in dough and batters. It allows for a foaming action to occur which will lighten and soften the finished product. This will involve formation of carbon dioxide, which is induced by chemical agents reacting with moisture, heat, acidity, or other triggers. There are four types of raising agents present which are:

- Chemical raising agents – baking soda and baking powder
- Mechanical actions as raising agents such as whisking, kneading or creaming methods
- Natural leaveners as raising agents – yeast and steam
- Combined raising agents – aeration by yeast and lamination done in Danish pastries (puff pastry).

Chemical raising agents

In this category we have baking soda, baking powder and ammonium carbonate. **Baking soda** is usually used when there is an acid already in the ingredients such as applesauce, chocolate, brown sugar or cocoa powder. When the soda comes into contact with an acid in the presence of a liquid, carbon dioxide which turns into air bubbles. The air bubbles expand during baking. It is strong hence should be used in less quantities than baking powder (1/4 teaspoon for 100g flour). **Baking powder** is a blend of baking soda and an acid (cream of tartar, calcium acid phosphate). When the liquid is added, the blend will form carbon dioxide bubbles during baking. It is a double action agent as it acts both when a liquid is added and again during baking. **Ammonium carbonate** also produces carbon dioxide when heat is added, but has a strong offensive flavour. It is usually used in combination with strong flavouring agents to mask it.

Mechanical actions

Physical action associated with the creaming, kneading and whisking methods allow for tiny air bubbles to be incorporated into the dough. The air bubbles expand during baking when heat is applied. Presence of flour will then help in providing a structure for the air bubbles to work against, and this is fixed during baking.

Natural leaveners

Yeast and steam are the natural raising agents used in flour mixtures. Yeast gives food moisture, warmth and air, which allow it to grow and ferment. Fermentation gives rise to carbon dioxide production which is trapped by tiny air cells. These expand during proofing stage. When the kneaded and expanded dough is baked, yeast action is stopped and the structure of the dough is fixed. Fresh or compressed yeast and dry yeast are the two types of yeast used in flour mixtures.

Steam

This is the most basic of all the raising agents though it is complex. During the baking process, steam is produced from butter layers in pastries for example. This steam will push up against the pastry leaves and give a raise the dough. The steam is then evaporated, leaving the pastry to set in place through heat.

Combinations

Combinations of the raising agents can be used in leavening the flour mixtures. An example is how the aeration of yeast in puff pastry is combined with lamination. Lamination will aerate the pastry at the same time yeast is aerating the pastry.

Generally, all the described raising agents will work on the same principal. The gasses expand and push up against a structure resulting in a rise which is fixed by heat during baking.

Importance of raising agents

Raising agents are mostly important for giving the baked products a nice rise and the preferred texture. In the first case, they aid with the expansion of either the batter or the dough by releasing gases (e.g. carbon dioxide) and forms bubbles in the dough which expand upon application of heat. At this point, the dough rises and usually sets thus the baked product rises. The rising effect will also help with making the product light and fluffy, as it produces a porous structure.

The type of raising agent used will affect the outcome of the product as shown in the picture (Figure 7.20), where different biological and chemical raising agents were used in muffins. This shows baking powder as the best raising agent to be used in the production of

Table 8.1: Differences between gender and sex

Gender	Sex
Deals with the societal, cultural and personal perceptions of sexuality.	A biological concept which is based on biological characteristics such as reproductive organs and hormonal activities within the body.
Based on societal constructions and the belief systems that deal with masculinity and femininity.	Looks at "female" versus "male" on a scientific level.
Some gender identifiers put in place by society includes the colour, hair length and even the toys we play with.	Because of the chromosomes, the hormones found within the body will vary. For example females have secondary sex characteristics such as menstruation and breasts whilst males have a high testosterone level than women.
Determined by nurture	Determined by nature.

The role of boys and girls in addressing gender inequality

The international community has been advocating and promoting gender equality since the founding of the United Nations. Earlier efforts in this goal of promoting gender equality have been mainly through separate activities for women. There was development of a strategy focused on ensuring that all policies, programmes and activities would consider the needs and priorities of both men and women. This strategy was working but at times, it was at a slow pace. One of the main reasons why the change was slow is that it focused on women exclusively. This is because for gender equality to be implemented, it requires the participation of both men and women.

Young children need to understand the

importance of gender equality. This can be done through interactive games and by encouraging children to critically think about the gender inequality situation. They have to be able to know that everyone has a right to education and they should advocate for it. Also, children need to be able to treat everyone equally, starting from even the games they play and the sports they do. Boys should also be in a position to do household chores in order to challenge the stereotype of that being a girl's duty. To help achieve gender equality, boys need to give up, in some way, their privileged positions within male-controlled structures. This can be achieved through convincing them of how the benefits of a gender equal society will be greater than the current situation.

Another aspect of encouragement is the presence of many different options in life. Girls need to learn to be more dependent. In simpler terms, the roles of boys and girls should be:

- To show empathy and mutual respect to elders.
- Reform the traditional stereotypes of depriving the girl child the right to education.
- Engage their fathers on gender equality.
- Both boys and girls need to help their parents do away with gender inequality.
- Boys to help in house duties and the girls need to appreciate their help.

Equity and equality

When looking at societal systems, equity and equality refer to similar but slightly different concepts. Equity refers to the offering of various support levels that depend on the need to achieve greater fairness of outcomes. Equality, as mentioned earlier, looks at equal opportunity, whilst experiencing the same levels of support for all segments of society.

Topic 9

Enterprising

Objectives

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

- define enterprising and an enterpriser.
- outline qualities of an enterpriser.
- identify gaps or needs and opportunities for projects.

Introduction

The topic of enterprising will be dealing with different concepts associated with enterprising or being an enterpriser and the qualities that best describe such an individual. As well the ability of an enterpriser to identify the various gaps or consumer needs and business opportunities will be discussed in order to learn more on how to use this to one's advantage.



Physical changes during puberty and adolescence

Child physical development begins during puberty and continues on in the adolescence stage. However, it is to be noted that physical development happens at different paces. This means that some teens will develop faster or slower than others. Both these scenarios often cause frustrations and self-consciousness, especially for teen girls who develop earlier than their peers.

Changes in height

A Growth spurt or growth in height occurs during a single growth period. Girls start their growth spurt normally between the ages of 8 and 13 years. Girls reach their adult height between 10 – 16 years because of their early growth spurt. For boys, the growth spurt starts at 10 – 16 years, with their rapid growth occurring between 12 to 15 years of age. The adult height for boys is reached between 13 and 17 years, and they usually are taller than girls on average. A growth spurt is associated with lengthening of arms and legs which at some time will be proportional to the rest of the body.

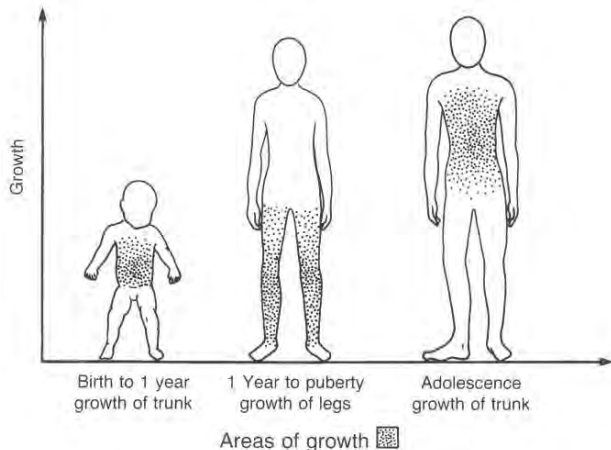


Fig. 10.1: Changes in height from childhood to adolescence

Changes in body composition

Aside from changing their height, adolescents change their body composition. Puberty is associated with secretion of hormones that act on body tissues and cause maturation. For the teen boys, their lean muscles increase due to the increase in male hormone levels. An example is testosterone and they can cause an increase in muscle mass. The boys' shouldered

broaden and their waist becomes tapered. This results in teen boys developing a triangular shape where their arms and legs become more muscular and bulkier. However, due to sports and physical activity, together with nutrition and heredity, the development of muscles can be affected.

Girls develop more body fat during puberty as compared to boys. The extra fat, is usually deposited at the midsection. The straight-line, square body of a teen girl will widen and broaden at the midsection resulting in an hour-glass shape. Girls need to be counselled and encouraged to accept their new body composition in a positive light to avoid occurrence of eating disorders.

Did you know

Adolescents will add 25-28cm in height and 22-34 (about 50% of body weight).

At the peak of puberty, within a year, boys would add 10cm in height and 11kg whilst girls add about 9cm in height and 9kg.

Facts

Early adolescence (11-12 to 14 years) experience the most rapid pubertal change.

Maturation of secondary sexual characteristics

Secondary sexual characteristics are not directly involved in reproduction but are related to it. The changes that occur during puberty in girls are the emergence of breasts, and hair growth under the arms and pubic areas. Puberty for boys begins in the testicular area then progress to the development of facial, underarm and pubic hair. For girls the changes can begin at around age 8 and for boys, it begins around 11 years.

Increase in strength and endurance

This change is greater for boys as compared to girls partly because of the higher muscle increase. Aside for muscle increase, circulatory and respiratory organs mature as well, resulting in increased lung capacity. The adolescents

Teenage mothers usually suffer higher risks as compared to more mature women. There are higher chances for the girls experiencing maternal and prenatal deaths. The teenage girls have a higher incidence of life-threatening conditions after giving birth such as nutritional deficiencies, hypertension, anaemia and urinary tract infections.

Transmission of diseases

For a HIV-infected teen mother ARV medication adherence at times can reduce after giving birth. HIV-infected adolescents might delay telling people of their condition and end

up transmitting the infection to their sexual partners.

Child Mortality

The children will also be under greater risks for physical and emotional problems. Stillbirths may occur more in teenage pregnancies than for mature women. The children of teenage girls will be less likely immunised and may tend not to get adequate medical care.

Topic Summary

- Puberty is a growth stage in which a child experiences big change both inside and outside.
- The changes that occur during puberty and adolescence include: physical growth and development, changes to the sexual organs, brain, social and emotional changes.
- Whether the growth and development is early or delayed, this will affect the child's behaviour (socially or emotionally).
- Some of the main drivers of early pregnancy include: lack of income, peer pressure, non-use of contraceptives, lack of sex education and exposure to sexual activities.

Revision Exercise

1. If we do not receive all the required nutrients in our diets, what do you think will happen? [5]
2. Briefly explain physical changes that occur to girls during puberty. [3]
3. Define personal hygiene. [2]
4. What is the importance of personal hygiene? Discuss in brief. [4]
5. Explain the importance of cleaning different body parts and the clothes. [6]
6. Discuss some of the effects associated with early parent on the teenager. [5]

End of term three assessment

Paper One

Section A

Answer all parts of Section A in the spaces provided. You are advised to spend about half an hour in this section.

1. a) Define the following terms:
 - (i) Gender [2]
 - (ii) Gender equity [2]
 - (iii) Sex [2]
- b) State **three** personal hygiene practices that should be adopted.[3]
- c) List **three** (3) reasons why it is important to exercise.[3]
- d) Identify **three** (3) causes of early parenthood. [3]
- e) Discuss the differences between equity and equality. [4]
- f) Discuss how early parenthood would

Glossary



Adolescent a young person in the process of developing from a child to a young adult.

Aseptic packaging the sealing of food containers in an environment that excludes microorganisms.

Balanced diet a diet containing all the food groups in their required quantities.

Balanced meal a meal that consists of the core food groups.

Batter a thin mixture consisting of flour, egg and milk or water.

Breakfast the first meal of the day, usually eaten around 6am to 9am.

Cast iron metal that is less refined and still contains carbon impurities that make it hard and brittle

Combined method a cooking method that combines the use of fat and water during cooking.

Constipation a condition of the digestive system where an individual pass hard faeces that are difficult to expel because the colon has absorbed too much water from the food

Contamination the entry of dirt or microorganisms into food

Cooking methods are ways through which raw food are made eby applying heat.

Creaming to work butter and sugar together to form a creamy paste.

Culinary refers to cooking activities.

Debris the dirt and unwanted skins on grain that need to be removed during winnowing

Detergents are chemicals that are made for cleaning operations

Dinner a formal main meal taken usually around 7pm to 9pm.

Dough a thick malleable mixture of flour and liquid.

Dry method a cooking method that does not involve the use of water.

Entrepreneurship the process of starting and maintaining a business

Fermentation the breakdown of food by microorganisms to produce alcohol

Flour mixtures when a lot of ingredients are combined then baked, with flour being a primary ingredient.

Food pyramid a triangular diagram showing optimum servings of food to be eaten per day.

Genetically modified objects animals or plants which have been altered to enable them to grow faster or produce more yields.

Growth enhancers substances that can be added to feed to enhance the growth rate of commercially produced poultry or livestock.

Hook and hang a nail or plank with hooks pinned to a wall where spoons, pans and other small items can be hung.

Hygiene a condition or practices conducive to maintaining health and preventing disease, especially by keeping cleanliness.

Indigenous items that originated and are used locally in Zimbabwe.

Knead to work the dough into an elastic mass by pushing, stretching and folding it.

Lactose intolerance the inability of the body to digest the milk protein.

Lactose a protein found in milk.

Lunch a middle day meal eaten around noon and 1pm.

Macronutrient foods that the body requires in large amounts for the full function e.g. carbohydrates, proteins and fats. These nutrients are also found in high proportions in certain foods.

Meal an eating occasion that will take place at a particular time and includes prepared food.

Micronutrient includes vitamins and minerals that are found in small quantities in foods.

Microorganisms are very small living organisms which cannot be seen with the naked eye. They include bacteria, viruses and fungi

Microwave cooking the heating and cooking of foods using microwaves that are passed