

## CHAPTER 1:

# Introduction to Nutrition and Food Technology



### Key Words

- Nutrition
- Food technology
- Food
- Nutrients
- Malnutrition
- Over nutrition
- Under nutrition
- Diet
- Meal
- Food processing
- Food preservation
- Refuse

### Learning Outcomes

#### By the end of this chapter, you will be able to:

- a) explain the terms used in Nutrition and Food Technology and value the importance of healthy living.
- b) value the feeding habits and practices of different cultures.
- c) explain the factors that influence feeding habits and practices of people.
- d) practise personal hygiene.
- e) use the different types of cleaning agents correctly.
- f) clean different areas of food handling in the home.
- g) control household pests.
- h) practise personal, food and kitchen hygiene during meal preparation.
- i) appropriately dispose of different types of household refuse.
- j) make a compost pit. work in a clean place.

Your body is like a machine that needs good materials to be able to perform its functions well. These materials are provided by the food you eat. The food you eat is influenced by the

feeding habits. These feeding habits and practices vary from family to family, but also from culture to culture. You should make sure that food is always provided in the right amounts. It is also important to remember that food should be prepared under clean conditions to promote healthy living.

Nutrition and Food Technology will teach you how to make healthy, well-balanced meals safely and hygienically. You will require these skills now and later in life to stay fit and healthy. Food Technology will also teach you about the development of new food products that could be manufactured and sold to other people to consume. You will use the skills acquired to design creative and original food products.

### Meaning of Terms used in Nutrition and Food Technology

Different terms are used and applied in Nutrition and Food Technology.

### Activity 1.1: Explaining the following terms as used in Nutrition and Food Technology

- |                       |                       |
|-----------------------|-----------------------|
| i) Delicacy           | viii) Malnutrition    |
| ii) Diet              | ix) Meal              |
| iii) Food             | x) Nutrients          |
| iv) Food preservation | xi) Nutrition         |
| v) Food processing    | xii) Over-nutrition   |
| vi) Food technology   | xiii) Under-nutrition |
| vii) Hygiene          |                       |

### What is a nutrient?

You can define a nutrient as anything that provides nourishment essential for the maintenance of life and for growth. In your primary education, you learnt about nutrients. Can you mention the six specific categories of nutrients? You need all of them to sustain life. These are: carbohydrates, proteins, fats, vitamins, minerals and water.

### How best would you group nutrients?

One way of doing this is by grouping them according to the amount required by the body. In this case you will have two groups: micronutrients and macronutrients. Water is usually left alone because it does not contain any food value, but it enables the body to use the other nutrients.

Carbohydrates, proteins and fats are called macronutrients because they are needed in large amounts. Carbohydrates and fats are energy nutrients because they provide the fuel your body needs to do things. Proteins, on the other hand, are body builders. They help your body to develop and grow.

Vitamins and minerals are called micronutrients. They are required in much smaller amounts. That doesn't mean they are less important. They are all essential nutrients, but you only need little bits of them.

When your body does not get adequate amounts of each, or any of the above nutrients, it will not function well. Have you ever heard of the word malnutrition? It is a nutritional condition that occurs when a person takes in more than or less than the quantity of nutrients needed by the body. When your body does not get enough nutrients, the condition is called undernutrition. On the other hand, when your body gets more than is needed, it is called overnutrition. Undernutrition is most often a result of not taking in enough high-quality food.

## How do you ensure good nutrition?

Eating the correct amounts of the right kinds of food provides the body with good nutrition. To know the right kinds of food, you must learn about nutrients and their functions in the body. The illustrations below show two different pictures of children who have been feeding on different diets.

### Activity 1.2: Identifying the features of a malnourished child



Figure 1.1: A healthy child



Figure 2: Malnourished child

Look at figures 1 and 2 above. Copy and complete the table below in your exercise book using the following descriptions that best describe the children in each picture.

- |                            |                               |
|----------------------------|-------------------------------|
| i) A happy face            | vii) A face miserably unhappy |
| ii) Thin arms and legs     | viii) Smooth skin             |
| iii) Bright eyes           | ix) Sad face                  |
| iv) Low weight for the age | x) Dull eyes                  |
| v) No energy to play       | xi) A well-built body         |
| vi) A thin body            | xii) Saddening to look at     |

Table 1.1: Features of the two pictures above of a healthy child and a malnourished one

| Picture 1 | Picture 2 |
|-----------|-----------|
|           |           |
|           |           |
|           |           |
|           |           |
|           |           |
|           |           |
|           |           |
|           |           |

Which of the pictures above shows a child who is feeding well?

## Causes of malnutrition

Malnutrition is a common health problem. Several factors are responsible for causing this anomaly. You will realise that malnutrition is a common challenge among people of different ages, both children and adults.



Figure 1.3: Malnourished people

**Activity 1.3: Stating the causes of malnutrition**

What do you think causes a person to become malnourished?

**Effects of malnutrition**

You should give serious consideration to the effects of malnutrition because they take a long time to be visible. Their effects may also cause long-lasting damage which may not easily be reversible. Malnutrition results in poor brain development and inability to work well. It also results in poor resistance to disease and malformed bodies. You should remember that most nutrients work together in order to perform their functions. This is why it is important to take a balanced diet.

Effects of malnutrition are more pronounced in children below 5 years of age, adolescents and mothers (pregnant and breastfeeding). One of the ways you can determine whether a child has malnutrition or not is by taking regular measurements for weight and height. You can then compare them with those of a normal child using normal graphs on growth monitoring charts.

**Activity 1.4: Understanding the effects of malnutrition**

- i) Why do you think the effects of malnutrition are more pronounced in some groups of people?
- ii) Make a visit to a health centre or an immunization centre and study the growth charts of the children who have been brought in for examination.
- iii) See how many are growing normally and how many have problems.

**How you can prevent malnutrition in your community**

Look around your community. Do you see any cases of malnutrition? It is your duty as an individual to always ensure that you prevent malnutrition in your life, your family and your community.

How can you encourage the consumption of protein foods, fruits and vegetables besides the carbohydrates in your home and community to ensure a balanced diet?

Do you know that eating plenty of vegetables is very important for healthy living for all groups of people? Vegetables are readily available. How can you encourage family and community members to eat vegetables? Make a decorative item to be placed in your home as a reminder of the consumption of vegetables.



### Activity 1.5: Preventing malnutrition

In groups, describe different ways of preventing malnutrition in your community.

### Project

Make a home decoration item with vegetables, fruits or protein foods to be displayed in your home. Skills used may be hand-stitching, drawing, painting and collage, among others.

### Feeding Habits and Practices of different Cultures in Uganda

Have you ever thought about what or who determines what you eat? You must have realized that many of your friends enjoy eating different foods. What your family enjoys eating is most likely to be different from what another family enjoys.

This also happens to different tribes and different cultures. We value different foods that we take as delicacies. The change occurs from culture to culture and may even change from age group to age group.



Figure 1.4: Traditional and cultural foods in some parts of Uganda

The food you eat is part of the traditions and culture of your family. Eating has an emotional part as well. When you feel a certain way, you reach for foods you would not normally eat.



*Figure 1.5: Following your emotions to eat*

Sometimes we seem to be feeding our feelings rather than our bodies. Many eating behaviours are motivated by emotions that we are not aware of.

For many people, changing eating habits is very hard. You may have had certain eating habits for so long that you even fail to realize that they are actually unhealthy. They become part of your daily life that you do not even think about them.

### Activity 1.6: Discussing feeding habits

In groups, talk about the feeding habits and practices in your:

- i) family
- ii) culture
- iii) age group

### Factors that influence food habits and practices

Your food habits may be influenced by different factors. These include:

- i) Presence of food
- ii) Nutritional knowledge
- iii) Money available to buy the food
- iv) Addiction to drugs and alcohol
- v) Environment
- vi) Climate of the region
- vii) Individual preferences

## Hygiene

What comes to your mind when you hear the word hygiene? You can define hygiene as the practice of keeping yourself and your environment clean in order to prevent illness and disease. If you are not hygienic, food can be contaminated. Contamination can be through a dirty person, contact with an unclean work surface, equipment, pests, rubbish and other food. Other foods like raw meat contain bacteria which can cause cross-contamination when it comes into contact with other foods. There is need to help individuals, families and communities to understand the link between poor hygiene and disease. You can now look at personal hygiene.

### Activity 1.7: Explaining hygiene

In pairs, explain different types of hygiene to one another. Share your findings with the rest of the class. Have you ever thought of the importance of keeping yourself and the environment around you clean?

## Personal hygiene

The figures below will help you to bring out different ways of maintaining personal hygiene.



Figure 1.6: Washing hands



Figure 1.7: Bathing



Figure 1.8: Brushing teeth



Figure 1.9: Washing hair



### Activity 1.8: Keeping your body clean

1. In groups, describe the different ways of keeping the different parts of your body clean.
2. In teams of 5, discuss and do/or role-play the following activities:
  - i) Brushing teeth, gums, tongue, lips
  - ii) Trimming nails
  - iii) Cleaning hair
  - iv) Action of shaving
  - v) Action of bathing
  - vi) Use of deodorants & alternative herbs
  - vii) Washing pants, hankies, stockings
  - viii) Polishing/cleaning your school shoes

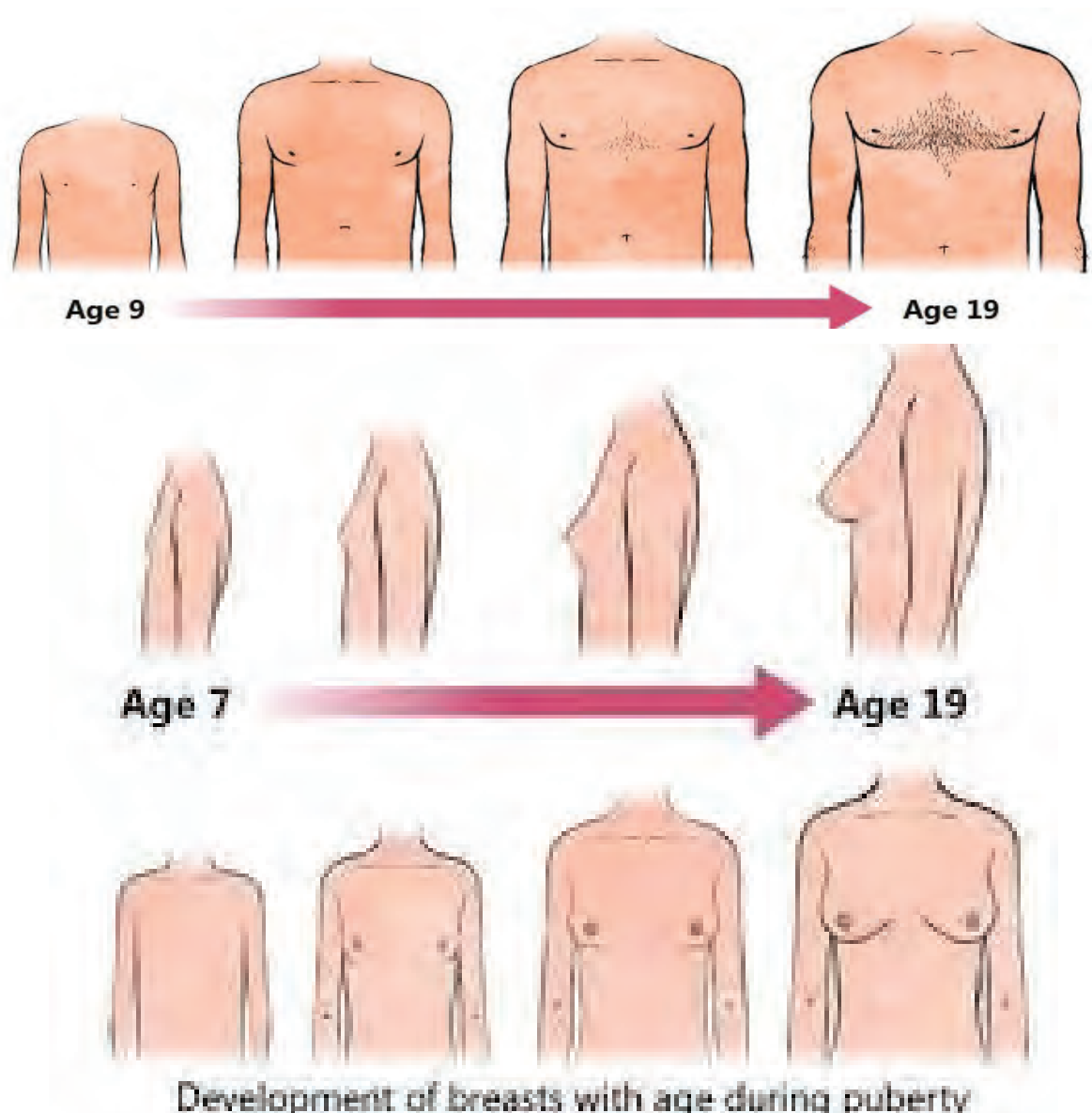


Figure 1.10: Development of body parts

As you grow from childhood to adolescence, your body keeps changing. In a girl, for example, the breasts develop and become larger. Then there is the onset of menstruation. The hips also become large and there is growth of pubic hair. In boys, the voice becomes deeper and the shoulders become wider. During puberty, boys also start experiencing wet dreams. Undergoing menstruation and wet dreams calls for a high level of hygiene.

### **Activity 1.9: Understanding body changes during growth and development**

- i) Apart from the ones mentioned above, can you name other body changes that occur as a result of growth and development?
- ii) In groups of 20, discuss and illustrate how you use menstruation sanitary towels or their alternatives?
- iii) Also discuss how you should bath and clean your pants during menstruation, and after experiencing wet dreams.
- iv) In groups of 10, let each of you make a sanitary towel and an alternative (e.g., pieces from cotton sheets) as a group project. Work from locally/readily materials.

All these changes come along with a greater need for maintaining personal hygiene.

### **Activity 1.10: Adapting to physical changes during adolescence**

In groups, describe different ways that can help you to adapt to physical changes during adolescent, and how you can ensure that you maintain hygiene during these changes.

## Food and Kitchen Hygiene



Figure 1.11: Safety in the home

Now, you have learned the importance of keeping yourself clean. It is not enough, however, just to ensure cleanliness of your body. You should also remember that it is important for you to observe hygiene when preparing food. Food and kitchen hygiene greatly determine the quality of the food we eat.

### Activity 1.11: Explaining the meaning of food and kitchen hygiene

In pairs, explain the meaning of the following:

- i) Food hygiene
- ii) Kitchen hygiene

### Points to observe in maintaining food hygiene

1. Always wash your hands before and after handling food.
2. Ensure cuts and sores are covered with plaster before handling food.
3. Keep yourself clean and put on protective clothing.
4. Never cough, sneeze, spit or smoke over food.
5. Do not lick fingers and spoons and then use them to handle food.

6. Always use tongs, forks and spoons to handle cooked foods, fruits and vegetables. You should keep your hands off food as far as possible.
7. Use clean equipment for preparing and serving food.
8. Keep food protected from flies, pests and rodents.
9. Waste food should be disposed of in the right way.
10. Make sure that all frozen foods are thawed well before cooking.
11. Prepare raw and cooked food in separate containers to prevent cross contamination.

## Points to observe to maintain kitchen hygiene

1. Wash and clean work surfaces, cooking place and the floor.
2. Utensils and equipment used should be kept clean.
3. Avoid pets like dogs and cats in the kitchen.
4. Thoroughly wash the kitchen clothes and dry them well.
5. Use each type of kitchen cloth for the right purpose.
6. Wipe spills as soon as they occur.
7. Use hot water, a good detergent for washing dishes and cleaning the kitchen to remove all traces of food.
8. Disinfect the rubbish bins and the washing areas regularly.

### Activity 1.12: Cleaning up the kitchen

- i) In groups of 2, wash, rinse, boil and dry kitchen cloth.
- ii) Also clean a working table and floor before washing the cleaning clothes and mops.

## Why you need to work and live in a clean environment

Serving safe food is important for good health. It should be part of every individual who prepares food. The environment in which we prepare and cook our food affects the quality of the food we eat.

### Activity 1.13: Giving reasons for having a clean environment

- i) In groups, give reasons why it is important to work and live in a clean environment.
- ii) Why do you think there is need to maintain a high standard of hygiene during food preparation?



## Food Handling

When preparing and cooking food, you will need to use different areas to get food to the table. You should always ensure that all these areas of food handling are kept clean. This will enable you to prepare safe food.

### Activity 1.14: Carrying out a practical on cleaning food storage areas

In groups, clean different areas used in the storage and preparation of food. Clean the food store/refrigerator/larder, work table, cooking area/cooker, wash area/sink. Use different types of cleaning agents correctly.

It is dangerous to practise poor hygienic handling of food. It is one of the causes of a number of health hazards.

### Activity 1.15: Knowing the dangers of unhygienic food handling practices

- i) What do you think are the dangers of unhygienic practices in food handling?
- ii) Make a poster to illustrate hygienic and unhygienic practices in the kitchen

## Household Waste

To prepare healthy food, you should be able to manage household waste well. Waste can be grouped into two, that is, organic and inorganic waste. Organic waste is one which can rot. It produces a bad smell and attracts pests. Examples of organic waste are food scraps, vegetable and fruit peelings and grass, and animal and poultry droppings.

Inorganic waste, on the other hand, does not rot. It includes broken bottles, pots, tins and polythene bags. This kind of waste is difficult to dispose of, making the home untidy.

### Activity 1.16: Sorting out household refuse

In groups, label different waste bins for collecting different types of refuse. Sort out the different types of refuse and place them in the correct bins.

## Waste disposal

You should dispose of waste as quickly as possible. When waste is not disposed of, it produces a bad smell, attracts rats, flies, and other pests which spread germs.

## Waste handling

### Activity 1.17: Waste handling

In groups, discuss the different ways of disposing of household waste.

### Activity 1.18: Explaining terms in refuse disposal

In your notebooks, explain the following terms as used in refuse disposal:

- |                     |                     |
|---------------------|---------------------|
| i) Waste            | iv) Waste recycling |
| ii) Waste disposal  | v) Waste re-use     |
| iii) Waste handling |                     |

### Activity 1.19: Categorising refuse

Categorise and show how different types of refuse are disposed of.

## Control of Household Pests

Household pests can be a menace in a home. They multiply rapidly and feed on leftover food. They carry germs that cause diseases like cholera, dysentery, and typhoid fever. A high standard of cleanliness is required to control them.

## Common Household Pests



Figure 1.12: Household pests

## Guidelines for controlling household pests

1. Cover all the food with a clean cover.
2. Dispose of household wastes correctly.
3. Wipe off spills on tables and floors immediately.
4. Use disinfectants when cleaning different areas in the home.
5. Store foods carefully.

### **Activity 1.20: Discussing household pests**

In groups, carry out a discussion on the following:

- i) Identifying household pests
- ii) Effects on health and property
- iii) Control of household pests

### **Activity 1.21: Carrying out a community cleaning exercise**

Visit a neighbouring trading centre and carry out a cleaning exercise to demonstrate the importance of living in a clean environment.

### **Project: Refuse disposal**

#### **Work in groups**

- i) Produce items by making use of the waste in your school.
- ii) Set up a waste disposal unit in your school.
- iii) Write a report on your project work.

## Situation of Integration: Importance of Cleaning

### Context

During Zoe's graduation party, the cooks were so overwhelmed and exhausted with too much work.

They did not take care of hygiene during and after food preparation.

They also left the entire kitchen dirty with all the leftover food lying around.

All the plates, dishes, and the pans used for cooking were untidily left in the kitchen unwashed. At night rodents enjoyed the leftovers.

By morning, the flying and crawling insects joined making the situation worse. Later on, Zoe's brother prepared a vegetable salad in the same kitchen and served it to the village children, many of whom were his friends.

Typical of village children, they ate every leftover food that was in the kitchen. Whoever ate that salad and the leftover food got severe stomach pain.

### Support

Extracts on hygiene and refuse disposal.

### Instruction

In view of the above situation, what do you think would be the likely forms of waste found in that kitchen?

Come up with practical ways through which the cooks should have handled the situation.

## Summary of Chapter1

In this chapter, you have learnt the:

- i) terms used in Nutrition and Food Technology.
- ii) influence of food habits and practices in shaping nutrition practices.
- iii) importance of living and working in a healthy environment.



## Chapter 2: Kitchen Equipment and Kitchen Plans



- **Key Words**
- Equipment
- Measuring
- Cutting
- Mixing
- Cooking
- Cooling

### Learning Outcomes:

#### By the end of this chapter, you will be able to:

- a) choose kitchen equipment correctly.
- b) care for kitchen equipment well.
- c) use fitting skills in carrying out specific tasks.
- d) know the different ways of planning a kitchen.
- e) draw at least three different kitchen plans.
- f) promote comfortable and healthy conditions during work.

## Introduction

Every time you think of cooking food, you must also think of the tools to use. Having the right tools for your kitchen makes you work well and produce the right results. Kitchen equipment includes all the things that you use when preparing, cooking, serving and eating food. Different families have different amounts and types of equipment. This is determined by the amount of money available for the equipment in the family. For efficient work, the kitchen must be well planned to avoid fatigue. Kitchen planning involves the proper organization of all equipment for proper flow of work.

## Choosing your Kitchen Equipment



Figure 2.1: Sample kitchen equipment

A disorderly kitchen can cause stress and disturbance. A poorly stocked kitchen can also be tiring. Whether you have plenty of equipment or not, you need to properly arrange it. Your kitchen tools need care and maintenance to function well. It is better to keep your equipment clean and in good working condition so that they can work for a long time.

The following is a list of what you might find in some homes: knives, cups, glasses, dinner plates, frying pans, saucepans, strainer, egg lifter, pots, forks, saucers, mixing bowls, chopping boards, vegetable peelers, spoons, jugs, baking dishes, baking pans, baking tins, kettle, soup bowls, stoves, refrigerators and cookers.

### Activity 2.1: Categorising and pricing kitchen equipment

Copy the list of kitchen equipment above in your book.

- Group the equipment above in the categories of measuring, cutting, mixing, cooking and cooling equipment.
- Visit a shop or supermarket around and write the prices besides each of the equipment which is available. Compare the prices and the quality of the equipment.

**Table 2.1: Categorising kitchen equipment**

**Copy and complete the table shown below about the categorization of kitchen equipment**

| Measuring | Cutting | Mixing | Cooking | Cooling |
|-----------|---------|--------|---------|---------|
|           |         |        |         |         |
|           |         |        |         |         |
|           |         |        |         |         |
|           |         |        |         |         |
|           |         |        |         |         |

Most kitchen equipment is made from materials such as glass, china (clay), plastic, wood, aluminium, enamel and stainless steel.

### Activity 2.2: Naming the materials used for making kitchen equipment

In small groups, think about the materials above and note down the ones you could find in your homes or in the home economics room. Write down the examples of the kitchen equipment made out of each of the materials listed above.



## Choice of Kitchen Equipment

### Points to consider when choosing kitchen equipment

Have you ever thought of what kind of kitchen equipment you would love to have or use? Buying kitchen equipment can be costly. It is always wise for you to buy equipment that you can afford. You should, however, remember that usually, the more expensive equipment is the better the quality. Quality equipment is made using strong materials to last longer.

### Activity 2.3: Giving key points to help you choose your kitchen equipment

- i) In groups of five, discuss other important points to consider when choosing kitchen equipment.
- ii) Write the points on a manila sheet.
- iii) Make a presentation of your group findings to the class.

### What you will need to prepare the presentation

- A manila sheet
- A marker

Let us now look at each category of the kitchen equipment

### Measuring Equipment

Look at the pictures below.

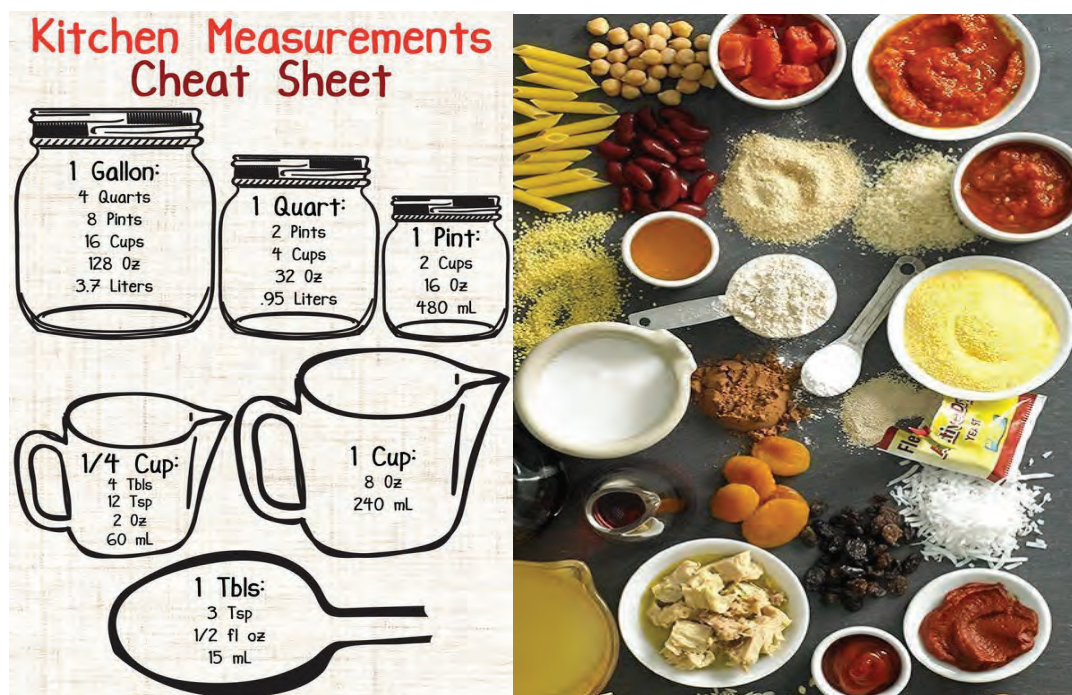


Figure 2.2: Measuring equipment



Accurate weighing or measuring of foodstuffs is essential for correct proportions of different ingredients in relation to another and for ensuring that we produce the expected outcome of a process. Various units are used in the measurement of both solids and liquids i.e. grams, ounces, litres etc.

### Activity 2.4: Using hand measures

Make a list of various kitchen equipment used for measuring solids and liquids. Find out the use, advantages and disadvantages of each. Collect various containers used in the kitchen and find out their capacities in terms of weight and volume so that they can be used as hand measures. Compare the accuracy of the hand measures with those of standard measurements.

### Cooling Appliances and Equipment

Can you think of different ways of keeping food cool at home? Look at the following examples of cooling equipment: refrigerators, deep freezers, cooling boxes, improvised appliances like charcoal coolers. Do you have any of them in your home?

#### Cooling boxes



Figure 2.3: cooling equipment

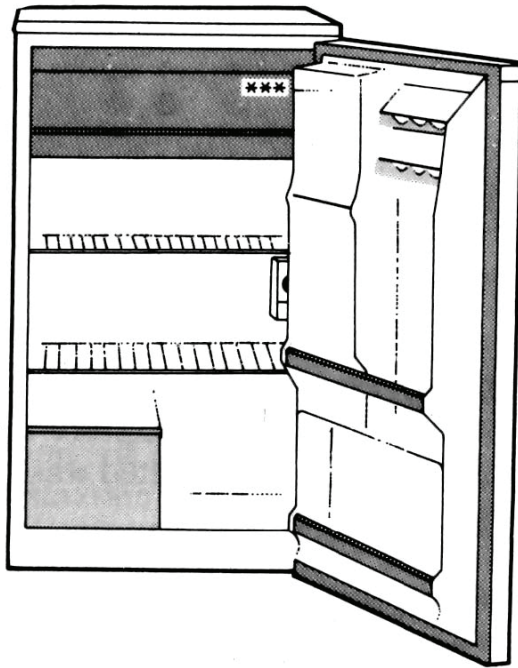


Figure 2.4: Refrigerator



Figure 2.5: Deep freezer

### Cutting Equipment

When did you last use a knife? What did you use it for? In the kitchen, we cannot do without cutting equipment because they are very important in the preparation of food. The various types of cutting equipment are designed to meet different purposes. For example, a grater and a blender are needed to give fine products; a knife for coarse products.



Figure 2.6: Various cutting equipment

## Activity 2.5: Characterizing cutting equipment

Find out the characteristics, types and the main features of the different cutting equipment

### Mixing Equipment

Mixing ingredients together during food preparation is essential. You may need special mixing equipment to carryout particular tasks.

## Activity 2.6: Using food mixers

- List the various tasks in the kitchen that require mixing equipment for ingredients (sieving, folding and beating) and find out the most suitable tool for each task.
- Find out the characteristics, types, uses and main features of bowls, sieves, colanders and spoons.
- Carry out various activities using the mixing equipment; for example, extracting juice.



Figure 2.7: Mixing bowls

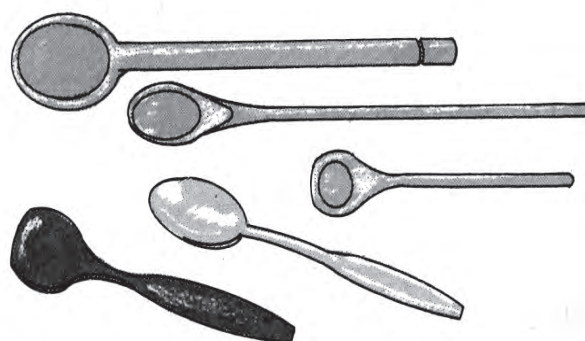


Figure 2.8: Mixing spoons

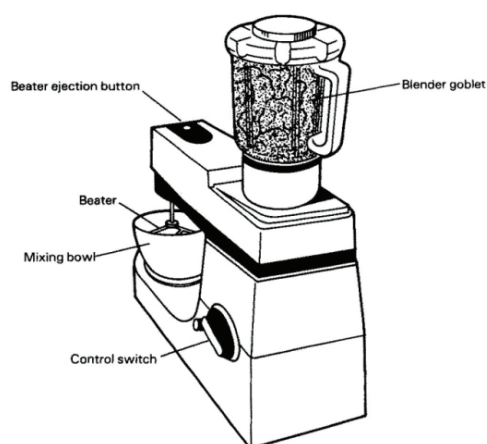


Figure 2.9: Food mixer/processor

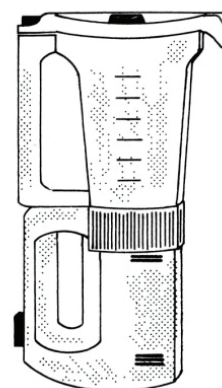


Figure 2.10: Blender

**Caring for your Kitchen Equipment**

The sustainability of the equipment and tools depend on proper care and handling. Caring for equipment includes practising proper cleaning methods and storage.

**Caring for the cooker****Procedure**

- i) Switch on only when it is necessary
- ii) Make use of residual heat
- iii) Do not bang the coils
- iv) Use a soft abrasive and scourers when cleaning
- v) Keep the cooker in good condition. When faults are detected, always consult a good technician to repair it.

**Caring for the refrigerator**

- i) Place the refrigerator away from the heat of the cooker, for this may affect its proper operations.
- ii) Do not scrape or chip at ice with a sharp object as this may damage its back coils.
- iii) Never leave the door constantly open as warm air that enters reduces its working capacity.
- iv) Putting hot things in the refrigerator will spoil it.
- v) Do not overload the refrigerator.

**Care of knives**

- i) Knives should be used for the purpose intended.
- ii) They should be rust free, durable and without any faults.
- iii) Since most knives have wooden handles, they should not be soaked in liquids as wood would get spoilt.
- iv) Hot soapy water should be used to clean knives, rinsed well and stored in a separate drawer from the rest to avoid cuts, or they should be hanged in the storage area.



**Cooking Appliances**

Your choice of cooking method and equipment in relation to heat transfer are always important for preparing quality food. Considerations for choice of cooking appliance include the type of fuel available, type of food, space available, economic factors, personal preference and the finish desired.

Discuss the characteristics, types, uses, advantages, disadvantages and maintenance of cooking appliances such as toasters, sandwich makers, cookers, microwaves, kerosene stores, stoves, charcoal stoves.

**Using Cooking or Kitchen Equipment**

Adequate kitchen equipment enables you to prepare meals, and if properly used, will help you to save time and energy.

**Using a charcoal stove**

- i) Check and confirm that it has no ash in it.
- ii) Fill the stove with just enough charcoal. Avoid overfilling as this will develop the centre piece.
- iii) Light using either pieces of wood or paper.
- iv) When properly lit, put on what is meant to be cooked.

**Using an electric/gas cooker**

- i) Check that all connections are proper.
- ii) Prepare what is to be cooked in advance.
- iii) Switch on the cooker knobs and put on.

**Using cutlery made of stainless steel**

- i) Remove all the remains of food.
- ii) Wash in hot soapy water.
- iii) Rinse in hot water and dry well with a non-fluffy cloth.
- iv) Polish with a dry piece of cloth before storing.

**Using wooden utensils**

- i) Using the back of the knife, remove any dirt that could have got stuck onto the surface.
- ii) Use warm soapy water and brush or scrub the surface following the grain on the wood.
- iii) Rinse and wipe dry with a piece of cloth rinsed with cold water.
- iv) Leave to dry in an airy place.

**Activity 2.7: Using kitchen equipment**

Make use of bowls and sieves in making plain scones. Use colander and spoons to prepare a pulse dish. Clean and appropriately store the equipment after use. Cut vegetables and fruits for salad using the slicer, shredder and grater.

**Kitchen Plans**

Proper kitchen planning will help you to minimize accidents, save much time and minimize fatigue. It also ensures efficient working.

Kitchen planning is influenced by:

- i) Shape, size and layout of area/room
- ii) Ventilation
- iii) Lighting
- iv) Working surfaces

**Shape and Size of Area**

Your working area should be large enough to accommodate the activities that take place in the kitchen. A very small kitchen would appear very crowded. A very big one would create more movements. To decide on the size of the kitchen, consider the following factors: social-economic status, family size and other activities that take place in it.

The equipment and kitchen units should be positioned in a reasonable order so that food is moved easily through the various stages of preparation. This minimizes fatigue and accidents because moving back and forth would have been minimized.

The preparation of food usually goes through a specific sequence.

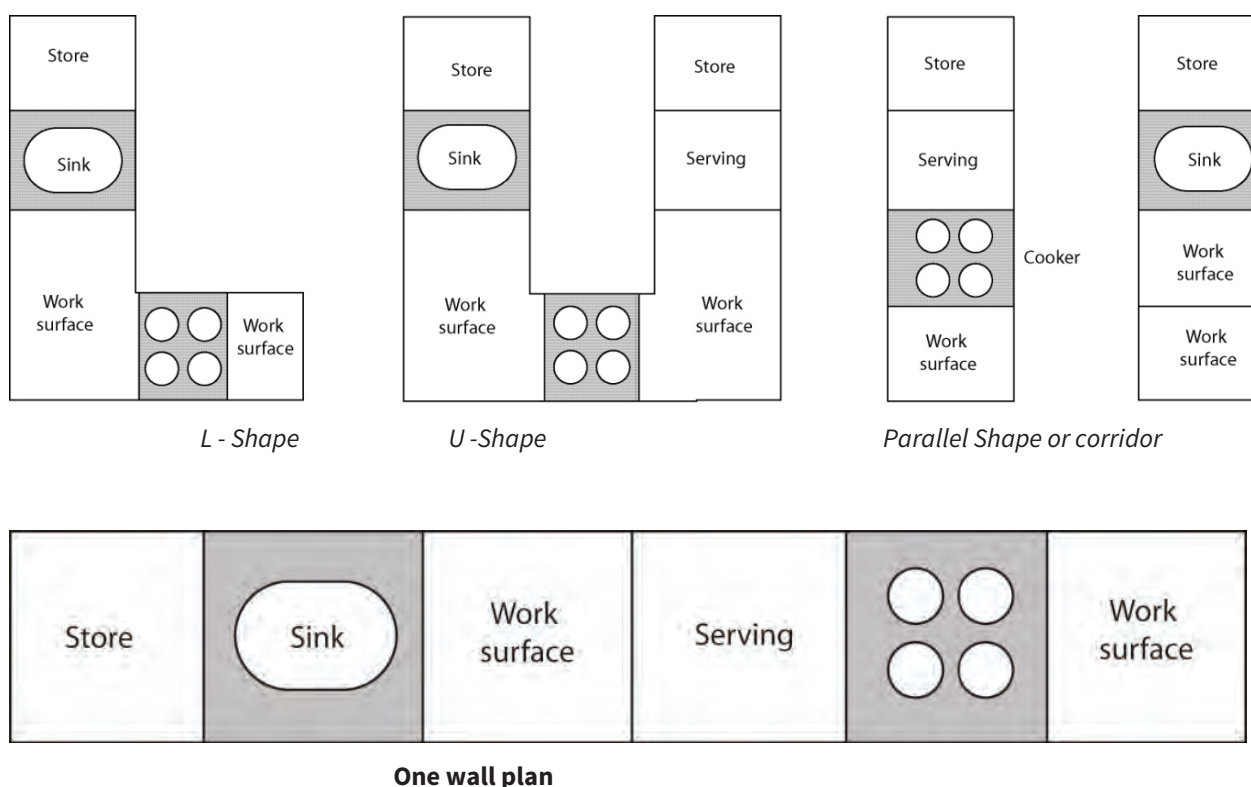
### Activity 2.8: Drawing kitchen plans

Make a flashback of the kitchen at your home and draw the work sequence for the preparation of food. Consider the following steps:

- i) Food storage (larder, refrigeration, vegetable racks)
- ii) Preparation (work surface)
- iii) Cleaning up (sink)
- iv) Cooking (cooker, stoves)
- v) Serving (dining table)

### Kitchen layouts

The most efficient kitchen plans are those that are based on the U, L, one wall or parallel line layouts.



**One wall plan**

Figure 2.11: Kitchen plans

- i) The height of working surfaces and storage areas should be comfortable enough for one to work without bending or stooping.
- ii) The sink is usually placed under a window, or on an outside wall for reasons of plumbing and lighting.
- iii) Have work tops on both sides of the cooker to enable pans and serving dishes to be placed.

### Activity 2.9: Planning a kitchen

Suggest various ways of improving your kitchen.

#### Situation of integration

**Context:** Imagine you are a class captain for your Senior One class. During the Nutrition and Food Technology lesson your class uses kitchen equipment in learning how to prepare meals. How would you work together with the Nutrition and Food Technology teacher to ensure that the preparation of meals is improved by the right choice of kitchen equipment?

#### Support:

1. Literature on kitchen equipment
2. Samples of different categories of kitchen equipment

#### Instruction:

- i) Make illustrations on the use of each of the different categories of kitchen equipment.
- ii) Make a write-up on the choice of kitchen equipment.
- iii) Present the illustrations and the write up to your class.

#### Summary of Chapter 2

In this chapter, you have learnt to:

- i) choose equipment for your kitchen.
- ii) use kitchen equipment.
- iii) care for the kitchen equipment.

## Chapter 3: Safety in the Home

### Five Keys to Food Safety



**Keep clean**

- ✓ Wash hands properly before handling food and often during food preparation.
- ✓ Wash hands properly after going to the toilet.
- ✓ Cover the wounds or cuts on hands or arms properly with waterproof plasters.
- ✓ Wash and clean all surfaces, utensils and equipment used for food preparation.
- ✓ Protect kitchen areas and food from insects and pests.



**Separate raw food and ready-to-eat food**

- ✓ Store ready-to-eat foods at upper compartments to prevent it from being contaminated by the drippings of raw food.
- ✓ Use separate knives and cutting boards for raw foods (like raw meat) and ready-to-eat foods (like sashimi).
- ✓ Cover or wrap food properly to prevent cross contamination.



**Cook food thoroughly**

- ✓ Cook food thoroughly, especially meat, poultry, eggs and seafood.
- ✓ Reheat leftover food to 75°C or above before consumption and discard all leftovers if there is still food remained.
- ✓ Consume cooked food within two hours.



**Keep food at safe temperatures**

- ✓ Do not leave cooked food at room temperature for more than two hours.
- ✓ Keep cold dishes and perishable foods such as meat, milk and egg products in refrigerator at below 4°C.
- ✓ Keep hot food in heating containers (above 60°C) prior to serving.
- ✓ Thaw frozen food under refrigeration.



**Use safe water and raw materials**

- ✓ Buy raw materials from reputable shops or licensed premises.
- ✓ Select fresh and wholesome foods.
- ✓ Use potable water to clean raw materials.
- ✓ Wash fruits and vegetables thoroughly, especially if eaten raw.
- ✓ Do not use food beyond its expiry date.

\* The "Five Keys to Food Safety" is adopted from the World Health Organization (WHO).

### Food Safety is in Your Hands

Wash Your Hands

- Before & after handling food
- After handling soiled equipment / utensils
- After using toilet
- After coughing / sneezing / blowing nose / eating / smoking

Do these steps at a hand washing sink. NOT a food prep sink.

#### Wash Your Hands the Right Way



- 1 Wet your hands under warm running water.
- 2 Apply soap.
- 3 Rub hands together for 20 seconds, up to elbows.
- 4 Wash backs of hands, wrists, between fingers, and under fingernails.
- 5 Rinse hands well under running water.
- 6 Dry hands thoroughly with paper towel or hand dryer.
- 7 Turn off running water with a paper towel. NOT with bare hands.

### Key Words

- Accidents
- First aid
- Ventilation
- Work surfaces
- Contamination
- Supplementation
- Purification

### Learning Outcomes

**By the end of this chapter, you should be able to:**

- a) prevent accidents in the home.
- b) administer first aid to save lives.
- c) choose suitable lighting for the home.
- d) explain the importance of good ventilation in the home.
- e) choose suitable work surfaces for the kitchen.
- f) explain the sources and uses of water in the home.
- g) purify water at home using basic methods.
- h) construct a sand filter.



## Introduction

Your home should be the safest place to live in. However, this may not always be the case. Many accidents happen in the home every day and this could be due to carelessness. In order to prevent accidents, you should make sure that every place is made as safe as possible to live in and work from. You should ensure proper lighting and ventilation. In everything you do, use clean water. You should also promote a safe and healthy working environment.

## How can you prevent accidents in the Home?

Look at the figure below.



*Figure 3.1: Accidents during cooking*

How would you ensure that the child does not reach the pan on the cooker? There is a common saying that, 'Prevention is better than cure'.

### Activity 3.1: Ensuring safety in the home

#### Table 3.1: Keeping your home safe

The points in the following table can help you to make the home a safe place. Please fill in the missing safety points and reasons.

| No. | Safety points   | Reasons  |
|-----|---|--|
| 1.  | You should always have good light and ventilation.  | Accidents can easily occur in the place with insufficient light and ventilation.       |
| 2.  |   | If handled carelessly, they can cause cuts, pricks and bleeding.                       |
| 3.  | Always make sure that the floor is dry.   |  |
| 4.  |   | Scattered items can easily cause falls.  |
| 5.  | Ensure proper storage of medicine and cleaning agents.  |  |
| 6.  | All electrical equipment, wires, sockets and switches should always be checked and kept in good condition.  | Faulty electrical equipment and exposed wires can cause electric shock and death.      |
| 7.  | Keep your hands dry when handling electrical equipment and switches. Avoid wet floors when using electrical equipment, and always wear rubber footwear. | Wet hands and floors easily conduct electricity, and thus causing shock or even death. |
| 8.  | The cooking area should be raised.  |  |
| 9.  | Handle hot equipment with a kitchen towel or kitchen gloves.  |  |
| 10. | Place kettles, flasks and other hot things away from the edge of the table  |  |
| 11. | Keep children away from the cooking place   | This helps to avoid burns.   |
| 12. | Keep spray cans away from fire.   | They can easily explode when heated.   |
| 13. | Avoid table clothes that overhang deeply.   |  |

## First aid

Did you know that it is very important for every family member to know what to do in case of an accident or illness at home? This is very key and you should take it as a matter of urgency especially when it has to do with accidents.

First aid is an immediate and temporal care given to a person who is injured or has become ill or on the way to hospital or while waiting for the arrival of a doctor. It is therefore, very important for you to understand the rules of first aid so that you can apply them.

### Rules for first aid

1. When giving first aid remain calm.
2. Organize treatment and do most important things first.
3. Move the patient as little as possible and handle him/her gently.
4. Reassure the patient and if necessary treat for shock.
5. Discourage people from crowding around so that the patient gets sufficient air.
6. Call for medical help.

### First aid box

You will always find a first aid kit very important whenever there is an accident. This is because it saves time and makes it easy to give immediate help to a casualty. Every home, school and place of work should have a first aid kit. You need to keep this safely in a known place but away from the reach of children. You can improvise a box or plastic container as a first aid kit but it should be strong and waterproof or air tight to prevent some of the contents from rusting. You should examine it from time to time and replace used up items.

### Activity 3.2: Assembling a first aid kit

- In buzz/group session, identify the essential items that must be in a first aid kit and discuss their uses.
- Using a box/plastic container assemble a first aid kit and label it.
- Store this for use in a suitable place in the classroom.

### First aid treatment for common accidents

As a first aider you must have knowledge of certain acceptable skills which you may use to treat the patient in an emergency. Use of the wrong treatment could cause permanent damage or death. It is always important for you to give reassurance to the casualty no matter how bad the accident may be, and to ensure that you and the casualty are safe.

**Activity 3.3: Administering first aid treatment for common accidents**

- In groups, find out from the Internet how the following accidents are treated: cuts and wounds, nose bleeding, burns and scalds, clothes on fire, electric shock, poisoning, fainting, choking and shock.
- In your books, write down the accident and the first aid treatment.
- Draw some of the first aid procedure on a manila paper.
- Present this to the class.
- Demonstrate one way of carrying out a first aid treatment for the accident.

**Importance of lighting in the home**

In order for you to do your job well, you need to be able to see. Lighting in the kitchen is, therefore, very important. For safety in the home, light must be bright enough to avoid accidents. Daylight needs to be well spread in the house, and it can be supplemented with artificial light. The main work areas in the kitchen should be lit properly.

**Activity 3.4: Choosing lighting for different rooms**

In groups, discuss the choices of lighting in different rooms in the home.

**Importance of proper ventilation in the home**

Sufficient lighting in the home in itself is not enough to make it a safe place. There is need to ensure proper ventilation. This influences air quality and burning of fuel in the kitchen. It will help you to remove waste products like moisture, heat, grease and gases from the house. This will prevent dampness in the room, too much heat, and bad odours in the house. Poor ventilation may result in respiratory diseases. Proper ventilation will also supplement on the amount of light received in the house.

**Activity 3.5: Ensuring proper ventilation**

Your brother Kabi used to sell “*kikomando*” (beans and chapatti) to earn a living. He used to cook the beans overnight in his one-roomed house. One day, he was so tired that he slept without putting off the charcoal stove. Unfortunately, he was found dead in the morning.

What do you think could have led to his death?

## Using Proper Work Surfaces in the Home

In order to carry out a particular job successfully, you need a work surface. The surfaces should be comfortable to work from, easy to clean, heat resistant, scratch proof, waterproof, resistant to chemicals and hard wearing. You should also make sure that your work surface is at the right height. Work surfaces should be placed where there is enough lighting.

**Table 3.2: Characteristics of materials for work surfaces**

**Activity 3.6: Identify the characteristics of different materials used for work surfaces. Put a tick (✓) where applicable.**

| Material        | Easy to clean | Heat resistance | Hard wearing |
|-----------------|---------------|-----------------|--------------|
| Hardwood        |               |                 |              |
| Tiles           | ✓             |                 |              |
| Plastic         |               |                 |              |
| Stainless steel |               |                 | ✓            |
| Concrete        |               | ✓               |              |

## Water in the Home

The most important uses for water are at our homes. Water at home is mainly used for indoor and outdoor household uses. You need water for all the things you do at home like drinking, preparing food, bathing, washing your clothes and dishes, brushing your teeth and, watering the yard and garden.

Without water, you will die in just a few days. Have you ever heard of this common saying: that, “water is life”? Apart from drinking it to survive, people have many other uses for water.

## Uses of Water in the Home

It is important that the water you drink and use for other purposes is **clean water**. This means that the water must be free of germs and chemicals. Such water should be clear.

**Activity 3.7: Using water in the home**

In groups, discuss the uses of water in the home.



## Sources of Water

Where do you get the water you use at home? There are different sources of water.

### Activity 3.8: Identifying sources of water

In groups, identify the different sources of water used in the home. List the advantages and disadvantages of each source.

## Contamination of Water in the Community

The sources of water are easily contaminated in the following ways:

1. Runoff water
2. Wastewater
3. Air pollution
4. Eroded soil
5. Sewage

Each of the above ways contaminates water in a different way and with different effects.

### Activity 3.9: Describing ways through which water contaminated

In groups, describe how water is contaminated through each of the ways above.

## Methods of Purifying Water in the Home

It is important to know that even when water gets contaminated, you can still make it safe for use. You can do this by purifying your water at home. This makes it safe for drinking and for food preparation. Several methods can be used to make water safe for home use.

### Activity 3.10: Purifying water in the home

Carryout the following method of purifying water at home:

1. Boiling
2. Addition of chemicals
3. Filtration

Straining Water through Cloth



Figure 3.2: Purifying water at home

It is easy to filter water using a piece of cloth. This is called simple filtration. By this you are able to remove the main solid particles from water as well as any insect larvae that it may contain. Use cotton cloth which is thick enough to properly keep the impurities. If the cloth is too thick, then filtration will take longer time. The cloth of cotton used must always be washed after to use.

Straining alone is not enough to ensure that the water is safe for drinking. It should be boiled to kill the germs.

#### **a) Advantages**

1. It is simple to use.
2. It is almost at no cost.
3. It is very useful and even essential for pre-treatment purposes.

#### **b) Disadvantages**

It does not make water completely safe for drinking.

#### **The Three Pan or Bucket Method**

This method works in the same way as filtration by removing the main solid particles found in water.

## Procedure

- i) Pour dirty water in a pan or bucket and leave it for about 30 minutes to settle.
- ii) Carefully pour the clear water into another pan.
- iii) Allow it to settle for at least 30 minutes.
- iv) Pour the clearer water into the third pan.
- v) At this stage, the water is clear and ready for use or boiling for drinking.



Figure 3.3: Use of the three pot/pan/bucket method

## Treatment by Boiling

Boiling is the simplest method you can use to purify water. When you boil water, you kill the germs that contaminate water. Before boiling the water, you should first filter to remove all the solid particles.

### Procedure for boiling water

- i) Cooking facilities with heat
- ii) Filter the water and place it in a clean pan.
- iii) Place the pan on the source of heat and bring to boil.
- iv) After it has started boiling, leave it for 10–15 minutes before removing the heat. By doing this, you will ensure that all the germs and their eggs are killed.
- v) Remove the water from the source of heat and let it cool before drinking.
- vi)

#### a) Advantages

- i) It is easy to use.
- ii) It kills all germs.

**b) Disadvantages**

- i) High costs of fuel
- ii) Needs time

**Treatment by Addition of Chemicals**

Addition of chlorine is a simple and helpful way of disinfecting water to make it safe for drinking. You can add chlorine tablets or bleach into the water to kill the germs found in it. After adding chlorine, leave it for 30 minutes. After this, the water will be safe for drinking. This water remains safe for a few days depending on the storage conditions.

**a) Advantages**

- i) Muddy water can be made safe for drinking.
- ii) If the treatment is done properly, all of the germs are killed.
- iii) Addition of chlorine has a durable effect.

**b) Disadvantages**

- i) Handling risks involved.
- ii) The chemical may not be easily available.

**Treatment by Using Homemade Filter**

A homemade filter works by letting the water seep through layers of sand, charcoal and small stones. Fill the bottom third of the bottle with activated charcoal, the middle third with sand, and the top third with gravel. To use the filter, pour water into the bottle and let it drip through the hole in the bucket.

**Advantages**

- i) Low cost
- ii) Easy to use

**Disadvantages**

- i) Allows only little water
- ii) It does not make the water safe for drinking, so there is need to boil it or add chemicals thereafter.

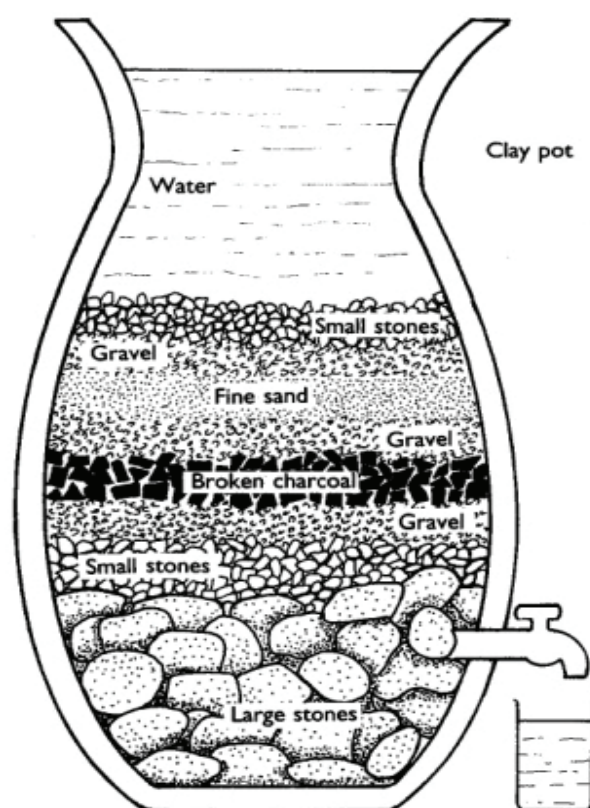


Figure 3.5: Using a homemade filter

- A – Fine sand
- B – Course sand
- C – Charcoal
- D – Stones

**Project:** Set up a project on water purification to ensure clean supply of water in the school and at home. Write a report.

**Activity 3.11:** Carryout a research to find out the different things that contaminate water in your community.



## Situation of Integration

### Context

Many accidents take place in the home every day. Most of these are due to carelessness. They can be prevented when you make sure that the kitchen has good ventilation, enough lighting and that you use clean water.

**Support:** A situation where you have a disorganized room with many activities taking place.



Read the rules for preventing accidents in the home

**Task:** What accidents are likely to happen in the picture above?

**What would you do to prevent them?**

## Summary of Chapter 3

In this chapter, you have learned

- i) how to prevent accidents at home.
- ii) the importance of proper lighting and ventilation in the home.
- iii) using proper work surfaces.
- iv) the importance of using clean water.