

# Vocational Skills

## Pupil's Book Standard Seven



Tanzania Institute of Education





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# Vocational Skills

## Pupil's Book

### Standard Seven



**Tanzania Institute of Education**





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Dr Aneth A. Komba  
Director General  
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## Introduction

This is the third book in a series of three textbooks on Vocational Skills for Primary Schools from Standard Five to Seven. The book has been prepared according to the 2020 Vocational Skills Syllabus for Primary Schools issued by the Ministry of Education, Science and Technology. The book consists of 12 chapters which are: Good grooming, Environment care in residential areas, Cookery, Principles of singing, Principles of acting, Clay modelling, Photography, Screen printing, Crop production, Livestock production, Protecting a consumer and attracting customers and Financial services. The book includes descriptions, illustrations, a case study, activities and exercises that enhance learning. You are encouraged to do all the activities, exercises and other assignments provided. This will enable you to develop the intended competencies.





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## Chapter One

### Good grooming

#### Introduction

*In Standard Six, you learnt about washing clothes, cleaning shoes and ironing clothes. In this chapter, you will learn about personal hygiene, especially on different parts of the body that grow hair as well as during menstruation. You will also learn how to take care of the materials used during menstruation. In addition, you will learn how to take care of the sleeping place, undergarments, shoes and socks. Therefore, the gained competencies from this chapter will enable you to be neat, smart, confident, healthy and accepted in the community. Furthermore, you will be able to provide commercial services in order to earn income.*

#### Care of the hair



#### Think

1. Different parts of the body that grow hair.
2. Tools used to care for hair.
3. The importance of making parts of the body that grow hair clean.

Clean hair makes a person look neat and smart. This makes him/her acceptable to the community. Hair grows in different parts of the body. These include, the scalp, a man's chin, armpits, chest, nostrils, ear, eyes, and around genital areas. The hair that grows in these parts has different names. For example, there are eyelashes (which grow along the edges of the eye); eyebrows (lines of hair which grows above the eyes); pubic hair (which grows above the genital areas); sideburns (facial hair that grows on the side of the face); moustache ( a strip of hair left to grow above the upper lip); hair shaft (visible hair that stands out of the skin of the arms, legs and other such parts); beards (on the chin and lower cheeks of a man's face). Others are scalp hair, chest hair, and armpit hair. Cleanliness of the hair that grows in different parts of the body is very important.





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## Tools and materials for hair caring

Different tools and materials are used for cleaning and caring for hair. These are shaving machines, scissors, razor blades, assorted combs, hairbrushes, soap, shampoo, towels, water and mirrors. Others are cotton wool, methylated spirit and hair oil. All the tools and materials used for cleaning hair should be clean and safe. They should also be stored carefully and properly used to avoid infectious diseases.

## Methods for hair caring

Different ways are used for taking care of hair. These include hair washing, cutting and plaiting.

**Washing hair:** Proper and good care of hair helps a person to be neat, clean and healthy. The scalp releases sweat and becomes oily. When oil and sweat clot, they cause dirt and block pores in the scalp. As a result, the scalp becomes dry with small particles of dead skin. Therefore, it is important to clean the hair properly and oil it frequently for neatness and healthy growth. Doing so, avoids lice that may cause scalp itching. Dirty hair should be washed with clean water and soap or shampoo to avoid infections. The following are the steps in washing the hair:

- (i) Wet the hair using warm water;
- (ii) Apply soap or shampoo to the hair. Avoid the use of soap with too much caustic soda, as it may cause the hair to become hard and dry;
- (iii) Use your fingers to scrub hair scalp while rotating around the head; rub the hair properly until the soapy foam is created; doing so allows the opening of the blocked scalp;
- (iv) Rinse the hair with clean running water. Make sure that all dirt and soapy foam are properly rinsed off;
- (v) If the hair is not well washed, apply some more soap or shampoo;
- (vi) Rinse again to remove all soap and dirt;
- (vii) Use a clean towel to dry the hair properly;
- (viii) Apply hair oil and comb the hair with a clean comb. The comb helps to straighten the hair. Avoid sharing the comb to prevent lice and dandruff;





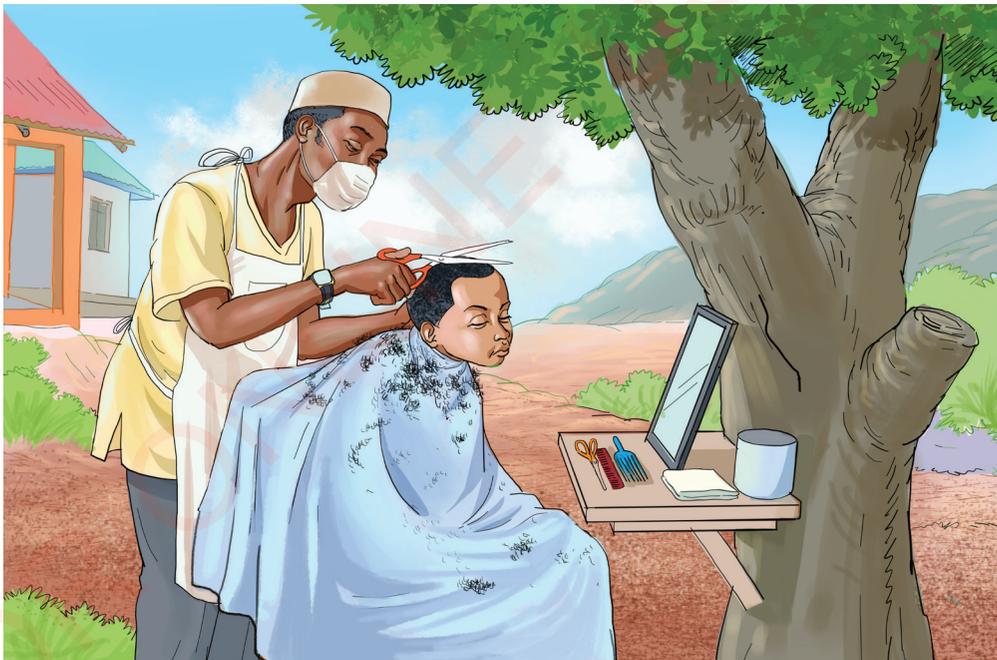
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- (ix) Wash the towel with clean water and soap, then dry it in direct sunlight or in a place with enough air circulation ready for the next use; and
- (x) Clean all the tools used and keep them in a dry, clean and safe place.

When bathing, make sure that you also wash properly all parts of the body that grow hair. These include armpits and genital areas of the body. If these areas are not properly cleaned, they can give bad odour. Likewise, dirty parts can be infected with fungus.

**Haircutting:** The hair that grows on the scalp, genital areas and armpits should be cut regularly. Doing so prevents lice, itching, scratching, bad odour and infections such as rashes. Similarly, beard, sideburns, and moustache should be shaved regularly. This will make you look smart and neat.

We can cut and shave scalp hair in different places including hair cutting salons, veranda or under a tree shade. Figure 1 shows a person shaving hair under a tree shade.



**Figure 1:** Shaving hair under a tree shade

**Tips to consider during hair cutting or shaving:** The following are tips to consider when cutting hair:





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- (a) Use appropriate and clean safe tools or materials such as a piece of cloth, water, soap, shampoo and a razor blade. Others are a pair of scissors, a shaving machine, a comb, a towel, methylated spirit, an apron, a facemask and sterilizer. The razor blade used for hair shaving must be new with no rust. The razor blade should be used once and disposed of in a safe place. Avoid sharing razor blades to prevent transmission of diseases such as HIV/AIDS. Immediately after shaving or cutting hair, clean the pair of scissors or the shaving machine using a disinfectant such as methylated spirit. You can also use a sterilizer to disinfect the pair of scissors and shaving machines to kill germs. Other tools such as combs should be cleaned using hot water or methylated spirit immediately after use. There should be enough and clean towels. To prevent infectious diseases, avoid sharing of towels and wash them after being used. The towels should be dried in a clean open space or direct sunlight.
- (b) Cleanliness of shaving places (veranda, under a tree shade, salon) should be taken care of all the time.
- (c) Proper disposal of shaved hair; and
- (d) Reasonable shaving or cutting hair prices should be set if the services are commercial.

**Hair Plaiting:** Hair plaiting makes a person look smart and neat. Women's and children's hair can be taken care of by plaiting or braiding. However, it is advised not to plait young children, as their scalps are too soft, hence plaiting them is painful. There are different ways of plaiting hair depending on the type and nature of the hair. There are natural and artificial hairs. The hair for plaiting should be washed before plaiting. It is important to undo dirty-plaited hair and wash it before plaiting again in order to look smart and neat. Dirty hair can attract parasites like lice that can affect the health of an individual. Dirty scalp can cause dandruff and hence itching.

**Tips to consider during hair plaiting:** Tips to consider when plaiting hair are not different from those discussed on hair cutting or shaving. However, when plaiting hair, you should consider the following points:

- (a) Usage of appropriate, clean and safe tools or materials for plaiting including combs, a mirror and hair oil;
- (b) Proper and safe storage of tools in order to make them last long;





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- (c) Proper usage of plaiting tools to avoid the danger of the user being cut by a razor blade or a pair of scissors or pierced by a sewing needle;
- (d) Avoidance of sharing or borrowing artificial hair or hair wigs because you can be infected with skin diseases such as ringworms;
- (e) Cleanliness of plaiting places;
- (f) Proper disposal of used artificial hair in dustbins or burning them; and
- (g) A set-up of reasonable hair plaiting and braiding prices if the services provided are commercial.



### Activity 1

1. With your colleagues discuss how hair cutting is done in your environment.
2. Explain how tools for hair cutting or shaving should be cared for.

### Exercise 1

#### Answer the following questions.

1. Mention five names of hair that grow in different parts of the human body.
2. What are the methods used for hair care?
3. What are the four tips to consider during shaving?
4. What are the effects of not keeping hair in a hygienic condition?
5. What are the three places that can be used for shaving hair?
6. Why are we advised not to plait young children's hair?





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## Materials and tools used during menstruation

During a menstruation period, girls need to consider personal hygiene. They should use appropriate, clean and safe tools/materials to avoid getting infections such as fungus. Essential materials used during menstruation are sanitary pads and knickers.

### Sanitary pads

A sanitary pad is an absorbent thick soft fabric worn on a knicker during menstruation. There are two types of sanitary pads: disposable sanitary pads and washable or reusable sanitary pads. Disposable sanitary pads are those used and thrown immediately after use. This type of sanitary pads can be found in shops or other places at different prices. Disposable sanitary pads are more expensive compared to washable or reusable sanitary pads. This is because the reusable ones can be used more than once. Washable or reusable sanitary pads are those that are used and then washed, sun-dried, ironed and reused. These sanitary pads should be washed immediately after use. Bad smell develops if the pads are worn for too long and can cause genital itching. The worn-out reusable sanitary pads and disposable sanitary pads should be properly disposed of. So, the user should have enough sanitary pads for regular changing during a menstruation period.

**Management of used sanitary pads:** Care of used sanitary pads involves washing or destroying them. Improper management of the used sanitary pads can litter the environment as well as transmit diseases. So, it is important to consider proper management of used sanitary pads during menstruation. Women and girls should not throw away used sanitary pads in ditches, water sources or water closets. The following are some of the methods used in the management of used sanitary pads:

- (a) The reusable sanitary pads should be washed with clean soapy water, dried in the sun, ironed and stored for the next use.
- (b) The disposable pads should be buried or placed in incinerators and burnt.
- (c) The used sanitary pads can be wrapped in a piece of paper and thrown into a pit latrine. The pit latrine should be deep enough so that it does not allow pads to be visible.
- (d) Burning sanitary pads in an open space. This method can be used in places that do not have incinerators. However, the burning of sanitary pads in an open space is not advised because it can be a source of fire and air pollution in the environment.





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## Knickers

Knickers are among the undergarments worn by women and girls. There are various types of knickers made of different fibres such as cotton, linen or blended fibres. It is advisable to use cotton knickers because they can be easily washed and ironed. Also, they can absorb sweat and other discharges from the body. The knickers are used to hold a sanitary pad into position during menstruation. Therefore, choosing the correct size which fits their bodies is important. The knickers should be washed immediately after being used. A girl is required to have at least three knickers. When the first one is being washed, the second is worn and the third is well kept. If the washed one has not properly dried, it will be easy to wear the stored one.

**Things to be considered during menstruation:** The following are important tips to be considered by women or girls during menstruation:

- (a) Having a bath at least twice a day. If that cannot be done, she can wash the genital parts at least twice a day;
- (b) Changing sanitary pads regularly depending on the amount of blood flow. A girl should remember to carry enough sanitary pads for changing;
- (c) Avoid throwing used sanitary pads anywhere or in the water closets to prevent blockage. She can wrap them in a piece of paper and then place them in a dustbin ready for burning; and
- (d) Making sure that reusable sanitary pads are well dried before using them to protect the user from getting infections like fungus.

### Exercise 2

Choose the letter of the most correct answer and write it in the box provided.

1. During menstruation, it is important to maintain personal hygiene to prevent \_\_\_\_\_
  - (a) exposure to harmful heat
  - (b) extending the bleeding time
  - (c) infections and odour
  - (d) sanitary pads from getting dirty





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2. A sanitary pad is one of the most important requirements during menstruation because it helps to \_\_\_\_\_
- (a) prevent diseases
  - (b) protect the user
  - (c) increase temperature
  - (d) increase income
3. The worn-out reusable sanitary pad should be \_\_\_\_\_
- (a) thrown into the field
  - (b) disposed of in a water closet
  - (c) burnt or buried
  - (d) washed
4. What kind of disease can be caused by not cleaning the body during menstruation?
- (a) Scabies
  - (b) Fungus
  - (c) Syphilis
  - (d) Gonorrhoea

### Sleeping places



#### Think

1. Meaning of a sleeping place.
2. The importance of a sleeping place.
3. Tools and materials used in a sleeping place.
4. How to clean a sleeping place.

A sleeping place is one of the basic needs of a human being. It is a private place where one can rest and sleep. This place should be clean and quiet to allow a person to relax and sleep comfortably. A sound sleep enables a person to relax and be healthy.



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### **Tools and materials used in a sleeping place**

A bed, a mattress, bedsheets, a blanket, a pillow, a pillowcase and a mosquito net are among the materials required in a sleeping place. It is important to clean the tools and materials used in a sleeping place regularly. This will make the sleeping place clean and neat and hence protect an individual against diseases related to dirt.

#### ***Bed***

Different types of beds can be made depending on the needs of the user. The beds are made in different sizes using various raw materials. Some of the beds can be made of iron, tree poles and wood frames. The bed should be strong, tightened and level. It is important to sleep straight on a bed. Such a position helps to protect the backbone and internal organs such as the heart, lungs, liver and kidneys to function properly. The bed should be properly made every day after waking up. Dust and wipe different parts of the bed using a clean piece of cloth. Remember to clean under the bed to remove dirt. A clean bed will prevent harmful insects such as bedbugs that suck blood. It is also advisable to sleep alone to avoid infectious diseases.

#### ***Mattress***

There are different types of mattresses depending on the raw materials used to make them. The mattresses can be made of sponge, wool, sisal or other raw materials found in the environment. The mattresses should be well cared for because when they become dirty, they cannot be easily cleaned. Also, when washed, they will not dry out quickly. Sometimes the mattresses can emit a bad odour when they retain moisture for a long time, especially if the moisture is from urine or sweat.

The following are procedures to be considered when taking care of mattresses.

- (i) Place a mat or rug before placing the mattress to prevent it from getting dusty or moist. The mat or rug should be ventilated and fit properly;
- (ii) Cover the mattress with a mattress cover to prevent it from dirt. The mattress cover should be firm and washed regularly;
- (iii) Use a plastic mattress cover on children's or patients' beds to prevent the mattresses from getting dirty or moist; and
- (iv) Dry the mattress in the sun or in a well-ventilated place to remove moisture of urine or sweat, thus killing the germs.





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### ***Bedsheet***

A bedsheet is a large piece of cloth that is cut from an original material and sewn for covering a bed. It prevents the mattress from getting dirty. Also, it is used to prevent the body from direct contact with a blanket, since some of the blankets are not soft. Bedsheets can be made from cotton, linen or a combination of the two. Bedsheets made of these fabrics are absorbent and allow a person to sleep comfortably. The bedsheets should be large enough to cover the mattress at all sides of the bed.

Further, there are other types of bedsheets that are made of heavy fabrics which cannot be folded easily but with decorative embroidery flowers. Such bed sheets are called bedcovers and are used to cover a bed when not in use to prevent the blankets and mattresses from dust or other types of dirt. A bedcover should be half a metre larger all around the bed than the mattress to cover the blanket and mattress properly.

It is important to wash bed sheets and bedcovers regularly to avoid getting skin diseases such as rashes. The bed sheets should be washed according to the type of fabric used.

### ***Blanket***

Blankets are used for covering a human body when sleeping to protect him/her from cold. Some of the blankets are made of wool which make them very expensive. Such blankets provide warmth, hence suitable in cold weather. Other kinds of blankets are made of a mixture of wool and cotton. These are heavy but not very warm. Also, there are cotton blankets that are light, warm and sold at a cheaper price. Such blankets can be washed easily because they are light. When washing a blanket, follow the washing instructions according to the type of fabric used. For example, a woollen blanket should be washed according to the washing instructions of woollen fabrics. The blanket should be dried in the sun or in a well-ventilated area to prevent it from emitting bad odour.

### ***Pillow***

A pillow supports the neck and upper back of a human body while sleeping. This helps a person to relax and obtain better sleep. It is advisable to sleep on a soft pillow that is not too bulky to allow the back to relax properly and to avoid neck pain. Pillows are filled with softer materials than the mattresses. Wool and sponge are the most commonly used materials for stuffing pillows. Other pillows are stuffed with bird feathers. The pillowcase is used to cover the pillow to prevent it from dirt. Pillowcases are washed



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regularly when they are dirty but a pillow is not easily washable. However, if necessary, wash the pillow depending on the nature of its material. Also, a pillow can be dried in the sun to kill germs.

**Mosquito net**

A mosquito net is a piece of net material that is sewn and hung around the bed to protect someone from mosquito bites. Mosquitoes transmit malaria parasites that are dangerous to our health. Thus, make use of a mosquito net before going to bed to avoid getting malaria. It is not necessary to use a mosquito net in places where there are no mosquitoes. Mosquito nets are made of cotton, nylon or polyester fabrics. They should be used carefully to avoid tearing them. Repair the mosquito net as soon as it gets torn. Wash it once it is dirty following appropriate washing procedures depending on the type of fabric.



**Activity 2**

1. Act how to clean beddings such as pillows, bed sheets, blankets, pillowcases and mosquito nets.
2. With your colleagues, discuss the acting you have done.

**Exercise 3**

Match the items in Column A with their counterparts in column B to complete the meaning of the sentences.

No.	Column A	Answer	Column B
1.	One of the basic human needs		A. pillow
2.	One of the fabrics used in bedrooms especially in cold weather		B. mosquito net
3.	It must be well ventilated		C. bedsheet
4.	Support the neck and upper back when sleeping		D. wool
			E. blanket
			F. bedroom



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5. It prevents the mattress from getting dirty		G. sleeping places
6. A piece of net material that is sewn and hung around the bed to protect someone from mosquitoes while sleeping		H. wooden bed
7. Raw materials used to make a mattress		I. liquid soap
8. Used by c		J. a plastic mattress cover

### Care of undergarments



#### Think

1. Examples of undergarments you are familiar with.
2. Importance of washing undergarments.
3. Effects of not washing undergarments.

An undergarment is a type of cloth that is worn beneath the outer cloth. Examples of undergarments worn by men include vests and underpants. Women's undergarments include knickers, a petticoat, an underskirt and a brassiere. It is recommended to use cotton undergarments, as they can absorb sweat easily.

### Importance of wearing undergarments

The following are reasons for wearing undergarments:

- (a) Absorbing sweat.
- (b) Preventing hard and stiff outer garments from harming the body.
- (c) Promoting the beauty of the body shape.
- (d) Providing warmth during a cold weather.
- (e) Protecting private parts of a human body.





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### Hygiene of the undergarments

It is important to change and wash undergarments regularly to avoid unpleasant odours and infections such as fungus. Use soap, a bucket or a basin, clean water and pegs when washing undergarments. After washing them, they should be properly dried in the sun and then kept in a dry clean place to make them remain safe for use. The following are the steps of washing undergarments:

- (i) Collect dirty undergarments; sort them out according to colour and type of fabric;
- (ii) Soak the white undergarments in soapy water and wash them;
- (iii) Use the procedures taught in Standard Five and Six on washing coloured clothes;
- (iv) Rinse undergarments with enough clean water. Make sure all the soapy foam is washed out properly to prevent the clothes from hardening;
- (v) Dry white undergarments in direct sunlight, and coloured ones in a well-ventilated shade to avoid bleaching;
- (vi) Use pegs to hang the undergarments to prevent them from being blown away by the wind; and
- (vii) Remove the undergarments from the clothesline and store them in a clean, safe and dry place.

### Storage of undergarments

Once the undergarments have dried, they should be well stored according to the following procedures:

- (a) Follow the required procedures to fold a particular undergarment;
- (b) Arrange the undergarments according to their types. For example, petticoats should be separated from knickers; and
- (c) Store them in a wardrobe, a suitcase or a trunk, or other suitable places until the next use.



#### Activity 3

When at home, wash various undergarments following the proper procedures as you have learnt in class.





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## Effects of not washing and ironing clothes



### Think

Effects of wearing dirty clothes.

Personal hygiene is essential for good health and smartness. Dirty clothes can cause skin diseases and make a person look dirty. Also, clothes that are not washed regularly will neither look good nor last long. They can also cause a bad smell and may contain parasites such as lice. When clothes are extremely dirty, they need to be washed intensively, hence they will not last long; therefore, it is not advisable to wear clothes to the extent that they get too dirty. In addition, clothes that are not ironed may have wrinkles, which make a person look shabby. The heat of the iron strengthens some of the fabrics used to make clothes. Thus, if such clothes are not ironed, their quality will weaken. Similarly, unironed clothes can hide germs that cause skin diseases. Infectious diseases such as flu and fungus can also occur if the clothes are not well dried. Hence, ironing can help the clothes to dry properly.

### Exercise 4

**Write True for a correct statement and False for an incorrect statement.**

1. A cotton fabric is not suitable for making underpants. \_\_\_\_\_
2. Soaking a white undergarment in clean soapy water makes the washing easier. \_\_\_\_\_
3. It is better to arrange the undergarments according to their types when storing them. \_\_\_\_\_
4. It is necessary to store undergarments in a cupboard only so that they do not change colour. \_\_\_\_\_
5. Vests, underpants, and petticoats are undergarments worn by boys. \_\_\_\_\_
6. One of the important aspects of wearing undergarments is to promote the beauty of the body shape. \_\_\_\_\_
7. Undergarments can make the body sweat in cold weather. \_\_\_\_\_





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## Care for shoes



### Remember

1. Ways of taking care of shoes.
2. The effects of not taking proper care of shoes.

Shoes are taken care of in a variety of ways so that they can last long. Therefore, you should observe the following:

- (a) Clean and store shoes properly;
- (b) Keep shoes on shelves so that they are well ventilated;
- (c) Insert newspapers or worn-out clothes into the shoes to enable them to retain their shape;
- (d) Dry shoes properly depending on the type of material used to make them;
- (e) Repair shoes as soon as they tear, detach or strip off;
- (f) Avoid putting leather shoes in water, as they will be damaged; and
- (g) Wear shoes with cotton socks to absorb moisture from the feet.

Not observing shoes care procedures can lead to a number of effects. These include wear and tear, emitting unpleasant odour, especially those made of leather and causing fungal infections. Similarly, shoes lose their shape and thus lose neatness to the wearer.

## Care of socks



### Think

1. Importance of wearing socks.
2. How to take care of the socks.

Socks are an important garment worn on the feet together with shoes. Socks are made using a variety of fabrics such as cotton or wool. The fabrics are made of a knitting technique that allows comfort when worn. Cotton socks are the best because they allow sweat from the feet to be absorbed. Socks are available in a variety of sizes and colours. They are worn as uniform in various places such as schools, the army and in sports. They are also worn with casual or non-uniform clothing.





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### Importance of wearing socks

The following are the importance of wearing socks.

- (a) They help to maintain body temperature, especially in cold weather.
- (b) They absorb sweat on the feet and prevent friction of the feet and soles of the shoes.
- (c) Prevent shoes from getting dirty.
- (d) They make a person look neat.

### Factors to consider in the caring of socks

Socks need good care to last long. The following are factors to be considered in caring for socks:

- (a) Wash socks depending on the material used. For example, wash cotton socks as you would wash other cotton clothes. Do the same for woollen socks.
- (b) Wash socks regularly to avoid unpleasant odours.
- (c) Adjust the shape of the socks after washing to retain their original dimensions.
- (d) Put the socks to dry in the sun or in a light and well-ventilated area.
- (e) Keep socks in a well-ventilated dry place to avoid becoming stale.
- (f) Avoid mixing socks with other undergarments, especially underpants.



#### Activity 4

1. Wash socks following appropriate steps and explain how to store them.
2. Discuss in groups the important things to consider in caring for socks.
3. Present their responses in class for common understanding.



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### Exercise 5

Answer the following questions.

1. Why is it advisable to avoid sharing combs?
2. What are the important things to observe during menstruation?
3. What are the materials required for hygiene during menstruation?
4. What are the benefits of sleeping on a level bed?
5. Why is it important to use bedsheets during sleeping?
6. What is the importance of wearing an undergarment?
7. What effects can you get if you do not take proper care of your shoes?

### Vocabulary

Apron	a kind of garment worn over other garments to protect a person from getting dirty while working
Dandruff	small particles of dead skin in the hair of a person's head
Face mask	a protective device worn over the face covering the mouth and nose
Salon	a place where people have their hair cut , shaved or coloured, or have beauty treatments including plaiting and braiding
Water closet	a flush toilet



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## Chapter Two

### Environment care in residential areas

#### Introduction

*In Standard Six, you learnt about care and maintenance of lawns, flowers and vegetable gardens. You also learnt about the safe methods of managing organic waste, their alternative use and recycling of waste. Similarly, you learnt how to manage undecomposed harmful waste and their alternative uses. In this chapter, you will learn the importance of having gardens in our residential areas, the importance of managing waste and the effects of waste mismanagement. You will also learn about harmful insects and animals in our environment and the methods of controlling them. The gained competencies in this chapter, will enable you to have a clean environment and therefore be free from diseases which are caused by dirt. Similarly, you will be able to perform entrepreneurial activities to earn income.*



#### Gardens in residential areas



##### Remember

The importance of having vegetable and flower gardens in residential areas.

There are different type of gardens in our residential areas. These include vegetable, fruit and flower gardens. These gardens are made for different purposes according to someone's needs. They also have more benefits in our daily life. You learnt some of these benefits when you were in Standard Six. Other benefits include:

- Reducing costs of buying vegetables and fruits from the market and therefore saving money;
- To become physically strong due to performing various activities done in the gardens;
- Obtaining vegetables and fruits which are not affected by application of pesticides or fertilizers. This is because the person that grows them





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- can decide on the correct amount of pesticides or fertilizers and use them effectively;
- (d) Obtaining more nutrients from fresh vegetables and fruits which are harvested directly from the garden;
  - (e) Obtaining fresh air, as the leaves of the plants grown in the garden produce oxygen which is useful to human beings; and
  - (f) Obtaining shade from trees.

### Waste management



#### Think

The importance of managing waste in the environment.

Waste management refers to all processes done to ensure that waste will not affect the health of people and the environment. Controlling waste starts when it is produced until when it is disposed of. This includes collecting, sorting out, transporting and disposing of them. During the collection of waste, it is essential to sort them out according to their types. Proper collection and disposal of waste help to maintain cleanliness and safety in our environment. There are several advantages of managing waste in our environment. These include:

#### (a) Keeping our environment clean

Waste management helps to keep our environment clean. A clean environment looks attractive. Also, waste management prevents the occurrence of diseases caused by dirt such as cholera, typhoid, diarrhoea and dysentery.

#### (b) Getting fresh air

Waste management helps to reduce air pollution. Polluted air is a result of an accumulation of wastes. When wastes rot, they produce bad odour which pollutes the air. Burning of wastes produces smoke, which also contributes to air pollution. Dirty water flowing from toilets, bathrooms, kitchens, slaughtering areas, markets and industries causes bad smells in the environment. Therefore, controlling this situation will lead to fresh air in the environment.



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### (c) Providing employment opportunities

Waste management creates employment opportunities. This is done through collecting and disposing of waste. For example, in towns, waste are collected in one place and then taken away by waste collecting vehicles. People are employed to collect the waste. Also, some people are employed in the waste recycling industries. Similarly, there are some people who collect used bottles, cans and scrap metals and then sell them to recycling industries to earn money.

### (d) Conserving the environment

Recycling of wastes reduces them in the environment. Similarly, it reduces the cost of buying new raw materials, as the used ones can be re-used to make new items. Some of the used items such as plastic containers can be collected for other uses; for instance, growing vegetables and flowers in them.

### Effects of neglecting proper ways of managing waste



#### Think

Effects of neglecting proper ways of managing waste.

Environmental pollution has increased with the increase in economic and technological advancement. As economic and technological advancement increases, environmental pollution increases also. If waste management is not done properly, it may cause threats to living organisms and the environment. Some of the effects are listed below:

#### (a) Water pollution

As the water from channels and rivers flow, it carries a variety of pollutants. Rain water also carries waste and takes it to the water sources such as dams, springs and lakes. The waste entering the water sources causes water pollution. If such water is used, it can be harmful to both humans and animals. Diseases caused by polluted water include dysentery, diarrhoea, cholera, bilharzia and typhoid. In addition, water with chemicals from industries, kills plants and aquatic organisms such as fish, crocodiles and hippos. Figure 1 shows how water pollution occurs.





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**Figure 1:** Water pollution

### (b) Air pollution

The major air pollutants are gases, dust, bad smell and various chemicals. Waste that produce poisonous chemicals needs to be well managed so as to reduce its impact on the environment. Burning items such as papers and plastic bottles cause the production of toxic gases. These gases cause air pollution. Vehicles and different machines which use petrol or diesel increase the amount of nitrogen dioxide and carbon dioxide gases. An increase in these gases causes air pollution, hence negative effects to human beings and animals. If charcoal is not well burnt, it produces carbon monoxide which is toxic to living organisms. Figure 2 shows how air pollution occurs.



**Figure 2:** Air pollution





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### **(c) Harm to land and aquatic animals**

Poor disposal of waste, sewage and dirty water in the environment affects human beings, animals and other organisms which live on land (terrestrial) and in water (aquatic). Animals that eat grass near such areas can be affected and even die. Living organisms found in water can also be affected by the presence of waste in water. For example, the presence of waste on top of water may cause lack of oxygen in it. As a result, living organisms die due to lack of oxygen.

### **(d) Human diseases**

Human settlements and industries produce waste such as food scraps, faeces, chemicals and dirty water. Poor disposal of waste attracts harmful insects and animals such as cockroaches, houseflies, mosquitoes and rats. These insects and animals carry germs which cause diseases such as dysentery, typhoid, cholera, eye diseases, malaria, plague, skin diseases and difficulty in breathing. Poor disposal of waste such as broken cans, bottles and glasses can cause accidents and injuries. These injuries may lead to the spread of tetanus infection. The community that lives near areas with such waste may be adversely affected. Children, garbage collectors and workers in the waste recycling industries are in danger of being affected too.

### **(e) Effects on the country's economy**

Poor waste management may contribute to the lowering of the country's economy. If communities do not have a good waste management plan, they may be exposed to diseases. Diseases affect productivity because when people are sick, they are not able to work efficiently. When this happens, it causes the economy of the family and the nation to drop. Thus, everyone should live in a clean and safe environment in order to be healthy and productive.



#### **Activity 1**

1. Make a visit to the residential areas around your school and examine how waste is managed. Interview the people so as to get correct information.
2. Prepare a visit report and present it in class for discussion.
3. In groups, discuss challenges that you face in your surroundings on poor waste management and the way you deal with them. Present your views in class for discussion.



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### Exercise 1

1. What are the advantages of managing waste? Explain three advantages.
2. How are aquatic organisms affected by the pollution of water?
3. What diseases are caused by water pollution?

### Harmful and destructive insects and animals found in human settlement



#### Think

1. Destructive insects and animals found in the environment you live.
2. Methods of managing destructive insects and animals.

There are different kinds of destructive insects in our environment such as cockroaches, houseflies, termites, mosquitoes, bedbugs, fleas, ants and lice. There are also destructive animals such as rats, minks and squirrels that are destructive in the environment we live in. Insects can cause harm to people, since they prefer to live in dirty areas and carry germs that can cause diseases. They also destroy properties and crops. The following are some of the destructive insects and animals and the methods of controlling them.

#### (a) Cockroaches

Cockroaches prefer to live in hidden, dark and damp places. They can be found in the toilets, sewage drainage systems and cracks. They are mostly visible at night. Cockroaches carry dirt in their bodies wherever they pass. When they come into contact with uncovered food, they contaminate it and leave germs that may cause diseases. They also contaminate stored utensils with their faeces and fluids from their bodies.

One of the methods of controlling cockroaches is to keep the environment clean through effective ways of controlling waste such as burying or burning them. Make sure that there are no cracks on the walls and floors in order to destroy their habitat. Clean all the utensils used in cooking and serving food to prevent the multiplication of cockroaches. However, insecticides





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can also be used to kill them. When using insecticides, care should be taken by covering all food stuffs and water. All utensils should be cleaned well after the application of the insecticide.

### **(b) Houseflies**

A housefly is a dangerous insect that spreads various diseases. It carries dirt from different sources such as faeces, waste and wounds. When a housefly lands on food or drink, it leaves dirt and germs that cause diseases. Diseases transmitted by houseflies include typhoid fever, diarrhoea, dysentery and cholera.

To control houseflies, we should make sure that the indoor and outdoor environment is kept clean. This should include burying decaying waste. We also need to keep our bodies clean, cover the food and wounds. Similarly, we are advised to use toilets properly. Insecticides can also be used to kill houseflies. When insecticides are used, remember to cover both food and water. All utensils should be washed with clean water after the application of the insecticide to remove any toxic or poisonous chemicals.

### **(c) Mosquitoes**

Mosquitoes are insects that reproduce and multiply quickly in stagnant water, bushes or shrubs. Mosquitoes bite and cause discomfort including itching on the bitten areas. In addition, a female anopheles mosquito transmits malaria parasites. If the mosquito sucks blood of an infected person and then injects it to another, it transmits the parasites and infects other people with malaria.

There are various methods of controlling mosquitoes in our environment. These methods include removing stagnant water from the environment, clearing bushes or shrubs and cutting all long grasses surrounding the environment in order to destroy their habitats. Also, one should sleep under a treated mosquito net so as to protect oneself from mosquito bites. It is also possible to use insecticides to kill mosquitoes where necessary.

### **(d) Bedbugs**

Bedbugs prefer living in warm and dark places. Their main habitat is in beds and cracks of walls or floors where they breed in large numbers. They tend to hide during the day and come out to attack during the night. Bedbugs have the ability to cling to clothes. When someone lays on a bed or sits on a chair with bedbugs, she/he can carry and transfer them elsewhere. They can also spread when making the bed or shaking out the beddings.





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In addition, if clothes are hung on a wall with bedbugs, the bedbugs can move to those clothes and affect the person who will wear and transfer them to other places.

Bedbugs survive by sucking human blood. As a result, the person can get anemia and recurrent fevers. Similarly, the part bitten itches and causes scratching and can even develop wounds. To control bedbugs, make sure you keep your house clean all the time. Exposure of beddings to sunlight and sealing of cracks on walls and floors should be done regularly. Insecticides can also be used to kill bedbugs.

### **(e) Fleas**

Fleas live in dust and dirty places. They are often carried by animals such as dogs, cats, rodents and birds such as chickens. Fleas carried by rodents spread a disease known as plague, which is a serious threat to human beings. Therefore, it is important to get rid of them as soon as they appear. Fleas found in chickens suck blood from them and lead to insufficient blood (anemia). They also cause discomfort to chickens when they bite them. In order to control fleas, it is important to make sure that a chicken hut is kept clean and regularly sprinkled with pesticides; animals such as dogs and cats should be washed or sprayed regularly with water and disinfectants. Regular sprinkling of the ground floor with water during cleaning prevents the accumulation of dust.

### **(f) Lice**

Lice are very small and they live by sucking human blood. There are black lice that inhabit in dirty and uncombed hair and white lice normally found in hems and folds of dirty clothes. Lice breed by laying eggs that later on hatch into lice. Lice eggs enter into the hair and stick to it in such a way that they cannot fall off or be removed easily. Lice suck blood and cause anaemia (insufficient blood). They also cause itching that results into scratching and sores on the scalp and other areas of the body. When lice enter clothes, they make the clothes dirty and leave stains on them. Lice can be spread through the sharing of various items such as clothes, combs, beddings, hats, and headscarves. Clothes may get lice when mixed with other clothes with lice. Lice also spread when people are crowded, for example, when travelling on a bus or train.

Lice can be controlled in different ways, for example, by cutting and cleaning the hair regularly using clean water and soap or shampoo. Similarly, they can be avoided by not sharing items such as clothes, hats, combs and



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beddings. In addition, washing and ironing clothes regularly helps to kill lice. We are also advised to avoid congestion as much as possible.

### (g) Rats

Rats are destructive animals living in holes or ditches. They can penetrate and enter a house. They are attracted by dirt but sometimes they can enter a clean house in search of food. When they enter a house, rats tend to live in hidden and dark places such as on ceilings, cupboards and in food stores. Rats are dangerous to human health because they spread dirt wherever they pass. Such dirt keeps germs which transmit diseases. Rats also carry fleas which cause plague. They feed on food crops such as maize, groundnuts, potatoes, and sorghum. They can also gnaw and destroy electric wires, clothes, shoes and books. In addition, rats can bite people at night. There are various methods of controlling rats. The methods include keeping cats, using rodenticides, trapping and clearing bushes. Wall cracks, ceiling boards and holes on floors should be sealed well so that rats cannot pass through. Also, make sure you cover foodstuffs and throw food remains (food scraps) in containers covered with lids. Figure 3 shows harmful and destructive insects and animals.



louse



flea



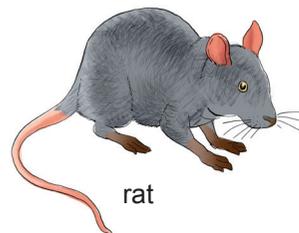
bedbug



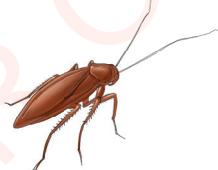
mosquito



housefly



rat



cockroach

**Figure 3:** Harmful and destructive insects and animal found in the environment.





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## Activity: 2

1. Visit shops, markets, food kiosks, hospitals or food stores; and interview the owners about the presence of harmful and destructive insects and animals and the methods used to control them.
2. Prepare a field visit report and present it in class for discussion.

## Exercise 2

### Section A.

Choose the letter of the most correct answer and write it in the box provided.

1. The following are destructive insects which are found at home; except \_\_\_\_\_.
  - (a) mosquitoes, cockroaches, and bedbugs.
  - (b) fleas, houseflies and mosquitoes.
  - (c) cockroaches, houseflies, and lice.
  - (d) bedbugs, rats and fleas
2. A housefly is an insect that spreads the following diseases \_\_\_\_\_.
  - (a) plague, diarrhoea and typhoid
  - (b) diarrhoea, typhoid and cholera
  - (c) cholera, typhoid and rashes
  - (d) bilharzia, typhoid and plague
3. The following are the methods of controlling mosquitoes in our environment; except. \_\_\_\_\_.
  - (a) draining all stagnant water in an environment
  - (b) using a mosquito net at night to avoid being bitten by them
  - (c) cleaning bushes and long grass near residential areas
  - (d) putting mattresses in the sun regularly





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4. A disease which is caused by rats and fleas is known as \_\_\_\_\_.
- (a) malaria
  - (b) diarrhoea
  - (c) plague
  - (d) bilharzia
5. The following are the methods of controlling and eradicating bedbugs; **except** \_\_\_\_\_.
- (a) filling sewerage pits
  - (b) using insecticides to kill insects
  - (c) sealing cracks on walls and floors
  - (d) exposing beds and mattresses to sunlight

### Section B

Fill in the following blanks.

1. Gardens provide fresh air because plant leaves produce a gas known as \_\_\_\_\_ during the process of photosynthesis.
2. A female mosquito known as \_\_\_\_\_ transmits malaria parasites from one person to another.
3. \_\_\_\_\_ sucks blood and causes severe itching and can cause sores on the scalp.
4. \_\_\_\_\_ live in beds and in cracks found in walls and floors.

### Section C

Answer the following questions.

1. In what ways can air pollution be controlled in the environment?
2. What side effects can be caused by lice on the human body? Explain three effects.





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3. What can you do to prevent plague? Explain four points.
4. How does a housefly spread diseases to human beings?
5. Where do cockroaches live? Why?
6. What do you think is the cause of water pollution in your environment?
7. How do cockroaches spread diseases?

### Vocabulary

Carbon dioxide	is a gas produced during breathing or burning of carbon compounds
Carbon monoxide	is a toxic flammable gas formed by incomplete combustion of carbon
Gnaw	is chewing something slowly by using the front teeth
Odour	bad smell





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## Chapter Three

### Cookery

#### Introduction

*In Standard Six, you learnt about the preparation of food by deep frying and the preparation of different beverages and foods to be used when travelling. You also learnt how to serve food either on a table or on a mat, food garnishing, table manners and cleaning utensils after eating. In this chapter, you will learn about the effects of not observing hygienic rules when cooking, the effects of not observing table manners and the effects of not observing deep frying rules. You will also learn about different food stuffs to be packed and their packaging materials. Besides, various ways of making different soft beverages will be learned. The gained knowledge will enable you to be able to pack food and prepare different soft beverages properly. Similarly, it will enable you to take part in entrepreneurial activities in order to increase income.*



#### Hygiene in food preparation



##### Think

1. Hygiene rules in food preparation.
2. The effect of not observing hygienic rules in food preparation.

It is very important to observe hygiene rules during food preparation. This helps to avoid negative effects that may occur at the cooking place, to a cook or to a person who eats the food. The following are some of the effects:

- (a) Catching diseases such as typhoid fever, cholera and diarrhoea from eating foodstuffs infected with parasites;
- (b) Multiplication of insects such as cockroaches, flies, ants and destructive animals such as rats that carry parasites;
- (c) Slipping, falling and breaking body limbs from slippery floors. This is often due to spilled water or food peels spread on the floor;





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- (d) Getting cuts from broken or sharp edged utensils;
- (e) Eating food contaminated with hair if the cook's head was not covered during food preparation and cooking;
- (f) Eating contaminated food if the food has been handled with long and dirty nails;
- (g) Breakage of kitchen utensils due to poor arrangement in the kitchen; and
- (h) Poisoned food due to keeping foodstuffs and pesticides or drugs together.



### Activity 1

1. In groups, act out a roleplay to show negative effects which may occur if food hygiene rules are not observed.
2. What have you learnt from the roleplay?

### Effects of not observing table manners



#### Think

Acceptable behaviours while eating.

Table manners are accepted rules of a certain community to be observed while eating. We are supposed to observe table manners while eating even if you are alone. This will help us to avoid the effects that may occur if the table manners are not observed.

#### Failure to observe table manners may lead to:

- (a) Being choked with food due to talking while eating. If there is a necessity of talking while eating, make sure you do not have food in the mouth;
- (b) Getting diseases such as diarrhoea, cholera and typhoid fever due to eating dirty food. Therefore, it is important to wash your hands with clean running water and soap before and after eating;





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- (c) Annoying other people you are eating with due to licking spoons or fingers while eating. This is not good manners, as it can disgust other people who are eating. Also, making sounds while chewing or drinking can disgust others. Therefore, you are supposed to chew and sip gently without making a noisy sucking sound;
- (d) Dropping food on the table or on the floor due to improper handling of table utensils such as spoons, forks or knives. The utensils may break or make smashing sounds, which disturb those who are eating. It is advisable to use table utensils properly in order to avoid spilling food that can also make oneself dirty;
- (e) Serving too much food may cause other people to miss the food;
- (f) Bloating due to over eating;
- (g) Eating dirty food which is contaminated with dandruff or hair due to scratching the head during meal time;
- (h) Belching while eating. This annoys others. Sometimes, belching is accompanied by bad breath. Even though belching is an involuntary action, you are supposed to cover your mouth and ask for a pardon when it happens; and
- (i) Making the table or eating place dirty by putting food remains such as bones of meat or fish or fruit peels onto it. Therefore, food remains should be kept in proper utensils.



### Activity 2

1. In groups, select one effect of not observing table manners and act out a roleplay to show the effect.
2. Discuss together about the roleplay you have acted out.

### Effects of not observing deep frying rules

Deep frying can cause various adverse effects if the rules are not observed. Some of the effects include oil flames when immersing food in too hot oil. Cooking oil can also cause fire if the pan is filled to the maximum, as this can cause the oil to spill over when frying. A person can get serious injuries





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and even die because of being burnt with hot oil. So, one has to be careful when cooking by deep-frying. In addition, too much oil can affect the quality of food by absorbing oil. This happens when the oil is not warm enough.

### Exercise 1

Answer the following questions.

1. What are the disadvantages of not observing deep frying rules?
2. What effects can occur when hygiene rules are not observed during food handling and cooking? Explain four effects.
3. What are the effects of not observing table manners during eating? Clarify five effects.

### Preparation of packed food



#### Think

1. Appropriate foods for packing.
2. Packaging materials used to pack food.

It is important to ensure that food is prepared and packed in a proper way to prevent it from being spoiled. There are different tips to consider when packing food. The following are some of them:

- (a) You are supposed to pack a balanced meal. Ensure appropriate proportions of foodstuffs including protein, starch, vitamins and minerals;
- (b) Packed food should remain in its original shape before being eaten. For example, fish should remain in its original shape as a whole form or in pieces;
- (c) Food should be in good condition all the time;
- (d) Food should be easy to pack, handle and carry;
- (e) Food should be packed in proper materials to preserve its hotness or coldness; and
- (f) Pack fruits; hot and cold beverages properly.





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## Packed food and their packaging materials

In this section, you will learn how to pack food for travelers and other purposes. The following table shows foods that are suitable for packing and their corresponding packaging materials:

**Table showing types of food and appropriate packaging materials**

Food	Packaging material
Fried fish	hard paper cases, paper or plastic bags, aluminium foil, plastic boxes/cases, banana leaves
Pancakes	transparent plastic bags, aluminium foil, plastic cases/boxes, utensils that preserve heat
Roasted chicken	paper bags, paper cases or boxes, plastics cases, aluminium foil, transparent plastic bags, utensils that preserve heat, banana leaves
Roasted groundnuts	nylon bags, transparent plastic boxes/cases, paper bags, glass or plastic bottles
Ripe bananas	baskets, different types of bags

**Note:** However, other materials found in a particular environment may be used.

It is emphasized that foods for packing should be prepared and packed in a hygienic and safe environment. If the packaging material can preserve heat, pack the food when it is still hot. Similarly, if the packaging materials such as plastic cases do not preserve heat, then pack the food when it is cool.

There are different things to observe during food preparation. One of them is the number of people intended to eat the food. It is important to observe proper measurements of ingredients in order to obtain good results. In the same way, if the food is prepared for sale, observe the measurements and their corresponding prices. This is important, as the costs incurred during preparation should allow profit making. The following are the ingredients and procedures for the preparation of some packed foods. However, other ingredients found in different environments may be used.





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## 1. Fried fish

### Ingredients

2 fish

1 egg

1 litre of cooking oil

½ tea spoon of salt

Red chilli (if needed)

¼ tea cup of wheat flour

1 tea spoon of ground garlic

1 lemon or lime

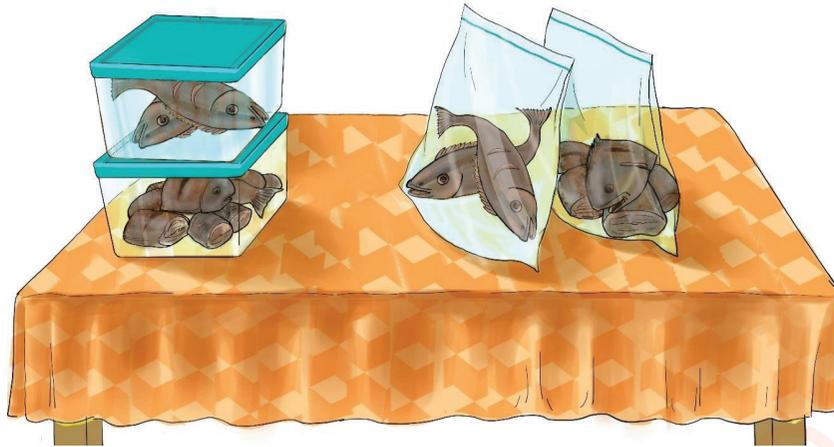
### Steps

- (i) Wash the fish, slice them in a desirable size; and then place the pieces on a sieve to drain water. The number of pieces will depend on the size of the fish.
- (ii) Smear spices such as chilli, add lemon or lime juice and salt on the fish to add taste.
- (iii) Mix the wheat flour and ground garlic; add the whipped egg and mix well until it is evenly mixed.
- (iv) Pre-heat the cooking oil to the desirable temperature.
- (v) Dip the fish pieces into the mixture of flour and egg; then toast them in the heated oil. Ensure the fish is well cooked; or wait until it attains a brown colour.
- (vi) Remove the fried fish and place them on a strainer to drain oil.
- (vii) When the fish cools, pack them in plastic cases or containers or transparent plastic bags as shown in Figure 1. You can also store them in a container that preserves heat.
- (viii) Clean up the area, utensils and equipment used when preparing fish.





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**Figure 1:** Packed fried fish

## 2. Pancakes

### Ingredients

- ½ kilogram of wheat flour
- 2 eggs
- 2 table spoons of sugar (If preferred)
- 1 tea spoon of salt
- ½ tea spoon of cardamom
- 3 cups of warm water (or as needed)
- ½ cup cooking oil

**Note:** Using the above measured ingredients, you may obtain around 15 pancakes

### Steps

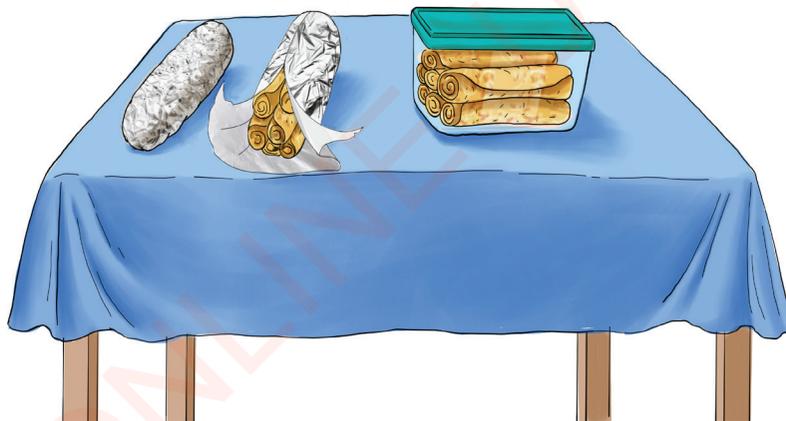
- (i) Sieve the flour in a bowl.
- (ii) Add sugar, salt, cardamom and little water then stir.
- (iii) Add the remaining water and stir again until you obtain a thick mixture.
- (iv) Add eggs and continue stirring. The mixture should not be too thick or too thin.





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- (v) Place a frying pan in a cooker on medium heat.
- (vi) Put half a cooking spoon of oil and spread evenly.
- (vii) Put one full serving spoon of your mixture and spread evenly on the frying pan. Pancakes are supposed to be thin and light.
- (viii) Wait for the pancake to dry on the upper part and then turn it over on the other side.
- (ix) Spread one tablespoon of oil on both lower and upper parts of the pancake.
- (x) Press the top of the pancake with a spoon to cook well the lower part.
- (xi) Continue turning over the pancake until it attains brown colour on both sides, then remove and put it on a clean plate.
- (xii) Repeat the steps until all the mixture is finished.
- (xiii) Pack your pancakes using an aluminium foil or plastic containers as indicated in Figure 2.



**Figure 2:** Packed pancakes

### 3. Roasted groundnuts

#### Ingredients

½ a kilogram of groundnuts

½ tea spoon of salt

Little water

**Note:** This amount of groundnuts can be consumed by 10 or more people.





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### Steps

- (i) Sort out the groundnuts to remove any dirty or damaged ones; then put them in a clean bowl.
- (ii) Add salt and sprinkle some water; then mix them using a wooden spoon so that salt can penetrate into the groundnuts.
- (iii) Place a roasting pan onto a cooker to warm it; then add the groundnuts. Wait until they start to cook; then stir-fry them after every few seconds using a wooden spoon so that they do not get burnt.
- (iv) Peel some groundnuts to see if they have attained a brown colour. If not, continue roasting until you obtain the desired colour.
- (v) Take off the frying pan from the cooker and continue stirring the groundnuts because the pan is still hot.
- (vi) Let them cool; then pack. You may also remove the skin, winnow and then pack them properly.
- (vii) Pack groundnuts in a transparent container or nylon bag as shown in Figure 3.
- (viii) Clean up the area, utensils and equipment used when preparing roasted groundnuts.



**Figure 3:** Packed roasted groundnuts

## 4. Roasted chicken

### Ingredients

- 4 spoons of cooking oil or fat
- 4 pieces of chicken meat
- 1 egg





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- ½ cup of bread crumbs
- 1 tea spoon of ground garlic
- ¼ tea spoon of salt
- 1 lemon/ lime

### Steps

- (i) Wash the chicken pieces and leave them to drain.
- (ii) Smear some salt and add lemon juice to the chicken pieces to add taste.
- (iii) Mix an egg with bread crumbs together with ground garlic.
- (iv) Deep the chicken pieces in the prepared mixture to make them tasty.
- (v) Turn on the oven to the required temperature.
- (vi) Smear oil on the baking tray.
- (vii) Arrange the chicken pieces in the baking tray. Bake while basting some oil or fat until the chicken pieces attain a brown colour.
- (viii) Remove the well cooked chicken pieces and transfer them to another vessel ready for packing.
- (ix) Pack the chicken pieces in a plastic container or aluminium foil.
- (x) Clean up the area, utensils and equipment used when preparing roasted chicken.

**Note:** These pieces of chicken can be eaten together with other types of food by four people.



### Activity 3

Choose one type of food that is available in your environment which is suitable for packing. Prepare that food following the required steps and pack it appropriately.

### Exercise 2

1. Which ingredients are needed to prepare pancakes?
2. Which packaging materials are suitable for packing food for travelling purposes? Mention five packaging materials.
3. What are the five important tips to consider during food packaging?





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## Soft beverages



### Think

The importance of soft beverages in the body.

Soft beverages include all non-alcoholic drinks. There are soft beverages that are taken while hot such as tea, cocoa, coffee and others such as juice, water and soda which are taken when cold. Soft beverages have many benefits to the body if they are prepared and used properly. These benefits include satisfying thirst, adding nutrients to the body, increasing the amount of water needed by the body and supporting food digestion. Cooling and refreshing the body and protecting it from diseases are other benefits of soft beverages. Similarly, soft beverages can be a source of income.

Fruit juice can be made from one kind of fruit or mixed fruits depending on the needs of the consumer. Mixed fruits have different flavours and nutrients. Thus, mixed fruit juices have more benefits, as they provide us with different types of nutrients that work differently in the body. These functions strengthen the body's immune system, remove toxins from the body and support digestion process. Care should be taken when making mixed fruit juices. For example, sour fruits such as passions or oranges should not be too many to avoid producing sour juice. However, it is advised to eat the fruit itself rather than drinking the juice. This is because, fruits contain roughages which are important in preventing constipation.

The following are the ingredients and procedures for preparing single fruit juice, mixed fruit juice, egg nog and banana pudding. However, other ingredients that are found in a particular environment may be used.

### 1. Mango juice

#### Ingredients

3 mangoes

2 table spoons of sugar

½ litre of water

**Note:** With this number of fruits, you can obtain one litre of juice.



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### Steps

- (i) Prepare sugar syrup by stirring sugar in boiling water and letting it cool.
- (ii) Thoroughly wash the fruits in clean and salted or running water. Salty water helps to kill germs.
- (iii) Carefully peel the fruits and make sure you peel off only the top layer to maintain the vitamins and other nutrients that are just under the peels.
- (iv) Cut the fruits into small pieces to facilitate blending.
- (v) Put the fruits in a blender and add some water, then blend. You can add more water during blending to get a moderate mixture that is not too heavy. However, you can use a wooden spoon to crush the fruits in a bowl if you do not have a blender.
- (vi) Strain the juice using a clean filter and put it in a clean container.
- (vii) Add the syrup into the juice and stir well to ensure it is well mixed.
- (viii) You can pack the juice in a plastic bottle or a clear glass with a lid as shown in Figure 4. You can also keep the juice in a refrigerator or a cool place ready for use.
- (ix) Clean up the area, utensils and equipment used when preparing mango juice.



**Figure 4:** Packed mango juice





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## 2. Mixed fruit juice

### Ingredients

- ½ pineapple
- 2 mangoes
- 1 avocado
- 2 passion fruits
- 1 litre of water
- 4 table spoons of sugar

**Note:** You can obtain around 1½ litres of juice from this amount of fruits.

### Steps

- (i) Prepare the syrup and let it cool.
- (ii) Wash the fruits with clean salted or running water.
- (iii) Peel the fruits by removing the top most layer so that nutrients under the peels are not lost.
- (iv) Chop the fruits in small pieces.
- (v) Put the fruits in a blender and add some water; then blend. You can add more water during blending to get a moderate mixture that is not too heavy. However, you can use a wooden spoon to crush the fruits in a bowl if you do not have a blender. Strain the juice using a clean filter and put it in a clean container. You can add some water if the juice is too heavy.
- (vi) Add the syrup into the juice and stir well to ensure the mixture is well mixed.
- (vii) Put the juice in a glass or bottle; then keep it in the refrigerator or a cool place ready for drinking.
- (viii) Clean up the area, utensils and equipment used when preparing mixed fruit juice.



### Activity 4

1. Choose various types of fruits that are available in your environment and then prepare a mixed fruit juice by following the appropriate steps.
2. Discuss in class the prepared juice.





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### 3. Egg nog

#### Ingredients

- 2 eggs
- 2 tea spoons of sugar
- 2-table spoons coffee or cocoa
- A glass or cup of warm milk
- ½ tea spoons of vanilla
- ½ cup of milk cream

#### Steps

- (i) Mix the egg and sugar together with vanilla and stir well.
- (ii) Add coffee or cocoa and continue stirring for a few minutes.
- (iii) Add milk cream and warm milk gradually; and continue stirring.
- (iv) Store the mixture in a refrigerator or a cool place.
- (v) Pour the mixture into a glass or cup ready for use as shown in Figure 5.
- (vi) Clean up the area, utensils and equipment used when preparing egg nog.



Figure 5: Egg nog





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#### 4. Banana pudding

##### Ingredients

3 ripe bananas

1 table spoon of sugar

½ litre of fresh milk

**Note:** You can get three glasses of pudding from this amount of ingredients.

##### Steps

- (i) Wash the bananas with clean water and then remove the peels.
- (ii) Boil the bananas for a short while.
- (iii) Take the bananas from the stove and mash them until they are soft.
- (iv) Mix the milk in the mashed bananas and stir well to make sure the pudding mixture is well mixed.
- (v) You can add a little sugar to the pudding if preferred.
- (vi) The pudding can be taken when warm or cold.
- (vii) Clean up the area, utensils and equipment used when preparing banana pudding.

#### Exercise 3

##### Part A

**Write True for a correct statement and False for an incorrect statement.**

1. One of the benefits of a soft beverage is body building. \_\_\_\_\_
2. Aluminum foil and paper bags are used to pack fish during travelling. \_\_\_\_\_
3. Syrup should be added in the juice immediately after removing it from the stove. \_\_\_\_\_
4. Failure to observe hygiene rules in food preparation and handling can lead to diseases such as diabetes, typhoid and diarrhea. \_\_\_\_\_
5. Deep frying of food increases the quality of food, as it absorbs more oil. \_\_\_\_\_





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6. Poor handling of table utensils may cause spilling of food on the table. \_\_\_\_\_
7. Drinks that are taken while hot include tea, cocoa, juice and coffee.  
\_\_\_\_\_

### Part B

Match the words or sentences from column “A” with the words in column “B” to get the correct answer. Then write the letter of your answer in the space provided.

No.	Column A	Answer	Column B
1.	Pack groundnuts		A. malaria
2.	Boiling the mixture of sugar and water		B. pudding
3.	Not observing safety and hygiene rules during food preparation		C. roughages
4.	Keeping juice		D. syrup
5.	Chocking		E. plastic bags
6.	Improving the bowel movement		F. typhoid fever
			G. talking when eating
			H. refrigerator

### Part C

Answer the following questions.

1. What conditions can make a person fall or slip while working in the kitchen?
2. Which insects are attracted by a dirty environment? Name five insects.
3. What are the five benefits of soft drinks?
4. Why should sour or citrus fruits be used in small quantities when making mixed fruit juices?



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## Vocabulary

Aluminium foil	a thin piece of material or brightly coloured aluminium paper used to wrap food
Basting	pouring oil or fat over meat while roasting in order to keep it moist
Belching	is the act of expelling air from the stomach through the mouth due to overeating
Blender	an electric mixing machine used in food or juice preparation
Pudding	is a type of sweet food that is taken after the main meal

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## Chapter Four

### Principles of singing

#### Introduction

*In Standard Six, you learnt about musical instruments, categories of musical instruments and their origins. In this chapter you will learn about the principles of choral singing in four voices. You will also learn about important things that make one a good singer. The gained competencies from this chapter will enable you to sing by considering principles of singing. Similarly, you will be able to perform as an independent singer and apply singing in generating income.*

#### Singing in a Choir



#### Think

1. Principles of singing in a four voice choir.
2. Advantages of singing in a choir by considering principles of singing.

Singing is an art which involves pronouncing words in a melodic way. The art of singing helps to educate the society on various issues in everyday life. Singing is also used to warn members of the society especially when they behave contrary to the values of their society. Likewise, singing entertains, expresses culture, preserves various memories of the society and also accompanies ceremonial activities like funeral and worship. Singing is one of the means of income generation for individual singers, groups and the society in general. For a singer to benefit from the singing career, it is important to consider the principles of singing. Also, a singer needs to be competent in the singing career.

It is therefore important for a singer to develop the habit of learning effective principles of singing. Since societies normally undergo various changes from time to time, it is obvious that for a singer to be successful he/she should be ready to learn all the time. There are various techniques a singer can use to gain knowledge and skills which will enable him/her to progress in the singing career. Some of these techniques involve singing while considering the principles.



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## Choral singing



### Discuss in groups

1. Types of choir found in your surroundings.
2. Singing groups that you know.

In the art of singing, there are various types of singing. Some of these types involve: one singer, two singers, three singers or a group of many singers. Singing that involves many singers in a group is called choral singing. A choir is a group of people who sing various songs together for a special purpose. A choir can be identified by considering the nature of people singing in the group. A choir can involve females, males or both. Similarly, various musical instruments can be used to accompany this singing.

In choral singing, there are four types of voice used. The voices include: the first voice (soprano), the second voice (alto), the third voice (tenor) and the fourth voice (bass). Normally, the first and the second voices are sung by females while the third and the fourth voices are sung by males.

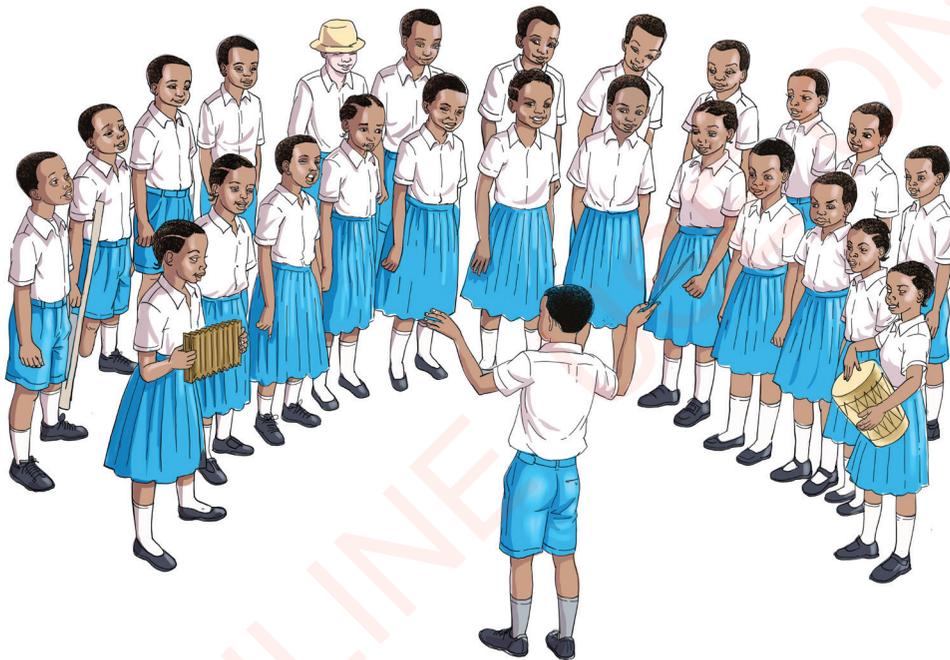
**Types of choir:** There are four types of choir. These are:

1. **One voice choir:** This is a choir whose singers can be males and females but they all sing in one voice. They all sing the main voice of the respective song. An example of a choir in this group is a mass choir which involves many people.
2. **Two voice choir:** This is a group of people who sing songs in two voices. For example, the first and second voices only or the first and the third voices only. Sometimes, one voice can involve females only while another voice can involve males only. Likewise, a two voice choir can involve females only or males only who divide themselves into two groups to form two voices. Women's or men's choirs in most churches and boys' or girls' choirs in schools are good examples of this type of choir.
3. **Three voice choir:** This is the choir whose singers sing songs in three voices. The voices include the first, second and any other between the third and fourth voices. Singers in choirs of this type normally divide themselves in three groups to form the three voices. This type of choir is usually found in boys' or girls' schools.



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4. **Four voice choir:** This is known as a complete choir whose singers sing songs in four voices. The four voices include the soprano, alto, tenor and bass. The first voice (soprano) is the highest voice. This voice is normally sung by females with the highest pitch in the choir. The second voice (alto) is normally sung by females with a lower pitch. The third voice (tenor) is lower than alto. Tenor is commonly sung by males with a higher pitch. The fourth voice (bass) is the lowest pitch in the choir. Bass is sung by males with a deep voice. Figure 1 shows the formation of a choir, which includes singers, instruments players and a conductor.



**Figure 1:** Pupils' choir, instruments players and a choir conductor

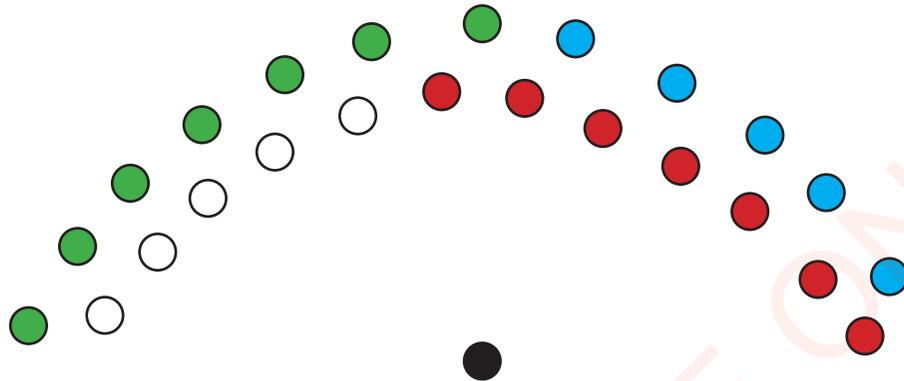
**Division and organization of singers according to voices:** A normal four voice choir is formed by 24 singers and a conductor. Normally, the first voice has 7 singers, the second voice has 5 singers, the third voice has 5 singers and the fourth voice has 7 singers. However, the number of singers can be greater than 24. So it is important that the number of singers for the first and fourth voices should be higher than that of the second and third voices. The first and fourth voices should have the same number of singers. Likewise, the second and third voices should have the same number of singers. During a performance, singers of the first and





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second voices normally stand in the front line. Singers of the third and fourth voices stand on the second line at the back. Every singer at the back line should appear between two singers of the front line. In so doing, voices of all singers will be clearly heard. Similarly, all singers will see the conductor and the conductor will easily see the singers as shown in Figure 2.



**Key**

- Choir conductor
- First voice (soprano)
- Second voice (alto)
- Third voice (tenor)
- Fourth voice (bass)

**Figure 2:** Division and organization of a four voice choir during performance

*The importance of singing songs while considering the principles of singing in four voices:* Singing songs according to the principles of singing in four voices will enable a singer to do the following:

- (a) Sing and maintain his/her voice without interfering with other voices;
- (b) Sing with other singers in a required harmony within four voices;
- (c) Produce a well-organized and balanced voice with other voices;
- (d) Pronounce words of a song as required in order to be heard well and communicate the message to the audience; and





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- (e) Produce well organized and pleasant sounds, especially when four voices are combined to make the song audible and lovely to listen to.

**Competencies in choral singing:** For choral singing to be successful, a singer is supposed to involve emotions, articulate words correctly and stick to proper use of breath. Singing with proper emotions adds competence in singing, attracts the audience and adds emphasis on the message of the song. Clear pronunciation of words enables the singer to present the real meaning of the intended message. It also enables a singer to follow the language used in the song. Proper use of breath enables a singer to sing higher pitches, articulate all words properly and produce a balanced voice among the singers.

A music expert usually teaches singers to sing according to the illustrations of the song. The expert should be skilled in arranging the voices in four groups as identified in the standard choir which are first, second, third and fourth voices. Similarly, the expert should be skilled in reading music notations, translating them and teaching songs.

**The best techniques in choral singing:** When singing choral songs, the following techniques should be observed:

1. Applying appropriate emotions for the song such as happiness, anger, and sadness;
2. Pronouncing words clearly;
3. Breathing enough air for singing complete musical phrases; and
4. Singing while maintaining one's respective voice and song harmony.

Similarly, in singing choral songs, a choir conductor is very important. A choir conductor is a leader; she/he is also known as a choir master/mistress. This leader stands in front and directs the choir. The conductor is responsible for starting a song, leading singers in observing beats, directing the tempo and leading singers in expressing emotions and finishing the song properly.



### Activity 1

In groups, select one song and sing it according to the principles of singing.





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**Important tips for a singer to be competent:** Here are some of the important things which enable one to become a competent singer:

- (a) Practising different lip shapes in line with the respective syllable and producing the right voice;
- (b) Proper use of breath. Proper breathing is important during singing. A good singer should know breathing techniques well. If the singer's ability to use his/her breath properly is not good, it will lead into singing incomplete musical phrases which can cause unwanted pauses between words in sentences. Likewise, in order to sing higher pitches, a singer is supposed to control breathing;
- (c) Improving an inner hearing ability in order to know whether the voice that a singer produces is right or wrong while singing. A singer should balance his/her voice with instruments and other singers;
- (d) Singing by maintaining tempo and beats of the song;
- (e) Using a natural voice in singing; and
- (f) Pronouncing words properly and clearly.

**Recommended food and drinks for a singer:** A singer is advised to eat vegetables which enable the body to gain vitamins and minerals. These nutrients are essential as they strengthen the singer's voice. Figure 3 shows samples of vegetables such as amaranth, sweet potato leaves, spinach and Chinese cabbage.



Amaranth



Chinese cabbage



Sweet potato leaves



Spinach

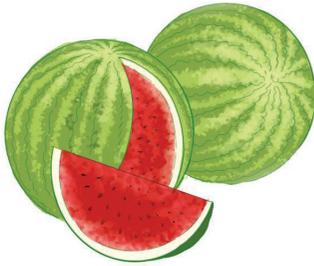
**Figure 3:** Vegetables which strengthen singers' voices



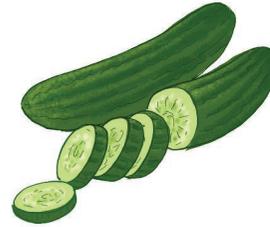


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A singer is advised to eat fruits which have a high content of water to enable the body to absorb water and gain energy. Figure 4 shows examples of such fruits.



Watermelon



Cucumber

**Figure 4:** Fruits that strengthen singers' voices

In addition, the use of spiced tea and plants like lemongrass is recommended for the betterment of the throat and stomach. All these help a singer to have a beautiful voice. Likewise, before the singing time, a singer can use honey and some salt. These are good for the throat. The right time for a singer to drink water is after singing.

**Precautions to singers:** A singer should consider the following precautions:

- (a) Reduce sugar consumption and increase eating fruits instead;
- (b) Reduce eating red meat and increase eating vegetables instead;
- (c) Reduce drinking soda and increase drinking water instead;
- (d) Do physical exercises, especially walking and jogging;
- (e) Have enough time to sleep; and
- (f) Avoid stress and get time to rest.

**Techniques for singing choral songs in four voices:** In order to sing choral songs in four voices, it is advisable to apply the following techniques:

- (a) Breathing in enough air to avoid incomplete musical phrases and word pronunciation;
- (b) Singing according to the principles of four voices;
- (c) Maintaining beats of the song;
- (d) Pronouncing words clearly;
- (e) Singing while expressing appropriate emotions in relation to the message of the song;





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- (f) Maintaining the required key when singing;
- (g) Considering the balance of voices;
- (h) Keeping eyes on the conductor and following his/her signals when singing; and
- (i) Shaping lips appropriately in line with the respective syllables of words.

**Competencies in a four voice choral singing:** There are various competencies for singing in four voices. Some of them are shown below:

- (a) Ability to sing one of the four voices;
- (b) Ability to balance one's voice with other voices; and
- (c) Ability to sing the four voices in harmony with a pleasant sound.



### Activity 2

1. Discuss the following in groups:
  - (a) Advantages of proper pronunciation of words in songs; and
  - (b) Importance of proper use of breath.
2. Select one song from the national songs and sing it in four voices.
3. Sing a school song and analyse beats and tempo used in the song.
4. Using one song, discuss the advantages of singing a song in four voices.

### Exercise

1. What are the advantages of singing emotionally?
2. Which voice is sung by boys with higher pitch?
3. What is the importance of a choir conductor?
4. Which is the main voice in a choir?
5. What is the difference between the first voice and the fourth one?



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6. How many voices does a complete choir have?
7. What is the advantage of singing in four voices?
8. Which voice do men with lower pitch sing?
9. Which voice do women with lower pitch sing?
10. What is the name of a choir which involves many female and male singers singing in one voice?

### Vocabulary

Pitch      a high or low voice





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## Chapter Five

### Principles of acting

#### Introduction

*In Standard Six, you learnt about the meaning of drama, acting, make-ups and props, “ngonjera”, recitation and acting by creating still images. In this chapter, you will learn types of acting, the rules and steps of developing a play, things to consider when preparing for acting and acting with respect to the correct rules of acting. The competencies gained in this chapter will enable you to write plays and act by following the established rules. The skills in developing a play and acting will therefore enable you to earn income for yourself, the family and the nation.*

#### Acting



#### Think

1. Act as a teacher.
2. What have you done that a teacher does?

Acting is one of the forms of performing arts. It conveys messages and shows images or pictures of various things representing the reality of human being in a form of actions in front of live audience. The art of acting uses people, animals and various things in building its events. In general, these are referred to as characters. Again, acting is a form of performing arts that enables the character to perform a role of another person or something, hence imitating reality. Acting depends on human body in showing various movements on stage. For example, the human face can express a character's feelings, personality and appearance while a voice provides various sounds in communicating the message to the intended audience. Also, acting depends on the actor's/actress' creativity, type of the play, setting to be used during acting and the nature of the audience.

#### Types of acting

There are several types of acting. These include mimes, freezing, acting by using words and actions and dance drama. A mime is a kind of acting in which an actor/actress uses only actions in communicating the message



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to the audience. No words are used in this type of acting. Freezing is a kind of acting using still images in which an actor/actress does not shake the body, move or use voice. In acting using words and actions, the actor/actress uses words and actions to convey messages to the audience. Dance drama is a type of acting whereby the message is conveyed to the intended audience in form of dance movements.



### Discuss in groups

1. Principles of developing a play.
2. Steps to be followed during acting.

### Play development

Developing a play is an artist's creative work. The creativity involves choosing a story that has content and a message useful to the community. It also involves creating characters according to their roles. Likewise, play development is a work that has to be done wisely without affecting the culture and values of the intended community.

**Rules of developing a play:** There are several rules to be followed when developing a play. However, it is important to understand some types of plays before developing a play. These include tragedy, tragicomedy, comedy and melodrama. The author of a play has to consider the types and rules of developing the play. Rules of developing a play guide the author to come up with the central idea of the story built through useful and well-arranged events. Similarly, these rules are useful in building a character's ability in doing more actions rather than speaking according to their roles. Some of the rules used in developing a play are provided below.

#### 1. Preparing the content

Content is an important element in conveying the intended message to the audience. The author needs to have the message to be communicated to the audience. The message can be for educating, criticizing, creating awareness, preserving culture, developing language, and entertaining. Similarly, a play can have a story whose content educates the community. For example, it may teach them how to protect themselves against different diseases such as diarrhoea, malaria and HIV-AIDS. A play can also educate people on how to fight against corruption, drug abuse and environmental destruction.





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## 2. Arranging the events of the play

In developing a play, it is important to observe the arrangement of events, actions and scenes. A play has three parts: the beginning, the middle and the end. The beginning of the play is very important, as it introduces the play. Therefore, it has to attract the audience. In this case, therefore, it has to begin in a way that makes the audience follow the story with interest from the beginning to the end. It is in the middle part of the play where the conflicts arise and the essential message of the play is communicated. It is in this part that the play's climax is revealed. The end of the play concludes and provides solutions to the problems experienced. A good ending keeps the audience reflecting on the message of the play even after the play has been performed.

## 3. Preparing characters

In developing a play, it is important that characters created represent the message and behaviour of real people in the community. There are two types of characters: major characters and minor characters. Major characters carry the central message of the play and communicate it to the audience. Minor characters help major characters in building the content and conflicts of the play. In developing characters of a play, consider age, status, and the environment which builds a character. For example, if a play is about a family, characters are father, mother and children.

## 4. Preparing dialogues

In communicating the intended message, the author of a play must improvise characters' dialogues. The dialogues should use a language that reflects the real setting of the characters. For example, a hotel, a harbour, a school, a hospital, a court and a parliament house. A character on stage has to speak using gestures, signs and feelings according to his/her role. For example, getting angry, sad, sick, excited, surprised or being happy. The conversations should be in a form of dialogues.

## 5. Considering a performance area

A performance area is a place where a play's events are portrayed. A performance area can be a stage, a playground, under a tree or in a hall. The author of the play has to create a performance area including suggesting the kind of stage she/he needs which involves preparation of curtains, a painted canvas curtain and props to be used during acting. Props are of two types: hand props and set props. Hand props involve anything carried by an actor/actress such as a stool, a hoe, an arrow, a fake gun, a shield, a club, a book, exercise books and pencils. Set props include all objects





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on stage which are part of the set like furniture such as a sofa, a table, a bed, a wardrobe, a cupboard and a bookshelf.

### 6. Preparing a setting/context

A setting is a place where a play is situated. The play can be set in town, rural areas, a hotel, a school, at home and at a work place. A setting helps the actor/actress to improvise costumes, make-ups and props to be used while acting. Costumes are of two types: female and male costumes. Make-ups are of two types: ornaments or worn make-ups and applied make-ups. Applied make-ups include powder, lipsticks, clay of different colours, henna and ocrea. Ornaments are items such as beads, a chain, earrings, bracelets, eyeglasses, armbands and masks. See Figure 1.



**Figure 1:** Actors in costumes and make-ups

**Steps for developing a play:** There are various steps to follow when developing a play as listed below:

- (i) Preparing a story whose content reflects the environment of the intended community;
- (ii) Identifying and developing characters according to their roles;
- (iii) Organizing dialogues and choosing the language to be used by characters;
- (iv) Suggesting props, costumes and make-ups; and
- (v) Preparing a performance area.





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**Rules to be followed when preparing for acting:** In order to prepare a good and standard play, enough rehearsals are necessary to help actors/actresses to perform their roles. The play can be performed either from an actor's/actress' creativity or a written one. If actors/actresses decide to perform a written play, it is important to consider the following rules:

### 1. Choosing a play

Choosing a play is a task that can be done either by actors/actresses or the play director. Normally, the play director is responsible for choosing a play, since he/she is the main leader and the final spokesperson of the play. Actors can choose a play if they are given that chance by the director.

### 2. Reading the play

After choosing a play, the next step is reading it. There are two steps in reading the play. The first step is individual reading whereby every actor/actress reads the play for the purpose of understanding it. In this step, the actor/actress has to read the play from the beginning to the end alone. The second step is group reading. Group reading should be done for the purpose of understanding the play. The director will lead actors/actresses in this process.

### 3. Choosing characters

After the play has been understood, the play director has to choose actors/actresses while considering the actors'/actresses' abilities. Similarly, the director can give actors/actresses a chance to choose the character they would like to portray in the play. After the actors'/actresses' choice of characters, it is important that the director evaluates their abilities and skills in relation to their roles.

### 4. Assigning responsibilities to actors/actresses

Apart from acting responsibilities, the director has to lead actors/actresses in choosing their leaders. These include a chairperson of the group, a secretary, a treasurer and a props manager. In an acting group, the chairperson's responsibility is to lead all the group's activities. The secretary is responsible for writing minutes and keeping records of various group meetings. The treasurer is responsible for keeping money earned from performances, preparing and reading the group's income and expenditure report. The props manager makes sure that all group's props are well stored. Every individual therefore, has to effectively accomplish his/her responsibilities.



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### 5. Rehearsing the play

After division of responsibilities, actors/actresses led by the play director need to do a play reading rehearsal according to their given roles. Every actor/actress should first rehearse alone and later rehearse with others. Also, they have to do actions and voice rehearsals. The rehearsals should focus on actors/actresses speaking aloud, gestures, postures, showing emotions with confidence and using various props that relate to the role played. Rehearsals have to be done as many times as possible until the actors/actresses master their roles.

### 6. Arranging the performance area

Preparing a performance area is very important. A performance area can be under a tree, inside a hall or an open space. It is important for the stage to be placed where the audience can easily follow the play. The stage has three major areas which are down stage / front, centre and an upstage area. It is essential that the setting reflects the reality of the event in the play.

**Rules to consider while on the stage:** When on stage the actor/actress needs to consider the acting rules. The rules are listed below:

1. Avoid unnecessary movements on the stage. Equally, during rehearsals, the actor/actress needs to properly plan for the movements so that he/she knows where to go and what to do on the stage;
2. The actor/actress should not turn his/her back to the audience unnecessarily;
3. Communicate with other actors/actresses and the audience.
4. Involve the audience during a performance through asking questions, clapping or in a form of singing to keep the audience active;
5. Use props when on stage and remove them immediately after using them. An actor/actress needs to be careful when using imaginary props. For example, when taking off a bucket of water from the head and putting it on a certain area on the stage, she/he has to remember to avoid walking over it imaginatively, hence, causing questions from the audience;
6. Proper use of the stage. In conveying the message to the audience, the actor should use the downstage and centre stage areas. The upstage area should be used only when it is necessary;





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7. Use actions in communicating the play's message. Actions on stage should be more exaggerated than actions done in our everyday life;
8. Make sure that an actor's/actress' voice is enough, audible and relates to his or her character. If the actor/actress plays a role of an elderly person or a child, the voice should reflect his or her age;
9. Make sure that costumes and props are used in association with the character in the play;
10. Confidence is an important thing for an actor/actress. Good preparation and enough rehearsals build up the actor's/actress' confidence;
11. Performing his / her role in a way that makes the audience believe; and
12. Use sense organs while acting such as smelling, tasting, hearing, seeing and feeling.



### Activity

1. In a group of six, develop a play that has a story about one of the following: impacts of corruption, advantages of free education, effects of diarrhoea in the country and effects of laziness.
2. Conduct discussions on plays you have developed.

### Exercise

#### Section A

**Write True for a correct statement and False for an incorrect statement.**

1. There are make-ups that are to be applied and worn. \_\_\_\_\_
2. The most important function of acting is entertainment. \_\_\_\_\_
3. There are various types of acting such as mime, acting by creating still images and lisping sound acting. \_\_\_\_\_
4. Good rehearsals are those done by many people only. \_\_\_\_\_
5. A stage can be prepared inside a hall or an open space. \_\_\_\_\_





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6. A stage has two parts. \_\_\_\_\_
7. An actor/actress has to put on costumes and make-ups according to his or her character. \_\_\_\_\_

### Section B

Match words from column “A” with words or sentences in column “B” in order to get the correct answer.

No.	Column A	Answer	Column B
1.	Content		A. beads, earrings, bracelets, masks, eyeglasses
2.	Performance area		B. special clothes worn by actors/actresses on stage
3.	Costumes		C. message to be communicated to the audience
4.	Worn ornaments		D. a hall, playground, stage, under a tree
5.	Dance drama		E. acting props that are not easily movable. F. a message is communicated to the audience by dance patterns/movements. G. all props used to fulfil a play's requirements.

### Section C

Answer the following questions.

1. What are the two types of make-ups that are used in acting?
2. What are the things to be observed by an actor in order to assume his or her role well? Mention three things.
3. What are the two important things that need to be considered in preparing a stage?
4. Which characters carry the central theme of a story in a play?
5. What are the benefits of a play?





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6. How many types of acting have you learnt?
7. How is acting by still images performed?
8. Which are the five worn make-ups used in acting?
9. What are the important things needed in any performance area?

## Vocabulary

Costumes	materials or clothes worn by actors on stage during acting
Expenditure	money used to buy something
Mask	costume or sculpture worn on the face for the purpose of conveying a certain message to the audience
Props	all the properties used by actors/actresses on the stage during performance
Tragedy	a type of play with several conflicts and complications. The play ends sadly or the main character gets embarrassed/humiliated.
Tragicomedy	a type of play that has several conflicts and complications. At the end of the play the main character succeeds and becomes happy.
Posture	a pose that actors/actresses display intentionally to communicate a message
Gesture	a bodily action which can be accompanied with words or without words



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## Chapter Six

### Clay modelling

#### Introduction

*In Standard Six, you learnt about how to prepare papier-mache for modelling. In this chapter, you will learn how to model clay pots for growing flowers. You will learn how to make pots using a mould which will help you to produce many pots of a similar size and style. You will also learn how to put decorations on the pot and the way to fire them. The competencies gained from this chapter will help you to make and sell pots. This may give you an income to live better.*

#### Modelling flower pots using clay



#### Think

1. Materials needed for making clay pots.
2. Uses of clay flower pots.

Flower pots are used for planting flowers and other plants. They can be made using cement or clay. Those made of cement must be dried before they are used. Clay pots must also be dry and fired before they can be used to plant flowers in. Flower pots can be made using different ways such as pinching, coil, slab, machine, and moulding. A place where ceramic or clay objects are fired to dry is called kiln. There are two types of kiln; open and closed.

#### Materials for making clay flower pots

Materials and equipment suitable for making flower pots are clay, water, cement, sand, a sieve, samples of mould, a brick layers' trowel, a hard and thick rope, a pot, wire mesh, a pair of scissors, used newspapers, and liquid glue. Other items are a chisel (of small size), a trimming knife (small size), oil paints, kerosene, palette, a hoe, an apron, a plastic bucket or thin and thick nylon bags and a piece of light nylon material.



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### Steps in preparing clay

The following steps should be observed in the preparation of clay:

- (i) Collect clay soil;
- (ii) Crush the clay soil into very small particles;
- (iii) Sift the clay;
- (iv) Soak the clay into water;
- (v) Stir the soaked clay;
- (vi) Filter the soaked clay;
- (vii) Collect the wet filtered clay; and
- (viii) Put the wet clay in a plastic bag or bucket.

### About a mould

A mould is a hard hollow container that is used to give similar form to other forms. In the process a semi liquid substance like clay is introduced in it so that when it dries, it takes the shape of the container. A simple example is how building bricks are made. The rectangular brick making tool has common measurements: length, width and height. Sand, cement and water are mixed together and poured into the mould. The brick maker presses the mortar properly inside the mould. Later on, the mould is removed. In doing so, the same mould figure appears. In modelling, a malleable material such as clay is introduced inside the mould; see Figure 1. It remains there for a certain period until it gets dry. Thereafter, it is removed while it has already copied the mould figure. By using a mould, a potter benefits a lot, for he/she can make many similar objects within a short time. A potter is a person who makes ceramic objects.



Figure 1: Two moulds





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### Activity 1

1. Make a study tour to any potter near your school. The aim of the tour should be to learn different things concerning a potter's work such as:
  - (i) Types of tools or things produced;
  - (ii) Modelling methods and the purposes of modelling;
  - (iii) The area where clay soil is obtained;
  - (iv) How clay is prepared;
  - (v) Working tools;
  - (vi) Firing process of clay objects;
  - (vii) Storage of modelling tools;
  - (viii) Use of the products and the marketing; and
  - (ix) Measures taken to conserve the environment.
2. Back from the tour, write a report about what you have learnt, considering number (i-ix) as your points of reference.

**Steps to be followed in mould making:** The first stage of pot modelling is to prepare a mould which matches the form of the expected pot.

Steps in mould making:

- (i) Select a flower pot which has a form and size of your choice, then clean it;
- (ii) Stick pieces of newspapers all over the flower pot using glue;
- (iii) Stick a piece of rope along the flower pot vertically so as to divide it to form two parts as seen in Figure 2;



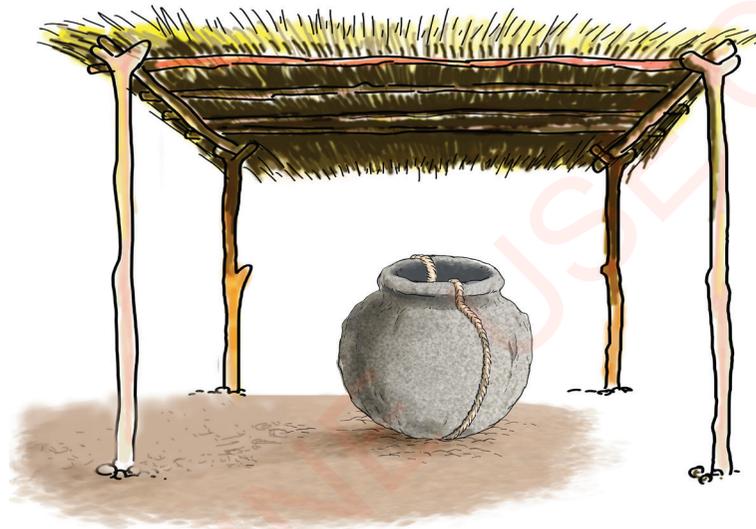
**Figure 2:** A pot glued using newspapers and divided into halves





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- (iv) Prepare a sticking plaster by mixing sand, cement and some water;
- (v) Measure and cut a wire mesh for the size of both sides;
- (vi) Make a 2 cm thickness of plaster on a flower pot and separate it using a piece of rope. Then, lay down the wire mesh on the soft plaster on both sides of the flower pot. Plaster again the second layer to cover the wire mesh on both sides of the flower pot without covering the rope;
- (vii) Smoothen the edges of both sides of the pot properly;
- (viii) Put the pot in the shade to allow it to dry as seen in Figure 3. This is because direct sun can cause cracks;



**Figure 3:** A pot divided using a rope

- (ix) Separate the pot and the two sides of a plaster layer. You will get two pieces of the pot figure which are called moulds; and
- (x) Clean and smoothen inside the mould properly. The moulds will be useful tools for the production of various flower pots.

**Steps in modelling a pot using a mould:** The following are steps to be followed in pot modelling using a mould:

- (i) Lay down a light nylon material to cover inside the mould. A nylon material helps to prevent clay from sticking to the mould;
- (ii) Stick clay inside the mould like a coconut flesh in a coconut husk approximately 2 cm. thick;





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- (iii) Smoothen the clay inside the mould;
- (iv) Put scratch marks along the edges of the clay. The scratches will strengthen a bond between edges of the object when joined together;
- (v) Wait for some time so that the malleable clay does not dent;
- (vi) Separate the mould from the clay to get two sides of a pot figure;
- (vii) Dry up the two parts of the pot in the shade until they reach a malleable stage like a candle or a piece of soap. At this stage, the clay soil stretches and does not break. Dry up the two parts of the pot in the shade;
- (viii) Join together the two parts of a pot figure using solid clay while it is still wet so as to get a complete figure of a pot;
- (ix) Tie around a complete flower pot properly using a wide piece of cloth; then put it in the shade until it dries;
- (x) After bonding, untie the cloth from the pot. The flower pot is now ready for the decorating stage; and
- (xi) Decorate the pot using engraving, imprinting or incising methods. By Engraving method, you can use a flat chisel or a small knife. By imprinting, you can use a tool such as a hollow tube of a pen. See Figure 4.



**Figure 4:** A decorated pot using engraving and imprinting methods

Again, if you apply the incising method, you can use a sharp pointed tool such as a sailor's needle or a piece of wood. See Figure 5. This is the first stage of pot decoration.





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**Figure 5:** A flower pot decorated with incising method



### Activity 2

1. In groups, make a mould stage by stage; then use it to produce various pots.
2. Make a class art exhibition and discuss the moulds and pots you have made.
3. Discuss challenges that arose during mould and pot making and how to overcome them.

### Firing the flower pot

In order to be strong, clay flower pots are essentially fired. Flower pots which are fired do not erode if saturated by water. Firing a flower pot is done at an open kiln. An open kiln is different from an interior kiln. The interior kiln is a small building with a door used for passing through flower pots and air. Also, it has a firing area and a smoke tunnel. An open kiln does not need a specific building. It is just an outside area where thin pieces of firewood and dry leaves are laid on a slight pit; then the firing process starts. Firewood and dry leaves are most useful because what is needed in the firing technique is constant heating.

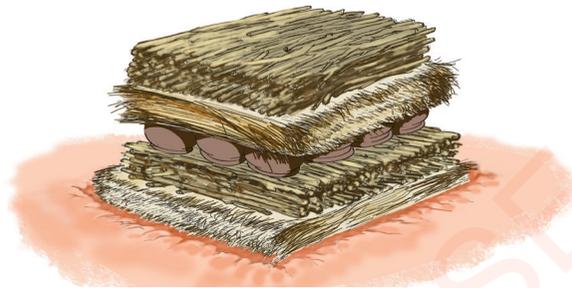




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**Steps to be followed in clay pot firing:** The following are steps of firing clay pots:

- (i) Dig a hole similar to a wide platter of a rectangular shape on the ground;
- (ii) Lay down a layer of dry grass and pieces of firewood of 30 cm in width inside the hole;
- (iii) Arrange the pots to be fired on a layer of dry grass and firewood;
- (iv) Lay another layer of dry leaves and dry firewood to cover the clay pots, then set it on fire. See Figure 5 below;



**Figure 6:** Arrangement of pots in the open kiln

- (v) Proceed to add firewood and dry leaves until the pots are completely fired;
- (vi) Wait until the fire is extinguished and the pots cool down;
- (vii) Remove the pots from the firing area and clean the ashes using a cotton cloth; and
- (viii) Decorate the pots by drawing different motifs as shown in Figure 7. Then paint them using small flat painting brushes. This is the second stage of pot decoration.



**Figure 7:** A clay pot decorated with oil colour motifs





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### Storage of fired pots

Clay modelled pots which have already been fired are stored after being cooled. There are various reasons why pots are stored. Such reasons are to:

- (a) Protect them so that they do not get cracks or broken;
- (b) Protect them against dirt;
- (c) Make them safe for transportation; and
- (d) Make them last for a long time.

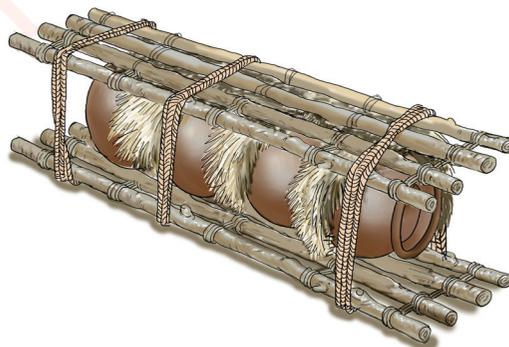
Fired and cooled clay pots can be stored in various ways as follows:

1. Sit it on a round grass pad as seen in Figure 8. A round grass pad prevents a pot from rolling and breaking.



**Figure 8:** A clay pot sat on a round pad

2. Put in the boxes or bamboo baskets rounded up using soft material such as dry leaves so as to prevent them from breaking.
3. Hold them inside a wooden frame in which they are separated by soft materials so as to prevent them from knocking each other and break as seen in Figure 9.



**Figure 9:** A wooden frame for clay pot holding and transportation





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4. Arrange clay pots in a pyramid format as seen in Figure 10. In this arrangement, large and heavy pots are put at the bottom while small and light ones are put at the top. The bottom lines hold more pots than the top lines. This arrangement is designed to protect clay pots from sliding and falling down. Moreover, the small pots will not slide and break due to instability.



**Figure 10:** Pots arranged in a pyramid format

**Cleanliness of the working area:** The area where work is done becomes dirty or destroyed. Therefore, it must be cleaned and reorganized properly. In clay modelling and firing tasks, the following activities should be done:

- (a) Putting off fire in the kiln;
- (b) Collecting ashes and burying them;
- (c) Cleaning leftovers and burying them; and
- (d) Filling up and leveling the holes from which clay soil was obtained and where the kiln was set.



### Activity 3

1. Draw a well decorated flower pot with some planted flowers inside it.
2. Compose a traditional poem in five stanzas about how to store flower pots.
3. Recite the poem in class using the melody of your choice, then discuss with other pupils.
4. Some people have no interest in the ceramic career because it is dirty in nature. What is your opinion?





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## Exercise

### Section A

**Write True for a correct statement and False for an incorrect statement.**

1. Clay is the only material used for modelling. \_\_\_\_\_
2. After a clay flower pot has been fired, it can be decorated using the incising method. \_\_\_\_\_
3. A paper pulp is a modelling material. \_\_\_\_\_
4. A mould is a pottery firing material. \_\_\_\_\_
5. Modelling clay is filtered so as to remove garbage. \_\_\_\_\_
6. The flower pot is painted before drying. \_\_\_\_\_
7. For safe transportation, pots are arranged in a pyramid format. \_\_\_\_\_
8. You can decorate a pot before and after a firing process. \_\_\_\_\_
9. Clay is stored in a nylon bag or plastic bucket so as to conserve plasticity. \_\_\_\_\_
10. Modelled objects are fired using very high fired charcoal in an open kiln. \_\_\_\_\_

### Section B:

**Answer the following questions.**

1. What is the meaning and advantage of mould in modelling?
2. Clay containers are being decorated in phases. What are these phases?
3. Why are thin firewood and dry leaves more useful in firing modelling objects?
4. Why is it necessary to fire clay modelled objects?
5. Which methods are used for making clay pots?
6. What is the difference between an open and closed or interior kiln?





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## Vocabulary

Ceramic	the art of clay modelling.
Engraving	to cut letters, symbols and motifs on surfaces like clay, wood, metal and rubber.
Imprinting	to print or press a mark or design onto a surface like plastic clay.
Incising	mark or decorate (an object or surface) with cut or cuts.
Mortar	a mixture of sand, water and cement used for modelling and construction.

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## Chapter Seven

### Photography

#### Introduction

*In Standard Six, you learnt about collage making using various materials. You learnt also to prepare a stripped frame and paste it on a picture. In this chapter you will learn about taking attractive still photographs that express messages. The gained competencies will enable you to take photographs for business purposes. In doing so, you will be able to beautify the environment, get self-employed and earn an income.*

#### Taking photos



Discuss in a group

Things you should know about photography.

Taking photographs is an action which involves using a camera to record the image of an object. A camera is a machine which is capable of copying images of objects and serving them in a shadow form. Later on, this shadow is printed on a paper using a special picture printing machine. Similarly, tablet PC, computer and some of the mobile phones have cameras which are also used for taking photographs.

There are two types of pictures that can be produced using a camera. These are still photographs and motion pictures. Still photographs are those that do not have motions. For example, those found in books, newspapers, posters, printed billboards and on walls. These photographs can also be seen in packaging materials, car bodies, clothes and in various decorations. Motion pictures are those that have motion. Examples of motion pictures are television pictures, videos, cinema and electronic billboards.

#### Taking still photographs

Still photographs have various uses depending on the purpose for taking them. For example, they are used for business purposes. Photographs taken for business purposes must attract the audience or customers so that they can buy them. In our environment, there are objects, living things, and attractive events for still picture photographing. The objects, living



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things and interesting events have various specific characteristics such as specialty, uniqueness, exciting sites and extraordinary objects.

The following are examples of interesting still photographs and their unique features:

**(a) The Kilimanjaro mountain (Tanzania)**

- (i) It has a unique characteristic, since it is the highest mountain in Africa.
- (ii) It has snow on its peak, which is uncommon in the tropical areas.
- (iii) Historically, it emerged as a result of a volcanic eruption that took place many years ago.
- (iv) It is selected and recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a world heritage site.
- (v) Many photographs are taken from this mountain.



Source: <https://images.app.goo.gl/Hq9rxG1Xiwa959ap>

**Figure 1:** Kilimanjaro Mountain in Kilimanjaro Region

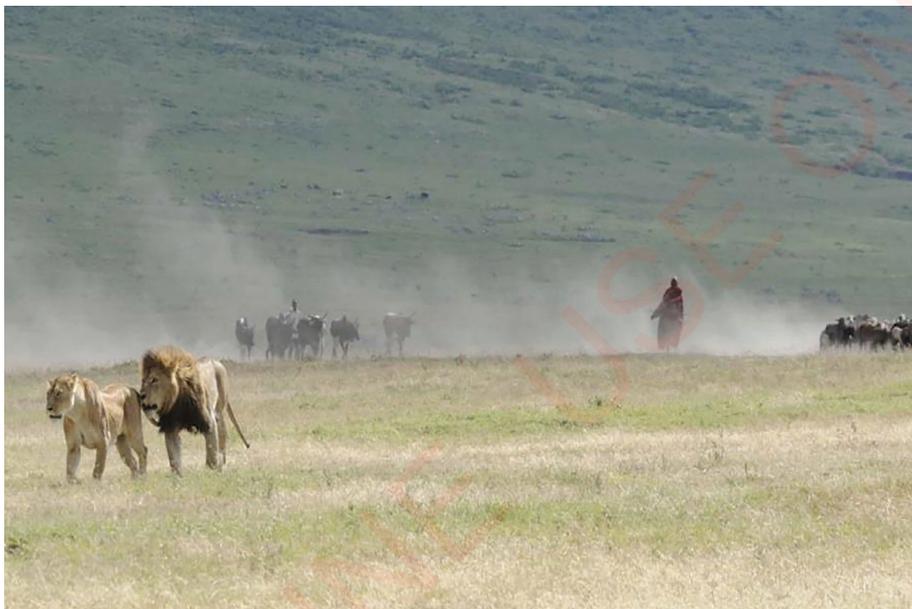




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**(b) The Ngorongoro crater (Tanzania)**

- (i) It is a very large hole on the top of a volcano known as Caldera.
- (ii) Animals cannot get out of it due to its nature.
- (iii) Animals and human beings live together in this wonderful crater.
- (iv) The United Nations Educational, Scientific and Cultural Organization (UNESCO) recognizes it as a world heritage site.
- (v) This area is widely advertised all over the world through literature and photographic media.



Source: <https://images.app.goo.gl/nN8XhT1GgAfCn4SGA>

**Figure 2:** Ngorongoro Crater in Manyara Region

**(c) Animal migration between Serengeti (Tanzania) and Masai Mara (Kenya)**

- (i) It is a remarkable event attracting tourists from various parts of the world.
- (ii) Wildebeests' migration is unique and the largest in the world involving two countries.
- (iii) Many still photographs and videos are captured to record the event.
- (iv) The migration is publicized all-over the world.





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Source: <https://images.app.goo.gl/vMdJ3mboRCHqPqhMA>

**Figure 3:** *Wildebeests migration in Serengeti and Masai Mara*

**(d) The Nyerere Bridge (Tanzania)**

- (i) It is a long and attractive bridge in Dar es Salam City that crosses part of the Indian Ocean.
- (ii) It is attractive and many people pose there to take photographs under permission.
- (iii) It is named after the late Mwl. Julius Kambarage Nyerere who is the Father of the Nation.



Source: <https://images.app.goo.gl/DAMjRNNgU5cMtn4q8>

**Figure 4:** *Nyerere Bridge in Dar es Salaam City*





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**(e) The Askari monument (Tanzania)**

- (i) It carries historical memories of soldiers who participated and died in the World War I. The Askari monument was built in 1927.
- (ii) It is a tourist attraction for both residents and visitors to Dar es Salaam City.



Source: <https://images.app.goo.gl/MrvR3Tc5V7DVQGN19>

**Figure 5:** Askari Monument in Dar es Salaam City

**(f) The Uhuru Tower (Tanzania)**

- (i) It carries memories of Tanganyika's independence in 1961.
- (ii) It is a place for commemorating the hero's Day in Tanzania.
- (iii) It is a tourist attraction for both residents and visitors to Dar es Salaam City.





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Source: <https://www.google.com/images?imgurl>

**Figure 6:** *Uhuru Tower at Mnazi Mmoja Dar es Salaam*

**(g) The Taj Mahal (India)**

- (i) It is an old mausoleum built between 1631 and 1648.
- (ii) It is a well-kept building with richly decorated walls.
- (iii) It is a place that attracts tourists.
- (iv) The monument has been publicized all over the world.
- (v) It is recognized as a world heritage site by the United Nations Educational, Scientific and Cultural Organization (UNESCO).





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Source: <https://images.app.goo.gl/kk8mQzwjvke4WZR07>

**Figure 7:** *Taj Mahal building in India*

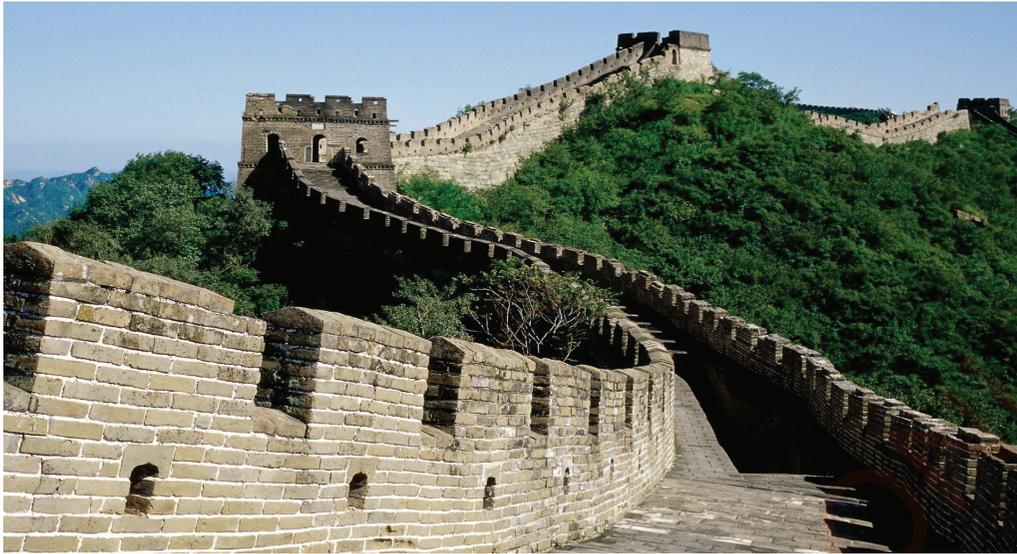
**(h) The great wall in China**

- (i) It is one of the World seven wonders.
- (ii) Historically, it was the main fortress against Chinese enemies.
- (iii) It is a tourist attraction.
- (iv) Many people take photographs at this site.
- (v) It is a World heritage area recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO).
- (vi) It is the longest wall in the world.





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Source: <https://images.app.goo.gl/ptjY454pbjSxvCkU8>

**Figure 8:** Part of the Great Wall of China

**(i) Mountains and valleys, gardens, ocean shores, rivers and lakes**

These areas have attractive landscapes that qualify for photograph taking. Apart from objects, living things and attractive landscapes, there are also attractive events for photography. The attractiveness of these sites include the following:

- (i) Rising and setting of the sun;
- (ii) Solar and Lunar eclipses;
- (iii) Volcanic eruption like that of Oldonyo Lengai in Arusha; and
- (iv) Gatherings of people in sports, festivals, weddings and other social events.



**Activity 1**

Find different attractive photographs from your environment. Then present them in class for discussion. The discussion should provide answers to the following questions.

- (a) What does the photograph represent?
- (b) What are the unique features that make the photograph attractive?
- (c) Describe the benefits of that photograph.



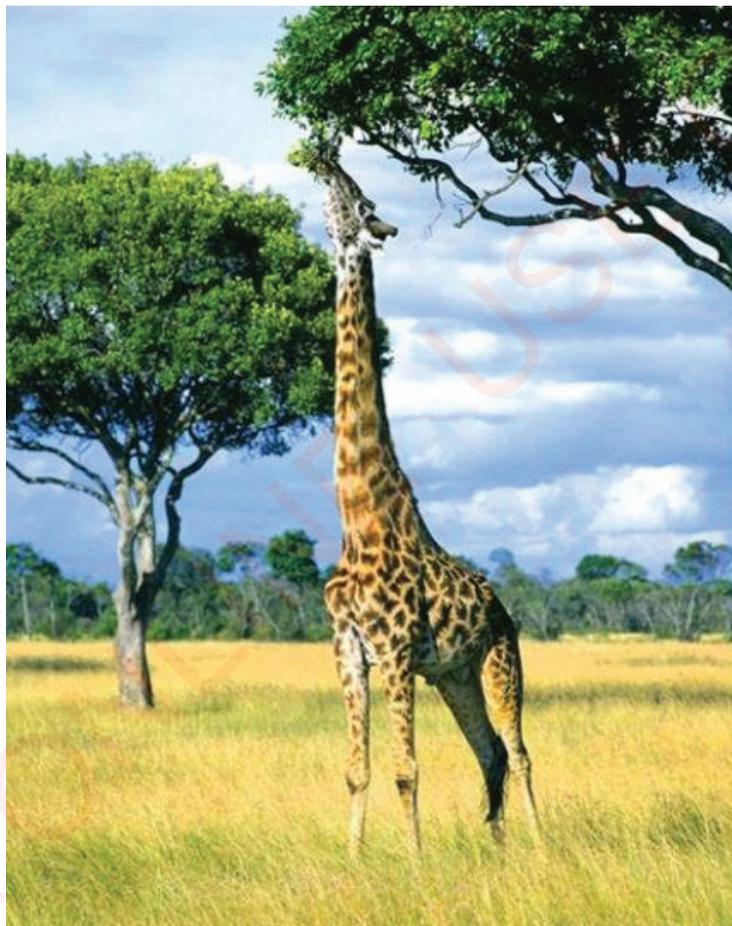


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### Procedures for taking still photographs

Everything in life is done according to certain procedures. The procedures are helpful in coming up with photographs that are good to look at. Failure to observe procedures makes the photographs become irregular. The procedures are as follows:

1. Match the frame with the figure of the object photographed. The object can be in a vertical (portrait) view or a horizontal (landscape) view. Those characteristics determine the way the picture frame can be placed. Look at an example in Figure 9 to see a photograph in a vertical position and Figure 9 in a horizontal position.



Source: <https://images.app.goo.gl/ELhyxkgFUdijnwDYE8>

**Figure 9:** A vertical photograph (Portrait View)





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Source: <https://images.app.goo.gl/nDMbgHEosfQ4BM3PA>

**Figure 10:** Horizontal Photograph (Landscape View)

2. Normally, the object photographed should face the sun. The sun should be at the back of the photographer. The camera position should not be against the sun. It should not face the sun, as it may distort the photograph.
3. Weather can affect light in the process of photography. Therefore, the camera should be adjusted to fit the particular weather light for the purpose of getting a good photograph. There are four kinds of weather in photographing: normal light, sunny, cloudy and night period.
4. A photograph should cover the frame in a camera. It is a professional advice that a good photograph should cover the whole frame well.
5. The object should spread out well in the frame so that the photograph can be balanced. The photograph should not be based more on the left, right, top or down side of the frame.
6. Align the photograph by adjusting the focus of the camera until the photograph has a clear image.



### Activity 2

1. Observe and identify areas that are attractive for taking still photographs in your environment.
2. Discuss the attractive features found in those areas.
3. Write a report about the assignment and present it in class for discussion.



### A Digital camera

Still photographs are often taken using a digital camera. Therefore, it is important to know parts of a digital camera as shown in Figure 11 (a) and (b).

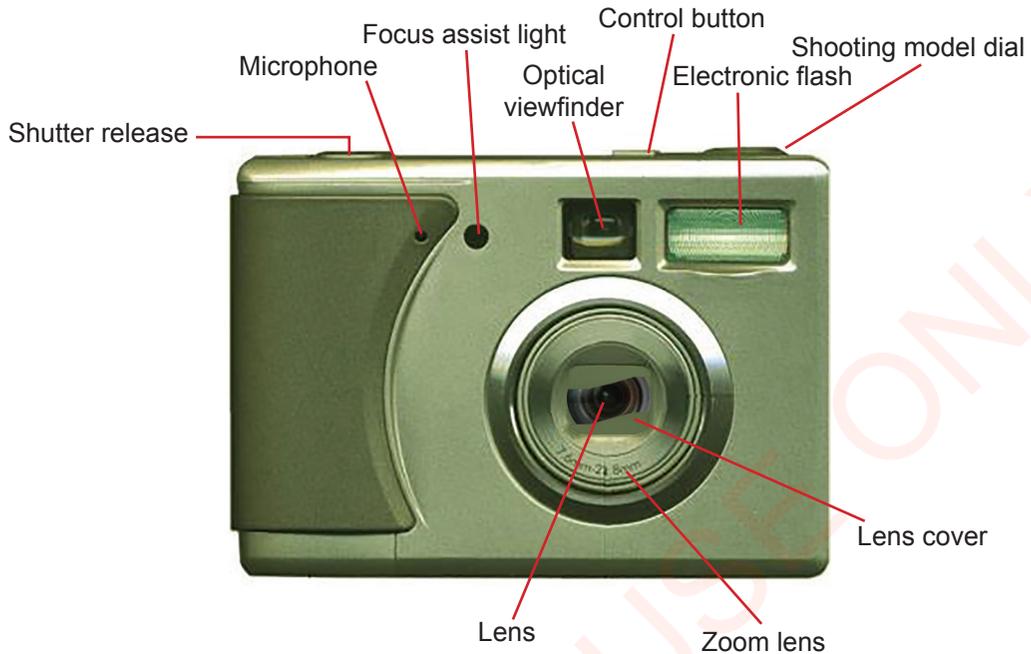


Figure 11 (a): The front part of a digital Camera

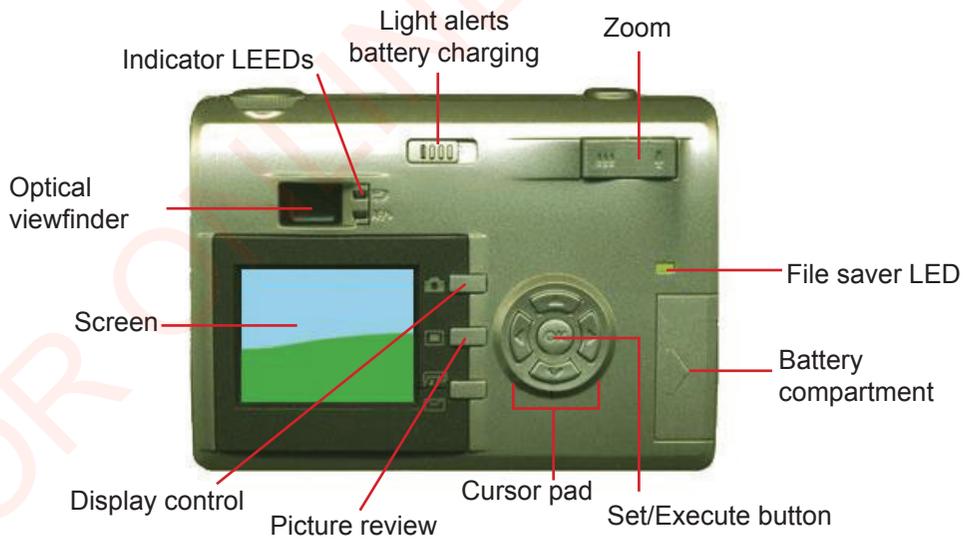


Figure 11 (b): The back part of a digital camera



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The table below shows parts of a digital camera and their functions.

**Table 1: Parts of a camera and their functions**

Name of the camera part	Function
<b>Front part of the camera</b>	
Shutter release	pressed so as to make the opening and closing of the shutter to allow light through the lens
Microphone	records sound
Focus assist light	helps to illuminate where light is low
Optical viewfinder	viewing point used for taking a picture
Control button	adjusts functions of a camera
Electronic flash	adds light of the projected object
Shooting model dial	equalizes or adjusts the pictures appearance
Lens	a glass which allows light inside a camera
Lens cover	protects lens from scratches and dust
Zoom lens	adds or minimizes a picture's size
<b>Back part of the camera</b>	
Indicator LEEDs	shows if a camera is working or not
Light alerts battery charging	shows a battery's status if it receives power
File saver (LED)	preserves picture files
Screen	sights, balances and corrects a targeted picture. It shows a picture before and after shooting
Display control	equalizes and calculates pictures
Picture review	verifies a picture
Cursor pad	adjusts a camera
Set/Execute button	indicates functions of a camera
Battery compartment	contains the cells that power a camera
Zoom	adjusts the lens so that the image seems bigger and closer or smaller and farther





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### Steps in taking still photographs

The following are steps in taking still photographs using a camera:

- (i) Open the camera lens;
- (ii) Adjust the camera lens depending on the nature of the light;
- (iii) Focus on the object to be photographed;
- (iv) Look at the camera screen to see the object to be photographed;
- (v) Adjust the camera in order to appropriately fit the image in a screen or frame;
- (vi) Click the shutter release;
- (vii) Look at the screen to see how the image has been captured and make corrections if required;
- (viii) Look at the camera picture counting button to see the number of the recorded picture;
- (ix) Save the picture; and
- (x) Print a copy of the picture at a picture printing studio.

**Note:** Digital camera pictures are preserved in a special memory card. The card can be inserted in a computer that has been connected to a printer for printing. If there is no computer, the card should be sent to a special picture printing studio for printing.



#### Activity 3

Form a group of six pupils and do the following:

1. Take photographs of attractive areas you have identified following the steps in taking still photographs.
2. Prepare and exhibit the photographs in class for discussion and improvement.
3. Write a report on the advantages and challenges of each activity.

**Ethics in taking photographs for business purposes:** As it is with other careers, photography has its own ethics that need to be observed. The ethics protect and develop professionalism of this career. Some of these ethics are listed below:





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1. Do not take photographs in prohibited areas and infrastructures;
2. Do not take a photograph of a person without permission;
3. Seek a permit before taking photographs, especially on public and official areas;
4. Do not add your own content in the areas and infrastructures in which you have been allowed to take photographs;
5. Do not share photographs of areas and infrastructures which you have been allowed to take without permission from a responsible authority;
6. Pay tax to the responsible authority;
7. Do not write fake names of people, areas or infrastructures photographed; and
8. Do not take photographs that are against community morals.

### Uses of photographs

People buy photographs for various uses. Some of the uses include the following: educating, preserving memories, informing, entertaining, decorating, promoting and being a business commodity. Still photographs can be set on walls or in an album. The following table shows examples of wall photographs and reasons for displaying them there.

**Table 2: Types of wall photographs and the reasons for their selection.**

Photograph	Reason
A president's photograph	shows administration or supremacy
A photograph of a father of a nation	memory
A photograph of a landscape	decorates, to promote tourist centre
A photograph of an interesting seashore	attracts visitors, to decorate the area
A wedding photograph	memory, decoration
Fruits and diets photographs	reinforce desire for food, decoration
Photographs of hair styles	motivate selection of shaving and hair plaiting styles
Photographs of textile fashions	promote clothes purchasing, to promote new styles
A group photograph of traditional dances	displays a certain culture and self-promotion





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### Preservation of still photographs

To preserve still photographs means taking care of them so that they will not be damaged by any means. Among the ways of preserving photographs is putting them in a frame. A frame is a tool which preserves wall photographs. Making photograph frames considers recommended measurements. There are photograph frame measurements which are considered internationally. Centimetre measurements are as follows: 8x7, 8x10, 8.5x11, 11x14, 16x20 and 24x36. The 24x36 cm size is more useful in wall photographs. You can make your own frame, buy it from a shop or from a dedicated frame maker. Photographs can be set in a frame for various uses or printed in a postcard form for sale.

Other ways of preserving photographs include putting them in an envelope, box or an album and preserving them electronically, for example, in a computer, mobile phone or internet.

If photographs are not well preserved, they can be damaged by different means such as stated below:

- (a) Burned by fire;
- (b) Spoiled by liquids;
- (c) Be scratched;
- (d) Get stained;
- (e) Be torn;
- (f) Be damaged by animals or insects such as white ants;
- (g) Be folded wrongly; and
- (h) To fade colour because of sunlight.



#### Activity 4

Make the following tools for preserving still photographs.

1. Use strong paper for making an envelope.
2. In groups, use hard paper to make a box suitable for preserving photographs.
3. In groups, use hard paper and nylon material to make a suitable album with nylon pockets useful for preserving photographs.





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## Exercise

### Section A

Write True for a correct statement and False for an incorrect statement.

1. Sometimes motion pictures are known as still photographs. \_\_\_\_\_
2. Still photographs are imaginative pictures and motion pictures are real pictures. \_\_\_\_\_
3. One of a photograph's function is to express people's culture. \_\_\_\_\_
4. Sending someone's photograph in social-media does not need permission. \_\_\_\_\_
5. Balancing of a photograph in a frame means the hanger of a photograph be at the centre. \_\_\_\_\_
6. A photographer is not supposed to face the sun while taking a photograph. \_\_\_\_\_
7. The function of a screen is to enlarge a picture inside a camera. \_\_\_\_\_
8. Light weather leads to an adjustment of a shutter of a camera. \_\_\_\_\_

### Section B

Answer the following questions.

1. Which five procedures must a photographer consider for a quality photograph?
2. What does 'frame' in a photograph mean?
3. What does 'balance' in a photograph mean?
4. What is the difference between a still photograph and a motion picture?
5. Which weather affects the appearance of a photograph during shooting?
6. What is the importance of photographs in our lives?





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## Vocabulary

Caldera	is a large depression formed when a volcano erupts and collapses
Crater	a large hole in the ground made by a volcano.
Tablet PC	is a portable computer that uses a touchscreen as its primary input device. Most tablets are slightly smaller and weigh less.
Landscape view	in a landscape view, the photograph appears in a horizontal view
Mausoleum	a large stone building made specially to contain the body of a dead person or dead bodies of an important family
Portrait view	in a portrait view, the photograph appears in a vertical view



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## Chapter Eight

### Screen printing

#### Introduction

*In Standard Six, you learnt about stencil printing and block printing. In this chapter you will learn printing using a screen. The gained competencies will enable you to print various pictures and decorations. Pictures and decorations will help you to earn an income and contribute to the national economy.*

#### Printing



#### Think

1. The specific characteristics of block and stencil printing.
2. Three types of motifs.
3. The relationship between a motif and a pattern.
4. Five printed objects found in your environment.
5. Stages of carving a motif.

#### Screen printing

This is a technique of printing using a screen on a frame. This kind of technique uses different tools. The tools and their uses are shown in the table below.

**Table: Screen printing tools and their uses**

Tool	Function
Screen frame	holds a screen and a stencil
Colour	paints on a printing paper
Squeegee	spreads and forces colour penetration into a screen and a stencil to the printing surface
Masking tape	holds a stencil to the frame
Hard nylon paper	cuts a stencil

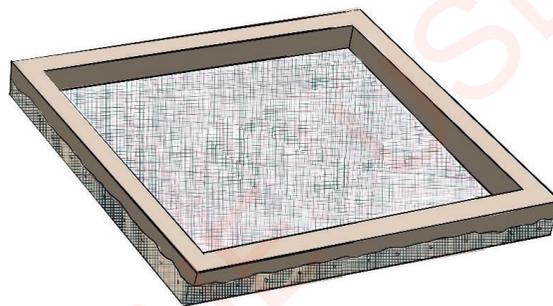


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Printing paper	holds prints and pictures
Razor blade and trimming knives	cuts a paper and a stencil
Newspapers	cover a table to bring smoothness and to protect a table from being stained with colour
Water	for cleaning
Kerosene	removes colour stain from the tools
Piece of cotton cloth	rubbing and drying printing tools
Soap	washing hands
Apron	to protect cloth from colour stains
Table	holds printing work

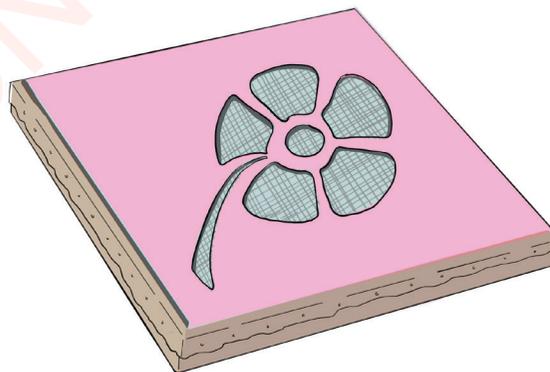
**Note:** An apron can be improvised using nylon paper or a plastic bag

A 4 screen frame is a type of tool like a flour sieve as in Figure 1.



**Figure 1:** Screen frame

Behind a sieve is where a stencil is attached as seen in Figure 2.



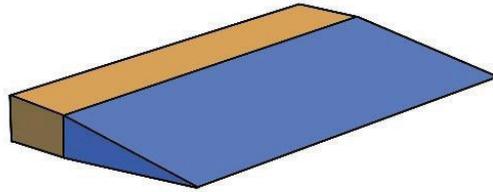
**Figure 2:** Stencil attached behind a frame





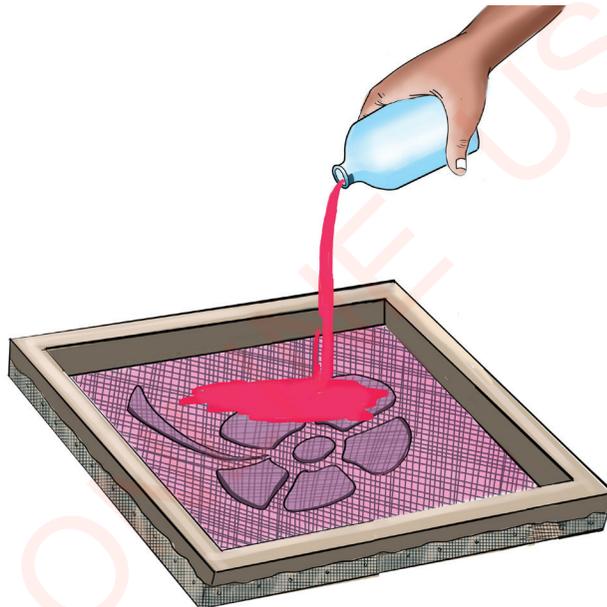
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A stencil has designed motifs, shapes or pictures that have been cut on it. The function of a stencil is to allow colour to penetrate through opened spaces and prevent it on blocked parts. A screen printing frame is accomplished by a wide piece of rubber used to spread paints in the screen frame. This piece of rubber is called a squeegee. See Figure 3.



**Figure 3:** A squeegee

Screen printing begins by putting colour inside the frame as shown in Figure 4.



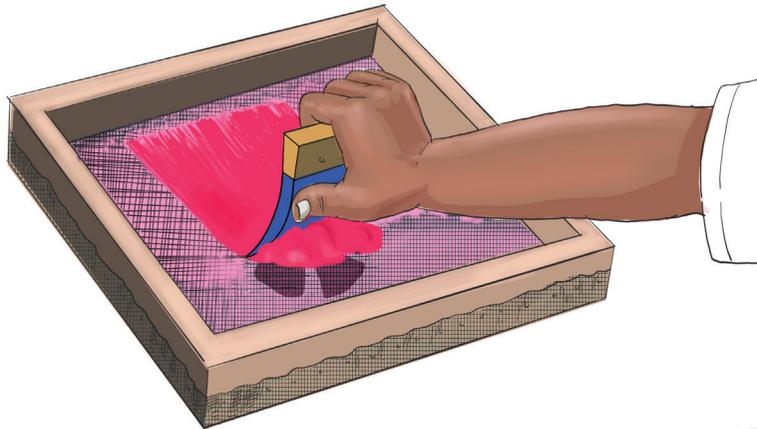
**Figure 4:** To set colour in a screen frame

The colour is pressed and spread by squeegee so as to penetrate through screen opening areas as shown in Figure 5.





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**Figure 5:** Spreading and pressing the colour inside the screen

The colour penetrates through the screen and stencil to the printing surface (paper) and makes a print on it as seen in Figure 6.



**Figure 6:** Printed paper on the table

**Advantages of screen printing:** Screen printing has the following advantages:

- (a) It simplifies work;
- (b) It duplicates many and similar copies;
- (c) It reduces working hours;





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- (d) Screen frame lasts long before it is worn out;
- (e) It creates employment opportunities; and
- (f) It is possible to duplicate copies of the same size.



### Activity 1

1. Make a display of screen printing items that are brought in class and explain their functions.
2. Make an apron using materials found in your environment.
3. Organize a display and discussion on aprons made.

**Screen printing preparation:** In order for the screen printing exercise to be done, the following preparations are important:

- (a) A screen frame;
- (b) A stencil for the intended shapes. The stencil size should match the frame size;
- (c) A squeegee;
- (d) Newspapers for laying on the table;
- (e) Assorted colours, kerosene oil, hard printing sheets of papers and a cotton cloth;
- (f) An apron for protecting clothes from colour stains;
- (g) A table or printing area;
- (h) A shade for drying out printed works; and
- (i) Items for preserving printed work.

**Points to observe during screen printing:** Some of the points to consider during screen printing:

- (a) It is important to observe cleanliness during printing, otherwise printed works will be stained with colour;
- (b) Wait until the first coat of colour dries up before printing another coat; this is because wet colours have a tendency of mixing up hence resulting into another different colour;





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- (c) Do not dry a printed paper in the sun. This is because the sun bleaches and causes the paper to be folded;
- (d) Do not dry printed paper by piling it on another printed paper. This will cause the printed one to stain other printed papers;
- (e) Do not put a wet printed paper into a paper bag; and
- (f) When printing, your hands and working tools should always be clean.

**Steps to be followed in screen printing:** The following are steps in screen printing:

- (i) Attach a stencil on a frame, hold it by a masking tape;
- (ii) Place a plain paper for printing on the printing table;
- (iii) Place a screen frame properly on the printing paper;
- (iv) Put colour inside the screen frame;
- (v) Spread the colour using a squeegee correctly;
- (vi) Remove the screen frame from the printed paper. Proceed with printing on new paper with the same colour. If there is a need of changing the colour, clean the screen and stencil; then dry them under the sun or with a cotton cloth; then proceed with the exercise;
- (vii) Place wet printed paper in the shade to dry;
- (viii) Store dry printed products in a proper place like in envelopes, albums, or leather bags;
- (ix) Place a ribbon on the frame for decoration purpose;
- (x) Clean tools and the working area; and
- (xi) Wash hands with kerosene oil, then, with water and soap.



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## Activity 2

There is an academic exhibition at school. The Department of Mathematics has requested Vocational Skills pupils to design a billboard showing six different geometrical shapes. In groups, use the following procedures to attempt this exercise:

- (a) Explain steps required to carry out that task.
- (b) Print six geometric shapes in different colours of your choice using the screen printing method.
- (c) Display and conduct discussion on the prints.
- (d) Discuss challenges you experienced when making the prints and the way you solved them.

## Exercise

### Section A

**Write True for a correct statement and False for an incorrect statement.**

1. Screen printing uses screen, a stencil and a brush. \_\_\_\_\_
2. The process of printing using a screen means printing through a screen. \_\_\_\_\_
3. Screen is a kind of printing colours. \_\_\_\_\_
4. Colour for printing using the screen technique is painted on hollow spaces of a stencil. \_\_\_\_\_
5. When printing using a screen, the screen frame is laid on the printing paper. \_\_\_\_\_
6. A brush is used for painting on a screen printing frame. \_\_\_\_\_
7. In a screen printing process, a stencil is attached behind the screen. \_\_\_\_\_
8. Neatness of the person who makes printing is the most important thing to consider while printing. \_\_\_\_\_





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9. Using water only to wash hands is done after the printing process.  
\_\_\_\_\_
10. In order to print a picture, a frame is laid on a printing paper. \_\_\_\_\_

### Section B

**Answer the following questions.**

1. Do you like screen printing? Give reasons for your answer.
2. What are the advantages of screen printing?
3. Compare and contrast printing using a screen and a stencil?
4. Why does screen printing use a stencil?
5. What are the important points to consider in screen printing?

### Vocabulary

Apron	a piece of clothing put on top of other clothes to protect them from dirt
Screen	a type of net formed using thin threads





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## Chapter Nine

### Crop production

#### Introduction

*In Standard Six, you learnt how to participate in debates and explore ways of building capacity in entrepreneurial activities. In this chapter, you will learn about the principles of crop production. The gained competencies will enable you to produce high quality crop products for home consumption and income generation.*

#### Crop Products



#### Think

1. The meaning of crop products.
2. Importance of crop production.

Crop products are different harvests obtained from different crop plants. There are crop plants which produce cereals (grains), roots, legumes (pulses), oil seeds, fruits, vegetables, spices and those that are used to make different beverages like tea, coffee and cocoa. Other crop plants produce fibres, ornaments, timber and poles for construction purposes. Figure 1 shows some of the crop plants. Crop production is the act of growing crop plants and harvesting their products. It includes other processes like preparation, storage and selling the crop products.

There are different crop products produced from crop plants. Some of these are regarded as main crop products while others are by-products. The main crop products are those which a farmer aims to produce while by-products are obtained when processing the main crop products. For example, for paddy, rice is the main crop product while rice bran and husks are by-products. Rice bran is used to feed animals while rice husks are normally used as litters (bedding materials) in livestock houses. Sometimes they are used as a source of fuel. A farmer may decide either to use both main and by-products for home consumption or sell them to earn income. In order to get high crop yields, a farmer is supposed to follow certain principles and practices of crop production.



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Bulrush millet



Pigeon peas



Cashew nuts



Sunflower



Simsim



Grapes



Palm



Cotton



Pyrethrum



Tea



Coffee



Wheat

Source: [https://www.kilimo.go.tz/uploads/dasip/mwongozo\\_uzalishaji\\_mazao-crop\\_guideline-Tanzania-04july2017.pdf](https://www.kilimo.go.tz/uploads/dasip/mwongozo_uzalishaji_mazao-crop_guideline-Tanzania-04july2017.pdf)

**Figure 1:** Some crops grown in Tanzania





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## Principles of crop production



### Discuss in groups

The principles applied in crop production.

Crops are grown by following certain key principles. These principles enable a farmer to produce high standard products which can be sold at relatively high and profitable prices. The following are the sixteen general principles of crop production.

### 1. Planning for crop production

Before starting to produce any crop, it is very important to plan properly on the best use of production resources such as land, capital and labour. This will enable you to get high yields in a cost-effective manner. Thus, before engaging in any crop production enterprise, you have to ask yourself and find answers to the following five basic questions:

- (a) What do you plan to produce?
- (b) How much do you plan to produce?
- (c) How do you plan to produce?
- (d) Where and when are you going to buy agricultural inputs?
- (e) Where and when are you going to sell the crop products?

To get answers to the above questions, you have to find information from different sources. Next, you have to analyze and evaluate that information and finally make a correct decision. It is also important to seek advice from agricultural extension officers. These are experts specialized in crop and animal production. The experts are well trained to advise and work with farmers. Thus, it is very important to seek advice at every stage of production. That is from planning, land clearing, cultivating, planting, crop managing, harvesting, and processing as well as storing and or selling. When planning for any crop production, a farmer as an agricultural entrepreneur, is supposed to do the following:

- (a) Prepare a budget showing the expected expenditure and income to be gained;
- (b) Prepare a schedule of activities. This is a calendar showing systematically all activities involved in crop production. For example, the calendar should show dates of buying inputs, cultivating, planting,



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weeding, application of pesticides, watering, harvesting, grading and selling or storing the crop products; and

- (c) Identify and forecast all possible challenges relating to production management and finding means of tackling them. The challenges may include emergence of diseases and pests; a rise in prices of inputs and/or a fall in price of crop products.

### **2. Records keeping and usage**

As an agricultural entrepreneur, it is very important to keep production and financial records and use the information accordingly to improve crop production. The recorded information will help you to do the following:

- (a) Have data about the previous production;
- (b) Plan and manage your farm easily and efficiently;
- (c) Know whether you are getting a loss or a profit in your production;
- (d) Get a loan from financial institutions which provide loans for agricultural activities; and
- (e) Pay income tax accordingly and correctly after selling your crop products.

Types of records and important information required in crop production include the following records:

- (a) Farm inputs and implements;
- (b) Farm daily activities;
- (c) Crop yields and sales; and
- (d) Income gains and expenditure.

### **3. Proper selection of suitable crops**

In order to earn extra income from selling your crop products, it is important to select profitable and marketable crops. Different crops have different characteristics and environmental requirements to enable them to grow well. The guideline on crop production with respect to agro-ecological zones can provide you with some useful information when selecting suitable crops to grow in different agricultural zones in Tanzania.

### **4. Selecting a proper system of crop production**

There are two different ways of growing crops in a farm. One way is to grow a single crop in a field. This system is called mono-cropping. The





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other way is to grow a combination of more than one crop at the same time in the same field. This system is called inter-cropping. The selection of which system a farmer wants to use will depend on the aim of producing a particular crop and the availability of resources such as size of land, financial capital and labour.

### **5. Selection of suitable land for crop production**

You are supposed to choose an area of crop production basing on the following three basic factors: These are the type and nature of soil, temperature and the altitude or elevation of an area. Normally, altitude influences the temperature of an area and hence, decision of what crop to grow. Therefore, the crop to be grown should match with the type of soil, altitude and temperature of the selected area.

### **6. Timely and proper land preparation**

Timely preparation of a farm refers to the act of making a piece of land ready for planting at the right time. If your production will solely rely on rainfall, then your farm should be ready for planting before the beginning of the rainy season. This will enable you to plant your crops just as the first rains start. Generally, timely land preparation will depend on the location and condition of the farm, rain season and the farm implements you use. On the other hand, proper land preparation depends on the specific requirements of the crop and tools or implements to be used. For most crops, proper land preparation includes land clearing, cultivating and levelling the soil. Most of these farm activities are done using hand hoes, animal plough or tractors.

### **7. Selecting quality seeds for planting**

A seed is a unit of reproduction of a flowering plant or any plant part capable of developing into such a plant. It can be a grain (maize and bean), cuttings (cassava) and rhizomes/suckers (banana). A quality seed is the one which when planted, germinates without any problem and results into a healthy plant that can give high quality yields. Agricultural extension officers can assist you to get quality seeds from agricultural input shops or from certified seed producers or distributors. The officer can also advise you on how to prepare best seeds out of your own harvests for some of the crops.

### **8. Planting seeds at right time**

The right time for planting seeds depends on the length of the rainy season and the time a particular crop takes to mature. This means, from planting to harvesting time. Therefore, the right time here refers to the proper time that



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will enable seeds to get favourable growth conditions including sufficient moisture in the soil through rainfall or irrigation. Timely planting also refers to proper time that will reduce such negative effects like drought, diseases, and pests. Generally, the seeds planted at the right time are expected to germinate and grow to healthy plants, attain maturity and produce high yields.

### 9. Planting seeds at correct spacing

Basing on the type and variety of crop to be grown, each crop has its standard space between one plant and another. Thus, when planting your seeds or any other planting material, you should know exactly the required spacing of that particular crop. Correct spacing is important, as it enables each plant to get sufficient nutrients, moisture and sunlight. Sometimes, the number of plants on a given field exceeds the recommended one. In this case, thinning must be done to remove the extra plants. Thinning is the process of removing excessive plants on a given field. However, the process must be done with care to avoid harming the remaining plants. Only the weak and infected ones should be removed.

When you find out that some seeds did not germinate as required, re-plant other healthy seeds immediately; this process is called gap filling. Early replacement will allow the new plants to get all growth needs including sunlight.

### 10. Planting in rows

Apart from correct spacing, it is also recommended to plant seeds considering rows. This is very important for the following reasons:

- (a) It makes the farm look attractive with the correct number of plants per a given unit area (acre/hectare);
- (b) It is easy to weed using either hand hoes or machines;
- (c) It is easy to apply herbicides and insecticides for managing plant diseases and pests;
- (d) It makes the application of fertilizers and manure easy using hands or machines;
- (e) It simplifies the process of watering plants;
- (f) It simplifies the process of harvesting using hands or machines; and
- (g) It allows the planting of another compatible crop between rows of the main crop.

**Note:** Some crops like finger millet are not necessarily planted in rows



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## 11. Supplying nutrients and water to the plants

Crop plants need to be sufficiently supplied with nutrients and water according to their requirements. This enables the plants to grow well all the time.

**(a) Supplying nutrients:** In most cases, there are no sufficient nutrients in the soil for the plants' growth needs. Therefore, it is important to supplement the soil with either industrial fertilizers or organic manures. There are fertilizers which are applied during planting known as "planting fertilizers". On the other hand, there are fertilizers applied some weeks after seeds have germinated; these are known as "growing fertilizers". However, before deciding which fertilizer to apply, it is important that you seek advice from agricultural extension officers.

**(b) Supplying water:** Apart from nutrients, plants also need enough water for proper growth. In case there is insufficient rainfall, irrigation should be applied instead. Irrigation is the process of applying controlled amount of water to plants at needed intervals. There are different methods of irrigating crop plants based on the nature and type of the crop. Thus, you have to choose a method with respect to its efficiency, requirements of the crop, availability of water and financial capital. Figure 2 up to 6 shows some common methods used in crop irrigation.

- (i) *Irrigation using a bucket and a watering can:* With this method, a farmer fetches water using a bucket or a watering can and irrigates manually. This method is commonly used in gardens.



**Figure 2:** Irrigation using a bucket and a watering can





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- (ii) *Furrow Irrigation*: This is irrigation by digging water channels (furrows) which supply water in a farm.



Source: <https://images.app.goo.gl/ATL2tgdJrTSVERCv6>

**Figure 3:** *Furrow irrigation*

- (iii) *Flood Irrigation*: This is irrigation by allowing water to spread all over the farm.



Source: <https://images.app.goo.gl/FRjmrH4UiiUiMKfA9>

**Figure 4:** *Irrigation by flooding the farm*





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- (iv) *Sprinkler Irrigation*: Irrigation by applying water using overhead water devices. This method allows water to be distributed through a system of pipes usually by pumping water and spraying it to the plants through sprinklers.



Source: <https://images.app.goo.gl/WJRSSzTwTJ448hEq9>

**Figure 5:** *Sprinkler irrigation*

- (v) *Drip irrigation*: In using this method, narrow perforated water pipes are laid on the ground close to rows of the plants. These allow each individual plant to receive drops of water from the small holes of the pipe. This method is economical, since the tiny holes on the pipes moisten the specific places with plants only.



Source: <https://images.app.goo.gl/hqowovJeCnw3vCTb9>

**Figure 6:** *Drip irrigation*

**Note:** It should be noted that each method of irrigation has its advantages and disadvantages. Thus, seek advice from extension officers before you decide which method to use.





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## 12. Controlling weeds

A weed is a wild plant growing where it is not wanted. It prevents crops from growing properly. Weeds have negative effects, as they compete with the crop plants for soil nutrients and other important environmental requirements. In addition, weeds can attract and host some agents of diseases, insects and other animals that destroy our crops. Therefore, it is important that weeds should be controlled effectively. There are different ways of controlling weeds. These include timely weeding, applying herbicides, crop rotation, using cover crops and spreading dry grass and straws (mulches) in the crop field.

## 13. Controlling diseases and pests

Crop plants can be affected by disease causing agents and other destructive pests like insects, birds and animals. Therefore, it is important to control pests, since they can cause losses of crop quality and yields. Pests control may involve the use of appropriate pesticides. A pesticide is a chemical substance used to kill organisms that destroy crops. Moreover, pests control may involve the use of mechanical and biological means as advised by agricultural extension officers.

When your crops have been infected with disease, then the following measures should be taken:

- (a) Cut the infected part or uproot the whole plant, then burn it. This will prevent the disease from spreading to other healthy plants.
- (b) Correctly spray all plants with an appropriate pesticide as recommended by agricultural experts as shown in Figure 7; and
- (c) Seek advice from agricultural experts where necessary.

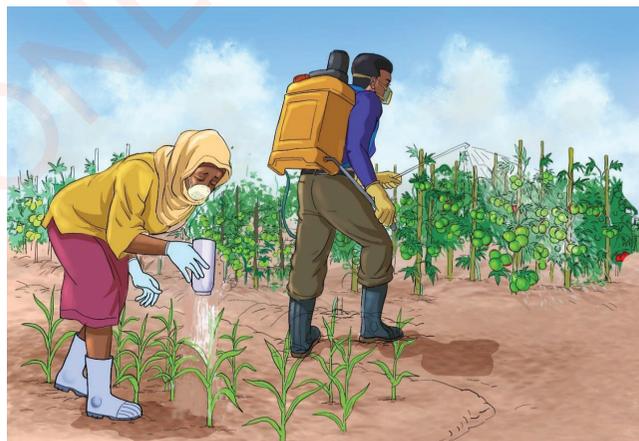


Figure 7: Spraying pesticides





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**Precaution!** Pesticides are harmful. When using different pesticides to control plant diseases and pests, remember to protect yourself by correctly putting on safety gears like masks, boots and gloves.

### **14. Providing other essential services to crop plants**

There are other essential services to the crop plants required at specific periods of crop production. The services include pruning certain parts of a plant such as branches, buds or roots. This is because some crop plants like oranges, coffee and guava can produce better yields with an optimum number of branches. When the number exceeds the optimum, the yield of a given crop is affected. The pruning process must be done timely and carefully by a skilled person.

Another important service is mulching. This is an act of covering a crop field with dry grass or straw materials (mulches). Mulching is common for long-term crops like coffee and some horticultural crops like fruits, vegetables and flowers. Mulching helps to conserve soil moisture by reducing evaporation of moisture from the soil. Besides conserving moisture, mulching prevents the growth of weeds, especially those with broad leaves. This also controls soil erosion.

### **15. Proper and timely harvesting**

The right time for harvesting crops depends on the aim of planting that particular crop and the nature of the crop. For example, maize can be grown for the purpose of either roasting or making flour. If it is for roasting, then, it must be harvested when it is fresh. But, if the intention is to get maize flour, it must be harvested when it is dry. It is very important to harvest the crop on time to maintain its quality and avoid losses due to rotting or pest damage.

The proper way of harvesting a particular crop will depend on the purpose of growing that particular crop, availability of harvesting tools and storage facilities, farm size, nature of the crop, season and the weather condition of a particular time.

### **16. Preparing crop products for storage and selling**

After the crop has been harvested, it should be prepared for either home use, sale, or storage. Preparation should include cleaning, grading and packaging the crop products according to the quality standards and demand of the market. Every kind of crop has its own way of harvesting, processing, selling or storing. A farmer can do some of the processes of crop preparation





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at home. However, other processes are done by cooperatives and crop processing industries. The harvests can be sold either at domestic or international markets. In order to avoid losses, it is important to make inquiries about markets and selling prices of the products even before starting production. Therefore, for an agricultural entrepreneur to be effective and efficient, she/he should always seek information and knowledge from different sources and experts.



### Activity

1. Visit your school farm or any other farm near your school. Observe how the principles of crop production you have learnt in class are being applied. Identify possible challenges the farm owner faces in applying the principles. Then, write a report and present it in class for discussion.
2. Visit a nearby market for crop products. Investigate the situation of the market and suggest what should be done to increase the profits made after the products are sold. Prepare a report on the main crop products you have observed with their respective prices to consumers. Present the report in class for discussion.
3. Work in groups to do the following assignment:
  - (a) Choose any crop or crops suitable to be produced in your school environment. Then, estimate the production costs and the profit you expect to get after selling the products;

**Note:** On choosing an appropriate crop(s) to produce, review the guideline for crop production as provided by the Ministry of Agriculture [https://www.kilimo.go.tz/uploads/dasip/mwongozo\\_uzalishaji\\_mazao-crop\\_guideline-Tanzania-04July2017.pdf](https://www.kilimo.go.tz/uploads/dasip/mwongozo_uzalishaji_mazao-crop_guideline-Tanzania-04July2017.pdf).

- (b) Predict challenges you are likely to face when producing the crops of your choice. Suggest how you are going to solve them;
- (c) By applying the principles you have learnt in class, prepare a production calendar and use it accordingly in the production of a crop of your choice in the school farm; and
- (d) Prepare a general report on all activities you undertook in the production of the crop of your choice from the stage of land preparation up to the selling or storing it. Present your report in class for discussion.





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## Exercise

### Section A

Choose the letter of the most correct answer and write it in the box provided.

- A farmer can provide nutrients to crop plants by \_\_\_\_\_.
  - preventing water from flowing to the plant
  - applying different types of organic manure and fertilizers
  - applying different types of pesticides
  - harvesting crops in time
- The right time for harvesting any crop product depends on \_\_\_\_\_.
  - the presence of much rain
  - the type and aim of growing a given crop
  - the size of the farm
  - the amount of fertilizer or organic manure applied in the farm
- One of the advantages of spreading dry grass or straws (mulches) in the crop field is \_\_\_\_\_.
  - to control the germination of weed seeds in the field
  - to make the farm look nice by removing branches
  - to enable the plants to produce many branches
  - to promote early germination of the plants
- Early weeding aims at \_\_\_\_\_.
  - preventing weeds from endangering the growth of crop plants
  - avoiding crop plants and weeds from becoming weak
  - preventing both crop plants and weeds from changing colour
  - preventing crop plants from endangering the growth of weeds
- One of the advantages of doing thinning in a crop field is to \_\_\_\_\_.
  - promote early maturity of the crop plants
  - reduce the number of plant roots
  - get healthy seedlings for re-planting purposes
  - avoid overcrowding of the crop plants





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## Section B

**Answer the following questions:**

1. What does preparing a farm at the right time and in a proper way mean?
2. What does the term quality seed mean?
3. What should a farmer do with the harvests before storage?
4. How many types of markets for plant crops are there? Identify them.
5. Why is it important to harvest crops at the right time?
6. What is the importance of planning before starting any crop production enterprise?
7. What are the important points to consider when planning for crop production?
8. What is the right time for planting crop seeds in the field?
9. What are the advantages of having information or keeping various records on crop production?

## Vocabulary

Agro-ecological zones	geographical areas, which have similar combinations of climate, soil characteristics and physical capabilities for agricultural productions
Pest	a destructive insect or other animal that attacks food crops and livestock
Pruning	selective removal of certain parts of a plant such as branches, buds or roots to make it grow better





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## Chapter Ten

### Livestock production

#### Introduction

In Standard Six, you learnt how to find new knowledge and skills in doing different entrepreneurial activities efficiently. In this chapter you will learn how to produce better livestock products using principles of livestock production. The gained competencies will enable you to produce high quality livestock products and increase profit.

#### Livestock products



#### Think

1. Meaning of Livestock.
2. Types of livestock kept in your area.

Livestock are animals domesticated by human beings for special purposes. The purposes include food, decoration, income generation, and labour. Animals can be domesticated on dry land or in water. Examples of animals kept on dry land are cattle, goats, chickens, sheep, rabbits and pigs. Fish are examples of animals kept in water. Livestock are domesticated for getting various animal products such as meat, milk, eggs, and wool. Other livestock are domesticated for special purposes such as cultivating the land and carrying luggage from one place to another. A high demand for livestock products both nationally and internationally, has opened more opportunity for livestock keepers. For instance, some people keep guinea fowls, quails, turkeys and geese while others keep bees and butterflies for income generation. This in turn, enables the country to get foreign currency when the products and by-products are sold outside the country. Figure 1 shows some of domesticated animals in Tanzania.



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Goats for meat



Dairy cow



Sheep for meat



Rabbits



Dairy goat



Guinea fowl



Geese



Broiler chicken



Layers chicken



Turkeys



A donkey with luggage



Oxen- pulling a load

Source: <https://www.legit.ng/1128720-classification-farm-animals-based-uses.html>

**Figure 1:** Some domesticated livestock in Tanzania

## Principles of livestock production



### Discuss in a group

The principles applied in livestock production.

The production of livestock follows different principles. These principles guide the livestock keeper to increase yields and produce high quality products.





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The following are eleven general principles of livestock production.

### 1. Planning for production

Planning for production enables a livestock keeper to think in advance on the best ways of using available resources. The resources include land, human labour and capital, depending on the type of livestock and livestock products you expect to produce. Therefore, during planning one should do the following things:

- (a) Prepare a budget for production;
- (b) Prepare a calendar of activities to be undertaken during production. For example, the date and time for purchasing inputs, the arrival of new animals, special management of livestock such as spraying pesticides, mating, vaccination, and harvesting;
- (c) Predict any challenges that may affect the day-to-day production activities and plan how to solve them. Challenges include outbreak of diseases, big price changes for livestock products and inputs; and
- (d) Seek advice from livestock experts on better ways of livestock production.

### 2. Record keeping and usage

There are many benefits of keeping and using records in any type of production as outlined in the previous chapter (see Principle number 2). Important types of records in the production of livestock product include the following:

- (a) Input and implements records;
- (b) Farm daily activities records;
- (c) Records on challenges facing an animal farm such as outbreaks of diseases and pests affecting animals;
- (d) Reproduction and animal growth records;
- (e) Yields, prices and selling records; and
- (f) Income and expenditure records.

### 3. Selection of a suitable type of livestock

If you decide to keep livestock, you should choose a proper type of animal (s) and an appropriate area of keeping them. When selecting a suitable livestock, consider a type of animal (s) which you can manage with relative minimal difficulties. It is advisable to keep animals which grow and mature quickly. When choosing the type of animal to keep, consider the following factors:





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- (a) Types of feeds required by the livestock you want to keep;
- (b) Common diseases and parasites that may affect the livestock and means of preventing and controlling them;
- (c) Customs, culture, beliefs and taboos of the community where you want to keep your animals;
- (d) The customers' preference and demand for the animal products you expect to produce; and
- (e) The capacity of your production area to accommodate a selected type of livestock.

### **4. Selection of suitable breeds of livestock**

Besides selecting an appropriate type of livestock it is also important to consider a suitable breed depending on the demand of the targeted product. When choosing a type and breed of livestock to keep, it is important to consider several factors. Some of these factors are listed below:

- (a) The purpose of keeping the livestock: There are different breeds of animals meant for specific purposes. For example, in case of cattle, breeds for meat cannot produce enough milk. In the case of chickens, breeds for meat are not suitable for eggs production although all are of the same type of animals; and
- (b) Adaptation of the breed to the environment: Some breeds cannot perform well in certain climatic conditions, for example, in very high or low temperature while others can. Therefore, select the type and breeds of livestock that can withstand the climatic conditions of your geographical area.

### **5. Selection of suitable system of keeping livestock**

There are different systems of livestock keeping. They are divided into three main groups. These are extensive, semi-intensive, and intensive systems. With an extensive system livestock are allowed to move freely to search for food and water. At certain times, normally in the evening, the animals are led to their shelter or enclosed area. For a semi-intensive system, animals are allowed to stay and feed in an enclosed area for some time and allowed to graze outside for a limited time. On the other hand, in an intensive system; the animals are confined and fed inside the enclosed area or shelter all the time. In this system, feeding facilities are provided inside the shelter as shown in Figure 2 below. This method of keeping animals, especially cattle, can be modified by having a fenced pasture field. The field is divided into portions called paddocks where animals are grazed rotationally. This allows growth of grass in ungrazed paddocks.





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Thus, the best system of keeping livestock among the three will depend on several things. These are types of animals, the purpose of keeping such animals and the size of land available. The others are the scale of production and availability of other resources such as financial and human resources. It is important to search for an appropriate system that suits your needs best, depending on the type of animal you have selected. You can consult extension officers for technical advice.



Source: <https://images.app.goo.gl/cMydCEfpYRkc2Lds6>

**Figure 2:** *Intensive system of keeping cattle*

### **6. Provision of suitable and safe housing**

All animals should be provided with shelter or an enclosed area to prevent them from various hazardous conditions such as rainfall, extreme cold or heat, predators, thieves and various infections. Doing this, will enable the animals to grow well and produce quality products. The arrangement of a place for livestock keeping will depend on the types of animals and the intended purpose. The house for animals, should have the following characteristic features:

- (a) It should be accessible, with enough space for movements, and enough land which is not damp or easily flooded. It should have enough light and be away from strong wind direction;
- (b) It should have an appropriate floor according to the type of livestock you are keeping which is easy to clean;
- (c) Its floor should be provided with bedding materials, especially for cattle, and litters for chickens. The bedding materials, should be dry





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and able to absorb moisture, preserve temperature and not harmful to the animals and animal keepers.

- (d) It should have strong walls that can support the weight of the roof and prevent strong winds. The walls should be ventilated to allow air movement freely (aeration);
- (e) It should be roofed with suitable materials which protect the animals from rainfall and direct sunlight;
- (f) It should not allow predators and dangerous animals to enter easily; and
- (g) Windows should be big enough to allow light and air to pass through.

### **7. Provision of suitable feeds and safe water to the livestock**

Livestock feeding is an important routine from the time the animal is born. This is because when animals are not fed well, they will grow slowly. Livestock should be fed with the required feeds that contain all necessary nutrients in the right amounts. Feeding animals should consider the age of the animal, type of nutrients you provide and level of its production. This is because different feeds are suitable for a certain age and the purpose of the animal you are keeping. Where necessary, consult a nearby agricultural extension expert on types of feeds needed to meet the requirements of the livestock of your choice. Livestock should also be provided with enough safe and clean water frequently. Note that water is an important component of animal body because it helps in the digestion and absorption of the food eaten.

### **8. Control of livestock diseases and parasites**

Diseases and parasites can affect the livestock to the extent of causing death. For production to be profitable, early identification of diseases and parasites is important. This will enable a livestock keeper to find ways of controlling them timely before they negatively affect animal productivity. It is important to prevent the transmission of disease causing organisms since the costs of treatment are usually relatively high compared to prevention. Also, monitor your animals regularly to identify symptoms and signs of diseases and take appropriate control measures on time. Some of these measures are vaccination, regular dipping, maintaining cleanliness, proper feeding and isolating sick animals from healthy ones. Always ask assistance from your agricultural extension officers.

**Precaution:** In using drugs and pesticides, be careful to avoid negative effects that may be caused by incorrect use. Always follow the given instructions and put on protective gears correctly.





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### **9. Provision of other essential services to livestock**

There are other services which are required for the livestock depending on the type and purpose of keeping them. For example, services like castration of male animals, especially in cattle, pigs, sheep, goats and horses. Other services include removing overgrown horns (dehorning) to prevent injury among themselves and ear marking for identification. In case of sheep, tails of female sheep are cut short to facilitate mating. All these services are to be provided under close supervision of a local agricultural extension officer or a veterinary officer.

### **10. Controlling bad habits (vices) among the livestock**

Some livestock show bad habits against others. For example, fighting among the male animals such as bulls, male sheep and male goats. In poultry, there is a tendency of some chickens to attack and eat others' flesh. This habit is called cannibalism. These animals can harm each other to the extent of causing death. Another bad habit in poultry is a tendency of some laying chickens to eat eggs. All these should be controlled by isolating them from others to avoid injuries and loss of the products. In case of poultry, the following practices are recommended:

- (a) Provide the poultry with enough feeds containing all required nutrients and necessary vitamins and minerals;
- (b) Cut off the upper beak of chickens. This process is called de-beaking; and
- (c) Create darkness in laying nests or cover the laying nets with clothes to avoid access to the eggs.

### **11. Harvesting, preparation, storage and selling livestock products**

There are several products which can be obtained from livestock enterprises depending on the types of livestock kept. Every livestock product has its own appropriate way of preparation before sale or storage. Despite the different ways of harvesting, preparation and storage, the products should be prepared for storage or sale in time. A well prepared livestock product looks attractive, tastes good and is highly valued. Therefore, livestock products such as meat, milk, eggs, feathers, skin/hides and others, should be prepared according to the market requirements. Markets for livestock products can be domestic or international. Therefore, the preparation of the animal products for marketing should observe conditions and principles of packaging for the targeted market. To avoid loss of products, the market should be identified early before starting production. This is important so that you produce according to market requirements.





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**Note:** It is important to observe all the principles of livestock production in order to produce quality products for food and commercial purposes. Depending on the type of livestock, there might be some slight differences when implementing these principles. It is better to recognize that there is a broad variation among domesticated animals for example cattle, goats, rabbits and others. Therefore, each principle should be implemented in relation to actual needs of the chosen type of livestock and type of products to be produced.



### Activity

1. Visit a school livestock farm or any nearby livestock farm and learn how the principles of livestock production learnt in class are applied. Make observation and identify challenges facing the livestock keeper in applying the principles and how the challenges are solved. Then, prepare a report and present it in class for discussion.
2. In a group, do the following:
  - (a) Select any livestock product (s) suitable to be produced in your school environment. Then, prepare an estimation of production costs based on the expected income you will earn after selling the product (s).
  - (b) Predict challenges you are likely to face in the production of the livestock product (s) of your choice. Suggest how you are going to solve them.
  - (c) Apply the principles you have learnt in class to prepare a production calendar and use it to raise the livestock of your choice in the school farm or elsewhere you find safe and appropriate.
  - (d) Prepare a general report on livestock production of your choice from the planning stage up to selling or storing.
3. In a group, discuss various sources of getting information, knowledge and skills on the production of livestock products;
4. In a group, visit any nearby market where livestock and their products are sold. Prepare a report about places where the animals and their products are taken from, purchasing and selling prices and other expenses incurred before selling the livestock or products. Then calculate the profit of selling the livestock or livestock products. Present your report in class for discussion.





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## Exercise

### Section A

Choose the letter of the most correct answer and write it in the box provided.

- A proper way to be used in livestock production depends on \_\_\_\_\_.
  - the type of livestock, purpose of keeping the livestock, size of land and capital
  - the purpose of keeping the livestock, temperature, soils and capital
  - the type of livestock, climatic condition, soils, and capital
  - the type of livestock, temperature and size of the area
- Providing the livestock with quality and enough feeds means \_\_\_\_\_.
  - giving excess feeds to the livestock
  - giving the livestock feeds containing enough water according to needs of the animal
  - giving the livestock excess feeds containing all essential nutrients
  - giving the livestock sufficient feeds containing all essential nutrients as per animal requirements.
- Livestock products should be prepared according to \_\_\_\_\_.
  - the types of products and market demand
  - the types of products and skills of a farmer
  - the type of markets and the size of a farm
  - the skills of the farmer and the size of the farm

### Section B

Write True for a correct statement and False for an incorrect statement.

- The arrangement of a site for livestock keeping depends on the types and purpose of keeping the animal. \_\_\_\_\_
- Livestock should be provided with enough safe and clean water every morning and evening. \_\_\_\_\_
- Cutting off horns, ear marking, branding and tail trimming are among the special and substantial services to all livestock. \_\_\_\_\_





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4. Packaging of livestock products is important to all products for the domestic and international market. \_\_\_\_\_
5. Bad habits shown by some livestock can be controlled by castrating all male animals. \_\_\_\_\_

### Section C

Answer the following questions.

1. What are the key points to consider when selecting a type of animals to keep in your area?
2. What are the six important characteristic features of a good house for livestock?
3. What key points should be observed when feeding and providing drinking water to livestock?
4. Based on the knowledge you have gained in this topic and from your own experience, what bad habits can be noted in livestock? How can the habits be controlled?
5. Why is it necessary to prepare livestock products before selling or storing them?
6. (a) Who is an agricultural extension officer?  
(b) Why are we advised to produce livestock products under the guidance of agricultural extension officers?
7. Considering the type and purpose of keeping livestock, identify types of services which should be provided.

### Vocabulary

Breed

a variety of animals with similar appearance that have developed by deliberately selection

Predator

an animal that kills and eats other animals





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## Chapter Eleven

### Protecting a consumer and attracting customers

#### Introduction

*In Standard Six, you learnt about different types of customers who buy goods and services, best methods of packaging of goods and weighing scales to avoid cheating in business. In this chapter, you will learn how to protect a consumer against expired products. You will also learn different techniques that can be used to attract customers. The gained competencies will enable you to conduct various entrepreneurial activities both efficiently and successfully.*

#### Protecting the consumer against expired products



#### Think

1. Meaning of expiry of a product.
2. Negative effects to customers using expired products.
3. Ways of protecting the consumers from using expired products in your area.

In Standard Five you learnt that an expiry of a product is the time after which the product can no longer be used. In addition, food, drinks, drugs, cosmetics and medicines were some of the given examples of products that expire. This means that the product should not be used after the expiry date. This is because the expired product may have become either poisonous or harmful to users. Remember, indicating the expiry date is necessary all over the world. You also learnt three forms of indicating expiry date which are: Best before- in short “BB”, Sell by and Use by.

However, there are other forms which can also be used in indicating expiry date. These include the following:

- (a) Expiry Date, in short “ED”. This shows the end date of using the product and therefore it should not be used after that date;
- (b) Expiry, in short “EXP” or “E”. This indicates the end date of the use of the product. It may show a date or number of days, months or years for which the product can be used from the manufacturing date;



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Therefore, for entrepreneurs, selling expired products is against the law and regulations. It also makes customers lose hope and trust in such dishonest entrepreneurs. As a result, they will no longer buy products from them. This can significantly affect their businesses. It is important to understand how the expiry date is indicated in different products. Furthermore, both customers and consumers of products should understand the effect of not observing expiry dates.

**Note:** You need to read carefully important instructions indicated on the label or packaging material and other instructions enclosed if available. This will help to note any condition that may make the product unsuitable for use even before expiry date. This is because some products may not be safe or lose their quality after being opened or stored improperly.

### **Ways to protect the consumer against expired products**

There are different ways to be used to protect a customer or consumer against expired products. These include:

#### **(a) Obeying the laws and regulations**

According to the law and regulations governing packaging of goods in Tanzania, showing expiry dates is a must. This is written on a label and firmly fixed on the product. It can also be directly written on the packaging container such as a cane or a bottle. Every person selling a product must ensure that the product being sold has an expiry date. It is also advised that the date of expiry should be written in a language that is well understood by customers or consumers. For example, in Tanzania, the expiry date should be written in Kiswahili, English or both.

#### **(b) Educating consumers or users and entrepreneurs**

In order to increase public awareness on the expiry of goods and the risks of using them, education is being offered continuously. Tanzania Medicines and Medical Devices Authority (TMDA) and Tanzania Bureau of Standards (TBS), are responsible for educating the public. Methods used include using television and radio broadcasting, articles in newspapers, participating in different shows, trade fairs, exhibition, websites of organizations and publications including leaflets and posters. Laws, regulations and guidelines regarding products' expiry dates have been provided to the public. Education has also been given through promotional seminars and training for consumers and important stakeholders. These stakeholders include processors, producers, distributors, wholesale and retailers, importers of foods and beverages, drugs, cosmetics and medical equipment.



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### Activity 1

1. (a) Observe the expiry dates of different products at your school, home and a nearby shop.  
(b) Among the products you observed in 1 (a) above, identify expired products if any.  
(c) If expired products are identified, what necessary steps would you take?
2. Explain appropriate ways of protecting a consumer or a user against expired products in your area.

### Attracting and winning customers



#### Think

1. Businesses which are operated in your area.
2. Techniques which are used to attract customers to those businesses.

Customers are important in a market of any goods or services. A business cannot exist and operate without customers. Attracting and winning customers of goods or services involves all activities performed by an entrepreneur in providing satisfactory information to win them. Customers are satisfied if their needs and expectations are met. Therefore, a successful entrepreneur must have skills and knowledge of attracting and winning customers.

#### Techniques for attracting and winning customers

There are different techniques that an entrepreneur can use to attract and win customers. These include:

##### 1. Using a trumpet

In using this, a trumpet or a similar sound making equipment is blown to make a loud sound to reach a large number of people. The sound carries a message regarding goods or services offered for sale. Depending on the circumstances where this method is used, the entrepreneur may need to seek permission from the Local Government Authorities. Using this method, the entrepreneur may provide information about the goods or services being offered for sale, and where to get them. This technique reaches many customers in a short time and paves the way for getting new customers.



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## **2. Meetings, seminars and business gathering**

In this technique, an entrepreneur needs to invite both current and other potential customers to meetings, seminars and business gatherings. These aim at giving customers sufficient information about the goods and services offered. It is not always necessary for the entrepreneurs to prepare such gatherings but they can be invited to either attend other people's meetings or apply for an opportunity to attend such meetings. Through such meetings, they can also advertise their goods and services.

Using this technique, customers also get an opportunity to ask questions about the goods and services. After this they may decide on whether they should buy them or not. In these gatherings, an entrepreneur can dress in clothes that advertise his/her products because in doing so, he/she can attract more customers. This technique is suitable when looking for new customers as well as retaining old ones.

## **3. Using leaflets and business cards**

This technique is mostly used to introduce a business as well as goods or services offered. Leaflets and business cards describe briefly the type of goods or services, uses, product benefits and means of getting them. A leaflet must be prepared properly using attractive colours. It must be written in simple language that is easily understood. It is also required to briefly give important information about a business such as business name, type of goods or services, uses of products, contact details (area code address, postal address, telephone number, fax, email address or website if available). Leaflets or business cards can be distributed to areas where people gather. They can also be distributed to business premises so that customers can continue reading them at their own time.

Uses of business cards facilitate the communication process between an entrepreneur and potential customers. A business card can briefly indicate information about the owner of the business, type of products or services and contact information such as telephone or mobile numbers, email address or fax number.

## **4. Using phones**

The use of phones, especially mobile phones, is one of the techniques that enable quick communication with customers. It is the responsibility of an entrepreneur to keep phone numbers of customers and communicate with them when needed. A phone can be used to provide information to



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customers about goods or services provided by the entrepreneur. Success in using a phone to attract customers should go hand in hand with keeping proper customer records. Customers include those who are currently not buying from you, but can become your future customers. It is advisable to keep names of customers and their phone numbers in your phone as well as in a notebook or elsewhere where they cannot be lost. This will prevent loss of information in case of loss or damage of your phone.

It is important to know the names of your customers and when communicating, try to make them think that you know them well. Address them appropriately, for doing so gives the customers a sense of being valued. Hence, you increase the chances of attracting them to your business. It will also help the entrepreneurs to give information about new goods and services through calling or sending text messages. Similarly, a phone can be used to spread useful information related to business events and benefits of products to customers. This technique strengthens business relations and later on increases efficiency, productivity and profits.

### **5. Using social networks**

This technique enables an entrepreneur to reach many customers in different areas in a short period, at a lower cost and without geographical barriers. Using social networks, entrepreneurs can give information to customers about goods or services offered. They can also sell goods without physically meeting with the customers. This becomes simple, especially where it is facilitated by mobile financial services provided by banks and telephone companies.

In addition, social networks help entrepreneurs to give various information to customers on time. It also enables the entrepreneurs to reach customers and advertise their businesses at lower costs.

### **6. Using news media**

The use of news media like newspapers, radio and television enables information on goods or services of the entrepreneurs to reach many customers. This technique is good, although it is relatively expensive. Therefore, if the income from a business is little, an entrepreneur can fail to meet the advertisement costs. However, it is advisable to use this technique in situations where goods and services are sold to many customers in different geographical locations.





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### **7. Trade fairs**

Participating in trade fairs like “Sabasaba” and “Nanene” exhibitions is one of the techniques of attracting customers. For effective participation in trade fairs, an entrepreneur should have goods or services prepared according to set standards. This technique will ensure that the goods or services are seen, known and used by many customers. Entrepreneurs need to take important information obtained from new customers during the trade fair. This will enable them to make follow-ups through phones, social networks or visits. Besides, the entrepreneurs can get opportunities to give leaflets and business cards to new customers who may later make follow-ups on their businesses.

### **8. Giving gifts of goods or services**

Many customers like gifts. In order to attract them, you can provide gifts depending on the value of the goods or services you offer. For example, if you are running a shop, you can give small gifts of small value compared to the value of the purchased goods. However, this technique must be used with great care to avoid losses. It is good to ensure that the cost of the gifts matches with the expected increase in profits due to sales. This means that giving gifts should aim at increasing sales and profits. It must be remembered that it is not necessary to give expensive gifts. Small gifts can motivate and attract customers of different ages.

### **9. Price discount**

Customers prefer to buy goods or services at a discount compared to prices offered by other entrepreneurs. This is a good technique to overcome competition in business, hence getting more customers. For example, if your fellow entrepreneur is selling certain goods for 3,100 shillings, you can sell it for 3,050 shillings. In doing so, you may not get much profit from one item but you will get a relatively good profit, as you will sell many items. So, when you add the profit from all sales, it will be much higher. Price level determines and influences a customer’s buying pattern. Just a slight increase in price, may result into a decrease in sales; on the contrary, a slight decrease in price may increase sales. Thus, it is not wise for an entrepreneur to continue selling at relatively high prices, as in so doing, it may discourage customers from buying his/her products.

### **10. Using good language**

Customers are attracted to your business by the way you properly communicate with them. No customer likes to be rudely spoken to. In order





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to attract customers, communicate with them in a way that they feel you care, value and respect them. That does not mean you should agree with them in everything. If you disagree with a customer, do so both politely and tactfully. Of course, there are certain customers who are rude and impolite. Talk to them politely as well, to win them. Avoid being harsh to customers because you may end up losing them. Customers should be persuaded rather than being forced. Be a good listener and thank your customers as a sign of customer care. Give yourself enough time to listen rather than dominating the talk. Finally, respond to customers' concerns both carefully and respectfully.

### **11. Be faithful**

Being faithful in business is very important. An entrepreneur can lose customers if he/she is not trustful. If untrustworthiness is relayed to the community, it may result in a considerable loss of customers. Being faithful includes the following:

- (a) Selling quality products which have not expired;
- (b) Giving correct change;
- (c) Using correct weighing instruments;
- (d) Charging a fair price for a product;
- (e) Avoiding giving false promises to customers; and
- (f) Avoiding selling fake products or goods prohibited by responsible government authorities.

### **12. Proper packing and providing packages**

An entrepreneur should pack goods depending on the type and nature of particular goods to meet customers' needs. As motivation to your customers, it is good to provide free packaging materials. However, it is important to include the cost of packing and packaging materials in your business costs. This will enable you to know the exact cost of running your business. If the cost of packaging materials is very high, it affects your profit. In that case, a part of this cost can be included on the price of the goods to be paid by customers.

### **13. Selling on credit**

This technique helps in maintaining good relationships between an entrepreneur and customers. Great care should be taken when selling goods on credit. Entrepreneurs are advised to use this method only to permanent customers that they know well in terms of their ability and





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trustworthiness in paying their bills. However, it is recommended to have a limit to credits to maintain business capital. It is also important to keep proper records of your creditors in a register book. Once a customer gets goods on credit, he/she should sign in the register the type of goods, value and an expected date to pay the bill.

### **14. Giving advice to customers**

There are various products of different grades and quality which serve the same purpose. Sometimes, this makes it difficult for customers to make the right selection. Therefore, you need to advise your customers accordingly. Customers often prefer to buy goods at a relatively low price. It is therefore necessary to advise them to buy not only cheap but also quality goods. When customers buy quality goods from you, they will trust you and hence become your regular customers.

### **15. Establishing and maintaining good relationship with customers**

This technique involves the way an entrepreneur will ensure his/her business always remains in the mind of the customer. This is achieved if the entrepreneurs, through good customer care, maintain and keep in touch with their customers regardless of the amount and type of goods or services purchased. The entrepreneurs should establish and maintain good relationships with their customers to know the level of their satisfaction.

There are different ways through which an entrepreneur can maintain good relationships to attract and win customers. These include the following:

- (a) Informing customers what is being done for them. Depending on circumstances and the entrepreneur's ability, information can be channelled through phone calls, sending messages, email or actual visits;
- (b) Sending greetings to customers during special seasons and holidays, for example, during religious festivals or other community events depending on their importance to the community and the entrepreneurs' ability. They can send cards in form of soft or hard copies. In those greetings, the entrepreneur should show the value of the customers to their businesses; and
- (c) Giving customers different ways of maintaining communication with entrepreneurs, for example, through phone calls, phone messages, email, social networks, letters and other forms of written messages. Using this method with other techniques, can make customers interested and keep on trusting you.





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## 16. Selling and allowing customers to pay by instalments

This technique is used when customers are in need of your products but they are not able to pay at once. The entrepreneur enters into an agreement with a customer stating when to complete the payments and receive the goods. This enables the entrepreneur to sell at no loss compared to selling on credit. This is because the customer will only receive the products after completing paying all the instalments. However, the agreement requires mutual trust and faithfulness between the customer and the entrepreneur. It is also important to have written records stating the amount of money required to be paid per each instalment, the number of instalments agreed on and the time for completing the payment to avoid misunderstandings.



### Activity 2

In a group, prepare a play about the use of various techniques for attracting and winning customers. Play it in class and discuss thereafter.

### Exercise

Answer the following questions.

1. What will happen if you use a technique of offering a price discount to attract and win customers?
2. What are the advantages of using social networks to attract customers?
3. How can an entrepreneur protect the customer from using expired products?
4. Why are we advised to use good language to attract customers?
5. Why is it necessary for a consumer or user to consider products' expiry dates?
6. How can an entrepreneur use a mobile phone to attract customers?
7. What are the required features of a good leaflet for attracting customers?
8. What are the actions that show that an entrepreneur is faithful? Explain four things.



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## Chapter Twelve

### Financial services

#### Introduction

*In Standard Six, you learnt about balance sheets, financial records, types of taxes and budgeting. In this chapter, you will learn about financial services provided by banks. The gained competencies will enable you to carry out various entrepreneurial activities more efficiently and effectively.*

#### Financial services provided by banks



#### Discuss in groups

Financial services provided to entrepreneurs by banks.

A bank is a financial institution approved by the government to keep and lend money. It provides financial services to individuals, groups of people or organizations. These services include making payments by cheque, savings, receiving and paying interests, provision of loans, currency exchange and others. A bank is a safe place to obtain various financial services.

There are many types of bank accounts an entrepreneur can use. Bank accounts that an entrepreneur can benefit from, include current and savings accounts. The current account enables an entrepreneur to make payments. For example, if entrepreneurs want to pay a person or a company, they can do so by writing on a cheque the name of the payee, the date, the amount of money to be paid and sign the cheque. The cheque received will be taken to a bank for cashing. The payee can be given the amount of money recorded on the cheque or it may be credited to his/her bank account.

Using a savings account, an entrepreneur can make savings and later on use the money saved for investment and business expansion. The entrepreneur will be guided by bank officers to decide how the savings can be kept in safe custody. Using this type of account, the entrepreneur can deposit and withdraw money at any time. Apart from that, an entrepreneur may have a fixed deposit account. Using this type of account, the entrepreneur will not be able to withdraw any money before the fixed period matures. If the



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entrepreneur withdraws money before the fixed period, they may lose the benefit they deserve. In addition, the entrepreneur will be able to benefit from all financial services provided by the bank based on the type of account.

Therefore, the use of bank accounts helps an entrepreneur in a variety of ways. These include facilitating the preparation of business records. In this regard, it is important for all transactions related to an entrepreneur's business to pass through the respective bank account. These transactions include but not limited to business expenses and incomes covering all operational costs and sales.

An entrepreneur can also take a bank statement within a specific period. The bank statement shows how money was deposited and withdrawn in a specified period. This will help to verify consistency of records in the entrepreneur's register and bank financial statement.

If the entrepreneur needs to have a small amount of cash for facilitating small business expenses, the money can also be obtained from the bank. As a way of enabling him/her to remember all business transactions, it is important to keep a record of that amount of money and business expenses in a ledger or register book.

An individual or group of entrepreneurs can benefit from loans and other opportunities from a bank too. A loan can enable an entrepreneur to generate more capital for business growth. It is better to consider and know the requirements, qualifications and criteria for obtaining a bank loan. An entrepreneur must have accurate information on the interest rate and how to repay the loan within a specified period. It is the right of a borrower to be given all the basic information about the loan. A loan can make a business grow if it is used properly. However, it is important to be careful so that the loan does not become a burden to the business.



### Activity 1

1. Visit any bank to find out various financial services offered.
2. Prepare a report and present in class for discussion.



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## **Advantages of using banking services and disadvantages of not using them**

There are various benefits that an entrepreneur or anyone can gain from using banking services. In addition, there are disadvantages of not using banking services.

### **Read carefully the following case study**

Bahati and Neema are siblings. Bahati is older than Neema. When their father died, each received 400,000 shillings as part of their inheritance. Bahati was afraid of losing the money. Therefore, she decided to save it for emergency cases. She kept her money in a cash box at home. However, Neema wanted to save and increase her initial saving. So she decided to keep it in the bank. She opened a fixed deposit account and chose the one that required a three-month fixed period.

After three months, Neema went to the bank to see how much her savings had increased. The amount of 400,000 shillings had increased to 426,000 shillings. A bank officer told her that her savings account could be used as collateral for a small business loan from the bank. The officer also informed her about other financial services she could get. Such services include sending money to customers or people with whom she will be doing business, insurance services, foreign currency services and transferring money through cheques.

Likewise, Bahati went to check on her cash box to see if her money was safe. She found only 300,000 shillings. This means that 100,000 shillings were missing. When she asked her family about this, her husband admitted to have taken the money and used it for buying alcohol. After discovering that, Bahati slightly changed the way of saving her money. She divided the remaining amount into small portions and hid them in separate places in the house.

After the second quarter, Neema's child began school. Neema felt that it was the right time for her to start a small business. Her goal was to increase the family income and help to pay for the child's school requirements. Using her savings, she obtained a loan of 300,000 shillings from the bank. She used the loan to start a business of buying and selling agricultural products. She sold the products in local community markets. On the other side, Bahati decided to spend some of her money to buy bed-sheets that a seller had brought to her home. Although she was determined to keep her money, she could not refrain from buying them because the bed sheets were very attractive. She bought four bed-sheets for 80,000 shillings.





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At the end of the second quarter, Neema had 452,000 shillings in her fixed deposit account. She also had a bank loan of 354,000 shillings that included the loan and interest (300,000 + 54,000). She was supposed to repay this amount in six months by repaying 59,000 shillings every month. Neema was not worried by that because she was earning a reasonable monthly income even after repaying her monthly loan.

In the third quarter, Neema's account's balance was 478,000 shillings. Bahati had 220,000 shillings at home after reducing the amount she used to buy bed-sheets. A few days after Bahati had bought the bed-sheets, a thief broke into her house and stole 100,000 shillings that she had hidden under a mattress. Luckily, the thief didn't get all the money. Therefore, she was left with 120,000 shillings. By the end of the fourth three-month period, Neema's 400,000 shillings had increased to 504,000 shillings. However, at that time, Bahati's 400,000 shillings had been reduced to 120,000 shillings.

During that time, Bahati and Neema's family met for a party at their mother's house. Their mother wanted to know how they were progressing with the money given to them as part of their inheritance. When Bahati heard about Neema's success, she deeply regretted on the way she had saved and used her money. She decided to use the balance more wisely. She therefore opened a bank account.



### Activity 2

1. From the case study you have read, discuss the following questions in a group.
  - (a) During the first three months, what happened to Bahati's and Neema's money? Why did it happen that way?
  - (b) What happened to Bahati's and Neema's money in the second quarter? Why did it happen that way?
  - (c) In the third quarter, what happened to Bahati's and Neema's money? Why do you think it happened that way?
2. Discuss the benefits of using bank services and the disadvantages of not using them.
3. Summarize the points you discussed and present them in class for general discussion.





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### Exercise

**Answer the following questions.**

1. What is a bank?
2. What financial services are provided by the bank? Identify four services.
3. What types of bank accounts can an entrepreneur benefit from?
4. What is the difference between a savings account and a fixed deposit account?
5. At what time can an entrepreneur ask for a bank statement?
6. What is the major benefit which an entrepreneur can get by borrowing money from a bank?
7. What lessons have you learned from this chapter that you consider essential in your future life?

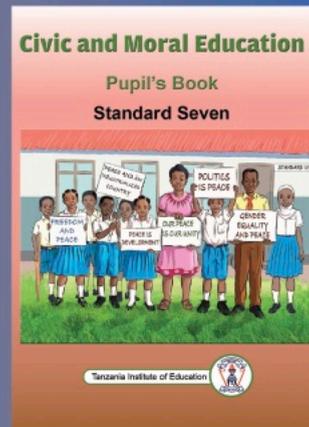
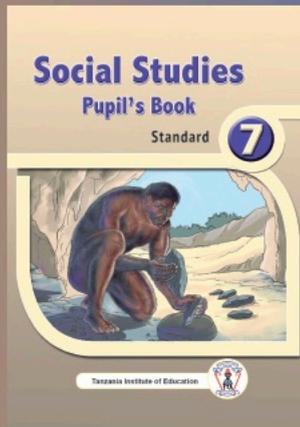
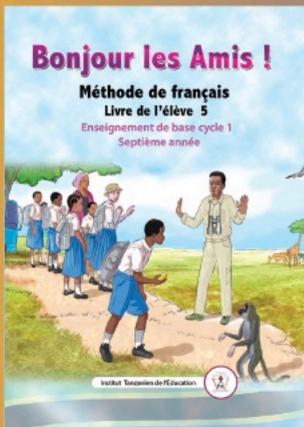
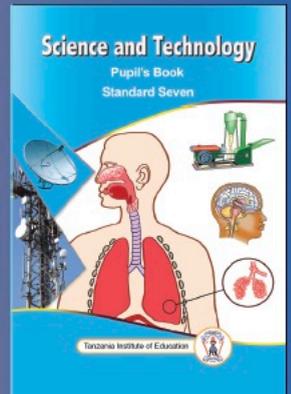
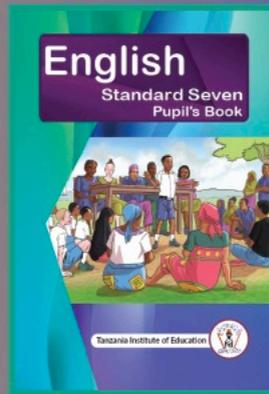
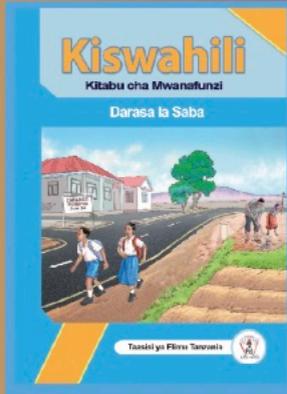
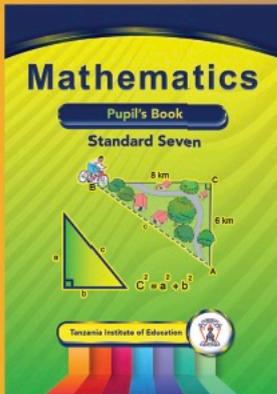
### Vocabulary

Collateral	something valuable pledged as security for repayment of a loan
Custody	the protective care of something

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