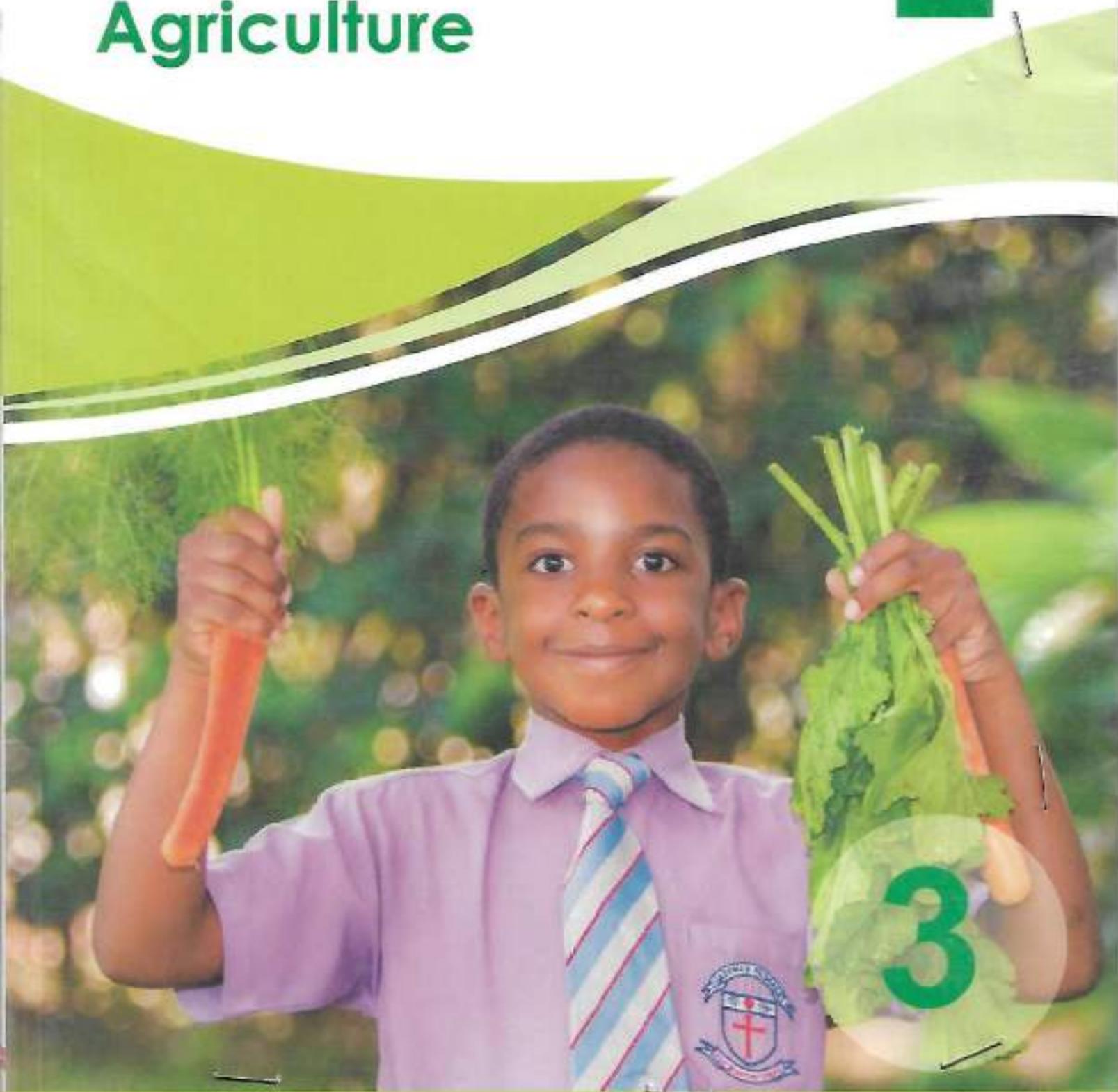


Ventures Primary

Agriculture



Ventures Primary Agriculture

Learner's Book Grade

3



college press

Ventures Primary Agriculture Grade 3 Learners Book

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Topic 1

Introduction to Agriculture



Figure 1.1 Field under irrigation

Objectives

Learners should be able to:

1. define the term agriculture
2. state general importance of agriculture to themselves
3. identify basic garden tools
4. state the uses of basic garden tools
5. use garden tools safely
6. state ways of preventing common hazards when using garden tools.

Introduction

People and animals need agriculture to live. Most of the food we eat, the clothes we wear, materials for constructing shelter and furniture come from agriculture. So agriculture is important because it gives us food, clothes and money.

Unit 1 Importance of agriculture



Figure 1.2 Importance of Agriculture

Flashback

Identify the items in the Figure 1.2.



Key words

agriculture
domestic animals

field crops

garden crops
vegetable

field

What is agriculture?

Agriculture is the growing of crops and keeping of animals.

The land we grow our crops on is called a **field**. Crops are plants grown by people for food or for sale. Plants grown by people on a large piece of land are called **field crops**. Those grown in the garden are called **garden crops**.

Sorghum, sunflower, millet, maize, soya beans, tobacco, cotton, sugar cane are examples of field crops. Cabbage, lettuce, carrots, rape, green beans, nyevhe/ulude are examples of vegetables. A vegetable is a plant or a part of a plant used as food.

All animals which are kept at home are called domestic animals. We can keep animals like sheep, goats, rabbits, chickens, donkeys, and cattle. These provide us with food, money and power for ploughing our fields and transport.

Activity 1

In pairs:

1. List the crops you grow at home for food.
2. Do you grow any crops for sale? If you do, list the crops.
3. What food do we get from the domestic animals we keep at home?

Importance of agriculture

Gives us food: we get food from crops such as maize and beans, vegetables like cabbage and carrots, and fruits like apples and matamba/umkhemeswane. We get meat, eggs and milk from animals. Bread, cheese, sugar and peanut butter are by-products of agriculture.

By-products are things we get after processing the products of agriculture. Food makes our bodies healthy and able to fight against diseases.



Products	By-products
maize	mealie meal to make sadzo/isitshwala
wheat	flour to make bread
sugar cane	sugar, ethanol
cows	milk to make icecream and cheese
soya beans/sunflower	cooking oil, animal feed

Gives us clothes: people grow cotton and keep sheep and cattle to make clothes. Cotton produces cloth which is used to make dresses, shirts and trousers. Sheep have wool which is used to make jerseys, scarfs and hats. Cattle skins are used to make leather which is used to make shoes, belts and jackets. So most of the clothes we wear come from agriculture.



Gives us Jobs: people work on farms and industries. On farms, people plough, weed, irrigate and harvest crops as well as look after the animals. People work in industries where they make bread, sugar, leather, and clothes as well as preparing seeds and making equipment used in agriculture. People also work in transporting agricultural produce from the farms to the industries.



Gives us shelter: at times agriculture involves the growing of trees such as gum trees and pine trees. These trees are used to support the roofs of the houses we live in. Agriculture helps make shelter for people and animals.



Gives us money: when people grow crops and keep animals and sell them, they get money which they use to buy other items used in day to day life.



Activity 2

In groups, talk about other benefits of agriculture.

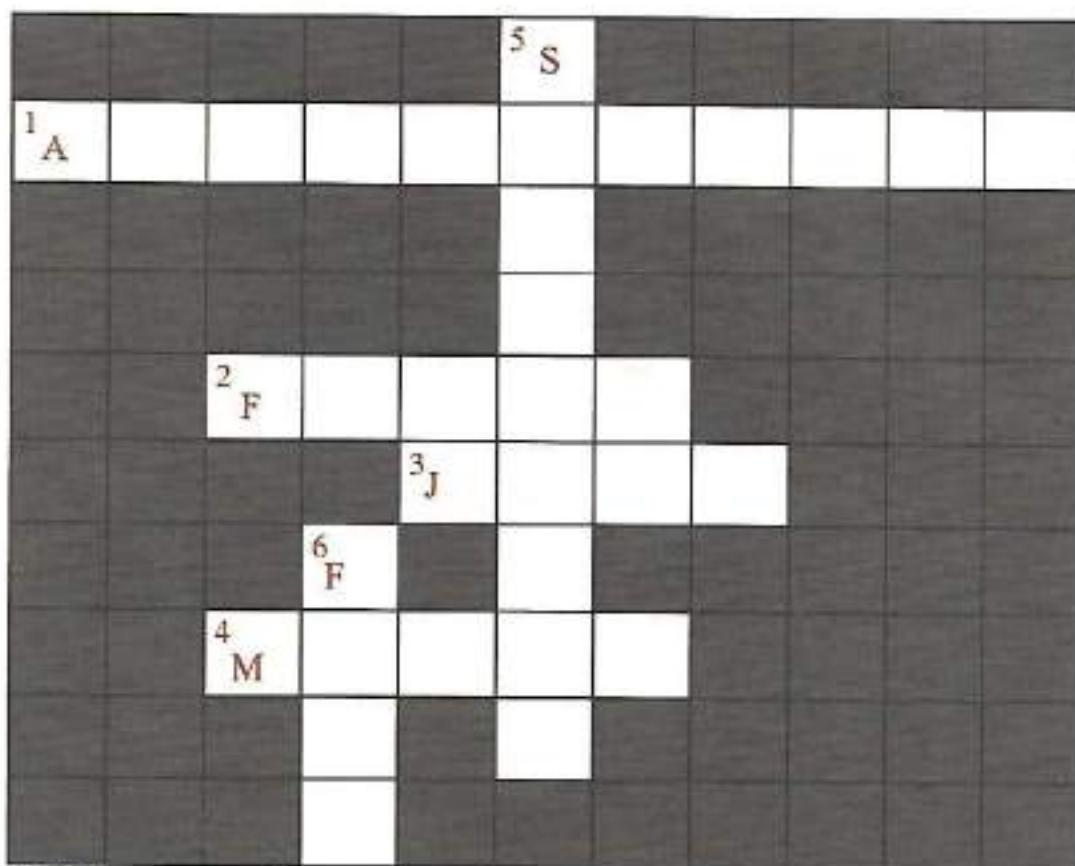
Exercise

1. The growing of crops and keeping of animals is called _____.
A. cropping B. agriculture C. business D. gardening
2. Which animals give us milk?
A. cow, goat B. doe, hen C. bull, cat D. donkey, dog
3. Agriculture is important because it gives us _____.
A. food, money, clothes B. clothes, car, bicycle
C. bicycle, motorbike, grinding mill D. food, cars, shops
4. Which animals give us clothes?
A. chickens B. rabbits C. goats D. cattle
5. How does agriculture help make shelter for people and animals?
6. The crop which gives us material for making clothes is c _____.

Let's play and learn!

Crossword puzzle: Fill in the spaces with the correct words.

The first letter is given for you.



Across

1. Growing of crops and keeping of animals
2. A place where crops are grown
3. Agriculture creates j_____ for people who work on farms.
4. Agriculture provides us with m_____ which helps us to buy things.

Down

5. A crop that gives us cooking oil
6. Most of the f_____ we eat comes from agriculture

Summary

- Agriculture is the growing of crops and keeping of animals.
- Agriculture is important to individuals because it gives food, shelter, jobs, clothes, and money.
- Animals kept by people are called domestic animals.

- Crops grown in the field are called field crops.
- Crops grown in the garden are called garden crops.

Glossary

Agriculture	- the growing of crops and keeping of animals
Domestic animals	- animals kept by people at home
Field	- land where crops are grown
Field crops	- crops grown in a field, for example, maize, groundnuts, and many others
Vegetables	- plants or parts of plants used as food

Unit 2

Farm tools

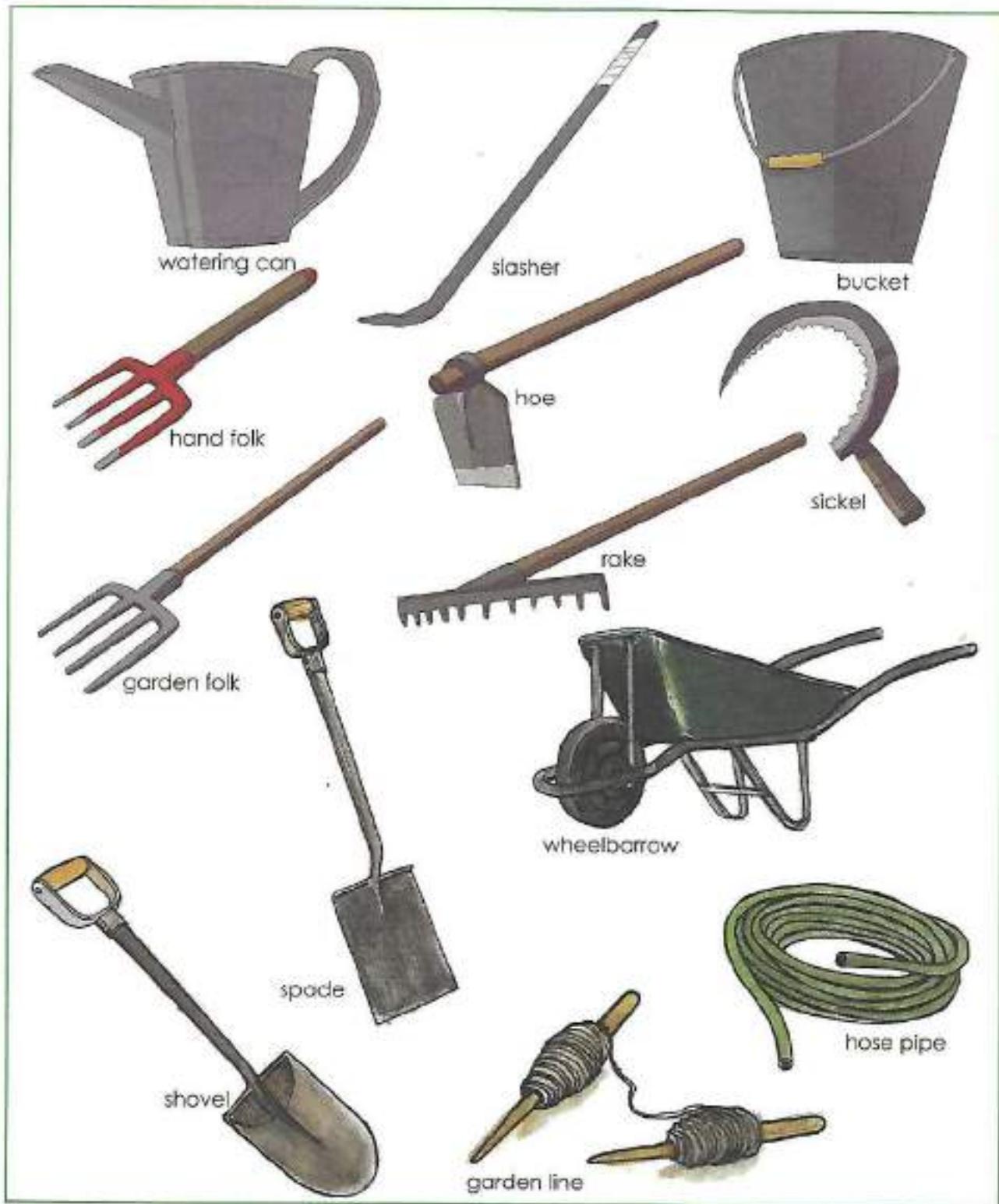


Figure 2.1 Farm tools

Flashback

You could have seen your mother, father or anyone working in the garden. What tools were they using?



Key words

shallow cultivation
weeding

inventory record
wilting

Introduction

Tools are important because they make work easier. Each tool is made for a particular activity. For example, plants are watered using a watering can. If plants lack water they wilt. **Wilting** is when plants become limp because of lack of water, therefore, the farmer should water the plants using a watering can. A hoe and a handfork are used for **weeding**. This is removing unwanted plants from cultivated land.

Garden tools

We grow a variety of plants in the garden. We use garden tools to carry out different tasks. Digging, planting, watering and weeding.

Look at the pictures below. Which tools are being used and what are they being used for?

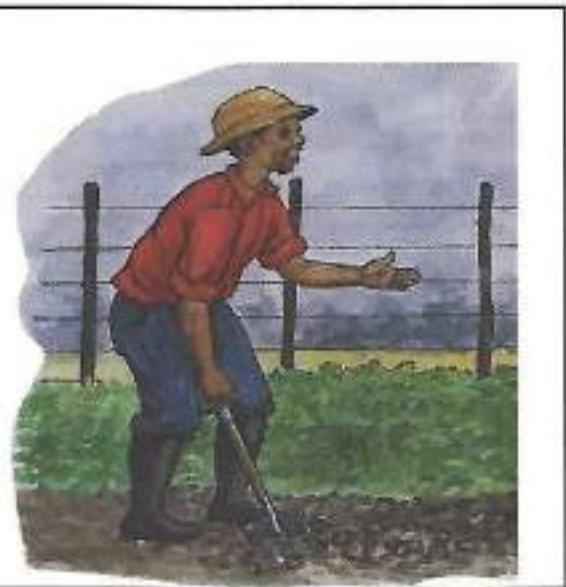




Figure 2.2 Uses of garden tools

The following table summarises the garden tools and their uses.

Table 2.1 Garden tools and their uses

Tool	Uses
Hoe	 <ul style="list-style-type: none">- Digging- Making ridges- Weeding
Rake	 <ul style="list-style-type: none">- Levelling beds- Harrowing grass
Spade	 <ul style="list-style-type: none">- Digging- Loading manure or soil
Shovel	 <ul style="list-style-type: none">- Loading manure- Shoveling soil from a trench
Garden fork	 <ul style="list-style-type: none">- Digging in gravel soil- Loading grass
Hand fork	 <ul style="list-style-type: none">- Shallow cultivation (This is the loosening of the soil in a bed)- Weeding close to plants
Garden line	 <ul style="list-style-type: none">- Making straight ridges- Making lines in the beds

Sickle		- Cutting grass
Slasher		- Cutting grass
Wheelbarrow		- Carrying manure - Carrying garden produce
Watering can		- Watering vegetables
Knap sack sprayer		- Spraying pests in the garden

All tools at home or at school must be written down in an **inventory record**. This is a book where all tools are recorded. When they are given out for use they should be recorded in a tool issue record. This is done to avoid losing tools.

Activity 1

Design a class inventory record book. Record when you take out or return tools for practical lessons.

Example of an Inventory record

Tool	Name of user	Date taken	Date returned	Signature

Exercise

- Wilting is when plants _____.
A. are very fresh
C. lose freshness
B. are too many in the garden
D. are drying
- Select a list of digging tools.
A. hoe, spade, garden fork
B. axe, sickle, slasher
C. hose pipe, tank, engine
D. hoe, hand fork, shovel
- Which tool is used for shallow cultivation?
A. hoe B. garden fork C. hand fork D. axe,
- Tools used for digging are H_____ and Sp_____.
- Write down the name of each tool in the picture.

a)



b)



c)



- Draw the following tools.

(a) rake

(b) hoe

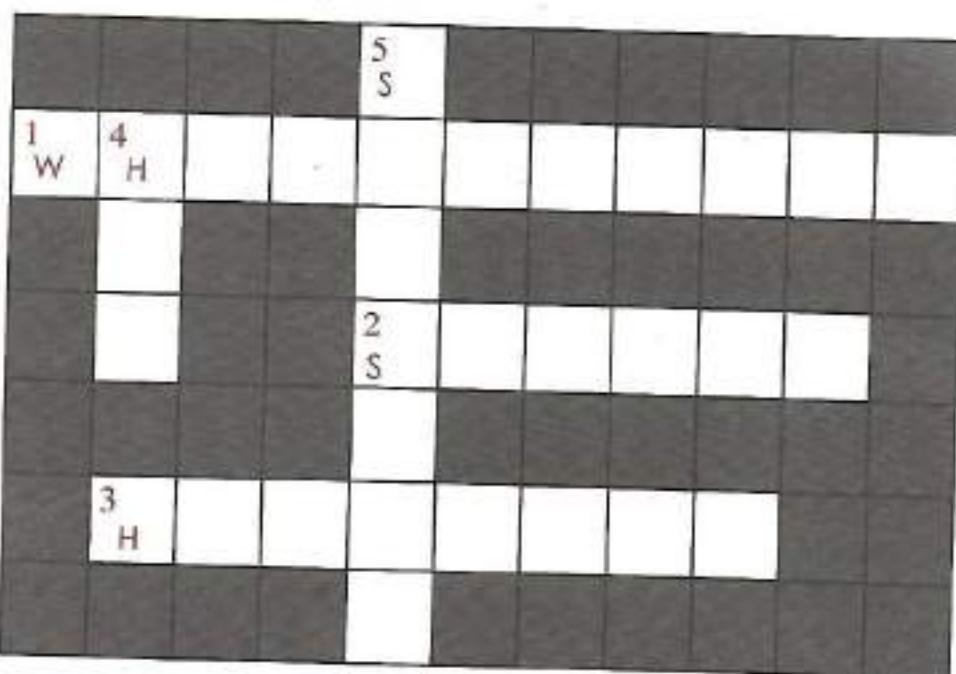
(c) sickle

Drama on tools

Formulate a drama on a home set up where the family goes to the fields or garden and uses different tools, while they observe safety. What activities did you carry out and which tools did you use?

Fun with words

Fill in this crossword puzzle



Across

1. A tool used to carry garden produce
2. A tool used to load manure
3. A tool used to water vegetables

Down

4. A tool used to make ridges
5. A tool used to cut grass

Summary

Tools mainly used in the garden are:

- Hoe for digging and weeding.
- Rake for levelling and removing rubbish.

- Watering can for watering.
- Spade for digging moist soil.
- Sickle for cutting grass.
- Garden line for making straight ridges.
- Hand fork for shallow cultivation.

Glossary

Inventory record	- a book where records of tools on the farm or school are done
Shallow cultivation	- loosening of soil in a bed
Weeding	- the removing of unwanted plants (weeds) on cultivated land
Wilting	- when plants become limp because of lack of water

Unit 3 Safety in agriculture



Figure 3.1 Wear protective clothing when using chemicals in agriculture

Flashback

Have any of your family members injured themselves or herself while using farm tools? How were they hurt?

Key words



protective clothing

safety

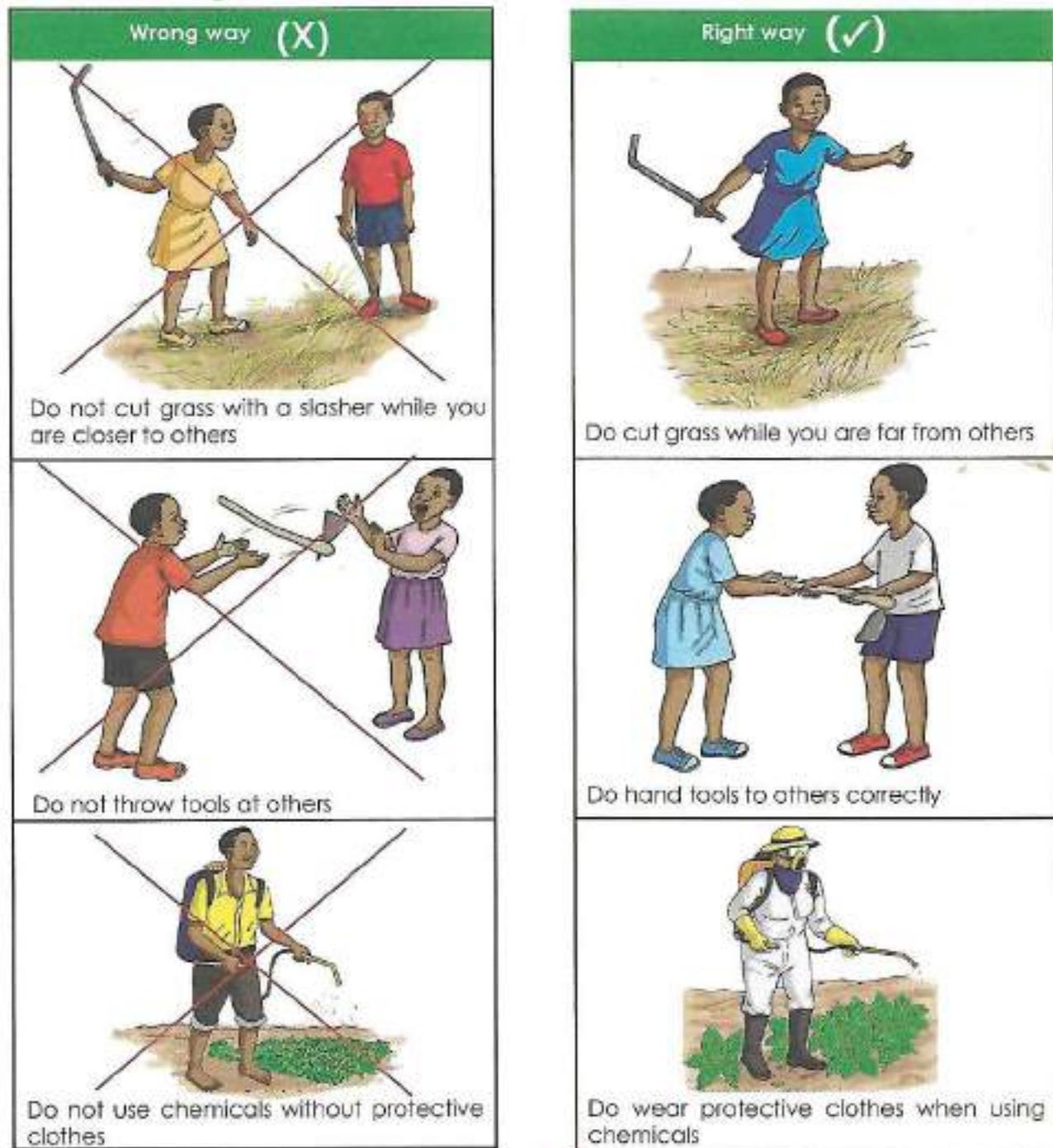
injure

danger

Introduction

Garden tools are useful but if they are used wrongly people can **Injure** themselves. The following pictures in Figure 3.2 show the correct and the wrong ways of using tools. For the safety of the user, the correct way of using tools should be followed. **Safety** means any action that can be followed to protect the user from risk or danger. Danger is anything that may cause harm to a person.

Safe use of garden tools





Do not use a hoe while someone is in front



Do dig while others are not near



Do not leave the rake facing upwards



Do use a rake while it is facing downwards

Figure 3.2 Correct and wrong ways of using tools

When using garden tools:

- Do not throw tools at others.
- Do not threaten others with garden tools.
- Do not cut grass while telling stories and looking at the other people other than the grass you are cutting.
- Do not dig with someone standing or sitting in front of you.
- Do not scatter tools in path ways.
- Do not leave a rake facing upwards.
- Do not spray chemicals without wearing protective clothing.

Protective clothing are clothes that prevent the user from being hurt while handling materials that could harm them. We use protective clothing when using chemicals.

Activity 1

Your teacher will give you hoes and let you dig a very small portion in the garden where you will plant vegetable seedlings.
You are encouraged to observe safety.

Activity 2

You should simulate spraying using water only and put on protective clothing.

Exercise

1. Which tool should not be left facing upwards?
A. hoe B. rake C. shovel D. axe
2. A cutting tool which can cut your fingers when you use it without care is a _____.
A. slasher B. axe C. sickle D. hoe
3. Which tool is used when spraying plants with chemicals?
A. spade B. knapsack sprayer C. hoe D. sickle
4. Select two digging tools and explain how to use them safely.
5. What is a sickle used for?
6. State whether the statements are **True or False**.
 - (a) Tools should be thrown to others.
 - (b) A rake should be left in pathways while facing upwards.
 - (c) When you want to spray the garden using chemicals, you should wear protective clothing.

Summary

Safety should be practised when working with farm tools. This reduces injuries. To ensure safety:

- do not dig while someone is in front of you.
- do not spray without wearing protective clothing.
- cut grass while your mind and eyes are at the grass you are cutting.
- hold your slasher tightly as it may slip and injure other people.

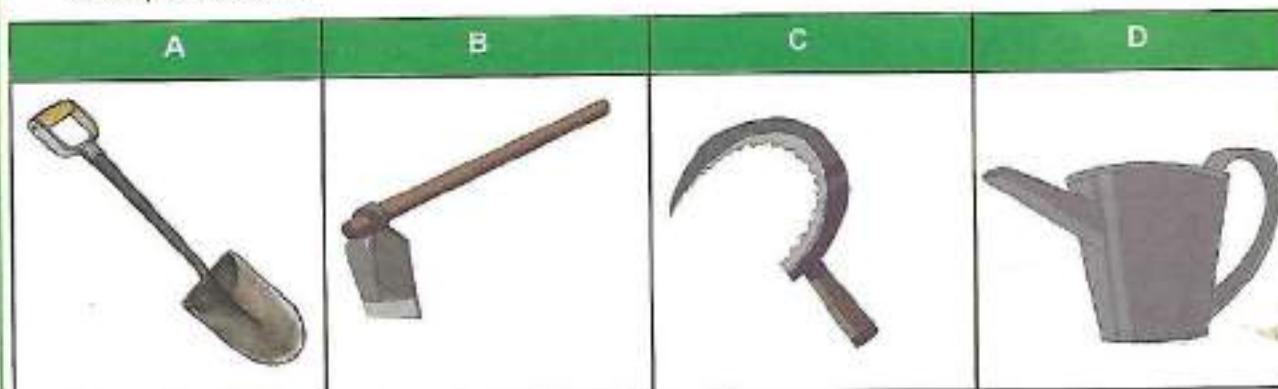
Glossary

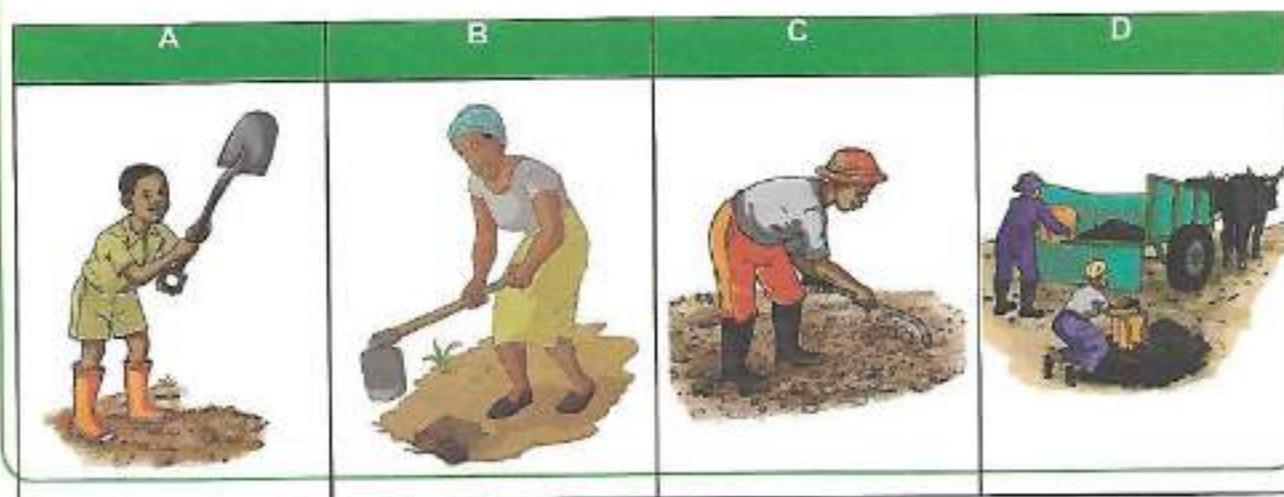
Danger	- something that may cause harm or injure a person
Injure	- to do harm on one's body
Safety	- to be out of danger

End of topic assessment test

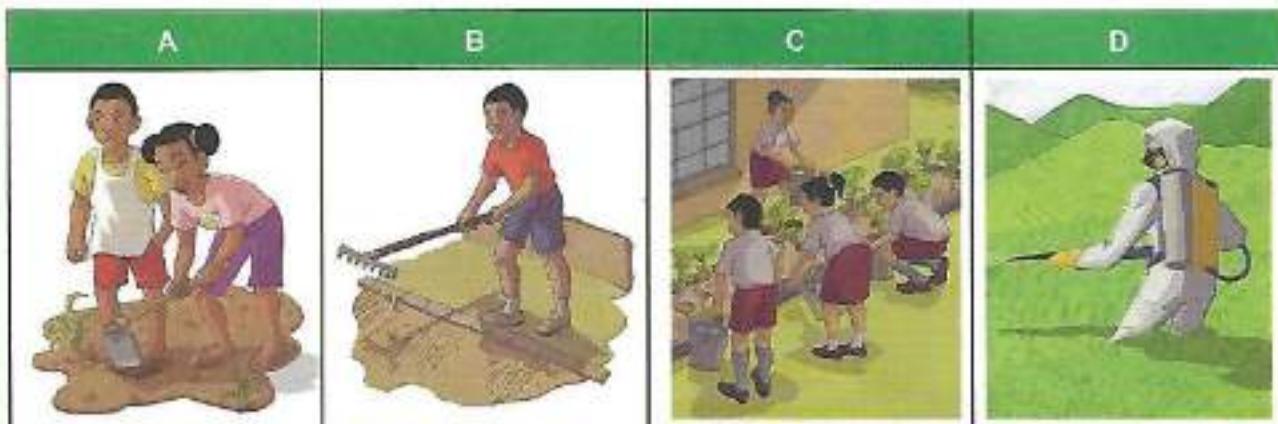
1. Select a digging tool from the diagrams.

Multiple choice





4. Tools are recorded in _____.
- an inventory record
 - text book
 - a financial record book.
 - a tool issue record
5. Which set of animals gives us meat?
- snake, cattle
 - cattle, chicken
 - dog, snake
 - lizard, dog
6. Which picture shows someone using tools in a dangerous way?



7. Which set has importance of agriculture?
- food, business, cars
 - food, money, clothes
 - cars, bicycle, motorbike
 - money, cars, field
8. Select a field crop from the list.
- cabbage
 - lettuce
 - carrots
 - sunflower
9. Which animal gives us eggs?
- cow
 - goat
 - chicken
 - fish
10. Which animal gives us leather?
- cattle
 - chicken
 - cat
 - dog

Structured questions

1. Fill in using the words given below.

cotton, maize, shovel, milk, wheelbarrow, rake.

- A cow gives us _____.
- Some of our clothes come from material produced from _____.
- Mealie-meal comes from _____.
- We use a _____ to load manure in a _____.

[5]

2. The keeping of animals and growing of crops is called _____ [1]
3. What is wrong with the person in the picture? [2]



4. Which tool should not be left facing upwards and why? [2]

Topic 2

Climate and land use

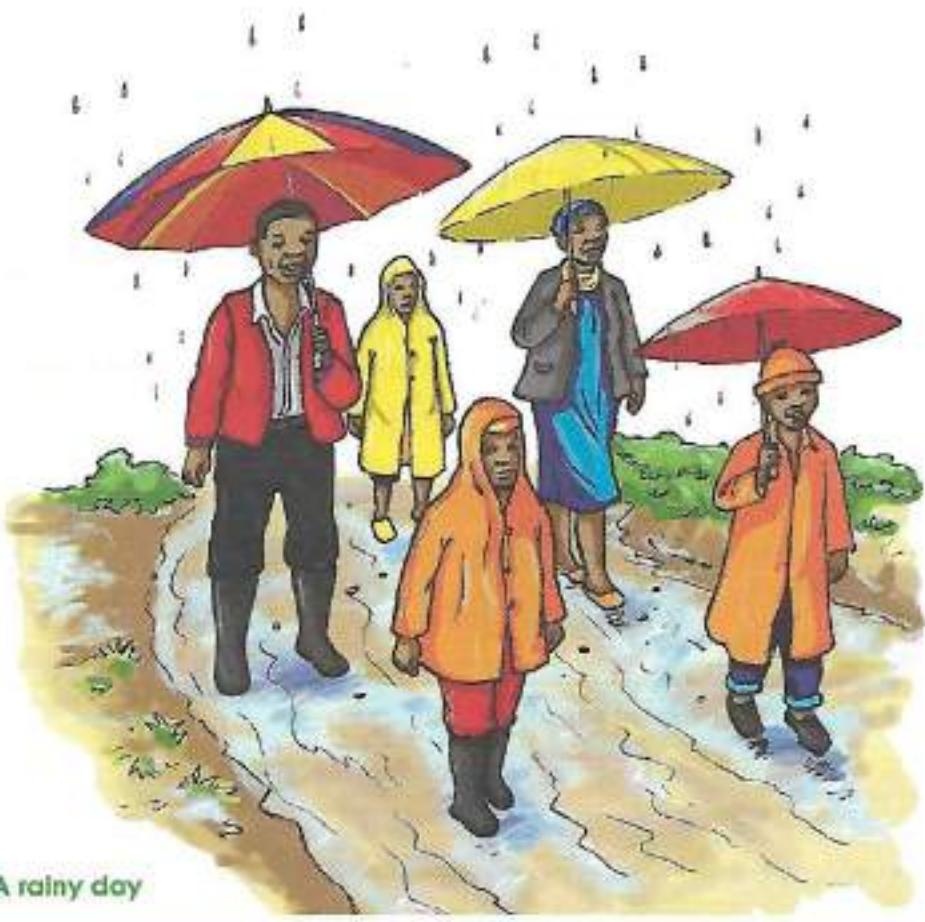


Figure 4.1 A rainy day

Objectives

Learners should be able to:

1. identify the four seasons in Zimbabwe
2. state the months that fall under each season
3. identify signs from their local environment that indicate the seasons.

Introduction

There are times when it will be raining, other times it will be hot and other times it will be cold. These changes in weather mark the change in seasons. The raining period is an example of a season. In Zimbabwe, we have four changes that take place in a year, meaning that we have four seasons.

Unit 4 Weather



Figure 4.2 Different weather for different seasons

Flashback

Why are you dressed the way you are dressed right now? Are you feeling warm or cold? Why do people dress differently?



Key words

shelling

post rain

seasons

maize crib

Seasons of Zimbabwe

There are four seasons in a year in Zimbabwe. Namely rain season, post rain season, cool dry season and hot dry season.

Rain season (summer)	covers the months from mid-November, December, January, February up to mid-March. The main activities in this season are ploughing, planting and weeding. Also during the rainy season, we have such creatures as crickets and fruits like mazhanje.
Post rain season (autumn)	covers the months from mid-March, April, until mid-May. Activities include harvesting, making maize cribs . Fruits like tsubvu/umtshwankela are common. Mice are also common.
Cool dry season (winter)	covers the months of from mid-May, June, July to mid-August. Common activities: shelling maize and threshing rapoko. Trees shed off their leaves.
Hot dry season (spring)	covers the months from mid-August, September, October to mid-November. Common activities include gardening. Trees have new leaves. Common fruits of this season are matohwe/uxakuxaku and matamba/umkhemeswane

Rain season (Summer)



Indicators and activities

Tractor ploughing, people weeding, crickets, mazhanje, raining. Animals such as frogs are present. Ants are searching for food.

Post rain season (Autumn)



Indicators and activities

Harvesting, constructing maize cribs, mice, tsubvu/umtshwankela

Cool dry season (Winter)



Hot dry season (Spring)



Indicators and activities

Shelling maize, pounding rapoko, people putting on jackets. Trees with no leaves. Very cold temperatures.

Indicators and activities

Trees with new shoots, people walking with umbrellas on to protect the sun's heat, matohwe/uxakuxaku, matamba/umkhermeswane.

Figure 4.3 Activities in different seasons of the year

Activity 1

In groups, pick out which months fall under each season from Figure 4.3. You should also pick out the activities done in each season.

Activity 2

Go outside and identify signs from the environment which show the season you are in.

Exercise

1. We get rains in _____ season.
A. spring B. winter C. summer D. autumn
2. During winter, the weather is _____.
A. raining B. very cold C. very hot D. trees have new shoots

3. In which season do we find crickets?
A. winter B. spring C. summer D. autumn
4. The four seasons of the year are:
1. _____
2. _____
3. _____
4. _____
5. List activities done in summer.
6. Fill in the missing information.

Season	Months
a) summer	mid-November, mid-March
b)	mid-May, June, July, mid-August
c) spring	mid-August, mid-November
d)	mid-March, April and May

Let's play and learn

Rearrange the following words to show that you know your agriculture words that are related to seasons.

mmersu; amutnu; fiwner; rignsp; ujne, aym

Summary

The four seasons we have in Zimbabwe are:

summer: the rainy season;

autumn: post rainy season which means after the rain season;

winter: cold season; and

spring: hot dry season

Glossary

Maize crib	- a structure made to store maize soon after harvesting, before shelling is done
Post rain season	- the season that comes after the rainy season
Season	- a period or time in a year where there is different weather
Shelling	- removing maize grain from the cob
Threshing	- to separate grain from the plant stalk

End of topic assessment test

Multiple choice questions

1. Which of the following is not a season?
A. summer B. July C. winter D. spring
2. Winter is found in the following months except _____.
A. June B. July C. February D. August
3. Ploughing, planting and weeding are activities common in _____.
A. winter B. summer C. autumn D. spring
4. New leaves on trees mark the end of _____ and beginning of _____.
A. spring, summer B. winter, spring
C. summer, winter D. summer, spring
5. Most trees dry and shed off their leaves in which season?
A. summer B. autumn C. winter D. spring
6. The people in the picture show it is _____ time.
A. summer
B. winter
C. autumn
D. spring



7. The people in the picture show it is _____ time.

- A. spring
- B. winter
- C. summer
- D. autumn



8. The activity of weeding in a maize field is common in _____.

- A. summer
- B. winter
- C. spring
- D. autumn

9. The harvesting of maize is common in _____.

- A. summer
- B. autumn
- C. winter
- D. spring

10. Which season do we receive most rain in Zimbabwe?

- A. summer
- B. autumn
- C. winter
- D. spring

Structured questions

1. Fill in the table on the missing information on seasons.

Season	Months	
a)	November, December, January, February.	
b) Spring,	
c) Autumn,	
d)	May, June, July	[5]

2. Which signs indicate that summer is approaching? [2]

3. Which animals are common in summer? [2]

4. What causes trees to shed off their leaves? [1]

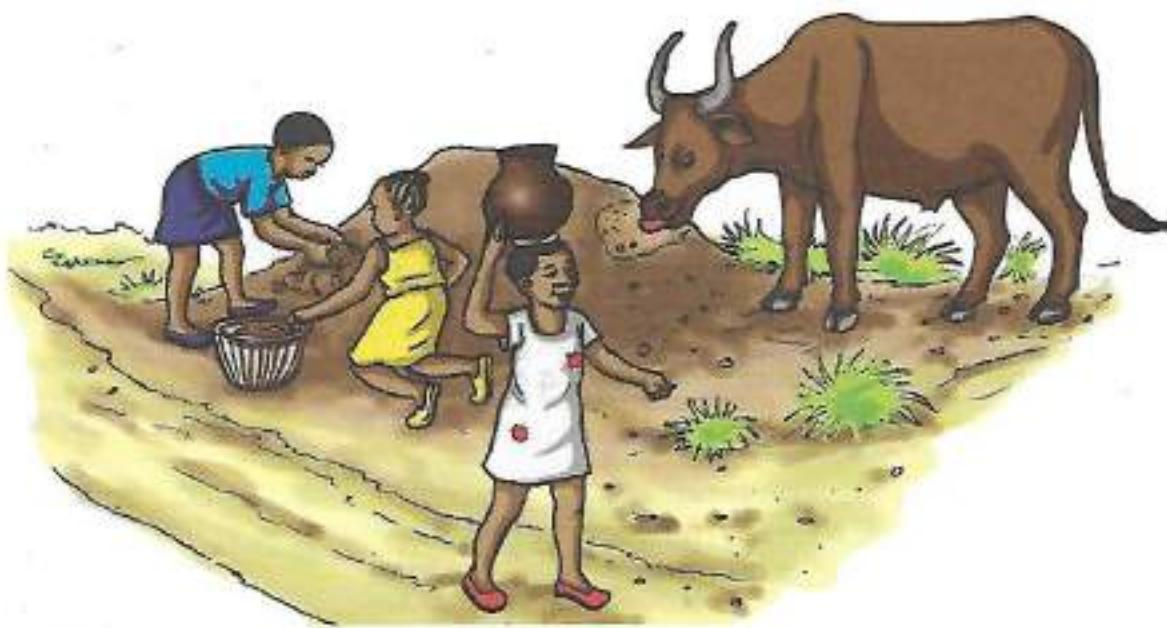


Figure 5.1 Soil

Objectives

Learners should be able to:

1. define soil
2. identify local soils
3. identify materials used for making compost
4. make a compost heap
5. define soil erosion
6. identify signs of soil erosion in the local environment

Introduction

Soil is the material of the earth on which we live on. Plants grow in the soil and our animals live on the soil. For us to survive on this earth, we need the soil. We have to take good care of the soil.

Unit 5 Soil types

SACRED HEART PRIMARY SCHOOL
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02 OCT 2017
TEL. 0288-274
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Figure 5.2 Local soils

Flashback

Sometimes you go outside and play on the soil. When it rains the soil gets wet. It is fun drawing pictures with sticks on wet soil.



Key words

sandy
fertile

clay
organic matter

loam
organisms

coarse

Importance of soil

Soil can be defined as the mixture of **organic matter**, air, water and minerals. **Organic matter** is made up of the remains of plants or animals. Soil is important because it has many uses. Crops are grown in the soil. The animals we keep feed on grass, which grows in the soil.

Local soils

There are three main types of soil. Figure 5.2 above shows the three types. There is **clay** soil which has small, fine particles that stick together when they are wet. Clay is also used for moulding pots.

There is also **sand** which has large particles. The large grains make the sand soil **coarse**. Coarse means that the particles are rough and loose when you feel them using your fingers. When we mix clay with sand we get **loam** soil. Loam soil is the best soil for growing crops because it is **fertile** which means it has enough nutrients for plants to grow well.

Activity 1

Let us go outside and look at the soil around our school. Use your practical book to record what you see, and learn:

- What is the colour of the soil at your school?
- Find some water and pour on the soil. Does it stick to your shoes?
- Is the soil sandy, loam or clay?

Activity 2

Get into groups. Let us have boys and girls in each group. Find some containers to fill with soil.

Collecting soil samples

- Group 1-Sandy soil
- Group 2-Loam soil
- Group 3-Clay soil

Now you should record the following in your practical diary.

- a) What is the colour of your soil?
- b) Are the particles big or small?

Exercise

1. What do we call soil which is rich in nutrients to make plants grow well?
A. fertile soil B. sandy soil C. clay soil D. nutrients
2. Give the type of soil which sticks to things when wet.
A. sand B. clay C. loam D. fertile
3. The soil with big grains is called _____.
A. clay B. sand C. fertile D. loam
4. What is the other use for clay _____.
A. building
B. pottery
C. paper
D. paint
5. List three soil samples you have studied.
 - a) _____
 - b) _____
 - c) _____
6. Which soil type is best for growing crops?
7. Why is this soil best for growing crops?

Summary

- Soil is important for growing crops.
- There are three types of soil which are sand, clay and loam.
- A mixture of clay and sand gives loam soil.
- The trees and grass grow well in good soil.
- Loam soil is the best soil for growing crops.

Glossary

Clay soil	- small soil particles that stick together when they are wet
Coarse	- rough
Fertile	- soil rich in plant nutrients
Loam soil	- a mixture of sand and clay soils
Organic matter	- decayed remains of plants and animals
Sandy soil	- soil with large soil particles

Unit 6 Soil fertility

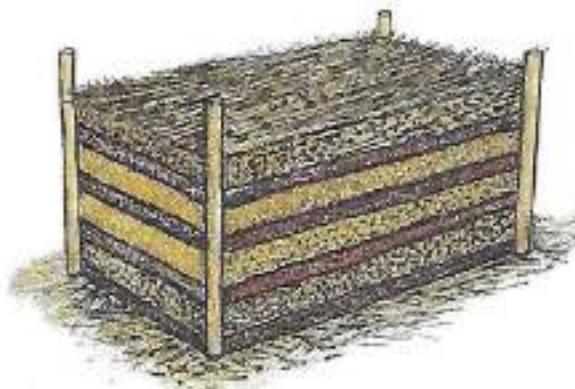
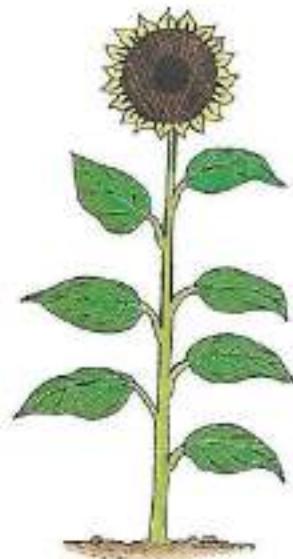


Figure 6.1a. Healthy maize and sunflower plants

b. Compost heap

Flashback

What do you apply in your school or home garden to make the crops grow well?

Key words



compost

stover

site

fertility

Introduction

Plants grow well in fertile soils where they get enough nutrients. Plant food found in the soil is called plant nutrients. When we add manure into the soil, it becomes fertile. This addition of manure improves the **fertility** of the soil.

Compost making

Decayed natural materials make a compost. Compost manure is made in different ways. We use different types of materials for making **compost**. The materials are collected from the fields. Maize stalks, wheat straw, soya bean stalks and tobacco remains are some of the materials suitable for making compost.

Materials suitable for making compost should easily rot when put on the compost heap. The suitable materials are listed below.

Vegetation materials

These include: tree leaves, maize stalks, groundnut stover, wheat straw, soya bean stover, vegetable remains from the garden, kitchen waste. Crop remains are called **stover**.

Animal matter

These include: dung and droppings from domestic animals such as cattle, goats, sheep, rabbits, pigs and fowls.

Weeds and stover are put in pigsties and fowl runs as bedding. This is to keep the fowl runs and pigsties clean and warm. The mixture of animal dung and droppings with bedding makes good manure.

Selecting the site for a compost

Select an area where there are no crops being grown. We can select the **site** under a tree where there is a shade. A site is a selected area where a particular activity will take place. The shade protects the compost from the heat of the sun. Compost should be made near the garden. It will be easy to carry the compost to the garden. We should select a site near water, so that the compost heap is watered easily.

The site for a compost heap should also be protected from farm animals as cattle can sometimes trample over the compost heap.

Making a compost heap

A good compost heap is made in layers as follows:

Layer 1 – grass, maize stalks, vegetable waste, bedding from pig sties and fowl runs.

Layer 2 – manure or ashes

Layer 3 – soil, water

The layers are repeated until the compost heap is one metre and twenty centimetres (1.2m) high.

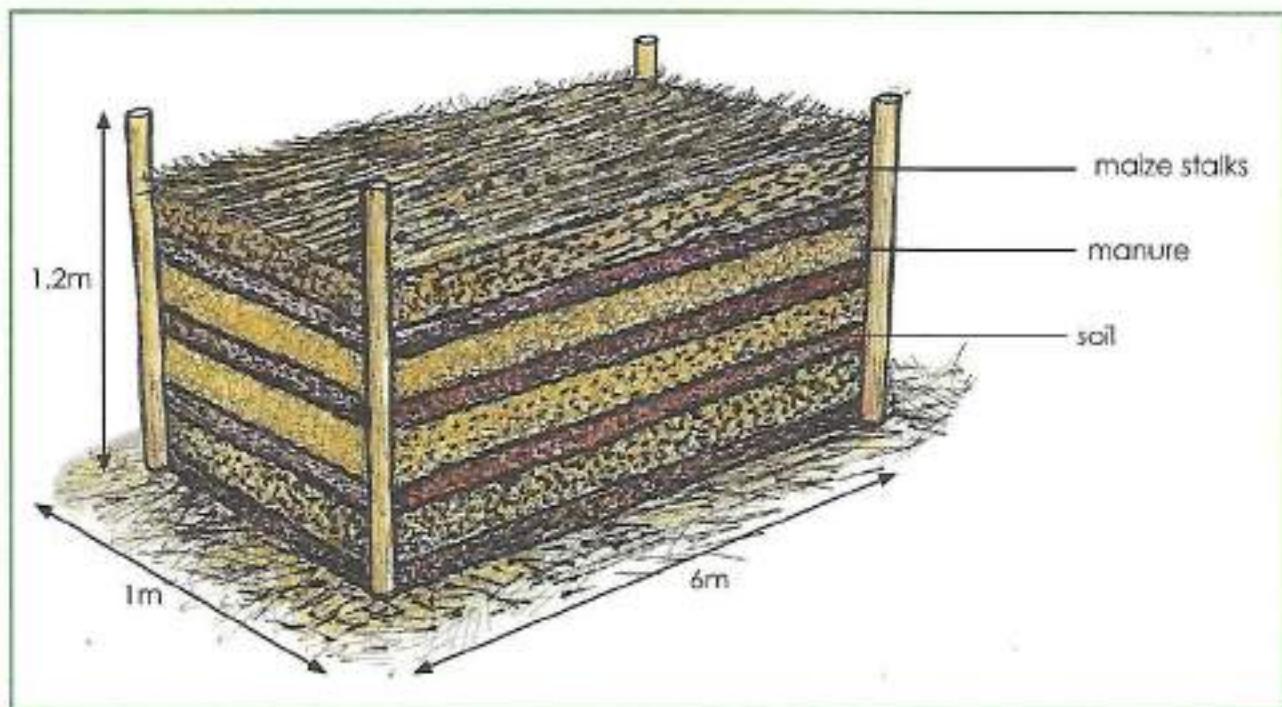


Figure 6.3 A compost heap

Looking after a compost heap

Things to do:

Activity	Reasons
• Water the heap every two weeks	Water helps the materials to rot quickly
• Clear weeds around the compost heap	Weeds remove moisture from the compost
• Turn the compost heap after four weeks	Turning helps all layers to rot quickly

Activity 1

Marking the site for a compost heap.

Steps

1. Measure one metre width
2. Measure six metres length
3. Put pegs at the corners
4. Stretch a string along the pegs
5. Mark along the string

Record the width and length in your practical book. Draw a diagram to show the pegs. Also show the lines marking the edges of the compost site.

Activity 2

Music and dance

Songs with materials used to make compost.

We are the compost wonder,
We waste no time
Just two, three, four weeks
And we are rotten
We were once green
We were once alive
We had fruits
Always feeding them
With water they drank
And a lot of food they ate
From the soil below
All the food we gave them

Exercise

Summary

- You have used materials such as crop remains and manure to make a compost, so a compost is a cheap source of plant nutrients.
 - Using compost improves soil fertility. This makes crops to grow healthy.
 - When making compost, animal manure is added. This makes the compost rot quickly.
 - Animal manure also improves the quality of compost.
 - Water also helps to make the compost rot quickly.

Glossary

Animal matter	-	decayed material of animal origin
Bedding	-	litter put on floors of animal houses
Compost	-	manure from a compost heap
Fertility	-	being fertile
Site	-	position or place for a compost
Stover	-	crop remains
trample	-	walk on and crush

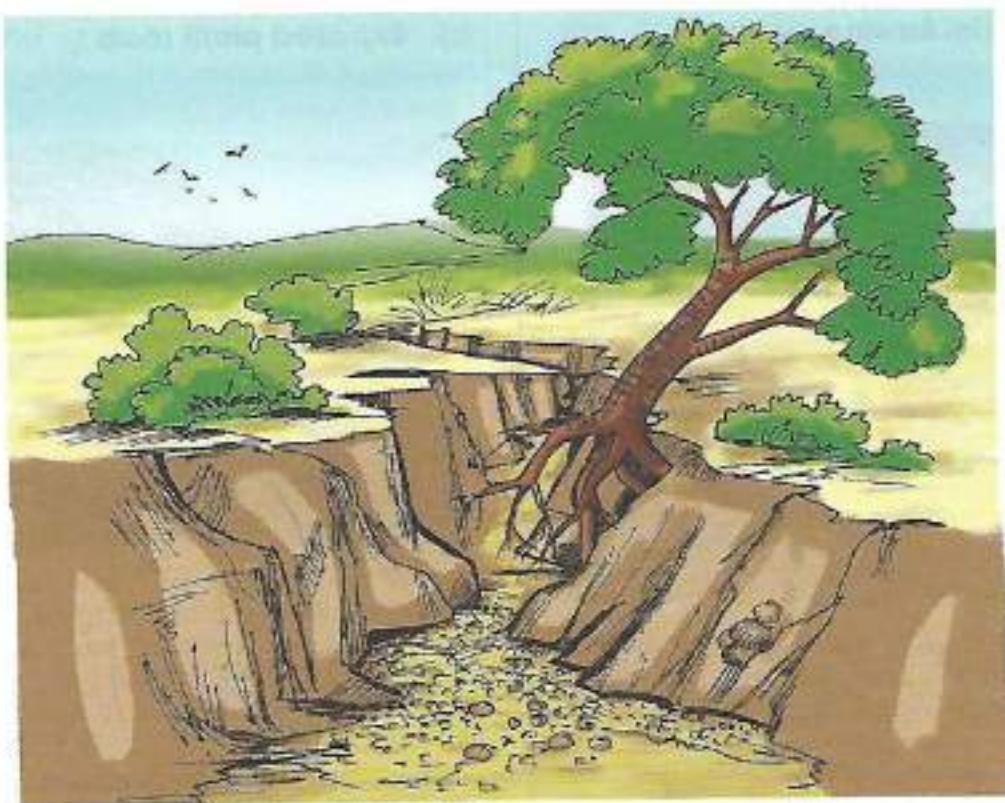


Figure 7.1 Soil erosion

Flashback

When you walk on a gravel road you see a lot of sand along the sides of the road. All that sand is washed away from the ground near the road. Think of other places where you have seen soil that has been washed away.



Key words

silt soil erosion gullies

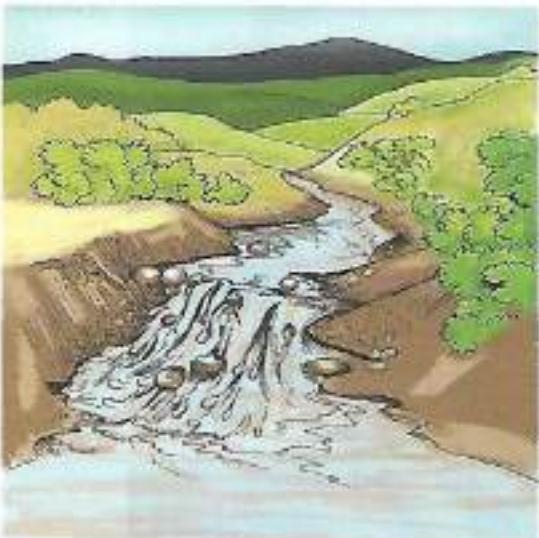
What is soil erosion?

Soil erosion is the washing away of the top soil and it happens when there is heavy rainfall, wind and through animal and human activities. When the rain water flows on the ground, it carries soil particles with it. If this continues, a lot of soil is washed away. This is called soil erosion.

Signs of soil erosion

Signs of erosion are the presence of mud in water, exposed plant roots, presence of gullies, and silt in dams.

a) Mud in flowing water



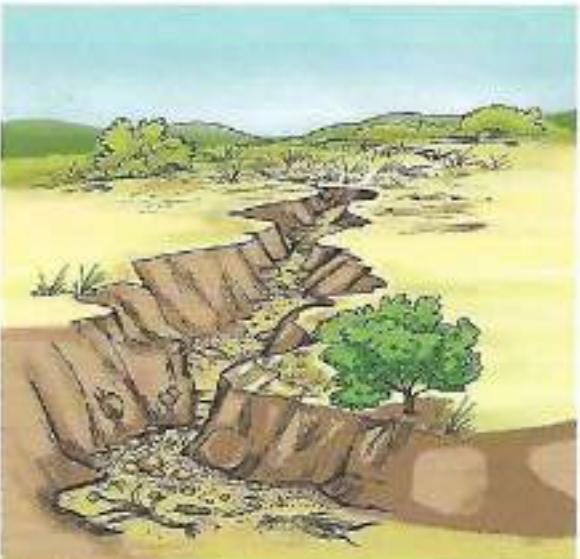
Look at the water flowing on the ground when the soil is bare. The water is muddy when it is washing away soil particles.

b) Exposed plant roots



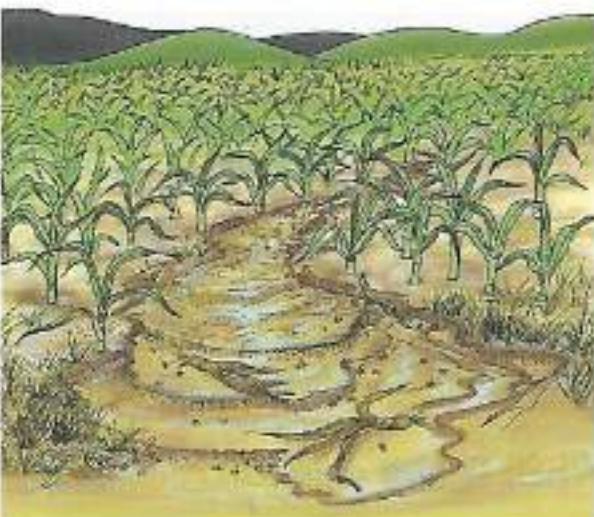
Sometimes when heavy rains fall, water flows along low areas and wash away large amounts of soil. Roots of trees are seen exposed out of the ground because of erosion. When the soil is bare, gully erosion will take place.

c) Presence of gullies



Sometimes water flows strongly causing openings which are known as gullies.

d) Silt being washed away from the fields



Sand that is washed away gather at river banks.

Fig 7.2 signs of soil erosion

How animals and human activities cause soil erosion

a) over grazing: when animals graze they remove the plants and grasses that hold the soil together. This makes the ground bare and makes it easy for soil to wash away when it rains or when it is windy.	b) animal pathway: when animals move around they trample on the ground. This loosens the soil and enables erosion to take place.
c) Streambank cultivation: when people cultivate on streambanks they loosen the ground around the stream or river. When it rains the soil is easily washed into the stream or river. This will result in silting of the river.	d) Deforestation: the cutting down of trees leaves the ground bare. The soil is exposed and without the tree roots that hold the soil together, it can be easily washed away by rain water and wind.

Activity 1 Field trip

Make a trip to an irrigation scheme in your area.

Things to observe: exposed plant roots, deep cattle tracks, muddy moving water and silt.

Activity 2 Observation

1. Look for areas where rain water is flowing.
2. Is the water clear or muddy?
3. Are there any gullies?

Activity 3 Practical work

Learners should find a gully in the school yard and fill the gully. Learners gather weeds and stones to fill up the gully.

NB: Use your practical books to record the observations you have made.

Exercise

1. Sand on stream bed is called _____.
A. silt B. clay
C. gravel D. stones
2. What are the openings in the ground caused by erosion called?
A. silt pits B. gullies
C. exposed plant roots D. potholes
3. Streambank erosion is caused by _____.
A. growing crops B. cutting trees
C. heavy rains D. strong winds
4. Name a place where soil erosion can be observed.
5. How do animals cause soil erosion?
6. How can we protect soil from erosion?

Summary

Soil erosion is the washing away of the top soil and it happens when there is heavy rainfall, wind and through animal and human activities.
Signs of erosion are the presence of mud in water, exposed plant roots, presence of gullies, silt washed away from fields and silt in dams.

Glossary

Silt	- soil and other material that is carried by flowing water and deposited in the river or dam
Soil erosion	- washing away of soil

End of topic assessment test

Multiple choice questions

1. Which type of soil has fine soil particles?
A. sand B. clay C. loam D. silt
2. Name the type of soil used for moulding pots.
A. red soil B. sand C. loam D. clay
3. Which material for compost making comes from animals?
A. wheat stover B. grass C. kraal manure D. tree leaves
4. State a use of compost.
A. improves soil fertility B. provides water to plants
C. makes soil colourful D. controls soil erosion

5. Which animal does not produce manure?
A. dog B. pig C. cow D. chicken
6. _____ and _____ causes soil erosion.
A. animals and trees B. grass and people
C. wind and water D. water and soil
7. Manure from a pigsty is called _____.
A. litter B. straw C. bedding D. dung
8. Why is a compost heap made under a tree? Because it should be _____.
A. kept cool B. protected
C. near the garden D. watered every week
9. Why should a compost heap be made in layers?
A. to use all the materials B. to keep wet
C. so that it rots quickly D. easy to make
10. What is the suitable height of a compost heap?
A. 1 m B. 1.2 m C. 1.5 m D. 2 m

Structured questions

Fill in the blanks with the most suitable answer.

1. Trees and plants grow in the _____.
2. _____ soil has fine particles.
3. Loam soil is a mixture of _____ and clay.
4. The colour of the soil at our school is _____.
5. Manure makes the soil _____.
6. Crop remains are called _____.
7. Match the type of erosion with the place where it is found. Use this list;
river banks farming land siltation raindrop erosion

Type of erosion	Place where found
a)	Bare ground
b) Stream bank erosion
c) Gully erosion
d)	River bed

[4]

Multiple choice questions**Section A****Answer all questions**

1. What is the importance of agriculture from the lists?
 - A. money, food, clothes
 - B. get cars, buy shops, dig wells
 - C. buses, bicycles, motor bikes
 - D. irrigation, watering, food
2. Which of the following is a sign of erosion?
 - A. covered ground
 - B. brown soils
 - C. exposed roots
 - D. too many branches on trees
3. Identify types of soil from the list.
 - A. river sand, pit sand, muddy
 - B. sand, loam, clay
 - C. stones, quarry stones, muddy
 - D. organic matter, stones, muddy
4. Most trees do not have leaves and some are having new leaves. Which season is this?
 - A. winter
 - B. autumn
 - C. summer
 - D. spring
5. The activity in the picture below is common in _____.



- A. winter B. summer C. autumn D. spring

6. The tool in the diagram below is used for _____.

- A. carrying manure
- B. digging
- C. weeding
- D. watering

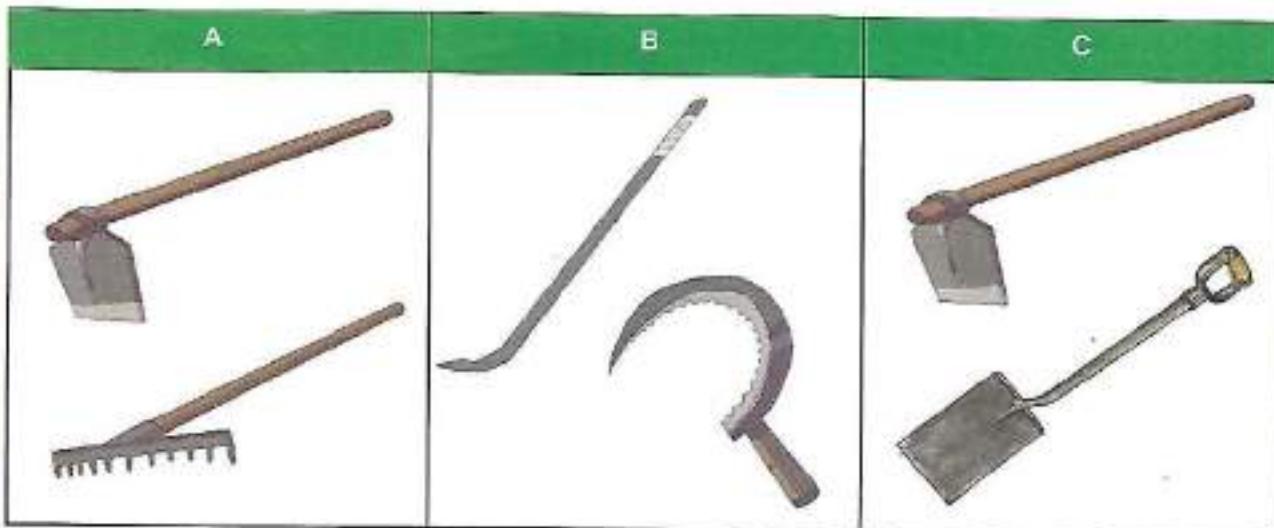


7. In which season are the people in the picture below?



- A. summer
- B. winter
- C. spring
- D. autumn

8. Choose a set of cutting tools in the diagrams below.



9. Which animal gives us eggs?
- A. cow
 - B. pig
 - C. goat
 - D. chicken
10. Which soil type has large soil particles?
- A. loam soil
 - B. fine soil
 - C. clay
 - D. sandy
11. Which type of soil is used for molding pots?
- A. sand
 - B. loam
 - C. clay
 - D. silt
12. Choose the material **not** suitable for making compost.
- A. manure
 - B. leaf mould
 - C. maize stalk
 - D. sand
13. Why is a compost heap made in layers?
- A. to look nice
 - B. saves space
 - C. to rot quickly
 - D. to use less material
14. What is the suitable width of a compost heap?
- A. 0.9 m
 - B. 1 m
 - C. 1.2 m
 - D. 1.5 m
15. Why should a compost heap be turned?
- A. keep moisture
 - B. to add nutrients
 - C. to rot faster
 - D. maintain the height
16. Which set of materials gives us material for making clothes?
- A. cotton, cattle, sheep
 - B. maize, cat, sunflower
 - C. bean, groundnuts, sheep
 - D. soya bean, rabbit, maize
17. To make straight ridges one should use a _____.
- A. rake
 - B. wheelbarrow
 - C. watering can
 - D. garden line

18. What is the person in the picture doing wrong?

- A. He is not wearing protective clothes.
- B. He is too short.
- C. He is spraying well.
- D. He is not smiling.



19. The tool used when you want to control pests in the garden is _____.

- A. wheelbarrow
- B. knapsack sprayer
- C. a hoe
- D. spade

20. Crickets, amacimbi and mazhanje are common in _____.

- A. summer
- B. winter
- C. spring
- D. autumn

21. Winter falls under which of the following months?

- A. November, December, January
- B. May, June, July, August
- C. November, January, February
- D. September, October, November

22. Which tool should be greased before using it?

- A. hoe
- B. spade
- C. sickle
- D. wheelbarrow

23. Crops which give us mealie meal for sadza are _____.

- A. groundnuts, peas, beans
- B. maize, sorghum, rapoko
- C. sunflower, roundnuts, sugar cane
- D. sunflower, peas, beans

24. How do you make sure you are using a hoe safely?

- A. Digging while you are looking somewhere else
- B. Digging while there is no one near you
- C. Digging using one hand
- D. Digging while your eyes are closed

25. Post rain season is the same as _____.

- A. winter
- B. summer
- C. spring
- D. autumn

Structured questions

Section B

Answer all questions

1. (a) What is:
 - (i) agriculture [1]
 - (ii) soil [1]
 - (iii) soil erosion? [1]
(b) Choose any tool used in the garden. Write the name and the use of the tool. [2]
2. (a) Which two common materials are used when making compost? [2]
(b) List three common soils. [3]
3. (a) (i) Write down the names of the four seasons. [2]
(ii) What activities are done in summer? [2]
(iii) What common sign shows us that winter is near? [1]
4. (a) What is a compost used for? [2]
(b) What are the signs of erosion? [2]
(c) Why are animals important in agriculture? [1]
5. Match the garden tools and their uses.

Garden tool	Uses
(a) sickle	carrying manure
(b) wheelbarrow	shallow cultivation
(c) garden line	levelling beds
(d) hand fork	cutting grass
(e) rake	making straight lines

[5]



Figure 9.1 Cattle drinking water from a dam

Objective

Learners should be able to:

1. state the uses of water in agriculture

Introduction

POEM

Water! Water! Water!
Water is life
Plants need water
Water is needed by animals
People need water
Water, water you are precious
Without you
No life in plants
No life in animals
No life in people
Thank you Lord for giving us water!

Unit 9 Water conservation

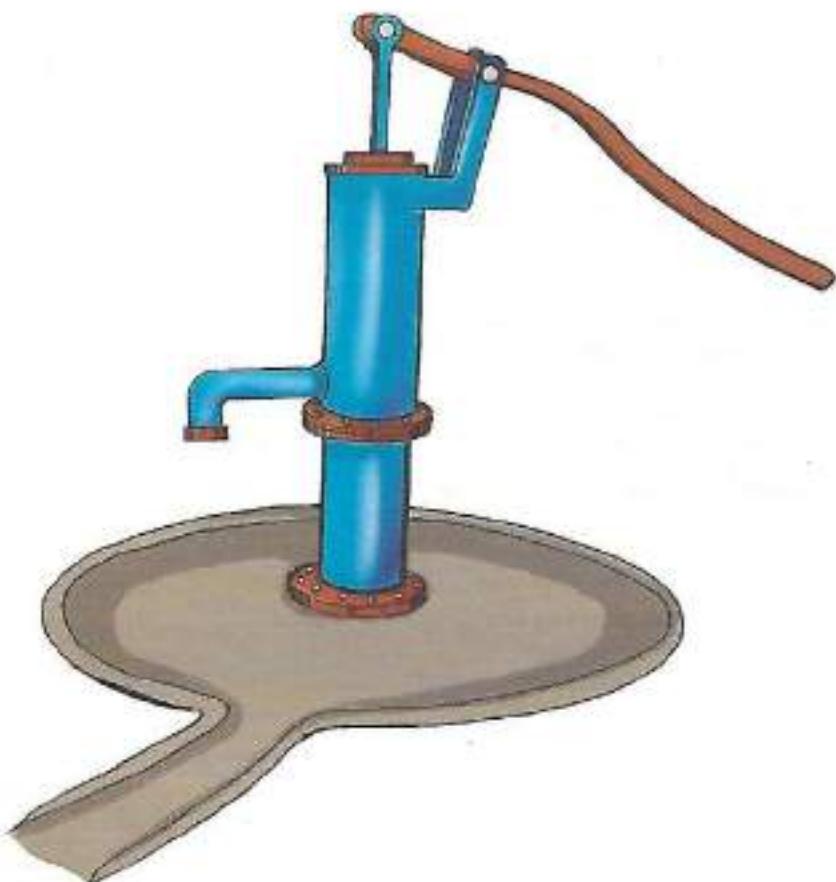


Figure 9.2 A borehole

Flashback

Think of the uses of water at home and how the water is stored. Where do we get our water from?

Key words



conservation

watering

irrigation

Uses of water in agriculture

Water is the liquid which forms the rivers, dams, lakes, seas and rain. All living organisms need water to survive. Water is very important in agriculture, and to the life of people and animals. Water is important for the following:

- watering vegetables.
- drinking by animals
- irrigating fields
- for fish farming
- cleaning agricultural equipment
- used in industries
- used in cooling engines in cars and tractors used on the farms.

Water needs to be conserved. **Conservation** is using water wisely without wasting it. Storing water is also a way of conserving it, so that we will use it for watering and irrigating. **Watering** is done on small pieces of land and we use buckets or watering cans. **Irrigation** is done on large pieces of land and we use sprinklers and hosepipes. Water is conserved in tanks, dams and boreholes.

See the pictures below and identify the uses of water in agriculture.

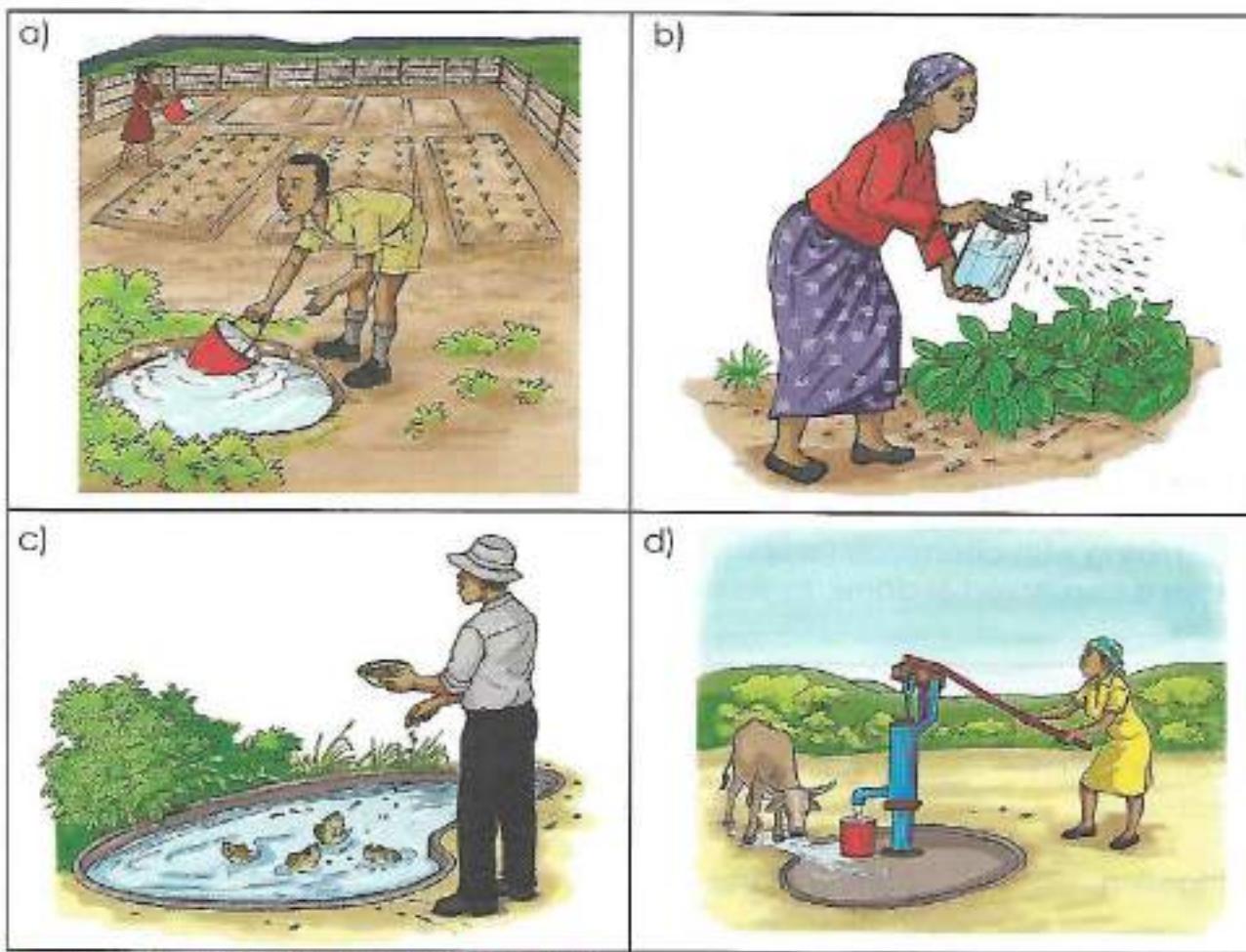


Figure 9.3 Different uses of water in Agriculture

Activity 1

In groups, discuss the uses of water in your communities and also the general uses of water. You can mime uses of water and others say the use after observing the mimicry.

Activity 2

Your teacher will demonstrate how to water a vegetable bed using a watering can. After that, water the vegetable beds in the school garden.

Exercise

- From the poem in the introduction, what three things need water?
(a) _____
(b) _____
(c) _____
- List **three** uses of water.
- What is happening in each diagram in **Figure 9.3**?
- Name two sources of water.
- What is water conservation?

Summary

Water is used in agriculture for:

- drinking
- watering animals
- watering small gardens
- irrigating large fields
- cleaning agricultural equipment
- mixing with chemicals for spraying and keeping fish among other uses.

Water is conserved in dams, tanks and boreholes for future use.

Glossary

Conservation

- using resources wisely

Watering

- putting water in a bed using a bucket, watering can or hosepipe.

Irrigation

- putting water in a field using any irrigation method.

End of topic assessment test

Multiple choice questions

Structured questions

- | | |
|---|-----|
| 1. What is water? | [2] |
| 2. Uses of water in agriculture are _____, _____ and _____. | [3] |
| 3. Name three sources of water used in farming. | [3] |
| 4. What happens to crops if they are not watered? | [1] |
| 5. Where can we store water for farming? | [1] |



Figure 10.1 Plants

Objectives

Learners should be able to:

1. identify plants within the local environment
2. state local organic sources of plant nutrients
3. identify local vegetables
4. classify local vegetables as indigenous or exotic
5. Identify local field crops
6. Identify local fruit trees
7. define ornamental horticulture
8. identify ornamental plants
9. define forestry
10. state uses of trees

Introduction

Plants are important in life because they help us to get oxygen. We use plants as food, medicine and some are used to make our homes look beautiful. Plants provide us with fibres for making cloth, rope and paper. Some provide fuel and also shelter.

Unit 10 Introduction to the study of plants

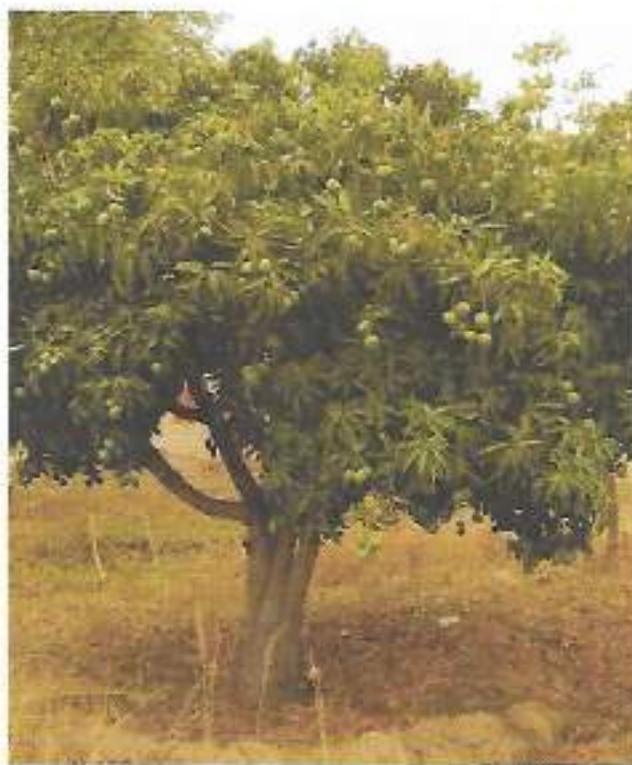


Figure 10.2 A mango tree

Flashback

Make a list of all the plants you know. Share your list with a friend and see if they have listed plants you have not listed.



Key words

shrub

herb

weed

Plants within the local environment

The environment has a lot of plants. These include grasses, trees, and shrubs. Trees are plants which have hard stems that grow tall. Shrubs are small to medium sized bushes that have multiple stems near the ground. Grasses are thin and they have soft stems.

Types of plants

Trees

Trees have long/tall trunks that supports branches above the ground. Most trees are woody and grow tall and strong.

We use trees for different things. Trees provide us with:

- poles for building
- timber to make furniture
- medicines and remedies
- oxygen for breathing
- paper

Shrubs

Shrubs are plants with smaller and numerous stems. We find most shrubs as bushes in our community. Some shrubs like the bougainvillea have flowers. We use them to decorate our yards and mark boundaries. Some shrubs are used as hedges as most of them have their leaves all year round. Some shrubs are herbs. Herbs are plants with leaves, seeds or flowers used for food, medicine or perfume.

Grasses

These are plants with narrow long leaves and thin stems that are jointed. Some grass plants produce food. Barley, maize (corn), rapoko, rice, sorghum, wheat and millet are all grasses. Grasses that grow tall are called tufted grasses. These are often used for thatching and are harvested to make hay. Runner grass does not grow tall, it moves and covers the ground. This type of grass is often used as lawn or fodder for cattle and horses.

Activity 1

Go around the school, and take a small branch from any plant and say the name fo the plant. Use the local names where necessary.

Activity 2

Look for manilla sheets, cut them into A4 size. Dry the leaves in a shade so that they do not lose their colour. After drying them, paste the leaves on the manilla sheet. Write the names of the trees and bushes from which you took the leaves. State the uses of these trees and bushes in your community.

Activity 3

Go home and research on the importance of each plant you have picked from the garden, field or orchard .

African spider herb munyeve/ulude	Wild loquat muzhanje	Monkey orange mutamba
		
Upright star bar	Waterberry mukute	Small leaved fluff bush chigunguru
		
Wild spinach mowa/imbuya	Msasa	Sour plum munhengeni
		

Figure 10.3 Plants within the local environment

Indigenous plants are plants that are originally grown in a country.

Exotic plants are plants that are originally grown in foreign countries.

RED HEART PRIMARY SCHOOL
MULAWA - BULAWAYO

02 OCT 2017

TEL: 0288-274
CELL: 071 323 397

Exercise

1. What is the name of this tree?
A. Msasa B. Sour plum
C. Orange tree D. Water-berry
2. What is the name of this shrub?
A. Small leafed fluff bush B. Bougainvillea
C. Poor man's spinach D. Sour plum
3. A shrub has _____.
A. thin and soft stems B. hard stems
C. no leaves D. multiple stems near the ground
4. What is the difference between a tree and a shrub?
5. List four common plants found in your area.



Summary

- There are different types of plants found in your area.
- There are 3 main types of plants, trees, shrubs and grasses.
- Plants originally found in a country are called indigenous.
- Plants originally found in foreign/other countries are called exotic.

Glossary

Shrub	- a plant which does not grow more than 2m and have many branches.
Tree	- a plant with a long trunk.

Unit 11 Plant nutrition

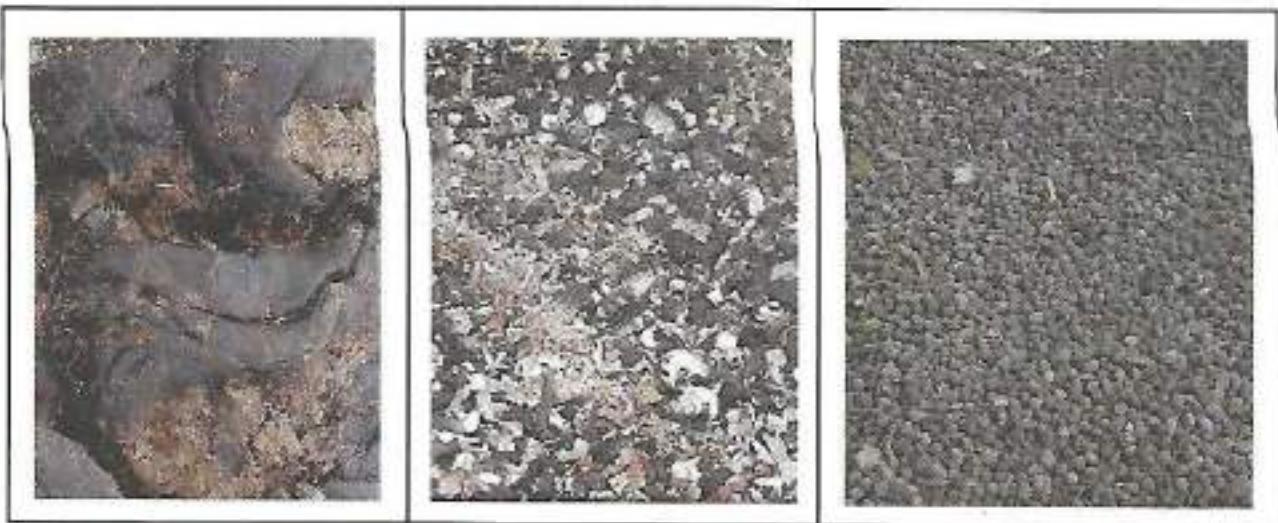


Figure 11.1 Different types of manure

Flashback

People and animals eat food to be healthy. What do you think plants need for them to grow big and healthy?



Key words

organic matter

plant nutrients

manure

Introduction

Like animals and people, plants also need food. They take their food through the roots. The food is called **plant nutrients**.

The common nutrients which feed plants are nitrogen, phosphorus and potash (potassium). There are many sources of plant nutrients, these include manure, plant stover and fertilisers.

Figure 11.2 shows the animal and the manure it produces.

Local sources of plant nutrients

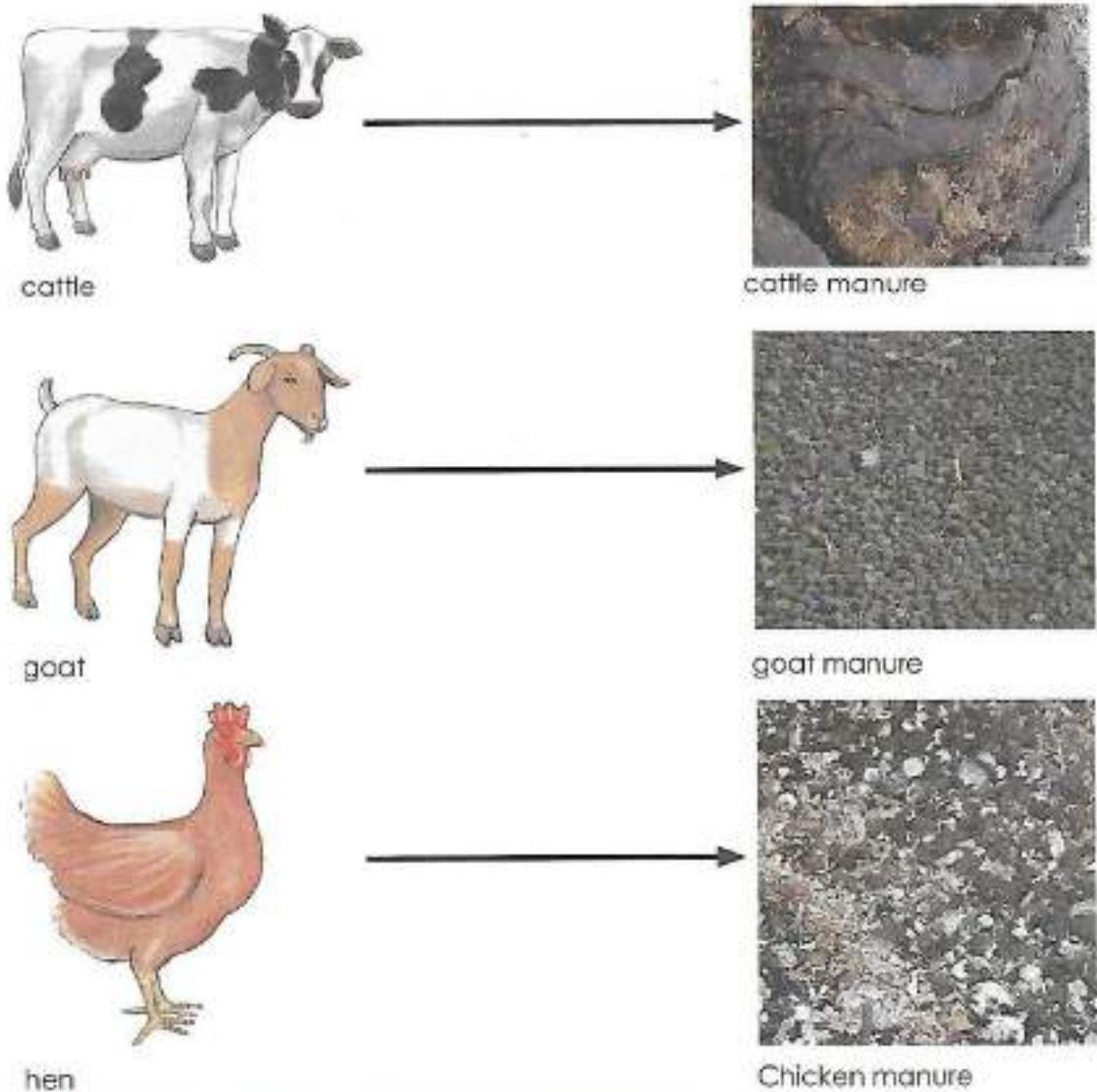


Figure 11.2 Shows the animal and manure it produces

Most domestic animals produce dung which is used as **manure**. The manure is from the food taken in by the animals. The food is usually **organic matter**. Organic matter is living material such as grass, leaves and crops. It is important to keep cattle, goats, sheep, rabbits, chickens and donkeys because their waste gives us manure which we can use in our gardens. A compost is made of organic matter.

Manure	Use
Cattle manure	<ul style="list-style-type: none"> best for field crops such as maize, sorghum, millet etc. garden crops such as rape, viscous, tomatoes flowers
Chicken manure	<ul style="list-style-type: none"> best for garden crops such as rape, viscous, tomatoes, onions etc. flowers
Compost manure	<ul style="list-style-type: none"> best for field crops such as maize, sorghum, millet etc. garden crops flowers and lawn

Activity 1

In groups of 5, list locally available plant nutrients. Bring a 2 kg paper of manure of any animals you keep at home and put it in the school garden.

Exercise

- Which animal gives manure?
A. lizard B. cat C. chicken D. dog
- Compost is made up of _____.
A. plastic, stover and cattle manure
B. stover, cattle manure and rubber
C. stover, cattle manure and kitchen waste
D. plastic, stover and rubber
- Plants take plant nutrients as their _____.
A. food
B. manure
C. compost
D. potash

For questions 4-6 choose your answers from the following:

cattle, phosphorus, chicken, nitrogen, goat, organic matter, potash

- The three nutrients found in manure are _____, _____ and _____.
- Three types of animal manure are _____, _____ and _____.
- Any living material that decomposes is called _____.

Summary

- Plants need nutrients to grow well.
- Manure from animals is called organic manure.
- When we heap grass, leaves and any other material that decomposes we form compost manure, which is required for providing plant nutrients.

Glossary

Manure	- animal waste which contains food (nutrients) for plant growth
Organic matter	- anything that can decay
Plant nutrients	- food for the plants

Unit 12 Vegetable crops

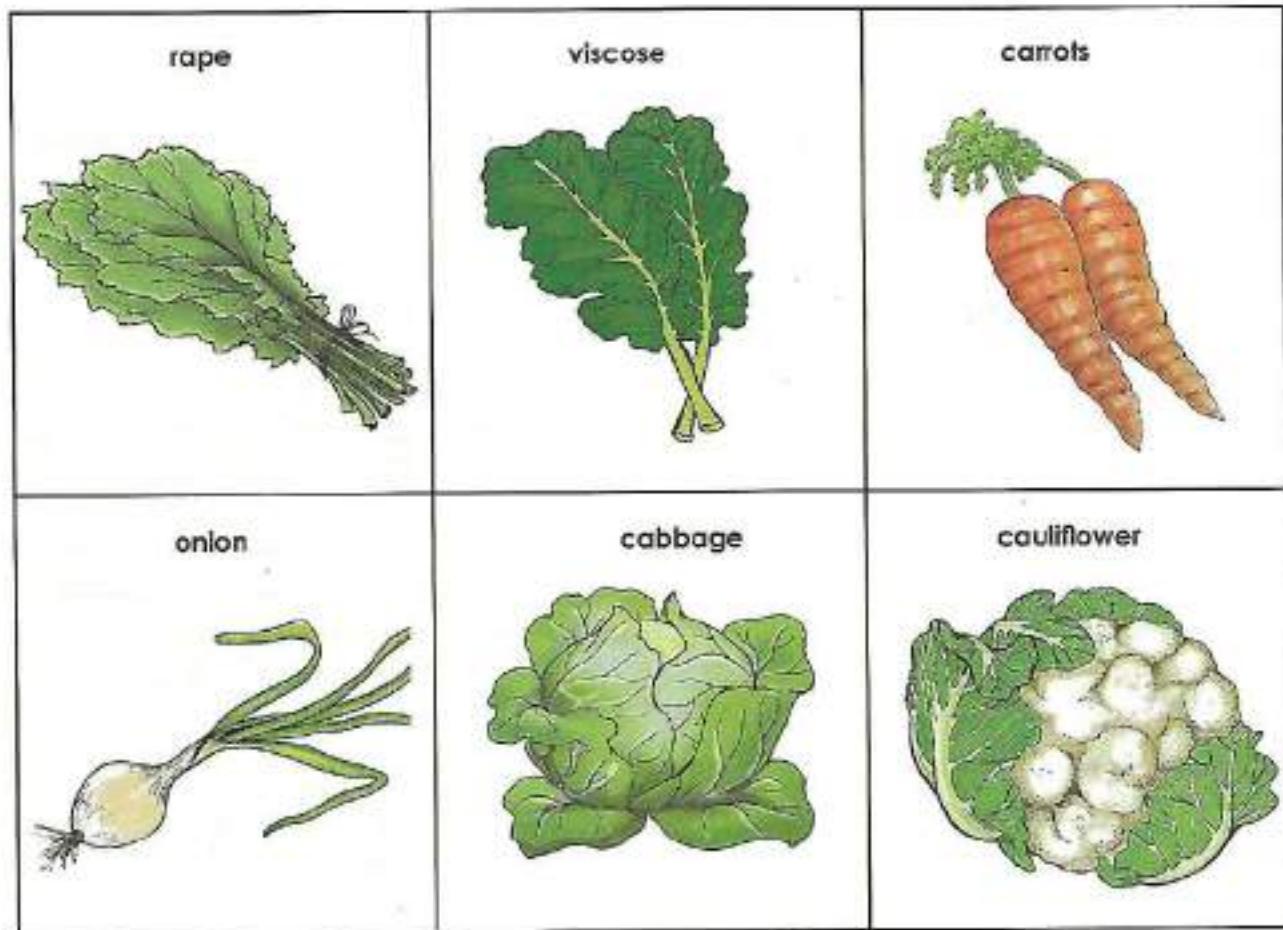


Figure 12.1 Vegetable crops

Flashback

What is your favourite vegetable? Tell your friend why you like it.



Key words

indigenous

exotic

relish

Introduction

Vegetables are used as **relish** or part of a meal. Relish is anything that we eat sadza/isitshwala with. Vegetables that have been always grown in Zimbabwe are called **indigenous**. Those that come from other countries and are now being grown in our country are called **exotic** vegetables. Figure 12.2 shows some locally available vegetables.

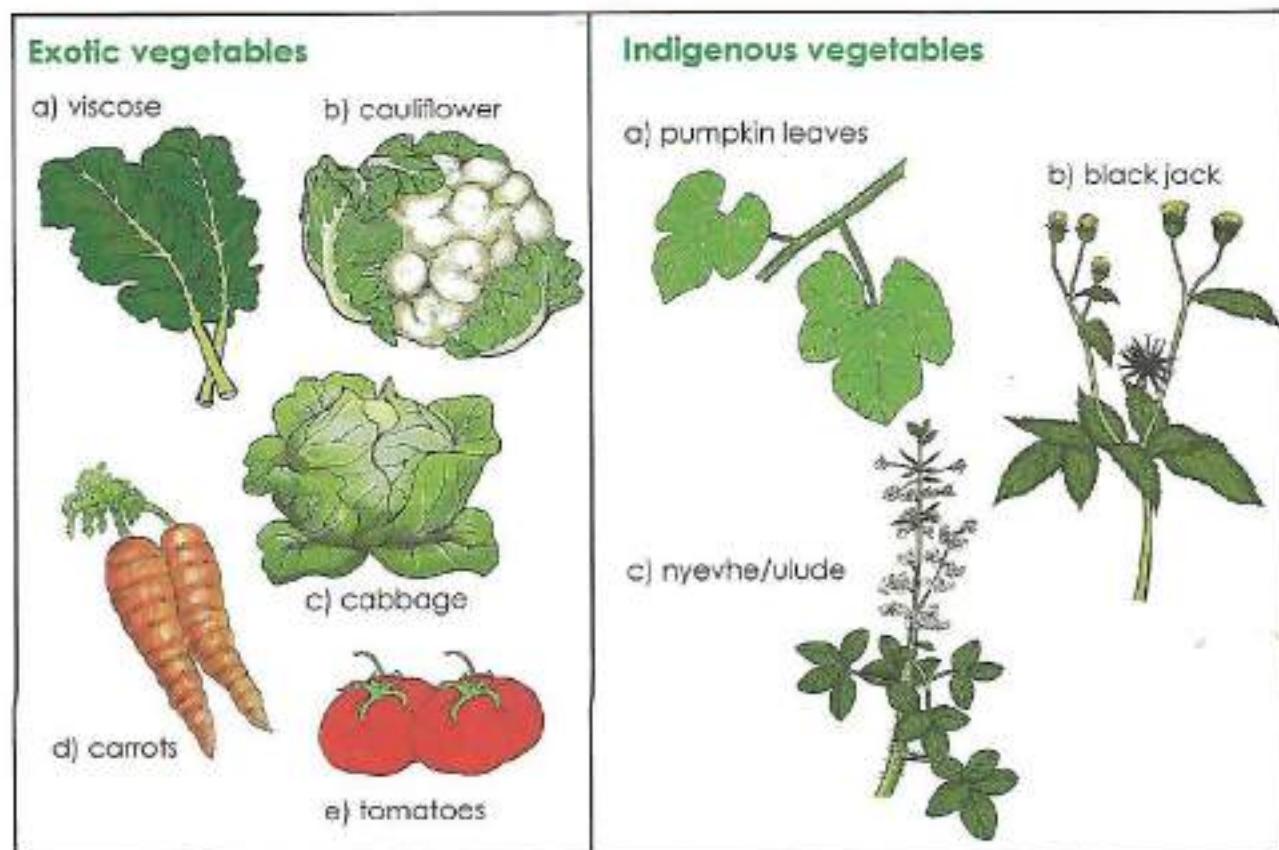


Figure 12.2 Exotic and indigenous vegetables

Local vegetables

Most vegetables are grown in the garden. There are different parts of a vegetable that can be eaten. Vegetables are classified as exotic or indigenous. Exotic vegetables are those brought from other countries and are now being grown in our country. Examples are rape, cabbage, tomatoes, onion, spinach, covo, lettuce and carrots. Indigenous vegetables are those that have always been found in our country. These may be grasses, shrubs or trees growing in our areas but can be used as relish. Examples are pumpkin leaves, spider flower leaves (*nyevhe/ulude*), black jack (*tsine/inzala*), wild spinach (*mowa*) okra (*derere/idelele*), and baobab leaves.

We can grow most vegetables all year round in a garden. Most vegetable require constant watering and attention. In Zimbabwe most vegetable crops grow well in

sandy loam soil and do well in cool and warm temperatures. Too much heat and too much cold is not good for vegetable crops. Too much water and a lack of water is not good for vegetables as well.

Some indigenous vegetables are only available during the rainy season. They grow naturally, although we can grow them in a controlled environment. These include, spider flower (*nyevhe/ulude*) wild spinach (*mowa*), black jack (*tsine/inzala*) and mushrooms. These normally sprout naturally during the rainy season.

Activity 1

Use Figure 12.1 to answer the following questions:

1. Which vegetables are leaf vegetables.
2. Which vegetables are root vegetables.

Activity 2

Collect indigenous vegetable seeds and sow them out of season to see if they can grow. If they grow, encourage the growing of these out of season.

Exercise

1. _____ is an exotic vegetable.
A. Spider flower leaves
C. Cabbage
B. Black jack
D. Poor man's spinach
2. _____ is an indigenous vegetable.
A. Cabbage
C. Lettuce
B. Black jack
D. Carrots
3. We can grow most vegetables _____.
A. in summer
C. throughout the year
B. in winter
D. in autumn
4. Match vegetables of the same category (indigenous/exotic)

Black jack	cabbage
Lettuce	carrots
Wild spinach	baobab leaves
Spider flower leaves	covo
Tomatoes	pumpkin leaves
5. Name **three** exotic vegetables and **three** indigenous vegetables

Summary

- Vegetables are classified as indigenous and as exotic. Indigenous are those that grow naturally in our fields. Exotic are those that are planted in the garden.
- Exotic vegetables include rape, cabbage, onion, tomatoes, beans, spinach and covo.
- Indigenous vegetables include *nyevhe/ulude*, *muchacha/amakaka*, *muboora/ibhokolo*, *mowa/imbuya* and *mutsine/ucucuza*.

Glossary

Indigenous	- anything originating in a country
Exotic	- imported from other countries
Relish	- anything that is used to eat sadza with

Summary

- Vegetables are classified as indigenous and as exotic. Indigenous are those that grow naturally in our fields. Exotic are those that are planted in the garden.
- Exotic vegetables include rape, cabbage, onion, tomatoes, beans, spinach and covo.
- Indigenous vegetables include *nyevhe/ulude*, *muchacha/amakaka*, *muboora/ibhokolo*, *mowa/imbuya* and *mutsine/ucucuza*.

Glossary

Indigenous	- anything originating in a country
Exotic	- imported from other countries
Relish	- anything that is used to eat sadza with

Unit 13 Field crops



Figure 13.1 Field crops

Flashback

Give examples of crops grown in a field.



Key words

legume

cash crop

staple food

Introduction

Field crops are grown in the field. They are usually staple food crops or cash-crops.
Most field crops give us money.

Local field crops

Common crops grown by people in their fields are crops that provide staple food. Staple food is food that people in an area eat most of the time. People also grow cash crops in their fields as field crops. Cash crops are crops people grow to sell and get money. Maize, rapoko, sorghum are grown because they make mealie-meal which is used to make sadza/isitshwala. Sadza/isitshwala is a staple food in Zimbabwe. Cotton, tobacco and sugar cane are grown for export. This means that people sell these crops outside the country and make money. Some crops like ground nuts, sunflower and soya beans are cash crops sold to the local industries where they are used to make cooking oil.

Activity 1

Identify the field crops in figure 13.1.

Activity 2

Visit a local farm that is near the school. Identify crops grown there.

Activity 3

Create an agricultural corner in the classroom. Bring crop samples from home and place them at the agricultural corner.

Exercise

1. Which list of crops can be used to produce mealie meal?
A. sunflower, maize, cow peas B. maize, sorghum, rapoko
C. maize, beans, groundnuts D. maize, sunflower, round nuts
2. Peanut butter is obtained from _____.
A. maize B. round nuts
C. groundnuts D. vegetables
3. Cooking oil is obtained from _____.
A. cow peas B. groundnuts C. rapoko D. sorghum
4. What are the three field crops you know?
a) _____ b) _____ c) _____
5. Name three crops that give us staple food in Zimbabwe.
6. Name three cash crops sold outside the country.

Summary

- Crops grown in the field are field crops
- Some field crops are staple foods
- Some field crops are cash crops

Glossary

export	- selling of things outside the country.
Legume	- a crop which bears seeds in pods.

Unit 14 Orchard/fruit trees

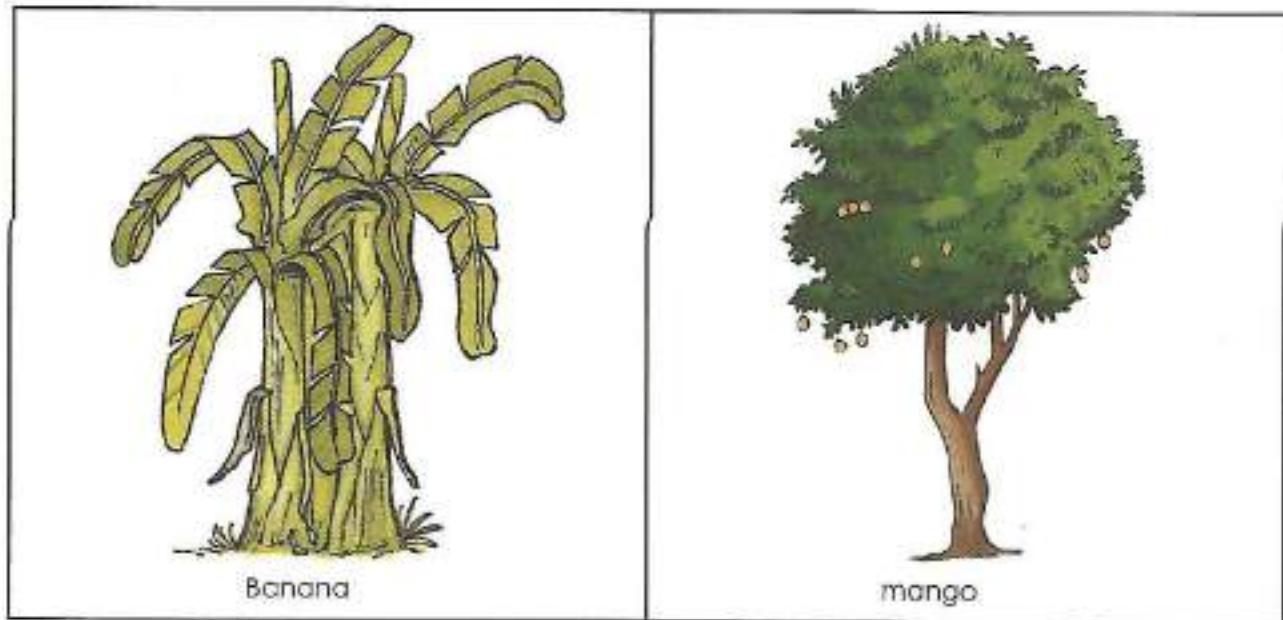


Figure 14.1 Local fruit trees

Flashback

Name the fruits that you can find in the forest and at home. Bring fruits from the forest or the shell if the fruits are out of season.



Key words

orchard

exotic trees

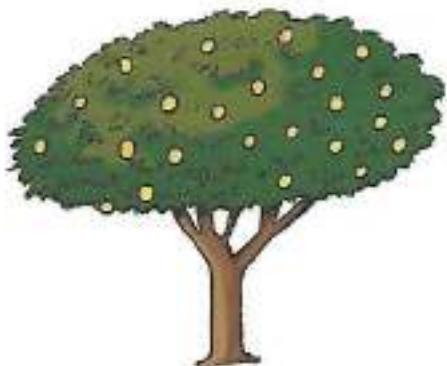
Introduction

Fruits are an important part in people's diet. They are rich in essential nutrients such as vitamins, mineral salts and calcium. As a result we need to take care of fruit trees to ensure our supply of fruits.

Local fruit trees

Fruit trees bear fruit which can be eaten by people. Fruit trees are usually grown in an **orchard**. You find that most schools have an orchard, with **exotic** fruit trees. Below are some of the examples of local fruit trees.

Orange tree



Guava tree



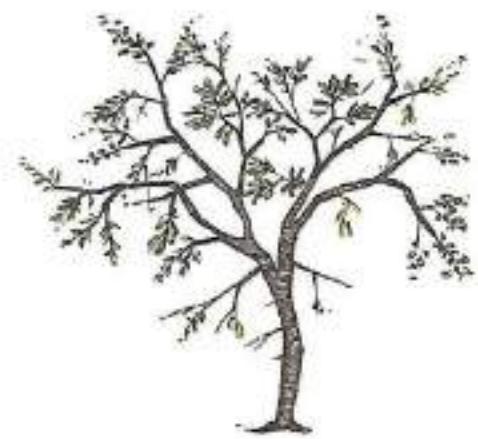
Banana tree



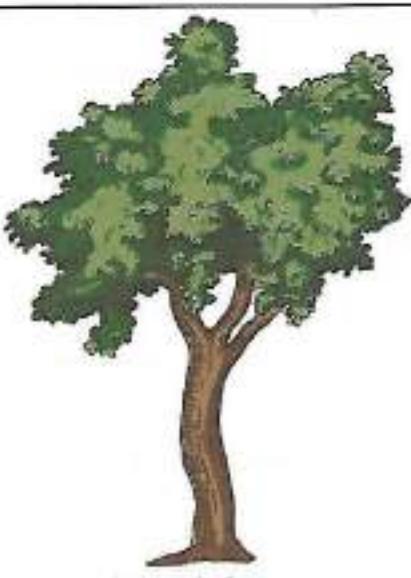
Apple tree



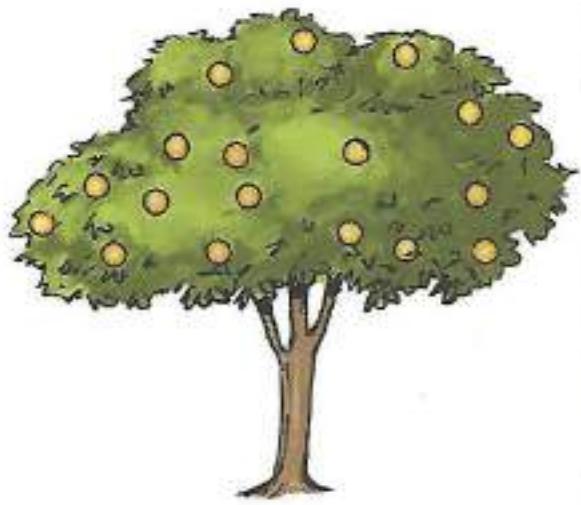
Mango tree



Peach tree

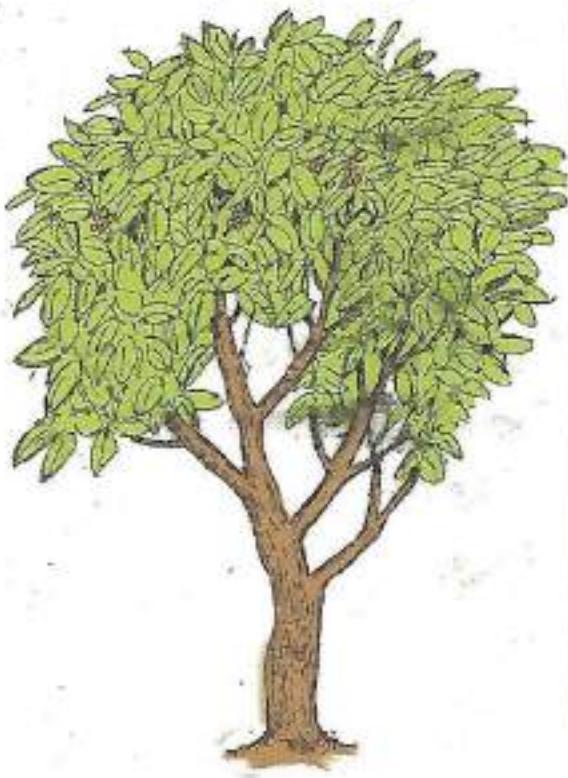


Avocado tree

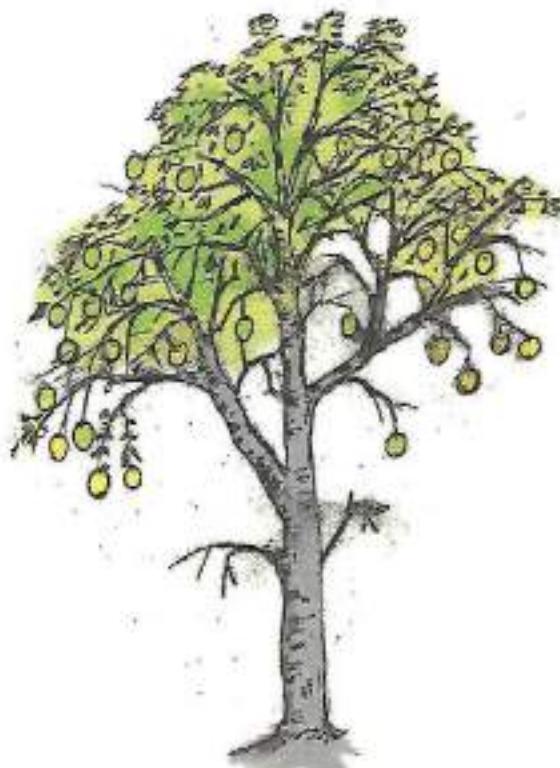


Naartjes tree

Figure 14.2 Local fruit trees



Muzhanje



Mutomba

Figure 14.3 Indigenous fruit trees

Most indigenous fruit trees bear fruit in summer. Summer is a good season for fruit trees as there would be a lot of water. Other fruits like guavas, masau/amasawa bear fruit during the post rainy season.

Indigenous fruit trees are found in certain areas. This is because that would be the area they originate from.

Area	Fruit
Honde valley	bananas
Mazowe	oranges
Buhera	mauyu
Murehwa	mazhanje/amazhanje

Activity 1

Learners to go in the school orchard and name the fruit trees they have seen. Identify some fruit trees that your teacher will show you.

Activity 2 Project

Bring fruit seeds/seedlings from home. Now try to plant the seeds in the school orchard. Continue caring for the plants.

Exercise

1. Fruits are an important part of our _____.
A. orchard B. gardens C. diet D. culture
2. Most bananas in Zimbabwe are grown in _____.
A. Chipinge B. Honde valley C. Mutare D. Mbare
3. Fruits are important for people's diet because they are rich in _____.
A. agriculture B. water C. nutrients D. orchard
4. Fruit trees are grown in an _____.
5. Name any two fruits you know.
6. Give three reasons why fruits are important.

Summary

- Fruits are important for our bodies because they supply vitamins.
- Fruit trees we find in the forest are called indigenous fruit trees and these include *mutohwe/uxakuxaku*, *mutamba/umkhemeswane*, *munhengeni*, *muzhanje/umdlawuso* and *muhacha/umkhuna*.
- Fruit trees which were brought from other countries and which are now being grown in our country are exotic fruit trees and these include mango, apple, orange, and banana.

Glossary

Exotic trees

- these are trees imported from other countries and are now growing in our country

Orchard

- a place where fruit trees are grown

Unit 15 Ornamental horticulture



Figure 15.1 Ornamental plants

Flashback

What kind of plants do you use to decorate your home or school? Name the flowers you know.



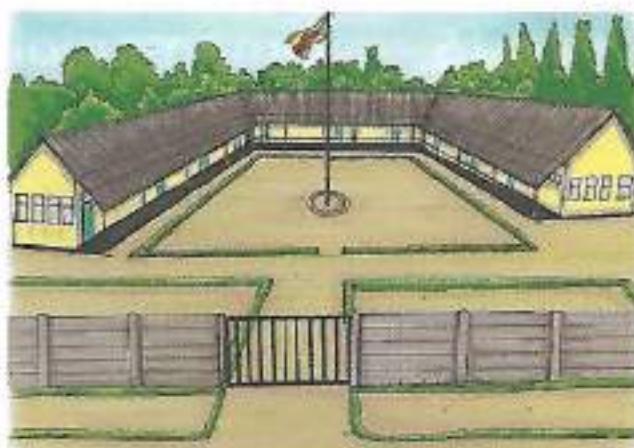
Key words

Ornamental Horticulture

Our homes and schools need to be beautiful. How can we make our school or home look beautiful?



a) A home with flowers around



b) A school with decorative shrubs

Figure 15.2 Using ornamental plants to beautify homes and schools

Horticulture is the growing of vegetables and orchard crops. **Ornamental** means decorative. Ornamental horticulture is the growing of decorative plants like shrubs and flowers. Figure 15.1 shows some common ornamental plants. Common flowers like Marigold, Dalia flower, Christ's thorn are found on most schools and homes.

There are also shrubs which beautifies homes or schools, for example, golden duranta, and bougainvillea.

Christ's thorn



Golden duranta shrub



Marigold flower



Bougainvillea shrub



Figure 15.3 Flowers and shrubs that can be used to decorate places

Activity 1

Bring flowers from your home and plant them. Water the flowers. Keep caring for the flowers.

Activity 2

In groups, list other ornamental plants at home. After listing, move around the school identifying ornamental plants.

Exercise

1. The growing of vegetables and ornamental crops is referred to as _____.
A. agronomy B. horticulture C. field crops D. oil crops
 2. Identify ornamental crops from the list.
A. dalia, marigold B. maize, beans
C. cabbage, carrots D. peas, beans

3. Identify the shrub in the picture.



- A. golden duranta B. green duranta
C. bougainvillea D. Christ's thorn
4. What is ornamental horticulture?
5. Name one decorative shrub you know.
6. Why do we grow flowers?

Summary

- Ornamental means to decorate.
- Ornamental plants are plants used to decorate a place.
- Horticulture is the growing of vegetables and ornamental crops.
- Ornamental horticulture helps our homes and schools to look beautiful.
- We can sell ornamental horticulture produce.

Glossary

Ornamental	- anything that is used to beautify or decorate.
Horticulture	- the growing of vegetables, fruit trees and ornamental plants.

Unit 16 Forestry



Figure 16.1 Gum tree plantation

Flashback

Which trees provide us with poles and timber?



Word check

Forestry Plantation

Introduction

Trees are important to people, animals and the environment. People and animals rely on trees, for the air they breathe.

Forestry

Forestry is the growing and caring of trees. We grow trees on very large areas of land. This land is called a plantation, plantations are bigger than fields. We usually have gum plantations, pine plantations, cypress plantations. Plantations can be found everywhere in the country, but they are common in the Eastern highlands, that is Mutare, Nyanga and Chimanimani.

We use grow gum, pine and cypress trees because they grow tall and straight. This makes them useful for making poles and straight long planks. We also use eucalyptus trees to make paper. We take care of indigenous forests with mopane, mahogany, teak and mukwa because the trees have hard and strong wood. We use wood from indigenous trees to make furniture.

Uses of trees

Trees are important because they give us:

- oxygen we breath
- firewood
- timber for roofing and furniture
- food - fruits

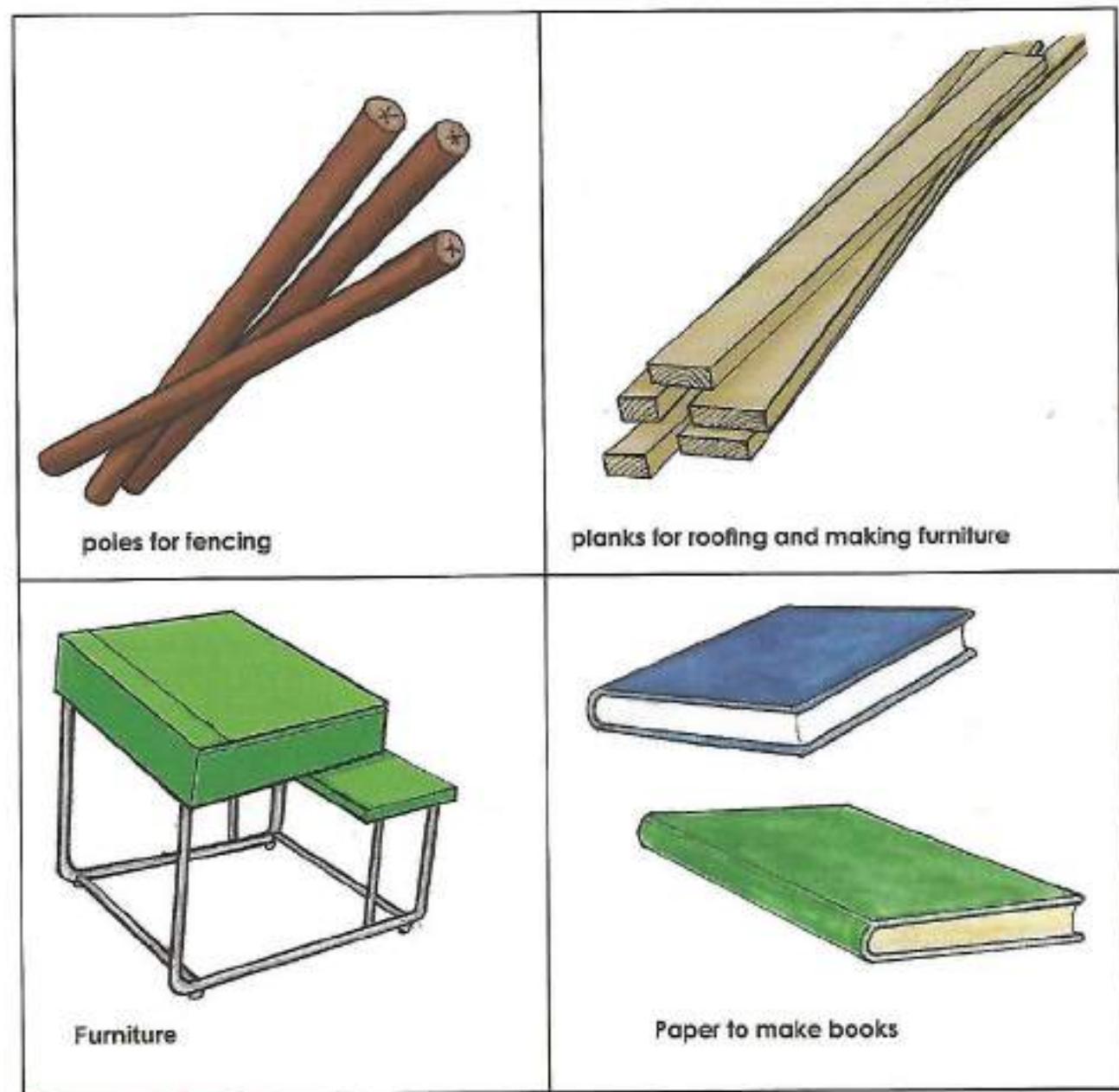


Fig 16.2 Uses of trees

Activity 1

Visit a nearby plantation and observe the trees that have been grown there. Discuss how these trees can be used.

Activity 2

Collect seeds from different trees and plant them. You can also get gum tree seedlings and plant them.

Exercise

1. When trees which are not fruit trees are planted in a large field, the field is called a _____.
A. orchard B. flower C. plantation D. shrub
2. Which tree is out of place?
A. gum tree B. pine tree C. mango tree D. cyprus tree
3. Which is a set of plantation trees?
A. gum tree, pine tree B. mango tree, orange tree
C. msasa, mopane D. cabbage, rape
4. Name three types of trees which can be grown for timber
5. Give two uses of trees.
6. What is forestry?

Summary

- Forestry is the growing and caring of trees.
- Trees mostly grown in plantations are gum trees, pine trees and cyprus trees.
- Trees are grown in a plantation.
- Trees are useful in that they:
 - Provide wood
 - Provide oxygen
 - Provide timber
 - Provide poles

Glossary

Forestry – the growing and caring of trees.

Plantation – a large piece of land where trees are grown.

How much do you remember?

Select the words from the word puzzle

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

Find the following

1. June
2. Legumes
3. A crop which is the staple food for Zimbabwe.
4. A word that explains the growing of crops and keeping of animals.
5. A place where crops are grown.
6. The four seasons of the year.
7. A month which most areas start receiving rains.
8. A use of trees.
9. A tool used for digging.
10. A tool used for removing rubbish or leveling beds.
11. A tool used to carry garden produce.
12. Importance of agriculture.
13. An animal used for security at home.
14. Things which decay.
15. A place where gum trees are planted.

16. A plant which grows up to 60cm.
17. Nutrients supplied by manure.
18. Uses of water.
19. A tool used for cutting trees.
20. A crop used to make cooking oil.
21. A plant grown by people and taken care of by people.

End of topic assessment test

Multiple choice questions

1. Which plant is not common in most of our local environment in Zimbabwe?
A. peach tree B. date tree C. gum tree D. mango tree
2. The following are organic sources of plant nutrients except _____.
A. cattle manure B. chicken manure
C. compost manure D. compound D
3. Which vegetable is out of place?
A. pumpkin leaves B. cauliflower
C. black jack D. spindle pod
4. The following are exotic vegetables except _____.
A. poorman's spinach B. rape
C. spinach D. cabbage
5. Choose a crop which is not a local field crop.
A. sunflower B. maize C. wheat D. carrots
6. Which of the following is not a local fruit tree?
A. oranges B. apricot C. avocado D. banana
7. The growing of crops which add beauty to an area is called _____.
A. agronomy B. horticulture
C. ornamental horticulture D. gardening
8. Three of the following are ornamental plants except _____.
A. golden duranta B. bougainvillea shrub
C. marigold D. rape
9. The growing and caring of trees is known as _____.
A. orchard B. horticulture
C. forestry D. field cropping
10. Which of the following is not a use of trees?
A. for electricity poles B. for furniture
C. for irrigation D. for controlling erosion

Structured questions

11. a) List 2 common vegetables. [2]
b) Give any 2 indigenous vegetables. [2]
12. Name three field crops that can be processed into mealie meal. [3]
13. (a) Why are trees important? [2]
(b) What can you use flowers for? [1]

Unit 17 End of Term 2 assessment test

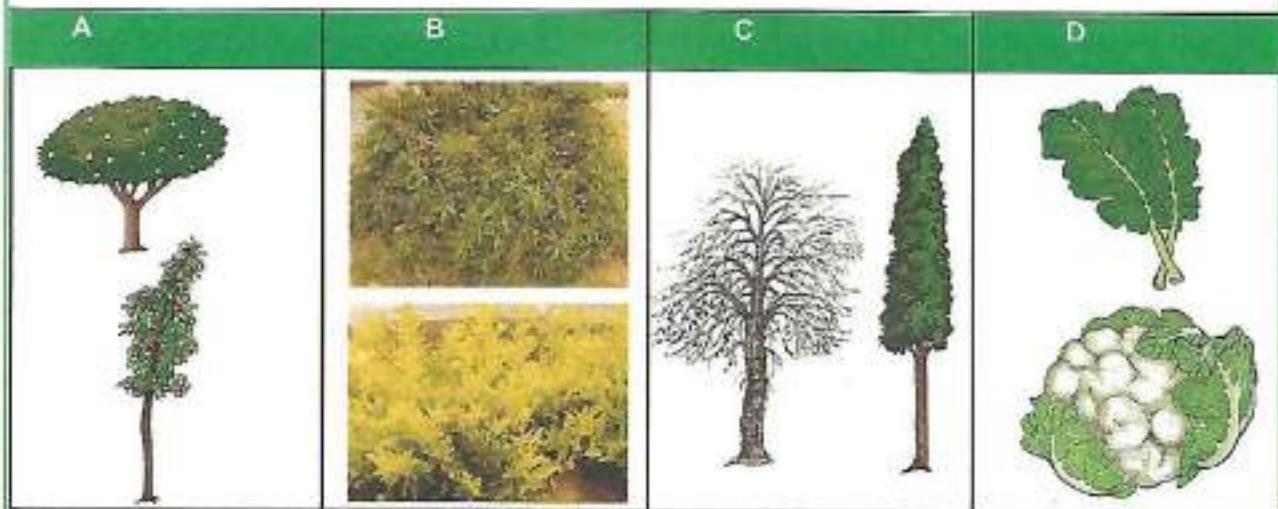
Multiple choice questions

Section A

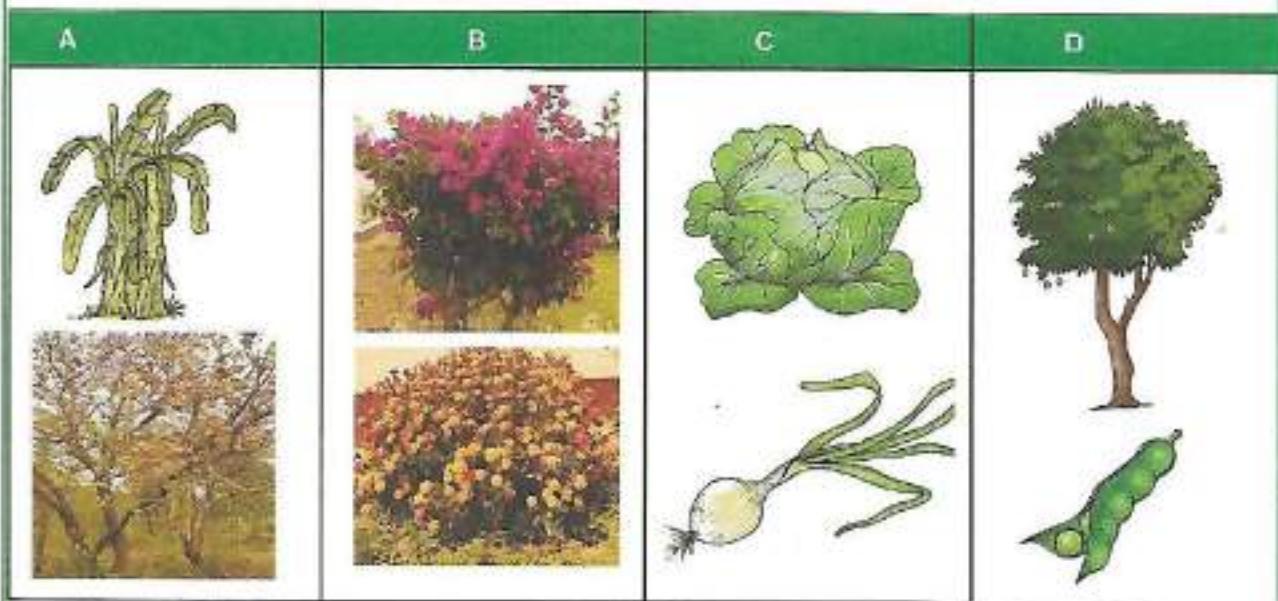
Answer all questions

- Which of the following plant is out of place?
A. maize B. sunflower C. marigold D. sorghum
- Which plant does not belong to the group?
A. mango B. apple C. mobola plum D. avocado
- A plant with leaves seeds or flowers used for food, medicine or perfume is called a _____.
A. shrub B. herb C. tree D. flower
- Which of the following is out of place?
A. spider flower B. carrots C. rape D. egg plant
- Under which class of vegetables do the following belong: nyevhe/ulude, mowa/imbuya, and mutsine/ucucuza?
A. exotic vegetables
B. indigenous vegetables
C. ornamental vegetables
D. horticulture vegetables
- Rape, cabbage, covo and onion are referred to as _____.
A. indigenous vegetables
B. exotic vegetables
C. ornamental vegetables
D. cash crop vegetables
- Which list comprises of local field crops?
A. rapoko, sorghum, millet
B. wheat, apples, bananas
C. duranta, marigold, maize
D. gum, mango, avocado
- The growing and caring of trees is called _____.
A. horticulture B. forestry
C. ornamental cropping D. agriculture
- Poles, oxygen, fire wood are uses of _____.
A. vegetables B. fruit trees C. trees D. flowers
- When trees are grown on a large area this is called _____.
A. orchard B. plantation
C. horticulture D. ornamental

11. Choose a set of ornamental plants only



12. Choose a set of fruit trees only.



13. Which list has exotic fruits only?

- A. oranges, bananas, apples
- B. mazhanje, monkey orange, mango
- C. oranges, matamba, mango
- D. mango, tsubvu, mazhanje

14. Which animals give us manure?

- A. dog, cat, snake
- B. cattle, chicken, goats
- C. dog, people, cattle
- D. dog, cat, cattle

15. Manure provides _____ to plants.
A. sugar B. salt C. nutrients D. fibre
16. What tool do you use when watering in the garden?
A. spade B. watering can C. rake D. shovel
17. The water for irrigation comes from a _____.
A. shallow well B. stream C. dam D. spring
18. Which list comprises of organic manure only?
A. compound D, cattle manure, urea
B. cattle manure, goat manure, compost manure
C. urea, compound C, compound D
D. chicken manure, urea, goat manure
19. Which of the following is not suitable for making compost?
A. leaves B. plastic C. grass D. stones
20. Trees usually grown in plantations are _____.
A. pine, gum, cyprus
B. pine, orange, banana
C. guava, mango, apple
D. pine, guava, orange
21. Apples, bananas and mangoes are _____.
A. indigenous fruits
B. exotic fruits
C. ornamental fruits
D. garden fruits
22. hacha/umphafa, mazhanje/amazhanje and matohwe/uxakuxaku are _____.
A. exotic fruits
B. ornamental fruits
C. indigenous fruits
D. orchard fruits
23. Which statement best describes ornamental horticulture?
A. plants which flowers
B. growing of decorative plants
C. growing of vegetables
D. growing of fruit trees
24. Ornamental plants are _____.
A. plants which give us fruits
B. plants which are decorative and give beauty to a place
C. edible plants
D. vegetable plants
25. Most indigenous forest trees have _____ wood.
A. hard B. soft C. straight D. long

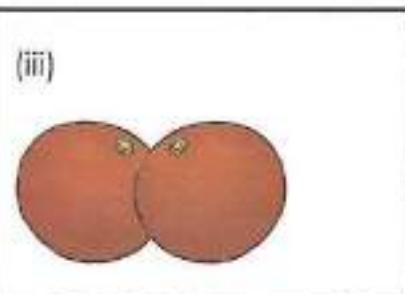
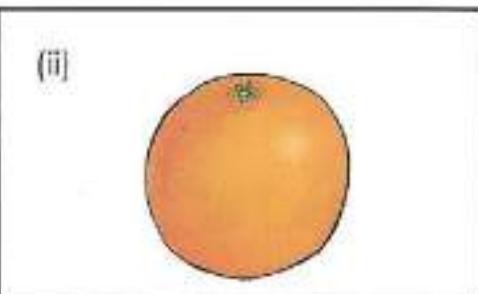
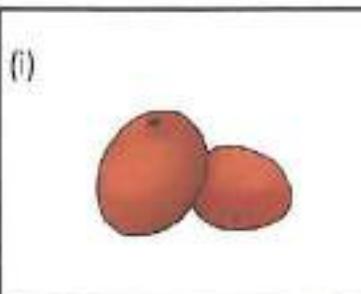
[3]

Structured questions

Section B

Answer all questions

1. a) Water in agriculture is used for _____, _____ and _____. [3]
b) When watering vegetable beds you use a _____. [1]
c) The main source of water for irrigation is the _____. [1]
2. a) Give one example of a tree. [1]
b) List two ways which make plants important.
 - (i) _____
 - (ii) _____[2]
c) Plants which are tall and have a hard stem are called _____. [1]
d) Plants with too many branches and can grow up to two metres are called _____. [1]
3. a) Nutrients usually supplied by manure and fertiliser are
 - (i) _____
 - (ii) _____
 - (iii) _____[3]
b) The word organic refers to things that can decay. Give two materials that can be used to make a compost. [2]
4. a) Define the following terms:
 - (i) ornamental horticulture
 - (ii) forestry
 - (iii) indigenous vegetables[3]
b) Name any two decorative shrubs you know. [2]
5. a) Identify the fruits in the diagrams (i), (ii), (iii). [3]



[3]

- b) Name flowers in the picture.



[3]

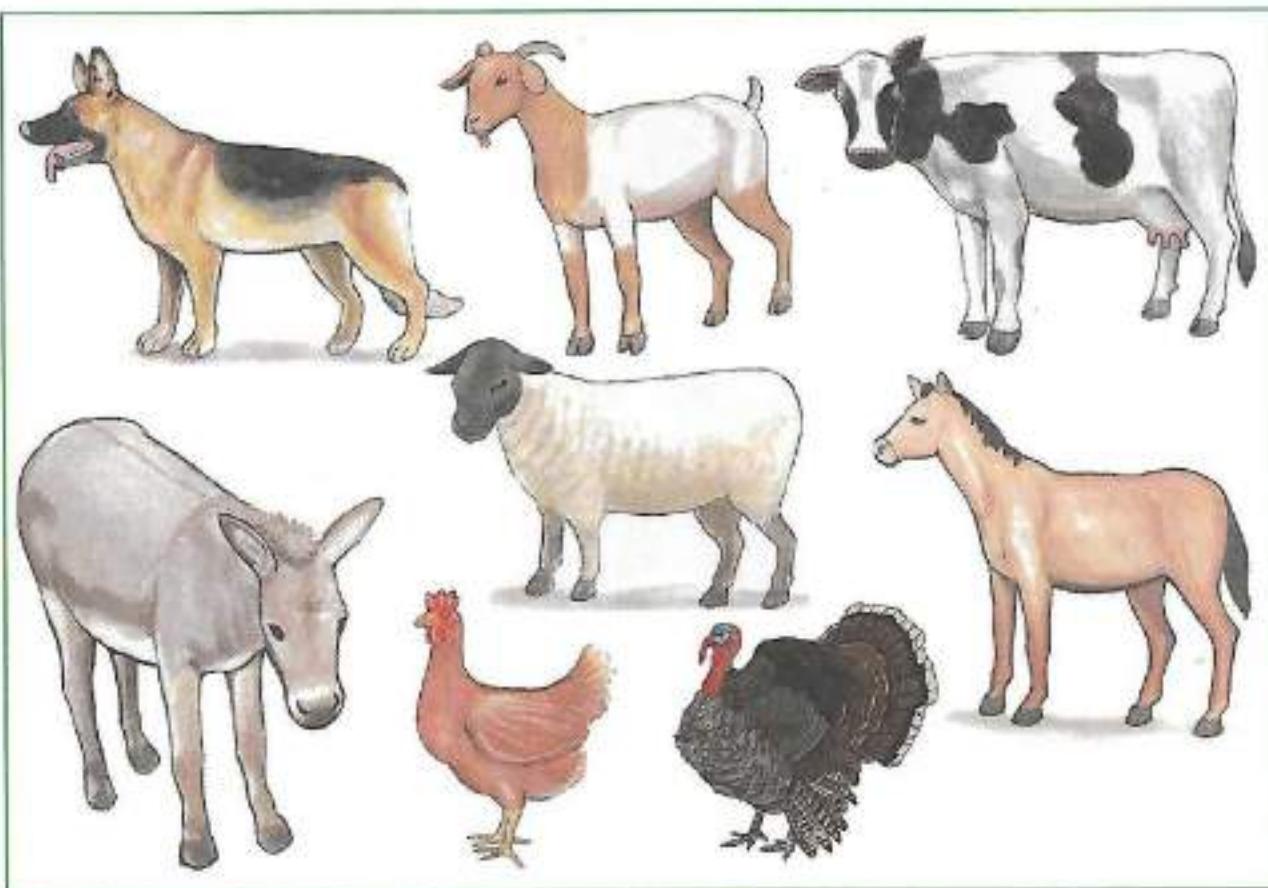


Figure 18.1 Domestic animals

Objectives

Learners should be able to:

1. list uses of domestic animals
2. identify types of animal feeds
3. classify the animal feeds as natural and commercial
4. name the types of small livestock
5. define apiculture
6. distinguish bees from other insects

Introduction

Domestic animals are kept for various uses. Animals are kept for meat production, egg production, power, milk and selling them for money.

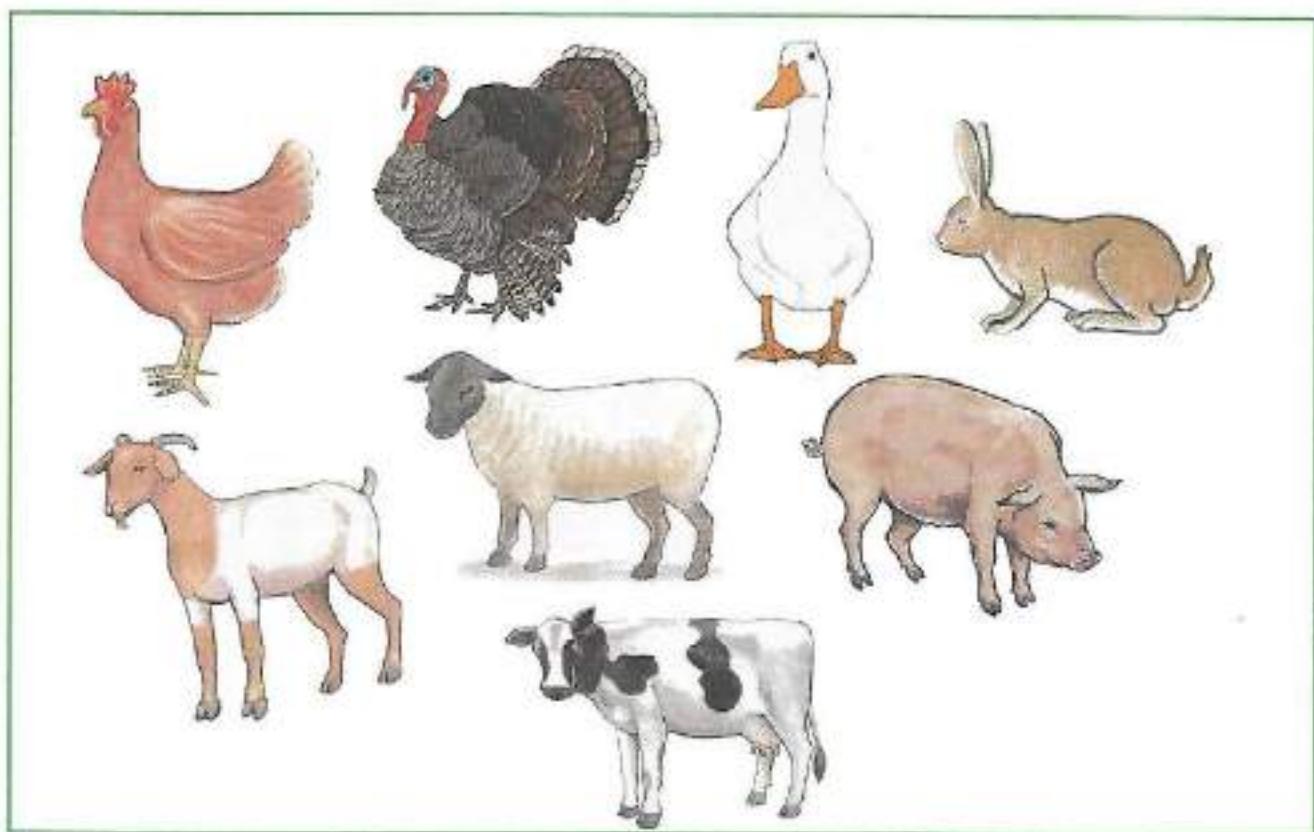


Figure 18.2 Small and big livestock

Flashback

Which domestic animals do you know and what role do they play at home?



Key words

breed

amusement

commercial

Uses of domestic animals

Domestic animals are useful in a number of ways. Some are used to provide meat, some to assist in working, some as pets among many other uses.

Figure 18.3 shows uses of cattle. State the uses of cattle shown in the pictures.

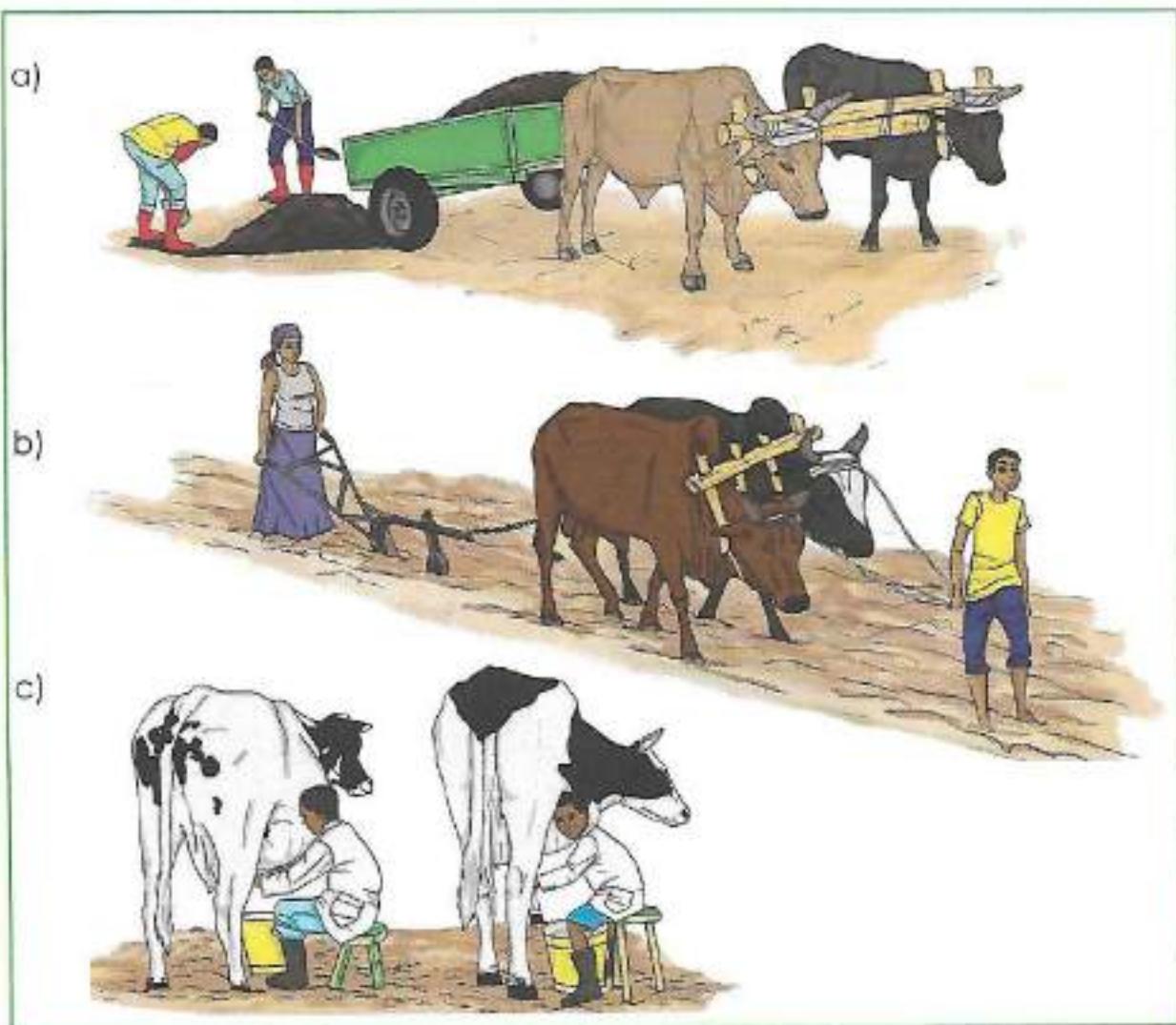


Figure 18.3 Uses of cattle

- Chickens are used for producing meat and eggs. Chickens that lay eggs are called layer hens.
- Goats produce meat and milk. Their hides are used as sitting mates.
- Sheep produce meat and wool
- Cattle produce meat (beef), leather, milk and pull wagons and ploughs. Cattle used for milk are called dairy cattle.
- Ducks produce meat and eggs
- Pigs produce meat which is called pork

Other uses of domestic animals

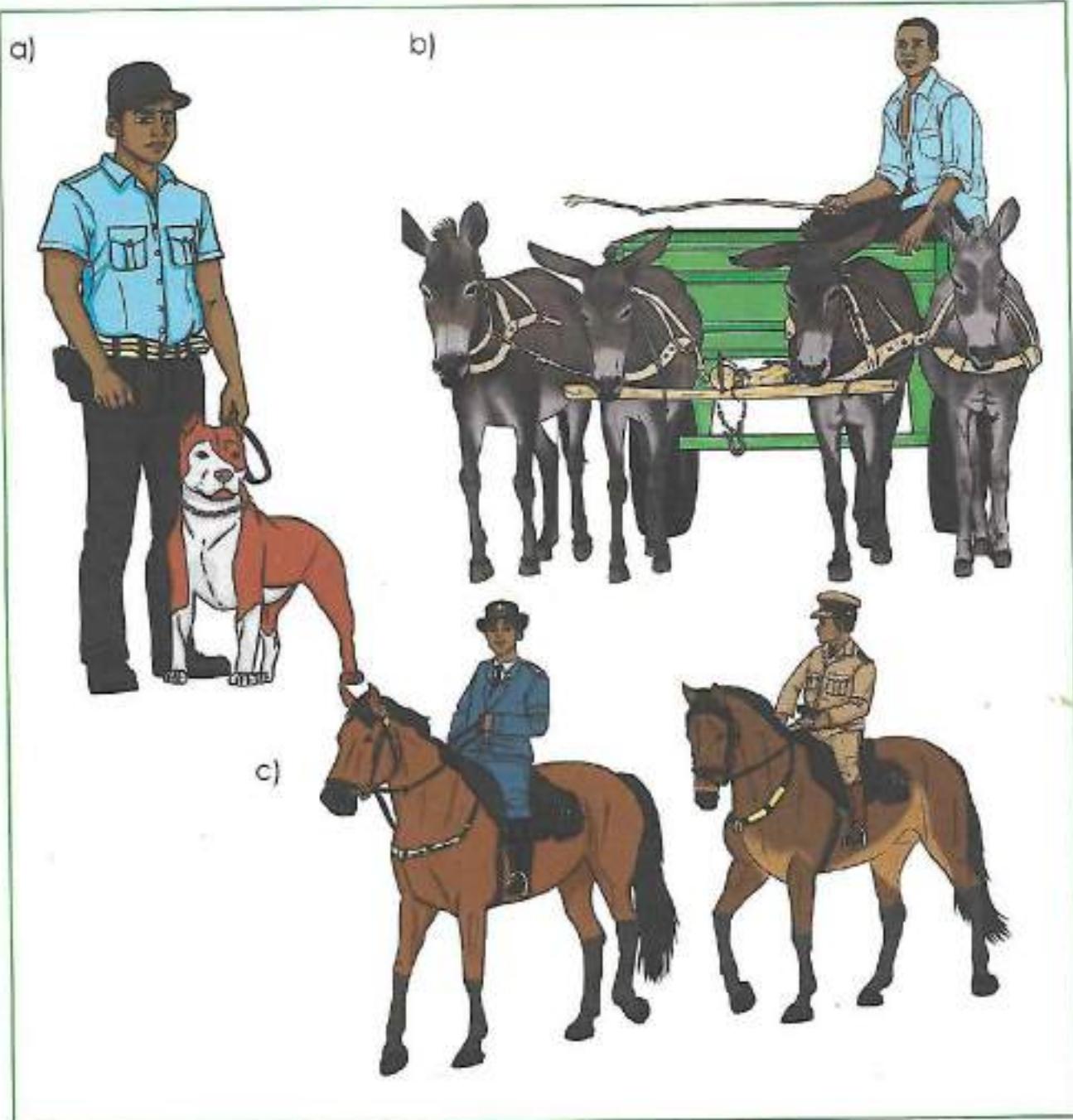


Figure 18.4 Uses of dogs, horses and donkeys

Figure 18. 4 shows more pictures of domestic animals and their uses. Domestic animals can be used to assist in doing work in fields, carrying heavy things and transport. Sometimes the animals are used for amusement. Amusement is when activities are done for fun or entertainment.

Table 18.4 Domestic animals and the work they do

Name of animal	Work done
1. Dog
2. Horse
3. Donkey
4. Cattle

Commercial uses of animals

Sometimes animals are used for making money. This is called commercial use of animals. There are farmers who keep animals for sale and amusement shows. Some farmers breed animals such as horses and dogs for sale. Horses are used for transport and for horse racing. Race horses cost a lot of money.

Activity 1

Choose two different domestic animals you like most. Draw pictures showing their work. Name the animal you have drawn.

Activity 2

Use clay to make a model of one domestic animal you know and bring it to the class. The models should be kept at the agricultural corner in your classroom.

Exercise

1. Which of the following is small livestock from the list below?
A. goat B. rabbit C. pig D. sheep
2. Which animal is kept for beef production?
A. cow B. goat C. pig D. mule
3. Which animal is used for milk production?
A. dairy cow B. mare C. steer D. doe
4. Name the animal used for racing.
5. What are the two uses of cattle?
6. Meat produced from pigs is called _____.

Summary

The main reason for keeping cattle is for beef production.

Pigs also produce valuable meat, called pork.

Most people find it easy to keep broilers and layers as they provide a good source of proteins.

Animals such as horses are used for riding. Horses are important because they can be used in the bush where there are no roads.

Glossary

Amusement

- providing entertainment

Commercial

- buying and selling of goods or products to make money

Unit 19 Animal nutrition



Figure 19.1 Commercial and natural animal feeds

Flashback

What is your favourite pet? What foods does it eat?

Key words



starch protein commercial

Types of feeds

Animal feed is the food that is given to domestic animals. These can be grouped as natural animal feed and commercial animal feed. Natural feed is food given to domestic animals that is found within the local environment. Commercial animal food is specially made food for animals, and farmers have to buy this for their animals.

Natural feeds are made of plants which provide different nutrients. Some of the nutrients that come from natural feeds include; starch and protein. Starch foods are energy-giving foods like maize, sorghum, millet, rapoko and barley. Protein foods are body-building foods that help the body to grow like ground nuts, soya beans, sunflowers, Lucerne and cotton seeds. Ground nuts, soya beans and Lucerne are legume crops. Legume crops are plants with seeds that grow in long cases called pods which are eaten as food. Maize, sorghum, millet, rapoko and barley are cereal crops. Cereal crops are grass plants that produce grain that can be eaten as food.

Commercial feeds are manufactured specially for animals and may be mixed with natural feeds and processed with other food nutrients to help animals grow. Commercial feeds have animal proteins and many other nutrients that are good for animals. Table 19.1 shows the nutrients provided by natural and commercial feeds.

Table 19.1 Natural feeds

Starch foods	Protein crops
Maize	Groundnuts
Sorghum	Soya beans
Millet	Sunflowers
Rapoko	Lucerne
Barley	Cotton seed

Commercial feeds

Animal proteins	Others
Fish meal	Mineral lick
Bone meal	Salt
	Vitamins

When natural feeds are processed, they become commercial feeds. These are bought.

Examples

- Broilers mash
- Layers mash
- Rabbit pellets
- Dairy mix
- Pig mash
- Weaner meal



Feeding broilers

Types of Feeds

- Broiler starter mash
- Growers mash
- Broiler finisher mash

Feeding layers

Types of Feeds

- Chick starter mash
- Growers mash
- Layers mash
- Layers pellets
- Layers crumbs



Figure 19.2 Commercial feeds for pigs, rabbits and chickens



Figure 19.3 Broiler chickens feeding on broiler starter mash and broiler finisher mash

Activity 1

Visit the feed room at your school. Look at bags of feeds in the feed room. What feeds are in the feed room? Record the type of feeds on the bags.

Activity 2

You should practise the actual feeding of any type of small livestock kept at school, either rabbits or broilers.

Feeding broiler chicks

Steps

1. Count the chicks and record the number.
2. Remove dirty water.
3. Remove dirty feed remains.
4. Wash water troughs.
5. Fill water troughs with clean water
6. Clean feed troughs
7. Fill feed troughs with chick starter mash

NB: Record what you did in your diary.

When feeding animals, it is important that they are given the correct amount and type of feed. This will depend on the age of the animals. For example, broilers start off with starter feeds for the first 2 weeks. From 3-4 weeks they are given growers feed and for the last 2 weeks they are given finisher feed.

Giving animals the right amount and type of feed will make them grow healthy.

Exercise

1. _____ is a source of proteins.
A. Maize B. Wheat
C. Groundnuts D. Millet
2. Which of the following is a cereal crop?
A. sunflower B. lucerne
C. millet D. soya beans
3. Lucerne is a _____ plant.
A. Starch B. Protein C. Legume D. Cereal
4. Which part of cotton is used as stock feed?
5. Name a crop which provides starch in a livestock diet.
6. Group the following crops under source of starch or source of proteins. Use the list below.

List of sources of starch and proteins

Source of starch	Source of proteins
a) maize	(i) soya beans
b) millet	(ii) groundnuts
c)	(iii)
d)	(iv)

Sunflower, Lucerne, Rapoko and Sorghum

Summary

- Stock feed is made up of starch and proteins.
- There are natural and commercial stock feeds.
- It is important to feed livestock with the correct feed.
- Well-fed livestock are healthy and mature quickly.
- We should always follow instructions when feeding our livestock.

Glossary

Commercial	- produced for buying and selling
Legumes	- crops which provide proteins in a diet
Protein	- food nutrient that helps growth of muscles
Starch	- food nutrient that gives energy

Unit 20 Small livestock production

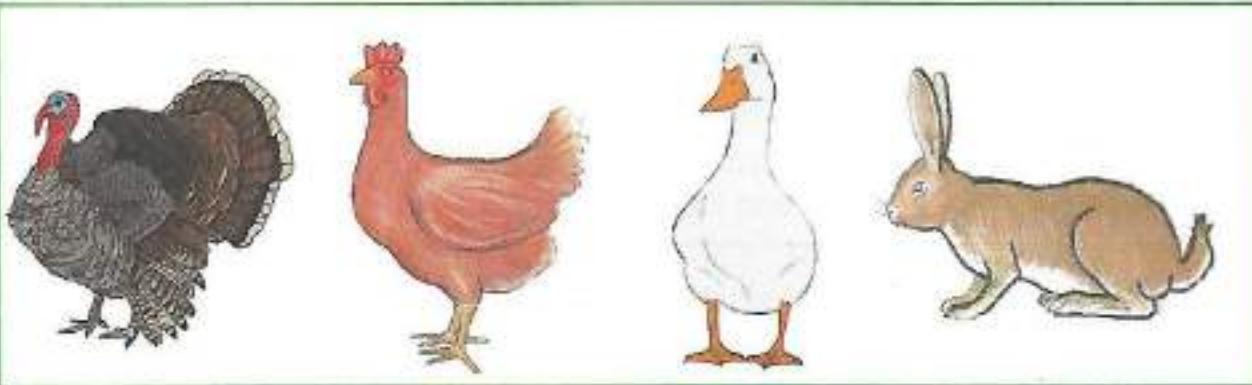


Figure 20.1 Small livestock

Flashback

Which small livestock do you know or keep at home?

Key words



trough poultry insect

Types of small livestock

Small livestock is used for the production of eggs and meat which can be sold for money. Most of small livestock belongs to a group of animals called poultry. Poultry is the keeping of birds for meat and eggs. Examples of poultry include: chicken, quails, turkeys, guineafowls, pigeons, and ducks. Other types of small livestock are rabbits and guinea pigs. Bees and fish are also kept for honey and meat respectively.

Activity 1

Select three small livestock. Draw pictures of the livestock, for example, broilers; turkeys or rabbits.

Label the parts: head, legs, wings, back, comb and wattles etc.

List uses of livestock you have drawn.

Activity 2

A visit to a chicken production project

Preparations

1. Make arrangements with the breeder
2. Give date and time for the visit
3. Give the number of learners to visit
4. Make preparations for the trip in time

On the day of the visit

1. Take your diary with you
2. Draw the chickens you see
3. Draw the feed troughs and the water troughs
4. Record the feeds given to the chickens

Activity 3

You should feed the rabbits kept at school. Record your activities in your practical diary. Go out to harvest natural feeds such as wondering jew and black jack for feeding rabbits. Feed the rabbits.

Exercise

1. Which small livestock gives us eggs?
A. fish B. rabbits C. chickens D. bees
2. Which animal does not belong to small livestock?
A. rabbits B. broilers C. layers D. goats
3. Which one is classified as insects?
A. layers B. geese C. bees D. ducks
4. Give 3 types of small livestock.
5. Why do we keep small livestock?
6. Draw any poultry and label the parts.

Summary

- Small livestock kept at home include chickens, ducks, rabbits and fish. These are usually kept to be sold so that people can earn extra money.

Glossary

Trough	- a container for livestock to feed from
Poultry	- birds with wings and feathers that are kept by farmers for eggs and meat

Unit 21 Apiculture



Figure 21.1 Finding bees

Flashback

What is the taste of honey? Where does honey come from?



Key words

apiculture

nectar

bee-hive

pollination

Apiculture

Apiculture is the keeping of bees for the production of honey for commercial purposes. Bees are important because they make honey. Bees are kept in hives. Hives are a place where bees live and make honey. Sometimes bees find their own hives in the cavities of trees. People who keep bees make bee hives with wood. When bees find a hive, they go inside and make honey.

Distinguishing bees from other insects

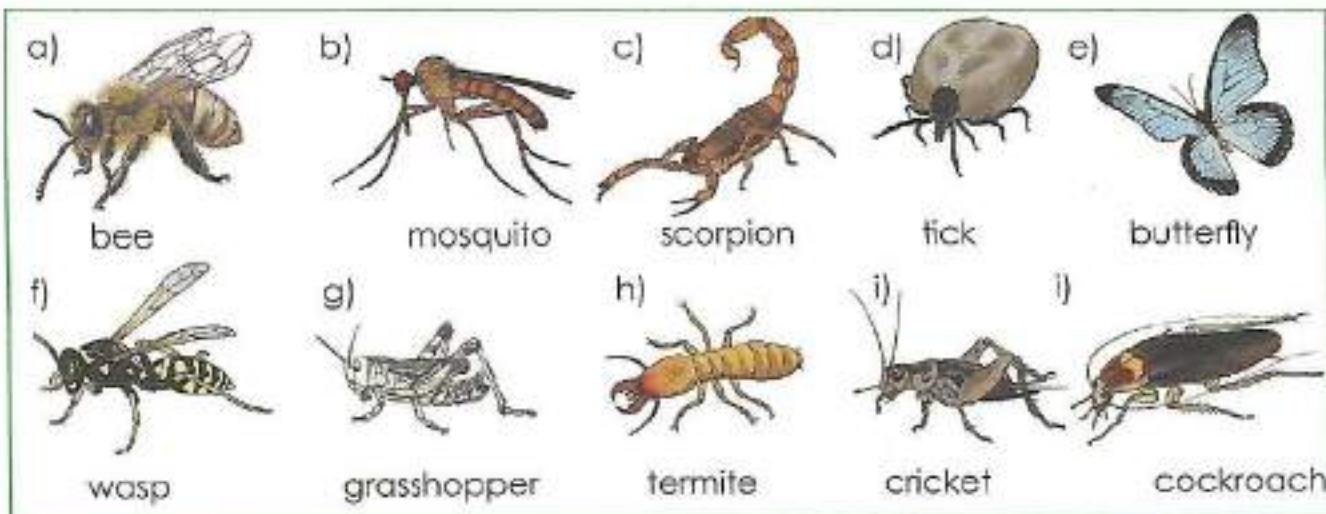


Figure 21.2 Types of Insects

Distinguishing bees from similar insects

Bees defend themselves by stinging animals that threaten or disturb them. They are similar to wasps/mago/olonyovu because wasps also sting to defend themselves and hunt. Bees are different from wasps because they are hairy and wide with flat hind legs. Wasps' bodies are slender with a narrow waist connecting the thorax and abdomen. Bees have a stinger that is designed to sting other bees and when they sting other animals their stinger gets stuck on the flesh of the victim and they die while trying to fly away. Honey bees are only designed with enough venom to sting an enemy once. Venom is poison that is made inside an insect's body. Wasps can sting multiple times without dying because they use their venom to kill the insects they eat. Bees feed on nectar and pollen from flowers only while wasps feed on nectar and other insects. Table 21.1 shows the difference between bees and wasps.

Table 21.1 Stinging and friendly insects

Insects that sting	Insects that do not sting
Bees	Grasshoppers
Wasps	Crickets
Ticks	Termites
Scorpions	Locusts
	Butterflies
	Cockroaches



Table 21.3 Difference between a bee and a wasp

Bees	Wasps
Have wide, hairy bodies with flat rear legs.	Slender with a narrow waist connecting the thorax and abdomen
Honey bees can only sting once before dying	Can sting for multiple times without dying
feed on nectar and pollen from flowers only	feed on nectar and other insects

Uses of honey

Honey has many uses in the society. People use honey as food and medicine. Honey is used to cure colds and flu and most cough syrups contain honey. People make a living by keeping bees and selling honey.

How honey is made

Bees move from flower to flower searching for a sweet liquid called nectar. Nectar is a sweet liquid that is like sugar and water. As they move, their legs collect pollen which is transferred from male flower parts to female flower parts for the growth of new flowers. This process is called pollination. The bees drink up the nectar and their bodies absorb the sweetness of the nectar which is called sucrose and turn it into different sugars. These sugars are called glucose and fructose. When the bee has mixed the honey in its stomach, it brings it back to its mouth and out into honeycombs in the hive. A honeycomb is a mass of wax cells built by bees to store honey. The honey coming from the bees' body is very watery so the bees fan the honeycombs with their wings until the honey mix becomes thick.

Activity 1

Finding insects

Go out to look for insects in the school grounds. Catch insects and bring them to the classroom. Be careful not to catch stinging insects. Draw diagrams of insects you have found.

Show head, thorax and abdomen. Six jointed legs and four wings. Show the sharp sting at the end of the abdomen.

Activity 2

2 in groups, make a chart comparing bees and wasps. Draw and label both insects and use a table to compare them.

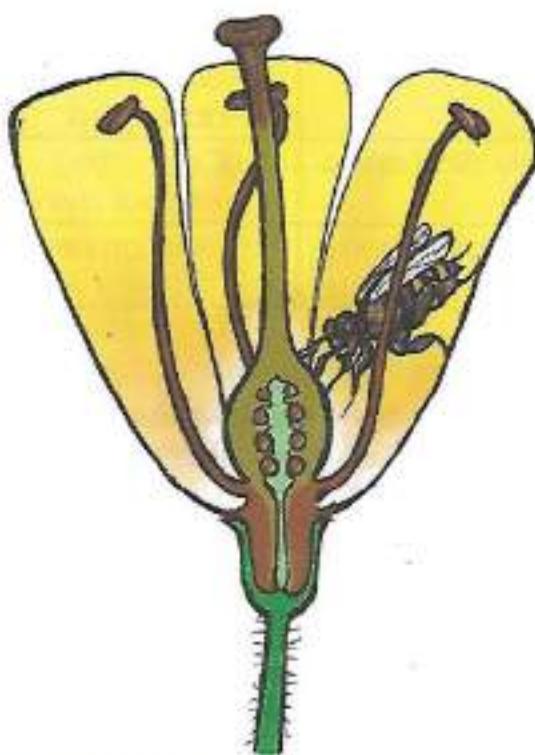


Figure 21.4 Bees sucking up nectar from a flower

Exercise

1. What do bees collect from flowers?
A. nectar B. honey
C. sugar D. juice
2. _____ is a place where bees are kept.
A. Nest box B. Feed trough
C. Hive D. Flower pellets
3. Which of the following insects defends itself by stinging?
A. bee B. cockroach
C. grasshopper D. butterfly
4. Which insects make honey?
5. Which insect can sting like a bee?
6. Match the terms and meanings in the table below.

a) Apiculture	Transfer of pollen from male to female parts of a flower
b) Cavity	Keeping bees for honey production
c) Pollination	Juice found in flowers
d) Nectar	Hollow in a tree trunk used by bees as a hive

Summary

Apiculture is the keeping of bees in hives, for honey. Bees are kept in hives. Sometimes bees find their own hives in cavities of trees. Commercial bee hives are made of wood, and they attract bees to occupy the hives. Bees are important because they produce honey.

There are many uses of honey. Most people use honey as food. However, honey has medicinal values, and is used in cough remedy syrups. Some people earn a living by looking after bees and selling honey.

Glossary

Apiculture	- the keeping of bees in bee-hives for honey
Bee-hive	- place where bees are kept
Nectar	- sweet juice found in flower
Pollination	- transfer of pollen grains from male to female parts of a flower

End of topic assessment test

Multiple choice questions

1. Which farm animal is kept for beef production?
A. cattle B. goat C. pig D. sheep
2. Which animal is used for milk production?
A. donkey B. sheep C. dairy cow D. pig
3. The keeping of animals is called
A. poultry B. apiculture
C. agriculture D. breeding
4. Which feed is given to broiler chicks?
A. layers mash B. chick starter mash
C. growers mash D. finisher mash
5. Select a feed given to rabbits.
A. bread crumbs B. chick mash
C. growers mash D. pellets
6. Ground nuts, soya beans and Lucerne are _____ crops.
A. Starch B. legume C. cereal D. protein
7. Select a place where bees live.
A. nest box B. hive C. feed trough D. flower petals
8. The keeping of bees in bee-hives for honey is called _____.
A. breeding B. pollination
C. farming D. apiculture
9. _____ is a liquid used by bees to make honey.
A. sucrose B. fructose
C. glucose D. nectar
10. What is a bee hive made of?
A. wood B. poles
C. polythene D. cardboard

Structured questions

1. Which animal is kept for pork production? [1]
2. Give 2 uses of cattle. [2]
3. Cotton seed may be used as _____ feed. [1]
4. Name two crops which add proteins in a poultry diet. [1]
5. Sunflower seed is used to produce _____. [1]
6. Hens kept for egg production are called _____. [1]
7. Bees are kept for production of _____. [1]
8. _____ feed is given to mature broilers. [1]
9. _____ is a commercial feed given to rabbits. [1]
10. _____ sting multiple times without dying. [1]

Topic 7

Farm implements and machinery



Figure 22.1 Farm implements and machinery

Objective

Learners should be able to:

1. identify farm implements

Introduction

Successful farming depends on the farm implements and machinery that a farmer owns. The farmer needs farm machinery and equipment to carry out work easily and do many jobs on the farm. Farm equipment and machinery must always be kept safe.

Farm implements and machinery work well when they are well maintained. They do not break down when they are in use.



Figure 22.2 Farm implements

Flashback

You may have been to a farm or seen people working on a farm somewhere. What implements were used?

Key words



fertilizing

soil preparation

irrigation

Types of farm implements and machinery

Farm implements are tools, machines and equipment used by farmers on the farm. They help farmers to take care of crops and animals. These can be classified under the following groups: Soil preparation and cultivation, planting, fertilizing

and pest control, livestock, irrigation and harvesting. Most farm equipment fall under these groups.

Soil preparation and cultivation equipment is used to prepare the soil for planting and taking care of crops after they have been planted. This involves removing weeds that disturb the growth of crops. Tractors, ox-ploughs, hoes and harrowing rakes are examples of implements that fall under soil preparation and cultivation equipment.

Planting equipment is used to help farmers put seeds in the ground so that they grow. In more technologically developed farms, farmers use planters to plant crops. A planter is an agricultural farm implement towed behind a tractor, used for sowing seeds on a field. It is connected to the tractor with a draw-bar and drops seeds over prepared land.

Fertilizing and pest control equipment is used to spray and apply fertilizer and pest control chemicals to crops. In Zimbabwe the most common tool that falls under this category is the knapsack sprayer.

Livestock equipment is mainly used to make sure that animals grow healthy and strong. It is used to protect domestic animals from diseases and increase the strength of their bodies' ability to fight diseases. Examples of these include vaccines which are medicines used to prevent animals of different sizes and ages from certain diseases, dipping solution for removing of ticks and feeding containers.

Irrigation equipment is used to water crops on fields. Examples of irrigation tools include sprinkler pipes. Harvesting equipment is used collecting the produce of crops that are ready to be processed or eaten. Common examples of these include milking machines, mowers, rakes and potato harvesters. Table 22.1 shows the different types of farm equipment.

Table 22.1 Farm machinery

Machinery	Name
a) 	a)

b)



b)

c)



c)

d)



d)

e)



f)

Caring for farm equipment

For equipment to last for a long time we have to look after it. That means we have to keep records of how we use our equipment and take care of it. On large farms, farm managers keep an inventory record that shows how workers use the farm implements. For example if a worker drives a tractor, the record shows when they take it for use, when it was serviced and if it has been refueled.

Shapes of implements and machinery

Activity 1

Let us see how good you are at drawing. Draw any implement or machinery that you have learnt about.

Activity 2- Field trip

1. Arrange the date and time with the farmer.
 2. Suggest what you want to see for example; combine harvester reaping wheat.
 3. Arrange suitable transport.
 4. Learners carry their practical diaries.
 5. Learners record the observations they make.

Exercise

Summary

- Farm equipment and machinery help farmers to work using less labour.
 - There are different farm equipment and machinery for different farm processes such as land preparation, planting, weeding and harvesting.
 - Farm equipment and machinery must be kept in a safe place when not being used.

Glossary

combine harvester – farm machinery that harvests crops such as wheat.

End of topic assessment test

Multiple choice questions

1. A hoe is used to _____.
A. irrigate crops B. cultivate land
C. plant crops D. harvest crops
2. Farmers use _____ to monitor the way workers use tools.
A. a notebook B. a diary
C. an inventory record book D. an exercise book.
3. Sprinkler pipes are used to _____.
A. water vegetable gardens B. water flower gardens
C. water crops on fields D. to provide water
4. Select the equipment which is used for spraying chemicals in the garden.
A. watering can B. pressure pump
C. knapsack sprayer D. lawn mower
5. Which implement is shown in the picture?



- A. lawn mower B. knapsack sprayer
C. ox-plough D. wheelbarrow
6. Which machinery does **not** require fuel to do work?
A. knapsack sprayer B. grinding mill
C. tractor D. lorry
7. What machinery helps farmers to produce milk?
A. seed planter B. combine harvester
C. milking machine D. sprinkler
8. Choose a farm implement used to sow seeds on a field.
A. tractor B. sprinkler pipe
C. planter D. hoe
9. Select a machinery which does many jobs on the farm.
A. ox-plough B. tractor
C. knapsack sprayer D. lawn mower

10. Which set of equipment has tools that do not work together?
- A. lawn mower; rake B. wheelbarrow ; shovel
C. ox-cart; yolk D. watering can ; hammer

Structured questions

1. A _____ sprayer is used for spraying chemicals in the garden. [1]
2. What machinery would you use for harvesting wheat? [1]
3. Name two tools you can use for digging in the garden. [2]
4. What is the use of a lawn mower? [1]
5. Name the tool used to load manure onto an ox-cart. [1]
6. _____ makes the engine of a tractor to run. [1]
7. After using a knapsack sprayer, one should _____ before its storage. [1]
8. A _____ is a tool that is pushed by a person. [1]



Figure 23.1 Maize field under irrigation

Objective

Learners should be able to list local agricultural products.

Introduction

Agriculture is a business which gets its money from the growing of crops and keeping/rearing of animals for sale. In Zimbabwe, most people live in rural areas. In the rural areas there are many products which are produced. In low rainfall areas, crop production is affected by little rainfall. The Government has introduced irrigation in many parts of the country. This means that both crops and livestock can be produced.

Unit 23 Agribusiness



Figure 23.2 A tractor carrying bags of maize for sale

Flashback

What farm produce are sold in your community?



Key words

wholesale markup income abattoirs

Agribusiness is the growing of crops and keeping of livestock for selling to get money.

Local agricultural products

Read the following passage which talks about local agricultural products.

My name is Lindiwe Ncube. I live in a plot near Zhombe. Our school is located in a low rainfall area. It is not possible to grow crops using rainfall. Most people now have an irrigation system. We practise irrigation all year round. In Zhombe, we grow maize, groundnuts and soya beans.

Crops grown under irrigation are maize, cotton, groundnuts, vegetables, sugar beans and sunflowers. Maize is sold to the Grain Marketing Board. Cotton is sold to COTCO.

Sometimes these crops are consumed locally. Maize, for example, is harvested and stored for use by the family. Green mealies are sold to buyers who come from the urban areas. They buy at **wholesale** prices. When they sell the mealies they add a few more cents. They then sell at a **mark-up** price. mark up price is the price of goods sold at the market.

At my homestead, we harvest all the maize and prepare it for the market. We get enough money to pay for school fees and other family expenses. We then keep enough money to buy maize meal from the shops.

Some people in our area have large gardens. In these large gardens they grow vegetables which they sell as fresh produce. Fresh produce are agricultural products that are sold while they are still fresh. Cabbages, tomatoes, lettuce and carrots grown in our area are taken to the cities and sold. The growing of vegetables for sale in large gardens is called **market gardening**.

In our area we keep cattle. There are many people who keep cattle. This type of farming is called ranching. Cattle are kept in kraals at night. They are led out to the pastures during the day. Sometimes the headmen have to walk long distances to find enough pastures for their cattle.

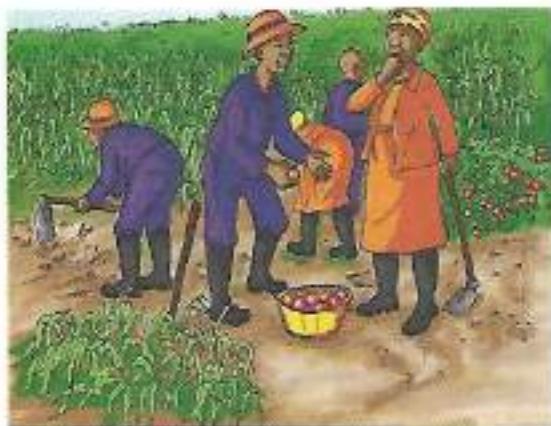


Figure 23.3 Growing vegetables for sale

When the cattle mature they are sent to the market. There are several **abattoirs** where cattle are sold and slaughtered for meat. The people from our community earn an **income** from their livestock.

Other animals kept are goats, sheep and pigs. Goats and sheep are kept on the same pastures as cattle. Sometimes goats are a problem in our gardens, so we have to fence our gardens properly.

Other local products

Some farmers keep pigs and others keep broilers and layers. Pigs are easy to keep because they are fed on grain from the fields. Poultry is very popular. Do you have broilers at your school? Broilers grow fast and they mature within a few weeks.

Keeping layers is also a good project. Farmers in our area keep layers for egg production. Layers produce more eggs than other poultry. Layers take 20 weeks to start producing eggs. This means that you have to spend money on buying feeds for a long time about five months is needed before layers start producing eggs.

Summer crops are maize, sorghum, sugar cane, cotton and tobacco.
Winter crops are wheat and sugar beans.

Main agriculture production centres

Maize	Banket and Karoi
Wheat	Chiredzi, Middle Sabi
Sugarcane	Hippo Valley, Mkwashine
Fruit	Nyanga, Marondera and Mazowe
Tobacco	Beatrice, Centenary, Gokwe, Sanyati, Kadoma
Cattle	Gwanda, Masvingo

Collecting agricultural products

There are several crops grown in the school and community. Make a list of the crops grown. Which ones are also grown at your school?

Activity 1

Bring some samples of crops grown at your home. You can pick from the field. Examples of crops and grains to collect are groundnuts, soya beans, rapoko, sorghum, sunflower and maize.

Draw pictures of the samples you have collected and label your drawings.

Exercise

1. Why is irrigation important in Zimbabwe?
A. cattle are reared B. crops can be grown in dry areas
C. green mealies are produced D. many dams are available

Summary

- Several crops are grown under natural rainfall conditions.
 - There are areas which receive low rainfall in Zimbabwe. In such areas crops cannot be grown successfully using rainfall.
 - There are irrigation schemes which provide water for crop production.
 - Crops which are grown under irrigation are many. For example, maize, sorghum, cotton, soya beans, groundnuts and vegetables, can be grown under irrigation.
 - Crops grown commercially are wheat, sugar cane, cotton, tobacco and maize. Farmers earn money from selling crops and livestock.

Glossary

- | | |
|------------------|---|
| Abattoir | - a place where animals are slaughtered (killed) for meat |
| Income | - money got from selling products |
| Mark-up | - the amount added by a seller on the price of goods |
| Wholesale | - selling goods in large quantities |

End of topic assessment test

Multiple choice questions

Structured questions

1. What is agribusiness?
 2. List 5 local agricultural products found in Zimbabwe?

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[5]

3.



- a) Name the crops.
b) Why are these crops important?

[2]
[2]

Multiple choice questions

Section A
Answer all questions

1. What is Agriculture?
 - A. the keeping of large numbers of animals
 - B. the growing of vegetables on large scale
 - C. the keeping of animals and growing of crops
 - D. the keeping of small livestock and growing vegetables only
2. Three of the following are importance of agriculture except that it _____.

A. provides clothes	B. provides food
C. provides cars	D. provides shelter
3. Choose a tool used in the garden.

A. plough	B. disc harrow
C. garden fork	D. planter
4. Which tool is used to dig in gravel soil?

A. spade	B. garden fork
C. rake	D. hoe
5. Which tool is shown in the diagram below?



- A. spade B. hand fork C. rake D. hoe
6. Three of the following tools can be used to water vegetables except _____.

A. hose pipe	B. bucket
C. wheelbarrow	D. watering can
7. Which of the following is not a season?

A. December	B. spring
C. winter	D. autumn
8. In Autumn people are busy _____.

A. shelling	B. harvesting
C. ploughing	D. weeding
9. When trees start to have new shoots this is the start of _____ season.

A. winter	B. autumn
C. spring	D. summer
10. Summer covers the following months except _____.

A. November	B. December
C. June	D. January



11. What is water used for in agriculture?
A. bathing B. irrigation
C. swimming D. yachting

12. A _____ tree is an indigenous fruit tree.
A. matohwe/uxakuxaku B. mango
C. peach D. avocado

13. Which of the following is not a source of plant nutrients?
A. Cattle manure B. Compost
C. Goat manure D. Fodder

14. The following animals give us manure except _____.
A. cattle B. goat
C. chicken D. dogs

15. The following are indigenous vegetables except _____.
A. black jack B. cabbage
C. spider flower D. poor man's spinach

16. Which of the following has a list of exotic vegetables only?
A. rape, cauliflower, spindle pod
B. rape, tomatoes, cabbage
C. tomatoes, nyevhe/ulude, covo
D. okra, rape, tsunga

17. Which of the following is not a field crop?
A. sunflower B. soya beans
C. rape D. maize

18. The crops which give us mealie meal are _____.
A. maize, sunflower, rapoko B. rapoko, sorghum, maize
C. millet, soya beans, maize D. maize, sorghum, cotton

19. Crops which give people cooking oil are _____.
A. sunflower, sorghum, round nuts
B. sunflower, ground nuts, soya beans
C. maize, sorghum, sunflower
D. maize, soya beans, millet

20. Growing of decorative plants is called _____.
A. agronomy B. ornamental horticulture
C. horticulture D. beauty gardening

21. Why are fruits important in our diet?
A. they gives us nitrogen and potash
B. they gives us mineral salts and vitamins
C. they gives us proteins and fats
D. they gives us plant nutrients

22. Growing and caring of trees is referred to as _____.
A. farming B. horticulture
C. forestry D. agronomy

37. _____ is an enclosed pasture where cattle graze.
A. Kraal B. Paddock
C. Spray race D. Cattle pen

38. _____ is the feed given to broiler chicks.
A. Layers mash B. Chick mash
C. Growers mash D. Pellets

39. Which vegetable should not be given to rabbits?
A. tomato leaves B. black jack
C. lucerne D. cabbage leaves

40. Select a place where bees are kept.
A. next box B. hive
C. feed trough D. flower petals

41. Which set of equipment is out of place?
A. wheelbarrow; pick B. knapsack sprayer; watering can
C. lawn mower; rake D. ox cart; yolk

42. Select the equipment which is used for spraying chemicals in the garden.
A. watering can B. pressure pump
C. knapsack sprayer D. lawn mower

43. Which equipment does not require fuel to do work?
A. tractor B. grinding mill
C. knapsack sprayer D. lorry

44. Which equipment is out of place?
A. ox-plough B. wheelbarrow
C. cultivator D. ox-cart

45. _____ is a winter crop grown in Zimbabwe.
A. Maize B. Sorghum
C. Wheat D. Sunflower

46. _____ is grown for production of baking flour.
A. Wheat B. Soya beans
C. Sunflower D. Sorghum

47. What does mark-up mean?
A. high price B. wholesale price
C. price increase D. market price

48. Which of the following is not a by-product of agriculture?
A. Bread B. Sugar
C. Leather D. Cotton

49. Select a crop which is a staple food and can also be sold as a cash crop.
A. Sugar B. Cotton
C. Tobacco D. Maize

50. Which activity adds value to a product?
A. feeding maize to poultry B. adding proteins to stock feeds
C. keeping meat in the freezer D. selling fresh milk

Structured questions

Section B

Answer all questions

1. a) Write any two importance of agriculture.
(i) _____
(ii) _____
b) What is protective clothing? [2]
c) List any two basic farm tools and their uses. [1]
2. a) List the four seasons in a year.
(i) _____
(ii) _____
(iii) _____
(iv) _____
b) Which agricultural activity is done in summer? [4]
c) What signs show us that the rainy season is near [1]
3. a) State three uses of water in agriculture.
(i) _____
(ii) _____
(iii) _____
b) What is water conservation? [3]
c) In which season is ploughing and planting done? [1]
4. a) Match the following items to show that you understand the sources of plant nutrients.

(i) Cattle	a) Pig manure
(ii) Leaves, grass	b) Poultry manure
(iii) Poultry	c) Cattle manure
(iv) Pig	d) Compost manure

- b) Which tool is used for carrying manure in a garden? [1]
5. a) Name two common indigenous vegetables
(i) _____ (ii) _____ [2]
b) Name two common exotic vegetables
(iii) _____ (iv) _____ [2]
c) Which vegetable gives flavor to food? [1]

6. a) Match the terms and the meanings listed in the table below.

Terms	Meanings of terms
Apiculture	Transfer of pollen from male to female parts of the flower.
Cavity	Keeping bees for honey e.g. production
Nectar	Hollow in a tree trunk used as a hive
Pollination	Juice found in flowers

[4]

- b) Why is apiculture important? [1]

7. a) Write down any 2 domestic animals you know. [2]

- b) What are the two types of animal feed.

(i) _____

[2]

(ii) _____

8. a) What are field crops [1]

- b) List down any 3 field crops. [3]

- c) Gum trees are usually grown in a _____ [1]

9. a) The three main local soils are sand, clay and _____ [1]

- b) Why is a compost important? [1]

- c) A compost heap should be turned and watered so that it _____ [1]

10. a) What is agribusiness? [1]

- b) Write down two plants that are used in ornamental horticulture. [2]

- c) Trees are important in that they give us

(i) _____

[2]

(ii) _____

Ventures Primary Agriculture Grade

3

Ventures Primary Agriculture Grade 3 Learner's Book has been developed to support the content, aims and objectives contained in the New Primary Education Curriculum for Zimbabwe. It contains all the activities that the learners need to cover the Agriculture Syllabus for Grade 3.

The book:

- Covers the requirements of the new syllabus.
- Provides exercises and learner-centred activities which enable learners to understand the subject at a theoretical and practical level.
- Offers many individual, group and class activities that stimulate decision making, problem solving and cooperation.
- Features comprehensive word checks which define the vocabulary in the text.
- Caters for both rural and urban environments.
- Includes a variety of assessment tests at the end of each topic and term.
- Offers multiple choice and structured questions which assist learners in preparing for Paper 1 and Paper 2 examinations.

The learner's book is part of the Junior Primary learner's Development Series completed with a comprehensive teacher's guide.



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