

THEME: THE WORLD OF LIVING THINGS

TOPIC: PLANT LIFE

Lesson 1

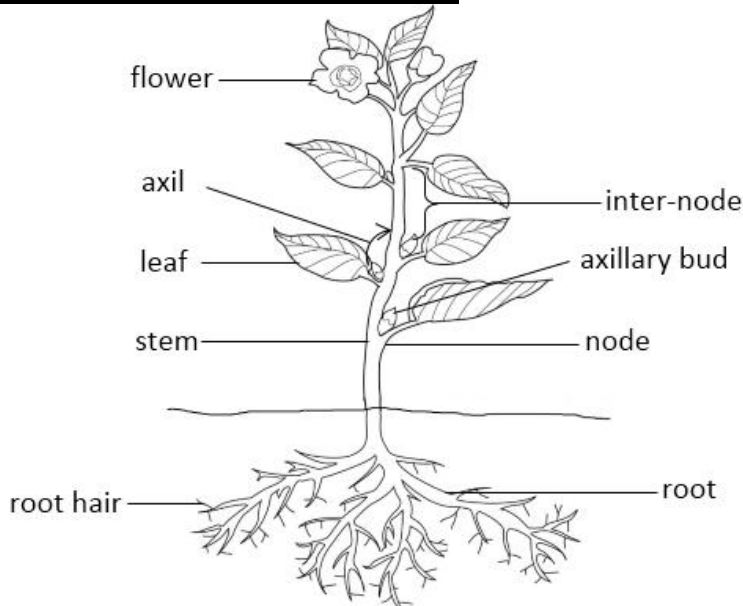
Read and spell

- bear
- reproduction
- flowering
- photosynthesis

Flowering plants

- Flowering plants are plants which bear flowers and reproduce by seeds

Parts of a flowering plant



Functions of the parts of a flowering plant

Roots

- Roots are parts of a plant that grow in the soil

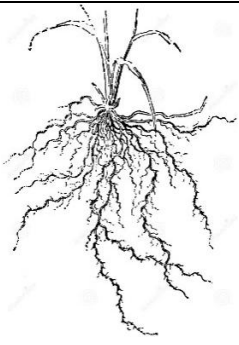
Root systems

- Root systems are roots which grow from the radicle of a seed
- There are only two root systems i.e. fibrous and tap root systems

a) Fibrous root system

- Fibrous roots are many roots that develop from the radicle of a seed

Diagram of fibrous root system



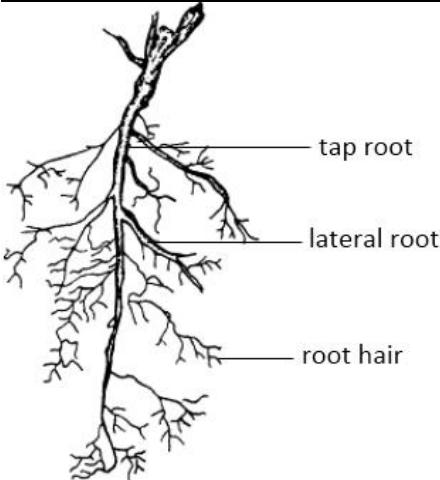
Examples of plants with fibrous root system

- sorghum
- rice
- millet
- maize

b) Tap root system

- This is the type of root system where one main root called tap root develops vertically downwards from the radicle of a seed.

Diagram of taproot system



Examples of plants with tap root system

- | | |
|--------------|---------------------|
| - Bean plant | - ground nut plants |
| - mangoes | - jack fruit plant |
| - peas | - avocado plant |

Activity

1. Give the meaning of a flowering plant.

2. Name any one part of a flowering plant.

3. Mention the **two** systems of a flowering plant.

i) _____

ii) _____

4. Name the system of a flowering plant that grows in the soil.

5. Give **one** examples of flowering plants with;

a) Taproot system _____

b) Fibrous root system _____

Read and spell

- taproot - buttress root
- aerial roots - clasping root

Lesson 2

Types of roots

- There are three types of roots i.e. fibrous roots, tap roots and adventitious roots

Adventitious roots

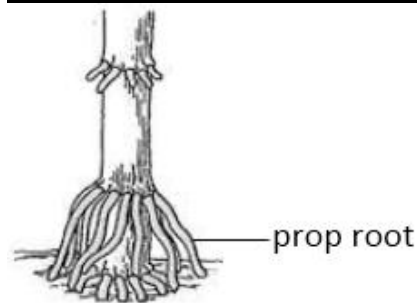
- Adventitious roots develop from other parts of a plant
- They do not develop from the radicle of a seed

Examples of adventitious roots

a) Prop roots

- These are roots which develop from the stem nodes near the ground.

Diagram of prop roots



Examples of plants with prop roots

- Maize plant - millet plant
- Sugarcane plant - sorghum plant

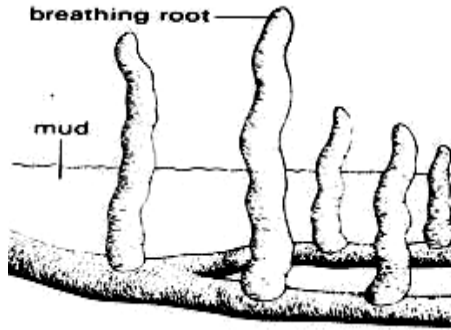
Importance of prop roots to the plants

- They give extra support to the plants

b) Breathing roots

- These are aerial roots because they grow upwards and act as breathing organs

Diagram of breathing roots



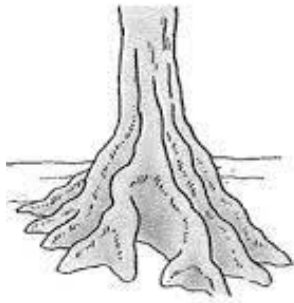
Examples of plants with breathing roots

- mangroves

c) Buttress roots

- These are roots which grow on the stem of a plant that enlarges to give extra support

Diagram of buttress roots



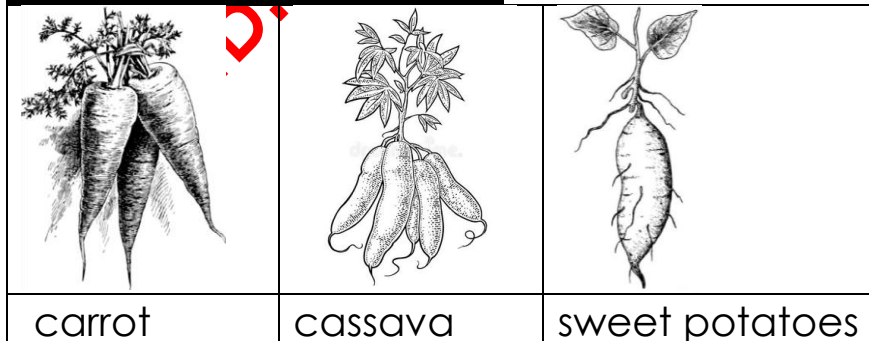
Examples of plants with buttress roots

- Silk cotton trees
- Baobab

d) Storage roots

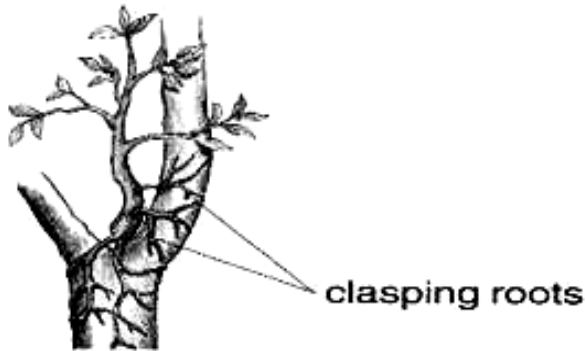
These are roots which store food for the crop mainly starch.

Examples of storage roots



e) Clasping roots

- These roots enable parasitic plants to climb by grasping the stem of other plants for support.



Uses of roots to plants and animals

- Roots absorb water and mineral salts from the soil
- Roots hold plants firmly in the soil
- Some roots store food for the plant
- Breathing roots help plants to breathe

To animals and people

- Some roots are eaten as food
- Some roots are used as herbs
- Some roots are source of income after sale
- Some roots are used as building materials.

Activity

1. How are clasping roots important to plants?

2. How are prop and buttress roots similar in terms of function?

3. Give a reason why plants in water logged areas develop breathing roots.

4. Mention any **one** example of a storage root.

Read and spell

- branch
- terminal bud
- rhizomes
- corm

Lesson 3

Stems

- These are the woody part of a plant

Types of stems

a) Upright stem or erect stems

- These are stems which grow straight in the space above the ground level

Examples of plants with upright stem

- maize plant
- mango plant
- cassava plant
- rice plant

b) Climbing stems

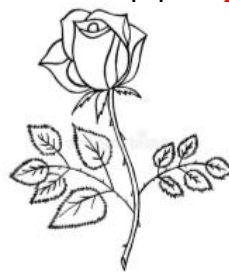
- These are weak stems which cannot support themselves upright



Climbing by twining



Climbing by using tendrils



Climbing by using hooks

Examples of plants which climb others by:

a) Clasping- morning glory, white yams and tomatoes

b) Tendrils- passion fruits, pumpkin, cucumber, watermelon, cowpeas

c) Hooks- black berry, raspberry, rose plants

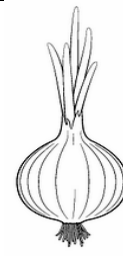
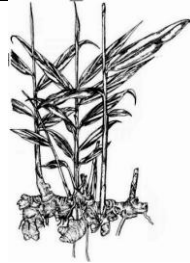
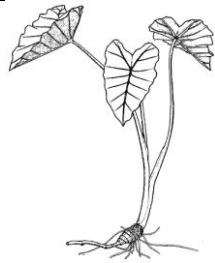
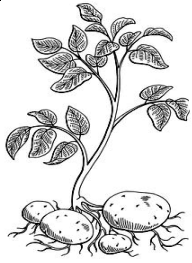
Underground stems

- These are stems which are found underground
- The stems store food for the plants

Underground stems

- Stem tubers e.g. Irish potatoes and white yams
- Corms e.g. coco yam and gladiolus
- Rhizomes e.g. ginger and turmeric
- Bulbs e.g. onions and garlic

Irish potatoes	Coco yam	Ginger	Onion
----------------	----------	--------	-------



functions of stems to

a) plants

- Some stems store food for the plants
- Stems hold leaves and fruits
- Green stems make food for the plants
- Stems hold flowers
- Stems water and food within the plant

b) Animals and people

- Some stems are eaten as food
- Some stems are sold to get money
- Some stems are used as herbal medicine
- Some stems are used for building house

Activity

1. Mention any **two** types of stems.

i) _____

ii) _____

2. Give any **one** way how plants with weak stems climb others.

3. How are upright stems useful to plants like mango plants?

Read and spell

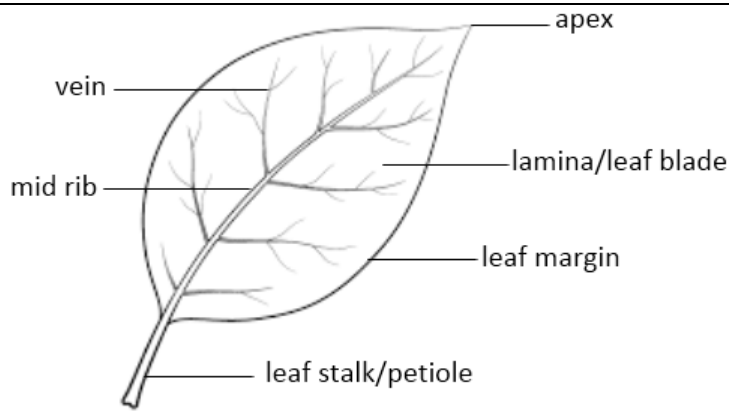
Lesson 4

- stomata
- venation
- network
- parallel

Leaves

- These are the vegetative part of a plant

The structure of a leaf



Functions of the parts of a leaf

Stoma

- For breathing (gaseous exchange)

Leaf stalk

- It attaches a leaf onto the branch or stem

Leaf veins

- They supply water and nutrients within a leaf

Midrib

- It transports food and water into the leaf

Lamina

- It contains chloroplast where photosynthesis takes place

Leaf venation

- This is the arrangement of veins in a leaf

Types of leaf venation

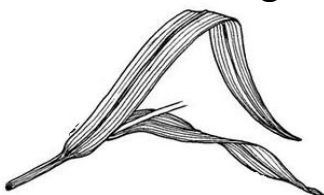
a) Network venation

This is the arrangement of veins in a leaf inform of a net.



b) Parallel venation

This is the type of venation where veins run from leafstalk to apex without meeting

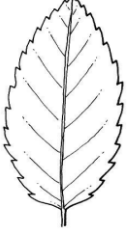
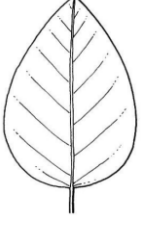




Types of leaves

a) Simple leaves

- Simple leaves are leaves which have one leaf blade on one leafstalk even when the leaf blade is divided





Examples of simple leaves

Simple serrated	Simple entire	Simple lobed	Simple palmate
			

b) Compound leaves

- Compounds leaves are leaves with many leaflets on one leaf stalk.

Examples of compound leaves

Pinnate	Bi-pinnate	Trifoliate	Digitate
			

Functions of leaves

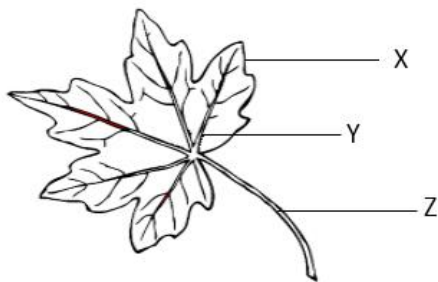
- Leaves make food for the plants
- Leaves have stomata for breathing
- Some leaves store food for plants
- Leaves makes plants carry out transpiration

Activity

1. What is leaf venation?

2. Give the type of leaf venation found in plants with simple serrated leaves.

3. Use the diagram below to answer the questions that follow.



a) Name the part marked with letter X.

b) How are the following parts important to a leaf?

Z

Y

4. Draw a trifoliate leaf in the space below.



Read and spell

Lesson 5

- photosynthesis
- starch
- chlorophyll
- sunlight

Photosynthesis

- Photosynthesis is the process by which plants make their own food.

Conditions needed for photosynthesis to take place.

a) Chlorophyll

- Chlorophyll is a green pigment found in plant leaves
- It absorbs sunlight energy which is used during photosynthesis

b) Sunlight energy

- It helps to break down water and carbon dioxide into starch

Raw materials needed by plants to make food (starch)

a) Water

- Water provides hydrogen which is needed in the of making starch

b) Carbon dioxide

- It is a source of carbon which combines with Hydrogen to form starch

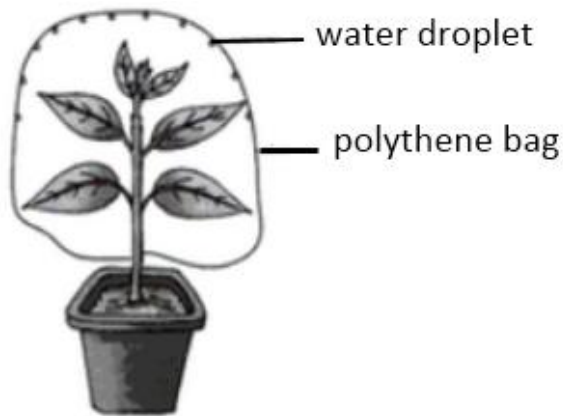
Note: During photosynthesis, oxygen is released as a bi-product while starch is the main product

Transpiration

- Transpiration is the process by which plants lose water to the atmosphere in form of water vapour

Experiment showing transpiration in plants

- Get a transparent polythene paper without holes in it
- Look for a plant which is well placed in the sunlight
- Tie the polythene paper on one of the branches or around the shoot as shown below
- Leave it there for about two hours



Observation

- After the two hours, droplets of water will be observed on the inside of the polythene bag

Conclusion

- The lost water from the plant leaves condensed on the polythene bag

Factors which affect the rate of transpiration

- Temperature
- Wind
- Light
- Humidity
- Number of stomata
- Surface area of a leaf

How plants reduce transpiration

- Shedding leaves
- Bearing thorny leaves
- Developing a layer of wax.

Importance of transpiration to plants

- It helps plants to cool down
- It makes plants to absorb more water from the soil

Activity

1. Give the meaning of the word photosynthesis.

2. Mention **one** raw material needed by plants to make food.

3. How is transpiration important to a plant?

4. Give a reason why photosynthesis does not take place at night.

5. How does the absence of chlorophyll affect plants?

Read and spell

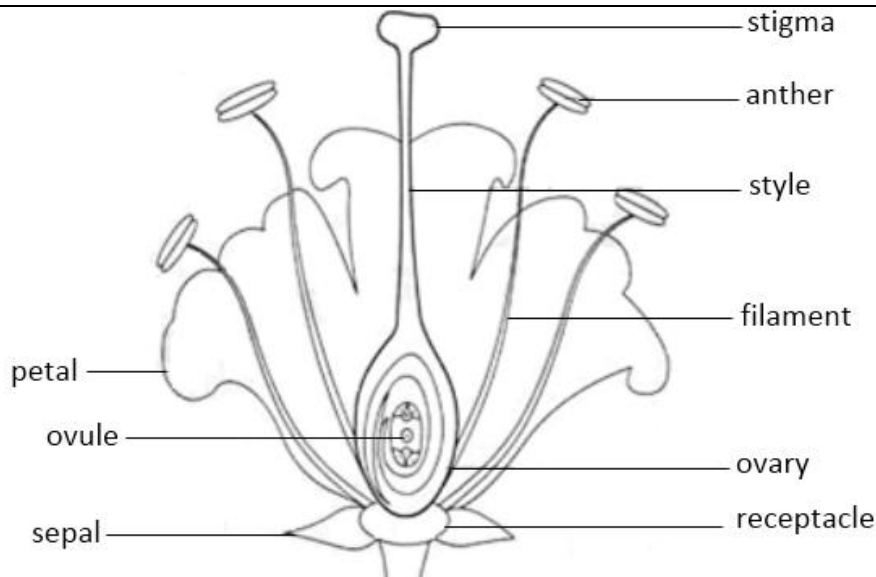
- pollination
- pollen grain
- anthers
- petals

Flowers

- A flower is the reproductive part of a flowering plant

Diagram of a flower

Lesson 6



Function of the parts of a flower

Petals

- They are brightly coloured to attract pollinators

Anthers

- They produce pollen grains

Ovary

- Develops into a fruit after fertilization

Flower stalk

- Holds a flower firmly on a branch

Ovules

- They develop into seeds after fertilization

Sepals

- They protect a flower during bud stage

Filament

- It holds the anther upright

Stigma

- They receive pollen grains

Uses of a flower to a plant

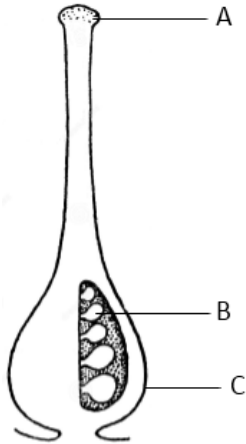
- For reproduction

Activity

1. In **one** sentence, give the meaning of a flower

2. Give any **one** use of a flower to a plant.

3. Use the diagram below to answer the questions that follow.



a) Which part of the flower above receives pollen grains?

b) State what happens to the following after fertilization

B

C

c) In which part of a flower does fertilization take place?

4. How is the petal of a flower able to attract pollinators?

5. Apart from protecting the flower at the bud stage, identify any other way the sepal is useful to flowers.

Read and spell

- pollination
- fertilization
- pollen grains
- anthers

Lesson 7

Pollination

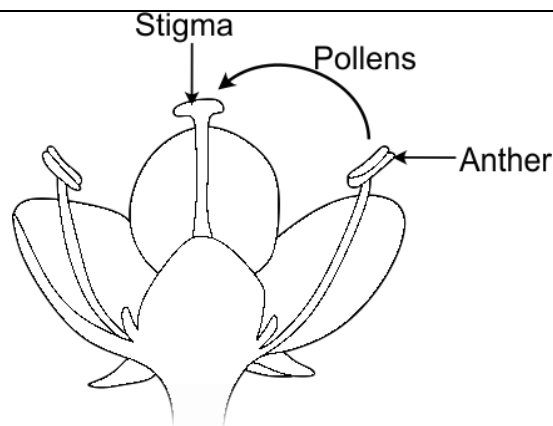
- Pollination is the transfer of pollen grains from the anthers to the stigma of a flower

Types of pollination

a) Self pollination

- Is the transfer of pollen grains from the anthers to the stigma of the same flower

Diagram showing self pollination



Characteristics of self-pollinated plants

- Pistil and the filament mature at the same time
- The flower remains closed until self-pollination takes place
- The filament is longer than the style

b) Cross pollination

- This is the transfer of pollen grains from the anthers to the stigma of different flowers but of the same kind

Diagram showing cross pollination



Characteristics of cross pollination

- The male and female parts of a flower mature at different time
- The male and female parts occur on different plants
- The filament is shorter than the style

Agents of pollination

- Agents of pollination are things which transfer pollen grains from the anthers to stigma of a flower

Examples of agents of pollination

- insects
- wind
- birds
- water
- animals

Activity

1. In **one** sentence give the meaning of pollination.

2. Mention **two** types of pollination.

i) _____

ii) _____

3. How are insects important to plants during the flowering stage?

4. State the role of the following parts of a flower.

a) Anthers

b) Stigma

5. Name **one** insect which pollinates flowers at night.

6. How is the insect named in b) above able to pollinate flowers at night?

Read and spell

Lesson 8

- plumule
- radicle
- cotyledon
- ovule

Seeds

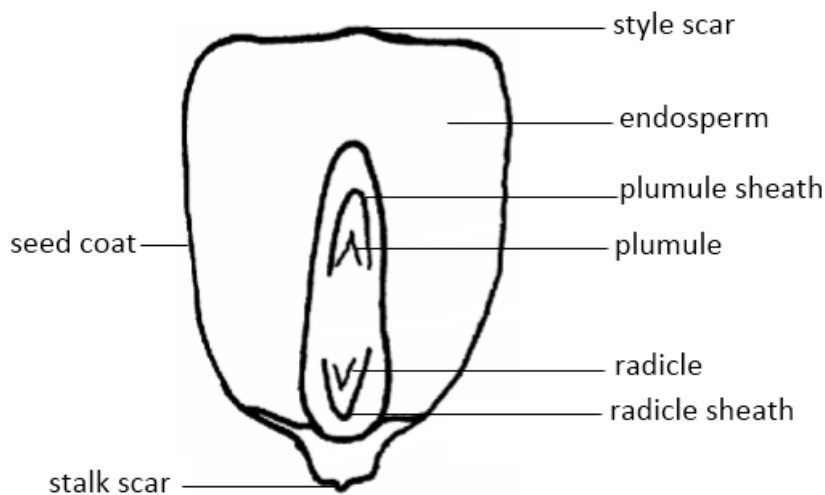
- A seed is a fertilized ovule

Groups of seeds

a) Monocotyledonous seeds

These are seeds with one cotyledon

Structure of a monocotyledonous seed



Examples of monocotyledonous seeds

- Maize
- Millet
- Sorghum
- rice

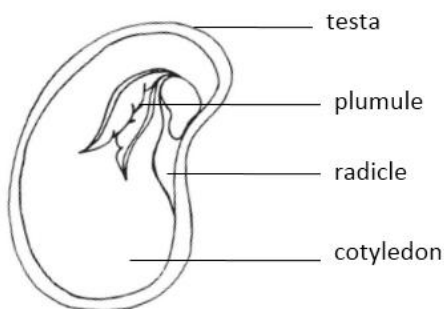
b) Dicotyledonous seeds

- These are seeds with two cotyledons

Examples of dicotyledonous seeds

- beans - groundnuts
- soybean - peas

Structure of dicotyledonous seeds



Functions of the parts

Endosperm

- Store food for the embryo

Cotyledon

- Stores and supplies food to the embryo

Plumule

- Develops into shoot system

Radicle

- Develops into root system

Testa

- Protects the inside parts of the seed

Micropyle

- A hole on the ovule through which the pollen tube enters the ovule
- It allows water and oxygen in a seed during germination

Hilum/scar

- Holds a seed on a pod

Activity

1. Give the meaning of the term seed.

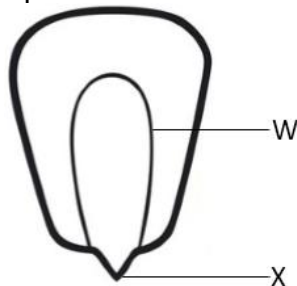
2. Mention any **two** plants with monocotyledonous seeds.

i) _____ ii) _____

3. Name the part of a seed which grows into shoot system.

4. Which part of maize grain has the same function as the cotyledon of a bean seed?

5. Study the diagram of a seed below and use it to answer the questions that follow.



a) Name the part of the seed marked with letter **X**.

b) Of what importance is part **W** to the seed?

6. In which **two** ways do farmers use seed?

i) _____

ii) _____

Read and spell

- development

Lesson 9

- germination
- warmth
- embryo

Germination

- Seed germination is the development of a seed embryo into a seedling
- A seedling is a young plant

Types of germination

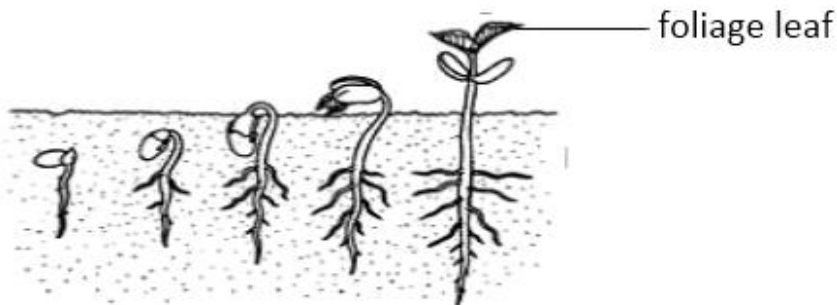
a) Epigeal germination

- This is the type of germination where the cotyledons come above the ground

Examples of plants which undergo epigeal germination

- beans
- peas
- soybeans
- groundnuts

Diagram showing epigeal germination



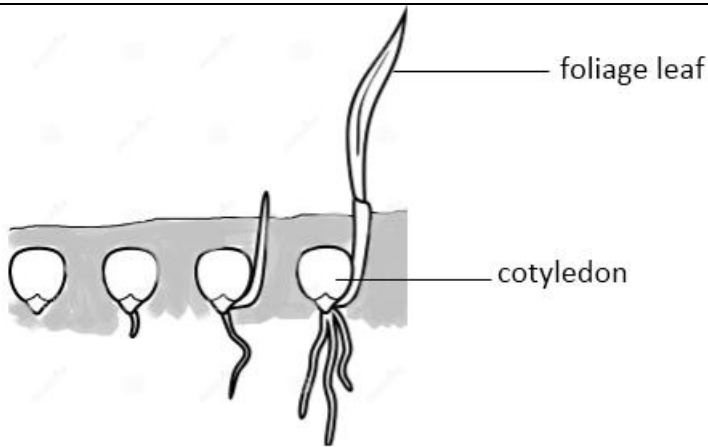
b) Hypogeal germination

- This is the type of germination where the cotyledons remain in the soil

Examples of seeds which undergo hypogeal germination

- maize - millet
- rice - sorghum

Diagram showing hypogeal germination



Activity

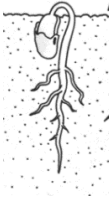
1. What is seed germination?

2. Mention any **one** plants which undergoes each of the following;

a) Epigeal germination _____

b) Hypogeal germination _____

3. Identify the type of germination shown below.



4. Give any **one** plant with the above type of germination.

Read and spell

Lesson 10

- viability
- dormancy
- germination
- diseased

Seed viability

- This is the ability of the seed to germinate under favourable conditions

Seed dormancy

- This is the inability of a seed to germinate under favourable conditions

Factors which can lead to seed dormancy

- Hard seed testa
- When the seed is diseased

- When the seed has holes
- When the embryo is damaged

Conditions for seed germination

a) Moisture

- It softens the seed coat to allow embryo out
- It dissolves food in the cotyledon

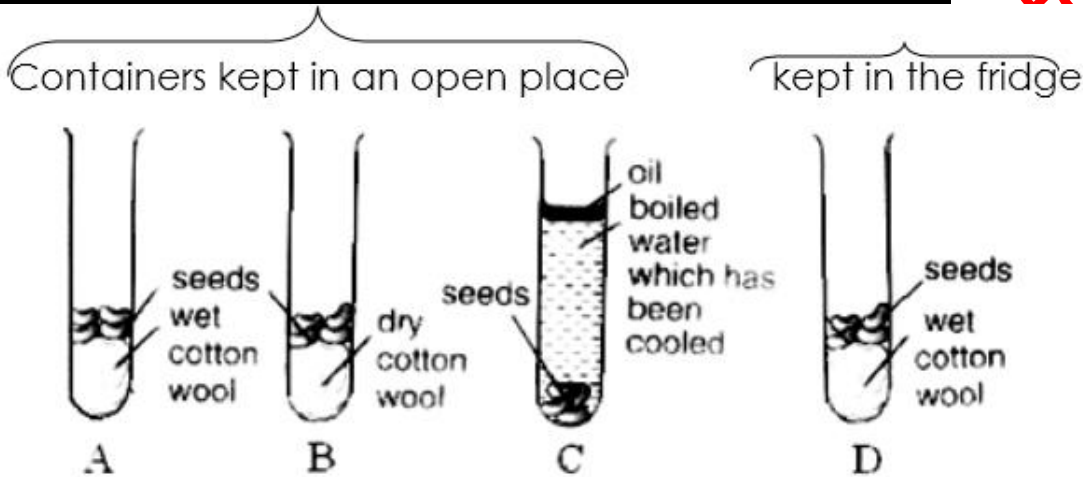
b) Oxygen

- It is for in respiration

c) Warmth

- Increases the rate of chemical reaction

Experiment showing seed viability and dormancy



Container A

- The seeds will germinate because all conditions are present

container B

- The seeds will not germinate because there is no moisture

Container C

- The seeds will not germinate because the oil cuts off/prevents oxygen from entering the water to reach the seeds

Container D

- The seeds will not germinate because they lack warmth

Activity

1. Give the meaning of seed dormancy.

2. Give any **two** conditions which lead to seed dormancy.

- _____
- _____

3. How is oxygen useful during the process of germination?

4. What is seed viability?

5. Mention any **two** conditions needed for a seed to germinate.

i) _____

ii) _____

S.B.M Whatsapp 0784416726 for more

END

THEME : THE WORLD OF LIVING THINGS**Lesson 1****TOPIC: GROWING CROPS****Read and spell**

- cash crops
- food crops
- maize
- beans

Common crops

- These are plants which are commonly grown in an area by majority of people

Examples of common crops

- Maize - beans
- sorghum - tobacco
- cotton - carrots
- pawpaw

Groups of common crops

- Annual crops
- Perennial crops

Annual crops

- These are crops which complete their life cycle within one growing season

Examples of annual crops

- beans - millet
- sorghum - rice
- maize - groundnuts
- cabbage

Perennial crops

- These are crops which live for many years and they can be harvested yearly.

Examples of perennial crops

- coffee - banana plant
- tea - orange
- mangoes - pineapple plant

Activity

1. Mention any **one** example of a common crop.

2. What are annual crops?

3. Identify any **one** annual crop grown in your community.

4. Mention **one** perennial food crop grown in your school garden.

5. Why is beans regarded as annual crops?

6. State any one difference that exists between maize plants and banana plants.

Read and spell

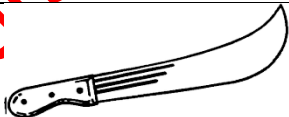
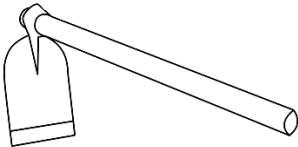
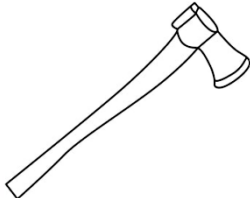
- garden tools
- panga
- hoe
- axe


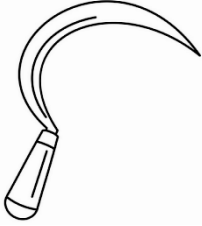
Lesson 2

Garden tools

- These are equipment used by farmers to simplify garden work

Examples of garden tools

Garden tool	Diagram	use
panga		<ul style="list-style-type: none"> - Cutting trees, bushes - Harvesting some crops
hoe		<ul style="list-style-type: none"> - Digging, weeding - Levelling soil - Harvesting crops - weeding crops
axe		<ul style="list-style-type: none"> - Felling big trees - Splitting firewood

trowel		<ul style="list-style-type: none"> - Transplanting seedlings
sickle		<ul style="list-style-type: none"> - Cutting grass for animals - Harvesting rice and millet

Activity

1. What are garden tools?

2. Which garden tool is used for felling big trees?

3. Draw and name the garden tool used for transplanting seedlings.

4. Match the garden tools in list A to their function in list B correctly.

List A

- i) Panga
- ii) Sickle
- iii) Axe
- iv) hand hoe

List B

- a) Splitting firewood
- b) digging
- c) Transplanting seedlings
- d) Cutting grass for animals
- e) Cutting trees

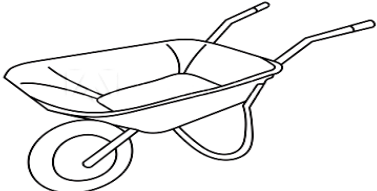
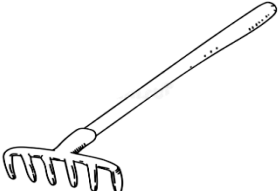

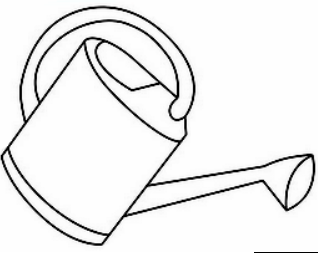

Correct order

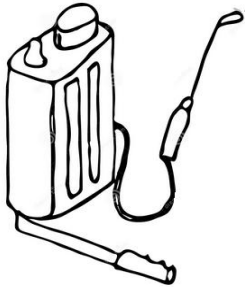
- v) Panga _____
- vi) Sickle _____
- vii) Axe _____
- viii) hand hoe _____

Read and spell

- wheel barrow
- rake
- garden fork
- watering can

Examples of garden tools

Garden tool	Diagram	use
Wheelbarrow		<ul style="list-style-type: none"> - Transporting harvested crops - Transporting manure
Rake		<ul style="list-style-type: none"> - Collecting rubbish - Levelling soil - Spreading manure
Garden fork		<ul style="list-style-type: none"> - Turning manure - Loading manure
Watering can		<ul style="list-style-type: none"> - Watering crops
Jerry can		<ul style="list-style-type: none"> - Carrying water - Storing water

Sprayer		- Spraying crops
---------	---	------------------

Activity

1. At what time of the day should watering be done?

2. Why do most farmers spray their crops at an early stage in the garden?

3. Which garden tool is used for digging hard soil?

4. Name the garden tool used for making straight rows when sowing.

Read and spell

- land clearing
- digging
- seed selection
- ploughing

Lesson 4

Crop growing practices

- These are different activities done by farmers during the period of growing crops

Examples of crop growing practices

- land preparation - digging
- planting - caring
- harvesting - transporting
- storing

Land preparation

- This is the first stage in crop growing.
- It is done in dry season before the rain starts

Activities done during land preparation.

- ploughing - harrowing
- trashing - slashing

Garden tools used during land preparation.

- Slasher - panga
- Axe - sickle
- hand hoe

Importance of land preparation.

- Helps a farmer to dig and plough easily
- Helps water to sink in the soil
- Softens the soil

Sorting seeds

- This is the removal of bad seeds from good ones before planting.
- Sorting helps to improve seed viability.

Seed viability

- This is the ability of seeds to germinate under favourable conditions.

Activity

1. Which crop growing practice is done during dry season?

2. Mention any **two** garden tools used during land preparation.

i) _____ ii) _____

3. How is land preparation important to crops?

4. Why should farmers carry out seed selection?

5. Why is burning as a method of clearing land not encouraged?

Read and spell

- randomly - row planting
- broadcasting - rainy season

Lesson 5

Planting

- This is the act of placing a planting in the soil to grow

Methods of planting

- Row planting
- Broadcasting method

Row planting

- This is the planting of seeds in straight lines

- A string can be used to help when making straight lines

Examples of crops planted in rows

- tomatoes - onions
- tea - coffee
- beans

Advantages of row planting

- It eases weeding
- It eases crop harvesting
- It makes it easy to spray crops

Disadvantages of row planting

- It takes a lot of space
- Row planting is tiresome
- It requires a lot of labour

Broadcasting method

- This is the way of planting seeds by randomly scattering them.

Seeds planted by broadcasting

- millet - sorghum
- wheat - rice

Advantages of broadcasting

- It is quick and easy
- Less labour is used

Disadvantages of broadcasting

- It makes weeding difficult
- It leads to easy spread of diseases
- It leads to easy spread of crop pests
- It leads to crowding of plants which creates competition for growth requirements

Activity

1. In which season do farmers carry out planting?

2. Write down any **one** method of planting crops.

3. Identify any **one** crop planted in rows.

4. Mention **two** advantages of planting crops by broadcasting.

- i) _____
iii) _____

5. What is row planting as used in crop growing?

Read and read

Lesson 6

- manure
- gap filling
- animal droppings
- nutrients

Manuring

- This is the application of manure in the soil to make it more fertile

Examples of manure

- Farm yard manure (got from animal wastes and urine)
- Compost manure (got from house hold wastes)

Importance of manuring

- It makes soil fertile
- It maintains soil moisture

Gap filling

- This is the replacement of seeds in the space where they did not germinate

Importance of gap filling

- It maintains the right plant numbers in the garden
- It encourages high yields
- It encourages proper use of space in the garden

Activity

1. When should a farmer practice gap filling?

2. How is gap filling important to a crop farmer?

3. How is manuring an important practice on a crop farm?

4. State any one way in which way is manuring can be dangerous in the garden?

5. Why should a farmer practice manuring?

Read and spell

Lesson 7

- weeding - weeds
- plant - removal

Weeding

- This is the removal of unwanted plants in the garden

Advantages of weeding.

- Reduces competition for sunlight and soil nutrients
- Makes harvesting easy
- Prevents overcrowding in the garden
- Controls pests and diseases

Weeds

- Weeds are unwanted plants in the garden

Examples of weeds

- wandering Jew - nut grass
- blackjack - Sodom apple
- star grass

Advantages of weeds

- some weeds are a source of food
- Some weeds are used as herbal medicine
- Dry weeds can be used for mulching
- Weeds maintain soil moisture

Disadvantages of weeds

- Weeds make harvesting hard
- They are hiding places for pests
- Weeds compete with crops for growth requirements
- Weeds reduce space for crops to grow well
- Dry weeds can easily catch fire

Methods of controlling weeds

- Uprooting - Spraying with herbicides

- Mulching - Digging
- Slashing - Harrowing

Activity

1. What are weeds?

2. Mention any **two** examples of weeds.

i) _____ ii) _____

3. How are weeds important to a crop farmers?

4. Identify any **two** ways of controlling weeds.

i) _____ ii) _____

5. What do we call the practice of removing unwanted plants in the garden?

6. Why do farmers carryout weeding?

Read and spell

- thinning - pruning
- secateurs - excess

Lesson 8

Thinning

- This is the removal of excess and poor growing crops from the garden

Advantages of thinning

- It prevents overcrowding of crops
- It prevents easy spread of diseases
- It prevents competition for growth requirements

Disadvantages of thinning

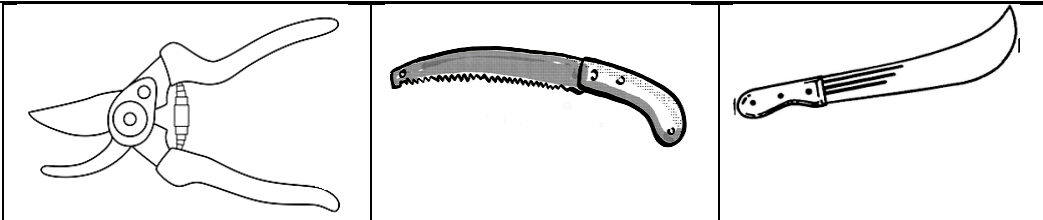
- Good growing crops can accidentally be removed during thinning

Pruning

- This is the removal of excess and unproductive parts of a plant

Garden tools used for pruning

Secateurs	Pruning saw	Panga
-----------	-------------	-------



Advantages of pruning

- It reduces weight in fruit trees
- It reduces competition for sunlight
- It destroys hiding places for pests
- It eases crop harvesting

Disadvantages of pruning

- Exposes internal parts of a plant to pests

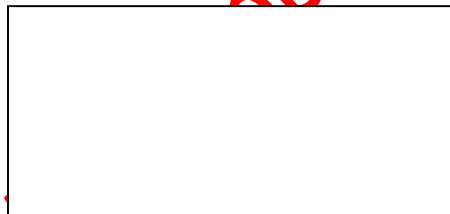
Activity

1. Write the meaning of the word thinning.

2. How is thinning an advantageous practice in crop farming?

3. Identify any **one** posed when carrying out thinning.

4. Draw and name any **one** garden tool used for pruning.



5. How does pruning help to control crop pests?

6. State any one way secateurs can be of use to tomato farmers.

Read and spell

Lesson 9

- mulching
- mulches
- coffee husks
- bean husks

Mulching

- This is the covering of top soil with dry plant materials (mulches)
- Mulches are dry plant materials used to cover the soil

Example of mulches

- Dry grass
- Coffee husks
- Bean husks

Advantages of mulching

- Mulching maintains soil moisture
- It controls soil erosion
- It improves on soil fertility
- It controls weeds

Dangers of mulching

- Mulching is tiresome
- Mulches are fire hazards
- Some mulches can turn into weeds
- Mulches can hide pests

Activity

1. Differentiate between mulching and mulches.

2. Identify any **one** example of mulches you know.

3. What do we call the practice of covering top soil with dry leaves or grass?

4. Mention any **two** advantages of mulching a garden.

i) _____

ii) _____

5. Identify **two** crops which can be mulched while in the garden.

i) _____ ii) _____

Read and spell

- transplanting
- trowel
- nursery bed

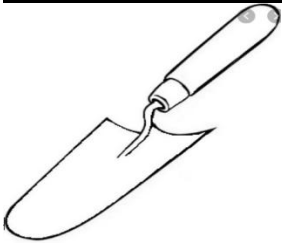
Lesson 10

- wilting

Transplanting

- Transplanting is the transfer of seedlings from a nursery bed to the main garden.
- It should be done in the evening when there is no sunshine to prevent wilting of seedlings.
- Transplanting is done using a garden tool called trowel.

Diagram of a trowel



Importance of transplanting

- It promotes proper spacing of seedlings.
- It prevents competition for growth requirements since crowded seedlings will get spaced.

A nursery bed

- A nursery bed is a small piece of land prepared for raising seedlings.

Examples of plants which are first planted in a nursery bed

- Cabbage
- Tomatoes
- egg plants
- carrots

Importance of a nursery bed

- It helps a farmer to plant good seedlings.
- It protects seedlings from bad weather.
- It enables a farmer to monitor the growth of seedlings.

Activity

1. What is transplanting?

2. Which garden tool is important when transplanting seedlings?

3. Why is transplanting supposed to be done in the evening time?

4. Mention any **two** crops which are first grown in a nursery bed.

i) _____ ii) _____

Read and spell

Lesson 11

- watering
- watering can
- spraying
- spray pump

Watering

- This is the practice of supplying water to crops when rain is not enough
- It should be done early in the morning and late in the evening

Tools used for watering

- watering can
- sprinkler

Importance of watering

- Softens the soil
- Dissolves mineral salts in the soil
- It provides the water required by plants to grow

Spraying

- This is a practice of applying liquid chemicals in the garden to control pests or weeds
- Spraying is done using a sprayer or spraying pump/knap sack sprayer

Examples of chemicals used for spraying

- Herbicides (used to kill weeds)
- Pesticides (used to kill pests)

Importance of spraying

- Spraying controls pests in the garden
- Spraying controls the growth of weeds

Disadvantages of spraying

- Chemicals destroy soil structure
- Chemicals can burn crops

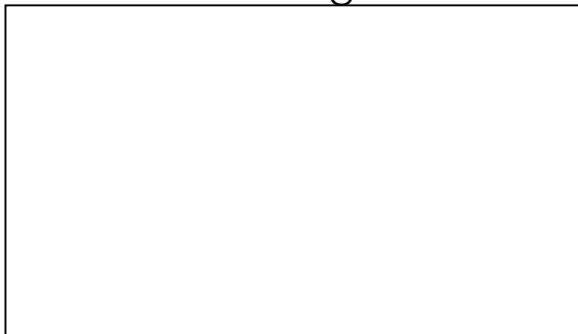
Activity

1. Why should watering plants be done in the evening.

2. Mention any **two** methods of watering crops.

i) _____ ii) _____

3. Draw and name the garden tool used for watering crops.



4. Under what condition should watering be done?

5. Give **two** reasons for spraying crops.

i) _____

ii) _____

Read and spell

Lesson 12

- harvest - cutting
- uprooting - picking

Harvesting

- This is the practice of removing mature ready crops from the garden

Ways of harvesting crops

- cutting
- uprooting
- digging
- picking

Crop harvested	Method of harvesting	Garden tool used
<ul style="list-style-type: none">- rice- banana- sugarcane- millet	<ul style="list-style-type: none">- cutting	<ul style="list-style-type: none">- panga- sickle
<ul style="list-style-type: none">- cassava- sweet potato- yams	<ul style="list-style-type: none">- digging	<ul style="list-style-type: none">- Hand hoe
<ul style="list-style-type: none">- cassava- Irish potato	<ul style="list-style-type: none">- Uprooting	<ul style="list-style-type: none">- hands

<ul style="list-style-type: none"> - tomato - coffee - cotton 	<ul style="list-style-type: none"> - picking 	<ul style="list-style-type: none"> - hands
--	---	---

Sun drying

- This is the practice of putting harvested crops in sunshine to dry.

Examples of crops dried by sunshine

- cassava - coffee
- beans - maize
- millet

Importance of sun drying crops.

- Prevents crops from rotting.
- Prevents crops from being attacked by pests.
- Helps harvested crops to stay long.

Note: The sunshine removes the water in the crops and causes them to dry.

Activity

1. What is harvesting?

2. Mention any **two** crops which are harvested by uprooting.

i) _____ ii) _____

3. How is the hand hoe useful when harvesting cassava?

4. How is the sun important to crop farmers during the process of drying crops?

5. Why is it necessary to dry harvested crops before storage?

Read and write

Lesson 13

- storing - granary
- sacks - baskets

Storing

- This is a practice of keeping well dried food in a special place for future use
- The place should be clean and dry all the time to prevent spoilage

- In store houses, sacks should be raised on dry pieces of timber to prevent them from absorbing moisture from the floor

Methods of storing crops

- Using a granary
- Using food store rooms or houses
- Using sacks
- Using silos

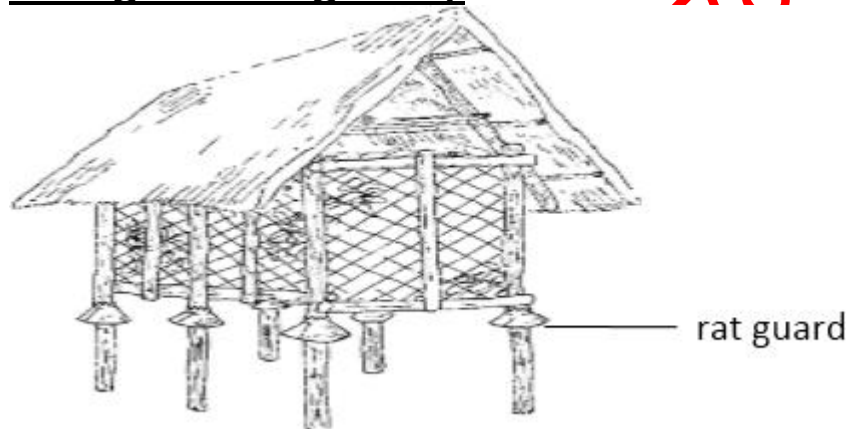
A granary

- This is a raised store structure with rat guards
- The rat guards prevent rats from climbing and reaching

Examples of crops stored in a granary

- maize
- millet
- groundnuts
- cassava

A diagram of a granary



Reasons for storing food

- To get what to plant in the next season.
- To have what to sell when the market prices are good.
- To keep food for future use

Activity

1. Write the meaning of the word storing as used in crop growing.

2. Mention any one way farmers store their harvested crops safely.

3. How does food storage promote food security?

4. How is a rat guard important on a granary?

5. Why are stored foods in sacks raised on dry timber?

6. Mention any one food crop that can be stored in a granary.

Read and spell

- record keeping - production
- expenditure - activities

Record keeping

- This is the gathering and storing of information about certain activities

Records

- Records are written information about certain activities

Examples of records kept on crop farms

- Health records
- Sales and expense records
- Inventory records
- Production record

Importance of keeping records

- It preserves the history of the farm
- It enables a farmer to get bank loans
- It enables a farmer to know the progress on the farm
- It enables the farmer to be taxed fairly
- It enables the farmer to identify areas of investment

Activity

1) What are farm records?

2) Which type of a record enables a farmer know the kind of diseases which affected his crops?

Lesson 14

3) Mention any **two** importance of farm records.

- i) _____
ii) _____

4) How are inventory records useful to farmers?

Read and spell

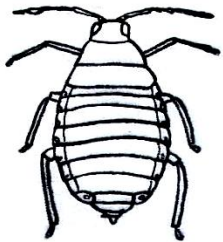



Lesson 15

- pests - damage
- yield - destructive

Pests

- A pest is a destructive organism of crops and animals.

Examples of pests

aphid	caterpillar	Army worm	squirrel
			

Signs of pest damage on crops

- low yields
- holes in leaves
- rotten roots
- seeds with holes
- Fruits develop dark spots

Methods of controlling pests

- By spraying with pesticides
- By scaring using scare crows
- By fencing the garden
- By trapping
- Practising crop rotation

Activity

1. What are pests?

2. Name any **two** examples of insect pests on the farm.
- i) _____
- ii) _____
3. Identify **two** signs of pest damage on the crop.
- i) _____
- ii) _____
4. In which way are pests dangerous to a crop farmer?
- _____
5. a part from using traps, how else can a farmer control rats on his/her farm?
- _____

Read and spell

Lesson 16

- healthy
- diseases
- damage
- blight

Crop disease

- A crop disease is an infection which makes crops unhealthy and unable to give good yields

Signs of crop disease damage

- Poor growth
- Yellowing of leaves
- Deformed leaves
- Leaves develop abnormal shape
- Wilting of crops
- Brown or black spots developing on leaves, stems, fruits
- Reduced yields
- rotten crop parts

Examples of crop diseases

- Cassava mosaic
- Leaf spot
- Maize streak
- Tomato blight

- Coffee rust

Ways of controlling diseases

- By controlling crop pests
- Uprooting diseased crops
- Planting early
- Timely weeding
- Planting disease free seeds.

Activity

1. Name the disease which commonly attacks cassava plants.

2. Identify any **two** signs of disease damage on crops.

i) _____

ii) _____

3. Mention **two** examples of crop diseases.

i) _____

ii) _____

4. Identify **two** ways how a farmer can control crop diseases in the garden.

i) _____

ii) _____

THEME: OUR ENVIRONMENT

TOPIC: WEATHER CHANGES AROUND US

Lesson 1

Read and spell

- atmosphere
- condition
- umbrella
- vest

Weather

- Weather is the condition of the atmosphere at a given time and place

Types of weather

1. Sunny weather

This is the type of weather with bright light from the sun.

How to manage sunny weather

- Using umbrella
- Wearing light clothes
- Putting on caps



2. Rainy weather

This is the type of weather with rain

How to manage rainy weather

- By using umbrellas
- Wearing gumboots
- Wearing sweaters, jackets and rain coats



Activity

(1) What is weather?

(2) Mention any one type of weather.

(3) How do the following items protect people against rainy weather?





Lesson 2

Read and spell

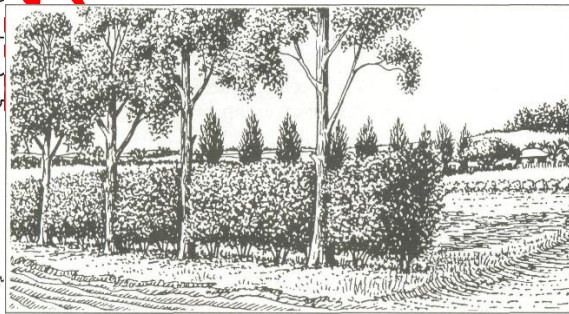
- Planting
- Permanent
- Motion
- weather

3. Windy weather

This is the type of weather with air in motion

How to manage windy weather

- By planting trees
- By building fences around homes
- By building permanent houses



4. Cloudy weather

- This is the condition when the day or the place has clouds in the sky.

Activity

1. What does the term weather mean?

2. List down any **two** types of weather.

i) _____ ii) _____

3. Give any **two** ways people manage windy weather.

i) _____

ii) _____

4. How does planting trees help to manage windy weather?

Read and spell

Lesson 3

- temperature - clouds
- sunshine - rain

Describing weather changes throughout the year

Month of the year	Weather condition
January	Sunny
February	Sunny
March	Rainy
April	Rainy
May	Rainy
June	Sunny
July	Sunny
August	Sunny
September	Rainy
October	Rainy
November	Rainy
December	Sunny

Months of dry and wet season

Months of dry season	Months of wet season
December	March
January	April
February	May
June	September
July	October
August	November

Activity

1. In which month of the year does it begin?

2. Mention **one** season of the year.

3. How many months make up a season?

4. Write **one** activity done during dry season.

5. In which season do people plant their crops?

Read and spell

Lesson 4

- equatorial
- tropical
- montane
- semi-desert

Climate

- Climate is the average weather condition of a place over a long period of time

Types of climate

1. Equatorial climate

- This is the type of climate which is hot, wet and humid throughout the year.
- It is experienced in areas around lake Victoria

2. Tropical climate

- This is the type of climate which is hot and wet throughout the year
- It is experienced in central, western and southern Uganda

3. Montane climate

- It is a type of climate experienced around mountains e.g. around Mt Elgon, Mt Moroto and Mt Rwenzori

4. Semi-desert climate

- This is the type of climate with hot and very little rainfall
- It is experienced in North-eastern Uganda (Karamoja region)

Activity

1. What do you understand by the term climate?

2. Write the difference between weather and climate.

3. Suggest any **two** areas in Uganda with montane climate.

i) _____ ii) _____

4. Mention any **one** type of climate experienced in Uganda.

5. Write any **one** activity suitable in tropical climate.

Read and spell

Lesson 5

- thermometer - clinical
- atmospheric - Six's

Elements of weather

i) Temperature

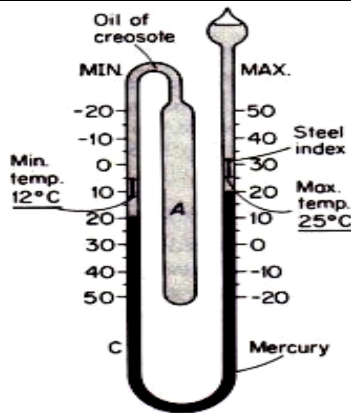
- Temperature is how hot or cold a place or an object is
- Temperature is measured by using a thermometer

Types of thermometers

a) Six's thermometer

- This is used to measure atmospheric temperature

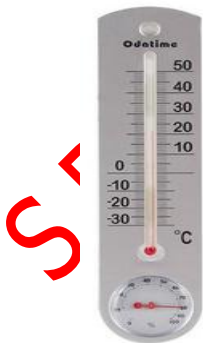
The structure of the six's thermometer



b) Wall thermometer

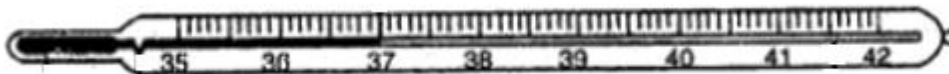
- This is used to measure room temperature

The structure of wall thermometer



Clinical thermometer

- It is used to measure the human body temperature



Activity

1. Mention any **two** elements of weather.
i) _____ ii) _____
2. What is temperature?

3. Which type of thermometer is useful to doctors in the hospital?

4. State any **one** way temperature affects people's way of dressing.

5. In which way is the six's thermometer useful in a weather station?

6. How is the resetting of six's thermometer different from that of the clinical thermometer?

Read and spell

Lesson 6

- sunshine
- recorder
- shined
- duration

ii) Sunshine

- Sunshine is the light and heat which comes from the sun.
- The duration of sunshine (how long the sun shined) in a day is measured by an instrument called sunshine recorder

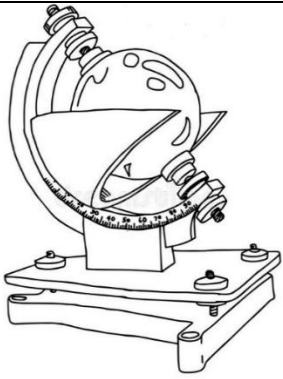
Importance of sunshine

- It dries clothes
- It dries harvested crops
- It provides energy for plants to make food

Dangers of sunshine

- Too much sunshine dries crops in the garden
- Too much sunshine dries soil
- Too much sunshine dries water from the sources

The structure of a sunshine recorder



Activity

1. How does sunshine affect temperature of a place?

2. How can meteorologists know the duration of sunshine at a weather station?

3. Mention any **two** ways sunshine is important to people.
i) _____
ii) _____
4. Identify the danger of sunshine which can lead to poor food security of a community.

5. Which instrument is used to measure the duration and intensity of sunshine at a weather station?

Read and spell

Lesson 7

- clouds - ceilometer
- cirrus - nimbus

iii) Clouds cover

- This is the state when clouds cover the sky

Types of clouds

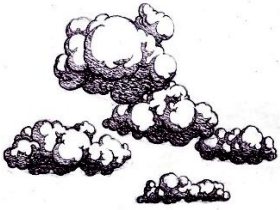
Cirrus clouds

- These are the highest clouds in the sky
- They are a sign of fine weather



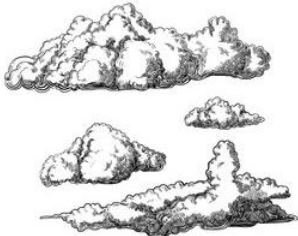
Nimbus clouds

- These are dark clouds usually dense with water vapour
- They bring rainfall



Cumulus clouds

- These are clouds whose base is relatively dark and the top is brilliant white
- They show a sign of rain



Stratus clouds

- These are clouds which appear in the form of mist or fog.
- They bring light drizzles



Activity

1. Identify any one way clouds affect the atmosphere.

2. Which clouds are the highest in the sky?

3. Write down any one way people manage the effect caused by nimbus clouds.

4. What effect is produced in the sky with clouds that produce light drizzles?

Read and spell

- rainfall
- shade
- heat
- light

Importance of clouds

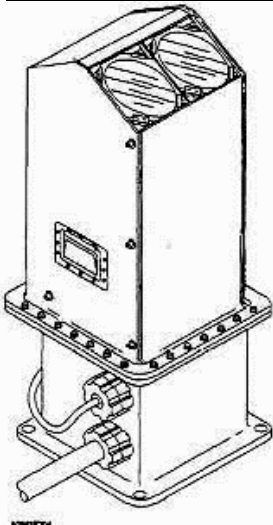
- Some clouds bring rainfall
- Clouds provide shade

Dangers of clouds

- Clouds can bring heavy rainfall that can destroys crops
- Clouds can block heat and light from the sun to dry harvested crops
- Thick clouds can cause planes to crash

Note: The thickness of clouds is measured by an instrument called ceilometer

Diagram of a ceilometer



Activity

- Write down any **two** types of clouds.
i) _____ ii) _____
- Which type of clouds shows a clear sign of rain?

- What instrument is used to measure the thickness of clouds?

- Give any **one** importance of clouds.

Read and spell

- anemometer

Lesson 9

- wind vane
- measure
- direction

iv) Wind

- Wind is air in motion

Importance of wind

- Wind dries clothes
- Wind drives away bad smell
- Wind helps in flying kites
- Wind is used in winnowing seeds

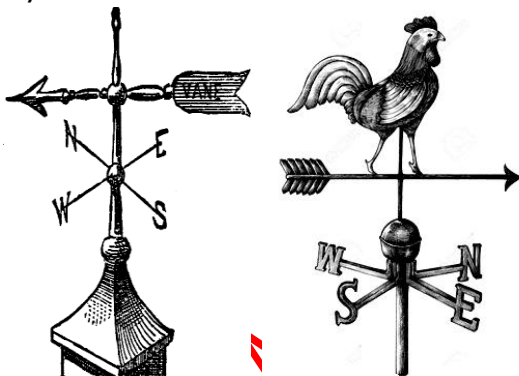
Dangers of wind

- Strong wind breaks people's houses
- Strong wind destroys crops in the garden
- Wind raises dust
- Wind can spread diseases

Instruments used to measure wind

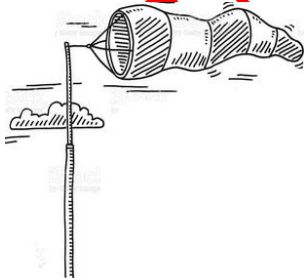
a) Wind vane and weather cock

- They show the direction of wind



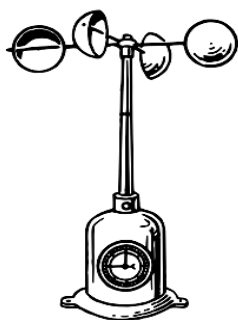
b) Wind sock

- It shows the strength of wind



c) Anemometer

- It measures the speed of wind



Activity

1. Give the meaning of the term wind.

2. Apart from winnowing, identify any other way wind is useful to crop farmers.

3. State any one way wind can be dangerous to human health.

4. Match the weather instruments in list A to their uses in list B correctly

List A

- i) Wind sock
- ii) Anemometer
- iii) Wind vane
- iv) ceilometer

List B

- a) Speed of wind
- b) Thickness of clouds
- c) Duration of wind
- d) Direction of wind
- e) Strength of wind

Correct order

- i) Wind sock _____
- ii) Anemometer _____
- iii) Wind vane _____
- iv) Sunshine recorder _____

Read and spell

- rain gauge - destroy
- amount - rainfall

Lesson 10

v) Rainfall

- These are water droplets falling from the clouds

Importance of rainfall

- Rainfall provides water needed for plant growth
- Rainfall provides people with water for domestic use
- Rainfall softens the soil and makes digging easy

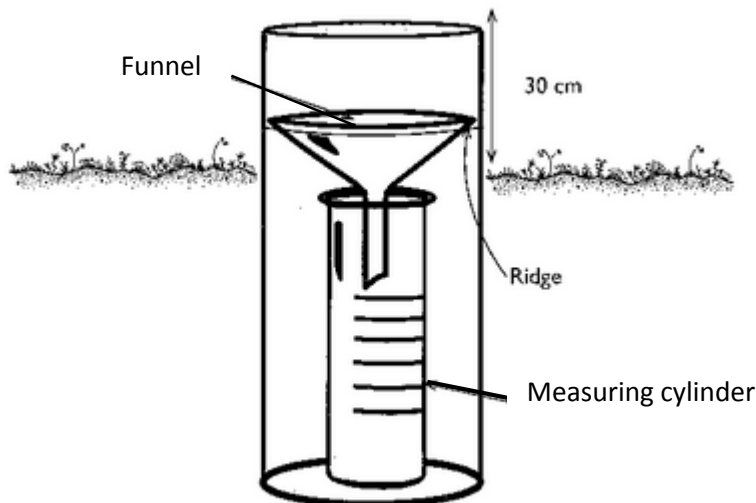
Dangers of rainfall

- Heavy rainfall destroys crops in the garden
- Heavy rainfall causes soil erosion
- Heavy rainfall destroys buildings
- Heavy rainfall can cause landslides in hilly areas

Measuring rainfall

- The amount of rainfall received is measured using an instrument called rain gauge
- It is measured in millimeters in order to know how deep rain water has entered soil

Structure of a rain gauge



Functions of each part

a) Funnel

- It directs water into the cylinder

b) Measuring cylinder

- It measures the amount of rain water

c) Distance from the ground (30m)

- To prevent the flowing water from entering the cylinder

d) Ridge

- It holds the funnel

Note: Short growing grass should be planted around a rain gauge to prevent rain drops from splashing into the instrument.

Activity

1. How is rainfall to crop farmers?

2. Mention any of effects of heavy rainfall to the environment?
i) _____
ii) _____
3. How is a rain gauge important to crop farmers?

4. Give a reason why rainfall is measured in millimeters.

5. Why is it important to plant grass around a rain gauge?

6. What is the importance of setting a rain gauge in an open place?

Read and spell

- Pascal
- exerted
- pressure
- measured

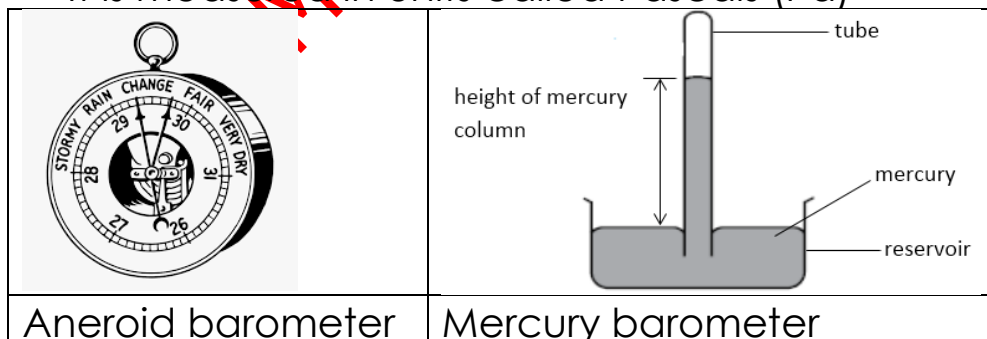
Lesson 11

vi) **air pressure**

- this is the force exerted onto the surface by the weight of air

Measuring air pressure

- Air pressure is measured using barometer
- It is measured in units called Pascals (Pa)



How the mercury barometer works

- The barometer works by balancing the weight of mercury in glass tube against atmospheric pressure

Activity

1. What is air pressure?

2. Which instrument measures air pressure?

3. What is it important to know the air pressure of an area?

4. In which units is air pressure measured?

5. How does a mercury barometer work?

Read and spell

- humidity
- hygrometer
- affect
- instrument

Lesson 12

Humidity

- Humidity is the amount of water vapour in the atmosphere

Factors that affect humidity

a) Increase humidity

- The rate of evaporation
- The rate of transpiration

b) Decrease humidity

- Sunshine/temperature
- Wind

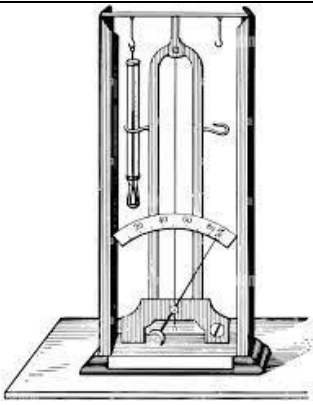
Importance of humidity

- It helps in rain formation

Measuring humidity

- It is measured using an instrument called hygrometer

Diagram of a barometer



Activity

1. What is humidity?

2. How is humidity important in the atmosphere?

3. Which instrument measures the amount of water vapour in the atmosphere?

4. Identify any one factor which affects the amount of water vapour in the atmosphere.

5. How does temperature affect humidity?

Read and spell

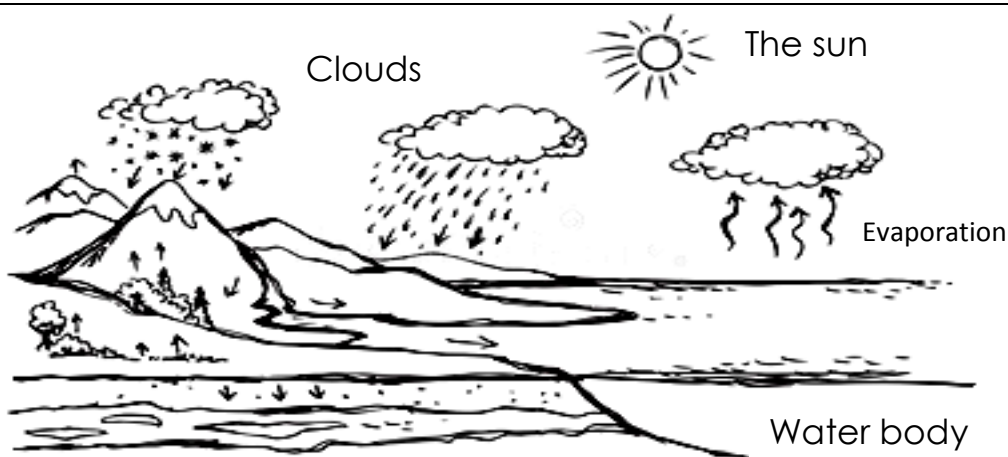
- evaporation
- condensation
- transpiration
- water vapour

Lesson 13

Water cycle

- Water cycle is the process by which rain is formed

Diagram showing water cycle



Importance of each part of a water cycle

a) **The sun**

- It heats the water to cause evaporation

b) **Water body**

- It is the source of water that evaporates to form clouds

c) **Clouds**

- They bring rain

d) **Trees**

- They increase water vapour in the atmosphere through transpiration

Importance of water cycle

- It provides water in the environment
- It keeps constant amount of water on the earth surface

Activity

1. Write down any **two** processes involved in the water cycle.

i) _____ ii) _____

2. Which process in plants helps in rain formation?

3. How useful is the sun during rain formation?

4. In which way is the rain cycle useful in the environment?

Read and spell


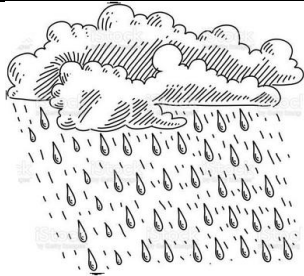


- sunny
- rainy
- windy
- cloudy

Lesson 14

A simple weather chart

- A simple weather chart shows the weather changes of the day, week or month

Example

Monday	Tuesday	Thursday	Friday
			
Sunny	Rainy	Cloudy	Windy

Activity

1. On which day was the weather suitable for planting crops?

2. Give a reason to support your answer in number one above.

3. Why do think Monday was the best day for drying harvested crops?

4. How is the weather on Friday dangerous to people in an area?

S.B.M Whatsapp 0784416726

S.B.M Whatsapp 0784416726 for more