

***PRIMARY #CREATIVE PRINTERS
WORK BOOK***

SCIENCE

FOR NOTES, SCHEMES, EXAMS. ETC

SOIL

Soil is the top the top layer that covers the earth's surface.

OR

Soil is a non living component of the environment.

WAYS THROUGH WHICH SOIL IS FORMED

Weathering; Is the breakdown of rocks to form soil.

Decomposition; Is the rotting of organic matter to form soil
ie plants and animal droppings.

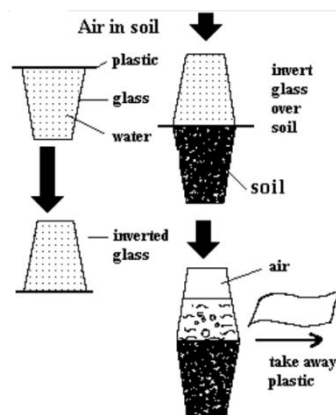
COMPONENTS OF SOIL

- ❖ Humus
- ❖ Air
- ❖ Rock
- ❖ Living organisms
- ❖ Water

AN EXPERIMENT TO SHOW THAT SOIL CONTAINS AIR

- Fill a glass with half dry soil.
- Fill the remaining part with water
- Put the glass on the table and watch what happens.

ILLUSTRATION



OBSERVATION

- Bubbles are seen coming out of the soil.

CONCLUSION

- Bubbles show air escaping through the soil.

USES OF AIR IN THE SOIL

- Helps living things in the soil to breathe.
- Helps seeds to germinate.

Note; When plants and animals die they rot and form humus.

IMPORTANCE OF HUMUS

- Humus improves soil fertility.
- Humus promotes proper growth of plants.
- Improves good aeration of the soil.
- Humus is dark and soft easy for plants to penetrate.

TYPES OF SOIL



SOIL TEXTURE; Is the smoothness or roughness of soil.

CHARACTERISTICS OF LOAM SOIL.

- It has medium particles.
- Contains a lot of humus.
- Properly aerated.
- Has good drainage.

CHARACTERISTICS OF SAND SOIL.

- Has the biggest soil particles.
- Contains a lot of air.
- Has less humus.
- It is loose, light, and easy to dig.
- Has the highest rate of drainage.

CHARACTERISTICS OF CLAY.

- Has the finest particles.
- Best soil for pottery.
- Doesn't allow passage of water through it easily.
- It is poorly aerated.

USES OF DIFFERENT TYPES OF SOIL.

Sand soil	Loam soil	Clay soil
For building. For making blocks. For making sand paper. For making glasses.	For growing crops. For making bricks.	Used for; Making pots/pottery. For making bricks. For making tiles.

SOIL PROFILE:

- Is the arrangement of soil from top to bottom layers.

OR

- Soil profile is the vertical arrangement of soil layers

ANIMALS THAT LIVE IN SOIL.

Moles

Worms

Termites

Squirrels

Bacteria

SOIL EROSION

Is the washing away of top soil by its agents.

AGENTS OF SOIL EROSION

Animals

Wind

Fast running water

CAUSES OF SOIL EROSION

Over grazing

Mono cropping

Drought

Over cultivation

Over stocking

Bush burning

Deforestation

CONTROL OF SOIL EROSION

By mulching

Terracing

Crop rotation

Reforestation

Aforestation

Contour ploughing

MULCHING

Is the covering top soil with dry plant materials.

EXAMPLES OF MULCHES

Dry grass

Banana leaves

Coffee husks

IMPORTANCE OF MULCHING/ADVANTAGES.

- Keeps the water in soil.
- Rots to form manure.
- Controls soil erosion.

DISADVANTAGES OF MULCHING GARDENS.

- ❖ Mulches are fire hazards.
- ❖ Habitats for pests.
- ❖ Time consuming to lay mulches.
- ❖ Makes weeding difficult.

EFFECTS OF SOIL EROSION

- Leads to famine.
- Leads to soil exhaustion.
- Causes desertification.
- Washes away top soil.

SOIL EXHUASION

Is the loss of soil fertility.

CAUSES OF SOIL EXHUASION

- Over grazing
- Over ploughing
- Bush burning
- Soil erosion

Causes of soil erosion	How to control soil erosion
Over cultivation. Over grazing. Bush burning. Leaching.	Use crop rotation. By mulching. Addition of manure. Use of fertilizers.

TOPICAL QUESTIONS

1a. Give the three types of soil.

(i) _____ (ii) _____ (iii) _____

b. Write three components of soil.

(i) _____ (ii) _____ (iii) _____

2a. Define the following words.

(i) Soil.

(ii) Soil texture.

(iii) Soil profile.

b. Which soil has got the biggest particles?

c. Write the best soil used to carry out the following activities.

(i) Farming _____ (ii) Pottery _____

(iii) Building _____

3a. Name the components of loam soil.

(i) _____ (ii) _____

(iii) _____

b. Why is loam soil the best for farming?

c. Name three things at home made from clay.

(i) _____ (ii) _____

(iii) _____

4a. Name three layers of soil.

(i) _____ (ii) _____

(iii) _____

b. Which layer of the soil supports plant growth?

c. Why is sub soil not good for plant growth (farming)?

d. Name two animals which live in soil.

(i) _____ (ii) _____

e. In which layer of soil are living things found?

5. What is weathering?

- b. Give two ways through which soil is formed.
(i) _____ (ii) _____
- c. What is soil erosion?

- d. List all the agents of soil erosion.
(i) _____ (ii) _____
(iii) _____ (iv) _____
- e. Give four causes of soil erosion.
(i) _____
(ii) _____
(iii) _____
(iv) _____
- 6a. Mention three ways of controlling soil erosion.
(i) _____
(ii) _____
(iii) _____
- b. How are farmers in mountainous areas able to control soil erosion.

- c. What is reforestation?

7a. Give two effects of soil erosion.

(i) _____

(ii) _____

b. What is soil exhaustion?

c. State two causes of soil exhaustion.

(i) _____

(ii) _____

d. Mention three ways of controlling soil exhaustion.

(i) _____

(ii) _____

(iii) _____

8a. What is crop rotation?

b. Carry out an experiment to show that soil contains air molecules.

CHANGES IN OUR ENVIRONMENT.

Natural changes.

Are changes brought about by nature and non living things.

Examples of natural changes in the environment

Floods	storms
Drought	Lightening
Landslides	Earthquakes
Thunder	

Effects of natural changes in our environment

Soil erosion. Causes famine (hunger).
Displacement of people (migration). Diseases.
Destruction of homes and property. Death.

Man made changes

These changes are brought by mans activities in the environment.

- Planting trees (Aforestation)
- Cutting down trees (Deforestation)
- Draining swamps (Swamp reclamation)
- Burning bricks
- Building houses
- Building roads

Effects of people/man made changes

- ❖ Drought
- ❖ Soil erosion
- ❖ Accidents
- ❖ Easy transport
- ❖ Soil exhaustion
- ❖ Death of animals
- ❖ Desertification

Ways of managing changes.

Floods.

- ❖ Avoid clearing swamps.
- ❖ Dig big trenches to avoid floods.
- ❖ Settlings on areas with good drainage patterns.

Drought

- Plant trees.
- Avoid clearing.
- Use of irrigation schemes.
- Avoid bush burning
- Proper farming
- Educate people about changes.
- Dig valley dams.

Rusting

Rust is a reddish coating that appears on metals.

Conditions for rusting

- Oxygen
- Moisture

Methods of preventing rusting

- By oiling.
- By painting. By greasing.
- Keeps tools in dry places

Accidents

Are sudden happenings which cause pain, harm and eventually death.

Causes of accidents

- Over loading
- Over speeding.
- Poor roads.
- Drunken drivers.
- Over talking at wrong places.
- Careless drivers and pedestrians.
- Crossing busy roads on zebra crossing.

Environment and weather

Air: Is the mixture of gases.

Wind: Is moving air.

Wind can also be defined as air in motion.

Components of air

✓ Nitrogen	78
✓ Oxygen	21
✓ Rare gases	0.97 (1)
✓ Carbon dioxide	0.3 (0.04)

Properties of air

- ❖ Air has weight.
- ❖ Air occupies.
- ❖ Air exerts pressure.
- ❖ Air can be compressed.
- ❖ Air can move things.

Importance of air/uses of air

- Supports burning e.g. oxygen.
- Used for transport e.g. planes, parachutes.
- For germinating seeds e.g. oxygen.
- Carbon dioxide is used to preserve drinks.
- Air is used in winnowing.
- Animals breathe in air e.g. oxygen.
- Wind is used for flying kites.
- Carbon dioxide is used in fire extinguishers.
- Moving air helps to cool our bodies.

Dangers of strong winds

- Strong winds carry away top soil.
- Destroy property.
- Strong winds blow off people's houses.
- Strong winds move floating vegetation which makes transport difficult.
- They break down crops.

The sun

- ✓ It is the highest and hottest star.
- ✓ The sun rises from the east and sets from the west.

Uses of the sun/importance of the sun

- Provides heat
- Provides light
- Source of solar energy
- Sunlight is used during photosynthesis.
- Sun helps living things to grow.
- Sun helps mans skin to make vitamin c.

- Dries peoples clothes

Changes of the sun.

- ❖ Too much sunshine dries crops in the garden.
- ❖ Too much sunshine dries water bodies.
- ❖ Too much sunshine leads to drought.
- ❖ Sunny weather makes animals thirsty.
- ❖ The sun spoils our eyes when you look directly to it.
- ❖ Too much sunshine causes transpiration in plants.

Shadows

- ✓ A shadow is a dark region formed when a light is blocked by an opaque object.

Importance of shadows

- Tell time
- Gives direction

Topical questions

1a. what is air?

b. Which part of air supports burning?

c. Why is carbon dioxide used to put out fire.

d. Name two things that can be moved by air.

(i) _____

(ii) _____

e. Give four dangers of strong winds.

(i) _____

(ii) _____

(iii) _____

(iv) _____

2a. Write three use of sun to

a). People

(i) _____

(ii) _____

(iii) _____

b. Where does the sun rise from?

c. What causes day and night?

d. Name three types of clouds.

(i) _____

(ii) _____

(iii) _____

3a. What are natural changes?

b. Mention four examples of natural changes in the environment

(i) _____



(iii) _____

(iv) _____

5. What is an accident?

b. Outline four causes of accidents.

(i) _____

(ii) _____

(iii) _____

(iv) _____

c. G

(i)

(ii)

6a.

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(i)

(iii)

s.



b. Which property of air helps us to drink soda from bottles using straws?

c. Which property of air is shown in the diagram below.

d. Which property of air is used to inflate car tyres.

e. Name the type of air used in preserving food.

f. Give three uses of air.

(i) _____ (ii) _____

(iii) _____

g. Nar _____

7a. Mer _____



(i) _____ (ii) _____

b. Give three dangers of wind to people.

(i) _____

(ii) _____

(iii) _____

c. Name the source of energy got from the sun.

d. Define the following words.

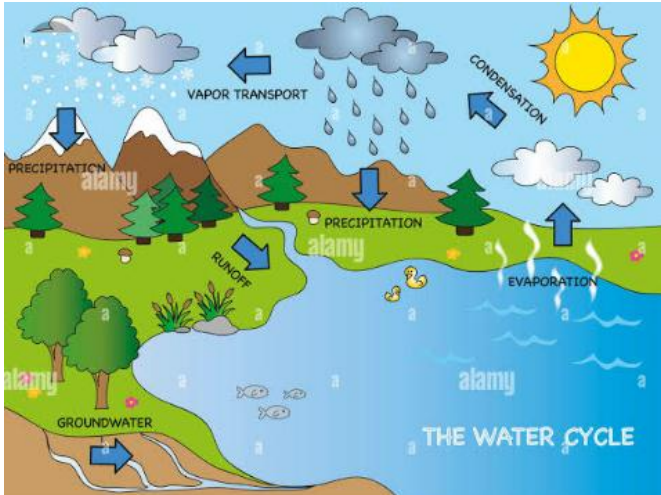
(i) shadow

(ii) opaque objects

Water

Water is a colourless liquid with good taste.

Water cycle/rain



Evaporation

Is

Cc

This

drop

Rain



ar.

ges to water

Is the water falling in separate droplets from the sky.

Transpiration

This is the process by which plants lose water to the atmosphere in form of water vapour.

NB: Water cycle is the natural process by which rain is formed.

Steps through which rain is formed

- ✓ The sun heats the water body.
- ✓ Water evaporates to form vapour.
- ✓ Water vapour rises and condense to form nimbus clouds.
- ✓ Clouds become heavy and eventually fall as rain.

Rain

Re

Re

Ir



For watering plants.

- For softening the soil to ease planting.
- Rain washes away dust from air.
- Cools down temperature.
- Reduces dust on murram roads.

Dangers of heavy/too much rainfall.

- ❖ Leads to soil erosion.
- ❖ Leads to floods.
- ❖ Makes murram roads muddy.
- ❖ Breaks down houses and crops.

Solutions to the above problems

- Practice good farming methods.
- Tarmaking roads.
- Avoid swamp drainage.
- Practice afforestation.
- Using lightening conductors.

Clouds.

There are four types of clouds i.e.

1. Nimbus clouds \Rightarrow brings steady rainfall.
2. Cirrus clouds \Rightarrow are the highest clouds.
3. Stratus clouds \Rightarrow they are dark grey
4. Cumulus clouds \Rightarrow only white



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❖ Valley dams

❖ Ponds

Importance of water in our community to;

(i) People



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(ii)

✓ Helps plants to make their own food.

✓ Helps the seeds to germinate.

✓ Cools the plants during hot days.

✓ Helps plants to absorb nutrients from the soil.

Water harvesting.

Water can be harvested using;

- Tanks
- Buckets



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- ❖ Avoid dumping wastes on water sources.
- ❖ Repairing damaged sources.

Topical questions

1a. Name the three types of clouds.

(i) _____

...



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b. _____

c. _____

(ii) _____

d. Give three uses of water to plants.

(i) _____

(ii) _____



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3a. Mention two effects of clouds to the environment.

(i) _____

(ii) _____

b. State two dangers of clouds to people.

(i) _____

(ii) _____

c. Why is a rain gauge important to farmers?

4a. Which

b. Name



c. Mention the highest clouds.

5a. Why should a rain gauge be put in an open space when measuring rainfall?

b. Name the units for measuring rainfall.

c. State any three importance of clouds.

(i) _____

(ii) _____

(iii) _____

d. Give any two dangers of clouds in the environment.

(i) _____

(ii) _____

6. Study the water cycle below and answer the questions about it.



a. Name parts marked with letters A, B, C, D.

A _____

B _____

C _____

D _____

b. Name the parts marked with letters A, B, C, D, E, F.

A _____

B _____

C _____

D _____

E _____

F _____



7a. What do we call?

(i) The turning of water into vapour?

(ii) The turning of water vapour into water?

(iii) The loss of excess water by plants through their leaves to atmosphere.

b. Define the following terms as used in the water cycle.

(i) Evaporation

(ii) Transpiration

(iii) Condensation.

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P.3 SCIENCE LESSON NOTES TERM I

SOIL

Soil is a thin covering of the earth where plants and animals live.

Components of soil

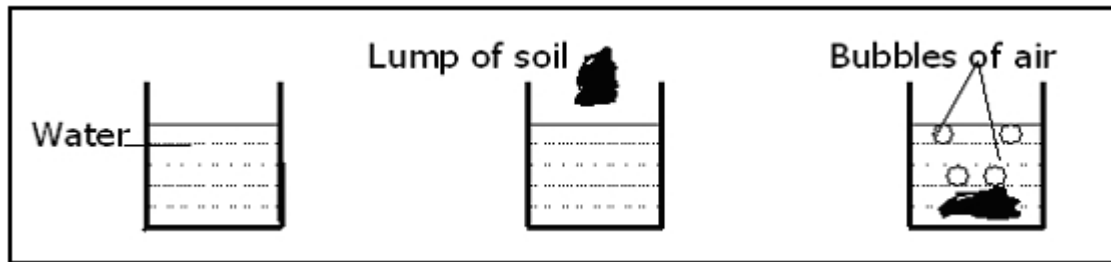
Components of soil are things that make up soil.

Examples of soil components

- a. Living organisms e.g. bacteria
- b. Water
- c. Rock particles
- d. Mineral salts
- e. Humus
- f. Air

An experiment to show that soil contains air

1. Get water in a container/beaker.
2. Get a lump of soil and lower it in a container with water in it as shown below.



Observation

Bubbles of air are seen coming out of the soil.

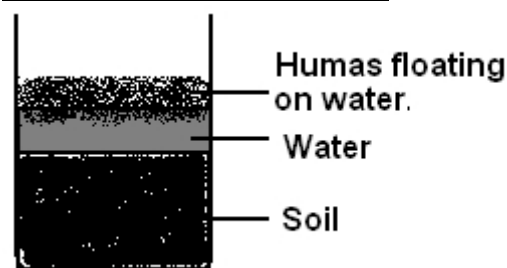
Conclusion

The bubbles show that soil has air.

Humus

Humus is the decayed plant and animal remains in the soil.

An illustration of humus



Uses of humus

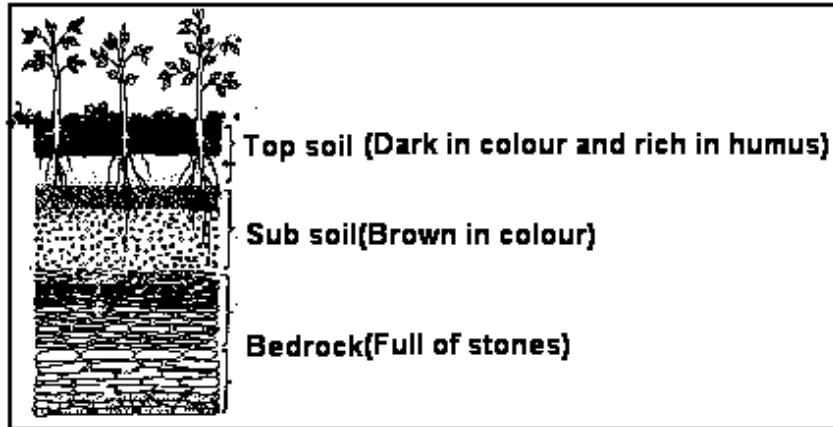
1. Source of plant nutrients.
2. It holds the soil particles together.

SOIL PROFILE

Soil profile is the vertical arrangement of soil layers.

- a. Top soil
- b. Subsoil
- c. Bed rock

Drawing of layers of soil



Types of soil

- a. Loam soil
- b. Sand soil
- c. Clay soil.

Properties

Loam :

- a. It
- b. It
- c. It
- d. It
- e. It



Note:

Loam soil is used for crop growing.

Clay soil

- a. It has the finest soil particles.
- b. It keeps water for a long time.
- c. Has small air spaces.

Note:

It is used for modeling.

Sand soil

- a. It has large soil particles
- b. It retains very little water.
- c. Has large air spaces.

Note:

It is used with cement for building.

Importance of soil(uses of soil)

- Provides food for the growing plants.
- It keeps water for plants.
- It contains air that living organisms need.
- It holds plants firmly in the ground.
- It's a home for many small animals e .g earthworm etc.
- Soil is used for growing crops.
- Soil is used for construction.
- !

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d by man.

Examples of natural changes are;

- Drought
- Floods
- Earthquakes
- Landslides
- Storms
- Lightning
- Thunder
- H

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Man m

Exam

- B
- C
- P
- B
- Drilling boreholes.
- Mining



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Effects of various types of changes to people, animals and plants

- People change from young one to old ones and later die.
- Animals grow old and become useless.
- Plants grow and later die.
- Some animals are improved by crossbreeding.
- New types of seeds are produced after research work.

6. Through research plants and animals grow and mature quickly
7. Cutting

SOIL EROSION

Soil erosion

Agents of Soil Erosion

Agents of

Agents of Soil Erosion

- a. Wind
- b. Running water.
- c. Man.
- d. Animals.

Methods of controlling soil erosion

- a. Mulching
- b. Cropping
- c. Planting
- d. Terracing
- e. Inter-cropping

Possible causes of soil erosion

- a. Poor farming practices.
- b. Poor land use.
- c. Poor soil management.
- d. Proper farming practices.
- e. Covering gullies with stones.
- f. Educating people about dangers of cutting trees.
- g. Avoiding throwing things which do not rot.

AIR

Air is a mixture of gases

Components of Air

Components

Gases in Air

- a. Carbon Dioxide
- b. Nitrogen
- c. Carbon Monoxide
- d. Oxygen

Uses of different gases

Oxygen

Oxygen is used in:

- a. Burning

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b. Respiration

c. Germ

Carbondio

a. It is u

b. Prese

c. Plant

Note

Carbondioxi

Nitrogen a

They are used in making of bulbs.



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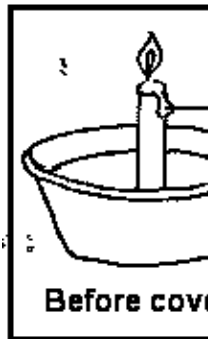
An experiment to show that air supports burning

Things needed;

a. Candle

b. Matchbox

c. Glass cup



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Observation

a. The flame burns for a short time then goes off (out)

b. The flame goes out because there is no more oxygen to support it burning.

Conclusion

Air supports burning.

Note the part of air that supports burning is oxygen.

Properties of air

a. Air exerts pressure

b. Air has weight.

c. Air can be compressed.

d. Air occupies space.

Experiment to show that air exerts pressure

Things needed

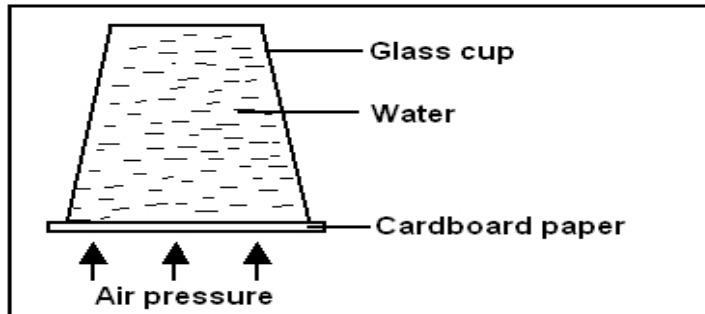
a. Glass cup.

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- b. Water
- c. Cardboard paper.

Steps

1. Fill a glass cup with water
2. Cover the filled glass cup with the card paper.
3. Turn the glass cup upside down:



Experiment to show that air has weight

Things needed

- a. Bean balance
- b. 2 Balloons
- c. Pin.

Steps

1. Fill the balloons with air.
2. Then tie a balloon on each side of the beam balance
3. Prick one balloon with a pin to remove air.

General uses of air

1. Air is used during burning.
2. Air is used during respiration.
3. Air is used during germination.
4. Air is used during photosynthesis.
5. Air is used in putting out fire.
6. Air is used during preserving tinned food and drink.

WIND

Wind is moving air.

Uses of wind

1. Wind is used to run boats.

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2. Wind is used to run machines e.g. windmills
 3. Wind is used for winnowing.
 4. Wind dries our clothing.
 5. Wind helps in pollination
 6. Wind helps in seed dispersal
-

LIGHT

Light is a form of energy that enables us to see.

Sources of light

- a. Artificial source
- b. Natural sources

Natural sources of light

Natural sources of light are sources created by God.

Examples of natural sources of light are: -

- a. The sun
- b. The stars
- c. Glow worms.
- d. Fire flies
- e. Erupting volcanoes.

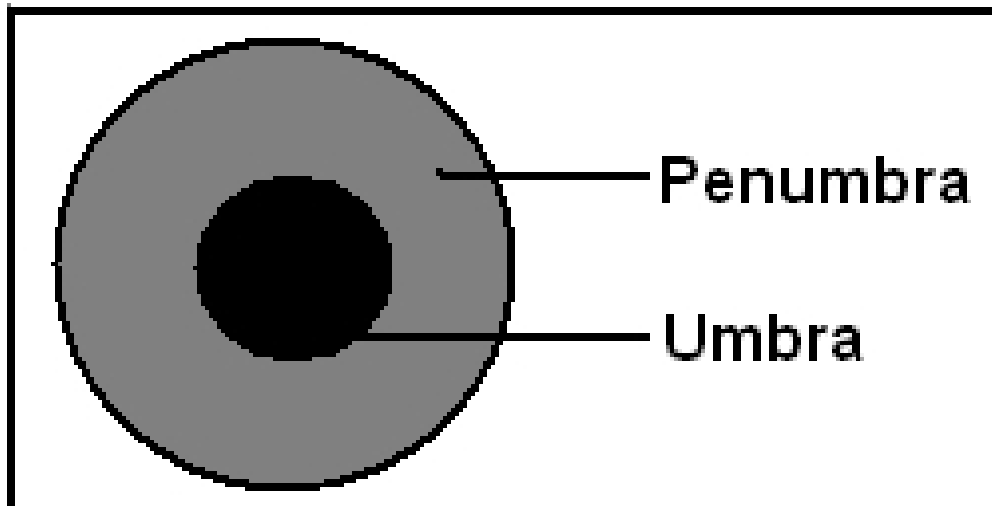
Artificial source of light

Artificial sources of light are sources of light made by man.

Note

Shadows are usually formed in the opposite direction of the source of light.

A diagram showing parts of a shadow



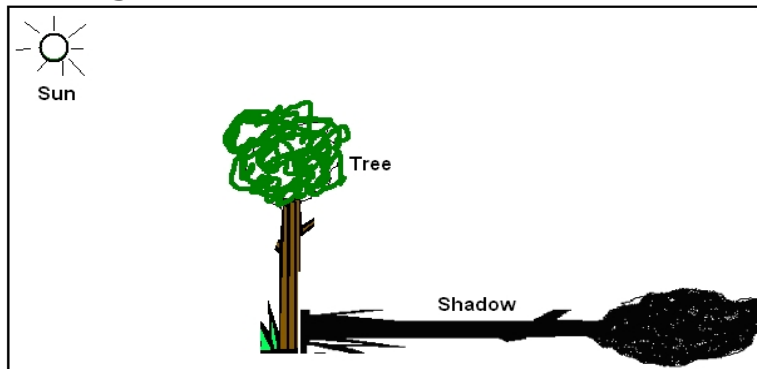
Appearances of a shadow at different times of the day

Morning

Note:

Shadows appear shortest at noon because the sun is directly above an object.

Evening



OBJECTS

There are three kinds of objects.

- Opaque objects.
- Transparent objects.
- Translucent objects.

Opaque objects

Opaque objects are objects that do not allow light to pass through them.

Examples of opaque objects;

- a. Concrete
- b. Wood
- c. People

Transparent objects

A transparent object is an object that allows all light to pass through them.

Explanation

- 1. The sun heats the water body.
- 2. The water changes/turns into water vapour and rises.
- 3. The rising vapour cools down to form clouds.
- 4. Clouds release the water in form of rain.
- 5. When water reaches the ground, it drains (enters the soil) and some flows back to the water body.

Note**Evaporation**

This is a process through which water changes into vapour on heating.

Condensation

This is a process through which vapour turns into liquid on cooling.

Transpiration

This is a process through which plants lose water vapour into the atmosphere.

Processes in the above experiment

L is evaporation.

N is condensation.

Note:

1. The charcoal stove represents the sun.
2. The kettle represents the water body.
3. The condensed water on the cold bottle represents the clouds.
4. The drop of water represents rainfall.
5. The surface of the container with cold water represents the condensation point.

Dangers of rain in the environment

- a. It causes floods
 - b. It leads to soil erosion.
 - c. Stormy rain destroys lives and property.
 - d. It leads to landslides in hilly places.
-



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Uses of water bodies

- a. Fishing
- b. Transport
- c. Swimming
- d. Formation of rainfall.

Harvesting water.

Water is harvested using;

- a. Saucepans

- b. Jerrican.
- c. Pots
- d. Tanks

Ways of making water safe for use

- a. Through boiling.
- b. Through chemical treatment.

Dangers of water

- a. Too much water causes flood.
- b. Too much water destroys our crop.
- c. Running water carries away topsoil.
- d. Water harbours germs that cause diseases Like typhoid, cholera, dysentery.
- e. Stagnant water is a breeding place for mosquitoes.

Ways of protecting water sources

- a. Fence the water sources.
- b. Regular cleaning of the water sources.
- c. Covering open wells.

CLOUDS

- a. Clouds are masses of water droplets floating in air.
- b. Clouds usually tell us what the weather is like. The people who study weather are called **meteorologists.**

Types of clouds

- a. Nimbus clouds are a sure sign of rain.
- b. Cirrus clouds look like feathers and they are the highest.
- c. Stratus clouds are the indicators of bad weather
- d. Cumulus clouds look like bales c

Uses of clouds

- a. Clouds cover us from direct sun
- b. Clouds cool down the temperatu
- c. Clouds bring rain.
- d. Clouds help us to predict the ty

Effects of clouds on weather

- a. Clouds bring rain.
- b. Clouds bring about changes in temperature.
- c. Clouds lead to thunder and storms

Note:

- a. Temperature is the degree of hotness or coldness of the day.
- b. Temperature is measured using a thermometer.



TERM IT

- 1.
- 2.
- 3.



ment.



Things in our environment are put into two major groups namely:

- a) Non-living things.
- b) Living things.

Non-living things

1. Non living things are things without life.
2. Non-living things are also divided into two groups namely:
 - a. Natural non-living things.
 - b. Artificial non-living things.

Examples of non-living things:

Natural		Artificial	
a	Water	a	Car
b	Soil	b	Ship
c	Hills	c	Buildings

Living things

1. Living things are things with life
2. Living things are also divided into two groups namely:
 - a) Plants.
 - b) Animals.

Plants		Animals	
a	Mango plant	a	Cockroach
b	Banana plant	b	Cows
c	Rose plant	c	Man
d	Paw paw plant	d	Sheep

Characteristics of living things.

- a. Living things breathe.
- b. Living things Move.
- c. Living things grow.
- d. Living things feed.
- e. Living things reproduce.

- f. Living things pass out waste.
- g. Living things respond to stimuli.

Breathing

1. Breathing is the taking in and out of air.
2. Animals require oxygen and release carbondioxide.
3. Plants require carbondioxide at day time and release oxygen.
4. Plants require oxygen at night time and release carbondioxide.

Waste products.

Waste products are poisonous things that need to be removed from plant bodies.

Animal waste products are:

- a. Urine
- b. Sweat
- c. Carbondioxide
- d. Faeces

Waste products of plants are:

- a) Oxygen at daytime.
- b) Carbondioxide at nighttime.

Why animals move.

- a. To look for Food
- b. To look for Shelter
- c. For Protection.
- d. To look for their young ones
- e. To look for Jobs in case of people.
- f. To look for their mates.

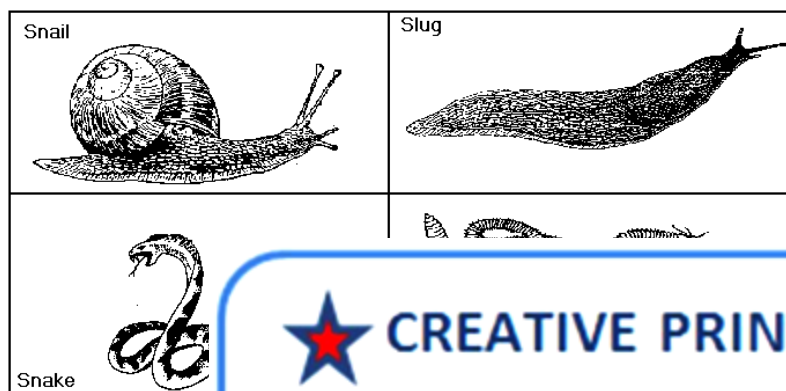
ANIMALS IN OUR ENVIRONMENT

Animals in and around our school compound

Animals with no legs.

- a. Worms
- b. Snakes
- c. Snails
- d. Slugs

Diagrams of Animals with no legs



Animals with

- a. Birds
- b. Man



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Animals with four legs.

- a. Dog
- b. Cat
- c. Cow
- d. Pig etc

Diagrams of Animals with four legs



Where some animals live.

- a) A cow lives in a kraal
- a) A dog lives in a Kennel.
- b) A bee lives in a bee hive
- c) A rabbit lives a hutch

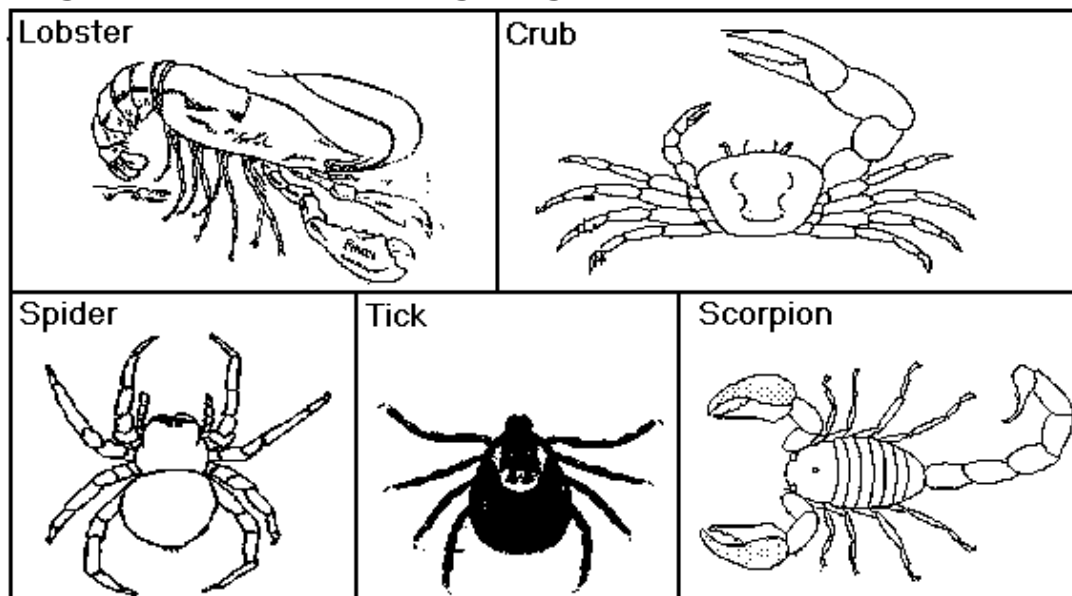
What these animals eat.

- a) A cow eats grass
- b) A dog eats
- c) A bee eats
- d) A rabbit ea

Animals with

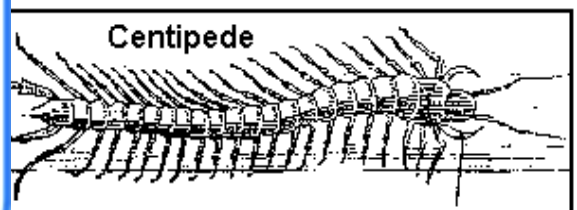
- a. Ticks
- b. Scorpion
- c. Spider
- d. Lobster
- e. Crab

Diagrams of



Spider and a tick are the best examples of animals with two main body parts.

Animals with more than eight legs



Animals with six legs.

Animals with six legs are generally called insects.

Characteristics of true insects.

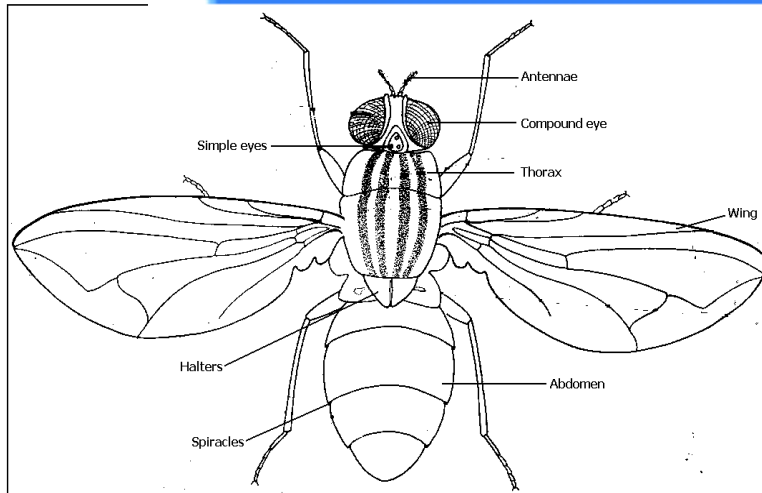
- True insects have three main body parts.
- True insects have six legs.
- True insects have compound eyes.

Example:

- Bees
- Tsetse
- Butterf
- Housef
- Cockro
- Wasp
- Termit



External



- The legs and wings of an insect are attached to the thorax.
- Insects use spiracles for breathing.

What

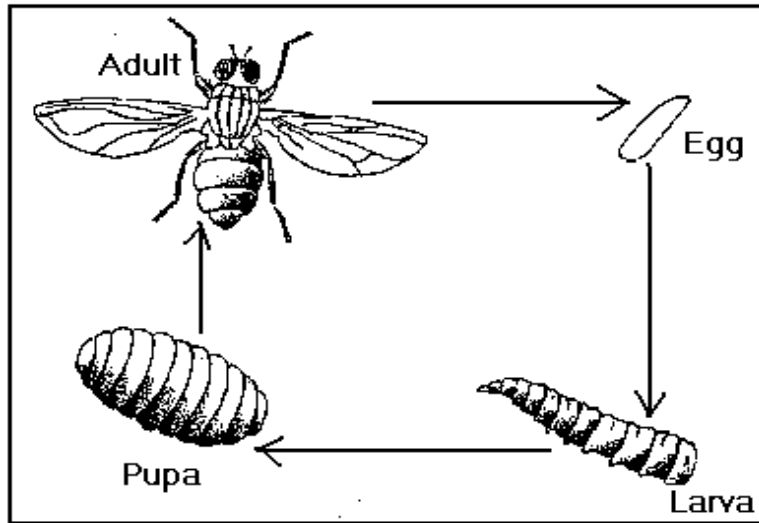
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Note:

A hous



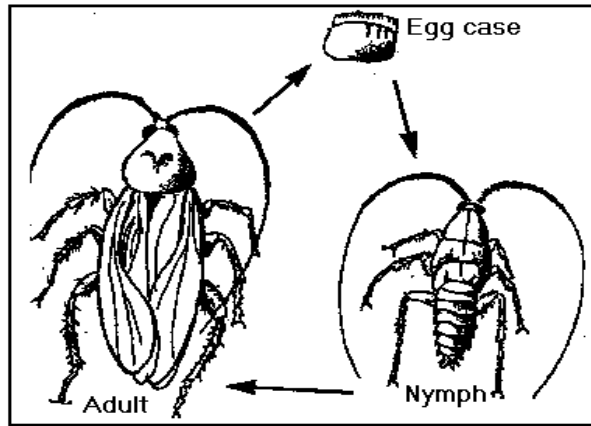
The lifecycle of a housefly.



1. A housefly passes through four stages of development (growth)
2. The four stages of growth is called complete (metamorphosis) or life cycle.
3. A housefly lays eggs in warm dump places. e.g in decaying (rotting) matter.

External parts of a cockroach.

Diagram of the structure of a cockroach



Social insects.

- a) Social insects are insects that work and live together.
- b) Insects that live and work together live in colonies.

Examples of social insects

- a) Termites
- b) Bees
- c) Wasps
- d) Safari ants.

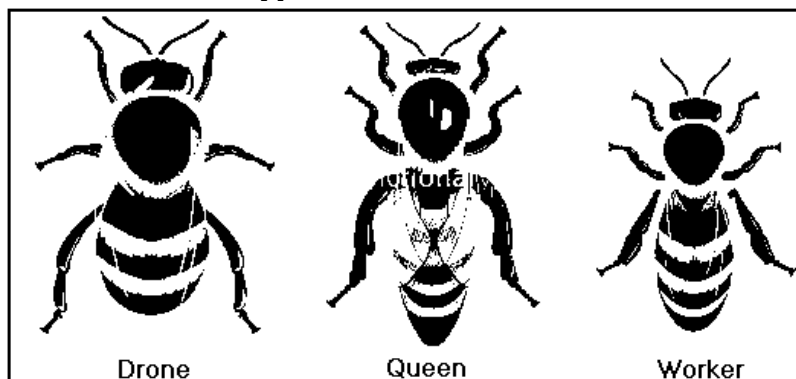
Houses of insects that live in colonies.

- a) Bees - hive.
- b) Termites - mound
- c) Black wasps - nest

Bees

- a) Bees are social insects that live in colonies.
- b) One colony of bees lives in a beehive.
- c) Bees lay their eggs in combs.
- d) Combs are made of wax.
- e) Bees feed on nectar.
- f) A queen bee and a drone are the only fertile insects in a bee colony.
- g) Excess nectar is stored as honey.
- h) The worker bee is sterile (infertile)
- i) There are three types of bees in a colony.

Pictures of the types bees



Termites:

Termites are social insects.
They live in a termite mound.

Types of termites

- a. Soldier termites
- b. King termites
- c. Queen termite
- d. Winged termite
- e. Worker termite.

Diagram of types of termites.

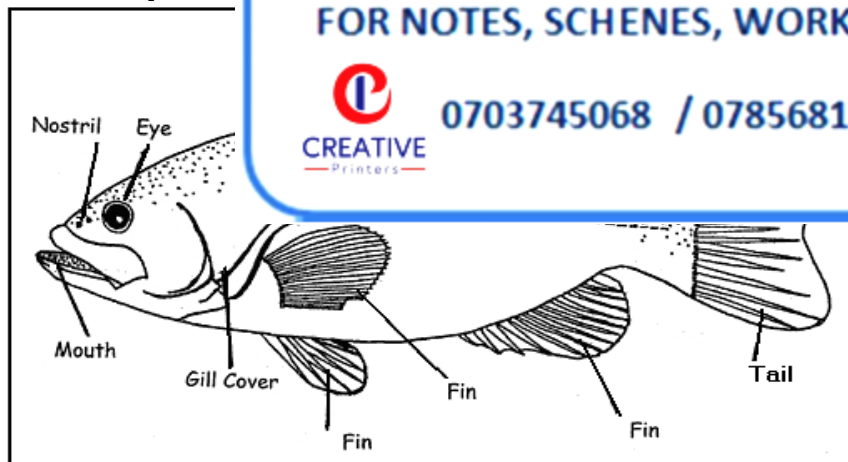
Different types of fish

- a. Mud fish
- b. Lung fish
- c. Tilapia
- d. Shark
- e. Cat fish
- f. Herring
- g. Silver fish
- h. Nile perch

Note.

- a) A Young fish
- b) An Aquarium

External parts



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Functions of different parts of a fish.

- a) Nostrils are for smelling.
- b) Lateral line is for detecting movement in water.
- c) Fins are for balancing in water.
- d) Scales protect the body of a fish.
- e) Gill cover protects the gills.
- f) A fish uses gills for breathing.

Uses of fish to man

- a) Fish provide us with meat.
- b) Fish are sold.
- c) Some fish are used for medicine.
- d) Fish bones are used for fertilizer.

General uses of animals

- a) Some animals are used for transport.
- b) Some animals are used for labor.
- c) Man gets hide and skin from animals.
- d) Animals like sheep and goats are used for wool.
- e) Some animals are used for milk.
- f) Some animals are used for transport e.g. donkey, camel, horse.
- g) Man gets money after selling some animals at home.

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- h) The bones and horns of animals are used for making buttons, glue and fertilizers
- i) Man gets local medicine from some animals
- j) The feathers of domestic birds is used to stuff pillows and mattresses and decoration.

Plants in our environment

Plants

Plants are divided in two main groups namely;

- a) Flowering plants
- b) Non flowering plants.

Non flowering plants.

Non flowering plants are those that do not bear flowers.

Examples of non- flowering plants

- a) Mosses
- b) Lichens
- c) Algae
- d) Fern

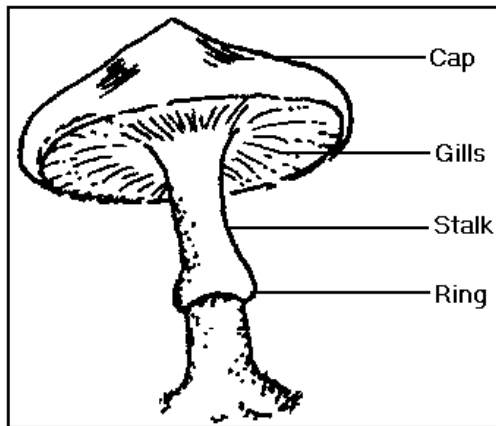
Fungi kingdom.

Fungi are not plants because they do not have chlorophyll.

Examples of fungi are:

- a) Mushrooms.
- b) Toadstools.
- c) Puff balls.
- d) Oysters.

Parts of a mushroom.



- a) Mushrooms reproduce by the use of spores.
- b) Spores are produced and stored in the gills of a mushroom.

Uses of mushrooms

- a) Mushrooms are used as food.
- b) Some mushrooms are used as medicine.
- c) Mushrooms are used in decomposing of matter



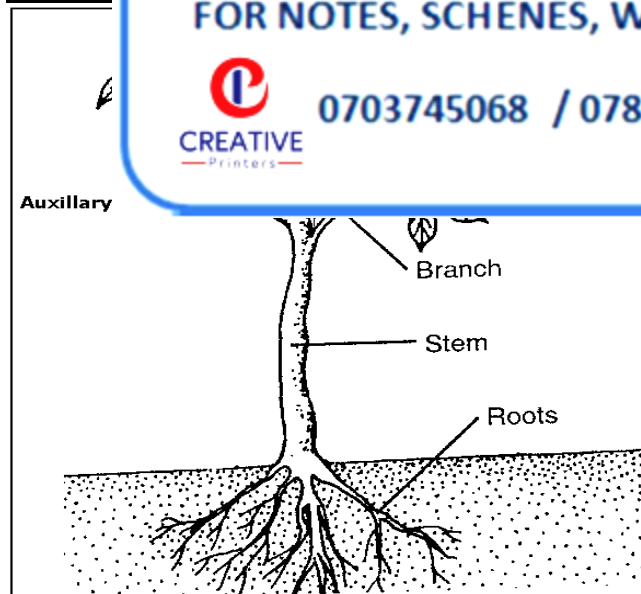
Flowering plants

1. These are plants, which bear flowers.
2. They usually reproduce by means of seeds.
3. A typical flowering plant has two systems:
 - a. Root system
 - b. Shoot system.

Examples of flowering plants are;

- a. Beans
- b. Pe
- c. Gr
- d. To

Parts of



Flowering plants have two main systems

- a. The shoot systems
- b. The root system.

Shoot system

The Shoot system is the part of a plant that grows above the ground level.

Parts of the shoot system

- a. The Stem
- b. The leaves
- c. The flowers
- d. Auxiliary bud
- e. Terminal buds

The root system.

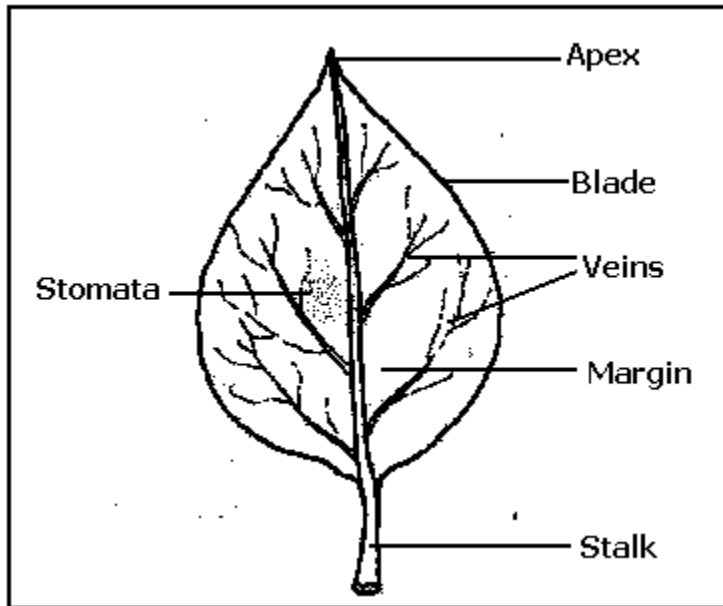
The Shoot system is the part of a plant that grows above the ground level.

Parts of the root system

- a. Main root and
- b. The lateral roots.

c. Root hairs

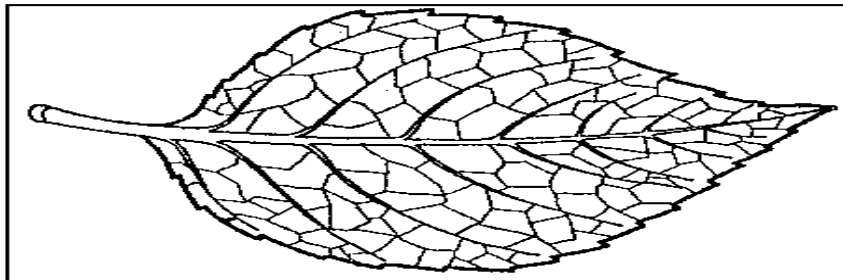
Parts of a leaf.



Leaf venation

1. Leaf venation is the arrangement of vein in a leaf.
2. There are two types of leaf venation
 - a) Net venation
 - b) Parallel venation.

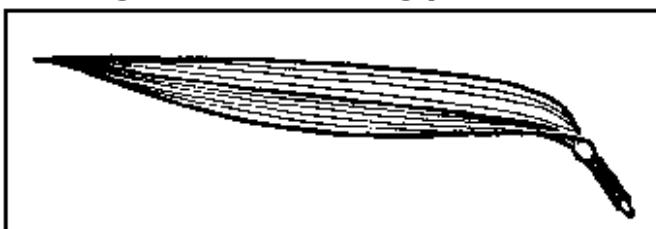
Drawing of a leaf showing net venation



Examples of leaves with net venation are:-

- a) Mango
- b) Guava leaves
- c) Bean
- d) Peas leaves.

Drawing of a leaf showing parallel venation.



Examples of leaves with parallel veins

- | | |
|------------|-----------|
| a) Millet | d) Rice |
| b) Sorghum | e) Oats |
| c) Maize | f) Grass. |

Types of leaves

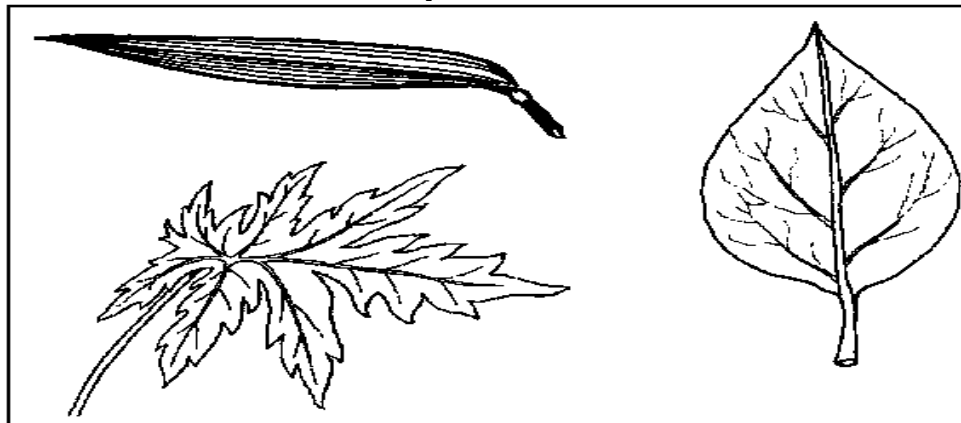
There are two types of leaves namely:-

- a) Simple leaves
- b) Compound leaves.

Simple leaves

A Simple leaf is a leaf with only one stalk.

Structures of different simple leaves



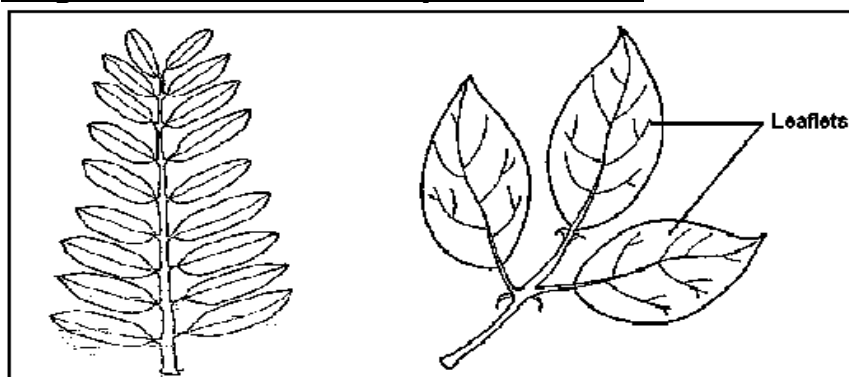
Examples of Simple leaves are:

- a) Mango leaves
- b) Cassava leaves
- c) Potato leaves
- d) Guava leaves.

Compound leaves

- 1. A compound leaf is a leaf that has many other small leaf stalks on the main stalk.
- 2. It has completely separate parts called leaf lets.

Diagrams of different compound leaves.



Examples of compound leaves:

- a) Bean leaves
- b) Acacia
- c) Peas leaves
- d) Jacaranda.

Uses of leaves to plants (Functions of leaves)

- a) Some leaves store food.
- b) Leaves make food for the plant.
- c) Plant use leaves for breathing
- d) Plants use leaves to release excess water.

Uses of leaves to man.

- a) Local medicine is got from some leaves.
- b) Some leaves are a source of food to man.
- c) Some leaves are used for roofing and craft.

Photosynthesis

- a) Photosynthesis is a process by which plants make their own food.
- b) Photosynthesis takes place in green parts of a plant.
- c) The green coloring matter, found in a plant leaves is called chlorophyll.

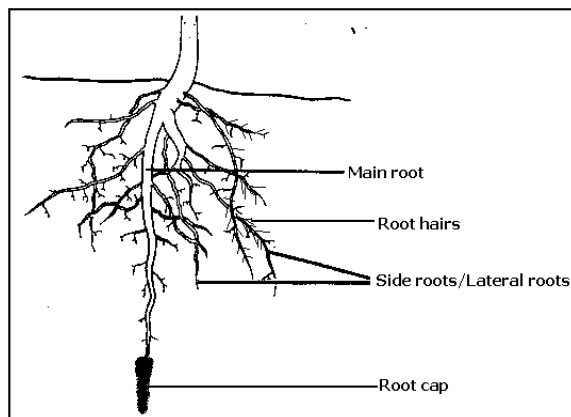
Conditions necessary for photosynthesis to take place are:

- a) Chlorophyll
- b) Carbondioxide
- c) Water
- d) Sunlight

Note.

The function of chlorophyll is to trap light energy from the sun.

Parts of a root



Note

1. A root cap protects the root as it grows.
2. Root hairs absorb water and mineral salts from the soil.

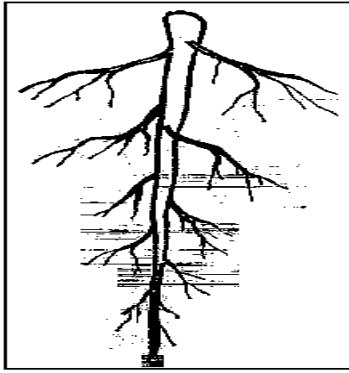
Types of roots

Some types of roots are:

- a. Tap root
- b. Prop roots
- c. Fibrous roots

d. Adventitious roots.

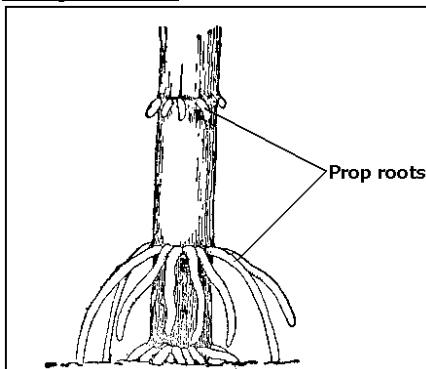
Tap root



Examples of plants with tap roots are:

- a) Jack fruit
- b) Mango plant
- c) Paw paw plant.

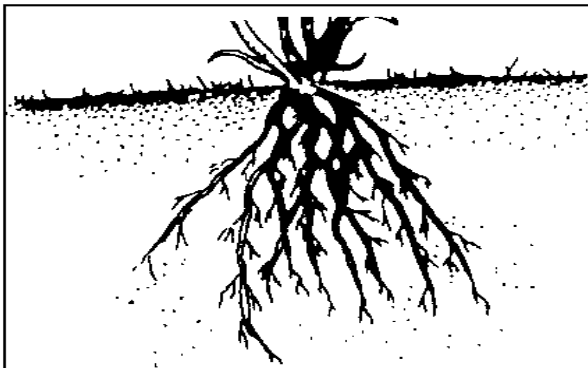
Prop roots



Examples of plants with prop roots are:

- a) Maize
- b) Sugar cane
- c) Sorghum

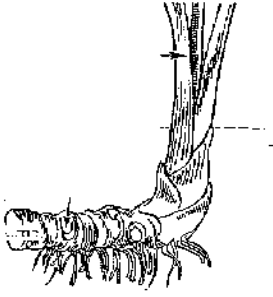
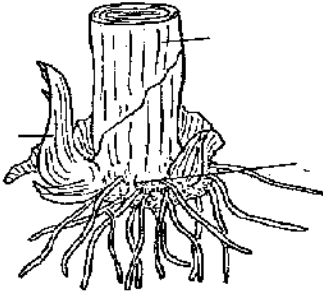
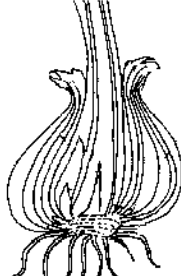
Fibrous roots



Examples of plant with fibrous roots are:

- a) Millet
- c) Grass
- b) Rice

Adventitious roots

Ginger plant	Banana plant	Onion
		
Adventitious roots	Adventitious roots	Adventitious roots

Examples of plants with adventitious roots are:

- a) Onions
- b) Banana
- c) Garlic
- d) Ginger

Uses of roots to plants

- a. Roots hold a plant firmly to the ground.
- b. Some roots store food for the plants. e.g. cassava, Sweet potatoes, carrots.
- c. Roots absorb (suck) water from the ground for the plant.

Uses of roots to man.

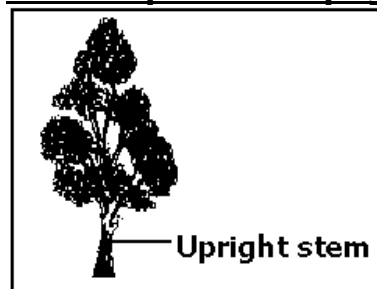
- a. Some roots are eaten by man.
- b. Man gets local medicine from some roots.
- c. Man can get money from selling local medicine

STEMS

There are many stems. Some of them are: -

- a) Weak stems
- b) Upright or erect stems.

An example of an upright (erect) Stem



Examples of weak stems

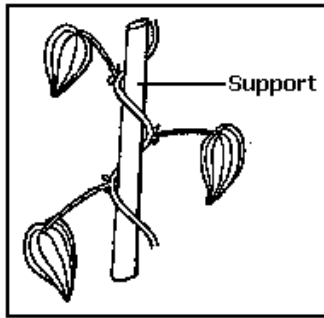
- a) Yams
- b) Vanilla
- c) Passion fruits.

Weak stem climb other by:-

- a) Twining
- b) Using tendrils

- c) Using hooks and thorns.

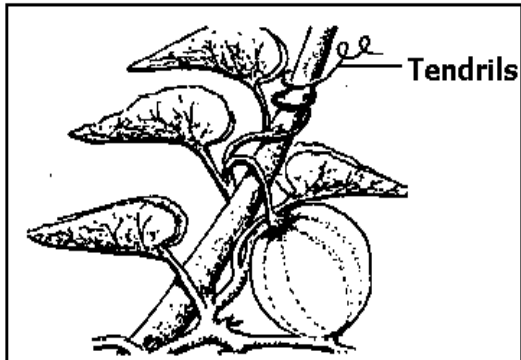
Twining



Examples of plants that twin are

- a) Yams
- b) Vanilla
- c) Some beans.

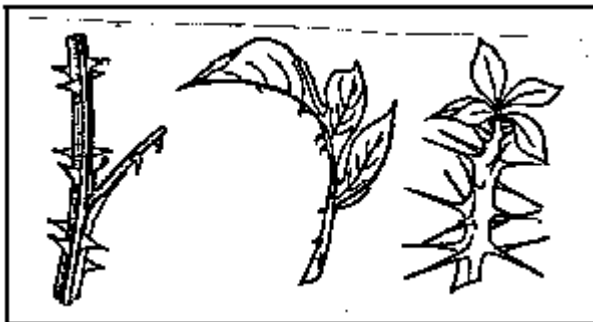
Tendrils



Examples of plants with tendrils are:-

- a) Passion fruits
- b) Pumpkins
- c) Peas

Hooks or thorns



Examples of plants with hooks or thorns are:

- a) Rose plant
- b) Bougainvillea

Reasons for climbing others plants to get enough sun

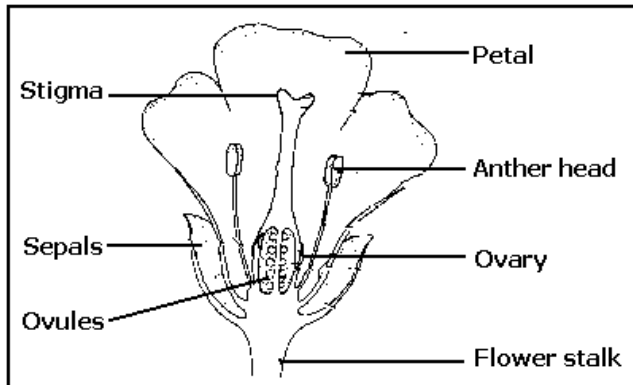
- a) To get enough sunlight.
- b) For support.

- c) For protection against strong wind.

THE FLOWER

A flower is a reproductive part of a plant

Parts of a flower



Functions of different parts of a flower.

- | | |
|-----------------|---|
| a) Petals | attract pollinators. |
| b) Stigma | receives pollen grains. |
| c) Anther heads | Produce and store pollen grains. |
| d) Sepal | protects the flower when it is still young. |
| e) Ovules | grow into seeds after fertilization. |
| f) Ovary | develops into a fruit after fertilization. |

Note

Fertilization is the union of female and male reproductive cells.

Functions of a flower to a plant

- a) A flower is a reproductive part of a plant.
- b) A flower produces fruits.

Uses of flower to man

- a) Flowers with a strong smell are used for making perfumes.
- b) Flowers are used for making dyes.
- c) Flowers are used as gifts.
- d) Some flowers are edible. (Cauli flowers, broccoli)

Common names of flowers

- a) Sun flower
- b) Rose flower
- c) Orchids
- d) Daffodils
- e) Snowdrops
- f) Daisy

SEEDS

A seed is a mature ovule.

Types of seeds

There are two types of seeds namely

- a) Monocotyledonous seeds)
- d) Dicotyledonous seeds (have 2 cotyledons)

Monocotyledonous seeds

These are seeds that have one cotyledon

Examples of seeds with one cotyledon are:

- a) Maize
- b) Oats
- c) Millet
- d) Barley
- e) Wheat
- f) Sorghum
- g) Rice

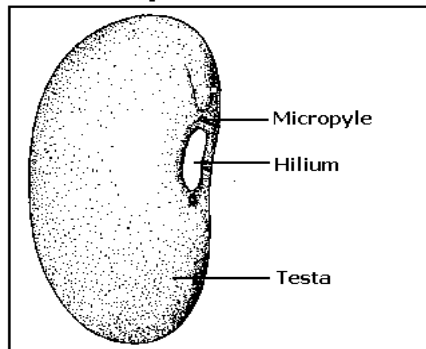
Dicotyledonous seeds

These are seeds that have two cotyledons.

Examples of seeds with two cotyledons are:

- a) Beans
- b) Soya
- c) Peas
- d) Groundnuts.

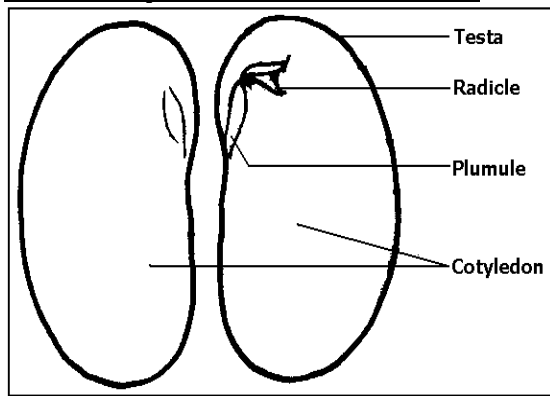
External part of a bean seed.



Functions (uses) of these parts.

- a) Micropyle Lets in water and air during germination.
- b) Testa Protects the inside parts of a seed
- c) Hilum Scar that is left where the seed was attached to the pod.

Internal parts of a bean seed.



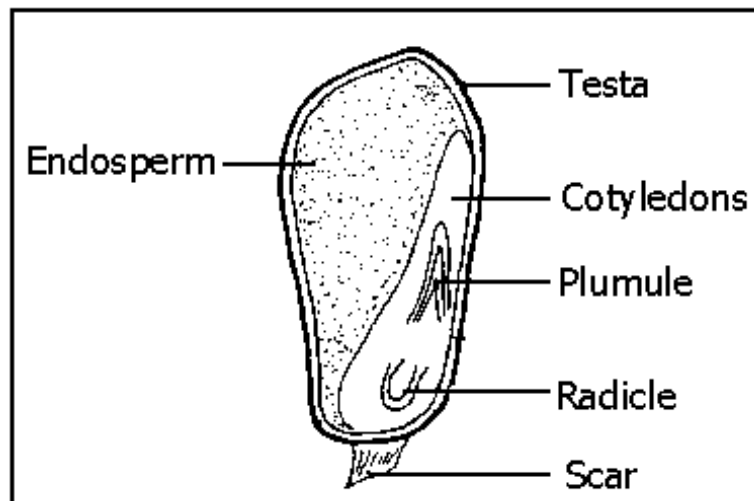
Note:

The plumule and radicle form the **embryo**.

Functions of these parts.

- a) Cotyledon store food for the embryo.
- b) Plumule becomes the root system after germination
- c) Radicle becomes the root system after germination.
- d) Embryo grows into a seedling.

Parts of a maize seed



Functions of these parts

- a) Testa Protects the inside parts of the seed.
- b) Endosperm stores food.
- c) Cotyledons passes food from the endosperm to the embryo.
- d) Scar It is the point of attachment to the cob.
- e) Plumule becomes the shoot system.
- f) Radicle becomes the root system after germination.

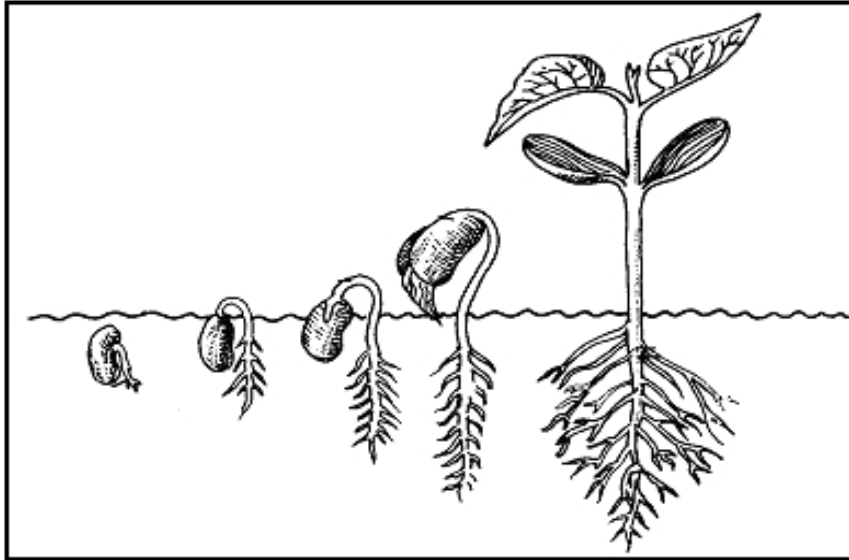
Germination.

1. It is a process through which a seed grows into a seedling.
2. A seedling is a young plant.

Types of germination

- a) Epigeal germination
- b) Hypogeal germination.

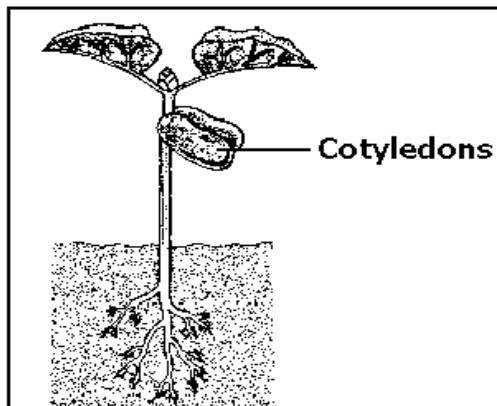
An experiment: Growing bean and maize seeds to observe the growth.



Epigeal germination.

This is the type of germination in which the cotyledons appear above the ground level.

Illustration of epigeal germination.



The radicle comes out first to absorb water for the embryo.

Examples of seeds that undergo epigeal germination

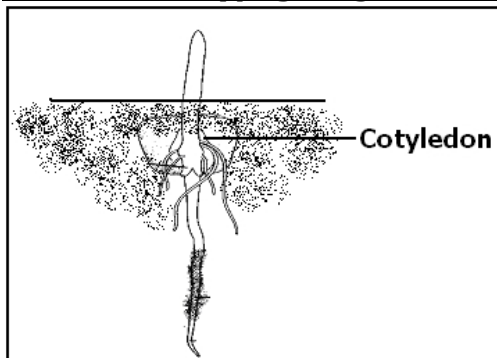
- a) Beans
- b) Apples
- c) Peas
- d) Jackfruit
- e) Groundnuts
- f) Mango.

Note:

All dicotyledonous plants undergo epigeal germination.

Hypogeal germination.

Is the type of germination in which the cotyledon remains below the ground level.

Illustration Hypogeal germination.**Examples of seeds that undergo the hypogeal germination.**

- a) Barley
- b) Wheat
- c) Oats
- d) Millet
- e) Rice

Note:

All monocotyledonous seed undergo hypogeal germination.

Condition for germination

- a) Water
- b) Oxygen
- c) Warmth

Controlled experiment showing the conditions of germination.**a****b****c**

- a. Has warmth, water and Oxygen so the seed will germinate.
- b. Has oxygen, warmth, without water the seed will not germinate.
- c. Has water, warmth without oxygen the seed will not germinate.

Difference between monocots and dicots.

	Monocots		Dicots
a	Have one cotyledon	a	Have two cotyledons
b	Often undergo hypogeal germination	b	Undergo epigeal germination
c	Have parallel leaf venation	c	Have net venation
d	Most have fibrous root system.	d	Most have tap roots systems

Care for crops.

In the care for crops the following activities are involved.

- a) Pruning
- b) Weeding
- c) Spraying
- d) Thinning

Spraying

- a) Crops should be sprayed using pesticides
- b) Pesticides are chemicals used to kill pests.
- c) Spraying helps to control pests and crop diseases.

Weeding

- a) Weeding is a practice of removing weeds from a garden.
- b) Weeds are unwanted plants in the garden.
- c) Weeding helps to reduce the competition between crops and weeds for food, water and sunlight.

Pruning

- a) It's a practice of removing some branches and leaves from the plants.
- b) Pruning helps the plants to grow to the required shape and height.


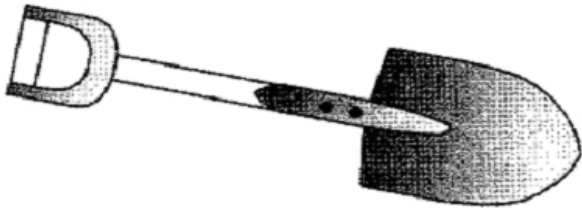

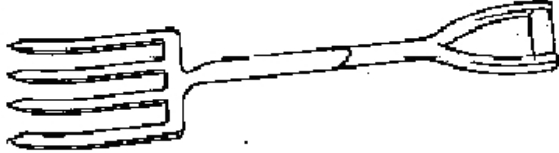



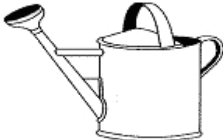

Thinning

- a) It is a practice of removing some crops from where they are over crowded.
- b) Thinning reduces the competition amongst the crops for food, water and sunlight.

GROWING CROPS

Garden tools.

Small-scale farmers use simple tools like shown in the diagrams below;

		
Hoe	Spade	
		
Rake	Garden fork	
		
Axe	Panga	
		
Sickle	Watering can	Slasher

Care for garden tools

To make sure that garden tools are properly cared for we should :-

- Give each tool the right purpose for its design when using it.
- Remove the soil in tools after use.
- Keep the tools in dry clean and safe stores.
- Grease, oil or paint the tools to prevent rusting.
- Sharpen the tools used for cutting.

A School garden

- A school garden is a small area on which fruits, vegetables or flowers are grown.
- Vegetables and fruits are nutritious.
- To make a garden you must have a plot of land.

Selecting a good site for a school garden

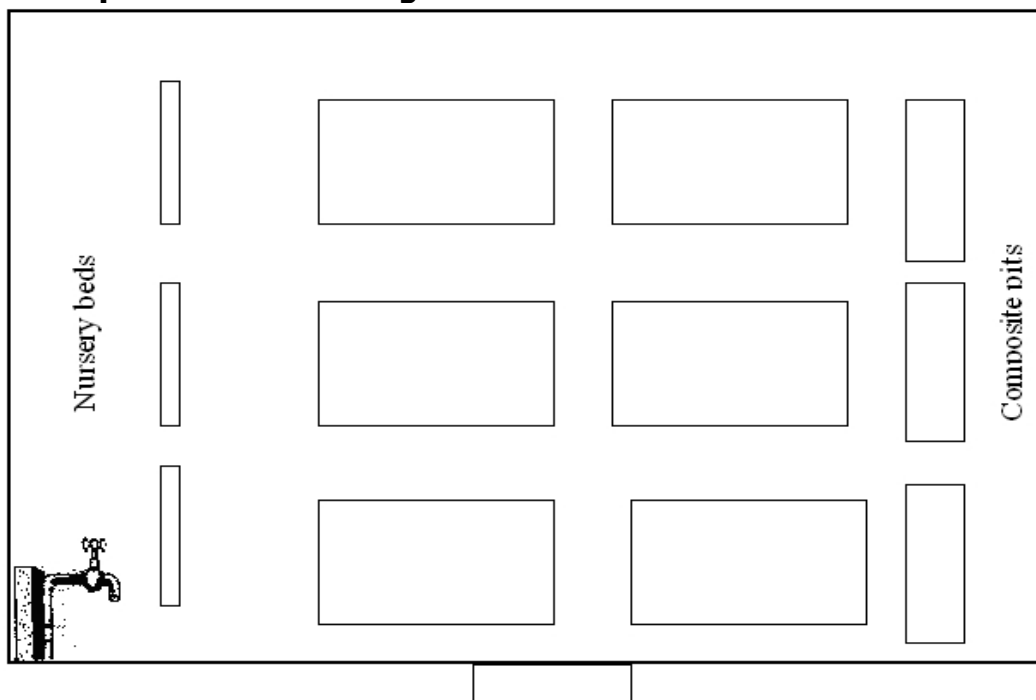
- When choosing a site for a school garden, one should consider the following:-
 - The garden should be near the school.
 - It should be near the water source.
 - It should be near a road.
 - It should have a good (fertile) soil.
 - It should be on a good slope.
 - It should be exposed to sunlight.

2. However gardens should not be :-
- Near big bushes.
 - Under big trees.
 - In rocky places.
 - In steep slopes.
 - In swampy areas.
 - Expose to strong wind.
 - Inside roofed building.
 - Frequented by people or livestock.

How to construct a garden

- Clear the site by
 - Cutting down trees
 - Removing big stones
 - Cutting grass and bushes.
- Measure the site to get the outline of the garden.
- Divide the garden into small plots for different crops.
- Make paths between the plots.
- Build a fence around the garden to prevent intruders like thieves, animals, etc.

A sample of constructed gardens



Importance of a school garden.

- A school garden provides the members of the school with food.
- Children learn to dig.
- It can generate income for the school.
- Children learn more about the soil and the plants.

Planting:

- Some crops are grown in nursery beds.
- A nursery bed is a small plant where seedlings are given close attention (proper care)
- Seedlings are young plant in a nursery bed.

4. Seedlings will be transplanted to the main garden.
5. Trans planting is the transfer of seedlings from the nursery bed to a prepared garden.

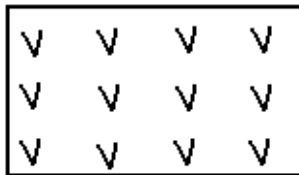
Example of crops planted in a nursery bed.

- a) Carrots
- b) Onion
- c) Rice
- d) Cabbage
- e) Cucumber
- f) Cauliflower.
- g) Tomatoes
- h) Egg plants

Methods of Planting

1. Row planting:

A method of planting crops in lines.



2. Broad casting.

A method of sowing seeds randomly.



Common groups of crop:

- a) Fruits
- b) Cereal crop
- c) Leguminous crops.
- d) Root crops
- e) Vegetable crop

Examples of fruits

- a) Mango
- b) Passion fruit
- c) Watermelons
- d) Avocados
- e) Orange
- f) Pineapple.

Examples of root crops

- a) Cassava
- b) Carrots
- c) Sweet potatoes

d) Yams.

Examples of vegetable crops.

- a) Onion
- b) Cabbage
- c) Carrot
- d) Tomatoes
- e) Lettuce
- f) Spinach..

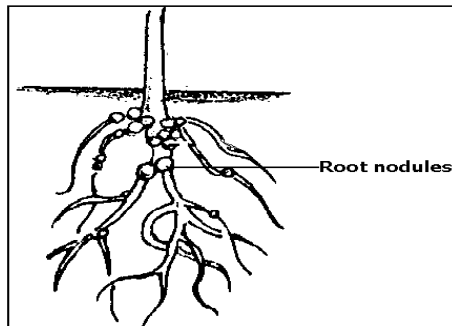
Examples of Cereal crops.

- a) Maize
- b) Sorghum
- c) 3Wheat
- d) Rice
- e) Millet
- f) Barley.

Leguminous Crops.

- 1. These are crops that have root nodules.
- 2. Root nodules contain bacteria that fix nitrogen in the soil.
- 3. Legume plants therefore help in improving the fertility of soil by adding nitrogen to the soil.

The root of a legume crop.



Examples of legumes

- a) Beans
- b) Peas
- c) Groundnuts.
- d) Soya beans.

Crop disease

Crop diseases are usually caused by:-

- a) Fungi
- b) Bacteria
- c) Nematodes
- d) Viruses
- e) Lack of nutrients

Examples of crop diseases and the crops they affect.

	Disease		Crop it attacks
a	Mosaic	a	Cassava
b	Panama	b	Banana

c	Blast	c	Rice
d	Rust	d	Maize
e	Rosette	e	Groundnuts

Pests.

A pest is an animal that destroys crops.

Examples of pests;

- a) Monkeys
- b) Man
- c) Birds
- d) Weevils
- e) Rats, e.t.c

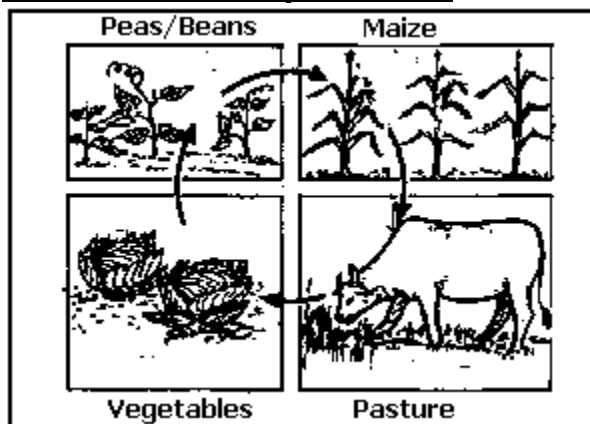
Control of crop pests

- a) Using crop rotation.
- b) Planting resistant varieties.
- c) Spraying.
- d) Rearing natural enemies to eat of the pest.
- e) Using traps.
- f) Using scarecrows.

Crop rotation

Crop rotation is the growing of different crops in the same piece of land seasonally.

Illustration of crop rotation.



Importance of crop rotation

- a) Crop rotation helps in controlling pests and diseases.
- b) It helps in maintaining soil fertility.
- c) The fallow (rest) period helps to reduce soil erosion.

Note:

- a) Soil fertility is the ability of soil to support plant growth.
- b) Soil erosion is the removal of topsoil.

What to consider during crop rotation.

1. Crops with Similar root system should not follow one another because the following crop will not get enough nutrients as they feed with in the same soil level.

Examples of crops with the same root system are:-

- a) Millet
- b) Sorghum
- c) Maize
- d) Rice.

2. Crops that are affected by similar pests should not follow one another because the same pest will affect the crop that follows.

Examples of crops that can be affected by the same pest are:-

- a) Cassava.
- b) Sweet potatoes.
- c) Irish potatoes.

3. Crops that are affected by similar diseases should not follow one another because the same disease will affect the crop that follows

Examples of crops that can be affected by similar disease are:-

- a) Egg plants.
- b) Tomatoes.

Note

- a. Legumes should be included in the rotation because they improve on the soil fertility by adding nitrogen to the soil.
- b. A fallow period should be included in the rotation because it enables the soil to regain its fertility. (A fallow period is the rest period given to land)

How to rotate crops in the garden:

We should check to see that:-

- a) Deep-rooted crops should not follow each other.
- b) Shallow –rooted crops should not follow each other.
- c) Heavy feeders follow light feeders.
- d) Heavy feeders follow legumes.

Harvesting of vegetables.

Harvesting is the practice of removing ripe or ready crops from the garden and taking them home.

Methods of harvesting crops.

Different crops are harvested in different ways depending on the type of crop.

Crops can be harvested through:

- a) Uprooting.
- b) Cutting.
- c) Plucking.

Crops harvested by uprooting

- a) Cassava.
- b) Potatoes.
- c) Other uprooted crops are groundnuts and carrots.

Crops harvested by cutting.

- a) Cabbages.
- b) Sorghum.
- c) Millet.
- d) Wheat.
- e) Rice.

Crops harvested by plucking.

- a) Egg plant.
- b) Cucumber.
- c) Pumpkins.
- d) Amaranthus [dodo].
- e) Tomatoes.

N.B

1. When harvesting vegetables make sure that:-
 - a) The vegetables are ready.
 - b) The proper method is used on a crop.
 - c) harvest at the right time.
2. The best season for harvesting crops is dry season because there is enough sunshine to dry the crops.

Storage and marketing of vegetables

- a) Vegetables cannot stay for a long time after harvesting because they rot very fast.
- b) They can be kept in sacks, boxes and baskets for a short time.
For these reasons, vegetables should be:-
 1. Used immediately after harvest.
 2. Sold immediately after harvest.
 3. Dried if they can be dried.

Vegetables that can be dried and stored

- a) Peas.
- b) Beans
- c) Simsim.
- d) Cucumber.
- e) Ground nuts.

Importance of growing enough food in the family.

- a) To guard against food shortage.
- b) We can sell the excess food to get money.

P.3 LITERACY 1A LESSON NOTES TERM III

VECTORS AND DISEASES IN OUR ENVIRONMENT

COMMON DISEASES

General causes of common diseases

Germs cause most diseases but other factors (things) also lead to diseases.

Other factors that may lead to cause of diseases

- a) Lack of safe water
- b) Poverty
- c) Ignorance
- d) Poor waste disposal
- e) Poor feeding habits.

TYPES OF DISEASES

- a) Non- infectious diseases
- b) Infectious diseases.

Non- infectious diseases

- 1. These are diseases that don't spread from one person to another.
- 2. They are not caused by germs.

Examples of Non- infectious diseases

- | | |
|-----------------|-------------------|
| a) Marasmus | g) Asthma |
| b) Cancer | h) Mental illness |
| c) Stroke | i) Epilepsy |
| d) Heart attack | j) Goitre |
| e) Allergy | k) Sickle cells |
| f) Kwashiorkor | |

INFECTIOUS DISEASES

- 1. These are diseases that spread from an infected person to another.
- 2. Infectious diseases are diseases caused by germs.

Examples of germs are:

- a) Virus
- b) Bacteria
- c) Protozoa
- d) Fungi

Examples of infectious diseases

- | | |
|----------------|-------------------|
| a) Chicken pox | f) Measles |
| b) Tetanus | g) Whooping cough |
| c) Dysentery | h) Polio |
| d) Rabies | i) Mumps |
| e) Influenza. | J) Cholera |

Different ways in which diseases are spread

- a) Contaminated water.
- b) Contaminated food.
- c) Insect bite bites.
- d) Animal bites.
- e) Body contact
- f) Contaminated air.

Water borne diseases

These diseases spread through drinking contaminated water.

Examples of diseases spread through contaminated water.

- a) Typhoid
- b) Polio
- c) Cholera
- d) Diarrhoea
- e) Dysentery
- f) Hepatitis

Diseases spread through body contact

These diseases spread through getting in contact with a sick person (through touch)

Examples are diseases spread through contact.

- a) Ring worms
- b) Chicken pox
- c) Leprosy
- d) Ebola
- e) Scabies.

Diseases spread through animal bites

Rabies is the most common diseases spread by infected animals.

Animals which spread rabies include;

- a) Dogs
- b) Cats
- c) Foxes

Disease spread through insect bites

- a) Malaria
- b) Yellow fever
- c) Elephantiasis
- d) Diarrhoea
- e) Trachoma
- f) Dysentery
- g) Cholera

MALARIA

1. It is caused by a plasmodium parasite.
2. A female anopheles mosquito spreads it.

Signs and symptoms of malaria

- a) High body temperature.
- b) Headache.
- c) Joint pains.
- d) High fever.
- e) Vomiting.
- f) Shivering.
- g) Dizziness.
- h) General body weakness.

Effects of Malaria

- a) Malaria leads to miscarriages in pregnant mother.
- b) It leads to anaemia.
- c) It can kill.

Types of Mosquito and the diseases they spread

	Mosquito	Disease
a	Anopheles	Malaria
b	Culex	Elephantiasis
c	Aedes/Tiger	Yellow fever

How to control the spread of Malaria

- a) Clear the bushes around the compound.
- b) Drain stagnant water around the compound.
- c) Sleep under a mosquito net.
- d) Spray the house with insecticides.
- e) Pour oil on stagnant water around the compound.
- f) Rear fish in ponds.

TRACHOMA

1. A germ called **chlamydia** causes trachoma.
2. Trachoma spread by a housefly.

Signs and symptoms

- a) Red watery eyes.
- b) Small pinkish itchy eyes.
- c) Pus is seen in the eyes.

Effects of trachoma of trachoma

- a) Trachoma leads to blindness.
- b) Trachoma leads to scarring of the eyeball.

How to prevent trachoma

- a) Always observe personal hygiene.
- b) All people staying with the infected person should be examined.
- c) A sick person should be taken to the hospital

SLEEPING SICKNESS

1. A trypanosoma germ causes sleeping sickness.
2. Sleeping sickness is spread by a tsetse fly.
3. A tsetse fly spreads sleeping sickness to human beings.
4. A tsetse fly spreads sleeping sickness to nagana to cattle.

Signs and symptoms of sleeping sickness

- a) The person develops fever from time to time.
- b) A person feels weak.
- c) The person feels sleepy all the time (drowsy).
- d) The brain is affected.

Effects of sleeping sickness

- a) It makes a person sleepy.
- b) If it is not treated a person may die.
- c) It affects the brain.

How to prevent sleeping sickness

- a) Avoid building near bushy areas.
- b) Clear bushes around the compound.
- c) If any signs and symptoms are seen go for medical treatment immediately.
- d) Use tsetse fly traps.

Note

A tsetse fly transmits nagana to sheep, goats, cattle etc.

DYSENTERY

1. Dysentery is the passing out of watery stool with blood.
2. It is caused by bacteria.
3. It is spread by houseflies and cockroaches.

Prevention of dysentery

- a) Using the latrines/toilets properly.
- b) Washing hands after visiting the latrine.
- c) Using water from protected sources of water like spring wells.
- d) Boiling drinking water.
- e) Wash hands before and after a meal.
- f) Cover leftover food.
- g) Re-heating left over food.
- h) Treat drinking water using chlorine.
- i) By treating drinking water.

DIARRHOEA

1. Diarrhoea is the frequent passing out of watery stool (faeces)
2. Diarrhoea is a disease and a sign that shows that there is a problem in the digestive system.

Causes of diarrhoea

Bacteria cause diarrhoea.

How diarrhoea germs spread?

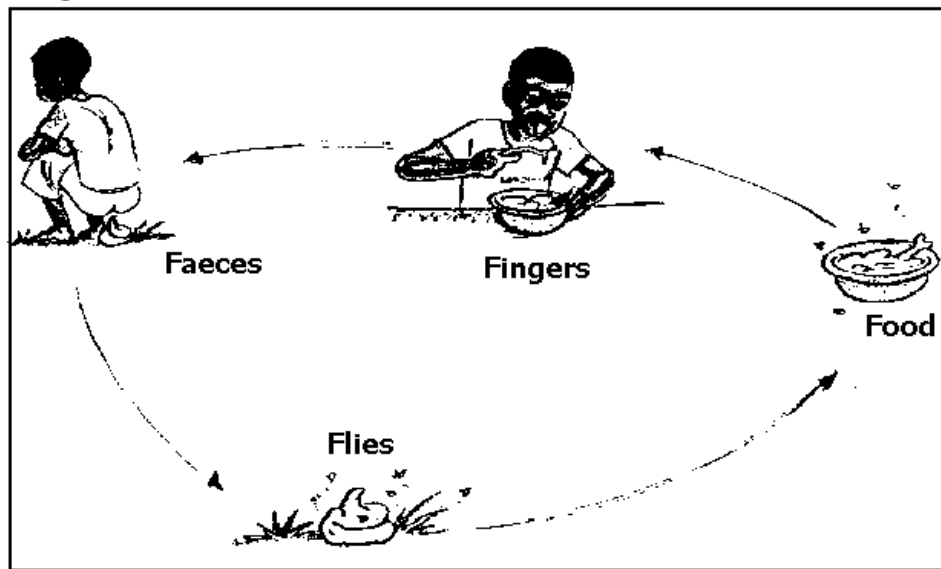
- a) Eating unwashed food (fruits)
- b) Drinking contaminated water.
- c) Eating contaminated food.
- d) Eating with contaminated fingers.

THE 4F'S

The 4F's in full is;

- a) Faeces
- b) Flies
- c) Food
- d) Fingers

Diagram to illustrate the 4F'S



How to control the spread of germs at difference stages of 4F'S

Faeces

Put all faeces in the latrine.

Flies

Spray the flies using insecticides.

Food

- a) Re-heat leftover food.
- b) Cover leftover food.

Fingers

- a) Wash your hands before eating food.
- b) Wash your hands after visiting the latrine.

Effects of diarrhoea

- a) Dehydration
- b) Death

The 3D^s in relation to sickness

- a) Diarrhoea.
- b) Dehydration.
- c) Death.

DEHYDRATION

Dehydration is a condition where the body lacks enough fluids.

Causes of dehydration

- a) Severe vomiting.
- b) Severe diarrhoea.

Signs and symptoms of dehydration

- a) Sunken eyes.
- b) Dry mouth.
- c) Little or no sweat.
- d) Sunken fontanel (soft part on the head of a baby)
- e) A pinch on the skin delays to go back to normal.

Rehydration

1. Rehydration is the replacement of the lost water and mineral salts into the body.
2. We rehydrate the body using Oral rehydration solution.
3. Oral rehydration salts (solution) is commonly abbreviated as ORS.
4. We can make ORS locally by using salt, sugar and safe water.
5. Locally made ORS is sugar salt solution (SSS).

How to make SSS?

- a) Wash your hands with safe water and soap.
- b) Measure one litre of safe water into a clean container
- c) Measure 8 leveled spoons of sugar and 1-levelled teaspoon of salt into the water
- d) Stir the mixture until all the salt and sugar dissolves.

Prevention of Diarrhoea

- a) Put all faeces in the pit latrine.
- b) Boil water for drinking.
- c) Wash hands after visiting toilet/latrine.
- d) Wash fruits before eating.
- e) Cover food properly to protect it from houseflies and cockroaches.
- f) Washing hands before and after eating food.
- g) Re-heat the leftover food.

DISEASE VECTORS

1. Disease vectors are living organisms that spread diseases.
2. Examples of disease vectors, diseases they spread and their control.

Disease vector		Disease spread	Control
a	Rat fleas	Bubonic plague	a) Spray with insecticides. b) Kill rats using traps or poison. c) iii. By immunization.
b	Lice	Typhus fever	a) Iron your clothes b) Spray the house, beds and chairs c) Using insecticides.
c	Bedbugs	Typhus fever	a) Iron your clothes b) Spray the house, beds and chairs using insecticides.
d	Ticks	Relapsing fever	Spray with insecticides.
e	Anopheles mosquito	Malaria	a) Clear the bushes around the compound.
f	Culex mosquito	Elephantiasis	b) Sleep under a mosquito net. Spray with insecticides.
g	Aedes/Tiger	Yellow fever	c) Rear fish in ponds
h	Houseflies	a) Diarrhoea b) Trachoma c) iii. Dysentery	a) Spray using insecticides. b) Keep faeces in latrine

HIV/AIDS

1. AIDS in full is Acquired Immune Deficiency Syndrome.
2. AIDS is caused by a virus.
3. The virus that causes AIDS is called HIV.
4. HIV in full is Human Immuno-deficiency Virus.

Ways through which AIDS spread

- a) Having unprotected sexual intercourse with an infected person.
- b) Transmission of infected blood.
- c) Infected mothers spread the germ to their unborn babies at birth when cutting off the umbilical cord.
- d) Sharing skin piercing instruments with an infected person.

NOTE

- a. AIDS has no cure as yet, but its signs and symptoms can be treated.
- b. Anti retroviral drugs (ARV^s) reduce the rate at which the viruses multiply in the body.

Traditional practices that encourage the spread of AIDS

- a) Inheritance of widows.
- b) Carrying out circumcision using one cutting instrument on several people.
- c) Body tattooing.
- d) Sharing of women.

People at a risk of getting AIDS

- a) Bar maids.
- b) Prostitutes.
- c) Doctors that treat AIDS victims.
- d) Long distance travelers.

Effects of AIDS/HIV

- a) Reduction in the number of people living in the country.
- b) It leads to high number of orphans.
- c) It leads to loss of skilled people.
- d) It makes the government to spend much money to care for AIDS victims.

Ways of caring for AIDS/HIV victims

- a) Cooking for them food.
- b) Bathing them.
- c) Providing with a balance diet.
- d) Providing them with medicine.
- e) Washing for them clothes.

Ways of preventing and controlling AIDS/HIV

- a) Abstain from sex.
- b) Be faithful to your partner.
- c) Use a condom when having sex.
- d) Screen blood before transfusion.
- e) Avoid sharing skin-piercing instruments with other people.
- f) Carry out blood test to know your HIV status.
- g) Take medicine (ARV'S) correctly as told by the doctor.
- h) Feed on a balanced diet always.
- i) Attend guidance and counseling meeting.

PIASCY

1. PIASCY in full is Presidential Initiative on AIDS Strategy for Communication to the Youth.
2. PIASCY is an effort put in by the president of Uganda to help in the prevention and control of HIV/AIDS.

Some of the PIASCY messages are ;

- a) Avoid bad touches ,lonely places and gifts.
- b) Have good morals.
- c) Follow your religion to stay safe.
- d) Stay virgin.
- e) Always say no to sex.
- f) Stay in school.
- g) Boys and girls should respect each other.
- h) Know your rights.
- i) Know and observe your responsibilities.
- j) Say no to early marriage other bad cultural practices.
- k) Have good life skills.
- l) Live positively with HIV/AIDS.

ENERGY

Energy is the ability to do work.

Forms of energy

- a) Light.
- b) Heat.
- c) Sound.
- d) Electricity.
- e) Solar energy.

Sources of energy

- a) Natural sources.
- b) Artificial sources.

Natural sources of energy

This is a source of energy which is made by God.

Examples of natural sources of energy are;

- a) Wind.
- b) Water.
- c) Sunlight and sun's heat.
- d) Firewood.

Artificial sources of energy

This is a source of energy which is made by man.

Examples of artificial sources of energy are;

- a) Diesel.
- b) Petrol.
- c) Charcoal.
- d) Paraffin.
- e) Electricity.
- f) Fire.
- g) Batteries

USES OF EACH ENERGY RESOURCE

Wind

- a) Sail boats.
- b) Drive windmill
- c) Helps in winnowing.
- d) Helps in drying clothes.

Water

- a) Running water helps in producing hydro electricity.
- b) Steam runs steam engine.

Sun's heat

- a) Provides vitamin D.
- b) Increases temperature hence providing warmth.

- c) Provides solar electricity.
- d) Helps in drying clothes.

Sunlight

- a) Enables us to see.
- b) Helps in photosynthesis.

Firewood

- a) Provides heat when burnt.
- b) Provides light when burnt.

Diesel and petrol

- a) Runs car engine.
- b) Runs generators.

Paraffin, charcoal and fire

- a) Helps in heating.
- b) Helps in lighting.

Electricity

- a) Helps in lighting.
- b) Runs machines in factories.

WAYS OF SAVING ENERGY

- a) Use energy saving stoves and bulbs.
- b) Switch off electrical appliances when not in use.
- c) Put out burning charcoal after use.
- d) Plant trees.

Importance of saving energy

- a) It reduces wastage of resources.
- b) It reduces cost on energy resources.
- c) For future use.

Dangers of energy

- a) Electricity kills people and destroys property.
- b) Fire outbreak kills people and destroys property.
- c) Strong wind destroys crops and property.
- d) Storm can capsize boats.
- e) Sun's heat can lead into drought.

Ways of preventing the dangers of energy

- a) Plant trees to act as windbreaks.
- b) Avoid playing with fire.
- c) Don't push nails into electric sockets.
- d) Don't play with electric wires.
- e) Have fire extinguisher at home to help when there is fire outbreak.
- f) Make posters to sensitize people on the dangers of energy.