PRIMARY FOUR INTEGRATED SCIENCE LESSON NOTES TERM 1-3 2024

THEME: THE WORLD OF LIVING THINGS

TOPIC: PLANT LIFE

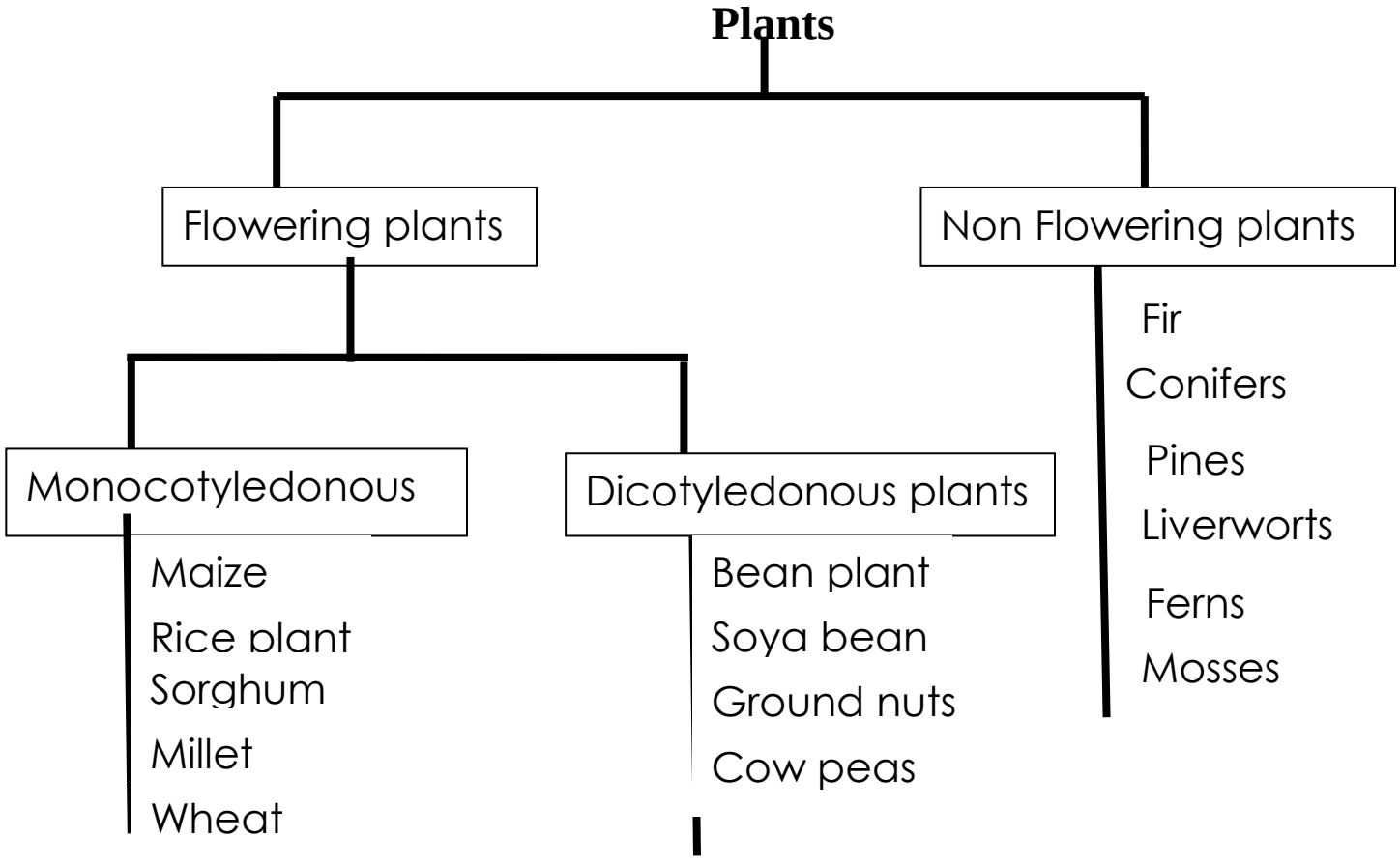
Plants

Plants are living things having leaves, stems and roots.

Differences between plants and animals

- Plants make their own food while animals get already made food.
- Plants have chlorophyll while animals do not have chlorophyll.

Classification table of plants



Types of plants

- Flowering plants
- Non flowering plants

Non- flowering plants

These are plants that do not bear flowers.

- Cypress
- Pine,
- Cedar,
- Podo
- Fir
- Ferns
- Mosses
- Liverworts
- Conifers
- Horse tail

Groups of non flowering plants

✓ Spore bearing plants
✓ Coniferous plants

Spore bearing plants

These are plants that reproduce by means of spores.

Examples of Spore bearing plant

- Ferns
- Mosses
- Liverworts
- Conifers
- Horse tails

These reproduce by means of spores.

Algae reproduce by cell division or binary fission

Coniferous plants

These are plants that reproduce by use of seeds**.**
The seeds are produced and stored in cones.

Examples of coniferous plants

- Cypress
- Pine,
- Cedar,
- Podo
- Fir

Flowering plants

These are plants which bear flowers.

Examples of flowering plants

- Maize
- Beans
- Pawpaw
- Mangoes
- Coffee
- Tomatoes

- Cotton
- Grapes
- Oranges

Groups of flowering plants

- Dicotyledonous plants
- Monocotyledonous plants

Dicotyledonous plants

These are plants with two cotyledons in their seeds.

Examples of dicotyledonous plants

- Beans
- Soya beans
- Ground nuts
- Cow peas.

Note, the examples above are leguminous crops

Leguminous crops are crops that have root nodules and store seeds in pods.

Characteristics of dicots.

- Have network leaf venation
- Have tap root system
- Their seeds undergo epigeal germination

Monocotyledonous plants

These are plants with one cotyledon in their seeds.

Examples of Monocotyledonous plants

- Millet
- Sorghum
- Rice
- Wheat
- Maize
- oats

Note: The examples above are cereal crops.

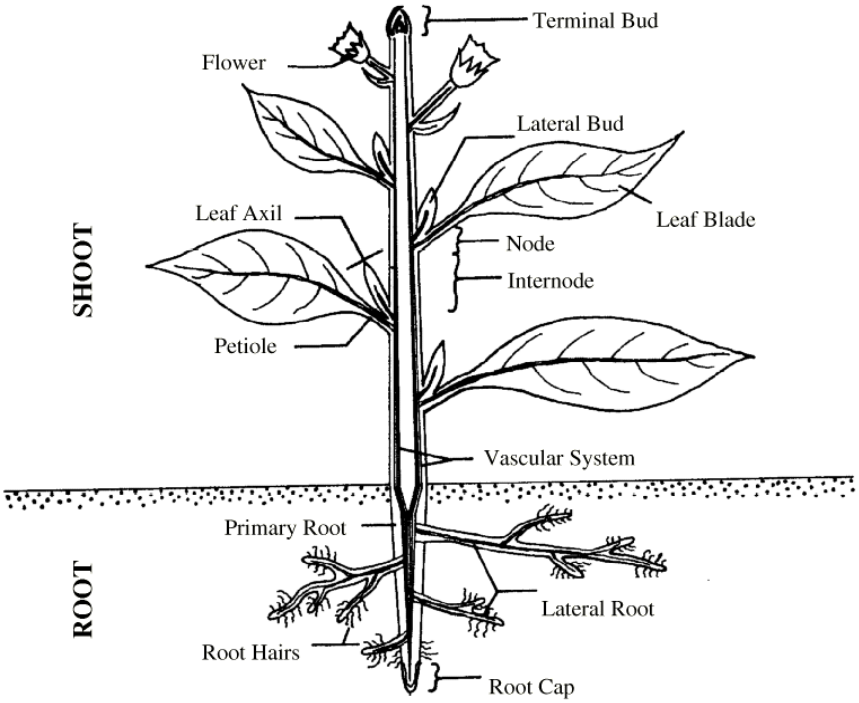
Cereal crops are crops that produce grains.

Characteristics of monocots.

- Have parallel leaf venation
- Have fibrous root system
- Their seeds undergo hypogeal germination.

The structure of a flowering plant

Principal Parts of a Vascular Plant



Systems of a plant

Shoot system

Root system

Shoot system

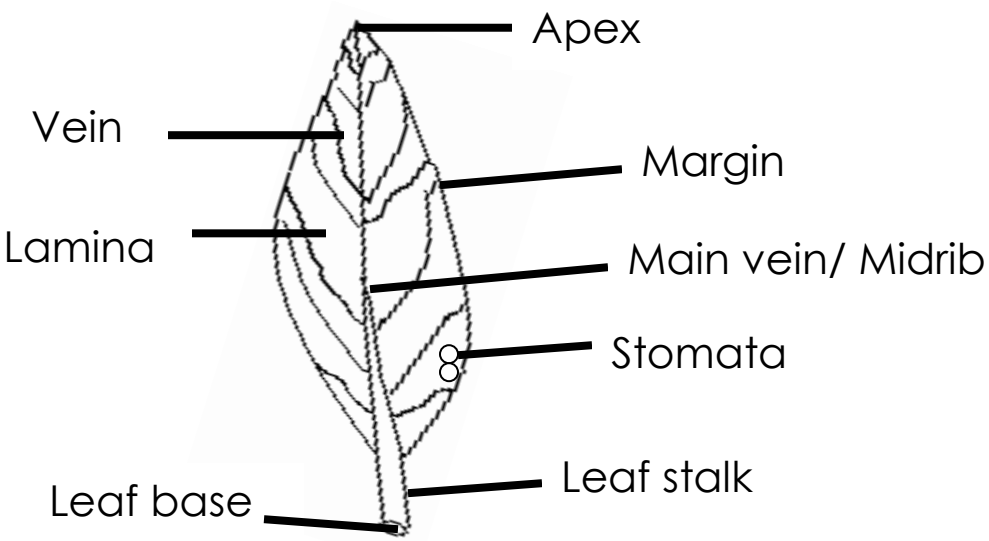
This is the part of a plant that grows above the ground

Components of a shoot system

- Leaves
- Branches
- Flowers
- Fruits
- Axillary bud
- Node
- Internodes
- Terminal bud

Leaves

Parts of a leaf



Functions of the parts

Leaf stalk: It carries manufactured food from the leaf to the plant

It supplies water from the stem to the leaf.

Midrib: It transports water and nutrients from the stalk to the veins

Stomata: It is useful in the breathing of a plant

It carries out transpiration

Lamina: It helps in the making of food (photosynthesis)

Leaf base: It fixes the leaf on the stem

Leaf venation

Leaf venation is the arrangement of veins in a leaf.

Types of venation

- Network leaf venation
- Parallel leaf venation

Network leaf venation

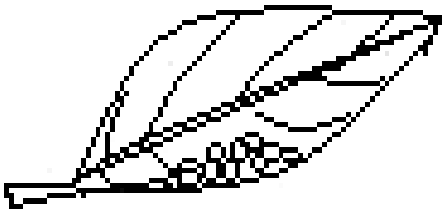
This is the type of venation where the veins form a network.

Examples of plants with network venation

- Beans
- Soya beans
- Ground nuts

- Cow peas
- Mango plant
- Jackfruit plant.

Structure of a network venation



Parallel leaf venation

Parallel leaf venation is the type of venation where veins in a leaf run parallel to each other.

Examples of parallel venation

- Millet
- Sorghum
- Rice
- Wheat
- Maize
- oats

Structure of a parallel leaf venation

Types of leaves

- Simple leaves
- Compound leaves

Simple leaves

A simple leaf is a type of leaf with undivided leaf blade.

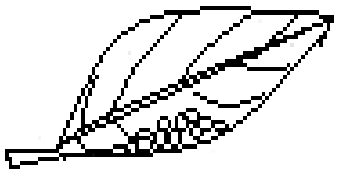
Examples of plants with simple leaves

- Mango
- Pumpkin
- Eucalyptus

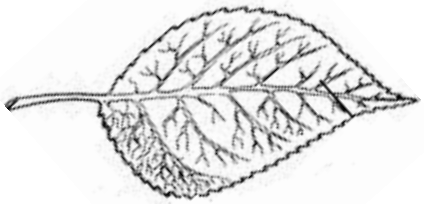
- Sugarcane

Types of simple leaves

- Entire leaf (smoothed leaf)



- Serrated leaf(toothed leaf)



Plants wit entire leaf

- Mango
- Orange

Plants with serrated leaf

- Black jack
- Beans

- Lobed leaf

- Palmate leaf

Plants with lobbed leaves

- Pumpkin

Plants with palmate leaf

- Pawpaw leaf

Compound leaves

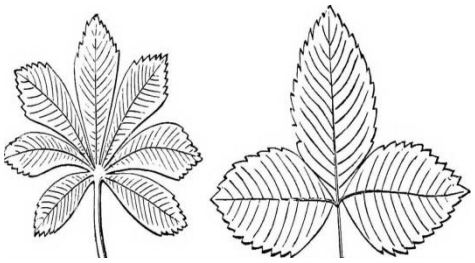
These are leaves where the leaf blade is divided into leaflets.

Plants with compound leaves

- Beans
- Ground nuts
- Cassia
- Jacaranda
- Tomato

Types of compound leaves

Trifoliate leaf

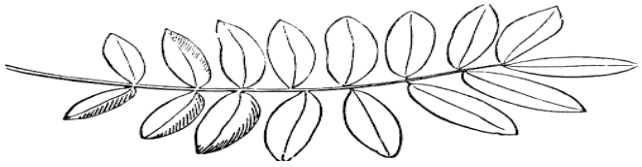


Digitate leaf (e.g. cannabis plant

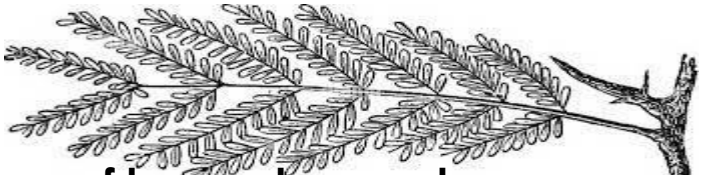
Plants with trifoliate leaf

- Beans
- Soya beans

Pinnate leaf (e.g. acacia plant)



Bi-pinnate leaf (e.g. Jacaranda)



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- ✓ Some leaves are eaten as food.
- ✓ Some leaves are used as herbal medicine.
- ✓ Some leaves are used for decoration

✓ Some leaves are used as crafts
✓ Some leaves are sold to get money e.g. palm leaves

Uses of leaves to plants

- Leaves make food for plants.
- Leaves allow transpiration through stomata
- Leaves enable breathing through stomata
- Some leaves store food for plants

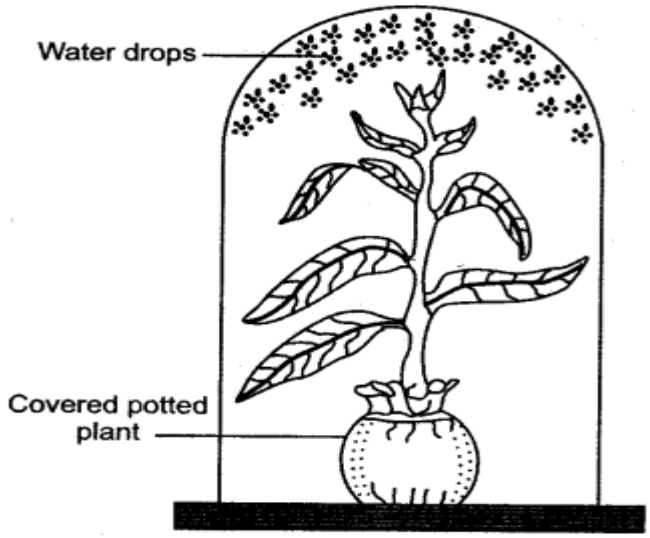
Processes which take place in a leaf

- Transpiration
- Photosynthesis

Transpiration

Transpiration is the process by which plants lose water in form of water vapour through stomata to the atmosphere.

An experiment to show transpiration in a potted plant



Importance of transpiration

To plants

- It cools plants
- It helps plants to suck more water from the soil

To the environment

- It helps in rain formation
- It cools the environment

Factors which affect transpiration rate

- Temperature,
- Humidity
- Light intensity
- Number of leaves
- Size of a leaf
- Speed of wind

Ways through which some plants reduce transpiration rate

✓ Some leaves cover stomata with layer of wax.
✓ Some plants shed leaves in dry season e.g. deciduous plants
✓ Some plants reduce the size of leaves e.g. pine
✓ Some plants turn leaves into thorns.
✓ Some plants have thick leaves with few stomata.

Photosynthesis

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

Green plants make food called **starch.**

Raw materials for photosynthesis.

- Water
- Carbon dioxide.

Conditions for photosynthesis

- Sun light
- Chlorophyll.

Importance of each condition

Sunlight splits up water into hydrogen and oxygen, it also opens stomata.

Chlorophyll is green colouring matter in a leaf.

It absorbs sunlight energy.

Products of photosynthesis

- Starch
- Oxygen

The main product of photosynthesis is starch

At night, plants respire/take in oxygen and let out carbon dioxide, that's why it isn't advisable to put potted flowers in

bedroom because they compete with people for oxygen which may lead to suffocation

Stems

A stem is the part of the plant that has nodes and internodes

It develops from the plumule.

Uses of stems to people

✓ Stem tubers are eaten as food.

✓ Some stems are used as herbal medicine

✓ Strong/big stems are used for construction/building

Types of stems

Erect stems or upright stems e.g. Mangoes, oranges, maize.

Creeping stem e.g. sweet potatoes

Climbing stems

These are stems that climb others.

Reasons for climbing other stems

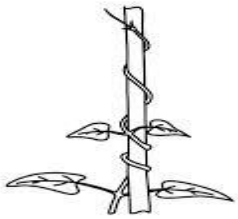
To get enough support.

To get enough sunlight.

Methods used by plants to climb others.

By twining or clasping

Plants clasp or twine their stems around the support e.g. beans, morning glory.

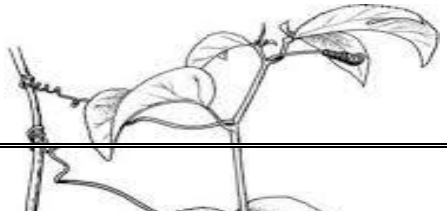


Using hooks or thorns

They prevent the plant from slipping off.

Using tendrils.

The stem develops structures like strings called tendrils e.g. passion fruit, pumpkin, cow peas.



Underground stems

- These are swollen stems with stored food.

Examples of underground stems

- Corms
- Stem tubers
- Bulbs
- Rhizomes

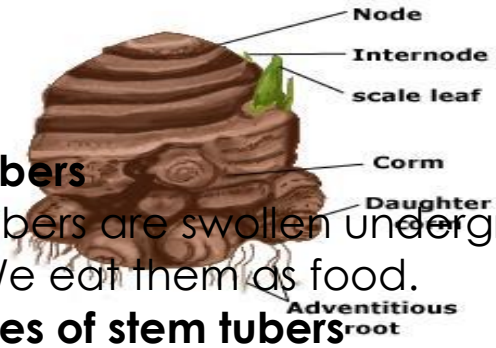
Corms

Corms are short vertical swollen underground stems that store food.

A corm has adventitious roots

Examples of corms

- Cocoyam
- Gladiolus



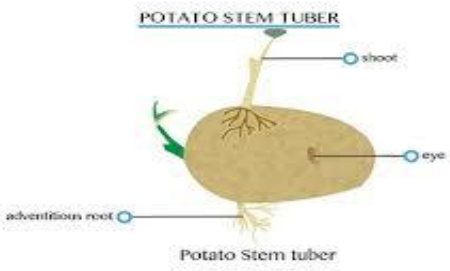
Stem tubers

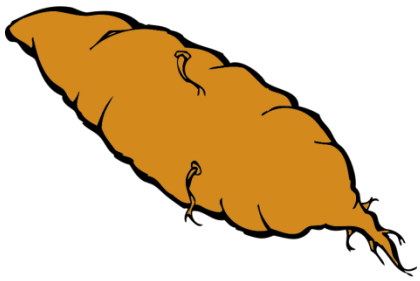
Stem tubers are swollen underground stems with stored food. We eat them as food.

Examples of stem tubers

- White yam

- Irish potato



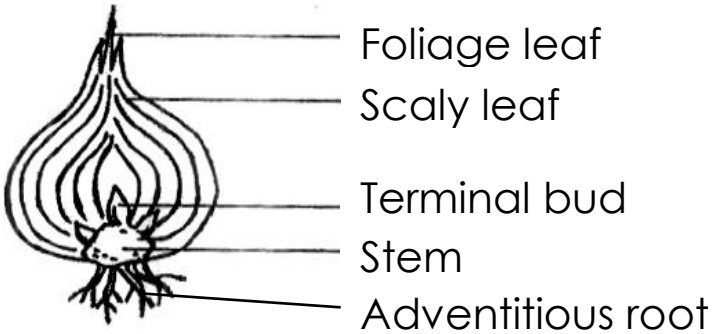


Bulbs

Bulbs are short underground stems which store food in fleshy leaves. They have small stems and adventitious roots

Examples of bulbs.

- Onions
- Garlic
- Daffodils.

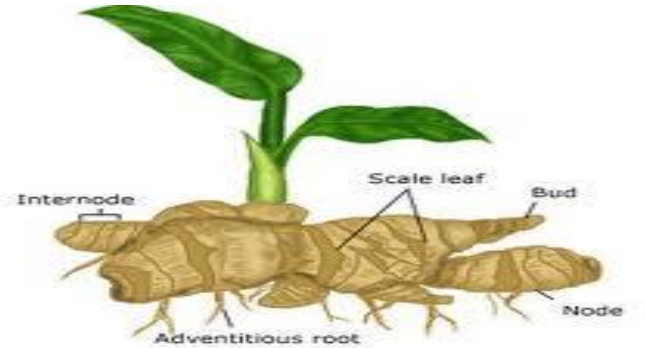


Rhizomes

Rhizomes are horizontal stems which are swollen with stored food.

Examples of rhizomes

- Ginger
- Turmeric
- Zoysia

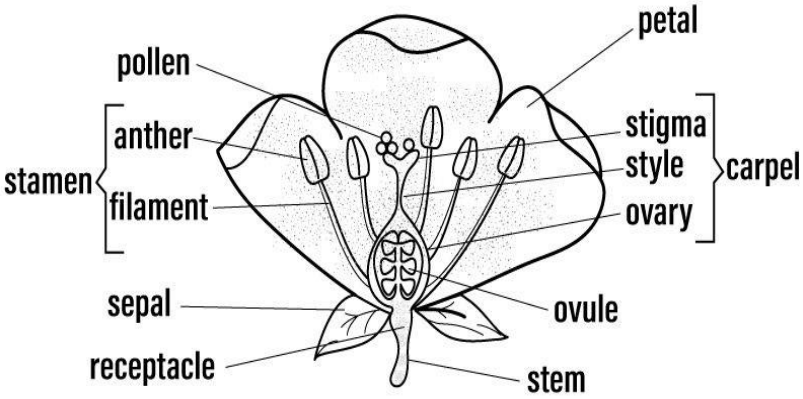


Flowers

A flower is the reproductive part of a flowering plant.
It produces a fruit and seeds.

A group of flowers on a plant is called cluster

A structure of a flower



Functions of the parts of a flower

Anther produces pollen grains.
Filament holds anther in upright position.
Petal protects inner parts, it is brightly coloured in some flowers to attract pollinators.
Stigma receives pollen grains.
Style holds stigma
Ovary grows into fruit
Ovules grow into seeds.
Sepals protect flower in bud stage.
Stalk holds flower uprightly for easy pollination

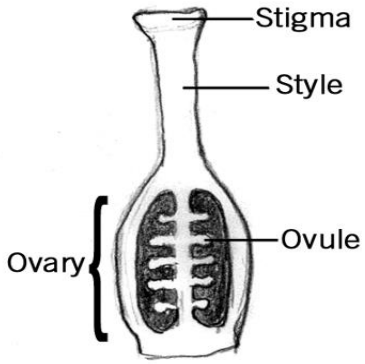
Pistil

Pistil is a female part of a flower.

Components of a pistil

- Stigma
- Style
- Ovary
- Ovules

A structure of a pistil



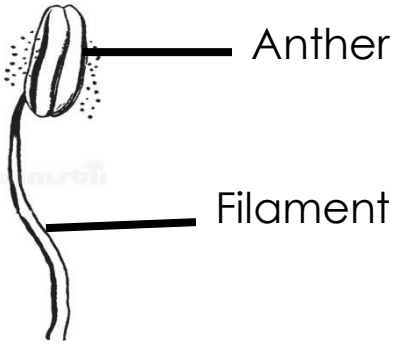
Stamen

A stamen is a male part of a flower.

Components of a stamen

- Anther
- Filament

A structure of a stamen



Pollination

Pollination is transfer of pollen grains from anther to stigma.

Agents of pollination

- Wind
- Water
- Animals e.g. bats, insects (bees, moth)
- Birds e.g. sunbird.

It has long sharp slender beak which sucks nectar from the base of flower.

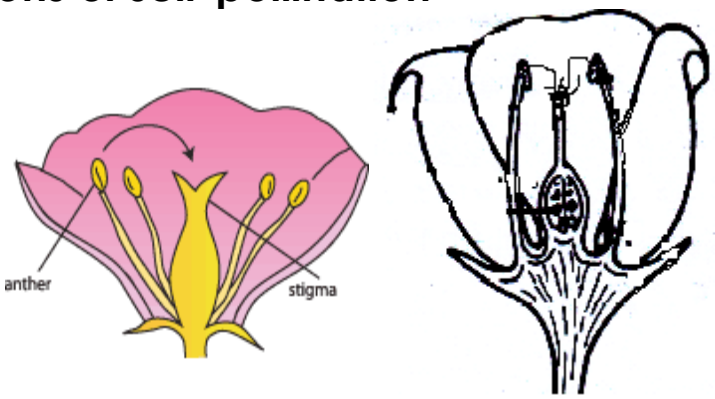
Types of pollination

Self- pollination is the transfer of pollen grains from the anthers to the stigma of same flower of a plant.

Examples of plants with self-pollination

- Tomatoes
- Marigold

Illustrations of self-pollination



Cross-pollination

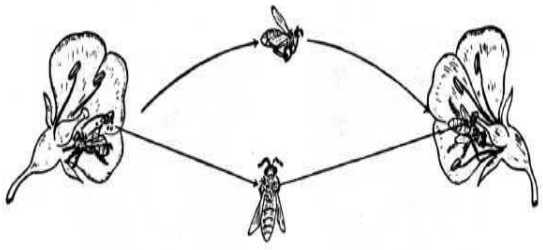
Cross pollination is the transfer of pollen grain grains from the anthers to the stigma of different flowers of the same kind.

It results into good fruits and seeds

Examples of plants with cross pollination

- Maize
- Coconuts
- Pawpaw
- Passion fruits
- Cow peas

Illustrations of cross pollination



Difference between self and cross pollination

Self pollinated	Cross pollinated

Pistils and stamen are on the same flower.	Pistils and stamen are on different flowers.
Anthers are higher than the stigmas.	Anthers are lower than the stigmas.

Agents of pollination

An agent of pollination is anything that aid in the transfer of pollen grains from anthers to stigma of a flower.
They include

- Animals (insects, man and birds)
- Wind
- Flowing water

Animals, Bats, birds/insects eat nectar from flowers. Bees collect nectar and pollen from flowers which they eat as food

Characteristics of insect/animal pollinated flowers

- They have bright coloured petals
- They are large and seen clearly,
- They have good smell or scent
- They produce a lot of nectar
- They have sticky stigma

Characteristics of wind/water pollinated flowers

- They have dull coloured petals
- They have no nectar
- They have no scent
- Have feathery stigma
- They are small in size
- They produce lots of pollen grains

Difference between wind and insect pollinated flowers.

Insect pollinated flowers	**Wind pollinated flowers**

Petals are brightly coloured.	Have dull coloured petals
Have large petals	Have small petals
Produce scent to attract insects	Produce no scent
Produce nectar to attract insects	Produce no nectar
Produce less amount of pollen grains	Produce a lot of pollen grains
Have sticky stigma	Have hairy stigma

Uses of flowers to people

- They are put on coffin to show love & respect to the dead.
- Flowers help in making dye.
- They are given to friends to show love
- Some flowers are used in making insecticide.
- For decoration.
- Flowers are sold for income
- Some flowers are source of food.
- Given to visitors as sign of welcome

Seed

A seed is a mature ovule which grows into a young plant.

Uses of seeds to people

- Some seeds are eaten
- Some seeds are used for herbal medicine
- Seeds are sold for income
- Used for propagation

Types of seeds

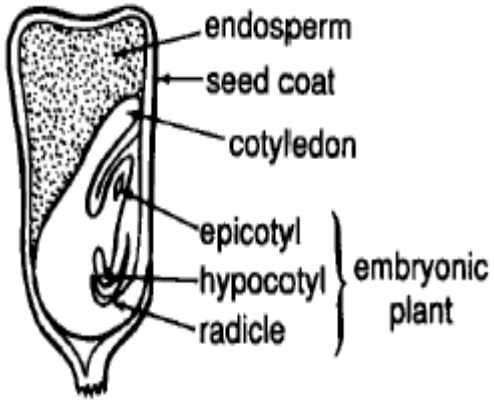
Monocotyledonous seeds have one cotyledon.

Examples of monocots

- Millet
- Maize
- Sorghum
- Wheat
- Rice

Maize grain

A maize grain is a called a fruit because it has two scars namely; stalk scar and style scar.



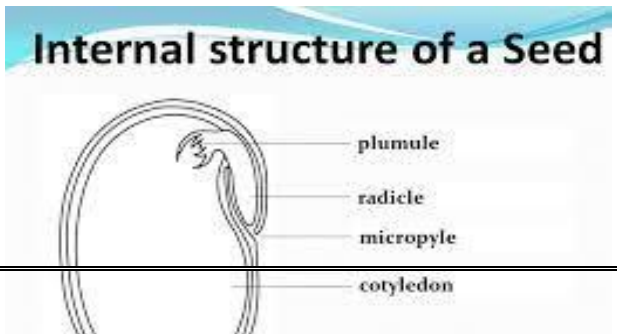
Uses of each part:

Testa or seed coat – protects delicate inner parts.
Endosperm – stores food for embryo in monocots.
Cotyledon- absorbs food from endosperm and passes it to embryo during germination. Embryo grows into young plant
Dicotyledonous seeds have two cotyledons.

Examples of dicots

- Beans
- Soya beans
- G. nut
- Cowpeas

BEAN SEED



Testa protects inner parts.
Cotyledon stores food for embryo in legumes.
Radicle grows into root system while
Plumule grows into shoot system.
Micropyle allows in water and oxygen into the seed

Differences between monocotyledonous and dicotyledonous seeds

- Monocots have one cotyledon while dicots two cotyledons.
- Monocots store food in endosperm while dicots store food in cotyledon.
- Monocots have two scars while dicots have one scar.
- Monocots have endosperm while dicots have no endosperm.

Germination

Germination is growing of a seed into seedling.

Types of germination

Hypogeal germination
Epigeal germination

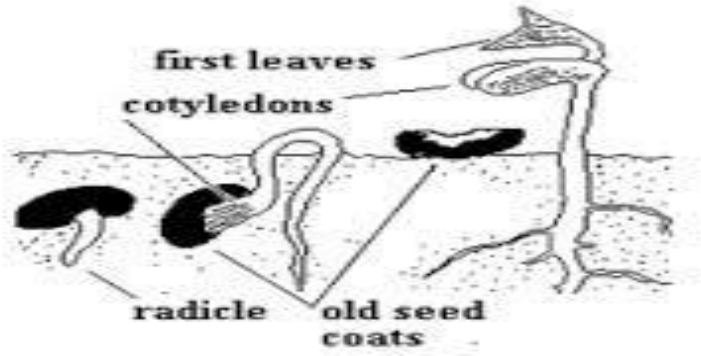
Conditions for seed germination

- Oxygen
- Warmth
- Moisture

Importance of each condition

- Warmth provides a suitable temperature.
- Moisture softens the testa of a seed.
- Oxygen is used for respiration.

Epigeal germination– is the type of germination in which cotyledons come above the ground.



Plants with epigeal germination

- Beans
- Cowpeas

Hypogeal germination-is the type of germination in which cotyledon remains in soil

Plants with hypogeal germination

- Maize
- Millet
- Sorghum

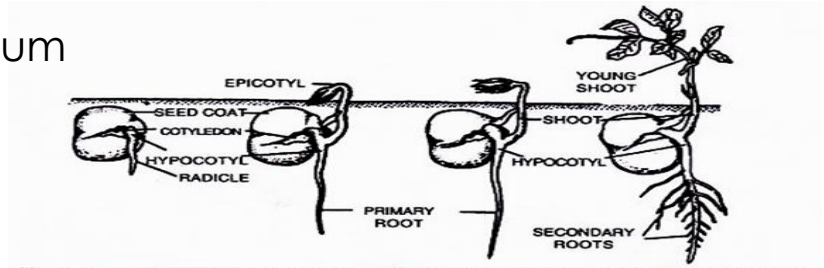


Fig. 4.2. Successive stages of hypogeal germination of dicotyledonous exalbuminous seed of pea.

Root system

A root is a part of a plant that usually develops from the radical and grows down wards into the soil.

A radical is the first root that grows from the seed of a plant.

Types of root

- Tap root
- Fibrous root
- Adventitious roots

Tap root system – This is main root with small lateral roots developing from sides. E.g. beans, soya, cow peas, ground nut

Structure

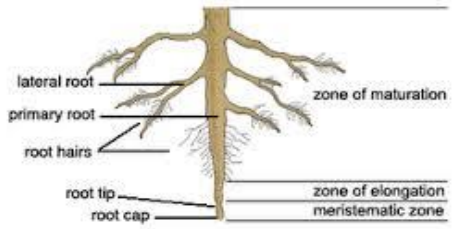
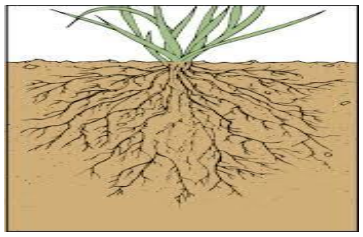


Figure 2. Root Structure

Fibrous root system – roots grow from the same point on stem and spread in many directions. E.g. maize, millet, sorghum, rice, wheat

Structure



Adventitious roots – these are roots that grow from any other part of stem.

Examples of adventitious roots

- Storage roots/root tubers
- Prop roots
- Buttress roots
- Breathing roots
- Clasping/climbing roots
- Stilt root

Storage roots/root tubers

These are swollen underground roots with stored food.

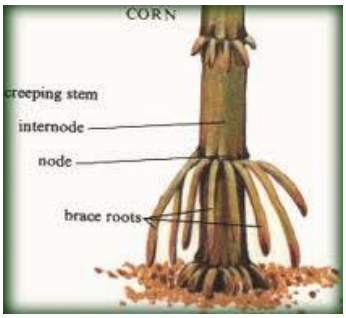
Examples of root tubers

- Cassava
- Carrot
- Turnip
- Cocoyam
- Beetroot
- Sweet potato

Prop roots

These are roots commonly found in cereals

They give extra support to plants during flowering stage.



Plants with prop roots

- Maize
- Sorghum
- Sugarcane

Buttress roots

These enlarge and give more support to a plant e.g. fig tree, jackfruit

Stilt roots – they give extra support to plants which grow in swamps

Stilt roots

Breathing roots – grow from the stem underground moving upwards. They act as breathing organs e.g. mangrove

Breathing roots

Functions of roots to a plant

- Roots hold plants firmly in soil
- They absorb water and mineral salts from soil
- Some roots store food for plants. e.g. cassava.
- Some roots are used for breathing in swampy areas

Uses of roots to people

- Some roots are used as herbal medicine.
- Storage roots are eaten as food.

Importance of plants to man

- Some plants are eaten as food.
- Some plants are used as herbal medicine
- Plants provide oxygen to man for breathing
- Plants act as wind breaks
- Plants are a source of manure

Importance of plants to animals

- Some plants are eaten as food
- Plants provide oxygen to animals
- Some plants act as habitats for some animals
- Some are used as nesting materials

How plants depend on animals

- Plants get carbon dioxide from animals
- Plants get manure from animal wastes
- Animals act as pollinators

How animals depend on plants

- Animals get oxygen from plants
- Animals get food from plants
- Some animals use plants as their habitats

How plants depend on each other

- Some plants get support from others
- Some plants provide shade to others
- Some plants depend on others for nutrients.

Theme 2: SCIENCE IN HUMAN ACTIVITIES AND OCCUPATIONS
Topic: GROWING CROPS

Crop

A crop is a plant grown for a purpose.

Types of crops

Cereal crops

A cereal crop is a crop that produces grains.

Examples of cereals

- Maize
- Sorghum
- Rice
- Millet
- Wheat

Leguminous crops

These are crops that have root nodules on their roots
They have seeds in pods.
Root nodules store nitrogen fixing bacteria that fixes nitrogen into the soil.

Examples of legumes

- Beans
- Ground nuts
- Soya beans
- Cow peas

Fruit crops

These are crops that bear fruits.

Examples of fruit crops

- Mangoes
- Pawpaw
- Pineapples
- Apple
- Orange
- Cocoa

Root crops

These are crops that store their food in roots.

Examples of root crops

- Cassava
- Sweet potatoes
- Carrots

Vegetable crops

These are plants or parts of a plant that are eaten as food.

Types of vegetables

Leafy vegetables e.g. cabbages, dodo, spinach
Root vegetables e.g. carrots, beetroot, ginger
Fruity vegetables e.g. tomatoes, egg plants, avocado, e.t.c.

Groups of crops

- Annual crops
- Perennial crops

Annual crops

These are crops that produce and die with in one year.

Examples of annual crops

- Cassava
- Sweet potatoes
- Carrots
- Beans
- Ground nuts
- Soya beans
- Cow peas
- Maize
- Sorghum
- Rice
- Millet

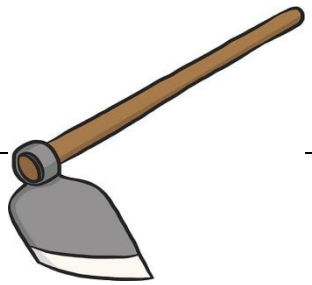
Perennial crops

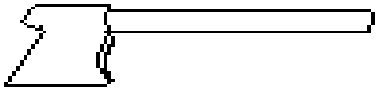
These are crops which grow and harvested for many years before they die.

Examples of perennial crops

- Tea
- Coffee
- Cocoa
- Mango
- Banana
- Cotton
- Orange

Garden tools and their uses

Garden tool	Structure	Uses
Hoe		• Digging the ground • Weeding • Harvesting root crops

Spade		• Mixing manure • Loading soil and manure on tractors and wheel barrow
Rake		• Leveling soil • Collecting uprooted weeds
Slasher		• Cutting grass • Cutting weeds • Clearing thorny bushes
Wheel barrow		• Carrying soil • Carrying manure • Carrying harvested crops
Axe		• Cutting big trees • Chopping wood
Panga		• Cutting small trees and branches • Harvesting crops
Forked hoe		• Digging hard ground • Clearing stones in soil
Watering can		• Watering crops

Trowel		• Transplanting
Garden fork		• Mixing manure • Loosening soil
Knife		• Harvesting crops • Pruning crops
Secateurs		• Pruning
Pickaxe		• Digging and breaking hard ground
Sprayer		• Spraying crops • Applying fertilizers
Sickle		• Harvesting cereals

Care for garden tools

- Painting metallic garden tools.
- Keeping garden tools in clean cool dry place.
- By oiling metallic garden tools.
- Cleaning them after use

Crop growing practices

These are activities done in the garden to raise crops.

Examples

Land preparation

Planting and sowing

Gap filling

Transplanting

Land preparation

This is the first step taken to make a piece of land ready for planting crops.

Ways of preparing land

- Cutting big trees
- Slashing
- Removing tree stamps
- Ploughing
- Harrowing
- Digging

Garden tools used in preparing land

- Tractors
- Axe
- Panga
- Slashers
- Rakes

Importance of preparing land

- To soften the soil
- To allow water into the soil
- It makes planting easy
- It allows air into the soil
- To remove weeds

Nursery bed

A nursery bed is a small garden where seedlings are planted before taken to the main garden.

Examples of plants grown in a nursery bed

- Passion fruits
- Tomatoes
- Cucumber
- Onions
- Coffee
- Watermelon
- Pawpaw
- cabbages

Importance of nursery bed

- It gives a farmer time to prepare the main garden.
- It protects seedlings from heavy rain drops.
- It protects seedlings from strong sunshine.
- It helps the farmer to select the healthy seedlings.

Selecting planting materials

Examples of planting materials

- Seeds
- Suckers
- Bulbs
- Stem cuttings
- Rhizomes
- Stem tubers

Qualities of a good planting material

- They should be mature
- Should not be damaged
- Should be free from pests
- Should be free from diseases
- Should not be too old

Importance of selecting planting materials

- It prevents wastage of land.
- It ensures quality plants.
- It prevents the wastage of time.
- It prevents the wastage of labour.

Seed viability

It is the ability of the seed to germinate.

Seed dormancy

It is the inability of the seed to germinate.

Planting and sowing

This is the putting of planting materials in the soil to germinate.

Planting is done during rainy season.

Reasons for planting in a wet season

There is enough water for seed germination

The soil is soft for easy growth of seeds.

Methods of planting

- Row planting method
- Broadcasting method

Row planting

Row planting is when planting materials are put in the soil in lines.

Advantages of row planting

- It makes weeding easy
- It is easy to control the spread of diseases and pests
- It makes harvesting easy
- It allows proper spacing of crops
- It avoids wastage of seeds and other planting materials

Disadvantages of row planting

- It needs a lot of labour.
- It is time consuming.
- It requires a large piece of land

Plants planted using row method

- Maize
- Cassava
- Potatoes
- Cotton
- Tea
- Beans

Broadcasting method

It is the putting of seeds in the soil while scattering them.

Advantages of broadcasting method

- It saves time.
- It does not need a lot of labour
- It does not waste nutrients in soil

Disadvantages of broadcasting method

- Makes weeding difficult
- Makes harvesting difficult

- Pests and diseases can easily spread.
- It causes much competition for sunlight.

Gap filling

This is the planting of seeds or seedlings in spaces where they did not germinate.

Transplanting

This is the transfer of seedlings from the nursery bed to the main garden.

Garden tool for transplanting

Trowel

Reason for transplanting in the evening

- It prevents the wilting of seedlings
- There is little loss of water from the soil through evaporation.

Caring for crops

Ways of caring for crops

- Weeding
- Manuring
- Mulching
- Pruning
- Pests and disease control
- Thinning
- Staking
- Fencing
- Watering
- Applying fertilizers
- Spraying

Weeding

Weeding is removal of plants growing where they are not wanted.

Garden tool for weeding

- Slasher
- Hoe

Advantages of weeding

- It creates space for crops to grow well.
- It reduces competition for sunlight, water & mineral salts.
- It reduces spread of pests and diseases.
- It makes harvesting easy

Weeds

Weeds are plants growing where they are not wanted.

Examples of weeds

- Spear grass
- Elephant grass
- Black jack
- Star grass
- wild finger millet
- Thorn apple
- Couch grass
- Wandering Jew

Uses of weeds to people

- Some weeds are eaten as green vegetables
- They give manure
- They reduce soil erosion in compounds

Dangers of weeds in a garden

- Weeds encourage easy spread of pests
- They make harvesting difficult
- Weeds compete for water, light space and nutrients

Ways of controlling weeds

- Slashing
- Spraying herbicides
- Uprooting
- Crop rotation
- Digging

Manuring

It is the addition of dead plant and animal matter into the soil to make it more fertile.

Sources of manure

- Animal dung and urine
- Plant remains
- Green plants

Types of manure (natural manure)

Compost manure is got from plant remains

Green manure is got from green plants especially Legumes

Farm yard manure got from animal urine, droppings and dung.

Mulching

Mulching is the covering of top soil with dry plant materials.

Examples of mulches

- Elephant grass
- Coffee husks
- Banana leaves
- Spear grass
- Rice husks
- Maize stalks

Advantages of mulching

- It keeps moisture in soil
- It reduces soil erosion
- It adds manure in soil
- It reduces the rapid growth of weeds.

Disadvantages of mulching

- Mulches can be fire hazard
- Mulches hide some crop pests
- Some mulch can turn into weeds
- Mulches are tiresome to prepare

Pruning

This is removal of unwanted parts from a growing plant.

Advantages of pruning

- Reduces the rate of transpiration
- Reduces hiding places for pests
- Crops get enough sunlight
- It improves on crop yields.

Note Pruning saw, secateurs pruner & shears are used.

Thinning

This is removing excess crops from garden.

Advantages of thinning

- It helps to remove damaged, weak or diseased crops.
- Crops get enough space, air & nutrients.
- Reduces the rate of transpiration

- Reduces hiding places for pests
- Crops get enough sunlight
- It improves on crop yields.

Watering

This is the supply of water to crops.

Use of water in the soil

- It makes the soil soft for roots to grow
- It is used for seed germination
- Plants use water to make their own food

Staking

This is the giving of extra support to plants with weak stems using sticks.

Crops which are staked

Passion fruits

Banana is supported by propping

Advantages of staking

- Plants grow and mature without breaking.
- It prevents fruits from breaking

Crop rotation

It is the growing of different types of crops on the same piece of land at different times.

Advantages of crop rotation

- It controls spread of pests and diseases.
- It improves soil fertility
- It reduces soil erosion

Pests and disease control

A crop pest

A pest is an organism which damages crops.

Common pests of crops

- Caterpillars
- Aphids
- Weevils
- Snails
- Slugs
- Locust
- Termites
- Monkeys
- Rats
- Moles
- Squirrels
- Eel worms

- Army worms

Common signs of pest and disease attack in crops

- Holes in leaves, fruits, seeds, roots and stems of crops
- Rotten plant parts.
- Deformed plant parts
- Change of colour in leaves, fruits and stem.

Dangers of pests

- They weaken plants
- They lead to low yields
- They lead to poor growth of crops
- They destroy crops

Ways of controlling pests

- Spraying crops with pesticides.
- Plant disease resistant varieties.
- Uprooting diseased crops.
- Early planting and timely weeding.
- Use of scare crows.
- Practicing crop rotation.

Crop diseases

<u>Diseases caused by bacteria</u>

Bacterial wilt

- Tomatoes
- Sweet potatoes
- Egg plants

Bacterial blight

- Cotton

Bacterial Banana Wilt Disease (BBWD)

- Bananas

<u>Diseases caused by viruses</u>

Maize streak

- Maize

Rotoon stunting disease

- Sugarcanes

Mosaic virus

- Tomatoes
- Sweet potatoes
- Cassava
- Tobacco

<u>Diseases caused by fungi</u>

Wheat rust

- Wheat
- Maize
- Millet
- Barley
- Oats
- Coffee

Potato blight

- Sweet potatoes
- Tomatoes

Smuts

- Maize
- Sorghum
- Sugar cane

Coffee berry disease

- Coffee

Powdery mildew

- Mangoes
- Paw paws

Armillaria root rot

- Tea
- Coffee

Panama disease

- Banana

Cigar end rot

- Banana

Leaf spots

- Cotton

- Sugar canes

Ways of controlling crop diseases

- By crop rotation
- Spraying pests and diseases
- Proper spacing
- Early planting
- Uprooting and burning the infected crops
- Planting healthy materials

Harvesting

Harvesting is collecting ready crops from garden.

Garden tools used for harvesting

- Sickle
- Hoe
- Panga

Methods of harvesting

- Cutting e.g. banana, sugarcane
- Digging e.g. sweet potato, cassava
- Uprooting e.g. ground nut, cassava, beans
- Picking e.g. tomatoes, mangoes, oranges
- Plucking e.g. maize

Storing of harvested crops

This is keeping of food safely for future use.

Reasons for storing harvested crops

- To keep them for planting in the next season.
- To keep them for a better market.
- To be used as food in future.

Places where food is stored

- Granaries
- Silos
- Refrigerators
- Store rooms
- Ceilings

Types of stores

Traditional stores e.g. granaries
Modern stores e.g. silos

Qualities of a good store

- Should be well ventilated.
- The roof should be leak proof.
- Should have rat guards.
- Should be clean and dry.

Storage pests

These are organisms which damage stored food.

Examples of storage pests

- Rats
- Termites
- Grain moth
- Weevils

Food preservation

It is the keeping of food safe for a long time.

Methods of preserving food

- Sun drying e.g. cassava, sweet potatoes, maize, rice.
- Smoking e.g. fish, meat
- Refrigerating e.g. fish, meat, mangoes
- Salting e.g. fish and meat
- Tinning e.g. beans, tomatoes

Reason for preserving food

- For future use.

Food path

Food path is the different stages of producing food up to the stage of consuming.

Types of food path

Village food path

This is the food path where farmers grow crops for home consumption.

Stages of village food path

- Land preparation

- Planting
- Caring for crops
- Harvesting
- Cooking
- Eating

Town food path

This is the food path where farmers produce food for sale.

Stages of town food path

- Clearing land
- Planting
- Caring for crops
- Harvesting
- Preserving
- Marketing
- Buying food
- Cooking and eating

Blocks of food path

These are problems faced in food production and may lead to little yield when harvested.

These include;

- Crop pests
- Crop diseases
- Poor farming methods
- Poor weather
- Earth quake
- Poor roads

School garden

A school garden is important to children in the following ways;

- Helps a child to know how to dig.
- Helps a child to know more about crops.
- Helps children to get food to eat.
- The school gets money after selling food.

Factors to consider when planning a school garden

- Good working garden tools
- Enough capital
- A well drained area

- Seeds

Qualities of a good school garden

- Should have a nursery bed
- Should have a record chart
- Should be near a water source
- Should have a demonstration garden

Young farmers club

Young farmers of Uganda (YFU)

This is an organization of young boys and girls or youth who participate in agricultural activities.

Functions of YFU

- They teach people how to grow crops and care for certain crops
- They teach farmers modern methods of growing crops
- They coordinate information from agricultural assistants to farmers
- They grow crops and sell them to get money
- Helps children to know the importance of agriculture.
- They give the youth an opportunity to meet, share ideas and learn from one another

THEME: OUR ENVIRONMENT

TOPIC 3: WEATHER CHANGES AROUND US

Weather is the condition of the atmosphere at a given time.

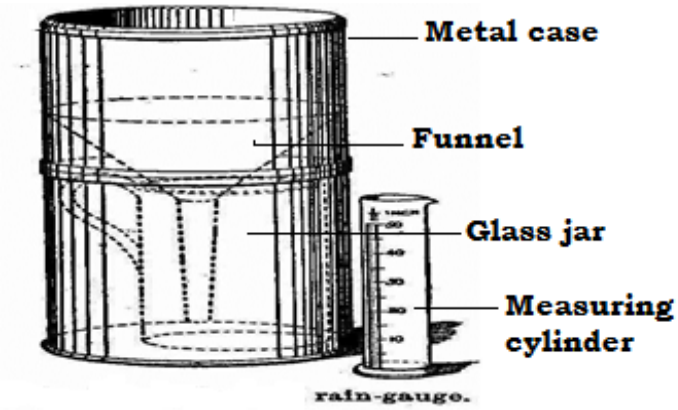
Conditions of weather

- Rainy
- Sunny
- Cloudy
- Windy

Elements of weather

Rainfall

Rain is the water vapour that condenses from the atmosphere and falls down.
The Instrument that measures the amount of rainfall is called rain gauge.
Structure of rain gauge

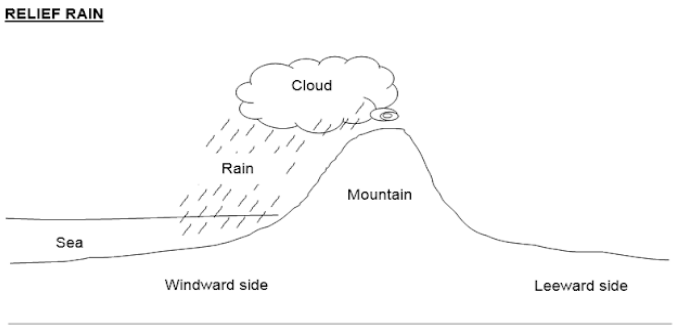


Activity
Making simple rain gauge using local materials like plastic bottles

Types of rainfall

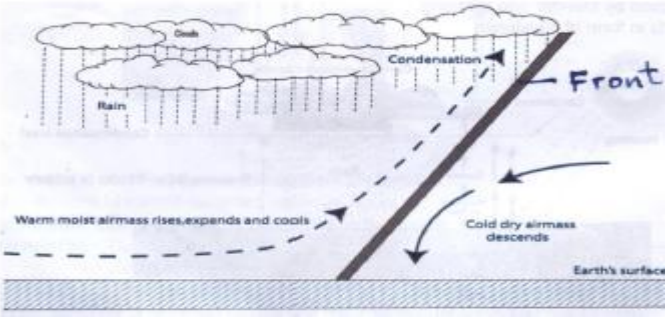
Relief rainfall

This is a type of rainfall received around mountainous and hilly places.
Diagram showing relief rainfall



Cyclonic rainfall

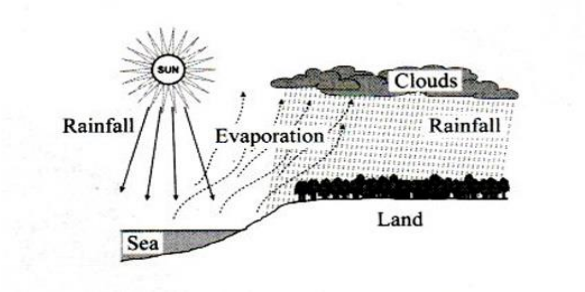
This is a type of rainfall received as a result of warm air meeting cold air in a certain place.
Diagram showing cyclonic rainfall



Convectional rainfall

This is a type of rainfall received on land and places near water bodies.

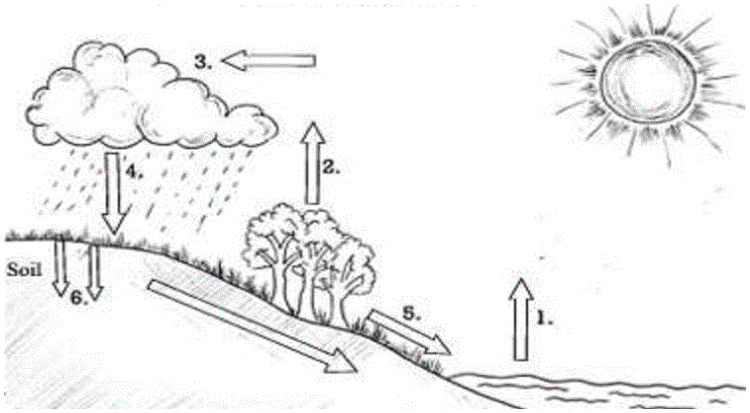
Diagram showing convectional rainfall



Water cycle

It is the process by which rain is formed.

Diagram of a water cycle



Processes involved in water cycle

2. Transpiration
1. Evaporation
4. Condensation
Precipitation

Transpiration

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

Evaporation

Evaporation is the process by which water changes to vapour.

Condensation

Condensation is the process by which vapour changes to water.

Precipitation

This is the condensed water vapour in the atmosphere that falls down

The process of a water cycle

- The sun heats water bodies and plants causing water vapour by the processes evaporation and transpiration.
- Water vapour rises and cools by condensation to form clouds.
- Clouds become heavy and thick and later fall as rain.

Uses of rainfall

- Rain water is used for drinking, washing, and building.
- It cools down the temperature of the environment
- It enables plants to grow quickly.
- It fills water bodies

Disadvantages of too much rainfall

- Heavy rainfall causes floods.
- It makes transport difficult
- It leads to easy spread of water borne diseases
- It causes land slides
- Destroys property

- Destroys crops in a garden

Sunshine

Sunshine is the energy got from the sun.

It makes the day very bright and hot. The sun is main source of light & heat

Campbell sunshine recorder measures the length of time it has shined in a day.

Advantages of sunshine

- It dries harvested crops
- It helps in rain formation
- It generates solar electricity
- Helps the skin make or form vitamin D
- Sunshine kills some germs on surface
- It dries wet clothes
- It helps plants make their own food

Disadvantages of sunshine

- Too much sunshine makes the day very hot
- Prolonged sunshine causes drought
- It dries crops and some water bodies
- It kills plants and animals.

Clouds

A cloud is a condensed water vapour in the atmosphere**.**

Types of clouds

Cirrus

Highest clouds

They look like feathers in the sky.

It is a sign of fair weather

Stratus

Sign of bad weather

They look like a huge grey blanket

They are nearer the earth.

Cumulus

They appear in dry weather
These are white clouds which resemble cotton piles.

Nimbus

Nearest to the Earth and are a sign of rain, they are dark grey and nearest the earth.

Uses of clouds

- Clouds protect us from direct sunshine.
- They form rain

Dangers of clouds

- Cause accidents during air transport
- Cumulus produce thunder storms
- Clouds cause lightning

Humidity

Humidity is the amount of water vapour in the atmosphere.
Humidity is measured by an instrument called hygrometer

Diagram showing a hygrometer

Temperature

Temperature is the degree of hotness or coldness of matter.
A **thermometer** measures temperature.
Units for measuring temperature are degrees.
A thermometer is read in two scales

Degrees Fahrenheit

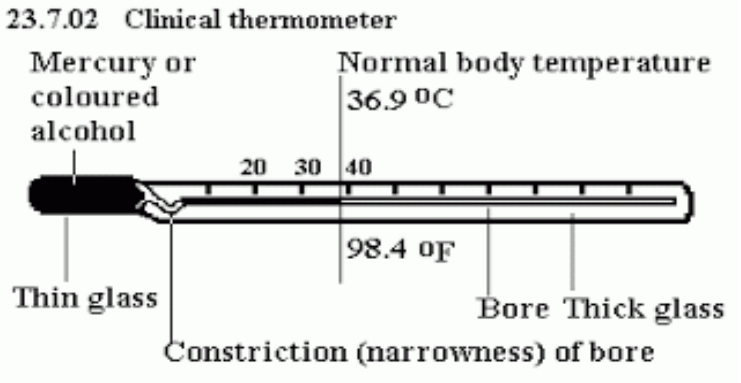
Degrees Centigrade/ Celsius

Types of thermometers

Clinical thermometer/doctor's thermometer- measures temperature of human body.

Six's thermometer – measures the highest and lowest temperatures of the day in an area. (Minimum and maximum thermometer)
Wall thermometer – measures room temperature. This is 25^0c.
Ordinary scientific thermometer- used for science experts.
Weather thermometer – used to measure temperature of atmosphere

Diagram showing a clinical thermometer



Functions of each part

Kink – prevents back flow of flow of mercury before temperature is read.
The glass bulb is thin so that mercury warms up quickly. Before re-use, one should first shake the thermometer to make mercury go back to the bulb to get accurate readings.
Bore - it is made narrow to have an accurate scale.

Sites on the body where a clinical thermometer is placed

- In the mouth under the tongue
- Under arm pits
- In the anus
- In the vagina

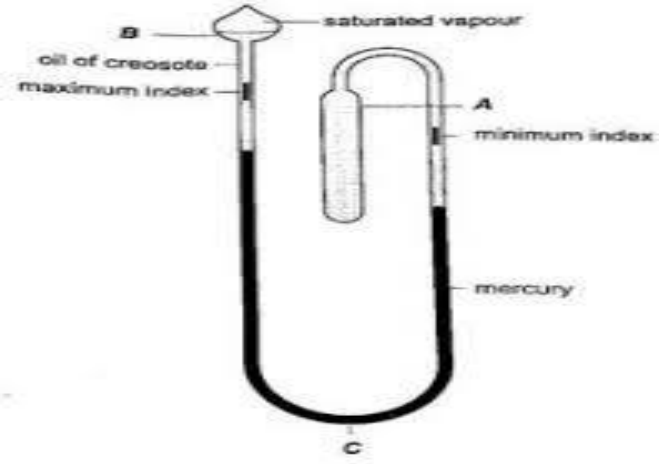
Why is a clinical thermometer inserted in the vagina?

- Vagina has constant body temperature

Note a clinical thermometer is sterilized by using methylated spirit.

Minimum and Maximum thermometer is sometimes called six's thermometer because it was first discovered by James Six. It is used to measure the highest and lowest temperatures of a day. It is used at the weather station and at some farms. It uses both mercury and alcohol. It can be reset using a magnet.

Structure of a maximum and minimum thermometer



Advantages of using mercury in thermometers

- Mercury doesn't stick or wet the glass.
- Mercury is good conductor of heat.
- Mercury expands and contracts uniformly.
- Mercury is opaque and hence clearly seen.

Advantages of alcohol over Mercury

- **I**t expands six times more than mercury.
- It doesn't solidify easily

Disadvantages of using water

- Water wets the glass.
- Water is poor conductor
- Water needs a lot of heat to expand.

Wind

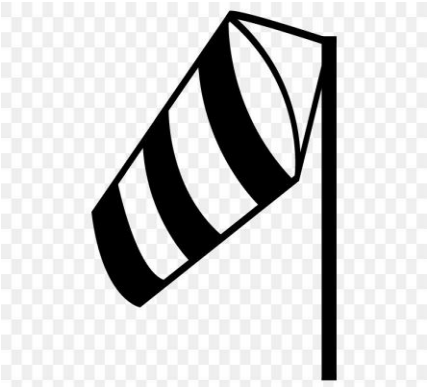
Wind is moving air

What causes wind?

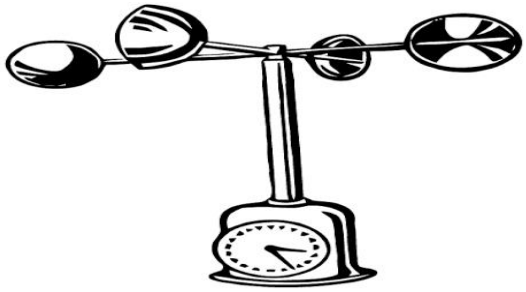
- Difference in air pressure

Wind instruments

Wind vane/ weather cock shows direction of wind. Its arrow points in the direction from where wind is coming.
Wind sock shows direction and strength of wind



Anemometer measures speed of wind



Advantages of wind

- Wind helps to carry out pollination
- It is used in winnowing
- It helps in rain formation
- Wind dries wet clothes
- Wind brings fresh air in warm place

Dangers of strong wind

- Wind spreads airborne diseases
- It blows or raises dust into our eyes
- Pollutes air
- It causes soil erosion
- Wind blows off houses
- Breaks trees or destroys crops
- Strong wind causes storm on land and sea

Ways of managing strong wind

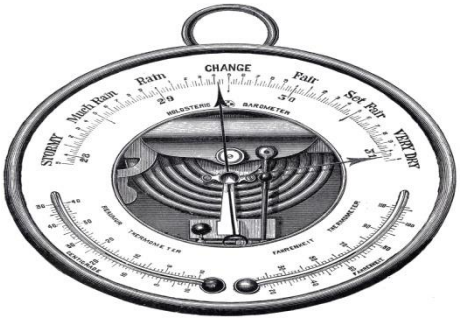
- Planting trees to act as wind breaks
- Building houses with flat roofs in desert areas
- Building houses with slanting roofs in equatorial areas

Atmospheric pressure

This is the force exerted by air in the atmosphere.

Barometer measures air pressure

Structure of a barometer



Stevenson screen

A Stevenson screen is a place where delicate weather instruments are kept.

Instruments kept in a Stevenson screen

Clinical thermometer

Barometer

Reason for painting it white

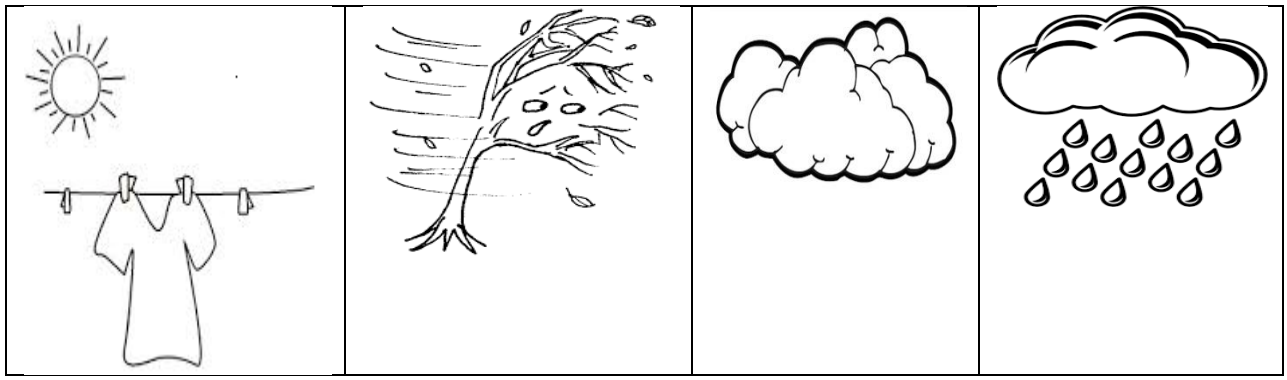
It is painted white to reflect heat.

Weather chart

A weather chart is a record of weather for different days showing weather changes of an area.

An example of a weather chart

Sunny	**Windy**	**Cloudy**	**rainy**



TERM TWO

THEME 3: HUMAN HEALTH

Topic: OUR FOOD

Food

Food is anything good to eat or drink that adds value to the body.

Terms used

Food
Nutrition
Nutrient
Feeding

Definitions of the above terms

Feeding is the taking in of food.
Nutrition is the process by which food is taken in and used by the body.
Nutrients are substances that are needed for maintenance and growth of the body.

Uses of food to the body

- Food provides energy to the body.
- Food keeps the body healthy.
- Food builds the body.
- Food provides warmth to the body.

Why we eat food

We eat food every day for the following reasons 5Hs

- To satisfy Hunger
- To be healthy.
- It is a habit.
- For hospitality.
- To be happy.

Sources of food

- Plants
- Animals

Places where people get food

- Markets
- Gardens
- Forest
- Water bodies
- Supermarkets
- Shops

Ways people get food

- By growing it in the garden.
- By buying it from shops, markets, supermarkets etc.
- By fishing from lakes, swamps, rivers etc.
- By hunting.
- By gathering from forests and bushes.

Balanced diet

A balanced diet is a meal containing all food values in their right amount.

Food values in a balanced diet

- Proteins
- Carbohydrates
- Fats and oils
- Water and mineral salts
- Vitamins

- Roughages

PROTEINS

These are body building foods.

Uses of proteins

Proteins help in making new body cells.

Proteins help to repair worn out tissues.

Sources of proteins

a) **Animal proteins**

- Beef
- Chicken
- Fish
- Eggs
- Grasshoppers
- White ants
- Pork.

(b) **Plant proteins**

- Beans
- Soya beans
- Ground nuts
- Peas

CARBOHYDRATES

These are food values that give us energy

Sources of carbohydrates

- Maize
- Millet
- Cassava
- Rice
- Sorghum
- Sweet potatoes
- Irish potatoes
- Coco yams
- Matooke
- Sugar cane
- Bread
- Posho
- Honey

VITAMINS

These are health giving foods

Types of vitamins

Vitamin A

- Butter
- Milk
- Eggs
- Liver
- Cheese
- Carrots

Vitamin B

- Beans
- Ground nuts
- Meat
- Maize
- Rice
- Sorghum

Vitamin C

- Oranges
- Mangoes
- Apples
- Pineapples
- Tomatoes
- Lemons
- Guavas
- Pawpaw

Vitamin D

- Butter
- Milk
- Egg yolk
- Liver
- The sun

Fats and oils

These are also energy giving foods

Sources of fats

Sources of fats and oils

- Milk
- Butter
- Cheese
- Egg yolk
- Ground nuts
- Margarine
- Meat

Dangers of having little fats in the body.

- Lack of energy
- Rough and dry skin
- Feeling cold all the time.

Note: Fats are solids while oils are liquids at room temperature.

MINERAL SALTS

Use:

They are health giving foods.

Types of Mineral salts

Iron

For making red blood cells

Sources of iron

- Meat
- Liver
- Calcium
- Milk
- Millet
- Green vegetables

Calcium

For strengthening bones and teeth

Sources of calcium

- Dry fish
- Milk
- Eggs
- Grains
- Milk products

Phosphorus

Iodine

Use:

- For proper functioning / working of the thyroid gland.

Sources of iodine

- Sea fish / sea foods
- Iodized salt

Fluorine

Prevents tooth decay

It forms strong teeth

Sodium

It balances fluids in the body

Source

- Salt
- Smoked sea fish
- Meat

Potassium

Water

It makes 70% of the human body.

Food sources of water.

- Water tea
- Juice milk
- Soda
- Cocoa soup

Uses of water in the body

- It makes digestion and absorption of food easy
- It forms the basic of blood plasma
- It reduces body temperature by sweating
- It quenches thirst
- It helps to remove waste products from the body

Roughages

Roughages are the indigestible fibres from the cell walls of plants.

Sources

- Green leafy vegetables
- Bread
- Seeds
- Fresh fruit
- Un polished cereals
- Processed foods

Importance of roughages in the body.

- They prevent constipation
- They reduce the risk of bowel cancer
- They allow easy digestion of food.
- They add bulk to the diet
- Allow easy movement of food through the alimentary canal

Deficiency diseases

Deficiency diseases are diseases caused by lack of certain food values in the diet.

Examples of deficiency diseases

Kwashiorkor

It is caused by lack of enough proteins in the diet.

Signs of kwashiorkor

- Swollen belly / pot belly
- Swollen moon face
- Swollen feet and hands.
- Skin rash.
- Little brown hair.

Prevention of Kwashiorkor

- Eat foods rich in proteins.

Marasmus

It is caused by lack of enough carbohydrates in the diet.

Signs of marasmus

- Old man's face
- Thin body
- Always hungry
- General body weakness.
- Loss of body weight

Prevention of marasmus

- Eat foods rich in carbohydrates.

Anaemia

- It is caused by lack of enough iron in the diet.

Signs of anaemia

- Rapid heartbeat
- Fatigue
- Pale skin

Prevention of anaemia

- It is prevented by eating foods rich in iron.

GOITRE

- It is caused by lack of enough iodine in the diet.

Signs and symptoms of goitre

- Swollen neck.
- Difficulty breathing.
- Difficult swallowing.

Prevention of goitre

- It is prevented by eating food rich in iodine.

Night blindness

It is caused by lack of vitamin A

Signs

Poor night vision

Prevention of night blindness

Eating foods rich in vitamin A

Beriberi

It is caused by lack of vitamin B_1

Riboflavinosis

It is caused by lack of vitamin B_2

Pellagra

It is caused by lack of vitamin B_3

Scurvy

It is caused by lack of vitamin C.

Rickets

It is caused by lack of vitamin D.

Signs and symptoms

- Weak bones
- Bow legs
- Deformed skull
- Stunted growth

Prevention of rickets

- Sun bathing

Vulnerable groups of people

These are groups of people that are easily affected by lack of proper feeding
These are groups of people that need special care in terms of feeding.

Examples s of vulnerable groups

- Pregnant mothers
- Sick people
- Weaning babies
- Elderly people
- Breastfeeding mothers

Breast feeding

It is the act of feeding baby on breast milk.

Importance of breast milk to a baby

- It is easy to digest.
- It contains all food values needed by the baby.
- Breast milk contains antibodies which protects the baby against diseases.
- It is at the right body temperature.
- It is clean.

Importance of breast feeding to a mother

- It saves her time.
- It is cheap.
- It create love bond between the mother and the baby.
- It delays the next pregnancy.

Advantages of breast feeding to the family and community

- It is quick and saves time.
- It is cheap compared to buying baby milk.
- It creates a love bond between a mother and a baby.
- It delays the next pregnancy.
- It reduces chances of sicknesses in the body.

Bottle feeding

Mothers are supposed to breast feed their children up to around six months.

Factors that lead to bottle feeding

- Mothers who have HIV.
- Mothers who work in the office and can not breast feed their children.
- Mothers who are unable to produce breast milk.
- Mothers who are sick and unable to breast feed properly.

Advantages of bottle feeding

- It gives mothers chance to relax and go out for work.
- It helps to feed babies whose mothers are sick of HIV.
- Helps to feed babies whose mothers cannot produce enough milk.

Disadvantages of bottle feeding

- It is expensive to maintain.
- It denies the mother's love and care.
- Bottles are easily contaminated by houseflies.
- Bottle milk can easily get contaminated.
- It doesn't contain antibodies to the child.
- Bottles are difficult to clean properly causing germs.

Pregnant mothers

These are also called expectant mothers.

Foods needed by a pregnant mother

Food containing proteins.

- It builds body tissues of the growing baby.
- It repairs the warn cells of the baby.

Food containing carbohydrates.

- It gives energy to the mother to carry the baby.

Calcium

To build the strong bones and teeth of the baby.

Vitamins

It protects the baby and the mother from infection.

Fluids

To stimulate the production of more milk in her breasts.

Weaning children

Weaning is the gradual introduction of solid foods to a baby other than breast milk alone.

Reasons for weaning at six months

- The baby needs more nutrients because the body is growing.
- To prevent deficiency diseases.
- The baby needs to get iron from other foods because breast milk does not contain it.
- To supplement on breast milk.

Common foods used during weaning

- Mashed Irish
- Potatoes.
- Porridge.
- Sweet banana.

Note: Weaning is done at the age of six months to supplement breast milk.

Sick people

Sick people need food and extra fluids in order to help the body to fight sickness.

Most of the foods include the following:

- Proteins
- Vitamins and mineral salts

Frequent feeding

Sick people may not be able to eat very much at one time so they should be fed with easily digestible foods.

Elderly people

When people grow old, they often lose their teeth which cause health problems such that they do not crush their food for easy digestion which can cause indigestion or constipation.

Elderly people need the following:

Food that is easy to eat such as minced meat, mashed fruits etc.

Frequent feeding because they may not be able to eat very much at one time.

Malnutrition

- It is a condition when the body does not have enough food values.

Signs / symptoms of malnutrition

- Tireless
- Loss of body weight
- Dullness

Food hygiene

Food hygiene is the keeping of food free from germs.

Proper handling of food

- Washing hands before preparing food.
- Wash hands before serving food.
- Wash fruits and vegetables before eating them

Food taboos and beliefs

A taboo is a cultural or religious custom that forbids people from eating certain types of food.

Examples of religious food taboos

- Moslems are not allowed to eat pork.
- Moslems are not allowed to eat meat of an animal slaughtered by a non-Muslim.
- Catholics do not eat meat on Fridays during lent.

Examples of cultural food taboos

- In Buganda, girls and women were not allowed to eat chicken and eggs because they make them barren.
- Men were not allowed to eat oil nuts because they can make them impotent.
- Children suffering from measles are not allowed to eat

meat because it makes them more sick.

- Babies were not allowed to eat liver and eggs because they make them take long without talking and also make them urinate and defecate on their beds.

Advantages of food taboos and beliefs

- Certain people and tribes have plenty of foodstuffs to eat.
- Certain animals and plants are conserved in areas where they are not eaten.

Disadvantages of food taboos and beliefs

- Food beliefs and taboos can result into malnutritional diseases.
- Pregnant women may become malnourished and produce underweight babies.

Staple foods for different communities.

A staple food is the food commonly eaten by a particular community.

Common staple foods.

- Matooke
- Cassava.
- Sweet potatoes
- Irish potatoes.
- Yams
- Sorghum.

Examples of staple foods for different communities

The Ateso

- Cassava for mixing the millet.
- Sorghum

The Baganda

- Matooke.
- Cassava
- Sweet potatoes.

The Basoga

- Sweet potatoes.
- Cassava.

The Banyankole

- Matooke.
- Millet
- Cassava
- Irish potatoes.

The Acholi and Langi.

- Cassava
- Millet.
- Sorghum

Reasons why different communities prefer the above foods.

- Climate in the regions favour their growth.
- The type of soils in their areas.

FOOD HYGIENE

Food hygiene is the keeping of food free from germs.

Proper handling of food.

- Washing hands before preparing food.
- Wash hands before serving food.

- Prepare food in a clean place.
- Serve food in clean containers
- Wash fruits and vegetables before eating them.

Importance of proper handling of food.

- It prevents food contamination.
- It preserves food for future use.
- Controls the spread of some diseases
- Protects food from vectors

Ways food gets contaminated

- Serving food with dirty hands.
- Serving food in dirty utensils.
- By some disease vectors e.g. cockroaches and houseflies.
- Preparing food in dirty environment

Dangers of poor handling of food

- It spreads diseases.
- It causes food to get spoilt.
- It may cause food poisoning.

Good eating habits

- Wash hands before eating food.
- Sit upright when eating food.
- Swallowing food after chewing it properly.
- Chewing food with mouth closed.
- Putting small lumps of food in the mouth at a time.

Bad eating habits

- Eating with unwashed hands
- Eating while walking
- Swallowing food before chewing it properly
- Talking when the mouth is full of food

Dangers of bad eating habits

- Eating food with unwashed hands contaminates food and may lead to diarrhea.

• Bending while eating food interferes with movement of food in the alimentary canal.

• Swallowing food before chewing properly can lead to indigestion it can also lead to choking.

• Talking when food is in the mouth leads to spitting food on other people near you.

FOOD PRESERVATION

Food preservation is the keeping of food safe for along time.

Ways of preserving food.

• Sun drying e.g. cassava, beans.
• Salting e.g. meat.
• Smoking e.g. fish.
• Tinning / bottling / canning. E g beef, fish, milk
• Refrigerating e.g. oranges, green vegetables, milk.
• Roasting e.g. meat.
• Boiling and heating.

FOOD SECURITY

This is when a family / community has enough food for eating all year round.

Food security can be achieved through.

• Growing enough food crops
• Proper food storage
• Preservation of food.
• Practicing proper farming methods.
• Improving soil fertility

Importance of food security

• The family has enough food to eat throughout the year.
• It prevents deficiency diseases in the family.

Preparation of food

Food preparation is the making of food ready for eating.

Methods of preparing food

- Matooke - steaming, boiling, roasting
- Millet bread – mingling
- Sweet potatoes – steaming, roasting
- Rice – boiling, steaming
- Maize bread (posho) – mingling

Reason for preparing food.

To increase on food taste.

THEME: Human body

TOPIC: MAJOR BODY ORGANS

MAJOR BODY ORGANS

• An organ is a group of tissues that perform the same function.

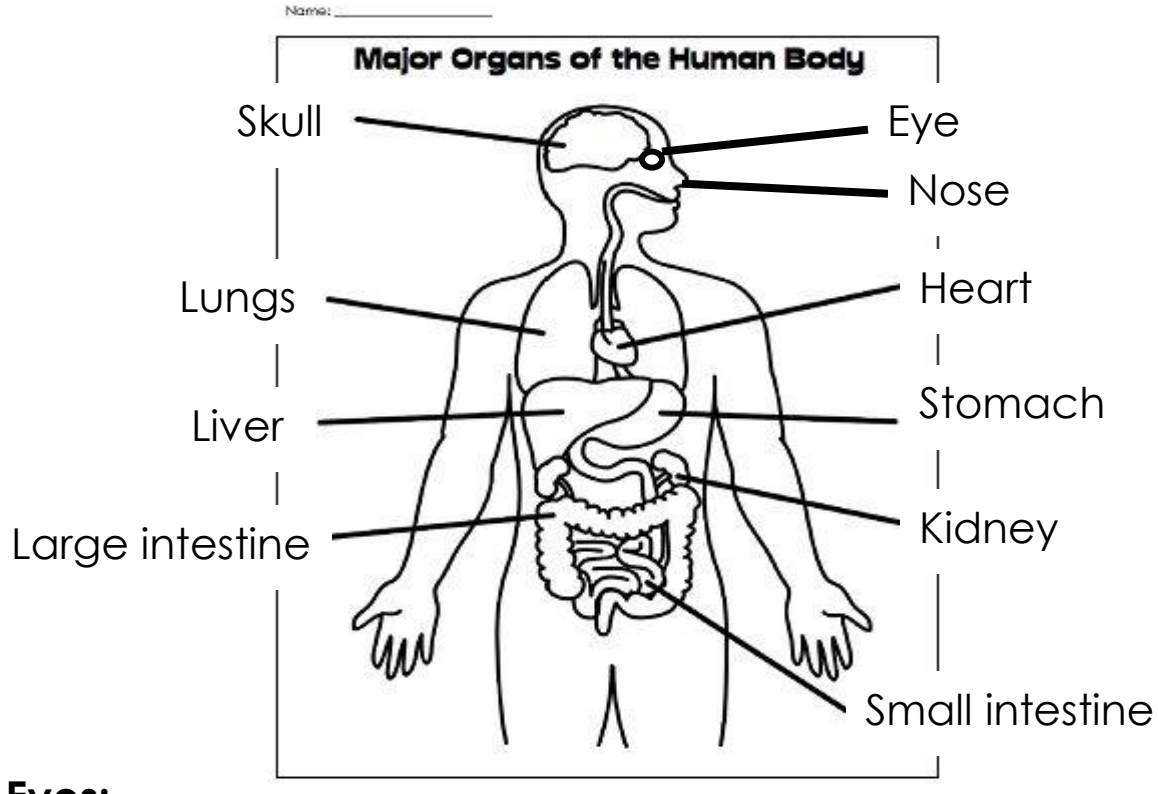
• A tissue is a group of body cells.

• A cell is the smallest unit of the body

Examples of major body organs

- Eyes
- Brain
- Lungs
- Tongue
- Ears
- Stomach
- Liver
- Kidneys
- Nose
- Heart
- Bladder
- Skin

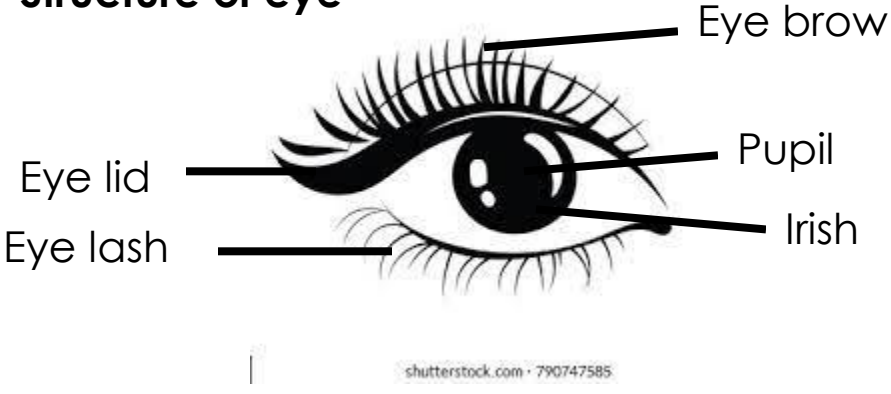
The major organs in the body.



Eyes:

- Eyes are found on the head.
- They are protected by the eye sockets in the skull.
- People have a pair of eyes.

Structure of eye



Function: Eyes are used for seeing / sight / vision.

Functions of each part.

Iris – controls the amount of light entering the eye.

Pupil - allows light inside the eye.

Eye lash- prevents dust and insects to fall into the eye.

Eye lid – prevents dust and insects to fall into the eye.

Eye brow – prevents sweat and moisture from eyes.

Diseases of the eyes

- Trachoma
- River blindness
- Red eyes
- Night blindness

Disorders of the eye

- Squints
- Blindness
- Short sightedness
- Long sightedness
- Astigmatism

Care for the eyes

• Wash eyes with clean water and soap regularly.
• Avoid looking at bright light directly.
• Do not strain your eyes by reading in dim light.
• Do not hold book too close or far when reading.
• Visit eye clinic for regular check up and tests. - (Oculist optician)

Ears

• Ears are found on the head.
• People have two ears on the head.
• Ears are sense organs for hearing.
• The outer ear (pinna) is used for collecting sound waves.
• The ear also helps in body balance.

Structure of the ear

NB: There is wax in the auditory canal to trap dust and other foreign bodies

Function of each part

Pinna – it collects sound waves
Auditory canal – directs sound waves to the eardrum
Eardrum – produces sound vibration

Diseases of the ear

- Ear cancer
- Otitis media
- Meniere's diseases
- Earache

Disorders of the ear

- Partial deafness
- Permanent deafness
- Foreign bodies (these prevent sound waves from reaching the ear drum).
- Rapture (tear) of the ear drum

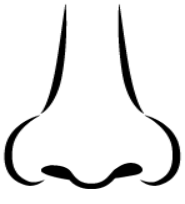
Care for ears

- Wash the ears daily and keep them dry.
- Do not push objects into the ears.
- Do not use sharp objects for cleaning your ears.
- Do not direct your ear to loud sound.

3. **The Nose**

- It is located at the front of the face.
- It has two nostrils used for taking air into and out of the body (lungs).
- The nose is the sense organ for smelling.

Front view of the nose



The nose has hairs (cilia) and that traps any foreign bodies like dust, dirt. Or Cilia filters air before it goes to the lungs.

Diseases of the nose

- Influenza (flue)

Disorders

– Having a foreign object in the nose

- Nose bleeding

Care of the nose

- Regular cleaning
- Covering the nose in dusty

2. The Brain

- This is the most important organ of the body.
- The brain is found in the head.
- It is protected by the skull.

Diagram shows the position of the brain

Uses of the brain

- For thinking.
- For recall / remembering.
- For body balance.
- For storing information.
- For learning / reasoning.

Diseases of the bran

- Epilepsy
- Cerebral malaria
- Meningitis

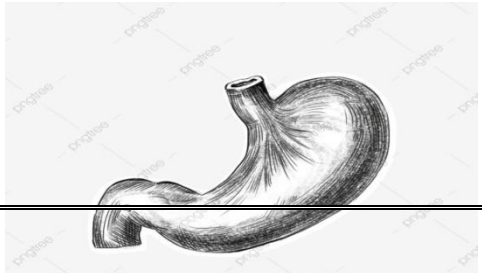
Care for the brain

- Having enough rest.
- Avoid drugs like alcohol, marijuana, tobacco.
- Eat a balanced diet.
- Having physical exercises to refresh the brain daily.
- Early treatment of malaria.

The stomach

- It is located in the abdomen.
- The stomach is part of the digestive system.
- It is bag like and elastic.

Diagram of the stomach



Uses of the stomach

- The stomach stores food for sometime.
- It digests food (proteins)
- It produces an acid (hydrochloric acid) which kills germs in the food eaten.
- It produces gastric juice

Diseases of the stomach

- Peptic ulcers
- Diarrhoea
- Dysentery
- Cholera

Disorders of the stomach

- Constipation
- Indigestion
- Vomiting
- Diarrhoea

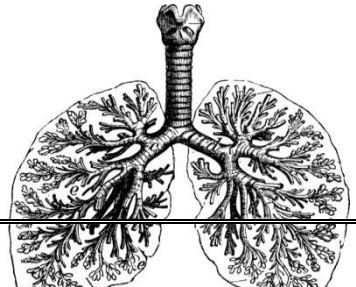
Care for the stomach

- Avoid drinking alcohol as it causes wounds on the stomach lining.
- Drink a lot of water to prevent constipation.
- Eat a balanced diet.
- Avoid smoking as this makes ulcers worse.
- Avoid prolonged hunger as it causes ulcers.
- Doing physical exercises.

Lungs

Lungs are found in the chest.
They are protected by the rib cage.
People have two lungs.

Diagram showing the lungs



Uses of lungs

Lungs are used for breathing /respiration .

They pass out carbon dioxide and excess water vapour.

Diseases of lungs

- Tuberculosis
- Diphtheria
- Whooping cough (pertussis)
- Pneumonia
- Influenza (flue)
- Bronchitis
- Lung cancer
- Emphysema
- Asthma

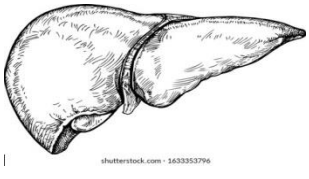
Care for the lungs

- Avoid tobacco smoking.
- Avoid dusty places.
- Avoid crowded places.
- Take infants for immunization against TB, whooping cough and diphtheria.
- Do regular physical exercises.
- Isolate people with tuberculosis.
- Feeding on a balanced diet

The liver

It is located in the upper part of the abdomen.

Structure of the liver.



The gall bladder stores bile.

Uses of the liver

- The liver regulates body sugar.
- It produces bile.
- It stores iron, glycogen and vitamin A and D.
- It dilutes poisonous substances from blood.
- It produces body heat

Diseases of the liver

- Hepatitis
- Liver cancer
- Cirrhosis (liver disease)

Care for the liver

- Avoid drinking too much alcohol (it causes cirrhosis).
- Have a balanced diet.
- Boil water for drinking to avoid hepatitis.

The Heart

The heart is found in the chest cavity.

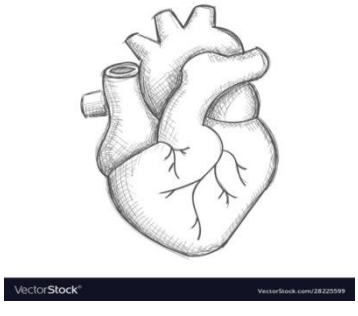
It is protected from physical damage by the ribcage.

A person has one heart.

Use:

The heart pumps blood to all parts of the body.

Structure of the heart



The heart is made up of a tough muscle called **Cardiac muscle.**

Care for the heart

- Doing regular physical exercises.
- Eating a balanced diet.
- Avoid smoking to avoid blood clots in the coronary artery.
- Having regular medical check up

Kidneys and the urinary bladder

The kidneys and urinary bladder are found in the lower

abdomen

Uses of the parts

Kidney

• It filters blood (it removes urea excess water and mineral salts from blood.)

Urinary bladder

• It stores urine before it is passed out.

Ureter

• Carries urine from kidneys to the urinary bladder.

Urethra

• Passes urine out of the urinary bladder

Care for the kidney and urinary bladder

- Avoid drinking alcohol.
- Do not hold urine for a long time in the bladder.
- Drink plenty of water.
- Drinking clean boiled water

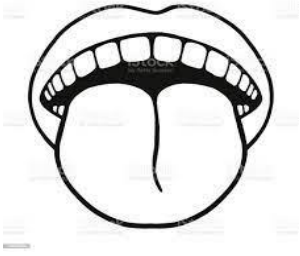
Diseases of the kidney / urinary bladder.

- Kidney failure
- Kidney stones
- Bilharziasis

8. The Tongue

- It is found in the mouth.

Structure of the tongue



Uses

- It is a sense organ for tasting.
- It rolls food into a bolus and pushes it to the gullet for swallowing.
- It is used in talking

Disorders of the tongue

- Burns
- Cuts
- Blisters

- Bites
- Loss of tasting

Care for the tongue

- Do not eat hot food. This may damage the taste buds.
- Do not put sharp objects in the mouth.
- Avoid too much smoking

The skin

This is the largest organ of the body found outside the body.

Uses of the skin

- It removes sweat from the body.
- It regulates body temperature
- The skin prevents germs from entering our bodies.
- It protects our muscles from damage.
- It is a sense organ for feeling

Diseases and disorders of the skin.

Diseases	Disorders
• Leprosy • Ringworm • Scabies • Boils • Impetigo	• Cuts • Blisters • Skin rash • Pimples (acne) • Dryness / cracks

Care for the skin.

- Bathing regularly using clean water and soap.
- Apply Vaseline to keep the skin soft.
- Do not share under wears, towels, combs with infected people.
- Feeding on the foods that contain vitamin D.

THEME: HUMAN HEALTH

TOPIC: HUMAN TEETH

A tooth is a hard bone like structure in vertebrates used for breaking food into smaller pieces.

Sets of Teeth

- Milk teeth

- Permanent teeth

Milk teeth

They are 20 in number and the first to grow in young children.
Milk teeth start growing from the age of 6 months and at the age of around 7 years.
These teeth begin to fall out and are replaced by the permanent teeth.

Permanent teeth

This is the second and final set of teeth in the mammals growth.
A person starts developing permanent teeth at 13 years.
An adult normal person has 32 permanent teeth consisting of incisors, canines, premolars and molars.

Types of teeth

- Incisors
- Canines
- Premolars
- Molars.

Incisors:

They are used for cutting and biting food.
They are chisel shaped.
They are the first teeth to grow.

Diagram of an incisor.

Canines

They are used for tearing food.
Canines are sharp and pointed.

Diagram of a canine

Premolars

Premolars are used for grinding, chewing and crushing food.
They are broad, blunt and flat ridged.

Diagram of a premolar.

Molars

Molars are used for grinding chewing and crushing food.
They are broad, blunt and flat ridged.

Diagram of a Molar

Dental formula :

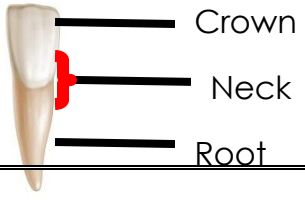
Dental formula is the arrangement of teeth in the jaws.

	Incisors	Canines	Premolars	Total	Molars
Lower Jaw	4	2	4	16	6
Upper Jaw	4	2	4	16	6
Total	8	4	8	32	12

REGIONS OF A TOOTH

1. Crown
2. Root
3. Neck

Illustration showing a region of a tooth



Parts of a tooth (canine and molar)

- Enamel
-Dentine
-Pulp cavity
-Blood capillaries / vessels / sensory nerves
-Gum
-Cement
-Jaw

Internal structure of a tooth

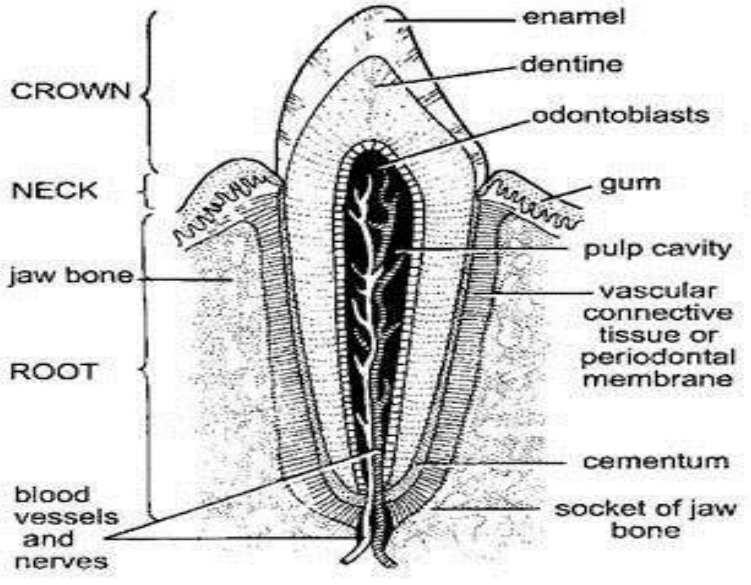


Fig. 33.5. V.S. of a mammalian canine tooth.

Functions of parts of the tooth

Enamel:

- The hardest part of the tooth.
- It is the hardest substance in the body made of calcium of phosphorus.
- Enamel prevents wear and tear of the tooth.
- It protects the inner parts

Dentine:

- It keeps replacing the enamel as it may wear off due to friction.

Pulp cavity

- It is the most sensitive part of the tooth.
- It contains blood vessels and sensory nerves.

Blood vessels

- The supply blood to the tooth

Sensory nerves

- They are sensitive to heat, pain and cold.
- The tooth begins paining when bacteria destroy the pulp cavity.

Cement

-It fixes the tooth in position
-It protects the tooth.

Gum

- Gives extra support to the tooth in the jaw bone.

Jaw bone
- Holds the tooth in one position.
-Protects the tooth

Diseases of the tooth

Tooth decay (Dental caries)

It is caused by bacteria.
Bacteria acts on sugar and starch remains on the teeth producing lactic acid that wears and tears the enamel and makes a hole in the dentine and pulp cavity.
Pain begins when the bacteria destroys the pulp cavity.
NOTE: Dental amalgam (cement) can be used to fill the holes made on the teeth.

Plague

A brownish substance forms on the outer surface of the teeth

3. Periodontal disease

- This is an infection of the gums and tooth sockets
- It is caused when plaque is neglected

4. Gingivitis

- It is a gum disease caused by bacteria
- It leads to the swelling and bleeding of the gum.
- It also causes bad smell from the mouth

Disorder of the teeth

Cracked teeth
Improper growth of teeth
Broken teeth

Improper growth of teeth

This is when teeth grow in a wrong way.

Causes of improper growth of teeth

- Dental accident
- Lip biting
- Early loss of milk teeth
- Finger nail biting
- sucking fingers

Dangers of improper growth of teeth.

- Difficulty in chewing
- Poor facial appearance
- Speech problems

Dental Hygiene or oral health

Dental Hygiene is the way of keeping our teeth free from germs.

Care for our teeth (Dental Hygiene)

- Brush the teeth after every meal.
-Avoid drinking very hot and cold things.
-Avoid eating too much sweet.
-Rinse your mouth with water and salt after every meal.
-Eat plenty of fruits and vegetables.
-Visit a dentist regularly for dental check ups.
-Eat a balanced diet.
-Dental flossing

Things used in caring for our teeth

- Tooth brush
- Clean water
- Tooth paste
- Small sticks
- Dental floss
- Charcoal
- Tooth pick
- Ash

How to brush our teeth

- Brushing the teeth should be up and down movement of the tooth brush but not side ways to avoid damaging the gum

Reasons why we brush our teeth

- Prevent tooth decay
- Prevent bad breath.
- To remove food remains (microbes)

THEME: HUMAN HEALTH

TOPIC: SANITATION

SANITATION

Sanitation is the general cleanliness of our environment.
Sanitation is a way of keeping our environment clean.

Elements of sanitation / activities under sanitation

- Sweeping the compound, houses etc.
- Mopping houses, classrooms etc.
- Slashing bushes around our homes, school, road sides, and water sources.
- Picking and burning rubbish.
- Proper disposal of garbage or rubbish.
- Draining stagnant water around our homes and schools.
- Dusting tables and chairs.
- Removing cobwebs from the kitchen latrines and houses.
- Digging water channels along the roads, in the schools and home compounds.
- Removing broken bottles from the compound
- Proper disposal of faeces

Items used in keeping proper sanitation

- Brooms
- Rake
- Rag / mop
- Water
- Soap
- Slasher
- Drier
- Scrubber
- Rubbish pit
- Spade
- Bins

Importance of sanitation

- Prevents the spread of germs.
- Promotes good health in community.
- It makes a home clean and attractive
- Prevents bad smell

Dangers of poor sanitation

- It can lead to the spread of diarrhoea
- It causes bad smell in the place.

Elements of a good home

- A kitchen
- A bathroom
- A rubbish pit
- A plate stand / rack

- A toilet / latrine
- A well ventilated house

Qualities of a good home

- It should have a toilet
- It should have a bathroom
- It should have a kitchen
- It should have a plate stand
- It should have a rubbish pit

Germs and diseases

A germ is a small living organism that causes diseases. Germs are too small to be seen with naked eyes. They are seen using a microscope.

Examples of germs

- Chlamydia
- HIV
- Vibrio cholera
- Plasmodium
- Salmonella typhi

Types of germs

- Virus
- Bacteria
- Protozoa
- Fungi

Where germs are found

- Faeces and Urine
- Contaminated water
- Soil
- Air
- On dirty clothes
- On dirty beddings
- Under dirty finger nails.
- Blood
- Inside the body
- On our bodies
- On dirty food
- On dead bodies

How germs enter our bodies

- Through eating contaminated food.
- Through the nose when we breathe in contaminated air.
- Through open wounds and cuts
- Through skin contact with infected persons.
- Through sharing clothes with an infected person.
- Through vectors.

The germ path (4FS)

These stands for

- Faeces
- Flies
- Food
- Fingers

Vectors involved in the germ path

- Houseflies
- Cockroaches

Control of the spreading of germs

- Boil water for drinking.
- Wash hands before eating food.
- Wash hands after visiting the latrine or toilet.
- Destroy the breeding places of vectors.
- Kill the vectors by spraying.
- Cover food.
- Have proper disposal of garbage.
- Have children immunized.
- Covering wounds and cuts

ROTTING / DECAY

- Rotting is the breakdown of dead matter by bacteria. It requires warmth, darkness and moisture.

The germs that cause rotting.

- Bacteria
- Fungi

Importance of rotting / decay

- Rotting produces humus from dead organic matter.
- It destroys garbage heaps.
- It destroys faeces in latrines and sewage systems.

Dangers of rotting

- Rotting produces a bad smell.
- Rotting is a source of germs.
- Rotting causes wounds to be septic.
- Rotting attracts some vectors

THEME: HUMAN HEALTH

TOPIC: COMMUNICABLE DISEASES

Communicable diseases (infectious diseases)

These are diseases spread from one infected person to a healthy another.
Communicable diseases can be called infectious diseases or transmissible diseases.

Examples of communicable diseases

- Measles
- Diarrhoea
- AIDS
- Ebola
- Malaria
- Bilharzias
- Dysentery
- Polio
- Tuberculosis
- cholera
- Ringworm

Non communicable diseases

These are diseases that do not spread from one person to another.

Examples of non communicable diseases

- Diabetes
- Anaemia
- Kwashiorkor
- Rickets
- High blood pressure
- Cancers
- Heart attack
- Sickle cells
- Beriberi
- Scurvy
- Pellagra
- Goitre

Diarrhoeal intestinal diseases (faecal diseases)

Diarrhoea is the passing out of watery faeces frequently.

Examples of diarrhoeal diseases

- Dysentery
- Diarrhoea
- Cholera
- Typhoid

Causes of diarrhoea

- Bacteria
- Viruses

Dehydration

Dehydration is a condition of the body when the body does not have enough water in it.

Causes of dehydration

- Severe diarrhoea
- Severe vomiting

Signs of dehydration

- Sunken eyes
- Passing out little/no urine out
- Dry lips
- Dry eyes
- Sunken soft spot on a babies head (fantanelle)
- A pinch of skin takes long to go back to its position.

Treatment of dehydration

- Giving the victim oral rehydration solution (ORS)
- Drinking a lot of fluids e.g. water , fruit juice , milk

Prevention of diarrhoea

- Covering left over food
- Washing hands before eating food
- Drinking clean boiled water
- Washing hands after visiting a toilet
- Proper disposal of faeces in latrines
- Washing fruits and vegetables before eating them
- Destroying breeding places for houseflies
- Proper disposal of rubbish

Oral rehydration salt

Components of ORS

- Salt
- Sugar
- Clean water

Importance for each component

- Salt replaces the lost mineral salts.
- Sugar replaces the lost energy.
- Water replaces the lost water.

How to prepare ORS from the suckets

- Wash hands with clean water and soap
- Measure one litre of clean cold water in a clean container.
- Open one packet of ORS into water.
- Mix the solution and taste the solution.

Preparing ORS using salt, sugar and water (local preparation of ORS)

- Wash hands with clean water and soap.
- Measure one litre of clean boiled water in a clean container
- Measure one leveled tea spoon of salt and eight leveled tea spoon of sugar in water.
- Mix the sugar and the salt with water to dissolve and taste.

Solutes and solvents used

Solutes: sugar and salt

Solvent: water

Qn: Why is water known as a universal solvent?

It dissolves all solutes

Dysentery

Dysentery is the passing out of watery faeces with blood.

Causes of dysentery

- Bacteria (shigella)
- Amoeba

Kind of dysentery

- Bacillary dysentery
- Amoebic dysentery

How dysentery spreads

- Drinking contaminated water
- Eating contaminated food
- Eating using unwashed contaminated hands.

Signs and symptoms of dysentery

- Severe bloody diarrhoea
- Abdominal pain
- Loss of appetite
- Dehydration

Prevention of dysentery

- Proper disposal of faeces
- Proper disposal of rubbish
- Washing hands before eating
- Washing fruits and vegetables before eating them
- Washing hand after visiting latrines

Cholera

Cholera is diarrhoeal disease caused by bacteria known as Vibrio cholerae.

Signs and symptoms of cholera

- Severe diarrhoea
- Sever e vomiting
- Dehydration
- Body weakness

How cholera spreads

- Through drinking contaminated water
- Eating contaminated food
- Eating using contaminated hands
- Eating contaminated fruits and vegetables

Prevention of cholera

- Drinking clean boiled water
- Covering left over food.
- Proper disposal of faeces and rubbish
- Washing hands before eating

Typhoid fever / enteric fever

It is caused by bacteria known as salmonella typhi

Signs / symptoms

- Abdominal pain
- Body temperature rise (fever)
- Headache
- Diarrhoea
- Abdominal discomfort

How typhoid spread

- Drinking contaminated water
- Eating contaminated food
- Eating with unwashed hands

Prevention and control of typhoid

- Drinking clean boiled water
- Covering left over food
- Washing fruits and vegetables before eating them.
- Washing hands before eating.

INTESTINAL WORMS

Intestinal worms are internal parasites

What are parasites?

Parasites are living organisms that live and get food from

other living organisms for survival.
A host is a living organism on which a parasite depends.

Examples of intestinal worms

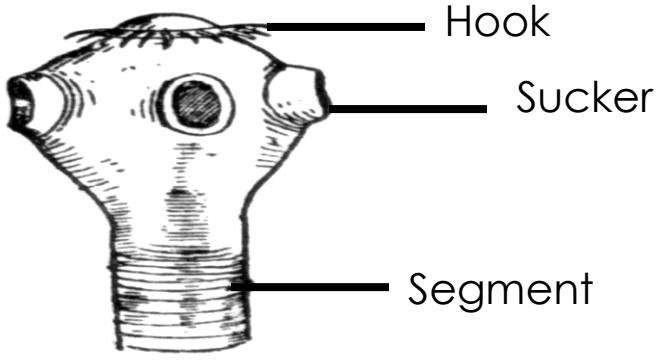
- Hook worms
- Round worms
- Tape worms
- Pin worms
- Guinea worms
- Fluke worms
- Thread worms

TAPE WORMS

- They grow to more than 30ft or 10m long.
- They enter our bodies through eating half cooked beef or pork and live in our small intestines.
- They hook themselves on the walls of the intestines and suck digested food.
- When mature, the tape worms shed their segments containing thousands of mature eggs which are passed through feaces or stool.
- The mature eggs can stay up to one year on grass until either a cow or pig eats the grass with the eggs.
- When the eggs are swallowed by either pig or cow, they enter their bodies into their blood and go for another stage of development in the mucus

Structure

The scolex



Functions of the parts

Hooks provide attachment worm to the walls of the small intestine.

Suckers provide extra attachment of the worm to the walls of the small intestines.

Segments are used for absorbing food into the blood stream.

Signs and symptoms of tape worm infection

- The person becomes weak.

- A person passes out stool with tapeworm mature eggs segments.
- The person passes out watery stool.

Spread

Through eating half cooked meat

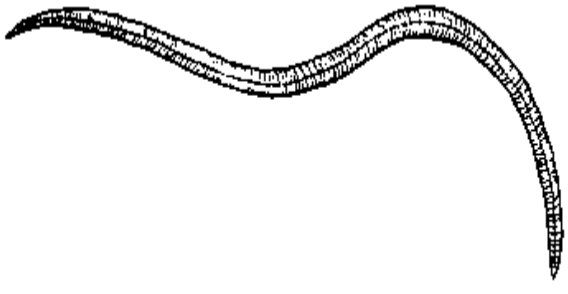
Prevention and treatment of tape worms

- Eating properly cooked meat
- Go for treatment as soon as possible.

HOOK WORMS

- They are about 8 – 13mm in length
- They live in small intestines where they hook themselves to the walls of the intestines with their hooked mouth and feed on blood.
- The female lays eggs which pass out in stool or feaces.
- The eggs hatch out in water or damp soil and enter through bare feed especially around the ankles.
- They penetrate the skin and enter the blood streams where blood carries them to the lungs.
- From lungs they are coughed to the gullet and swallowed to the stomach and then to the small intestines where they stay.
- Hook worms are dangerous because when they become many in number they suck blood and cause anaemia (Hook worm anaemia)

Structure of hook worms



Signs and symptoms

- Abdominal discomfort

- Loss of weight
- Body becomes tired and weak.
- Diarrhoea
- The tongue, gums, eyelids and finger nail becomes pale.

Prevention

- Wear shoes if possible especially in wet places.
- Always use latrines and afterwards wash your hands with water and soap.

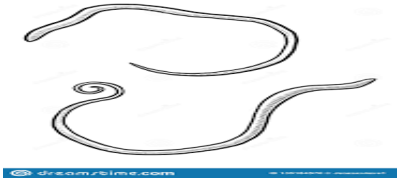
Treatment

- Go to be examined by doctor in the hospital.
- Eat meat, fish, eggs and dark green leafy vegetables.

ASCARIS WORMS (round worms)

- They are about 15 – 35cm long.
- They live in the small intestines and feed on digested food.
- Children can get ascaris worms in contaminated food dirt around houses, in gardens and get round worms eggs in the finger nails.
- Ascaris worms enter our bodies through eating un washed fruits and raw vegetables where the eggs may be attached.
- When one eats un washed fruits and vegetables the eggs get into mouth, stomach and into the intestines and remain feeding or digested food.
- When they are many in number, they block the intestines and cause constipation or diarrhoea.
- Ascaris worms cause an infection called ascariasis

Structure of ascaris worms



Signs and symptoms

- Abdominal pain.
- Fever, diarrhea and restlessness.

- Grinding of the teeth in children.

Prevention

- Wash your hands before eating anything.
- Do not play in dirty places.
- Do not share plates because others may not have washed their hands.
- Wash fruits and vegetables before eating.
- Wash hands after visiting the latrine.
- Defecate in latrines only.
- Cut finger nails to avoid keeping round worm eggs.

Treatment

- Seek medical advice immediately you think you have round worms.

PIN WORMS / THREAD WORMS

- These live in the large intestines especially in the rectum.
- The female crawls out at night through the anus and lays its eggs around the skin.
- This cause itching around the anus especially at night.
- They are white in colour and small of about 8 – 13mm long.
- When the infected person scratches the itching part and later handles food staff or puts fingers in the mouth, the eggs are swallowed therefore reinfecting him / herself.
- If the eggs hatch out around the anus, the worms crawl back into the large intestines.
- However, if the infected person shares edible with someone without washing hands, the eggs are spread and the next person will swallow the eggs and become infected.
- The eggs can contaminate beddings, under wears, knickers and they can be spread through this way.

Structure

Signs and symptoms

- Abdominal discomfort.
- Lack of sleep
- Restlessness.

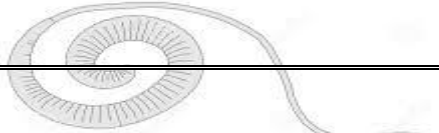
Prevention and control

- Seek treatment from a qualified health worker.
- Have an infected person wear tight fitting shorts to prevent scratching of the anus.
- Change under clothing and bedding daily.
- Scrub toilet seats with soap and water everyday.
- Have family members treated.
- Wash hands with soap and clean water after the toilet.
- Cut finger nails short and keep them clear.

WHIP WORMS

- They are about 35 to 50mm in length with the head smaller than the tail. This is why they are called whip worms because they look like whips worms because they hook like whips.
- They live in the large intestines without causing any symptom.
- They produce large numbers of eggs.
- If great in number, they cause diarrhea and intestinal discomfort.
- The eggs pass out with stool and hatch out in the soil.
- They enter our bodies in the same way as the round worms.

Structure



THEME: HUMAN HEALTH
TOPIC: VECTORS AND DISEASE

VECTORS

- Vectors are living organisms that spread disease germs.
- Germs are living organisms that cause diseases.

Examples of common vectors

- House flies
- Tsetse flies
- Cockroaches
- Mosquitoes
- Fleas
- Black fly
- Ticks
- Lice
- Mad dogs
- Mites
- Water snails

Insect vectors

- Houseflies
- Tsetse flies
- Cockroaches
- Mosquitoes

Animal vectors

- Mad dogs / rabid dogs.

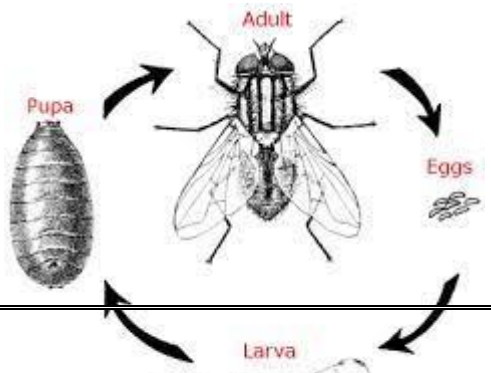
Life cycle of insect vectors

These are two types of life cycles namely

Complete metamorphosis

This is the life cycle with four stages of development / growth. These stages are eggs, larva, pupa and adult.

Illustration of complete metamorphosis



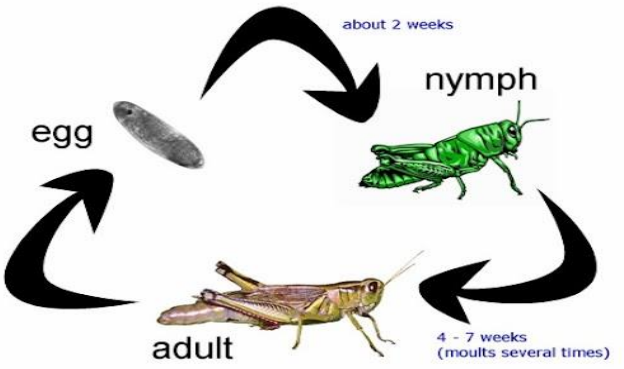
Examples of vectors which undergo complete metamorphosis

-House flies
-Mosquitoes
-Black flies
-Bees
-Butterflies
-Moths

Incomplete metamorphosis

This is the life cycle with three stages of growth. These stages are eggs, nymph and adult.

Diagram of incomplete metamorphosis



<u>Examples of vectors which undergo incomplete metamorphosis</u>

-Cockroaches
-Fleas
-Lice

Housefly

Places where houseflies live

Latrine
Rubbish pits
Decaying matter

How housefly spreads diseases

Through its hairy body.

<u>The life cycle of a housefly.</u>

Diseases spread by a housefly

Trachoma

- It is a highly contagious / infectious disease which affects the eyes.
- It is caused by a virus called Chlamydia.

How is trachoma spread

- Sharing of the same basin of water with an infected person.
- Shaking hands with another infected person and then transfer the hands to the eyes.
- Sharing of towels and handkerchiefs with an infected person.

Signs and symptoms of trachoma

- Redness and itching of the eyes.
- Swelling of the eye lids.
- Pain while looking at light.
- Watery discharge from the eye lids.

Prevention and control of trachoma

- Avoid sharing basins, towels and handkerchiefs with an infected person.
- Avoid shaking hands with an infected person.
- Get treatment as soon as possible because trachoma can make one blind.

Diarrhoea

- It is caused by either bacteria, virus or worms.
- These germs enter our bodies when we eat or drink contaminated water and food.
- Most diarrhoeal diseases are spread by the 4Fs i.e. Faeces ⟶ Flies ⟶ Food ⟶ Fingers.

Dysentery

These are two types of dysentery namely:-

- Amoebic dysentery (caused by amoeba)
- Bacillary (by bacteria)

Dysentery is caused by the following germs:

Bacteria (shigella)

Protozoa (entamoeba)

How is dysentery spread

- By drinking contaminated water.
- By flies falling on our food.
- By eating contaminated food.

Signs and symptoms of dysentery

- Severe diarrhea stained with blood.
- Loss of appetite.
- Dehydration

How dysentery is prevented

- Use toilets or latrines all the time.
- Keep toilets or latrines clean.
- Wash hands before touching or eating any food.
- Wash fruits and vegetables before eating them.
- Destroy all bleeding places of house flies to stop them from multiplying

Cholera

-It is a very infectious disease that can kill in a very short time (6 – 24hrs)

-It is caused by the vibrio cholerae bacteria.

Signs and symptoms of cholera

- Serious diarrhea
- Vomiting
- Body weakness
- Dehydration

How to control and prevent cholera

- Use latrines / toilets daily.
- Cover left over food to avoid flies.
- Wash hands with soap and water to remove germs.
- Wash fruits and vegetables before eating them.
- Boil water before drinking it.

Typhoid

Typhoid fever is caused by bacteria called salmonella typhi.

How typhoid is spread

- By drinking contaminated water.
- By flies falling on our food.

Signs and symptoms of typhoid

- Persistent fever with headache.
- Increasing body pain and diarrhea.
- Abdominal pain.

How to prevent and control typhoid

- Cover all foods and drinks.
- Use toilets / latrines daily.
- Drink clean boiled water.
- Observe good food hygiene.
- Wash hands with clean water and soap before eating food.
- Wash hands with clean water and soap after latrine / toilet.

COCKROACHES

- A cockroach has a flat body. Most cockroaches are dark brown while others are black.
- A cockroach is an insect with three main body parts i.e. head, thorax abdomen.

Feeding habits of cockroach

- Cockroaches mainly move at night looking for food and water and during day time, they do not move.
- Cockroaches are active at night.

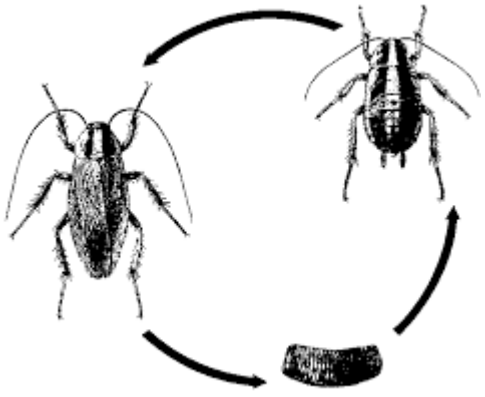
A note: A moth is also an active insect at night.

- Cockroaches feed on our food and they transmit germs on it.

Habitat

- Cockroaches hide or live in dark places like behind cupboards, Old cookers, behind refrigerators, boxes, book shelves, latrines etc.

Life cycle of a cockroach



- A cockroach undergoes an incomplete metamorphosis.
- The female lays eggs in an egg case.
- The eggs hatch into nymphs.
- Nymphs look like adult cockroaches but have shorter or n wings.
- Later, nymphs change into adults.

Dangers of cockroaches

- Cockroaches carry germs which cause diseases to us.
- Cockroaches damage our books.
- They spoil our clothing.

Diseases spread by cockroaches

Cockroaches are suspected of carrying germs (pathogens) which cause diseases.
The disease include:-

- Polio
- Leprosy
- Typhoid
- Diarrhoea
- Amoebic dysentery
- Cholera
- Food poisoning

Prevention and control of cockroaches

- Cover all the food.
- Keep the house clean.
- Smoke the latrine regularly.
- Spray the cockroaches with insecticides.
- Keep covered food in the cupboard.

MOSQUITOES

- The mosquito lays its eggs in stagnant water.
- The eggs hatch into Larva, pupa, adult.
- The larva stage of a mosquito is called a wriggler.

Note:

A mosquito goes through a complete metamorphosis. Mosquitoes have a sucking mouth part called a proboscis which they use to feed.

Habitat of Mosquitoes

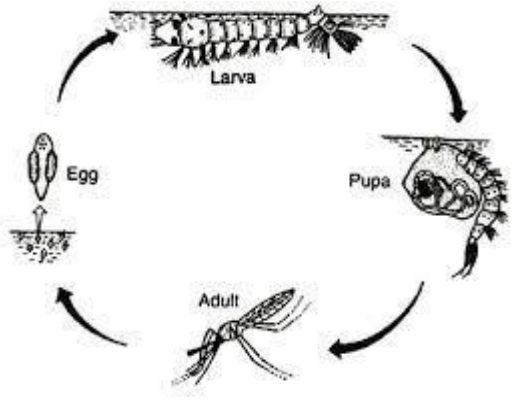
Mosquitoes lay their eggs in stagnant water or they breed in stagnant water.

Types of Mosquitoes

The anopheles mosquito

This mosquito spreads a germ called plasmodia. This germ (Plasmodium) is spread by a female anopheles mosquito which causes Malaria.

Life cycle of anopheles mosquitoes



A male anopheles mosquito doesn't bite human beings. It instead feeds on nectar of flowers and juices of plants.

Malaria

Causes - by plasmodia

Spread - by female anopheles mosquito

Signs and symptoms of malaria

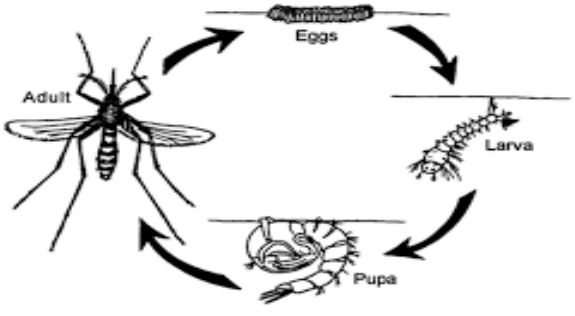
- Tiredness or weakness.
- Rise in the body temperature.
- Rapid breathing and rapid pulse rate.
- Serious sweating of 2 – 4 hours.

- Abdominal pain, diarrhea and vomiting.
- Shivering and chattering of teeth.

Culex Mosquito

- This mosquito spreads a worm called **filaria** which causes **elephantiasis.**
- Elephantiasis makes legs to grow big and look like those of elephants hence the name elephantiasis.
- The female culex mosquito feeds on blood before it lays eggs in stagnant water.

Life cycle of culex mosquitoes

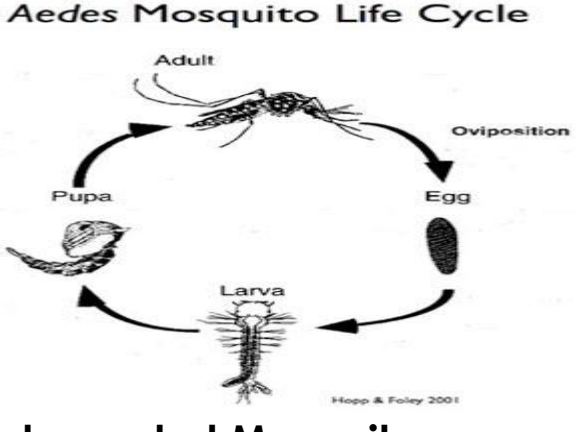


Aedes / Tiger mosquito

- This mosquito spreads a virus which causes either yellow fever or dengue fever in human beings.
- The mosquito spreads the virus from an infected person to another and it lays eggs in stagnant water.

Note: Yellow fever can be prevented by **immunization**

Life cycle of culex mosquitoes

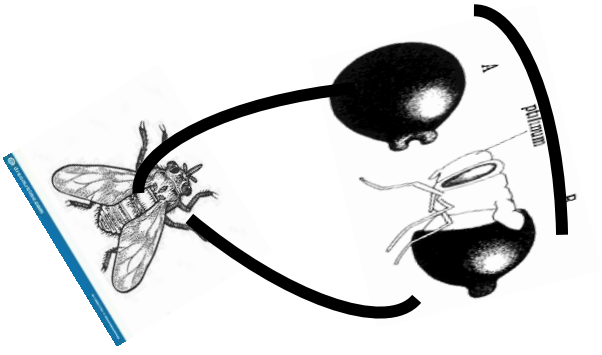


How to control Mosquitoes

- Destroying any area with stagnant water.
- Slashing or cutting long grass near home or school.
- Spray insecticides to kill mosquitoes.

- Keep fish in ponds and dams to feed on mosquito larva.
- Pour oil on stagnant water. This stops the larva from breathing by cutting off oxygen supply.
- Sleep under a treated mosquito net.
- Using screens on ventilators to prevent mosquitoes from entering.

Life cycle of a tsetse fly



Tsetse flies breed in

(i) Thick vegetation
(ii) Along river banks
(iii) Shady vegetation

Note:

A tsetse fly undergoes complete metamorphosis.
A tsetse fly does not lay eggs. The eggs are just hatched within the abdomen.

Diseases spread by tsetse flies

Tsetse flies transmit a germ called tryponosoma which cause;
Sleeping sickness (in human beings)
Nagana in (Animals)

Note:

- Sleeping sickness and Nagana are transmitted by a female tsetse fly.
- The female tsetse fly feeds on blood.
- The male tsetse fly feeds on plant juices.

Signs and symptoms of sleeping sickness

- Prolonged fever
- Loss of body weight.
- Body weakness
- One becomes sleepy.

Prevention and control of sleeping

- Spray insecticides to kill tsetse flies.
- Use traps to trap adult tsetse flies.
- Treat the infected ones in hospitals.

BLACK FLY

- It is small and black
- It is also called Jinja fly or simulium fly.

Note:

1. A black fly breeds in fast flowing rivers where it lays its eggs.
2. It undergoes a complete metamorphosis.
3. A black fly spreads a filarial worm called **onchocerca volvulus which causes river blindness.**

Signs and symptoms of river blindness.

- Lumps appear on legs and hips.
- Severe skin itching.
- Skin rashes appear on the body.

Prevention and control

- Spray insecticides to kill the adult black fly and its larvae.
- Treat infected people.

LICE

There are three types of lice namely:-

The body lice:

They live in clothing.

Their eggs are found in the folds and seams of clothing.

Hair lice: They live in the hair on our heads. They are spread by infected combs, hair brushes, hats, turbans.

Crab lice: they live on the hair around our private body parts. They are spread when the male and female partners join their private parts during sexual intercourse.

Note: The lice suck blood, cause itching, irritation and also spread / transmit diseases called typhus fever and relapsing fever.

How lice are controlled

- Keeping hair short.
- Washing clothing

- Ironing clothes.
- Combing hair every day.
- Spread beddings in sunshine.
- Do not share clothes.

RATS FLEAS

- Rat fleas are carried by rats.
- They transmit bacteria which causes bubonic plague.
- Bubonic plague is caused by bacteria called yersinia perstis

Signs and symptoms

- High fever.
- Swelling in the neck and arm pits.
- Headache.

Prevention and control

- Kill all rats.
- Spray with insecticides to kill fleas
- People should be given anti – plague immunization in case of an out break.

WATER SNAILS

Water snails transmit the schistosoma worm which causes bilharzia (Schistosomiasis)
Bilharzias is caused by bilharzia flukes (schistosomes)

Where does the schistosoma live in the body?

- In the urinary bladder.
- Large intestines
- Small intestines.

How do we get bilharzias

- Bathing contaminated water.
- Drinking contaminated water.
- Swimming in contaminated water.

Signs and symptoms of bilharzias

- Passing out blood in urine.
- Enlargement of the liver and spleen
- Passing out blood in faeces.

How to prevent bilharzia

- Wearing shoes when walking in wet places e.g. swamps.
- Boiling water for drinking.

- Killing water snails
- Use latrines / toilets for proper disposal of wastes.

MAD DOGS

- Dogs transmit a virus which causes rabies.
- Other animals which transmit rabies include:-

- Infected foxes.
- Infected domestic cats.

Signs and symptoms of rabies

- Fever
- Headache
- Body weakness
- Salivation
- Mental confusion
- Difficult in swallowing
- Sudden death

Prevention and control

- Kill all suspected mad dogs.
- Vaccinate all dogs with anti – rabies vaccine

TICKS

- Ticks transmit a germ called rickettsia which causes typhus fever
- Ticks live on bodies of both wild and domestic animals and humans
- They feed by sucking blood from animals.

Prevention and control of ticks.

- Spray all domestic animals e.g. dogs and cats.
- Dip / spray all domestic animals e.g. cattle.
- Keep the kraal clean.

Note: Ticks are not insects because they have eight legs and have no wings.

SUMMARY of diseases and their vectors

Vector	Disease(s)	Cause
Housefly	Cholera Typhoid Trachoma Dysentery	Vibrio cholerae Salmonella typhi Chlamydia Bacteria(amoeba)

	Diarrhoea	Virus, bacteria, worms
Culex mosquito	Elephantiasis	Filaria worm
Anopheles	Malaria	Plasmodium
Tiger mosquito	Yellow(dengue) fever	Virus
Cockroach	Leprosy Polio Typhoid Cholera Diarrhoea Dysentery	Bacteria Virus Salmonella Vibrio cholera Virus, bacteria Protozoa
Tsetse fly	Sleeping sickness	Protozoa
Black fly	River blindness	Onchocerca volvulus
Rat fleas	Bubonic plague	Yersinia pestis
Itch mites	Scabies	Itch mites
Water snail	Bilharziasis	Worm
Rabid dog	Rabies	Virus
Lice	Typhus fever	Rickettsia

TOPIC 3

THEME: HUMAN HEALTH

TOPIC: ACCIDENTS, POISONING AND FIRST AID

Accidents:

What is an accident?

An accident is a sudden happening that can cause harm or death

Or: It is an unexpected injury to the body

Examples of accidents in our community

- Fractures -Poisoning -Falls -cuts
- Burns -Drowning -Electric shocks wounds
- Scalds -Bites -Bruises -road traffic accidents

Road traffic accidents

Traffic refers to the movement of vehicles and people in a particular area.

Road traffic accidents are sudden happenings that cause death or harm to road users.

Examples of road users include

- Pedestrians: These are people who walk along roads on foot.
- Cyclists: These are people who ride motorcycles and bicycles.
- Drivers and passengers:
- Animals e.g. cattle, camel, horses, donkeys.

Causes of road traffic accidents.

- Over loading
- Over speeding.
- Driving under the influence of alcohol.
- Failure to follow road signs.
- Playing on roads.
- Poor conditions of roads.
- Overtaking in sharp corners.
- Careless crossing of roads.
- Driving vehicles in dangerous mechanical conditions (D.M.Cs)

Prevention of road traffic accidents

- Following or observing road signs.
- Avoid over loading vehicles.
- Never drive while drunk.
- Avoid playing on or near roads.
- Put zebra crossings on busy roads.

How to cross a busy roads

- First stop alongside the road.
- Look right - look left.
- Look right again.
- If the road is clear then cross but don't run.

Where can we cross busy roads from?

- At zebra crossing
- Fly overs
- Traffic lights
- Using islands on the road
- Where there are traffic officers / guides

Burns

This is an injury caused by dry heat e.g.

- Hot metals
- Flat iron.
- Burning fire.
- Electric heaters
- Growing charcoal.

Effects of burns

- Dehydration
- Severe pain
- Severe wounds

Scalds

This is an injury caused by wet heat e.g.

- Hot water
- Hot tea
- Hot porridge.
- Steam.

How to prevent burns and scalds?

- Cook from a raised fire place.
- Avoid playing near cooking places or open fires.
- Keep young children out of fire reach.
- Construct fire guards around fire places.
- Teach children the dangers of fire or hottings.

Why do we treat burns and scalds?

- To reduce changes of infections.
- To save life

POISONING

Poison is any substance which affects health or cause death when taken.

Poisoning is the act of taking in something poisonous to the body.

Examples of poison common in our community (homes, schools)

- Rat poison
- Insecticides, pesticides, herbicides.
- Liquid cleaners e.g. jik.
- Paraffin, diesel or petrol.

Causes of poisoning

- Taking expired drugs
- Eating expired foods
- Ignorance
- Taking over dose
- Poor storage of drugs

Signs and symptoms of poisoning

- Vomiting
- Rapid breathing
- Fever and sweating.
- Loss of body balance
- Mental confusion
- Internal and external bleeding.

FRACTURES

A fracture is a broken or cracked bone.

Types of fractures.

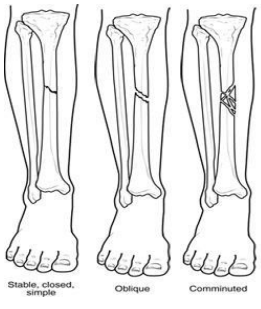
There are three types of fractures namely;-

- Simple fracture
- Compound fracture
- Green stick fracture

Simple fracture

This is when the broken bone remains inside the skin.

Illustration



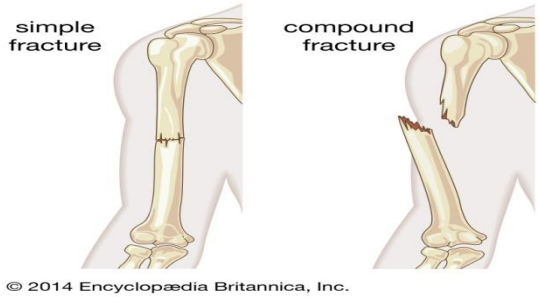
Signs and symptoms of a simple fracture.

- The affected part swells.
- Too much pain around the injured part.

Compound (fracture)

This is when the broken bone comes out of the skin.

Illustration



Signs and symptoms

- Severe bleeding occurs.
- Broken bone comes out of the skin.

Green stick fracture

- This is when a bone bends but remains inside the skin.
- It is common in your children because they have soft bones.

NB: Greenstick fracture is under simple fraction

Sprains, strains and dislocation

- A sprain is a torn or stretched ligament.
- A strain is a torn or stretched muscle.
- A dislocation is when a bone is displaced at a joint.

NB: Ligament joins bones to bones

Signs and symptoms of sprains, strains and dislocation.

- A lot of pain is felt around the injured part
- Swelling around the joint.
- Difficulty in moving the limbs.

Cuts

A cut is a break in the skin made by slicing with a sharp instrument.

Effects of cuts.

- They cause wounds.
- Cuts cause bleeding.

Types of cuts.

Minor cuts are cuts which do not go deep in the skin.
Deep cuts are those which go deep in the skin.

Signs of cuts

Severe bleeding.

Bruises

What is a bruise?

A bruise is a body swelling caused by internal bleeding.

Causes of bruise

- Accidental hitting of the body parts.

Wound

A wound is a tear of the body tissues.

Types of wounds

Incised wounds: Are wounds caused by sharp objects that cause open bleeding. e.g. razor blade, knives

Lacerated wounds

These are wounds caused by objects with irregular edges e.g. barbed wires, animal teeth; animal claws.

Contused wounds

These are wounds caused by direct blows by some objects.

Punctured wounds.

These are wounds which have a small opening but very deep. They are caused by very sharp pointed objects e.g. needle, nails, arrows, spears etc.

Snakes bites

The first aid for snake bites is to tie a cloth above the bitten part.

Why:

Top prevent poison from moving to the heart.

FIRST AID

This is the immediate / first help given to a casualty before being taken to the health centre.

Who is a casualty?

A casualty is a person who has got an accident and needs help.

Identify the major reason why we give first aid.

- To save life

Note: The major reason for giving first aid is to save life.

Why do we give fist aid?

- To save life.
- To reduce pain.
- To promote quick recovery.

- To reduce / stop bleeding.
- To prevent further injuries.

Who is a first aider?

A first aider is a person who gives first aid service to a casualty.

Qualities of a good first aider

- Should be observant
- Should be knowledgeable
- Should be sympathetic
- Should be skilled
- Should be clean
- Should be able to use common sense.

Responsibilities of a good first aider.

- To examine the condition of a casualty.
- To help the casualty as quickly as possible.
- To take the casualty to the nearest health unit.

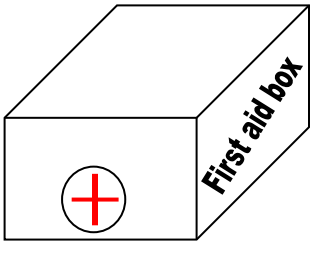
First aid kit

First aid kit is a set of first aid equipment.

First aid kit is a collection of things used to give first aid.

First aid box:

This is a container where things used to give first aid are kept.



Places where a first aid box can be found

- Schools
- Homes
- Industries
- Offices
- Petrol stations
- Factories
- Banks
- Airport
- Aero planes
- Vehicles

Note: A first aid box should be painted with bright colours.

Reason: For easy identification

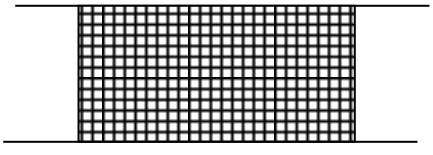
Items found in a first aid box

Razor blades : Used to cut plasters and bandages.
Safety pins : To fasten the bandage.
Bandage : Used to tie broken bones
Pair of scissors: Used to cut plasters and gauze.
Surgical spirit : Used to wash and kill germs around the wound.
Pain killer **:** Used to kill pain.
Cotton wool: Used to clean cuts.
Clinical thermometer: Used to measure human body temperature
Surgical gloves: Used to prevent contamination.
Plaster: Used to cover wounds and cuts.
Splints: Used to tie and keep the broken in position.

Note:

Arm sling holds the broken limb in one position.
Stretcher is used to carry casualties who can't walk to the health unit (centre)
First aid kit is used to keep first aid materials.

Stretchers



First aid for injuries

1. Burns and scalds

Put the injured part in cold water
Why do we put or pour cold water

- To reduce heat in the skin
- To reduce heat from destroying the body cell.

2. Poisoning

Give the casualty plenty of fluids to dilute poison in case of paraffin or petrol
NOTE: Do not make a person to vomit. **Why**?
Vomiting can damage throat and lungs.
Make a casualty to vomit if he has taken rat poison or any other kind of poison.
How to make the casualty to vomit

- Give him water mixed with soap.
- Place the finger in his mouth to the throat.

3. **Fracture**: Tie a splint around the injured part.

Reason for typing on splint

To keep the broken bone in position so as to prevent further injuries.

4. Sprain, strains and dislocation

- Wrap a cold wet bandage around the injured part
- Apply a splint incase of a dislocation.

5. Cuts:

- Tie the cut with a clean bandage to reduce bleeding pressure.

6. Bruises

- Apply a cold compress.

7. Wounds

- Wash the wound with clean water and soap / surgical spirit.

8. Snake bites

- Tie tightly a piece of cloth above the bitten part.

Why?

- To prevent poison from moving to the heart.

THEME: SCIENCE IN HUMAN ACTIVITIES AND OCCUPATIONS

TOPIC: KEEPING RABBITS

Rabbitry

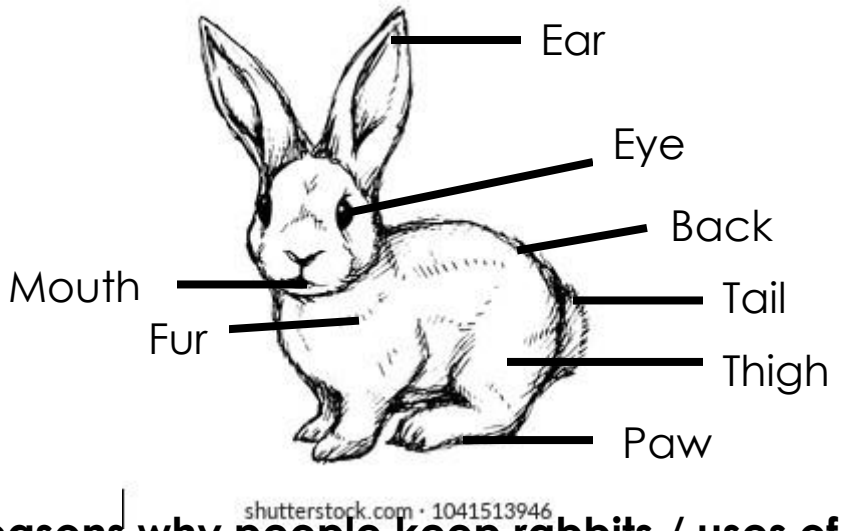
- It is a farm of rabbits.
- It is a place where rabbits are kept.

<u>Terms used in keeping of rabbits.</u>

(a) Rabbit keeping: This is the rearing of rabbits.
(b) Hutch / pen: This is the home / housing structure of a domestic rabbit.
(c) Burrow: A hole dug by a rabbit.
(d) Buck: This is a mature male rabbit.
(e) Doe : This is a mature female rabbit.
(f) Reverent / kit/ kitten: This is a young rabbit.
(g) Litter: This is a group of young rabbits born together at the same time by one doe.

External parts of a rabbit

Diagram showing



Reasons why people keep rabbits / uses of rabbits

- Rabbits provide us with meat which is a source of proteins.
- Rabbits are sources of income / money when sold.
- The dung of rabbits can be used as manure in our gardens.
- Some rabbits are kept for their fur.
- Rabbit skins are used to make articles like bags, shoes, etc.
- Rabbits can be kept as pets (for pleasure)

Advantages of keeping rabbits over other animals.

- Rabbits need less food than other animals like goats.
- They do not need a lot of land.
- Management practices like feeding and housing are easily carried out.
- Rabbits multiply quicker than other animals.
- They mature quickly.
- They are cheaper to buy.

Breeds of rabbits

Local rabbits of rabbits

-These have been kept in Uganda for a long time.
-They are resistant to most diseases.
-They take long to mature.
-They are hardy to harsh weather conditions.
-They have many different colours.

-They are smaller than exotic breeds.
-They can live in the bush.
-They dig holes in the ground where they live.

Exotic breeds of rabbits

- These breeds were imported from other countries.
- They have the same colour.
- They produce bigger quantities of meat.
- They have the same weight and size.
- Their young ones carry parents' habits.

Differences between local and exotic breeds of rabbits.

Local breeds	Exotic breeds
• Have different colou	• Produce young ones with the same colou
• Grow slowl	• Grow fast
• Small in size	• Big in size
• Resistant to disease	• Easily get sick

Examples of exotic breeds of rabbits.

They include the following:-

1. Angora rabbit.
2. Californian rabbit
3. Chinchilla rabbit.
4. Ear – lops
5. Newzealand white

Characteristics of exotic breeds of rabbits

1. **The Angora rabbit**
    - They are white in colour.
    - They produce fine silky hair which has ready market in Europe.
    - They produce good quality meat.
2. **California a rabbit**
    - The body is white with the nose; tail and feet are black or dark brown.
    - Grow faster than other breeds of rabbits.
    - They weigh up to 5kg when mature.
3. **Chinchilla rabbit**
    - They are grey in colour.
    - Lighter compared to New Zealand and California.

- They weigh 3½ kg when mature.
- They are kept for meat.
- Their skins have ready market in Europe.

4. **Ear – lops**
    - They are bigger compared to others (6kg when mature)
    - Their ears drop on the sides of the head.
    - They grow slowly compared to other breeds.
5. **New Zealand white**
    - They are white in colour.
    - Have short legs and produce a lot of meat.
    - Have pink eyes.
    - The doe produces 25 – 30 rabbits per year.
    - Can reach 5kg when mature.

Qualities of good rabbits to rear

The following factors should be considered when selecting good rabbits to rear.

- Select healthy rabbits with a shinny coat, bright eyes, dry clean nose, without any discharge from the eyes.
- Select rabbits that have plenty of hair and are well shaped.
- Select rabbits that produce a lot of meat.

Housing of rabbits

Qualities of a good rabbit house (hutch):

- Should be strong enough to keep off predators.
- Should be raised from the ground to protect rabbits from dogs and other wild animals.
- It should always be kept clean.
- Should be kept dry to minimize breeding of germs.
- Should allow enough air entering it.
- Should not leak on rainy days.

Materials used to construct a hutch

- Wood
- Nails
- Wire mesh
- Iron sheets

Types of hutches (with diagrams)

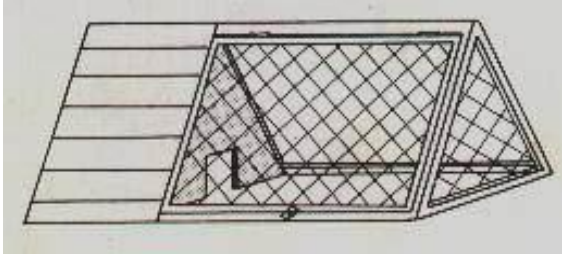
- Morrant hutch (Diagram of each hutch)

- Caged modern hutch
- Traditional hutch

Structure of each type of hutch

Traditional hutch

Caged hutch



Morrant hutch

Management practices in rabbit keeping

(a) Feeding: Rabbits can be fed on the following
- Green vegetables
- Carrots
- Sweet potatoes leave.
- Green grass.

<u>Points to note:</u>
- Pellets are manufactured animal feeds.
- Rabbits should be given a block of salt to lick, to provide them with mineral salts.
- They should be given salt dissolved in water.
- Does with young ones need more water in order to make milk for their litter.

(b) **Reproduction in rabbits**

- The act of producing young ones in rabbits is called **Kindling.**
- The buck mates with the doe.
- The doe then becomes pregnant.
- The doe takes 30 days to produce young ones.
- This period of pregnancy is called **Gestation period.**
- The doe prepares a soft bed made of soft hair from its body when it is about to produce.
- It produces between 7 – 11 young ones. If more are produced, they should be killed as the doe's milk may not be enough for all of them.
- The buck should not be kept together with the doe as it may kill the young ones.

Common Diseases of Rabbits

1. Coccidiosis

Signs and symptoms

- Diarrhoea with blood (dysentery)
- Rabbits have swollen stomach.
- Rabbits lose weight (become small and thin)
- They have rough hair.

Control of coccidiosis

- Keep the hutch clean.
- Feed rabbits on clean food and water.
- Put drugs in clean drinking water.

Scours

Signs and symptoms

- Rabbits stop feeding.
- Pain in the stomach.
- Rabbits develop diarrhea

Control of scours

- Do not give rabbits wet and mould grass.
- Do not give rabbits young grass.
- Clean the hutches and spray regularly.

3. **Ear canker**

Signs and symptoms.

- Itching ears.

- Ears develop wounds with a discharge and become painful.
- Control of ear cancer.
- Clean the ears using paraffin on cotton.
- Do not overcrowd the rabbits in one hutch.

4. **Pneumonia**

Signs and symptoms

- Rabbits begins shivering.
- Difficult breathing`
- Rabbits lose appetite.
- They have high temperature

Control of Pneumonia

- Keep hutches dry and clean.
- Keep rabbits away from rain.
- Treat rabbits with dugs.

5. **Colds**

Signs and symptoms

- The rabbit sneezes a lot.
- Rabbit has a runny nose.

Ways of preventing diseases in rabbits

- Always keep rabbit hutches clean and dry.
- Avoid rain into hutches.
- Keep sick rabbits away from others.
- Feed rabbits well.
- Avoid over crowding rabbits in one hutch.
- Always call a veterinary officer to check on the health of rabbits.

Keeping records on a rabbit farm

Records means the written information showing all activities done on a farm

Examples of feeds records.

- Health records.
- Production records
- Breeding records
- Financial records.

Importance of keeping records.

- It helps to tell where to profit or loss is made.
- It enables the farmer to plan better for the farm.

- A farmer can easily get a loan.
- To know the income and expenditure of a farm.