P.6 SCIENCE LESSON NOTES FOR TERM I

Vocabulary

1) life 3) stimuli

2) respire 4) classify

LIVING THINGS.

These are things that have life e.g. plants and animals.

Characteristics of living things.

i. They feed.
ii. They move.
iii. They reproduce.
iv. They respire.
v. They grow.
vi. They respond towards the stimuli.

Classification of living things.

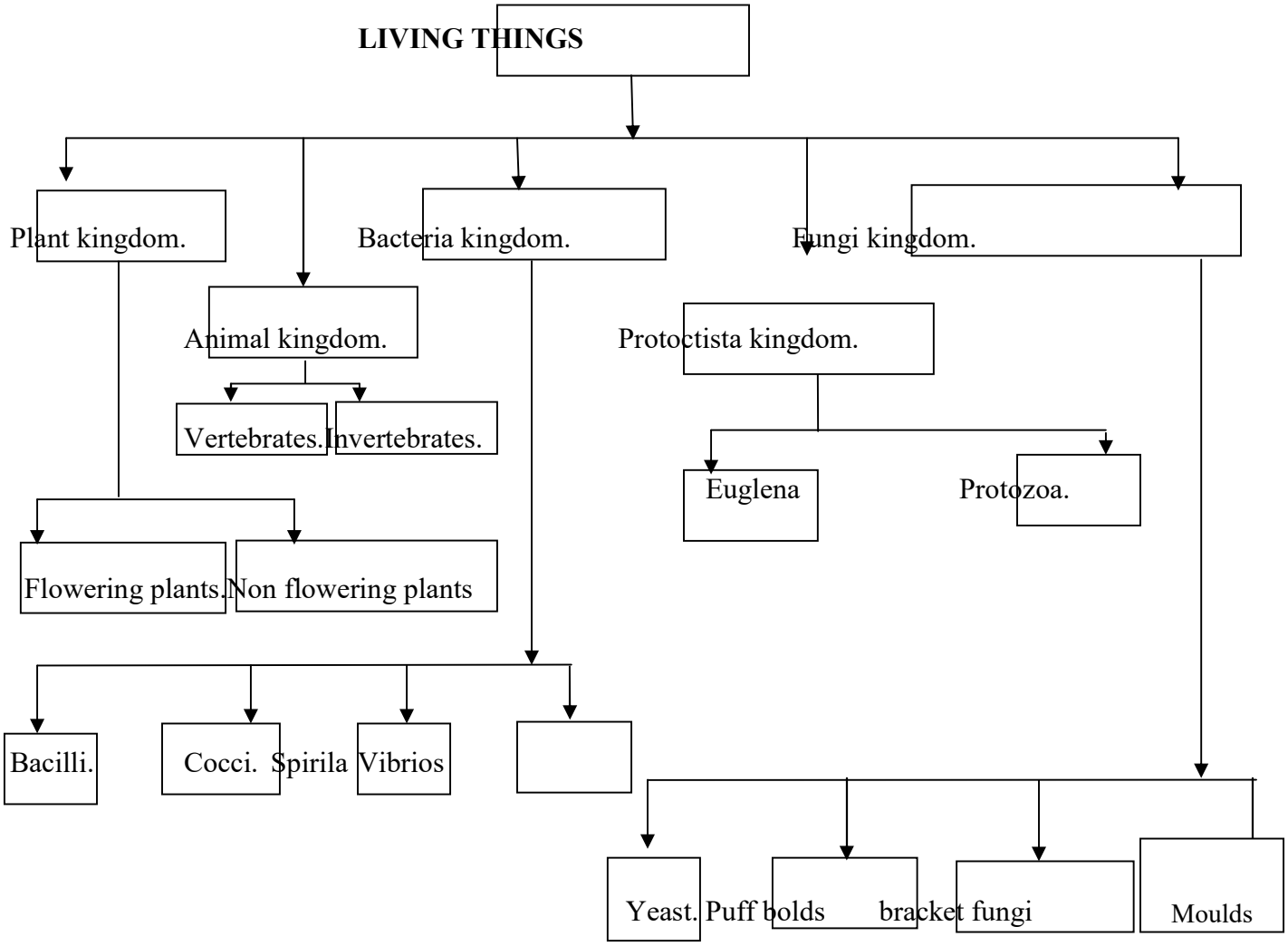
Classification is the grouping of living things according to common features or characteristics.

Ways of classifying living things.

i. By use of feeding habits.
ii. The way they move
iii. The mode of reproduction

Kingdoms of living things.

i. Plant kingdom.
ii. Bacteria kingdom.
iii. Protoctista kingdom.
iv. Fungi kingdom.
v. Animal kingdom



Differences between plants and animals.

- Plants make their own food while animals depend on food made by plants.
- Plants can't move about as complete organisms while animals move about from one place to another.

Exercise

1. What are living things?
2. State any four characteristics of living things.
3. Name any four ways of classifying living things
4. Give any two differences between plants and animals.

Vocabulary

i) monera iii) protoctista

ii) fungi iv) nucleus

POTOCTISTAKINGDOM

This is a group of single celled organisms

Characteristics of organisms in protoctista kingdom

1. They have a nucleus

2 They live in fluids or liquids of animals. This is because they don't have protection against drying up.

Examples of protoctista organisms

i. Euglena

ii. Protozoa

Activity

1. Why are animals referred to as living things?
2. What are unicellularorganisms?
3. Draw a diagram to illustrate transpiration in plants.
4. What is a cell?
5. Give any three examples of protozoa.
6. Give a reason why plants are able to make food?
7. Name the instrument which is used for seeing bacteria.
8. Why do you think that instrument is used, and not our naked eyes?

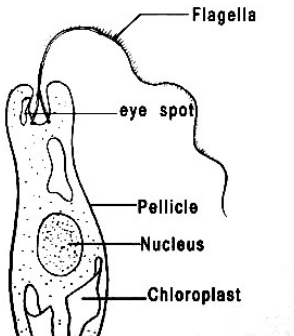
Euglena.

Euglena is a microscopic organism which lives in ditches and ponds with dung and urine from animals.

Characteristics of Eulgena.

i. It has chlorophyll.

ii. It moves actively about for protection



Exercise

1. Write down any two characteristics of organisms in protoctista kingdom.
2. How do fungi reproduce?
3. State the environment where algae can be found.
4. Identify any two uses of algae.
5. Why are bacteria said to be unicellular?
6. Why are bacteria said to be useful to man (Give four).
7. In which way do you think bacteria are bad to man?
8. Draw a well labeled diagram showing the property air exerts pressure

PROTOZOA

Examples of protozoa

i. Amoeba.
ii. Paramecium.
iii. Plasmodia.
iv. Trypamosome.

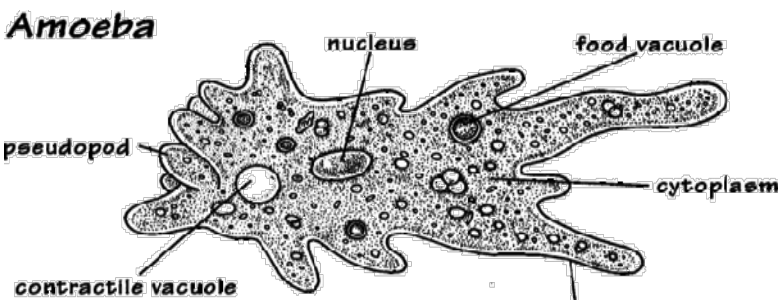
Characteristics of Protozoa.

i. They are small and only seen under a microscope.
ii. They are made of only one cell.
iii. They reproduce by means of binary fission and some by multiple fission e.g. plasmodia.

Places where protozoa stay.

i. In fresh water.
ii. In the sea.
iii. In damp places or land.
iv. In blood of animals and humans.

Structure of Amoeba.



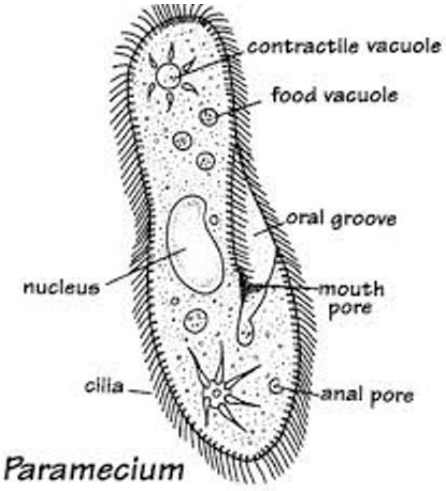
Facts about amoeba

1. it reproduces by binary fission
2. It feeds by engulfing and digesting food
3. It moves by use of pseudopodia

NB

Amoeba causes amoebic dysentery to people

Structure of a paramecium.



Diseases caused by protozoa.

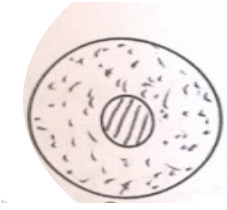
(a) Amoeba - Amoebic dysentery.

(b) Plasmodium - Malaria.

(c) Trypanosoma - Sleeping ***sickness in humans.***

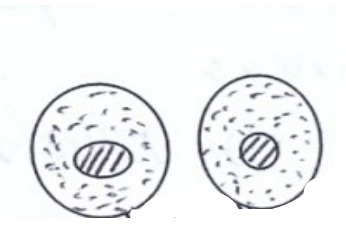
- Nagana in animals.

Diagram showing binary fission.



One cell

Nucleus



Two identicaldaughter cells

divides produced.

NOTE: Binary fission is the process by which one parent cell splits to form two cells

Exercise

1. Which of the organisms in the list below belong to protozoa?

   Grasshopper

   a. Toads
   b. Bacteria
   c. Amoeba

2. Draw a structure of an amoeba and name the parts below
   a. Vacuole
   b. Cell membrane
3. Identify the diseases caused by the following organisms
   a. Amoeba
   b. Plasmodium
   c. Trypanosoma
4. How does an amoeba
   a. Move
   b. Feed

ANIMAL KINGDOM.

There are two groups of animals

i. Vertebrates.
ii. Invertebrates.

Vertebrates are animals with back bones.

Invertebrates are animals without back bones.

Characteristics of vertebrates.

i. They have back bones.
ii. They have an endoskeleton.
iii. They have a brain protected by the skull.
iv. They have a water proof skin.
v. They have an alimentary canal.

Groups of vertebrates.

i. Mammals.
ii. Birds.
iii. Fish.

iv. Amphibians.

v. Reptiles.

Types of vertebrates

(a) **Warm blooded Animals**:- Are animals whose body temperature is constant. They are also called **Homeothermics.**

Examples of warm blooded groups of vertebrates.

i. Mammals.

ii. Birds.

(b) **Cold blooded Animals**:- Are animals whose body temperature changes according to that of the environment.

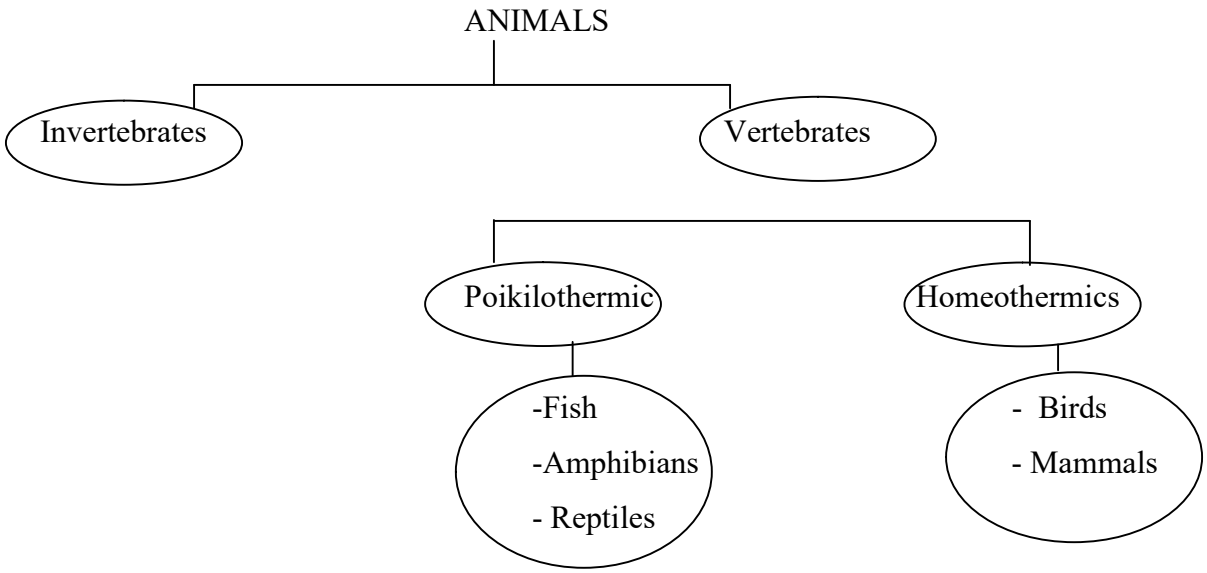
They are also called poikilothermic***animals*** .

Groups of cold blooded vertebrates

i. Fish

ii. Reptiles

iii. Amphibians



Characteristics of Animals.

i. They are made up of many cells..

ii. They feed on other living things. This is because they don't make their own food

iii. Animal cells have no cell wall but a cell membrane.

Examples of vertebrates.

i. Man.

ii. Goats.

iii. Cattle

iv. Fish.

v. Snake

vi. Elephant.

Exercise

1. Name the two groups of animals
2. Give the meaning of the following terms

a. Vertebrates.

b. Invertebrates.

3. State any three characteristics of vertebrates
4. Give any two groups of vertebrates which are warm blooded.
5. ***Why are mammals said to be warm blooded?***
6. ***Identify the odd man out. (mammals,reptiles, birds).***
7. ***Give a reason to support your answer in 6 above.***

BIRDS.

Characteristics of Birds.

i. Their bodies are covered with feathers.

ii. They breathe through lungs

iii. They are warm blooded.

iv. Their legs are covered with scales.

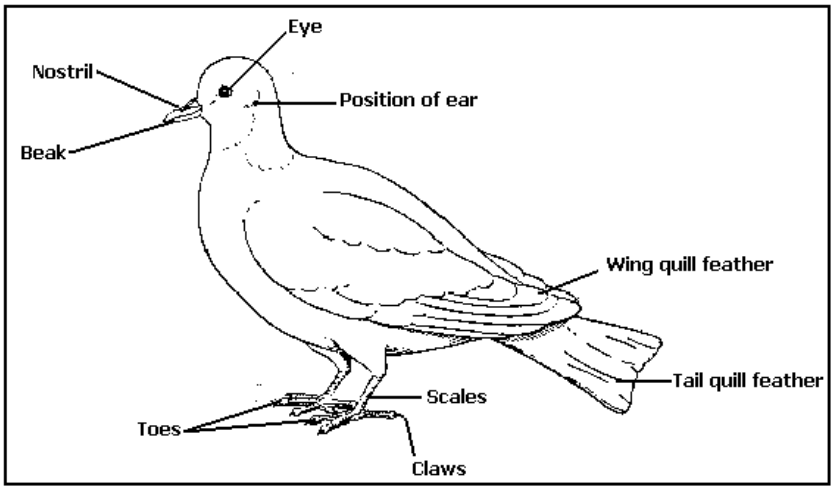
v. They undergo internal fertilization.

vi. They reproduce by laying eggs

vii. Therefore limbs are modified as wings

NOTE: Birds don't have similar beaks, feet and claws because of different feeding habits and habitats.

External features of a bird.(practical)



Uses of feathers to birds.

i. They cover the bird's body and keep them warm.
ii. They enable the bird to fly.
iii. They protect the bodies of birds from some injuries
iv. They reduce heat loss from eggs during incubation
v. They give the birds colour for identification.

Activity

1. Write down any six characteristics of birds
2. Why are birds called vertebrates?
3. How useful is a beak to a bird
4. ***Why do birds have different beaks, feet and claws?***

Types of feathers.(Revision / Research)

i. Quill or flight feathers.
ii. Body or covert feathers.
iii. Down feathers.
iv. Filoplume feathers.

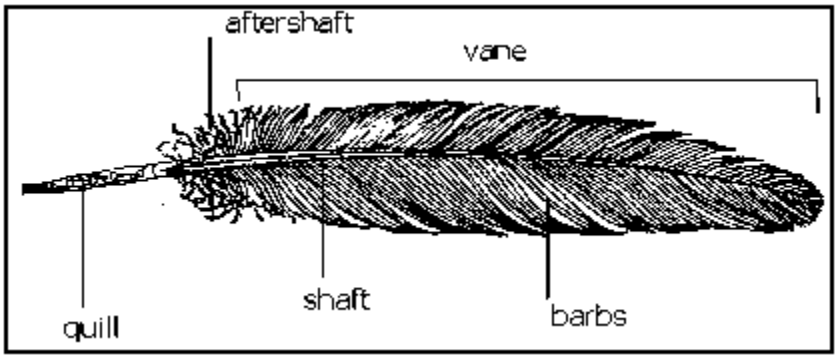
(a) Quill or flight feathers.

i. They are found on the tail and wings.
ii. They help the bird to fly or in flight.

Quill feathers are divided into two:-

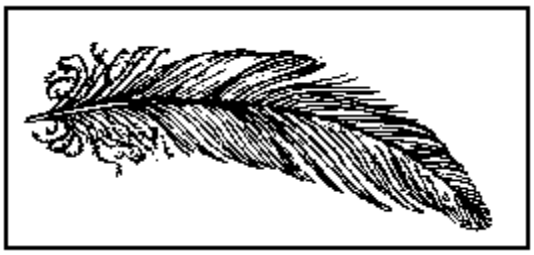
i) Primary quill feathers
ii) Secondary quill feathers

Structure of a quill feather.



(b) <u>The body feathers (covert feathers)</u>

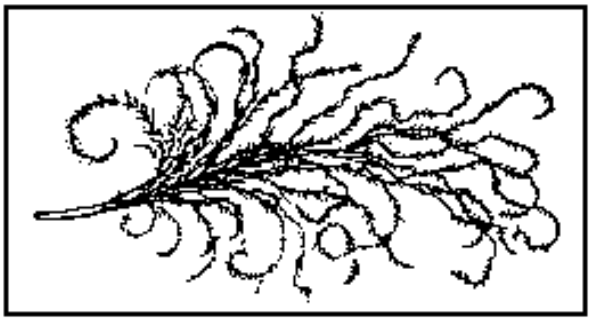
i. They cover the body of a bird.
ii. They keep the bird warm.
iii. They give the birds body shape.
iv. They provide much of the streamlining of the bird.
v. They prevent a bird from becoming wet.



(c) <u>Down feathers</u>.

i. These are feathers the chick is hatched with.
ii. They lie under the body feathers.
iii. They keep the bird warm

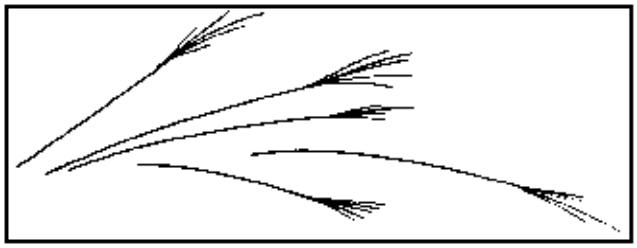
<u>Structure of a down feather</u>.



(d) <u>Filoplumes or hair feathers</u>.

i. They are the smallest feathers found nearest to the skin of a bird.

<u>Structure of a filoplume feather</u>.



Exercise

1. Name the four types of feathers.
2. State areas on a bird body where quill feathers are found.
3. Which type of feathers is a chick hatched with?
4. ***State any two conditions necessary for an egg to hatch.***
5. ***What are poultry vices.***
6. ***Suggest any two ways of controlling poultry vices.***

GROUPS OF BIRDS.

.Swimming birds.
Wading birds.
Perching birds.
Scavenger birds.

Climbing birds.
Scratching birds.
Birds of prey.
Flightless birds

1. **Swimming birds.**

These are birds that are good at swimming in water.

Characteristics of swimming birds.

They have webs between their toes that enable them to swim and move fast.
They have strong spoon like beaks that enable them to pick small animals and plants water.

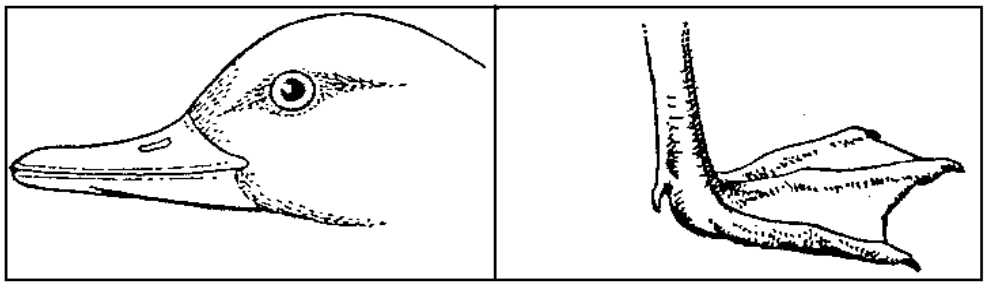
Examples of swimming birds.

Ducks.
Geese.
Swans.
Pelicans.
Seaguls
Cormorants

Food for swimming birds

Water weeds
Small fish
Frogs

The beak and foot of a swimming bird.



2. **Perching birds.**

These are birds that rest and stay on branches.

A perch is a place where birds stay and rest.

Characteristics of perching birds.

Have short horn beaks.

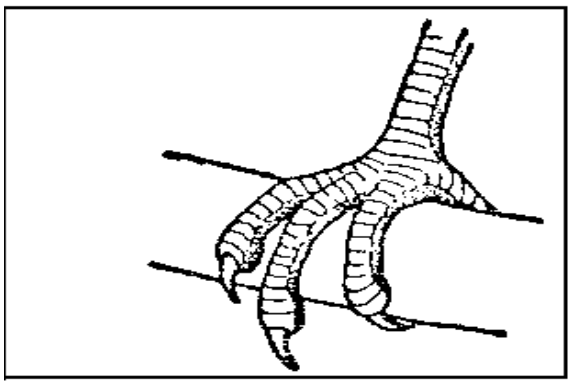
Have three toes facing forward and one facing backward.

The sunbird has a long thin curved beak for sucking nectar.

Examples of perching birds.

Weaver birds.	Sparrows.
Doves.	Robbins.
Pigeons.	Sunbirds.

Foot of a perching bird.



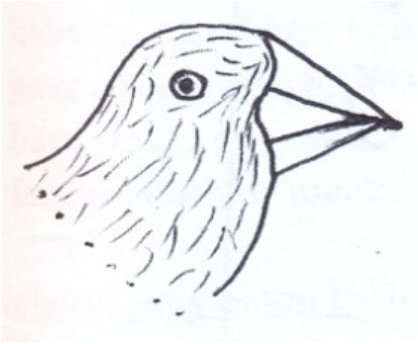
Types of perching birds.

(a) Seed eaters.

They have short strong cornical beaks suitable for breaking up seeds.

e.g pigeons, doves, weaver birds, finches.

Beak of a seed Eater.



(b) <u>Insect eaters</u>.

They have short narrow beaks for picking the insects from the back of trees.

<u>Examples of insect eaters.</u>

i. Sparrows
ii. Cuckoo
iii. Robins
iv. Swallows
v. Bee eaters
vi. Swifts.

Swallows and sifts have short and wide open beaks. They can catch insects even when they are flying.

(c) <u>Nectar suckers</u>.

They have thin long slender beaks which are slightly curved so that they can suck nectar from flowers. E.g sunbird.

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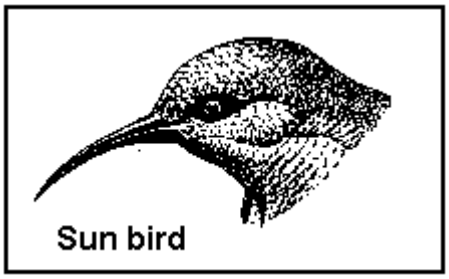


(d) <u>Fruit eaters</u>.

These have long stout beaks for collecting fruits. E.g a horn bill.

i.e 

Activity

1. Write down any four types of birds
2. How are swimming birds adapted to living in water?
3. Give two examples of swimming birds
4. Draw a foot and a beak of a swimming bird
5. Name any two subgroups / types of perching birds
6. Suggest any three ways how plants regulate transpiration.

3. <u>BIRDS OF PREY</u>

These are birds which hunt and kill other small birds or animals for food.

NOTE: A prey is any animal which is hunted and killed for food a predator.

A predator is an animal that hunts and kills other animals.

<u>Examples of birds of prey</u>.

i) Eagles. .

ii) Owls.

iii) Hawks

iv) Kites .

<u>Characteristics of birds of prey.</u>

i) They have strong, sharp, hooked beaks for tearing their prey.

ii) They have strong, sharp, curved talons (claws) for gripping, killing and tearing their prey.

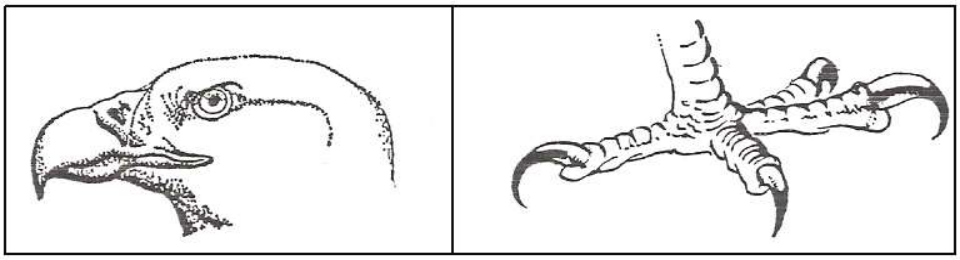
iii) They have strong eye sight to spot their prey even when they are flying.

iv) They feed on flesh or meat.

<u>Examples of prey eaten by birds of prey.</u>

v) Rats, snakes, lizards, chicks, fish, mice, geckos etc.

Beak and foot of a preying bird.



Adaptation of birds of prey to their feeding

i) They have sharp and accrued beaks for tearing prey.

ii) They have a strong eye sight to spot their prey.

4. **Scavenger birds.**

These are birds that feed on flesh killed by other animals and rotten meat.

NOTE: Scavenger birds clean the environment by eating up rotting pieces of meat from animals.

Examples of scavenger birds.

i) Vultures

ii) Crows

iii) Marabou storks.

Scavenger birds have beaks like those of birds of prey.

Activity

1. What are birds of prey?
2. Give two examples of birds of prey.
3. What are scavenger birds?
4. Give two examples of scavenger birds.
5. State the importance of scavengers in the environment.
6. Give a difference between a prey and birds of prey.
7. ***State the use of the sharp claws or talons to a bird of prey.***
8. ***Why is chicken referred to a prey?***

9. *Why isn't a bird shocked when it steps on electric wire?*

5. <u>Wading birds</u>.

These are birds which walk***and balance***through water or mud.

<u>NOTE:</u> To wade means to walk through water/mud.

<u>Characteristics of wading birds.</u>

They live along the banks of rivers.

iv) They have long thin legs with half webbed toes widely spread out.

v) They have long beaks to catch small animals like frogs in water.

<u>NOTE</u>: Half webbed toes widely spread out helps to prevent the bird from sinking in the mud.

<u>Examples of wading birds.</u>

vi) Crested crane.

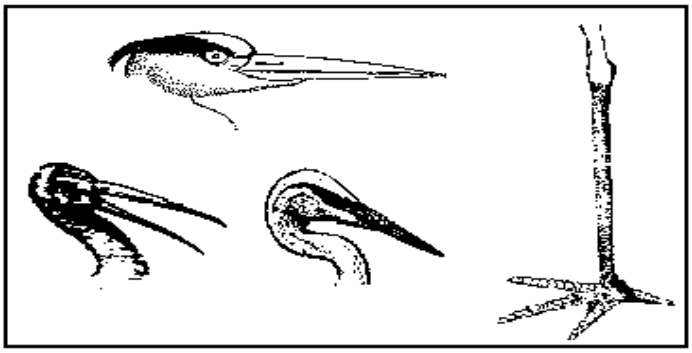
vii) Marabou stork.

viii) Heron.

ix) Flamingo.

x) Ibis.

<u>Foot and beaks of wading birds</u>.



6. <u>Climbing birds</u>.

These are birds which live in t ın about on branches of trees.

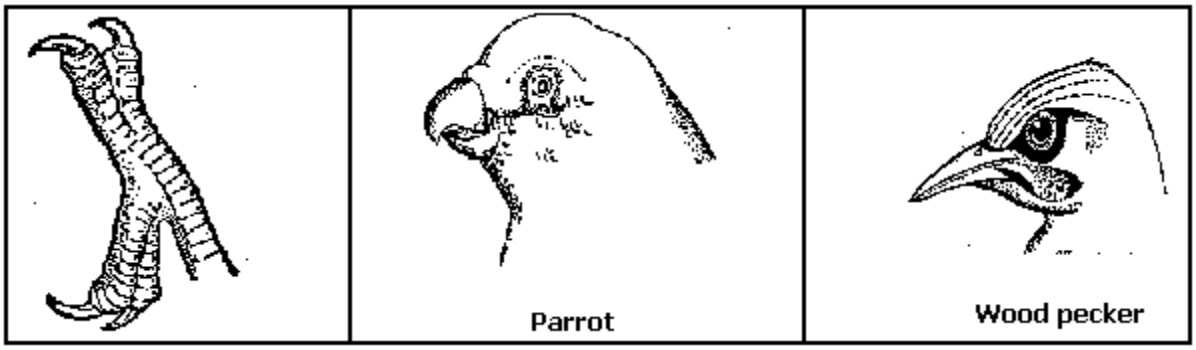
They have two toes pointing forward and other two pointing backwards which help them in climbing to look for seeds and insects from trees.

<u>Examples of climbing birds.</u>

xi) Parrot - Cucoos

xii) Wood pecker - Toucans.

<u>Foot of a climbing bird.</u>



7. **Scratching birds.**

These are birds that feed on seeds and insects which they find by scratching or digging the ground.

Characteristics of scratching birds.

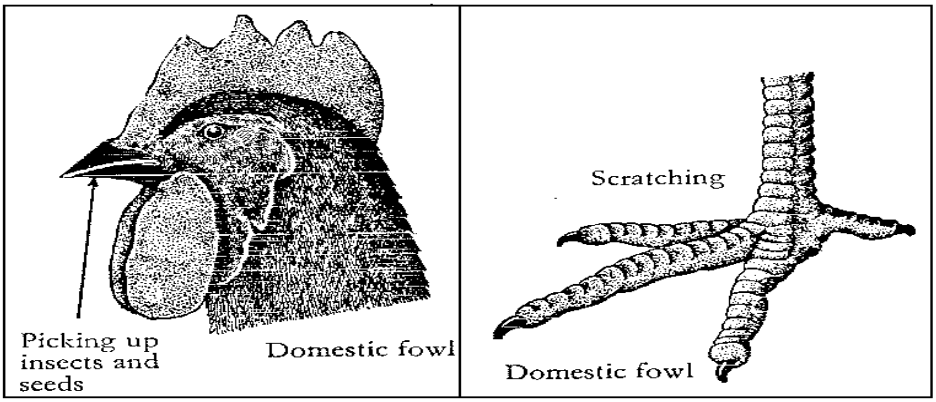
i) They have short, strong, firm, pointed beaks for picking up things from the ground.

ii) They have strong feet with thick toes and blunt claws.

iii) They walk easily.

iv) Their bodies are heavy and wings are weak.

Beak and foot of a scratching bird



Examples of scratching birds.

i) Chicken.

ii) Turkey.

iii) Guinea fowl.

iv) Crested francolin.

Flightless birds(walking birds)

1. These are birds which do not fly.

2. Their wings are too small and weak.

2. They move by walking, running or hopping.

3. Some like an ostrich are very fast runners.

4. Penguins have their legs and wings modified for swimming.

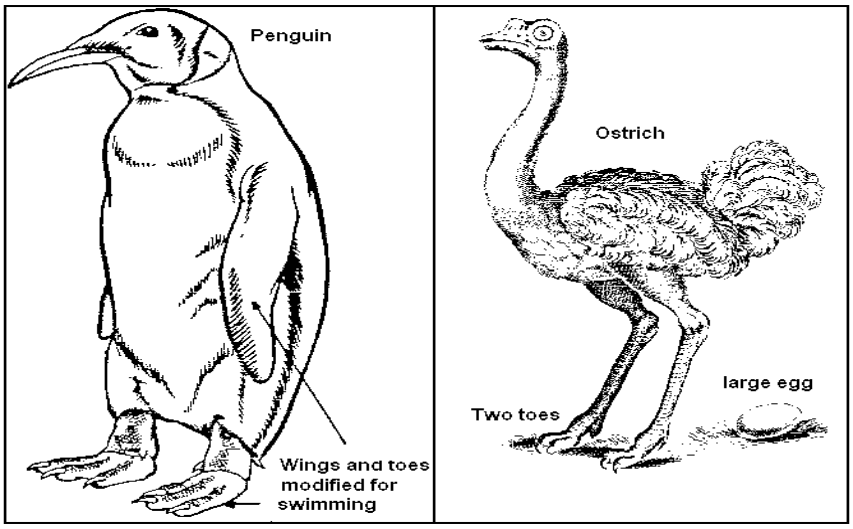
Examples of flightless birds.

a). Kiwi

b). Penguins

c). Ostrich

d). Emu



Why are some birds unable to fly?

i. They have small wings compared to their body size.

ii. Their bones have bone marrow that makes them heavy.

Adaptations of birds to flight.

i. Birds have streamlined bodies to reduce air resistance during flight (viscosity).

ii. They have hollow bones to reduce their weight.

iii. They have wings.

iv. Their eyes have a nictitating membrane to protect them from damage by strong wind and dust

***Importance* of birds to man.**

i) They are source of food.

ii) Feathers are used for decorations.

iii) Bones are used for making glue.

iv) Some birds are used for customary services and paying dowry.

v) They are sold for income by farmers.

vi) They attract tourists.

vii) Some birds pollinate flowers.

viii) Some birds help to clean our environment by eating rotting meat.

Disadvantages of birds to man.

i) Birds destroy farmer's crops.

ii) Birds cause accidents on run ways of air ports.

iii) Birds cause noise pollution.

iv) Birds harbour vectors like mites and fleas.

Activity

1. How are wading birds adapted to living in muddy
2. State any two characteristics of wading birds.
3. Give two examples of wading birds.
4. Write down any three uses of birds to man.
5. State any three disadvantages of birds.

MAMMALS

These are vertebrates which have mammary glands

They are the most highly developed group of vertebrates.

Characteristics of mammals.

They have mammary glands

i) They are warm blooded animals.

ii) Their bodies are covered with hair or fur.

iii) They undergo internal fertilization.

iv) They use lungs for breathing.

v) Their hearts are divided into four chambers.

vi) They have well-developed earlobes or pinnae.

vii) They have two pairs of limbs.

Types of mammals.

i) Primates (most advanced mammals).

ii) Ungulates (hoofed mammals)

iii) Rodents (Gnawing mammals)

iv) Chiroptera (flying mammals)

v) Monotremes (Egg laying mammals)

vi) Cetaceans (sea mammals)

vii) Carnivorous (***flesh*** eaters)

viii) Insectivorous (insect eaters)

ix) Marsupials (pouched mammals)

1. **Primates**.

These are mammals with most developed and advanced brain.

Characteristics of primates.

i) They have a well developed brain.

ii) They have a complete dentition ***(four types of teeth).***

iii) They feed on plants and flesh (omnivorous)

iv) Have five fingers and five toes.

v) Use fore limbs for handling and hind limbs for walking.

Examples of primates.

i) Man

ii) Apes

iii) Monkeys

iv) Bush baby

v) Chimpanzee

vi) Orangutang

vii) Gorilla

viii) Baboon

Activity

1. Why is a goat called a mammal
2. State any three characteristics of mammals
3. Identify any four types of mammals
4. Why are mammal said to be warm blooded?
5. How do mammals protect themselves?
6. State any two similarities between mammals and birds.

2. RODENTS.

They have four sharp incisors for chewing rapidly or quickly.

They have no canines.

Most are vegetarian i.e. ***they feed on vegetables.***

Examples of Rodents.

i) Mice

ii) Rats

iii) Squirrels

iv) Porcupines

v) Guinea pigs

vi) Hare

They are called gnawing mammals because they chew rapidly.

Egg-laying mammals (Monotremes)

1. They are egg-laying mammals.

2. They have beaks instead of a mouth.

3. They bear characteristics of birds, reptiles and mammals.

4. They are grouped as mammals because they feed their young ones on milk from mammary glands.

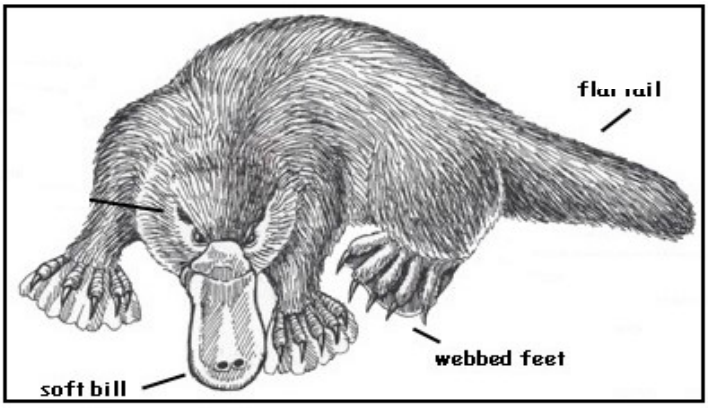
NOTE; Monotremes are the most primitive group of mammals. This is because they are the only mammals which lay eggs and have beaks

Examples Egg-laying mammals (Monotremes)

a). Duck billed platypus

b). Spiny anteater.(Echidna)

A duck billed platypus



CHIROPTERA / FLYING

These are mammals which fly

E.g. Bats.

NOTE: Bats are nocturnal animals because they are active at night and rest during day time.

Types of bats.

i) Insect eating bats.

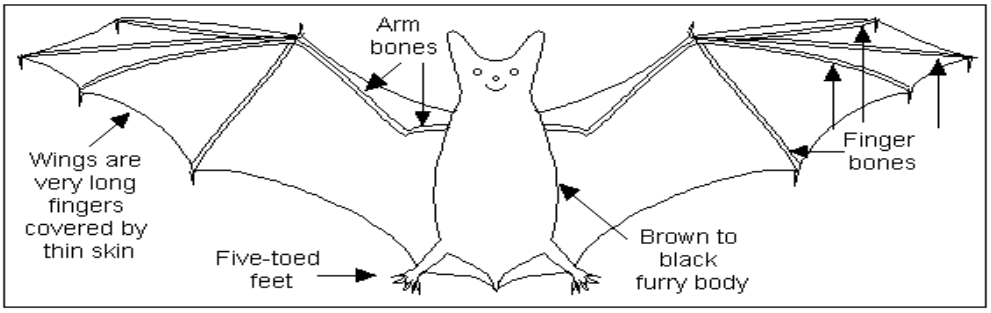
ii) Fruit eating bats

iii) Blood sucking bats or vampire bats.

Importance of bats to man.

i) Bats eat up dangerous insects that are harmful to mane.g mosquitoes.

ii) Bats help in seed dispersal.



3. **<u>MARSUPIALS / POUCHED MAMMALS</u>**.

   These are mammals which carry their young ones in pouches or pockets on their abdomen.

   <u>Examples of marsupials</u>.

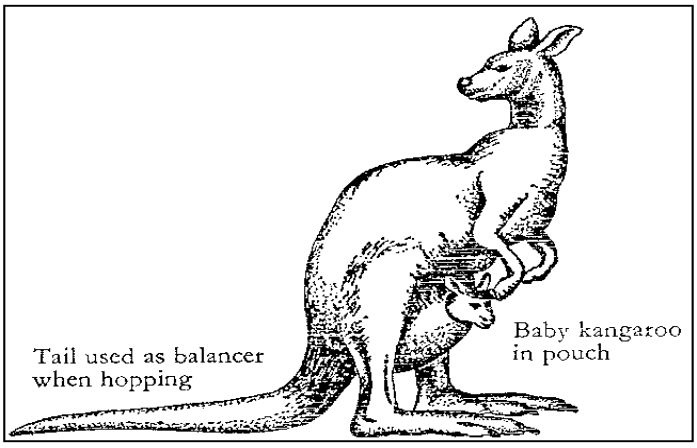
i) Kangaroos

ii) Wombats.

iii) Koala bear

iv) Opossums.

v) Wallabies



Exercise

1. Why is a rabbit called a rodent?
2. Give two examples of rodents apart from rabbits.
3. Give two examples of monotremes
4. Why is a bat called a mammal and yet it flies
5. State any two importance of bats to man.
6. How do bats help to prevent malaria?

4. **<u>INSECTIVORES</u>**.

   These are insect eating mammals.

   <u>Characteristics of insectivores</u>.

i) They are nocturnal animals

ii) They have strong claws for digging the soil.

iii) They have a sticky tongue for catching insects.

Examples of insectivores.

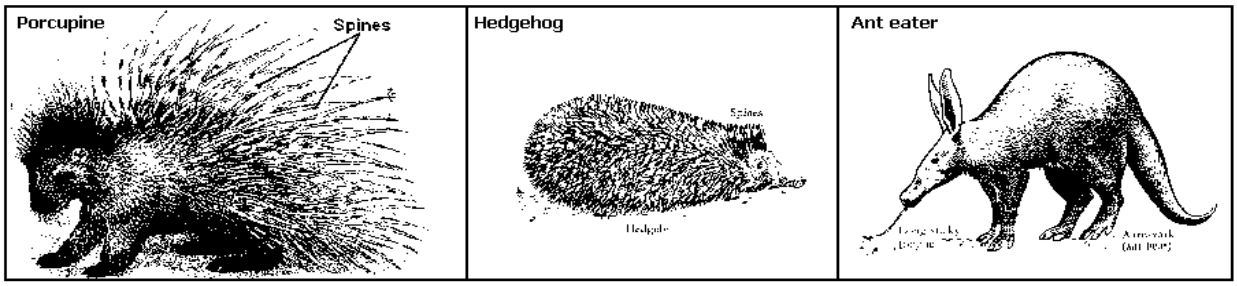
i) Hedgehogs.

ii) Pangolins

iii) Shrews

iv) Aardvark

v) Ant-bears



5. SEA – MAMMALS / MARINES/ CETACEANS

These are mammals that live in the sea.

Characteristics of sea – mammals.

vi) Have a high level of intelligence next to primates.

vii) They breathe by means of lungs.

viii) They have a layer of fats under the skin called **blubber** to keep them warm.

ix) They undergo internal fertilization

NOTE: People hunt whales for **oil**.

Examples of marines.

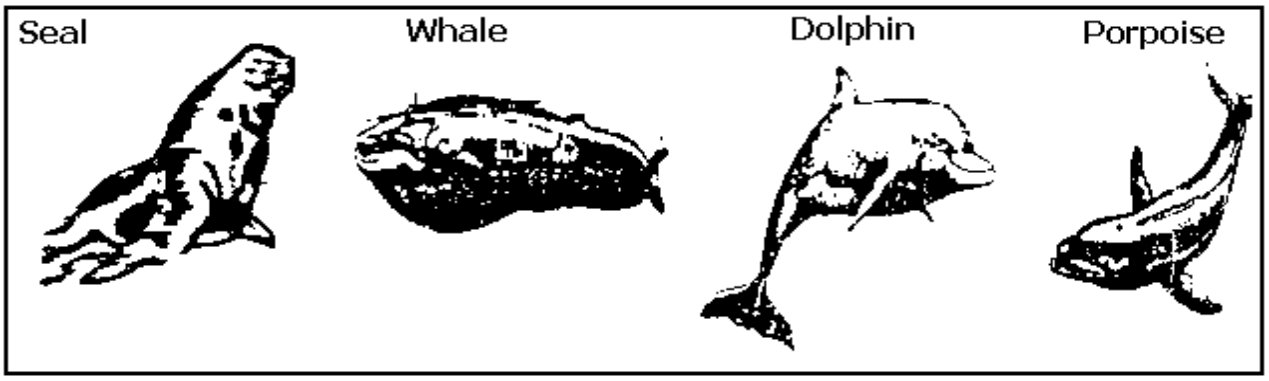
i) Whales

ii) Porpoises

iii) Seals

iv) Dugong

v) Dolphins



6. **<u>UNGULATES / HOOFED MAMMALS</u>**.

These are hoofed mammals.

<u>Classes of ungulates</u>.

i) Even toed ungulates.

ii) Odd toed ungulates.

<u>Examples of even toed ungulates.</u>

i) Cattle

ii) Deer

iii) Buffaloes

iv) Antelopes

v) Camel

vi) Giraffes

vii) Sheep

viii) Goats

ix) Pig

<u>Examples of odd toed ungulates.</u>

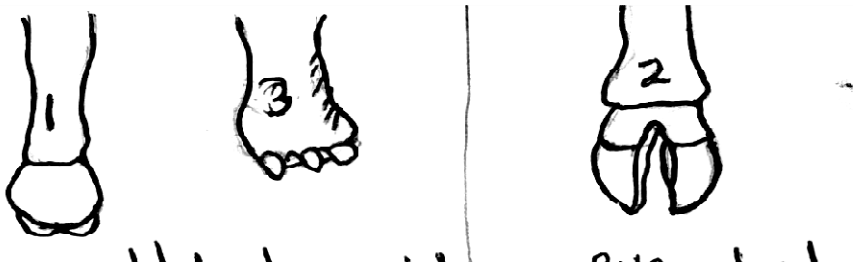
i) Horse

ii) Donkey

iii) Elephant

iv) Rhino

v) Zebra



7. **CARNIVORES**.

These are meat or flesh eating mammals.

Characteristics of Carnivores.

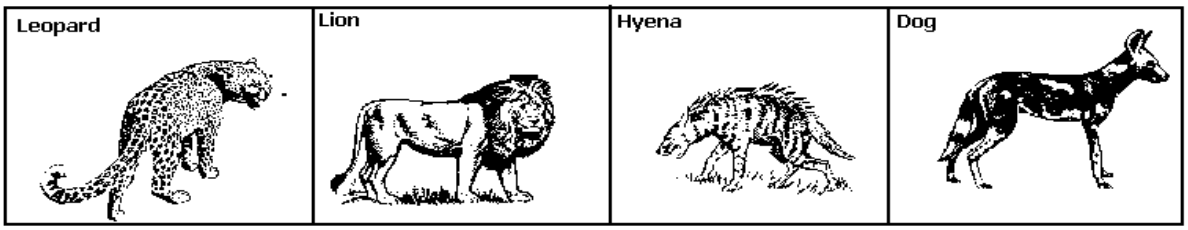
i) Have well developed canines for tearing flesh

ii) Have long sharp claws for gripping their prey

iii) Have a good sense of smell, eye sight and good speed.

iv) They have soft pads in their feet that help them run without producing sound

Examples of Carnivores.



Groups of carnivores

i) The cat family

ii) The dog family

Examples of Cat family.

i) Lions

ii) Wild cats

iii) Cheetahs

iv) Tigers

v) Cats

vi) Leopards

Scavenger carnivores

i) Hyenas

ii) Jackals

Examples of Dog family.

i) Dog

ii) Foxes

iii) Jackals

iv) Bears

NOTE: (i) Omnivores are mammals that eat both vegetables and flesh e.g

i) Man, pig, warthog, gorilla etc

ii) Proboscidea or Trunk mammals are mammals that have trunks e.g Elephant.

Activity

1. What are insectivores?
2. Give any two characteristics of insectivores
3. Give examples of the following g

a. Insectivores

b. Sea-mammals / marines

c. Ungulates

d. Carnivores

REPTILES

1. General characteristics.

a). They are cold-blooded animals (their body temperature changes with the temperature

of their surrounding)

b). They lay eggs, which are fertilized internally.

c). Their bodies are covered with scales

d). They breathe by means of lungs.

e). Their hearts have three chambers i.e two auricles and one ventricle.

f). Most reptiles except snakes have two pairs of limbs.

g). They usually do not look after their young ones.

Note:

a) Reptiles lay their eggs on land.
b) Reptiles grow by moulting (removing the old skin to get a new one)

Groups of Reptiles.

a). Snakes

b). Lizards

c). Crocodiles and alligators

d). Turtles, tortoises and terrapins

Snakes

1. Snakes have no limbs.
2. snakes move by slithering
2. They are divided into three groups.
   a). Poisonous snakes

   b). non-poisonoussnakes

   c). constrictors

Poisonous snakes.

1. These are snakes that use poison to defend themselves and to paralyse their prey.
2. They have a pair of long hollow teeth connected to a poison gland. These teeth are called **fangs**.
3. When the snake bites, its poison is injected into the bitten animal through the fangs.

   Snake poison is called **venom**.
4. Poisonous snakes kill their prey and then swallow it whole.

Examples of poisonous snakes.

The cobra

It either bites or spits venom to its enemy.

The puff adder

It attacks only when disturbed.

The viper

It is sluggish because of the thick body.

It is very dangerous because the victim dies a few minutes after a bite.

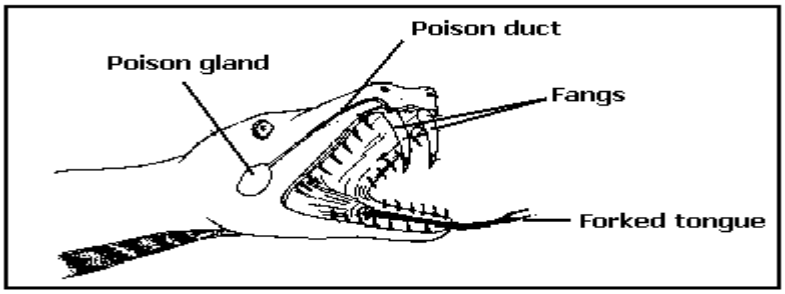
The mamba

Green mamba is about 2m long.

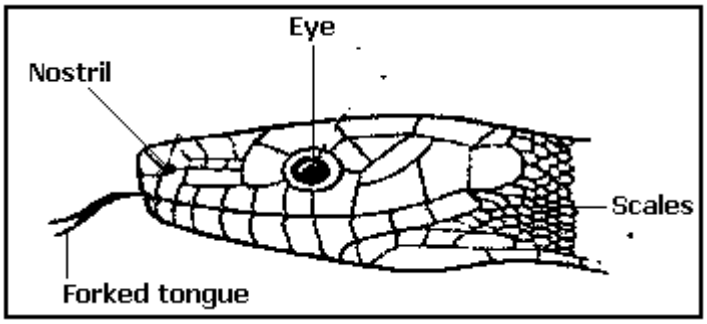
Black mamba

Can be 4m in length. It attacks even when not disturbed.

Mouth part of a poisonous snake.



Side view of a snake's head.



Functions of each part

Fangs

The snake uses them for defence against enemies by injecting poison.

The teeth are pointing backward to prevent prey from escaping during feeding..

Forked tongue.

a) a snake uses it to smell and detect food.
b) It is also used to detect temperature changes.

Scales.

a) The scales protect the skin from drying up.
b) They also protect the snake from external damage.

Nostril

a) The snake uses them to breathe.
b) Some snakes use it to detect food.

First aid for snake bite.

a) Keep the victim calm to avoid increase in the rate of blood flow.
b) Tie the pulse point between the heart and the bitten part.
c) Prevent the injured person from doing exercises as they may increase the rate of blood
flow.

d) Carry the injured person to the nearest medical worker.
Note: Do not allow the victim to walk to hospital because walking increases the rate of blood flow.

Non-poisonoussnakes

1. They do not have poison.
2. They swallow their prey alive.

Examples of Non-poisonous snakes

a). Green grass snake

b). House snakes

Constrictors.

1. They are not poisonous but dangerous.
2. Kill their prey before swallowing by crushing it to death using their strong body muscles.
3. They lick their prey to make it slippery for easy swallowing.
4. They have a slow digestion that is why they take long to feed again.

Examples of constrictors

a). Python
b). Boa
c). Anaconda (found in South America)

Lizards.

1. They have two pairs of limbs and clawed feet.
2. They move by crawling.
3. They have sticky forked tongues for catching insects.
4. Some lizards protect themselves by breaking off their tails to confuse their enemies.
5. others protect themselves by poisoning.

Examples of lizards

a). Chameleon

b). A common lizard

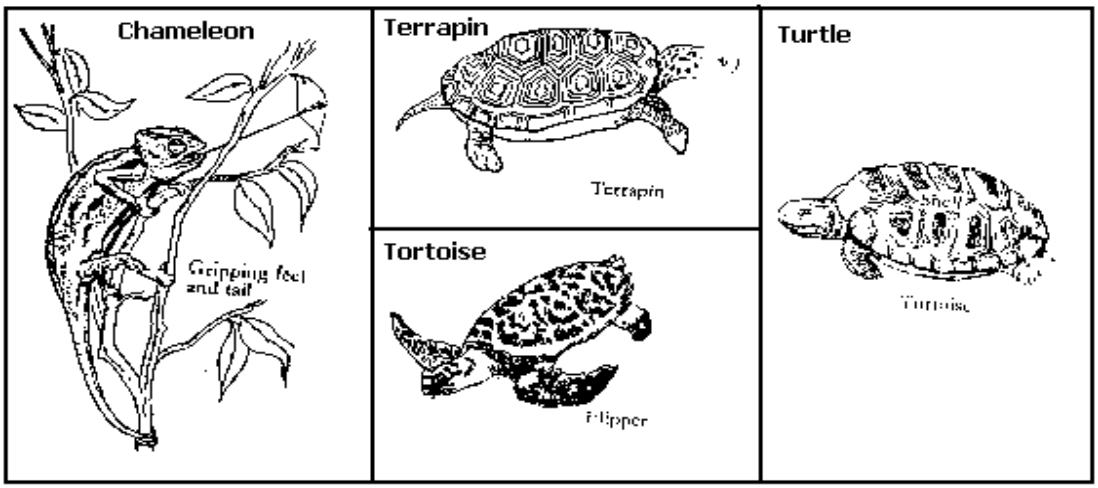
c). Tortoise and turtles

d). Gecko

Chameleon

1. Camouflages (changes colour according to the surrounding to protect itself from enemies)
2. Has a long sticky tongue for catching insects.
3. Its feet and tail are adapted for catching and gripping on small branches.

Tortoise and turtles.



1. They are enclosed in a complete case called a shell made of bony plates.
2. They have no teeth but have sharp cutting edges.
3. They protect themselves by withdrawing into their shells.
4. They live both on land and water.
5. Turtles live in water and only come to land to lay eggs.
6. Turtles forelimbs are modified to act as flippers to help in swimming.
7. They breathe by means of lungs.

Gecko

1. They are found in houses.
2. They have suction pads on their feet which enable them to walk even on smooth wall and ceilings.

Activity

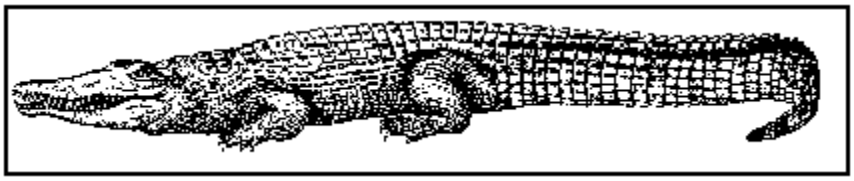
1. What are reptiles?
2. Give any three characteristics of reptiles
3. State any four examples of reptiles
4. How do reptiles reproduce?
5. Give the meaning of the following terms
    a. Oviparous animals
    b. Viviparous animals
6. Why does a chameleon change its colours?
7. How do reptiles control the spread of some diseases?

Crocodiles and Alligators.

1. They are the largest reptiles.
2. They spend most of its time in water but comes to land to lay eggs.

3. They have long powerful tail for swimming and attacking enemies.
4. They eat fish and other animals in water.
5. They have long jaws for catching prey.
6. The female lays hard-shelled eggs and covers it in mad or sand.
7. Alligators are similar to crocodiles.

A crocodile



Importance of reptiles.

a) They act as tourist attraction.
b) Their skin is used for making leather products.
c) Snake venom is used for making serum for treatment of snake bites.
d) They are predators to vectors and pests.
e) Some reptiles are a source of food.

Disadvantages of reptiles.

a) Some reptiles are poisonous.
b) Some are predators.

AMPHIBIANS

These are vertebrates which spend their early life in water and later can live on land

Characteristics of Amphibians.

i) They are cold blooded animals.
ii) They lay eggs ***in water***.
iii) Eggs are fertilized externally by the male shedding sperms on them.
iv) Adult Amphibians breathe through lungs.
v) The young live in water and breathe by means of gills.
vi) They move by leaping or hopping.

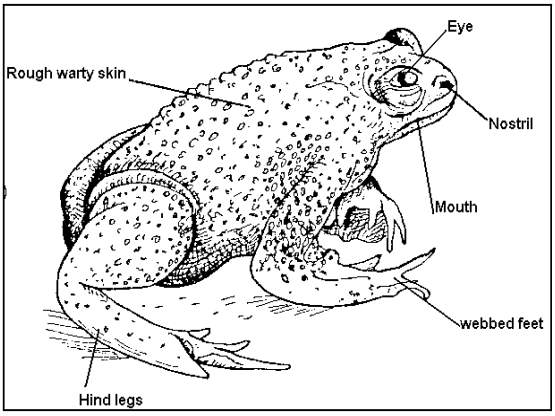
NOTE: Frogs live both on land and in water because they use moist skin to breathe while in water and lungs to breathe on land.

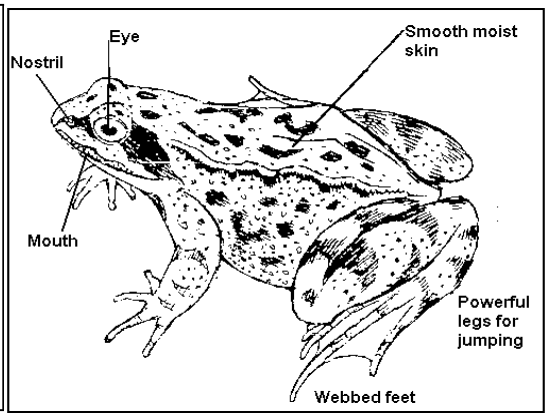
Examples of Amphibians.

i) Frogs
ii) Toad
iii) Newt
iv).Salamanders.

DIAGRAM OF A TOAD AND A FROG

TOAD FROG





Difference between toads and frogs.

TOADS	FROGS
- Have a rough warty skin.	- Have a smooth skin.
- Have poison glands.	- Do not have poison glands.
- Lay eggs in double ribbon strings.	- Lay eggs in mass spawns.
- Hind feet partly webbed.	- Hind feet are webbed.
- Have no teeth	- Have teeth in upper jaw.
- Cannot breathe through their skin.	- Can breathe through their moist skin.
- Adults live mostly on land.	- Adults live mostly in water.

Reproduction

NOTE:

(i) The young one of an amphibian is called a tad pole.

(ii) Tad poles breathe by use of gills.

(ii) Eggs of a frog or toad are covered with a coat of Jelly to keep them floating.

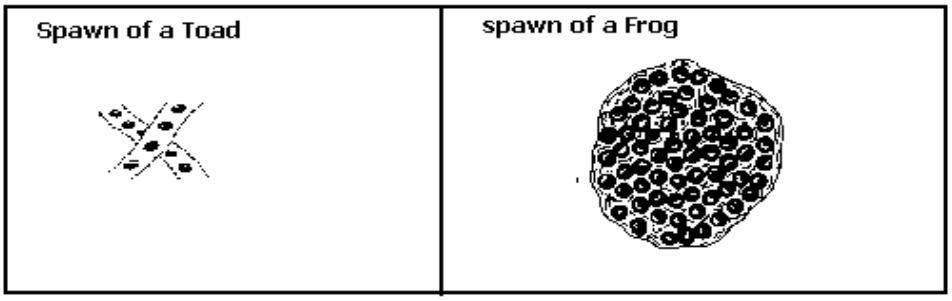
Uses of the jelly

i) It is tasteless to protect eggs from predators

ii) It prevents eggs from drying up

iii) It protects eggs from injury.

Diagram of spawns of a toad and frog



Life history of a frog / toad.

a).Female adult lays eggs in water.

b).The mature male then fertilizes them by shedding sperms over them.

c).The eggs (spawn) are protected from other animals by a jelly-like covering which has unpleasant smell.

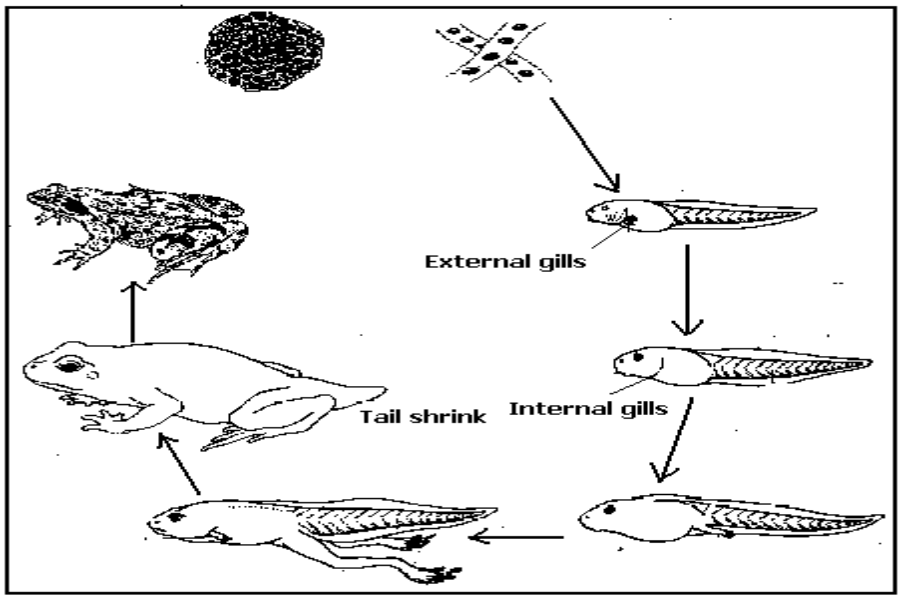
d).After some time the eggs hatch into young tadpole which breathe by means of external gills.

e).In two months limbs appear with hind limbs first then fore limbs.

f).The tail shrinks and the lungs come into use.

g).The tadpole is now a young toad.

Life cycle.



Adaptations of a frog to living in water.

i) They have streamlined bodies to overcome friction in water.

ii) It has strong hind legs with fully webbed feet for swimming easily in water.

iii) It has the moist skin for taking in oxygen

iv) They hibernate during hot seasons to protect themselves from heat.

NOTE:

(i) Hibernation refers to a rest period during a dry season where all the body processes almost come to stand still in some animals.

NB: During hibernation, animals use fats in their bodies as food

(ii) Frogs and toads lay many eggs to increase chances of survival.

Exercise

1. What are amphibians?
2. State any two characteristics of amphibians
3. Name any two examples of amphibians
4. Identify any two differences between a frog and toad.
5. Why is a frog able to live both on land and in water?
6. How do amphibians control the spread of malaria?

FISH

Characteristics of fish.

i) They are cold blooded.

ii) They breathe through gills except mud fish.

iii) They undergo external fertilization.

iv) Their bodies are covered with scales.(some)

How fish protects itself.

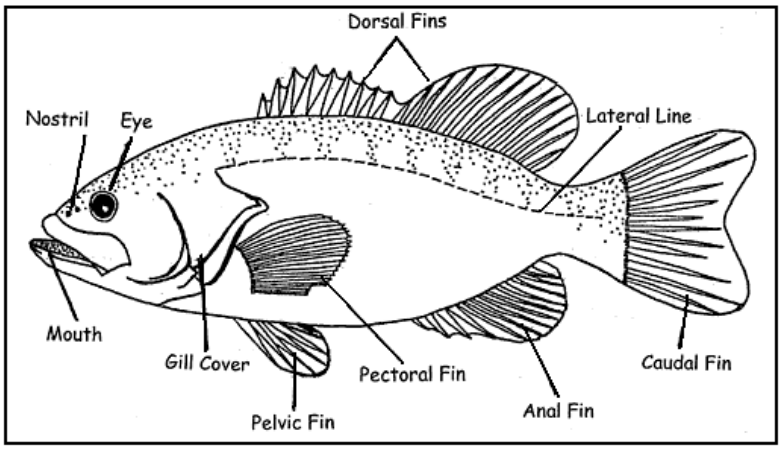
i) It has slippery body for escaping from enemies.

ii) Uses spines and teeth.

iii) Have different colours to hide from the enemy.

iv) Some have electric organs to shock the enemy.

Structure of a fish.



Functions of each part.

(a) Mouth

i) It is a passage for food.

ii) It is where water flows into the fish before it flows over the gills.

b) Lateral line.

i) It detects sound waves in water.

c) Nostrils.

i) Used for smelling and tasting ***food in water***.

d) Scales

v) Protects the skin of a fish from scratches.

e) Operculum / Gill cover.

i) Protects the gills from damage.

f) Dorsal fin and Anal fin.

i) Used for defence against enemies.

ii) Prevents a fish from rolling over in water.

g) Dorsal, caudal and anal fins.

i) They control the rolling and unsteady turning of the fish in water.

h) Caudal / Tail fin.

i) Helps to move the fish forward by increasing speed or steering.

ii) Helps to change direction when fish is moving.

iii) Pectoral and pelvic fins.

iv)Helps a fish to move upwards and down wards.

Exercise

1. Write down four characteristics of fish.
2. State any four used of fish
3. How does a fish protect itself from enemies?
4. Draw and name the parts of fish
5. State the functions of each part.

REPRODUCTION IN FISH.

i) The female lays eggs in large numbers in shallow water.

ii) The male sheds sperms over them . This is called external fertilization.

iii) The eggs of most fish float on the surface of water and attach themselves to water plants.

v) The eggs hatch out by the heat of the sun.

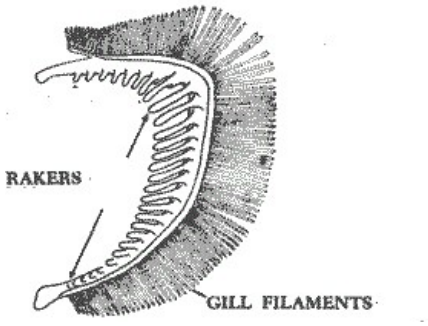
vi) The young one of a fish is called fry or fingerlings.

Breathing in fish.

i) Fish breathe in dissolved oxygen in water.

ii) Water containing oxygen moves through the mouth and over the gills which absorb much of the oxygen in water. Gill rakers trap any solid particles sothat they don't damage the gill filaments.

Diagram of gills.



Food for fish.

i) Water plants e.g plankton.

ii) Worms.

iii) Large fish feeds on small fish.

How fish are adapted to living in water.

i) They have a streamlined body that helps it to move easily in water.

ii) Some have a swim bladder to make it buoyant.

iii) Fish have fins to help it move and stop from rolling.

iv) Have gills for breathing while in water.

v) Have a lateral line to detect danger ***or movement of enemies in water.***

vi) They are slippery to slip from predators and also helps it to reduce friction / viscocity as it moves through water.

***Importance* or uses of fish to man.**

i) Fish is eaten as food.

ii) Bones are used in the manufacture of glue.

iii)They are a source of occupation to fish mongers, fishermen and fish farming.

iv)For making animal feeds.

NOTE: Fish are a good source of proteins and calcium.

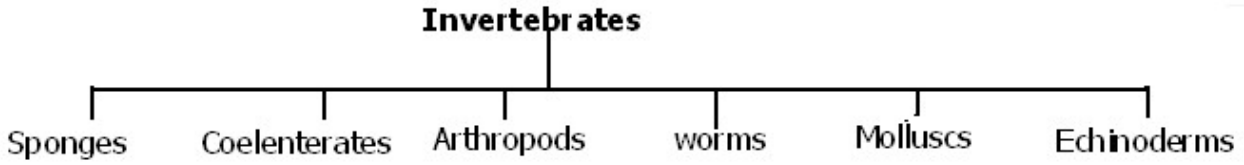
Activity

1. How do fish reproduce?
2. What does a fish use for breathing?
3. Identify any two types of fish

4. Give any four adaptations of fish to living in water
5. State any three uses of fish to man.
6. Why does a fish die shortly after being removed from water

INVERTEBRATES

Invertebrates are animals without backbones.



Groups of invertebrates.

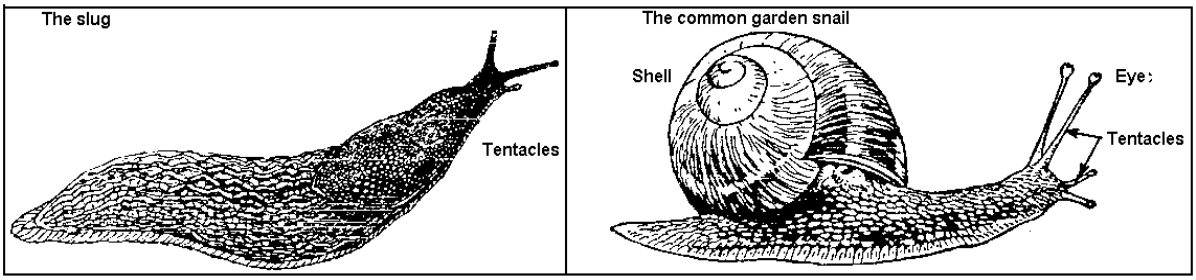
i. Coelenterates.
ii. Molluscs
iii. Sponges
iv. Worms
v. Arthropods.
vi. Echinoderms

1. **Molluscs**
   a) These are soft bodied un -segmented animals. They have hard shells. All molluscs are hermaphrodites.
   b) Hermaphrodites are organisms that have both male and female reproductive organs.

Examples of molluscs.

i. Slug
ii. Squids
iii. Oyster
iv. cuttle fish
v. Octopus
vi. Snails

A common Slug and snail.



Importance of Molluscs.

a). Shells of cowries are used to perform cultural rites.

b). Shells provide calcium when used to make animal feeds.

c). Molluscs such as squids are used to make dyes

d). They are a source of food.

Disadvantages of Molluscs.

a). They are crop pests e.g land snails.

b). They spread diseases e.gBilharziasis by a water snail

Note:

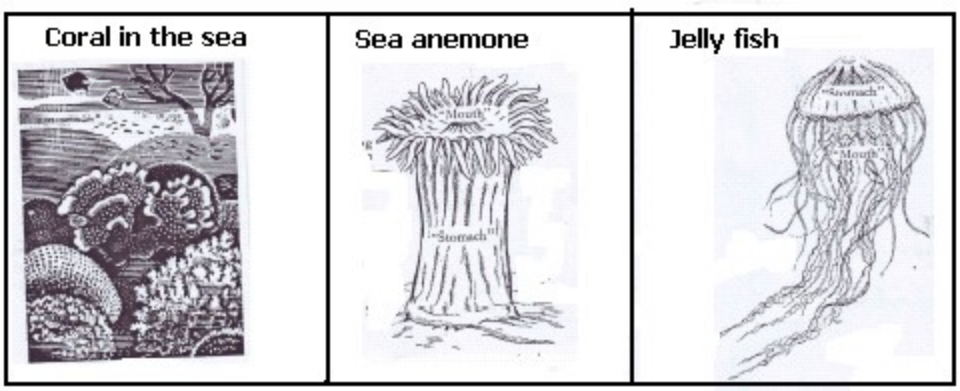
i. The octopus uses gill for breathing.
ii. Snails use either gills or lungs
iii. Molluscs reproduce by laying eggs.
iv. Fresh water snails spread a disease called Bilharziasis to man. (Schistosomiasis).
v. Bilharziasis is caused by small worms called bilharzia flukes.

2. Coelenterates

j) These are stinging water animals.
k) Their bodies are cylindrical and have two layers.
l) They have only one opening on the body that acts as both mouth and anus.
m) They have stinging cells on their tentacles.

Examples of coelenterates

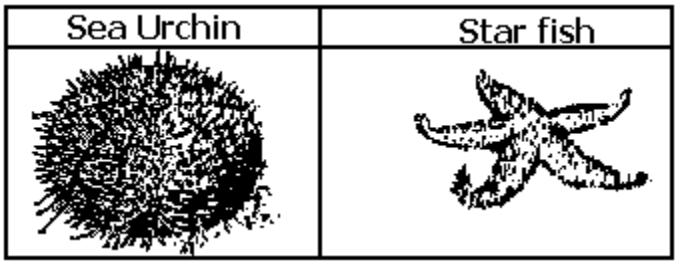
i. Hydra
ii. Jelly fish
iii. Corals
iv. Sea anemone



Echinoderms.

Examples of Echinoderms.

i. Starfish
ii. Sea urchin
iii. Sea lilies
iv. Sea cucumber



4. Sponges / porifera.

Many sponges live in fresh water ***in colonies*** and a few live singly. Most common sponges live in colonies in the sea. ***Among characteristics of animals moving above is mentioned***.

They remain attached to the floor of the sea. They breathe and feed through many holes in their bodies. Food and oxygen are absorbed as water flows through the holes**.**

Exercise

1. What are invertebrates?
2. Name any four groups of invertebrates.
3. Give four examples of molluscs
4. How do molluscs reproduce?

WORMS

These are long, thin and soft bodied animals.

These animals breathe through their moist skin. They have a hydrostatic skeleton.

Divisions of worms.

i. Annelids / Segmented worms

ii. Nematodes / Round worms

iii. Flat worms (platy helminthes)

1. <u>Annelids / Segmented worms</u>.

These are worms whose bodies are divided into segments / rings.

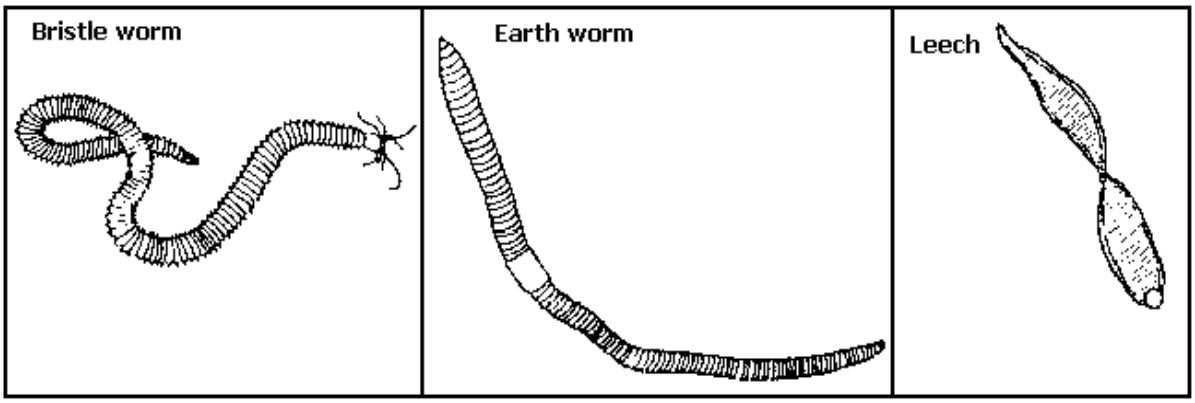
They live mostly in water and soil.

<u>Examples of annelids</u>.

n) Earth worms

o) Leeches

p) Bristle worms.



i. Earth worms breathe through moist skins.

ii. The common earth worm lives in the soil and eats decayed matter .

iii. Earth worms are hermaphrodites ie they have both the male and female reproductive organs in one.

<u>Importance of earthworms to farmers.</u>

i. Earth worms helps in soil aeration by making tunnels in the soil.

ii. Earth worms helps in the formation of humus in the soil.

NOTE:

(i)Air in the soil helps living organisms in respiration.

(ii) If you pour oil on an earth worm, it dies because oil covers the breathing holes.

2. <u>Flat worms</u>.

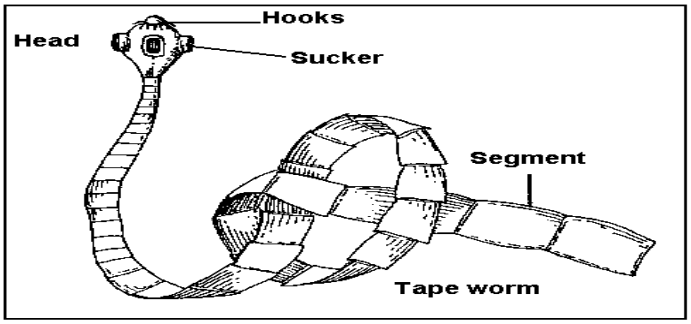
These have flattened and segmented bodies made of three layers.

<u>Examples of flat worms.</u>

q) Tape worms

r) Liver flukes

(a) <u>The tape worm</u>.



i. Tape worms feed on digested food in blood.

ii. Tape worms live in the small intestines.

iii. Tape worms enter our bodies when we eat under cooked meat or fish/pork/ chicken.

iv. Tape worms reproduce by fragmentation.

Functions of the parts

i. Hooks- help a tape worm to attach itself on the walls of small intestines

ii. Suckers – used for sucking or absorbing digested food in the small intestines

iii. Segments – breaks off when its ripe and grows into another tape worm.

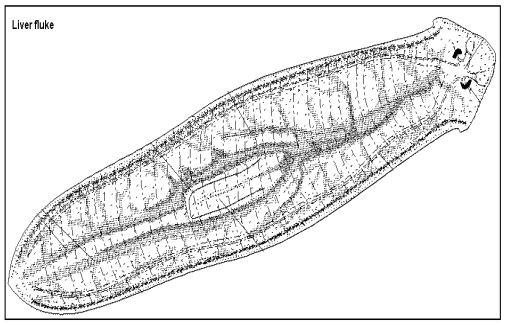
How to control tape worm infections.

s) Eat well cooked meat / pork and fish, chicken

t) Proper disposal of human faeces to avoid water and food contamination.

u) Deworming after every three months

(b) The liver fluke



i. Thread worms cause itching of the anus at night when laying eggs.

3. Nematodes or Round worms.

These are groups of worms with cylindrical bodies and many of them are similar all over the world.

Examples of Nematodes.

i. Hook worms – eel worms - pin worms / thread worms

ii. Ascaris

- Hook worms enter the body by piercing the skin through bare feet.
- Hook worms feed on blood in people.

- ❖ Hook worms cause Anaemia.
- ❖ To prevent hookworm infections, avoid walking bare footed, have proper disposal of faeces and wash all fruits eaten raw.

Activity

1. What are worms?
2. State the three divisions of worms
3. In which group of worms does an earth worm belong?
4. How are earthworms useful to farmers?
5. Suggest any two ways of controlling tapeworm infection.

ARTHROPODS.

These areinvertebrates with many jointed legs and segmented bodies.

Characteristics of Arthropods.

i) They have segmented bodies.

ii) They have joined legs.

iii) They have exo-skeletons

For growth to occur, arthropods have to shed their exoskeleton through the process of moulting.

Moulting is a biological change because it helps organisms to grow.

Groups of Arthropods.

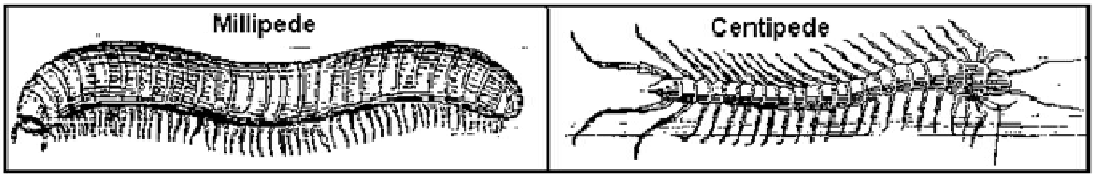
i. Myriapods
ii. Arachnids
iii. Crustaceans
iv. Insects

1. **Myriapods**.

These are invertebrates with very many legs and long segmented bodies.

Examples of myriapods.

i. Chilopoda (Centipedes)
ii. Diplopoda (Millipedes)



(a) Chilopoda / Centipede.

i) These are arthropods with thin segmented bodies and a pair of legs on each segment.

ii) They move fast and feed on insects and worms.

iii) Their front legs are modified to form poison claws which they use to paralyze their prey, by biting.

iv) Centipedes are carnivorous.

(b) <u>Diplopoda (millipedes)</u>

i. These are myriapods with stout bodies and two pairs of legs on each segment.

ii. They curl up or coil to defend themselves from enemies.

iii. They can produce a fluid which gives out a bad smell and has an irritating effect on the skin of man.

iv. They feed on vegetation.

2. <u>Crustaceans</u>.

i) These are invertebrates with very many skins and 10 legs.

ii) Their bodies are divided into two parts ie cephalothorax and abdomen.

iii) They breathe by means of gills or through moist skins.

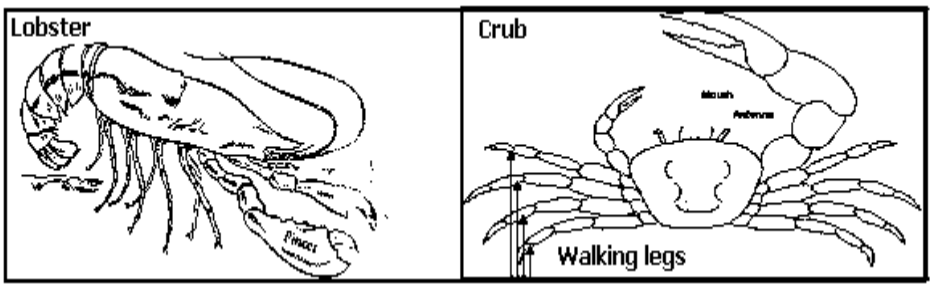
iv) They are mostly eaten as food. ***Since these are not normally eaten in Uganda, an explanation of this is required***

<u>Examples of crustaceans</u>.

a) <u>Craw fish.</u> **(b) <u>Pond shrimp</u>.**

(c) <u>Lobster</u>. **(d) <u>Crab</u>.**

(e)<u>Prawn</u>.



Activity

1. What are arthropods?
2. State any three characteristics of arthropods
3. Name the three sub-groups of arthropods
4. Give two examples of myriapods

<u>Arachnids</u>.

i) These are arthropods that have four pairs of legs and their bodies are divided into two main divisions ie cephalothorax and abdomen.

ii) They are wingless.

iii) They don't have compound eyes but a number of simple eyes.

Examples of Arachnids.

i) Scorpions - mites

ii) Ticks

iii) Spiders.

(a) Scorpions

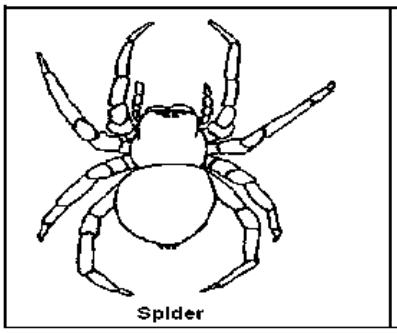
i) These hide under stones, logs and in holes.

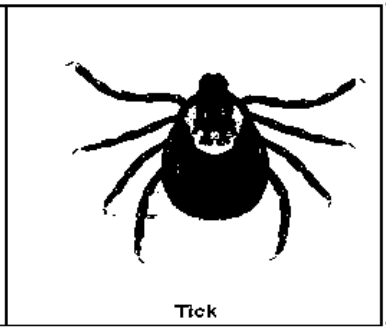
ii) They have a large tail with a poisonous sting at the end, which they use to inject poison into other animals including man.

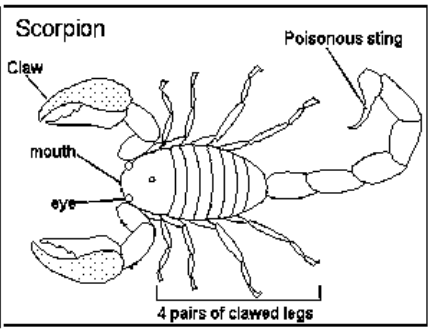
iii) Their sting is very poisonous and can lead to death.

iv) Scorpions don't lay eggs but give birth to young ones.

i.e







Ticks.

i) These live on the skin of domestic animals

ii) They carry germs that cause diseases.

Diseases caused by ticks to domestic animals.

i) East coast fever.

ii) Red water.

iii) Heart water.

iv) Typhus fever in humans.

Spiders.

1) They have special organs at the end of their abdomen called spinnerretteswhich enable them to spin silk which they use to make webs.

2) Webs are used to trap insects which they feed on.

3) Spiders breathe through organs on their bodies called book lungs.

4) Not all spiders make webs, some hunt for their prey.

Reasons why spiders are not classified as insects.

i). Spiders have eight legs whereas insects have six legs.

ii). Their bodies are divided into two main body divisions whereas the body of an insect is divided into three main body divisions.

iii). Spiders breath through book lungs while insects breathe through spiracles.

Exercise

1. Name any two examples of arachnids
2. How does a scorpion protect itself from enemies?
3. Name the structures used by spiders for breathing
4. Why are spiders not called true insects?

INSECTS (PRACTICAL)

This is the largest and most wide spread group among the arthropods.

Characteristics of insects.

i) Have three pairs of jointed legs.

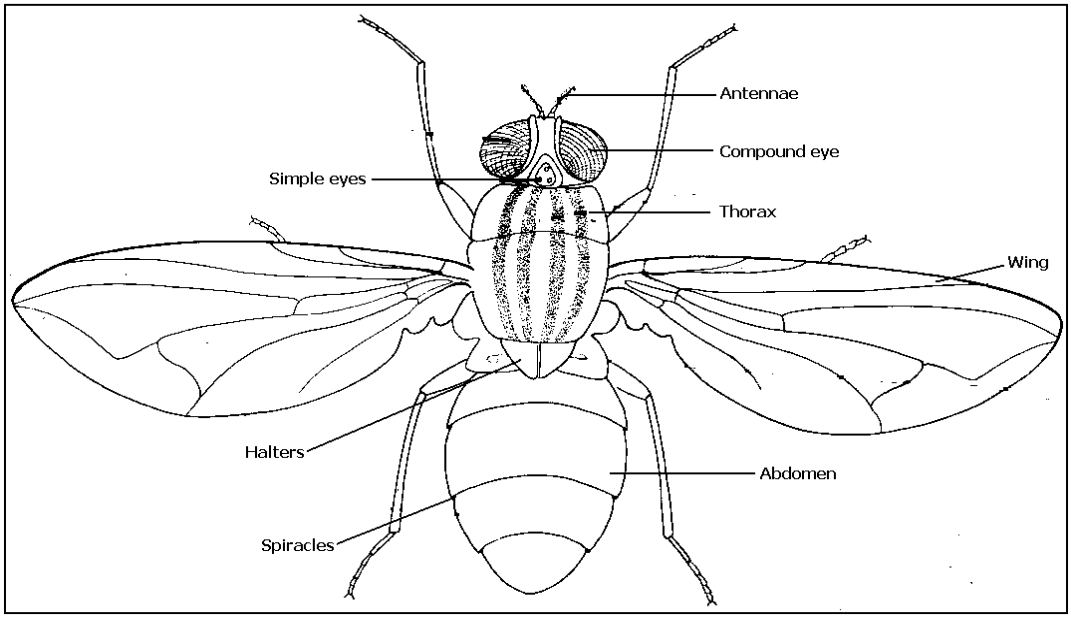
ii) Their bodies are divided into three main division

iii) They breathe through spiracles.

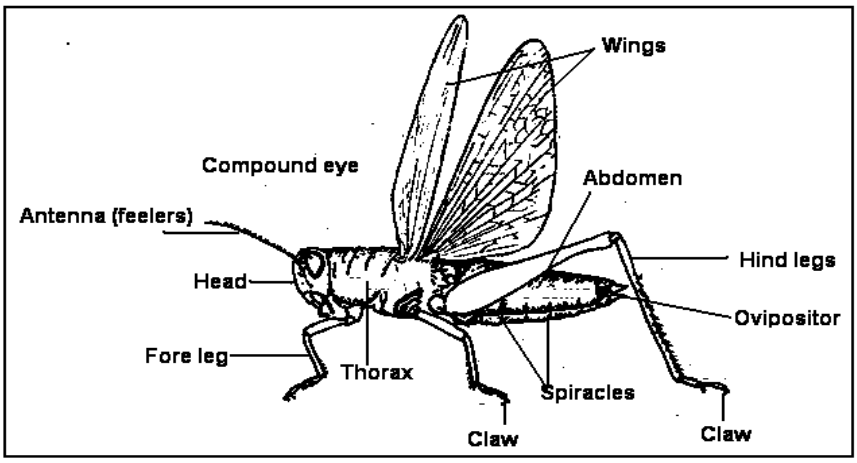
iv) They have one pair of antennae

Parts of an insect.

A house fly



Grass hopper



(***Choose one***)

Functions of some parts.

(a) **Compound eyes** for sight. An insect is able to see in many directions because it has compound eyes that have many lenses.

(b) **Haltares**helps the insect to balance in air when flying.

(c) **Antennae**are sense organs for touch, smell, detecting sound and detecting temperature changes, humidity and direction.

(d) **Proboscis** for sucking up blood and Juices.

Insects with proboscis.

i) Mosquitoes
ii) Houseflies
iii) Bees
iv) Tsetse flies

Insects with mandibles.

v) Grass hoppers
vi) Locusts
vii) Cockroaches
viii) Beetles

Explain how this relates to the feeding habits

The thorax

i) This is where legs areattached .
ii) Wings are also attached to the thorax

iii) It has halteres used for balancing during flight.

NOTE: The legs have suction pads which help insects to walk on walls and ceilings without falling.

Abdomen.

This is the largest part of all the three parts of an insect and has the following

i) Spiracles

ii) Reproductive, digestive and respiratory organs.

iii) Females have ovipositors for laying eggs.

iv) Stings for stinging insects e.g bees and wasps.

Activity

1. State any four features of insects / Why do some insects sting?
2. ***Mention why some insects sting.***
3. Give the use of these parts to an insect.
    a. Haltares
    b. Spiracles
    c. Wings
4. Write down any two insects with
    a. Proboscis
    b. Mandibles

5. Complete the table below.

Insect	larva	pupa
Housefly	_____	Pupa
Mosquito	_____	Tumbler
Butterfly	_____	Chrysalis
bees	_____	pupa

SOUND

This is a form of energy produced by vibrations.

Itstimulates the sense of hearing ***in some animals***.

Sources of sound.

i) Natural sources of sound.

ii) Artificial sources of sound.

Natural sources of sound.

These are materials or objects that make sound but exist by nature.

Examples of natural sources of sound.

Animals	Birds singing	Wind
Rainfall	Lighting	Water fall.

Artificial sources of sound.

These are objects that make sound and are made by man.

Examples of Artificial sources of sound.

i)	Radios	iv)	Bungles	vii)	Cars
ii)	Bells	v)	Flutes	viii)	Drum
iii)	Whistles	vi)	Guns	ix)	Guitars

Music

This is organized sound with regular vibrations.

Noise

This is disorganized sound.

How sound is produced

Sound is produced by the vibrations.

NOTE: Vibration is the to and fro movement of an object or substance..

How sound is produced by living things.

i) Animals including man produce sound by vibration of their vocal cordsin voice boxes.

ii) Birds sing by the vibration of rings of cartilage in the trachea.

iii) Bees and mosquitoes produce sound by vibration of their rapid flapping wings.

iv) Grasshoppers and crickets produce sound by rubbing their hind legs against their vibrating wings.

Musical instruments

These are instruments that produce music when played well

Types of musical instruments

i) String instruments

ii) Wind instruments

iii) Percussion instruments

(a) String instruments.

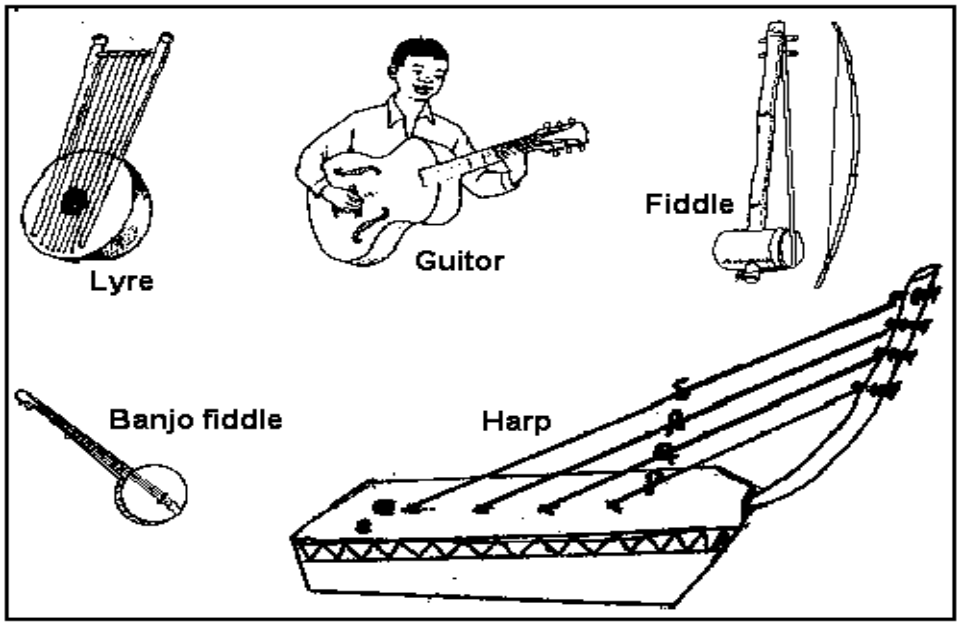
These are instruments which produce sound by vibrations of the strings when plucked.

Examples of string instruments.

i)	Guitar	ii)	Lyre	iii)	Harp

iv) Violin

v) Tube fiddle

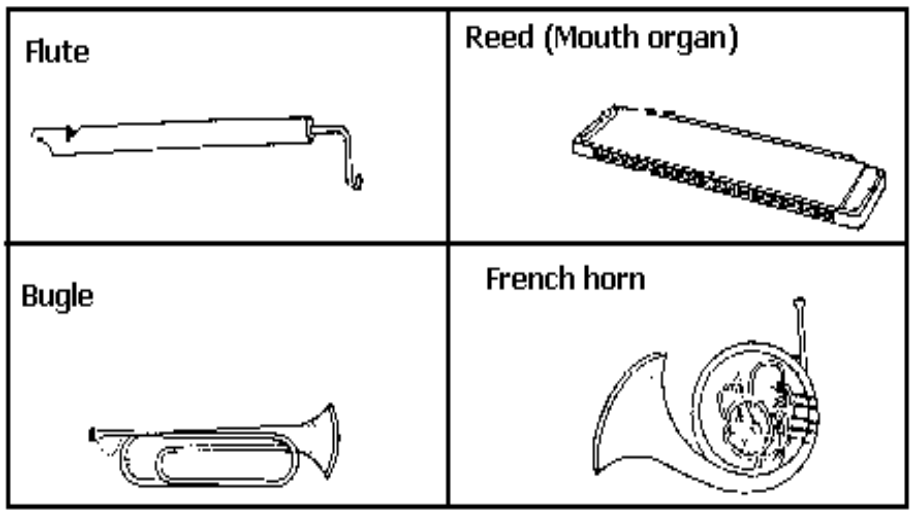


(b) <u>Wind instruments</u>

These are instruments which produce sound by vibration of air inside them when blown.

<u>Examples of wind instruments</u>

i)	Flute	iii)	Saxophone	v)	Bottle
ii)	Trumpet	iv)	Pine pipes	vi)	Horn



(c) <u>Percussion instruments.</u>

These are instruments which produce sound by vibration after striking or beating them.

They produce sound by vibration when beaten or struck.

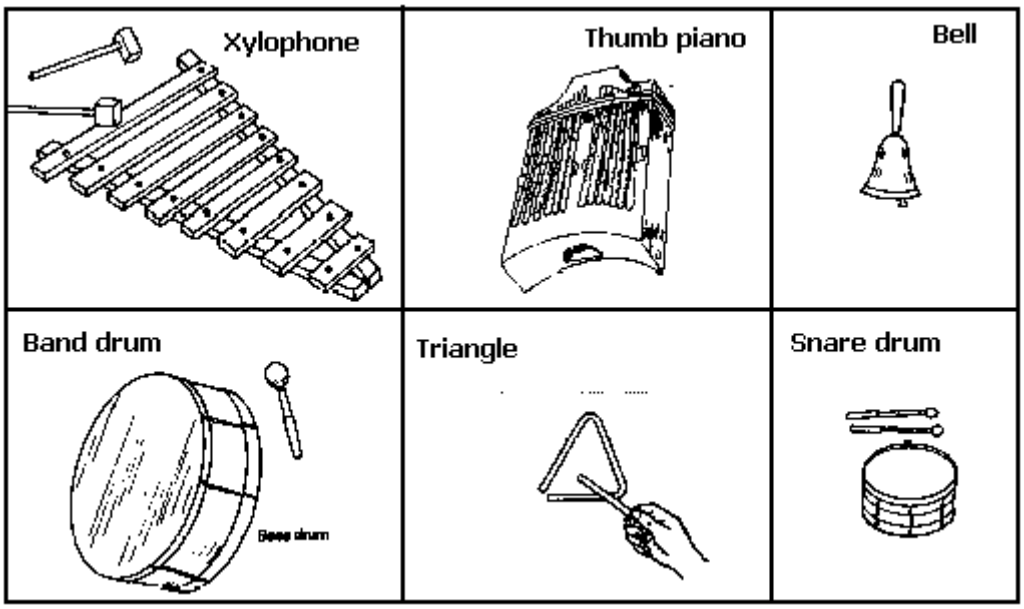
<u>Examples of percussion instruments</u>.

i) A drum produces sound by striking it then the skin vibrates.

ii) Shakers produce sound by striking them and they vibrate.

iii) Xylophones produce sound by striking them and they vibrate.

iv) Rattles - Bell



Exercise

1. What is sound?
2. Name three sources of sound
    a. Artificial sources
    b. Natural sources
3. How is sound produced?
4. Name at least two types of instruments.

How sound travels.

Sound travels through matter by means sound waves.

The sound waves travel in all directions from a vibrating object but become weaker as they move away from the vibrating object.

NOTE: Sound does not travel through a vacuum because a vacuum has no medium to transmit sound

The speed of sound.

i) Speed of sound in solids is 1500m/sec.The speed of sound in normal air or gas is 330m/sec.

ii) The speed of sound through water or liquids is 1484m/sec.

Therefore sound travels fastest in solids and slowest in gases.

Factors that affect the speed of sound.

(a) Temperature

We hear very clearly and easily at night than day because during night, the temperatures are low and waves travel very near the ground level.

(b) Heat

The heat of the day makes sound waves rise high making it difficult to hear.

(c) **Wind**. This can carry sound further if it is blowing in the same direction. If the wind blows against the sound, it is obstructed.

(d) **Altitude**.

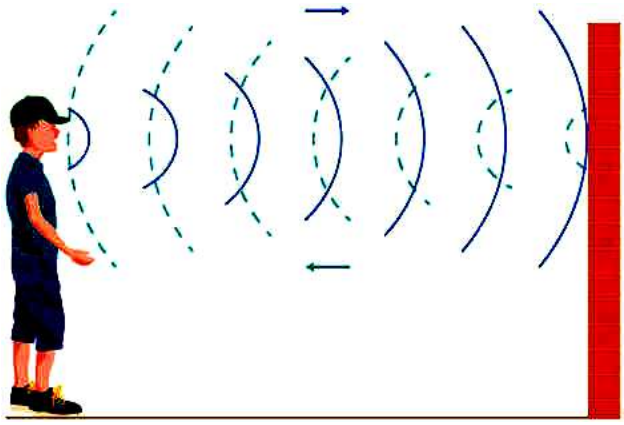
Sound waves move easily along a lower altitude than climbing or going up a hill or mountain.

ECHOES

An echo is a reflected sound.

It is caused by the obstruction of sound waves by an obstacle or barrier.

Echoes appear mostly around tall buildings, wall, cliffs, caves, mountains and empty rooms.



***Importance* of Echoes.**

i) Bats use echoes to locate food and obstacles when flying.

ii) Echoes help pilots to avoid accidents in hills or mountains when flying aeroplanes.

iii) Echoes help sailors to record the depth of the sea to avoid accidents of crashing ice bergs or rocks.

iv) Whales use echoes to dodge obstacles and danger ahead of them

How to prevent echoes.

i) By covering walls with soft wood or boards.

ii) By putting thick curtains in the rooms.

iii) By putting ceiling boards in the rooms.

e.g (a) It took 3 seconds to hear the echo of a man chopping wood.

How far was the man from the chopping place?

Distance = $\frac{S \times T}{}$

$$= \frac{(330 \times 3)\text{metres}}{2}$$

$$= \frac{990}{2}$$

$$= 495 \text{ metre}.$$

(b) A mooti was standing across a valley, which was 660 metre away from the cliff, if he shouts,
How long will hetake to hear the echo.

$$\text{Time} = \frac{D}{S}$$

$$= \frac{660\text{m} \times 2}{330\text{m/sec}}$$

$$= 2 \times 2 \text{ sec}$$

$$\text{Time} = 4\text{sec.}$$

Exercise

1. How does sound travel?
2. Why doesn't sound travel through a vacuum?
3. Identify any four factors that affect the speed of sound.
4. What is an echo?
5. State any two uses of echoes.
6. How does wind affect the speed of sound.

PITCH OF SOUND(PRACTICAL)

Pitchis the highness or lowness of sound

Volume is the loudness or softness of sound.

Frequency is the number of vibrations of an object per sec.

Factors that determine the pitch of sound.

i) Size of the vibrating surface.

ii) Tightness or looseness (tension) of the vibrating object.

iii) Frequency

How frequency determines pitch.

i. Quick vibration produce high frequency and therefore high pitch of sound.

ii. Low vibrations produce low frequency and therefore low pitch of sound.

ie.

1. 

Slow vibration, low frequency, low pitch

2.

Quick vibrations, high frequency, high pitch.

Size of the object.

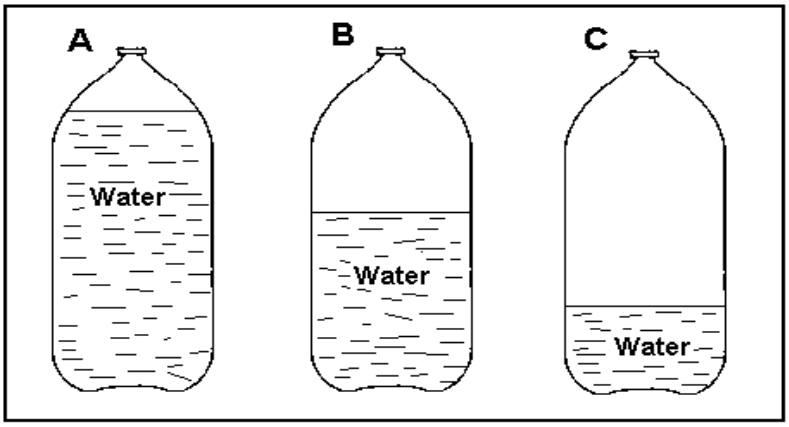
A  B  C 

A small object makes a high pitch than a big object.

Drum A produces the highest pitch and

Drum B produces the lowest pitch.

<u>In wind instruments</u>

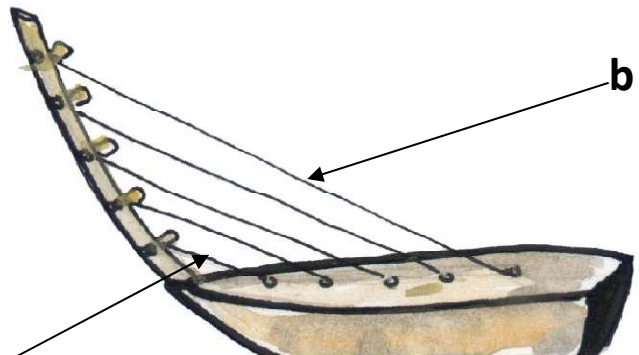


Bottle A produces the highest pitch because it has a small empty space which give quick vibrations of air

Bottle C produces the lowest pitch because it has a large empty space which give slow vibrations of air

<u>Length of the object</u>.

<u>The Adungu</u>.



^

a

a= Gives the highest pitch because it is short to produce quick vibrations

b= Gives the lowest pitch because it is long to produce slow vibrations

Exercise

1. What is pitch of sound?
2. How is frequency different from volume of sound?
3. Identify three factors that may affect pitch of sound
4. Give a reason why a short string may produce high pitched sound than a long one.

VOLUME OF SOUND.

Volume is the loudness or softness of sound.

The volume of sound depends on its amplitude.

Amplitude is the width of the vibrations or waves.

The greater the amplitude, the louder the sound, the smaller the amplitude, the softer the sound.

i.e

large amplitude / loud sound.

Great amplitude gives loud sound

small amplitude / soft sound

Small amplitude gives soft sound

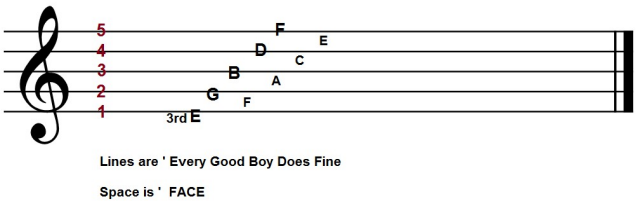
Methods of writing music.

iv) By solfa notation

v) By staff notation

Solfa notation.

Staff notation formula



How to store sound.

i) By recording on radio tapes or CDS

ii) By writing it in notation form.

Devices that can store sound.

i) Magnetic tapes

ii) Video tapes

iii) Reel tapes / cine films

iv) Compact Discs(CDs)

v) Digital Versatile Discs (DVDS)

vi) Video Compact Discs (VCDS)

vii) Mp3

viii) I-pods

ix) Digital Audio Tapes (DAT)

x) Flash Discs.

Devices which can record sound.

i) Audio tape recorders

ii) Video cameras

iii) Cine camera

iv) Computers

v) Video cassette recorders (VCR)

Devices that reproduces sound.

i) Cassette players

ii) DVD players

iii) Compact Discs

iv) Mp3 players

v) Projectors

vi) Gramme phones

vii) Computers viii) Video decks

How to reproduce sound.

i) By cassette tape playing

ii) By DVD playing

iii) By video disc playing

iv) By singing solfas

v) By CD playing

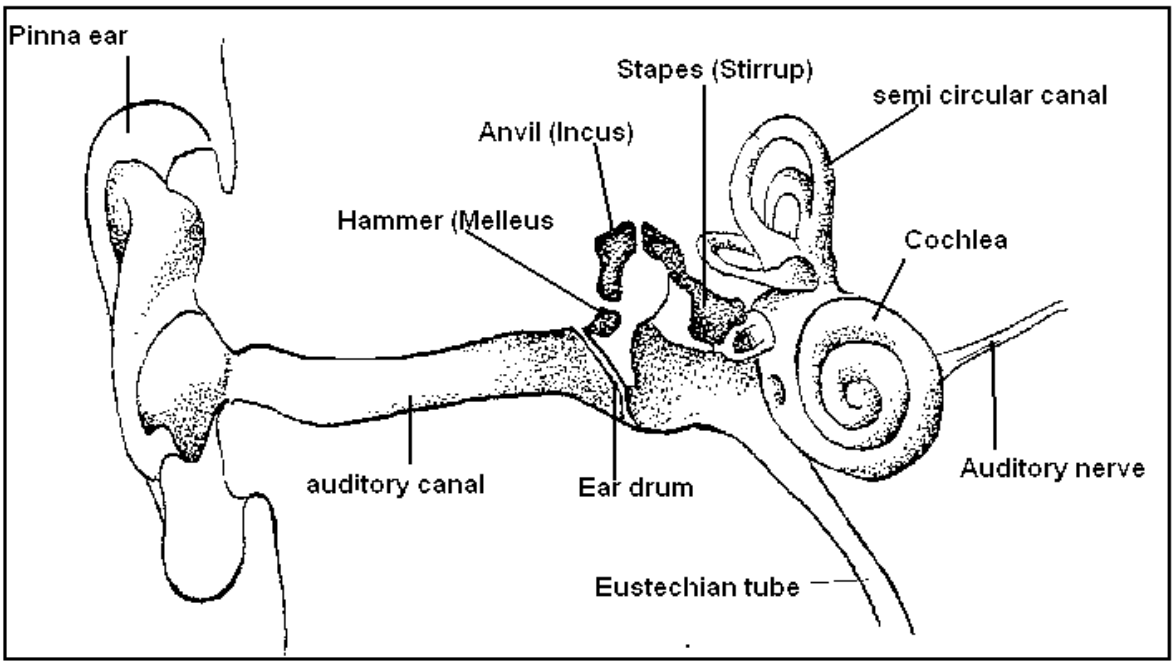
Materials on which different devices store sound.

Device	Material
Audio tape recorder	Cassette tapes
Video cameras	Video tapes and cassette tapes
Cine cameras	Cine film
Computers	CDS, MP3, VCD, DVD, ipods VCDS, VCR

Exercise

1. Define "volume" of sound
2. What is amplitude?
3. Name two methods of writing music
4. How can sound be stored?
5. Give three ways of reproducing stored sound.

THE HUMAN EAR



1. **<u>The Outer Ear</u>**

This is made up of the pinna and Auditory canal.

(a) <u>Pinna</u>

Traps or collects sound waves and sends them to the auditory canal.

vi) Pinnae of different animals are large and broad in order to trap the sound waves very well.

(b) <u>Auditory canal</u>

Sends sound waves into the middle ear.

vii) It has hairs and wax to trap and catch dust and other foreign bodies to prevent them from entering the ear.

2. **<u>The middle Ear</u>.**

It consists of the ear drum and ossicles.

(a) <u>Ear drum</u>

It ***vibrates according to the pattern of sound waves and sends sound vibrations to the Ossicles.***

(b) **<u>Ossicles</u>**.

They transmit and amplify vibrations into the inner ear.

<u>NOTE</u>: Ossicles are the 3 small bones namely; malleus or Hammer, Incus or Anvil and Stapes or Stirrup (MIS/HAS)

i) The three small bones join the outer ear and the oval window.

ii) The stapes / stirrup is the smallest bone in the human body.

iii) The middle ear is connected to the Eustachian tube.

iv) The main function of the Eustachian tube is to balance air pressure between the ear and the atmospheric pressure.

Exercise

1. Draw the structure of a human ear, and on it indicate
    a. Auditory canal
    b. Eustachian tube,
    c. Pinna
    d. Cochlea
    e. Semi –circular canals

The Inner Ear.

It consists of two main parts

i) Cochlea and semicircular canals.

(a) The cochlea

i) Receives sound ***vibrations*** and change them to nerve signals or impulses.

Auditory nerves.

i) Takes nerve impulses to the brain for interpretation.

Semi – circular canals

ii) Balance the body in its right posture.

it has the same function as the cerebellum of the brain.

NB

The cochlea and semicircular canals are filled with fluids called peri-lymph and endo-lymph

Functions of the ear.

i) For hearing.

ii) For balancing the body.

Organs for hearing

i) Fish – lateral line

ii) Snakes – Ear drum under the belly

Care of the Ears.

i) Regular cleaning of the ears.

ii) Avoid areas with too much sound.

iii) Avoid using sharp objects to clean your ears.

iv) Avoid pushing things in your ears like seeds and beads.

NOTE: (a) It is not advisable to clean the ear with sharp objects because they can damage the ear drum and lead to deafness.

Eat food rich in a balanced diet.

(b) Too much wax in the ear can lead to partial deafness. It will also lead to accumulation of dust in the ear.

Symptoms of a sick Ear.

v) Pain in the ear.

vi) Rise in the temperature.

Examples of Ear defects

i) Permanent deafness.

ii) Partial deafness.

iii) Sensory deafness.

Causes of Ear defects

(a) Permanent deafness.

i) Inheritance from parents.

ii) German measles.

iii) Damage of the ear drum

(b) Partial deafness

i) Too much wax in the ear.

(c) Sensory deafness.

i) Old age

ii) Injury of auditory nerve.

iii) Serious fracture of the skull.

How to control Ear defects.

i) Immunize children German measles

ii) Remove wax regularly

iii) Good feeding in old age.

iv) Avoid loud noise.

Proper removal of wax from Ears.

i) Using ear buds.

ii) By use of syringe / syringing

iii) Use of soft corner of handkerchief.

How to care for ears

i) Cleaning ears regularly

ii) Avoid loud music with the ears

Diseases of the ears

1) Otitis

i) Otitis media – attacks the middle ear

ii) Otitis externa–attacks the outer ear

iii) Otitis interna-attacks the inner ear

2) Boils

3) Labyrithitis- caused by virus

Activity

1. State any two functions of the ear.
2. Which part of the ear does the same function as the cerebellum of the brain.
3. Suggest any four ways of caring for your ears.
4. Name any two ear defects
5. How can ear defects be controlled?

TOPIC 3:

THE CIRCULATORY SYSTEM

This is a group of organs and substance responsible for transportation of materials in the body

Components of the circulatory system

i. The heart
ii. Blood
iii. Blood vessels.

THE HEART

This is a four chambered muscular organ made up of a special (main) muscle called **cardiac muscle.**

The four chambers are

i. Right auricle/atrium
ii. Left auricle /atrium
iii. Left ventricle
iv. Right ventricle

The main function of the heart to the body is to pump the blood to all parts of the body. It is enclosed in a tough membrane called **pericardium** that produces a fluid that controls friction during movement of the heart.

NB: The left side of the heart contains oxygenated blood and right side carries de-oxygenated blood.

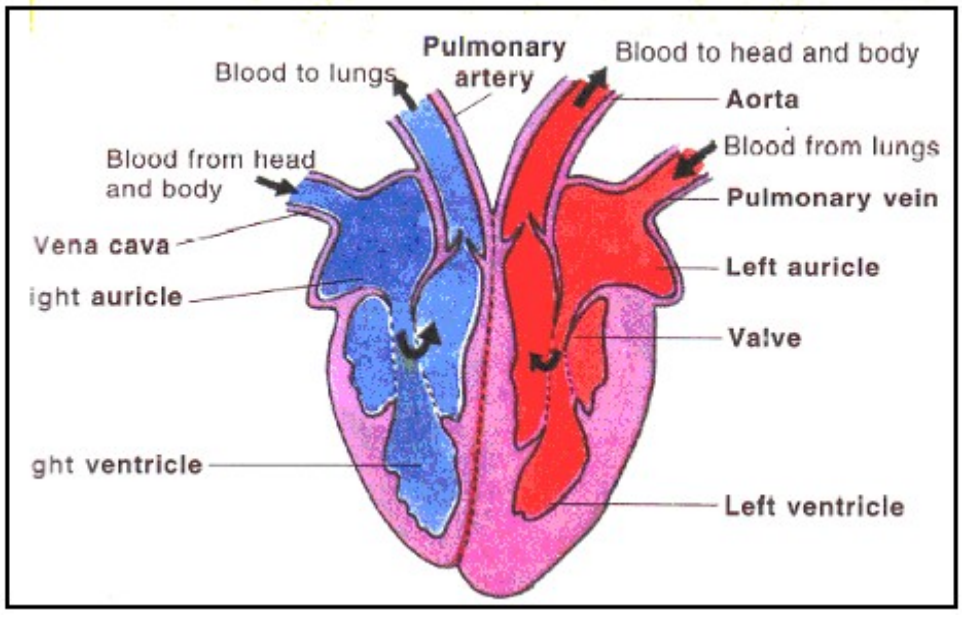
This is because the left side has pulmonary vein that brings oxygenated blood from the lungs to the heart. And the right side has venacava that brings de-oxygenated blood from all body parts to the heart.

NB: Its left ventricle is thicker than the right ventricle because it pumps blood to all parts of the body, at a high pressure. The number of times the heart beats per minute is called pulse rate. The normal heart beat of a person is 72 times per minute, but it can go beyond if a person is frightened, excited or after running.

Activity

1. What is the main function of the heart?
2. Draw the structure of the heart and name all parts

THE STRUCTURE OF THE HEART



Blood vessels on the heart

1. ***Vena Cava(from Body)***
2. ***Pulmonary artery (to lungs)***
3. ***Aorta (to all body parts)***

4. *Pulmonary vein (from lungs)*

Functions of the parts of the heart

Pulmonary vein: It brings oxygenated blood from the lungs to the heart.

Aorta: It takes oxygenated blood to all parts of the body. It is the largest artery in the body.

Pulmonary artery: It takes de-oxygenated blood to the lungs to pick oxygen.

Venacava: It brings back de-oxygenated blood from all body parts to the heart.

It is the main (largest) vein in the body.

Tricuspid valve: It controls the back flow of oxygenated blood.

Bicuspid Valve: To control the back flow of deoxygenated blood.

Right atrium: This creates space for de-oxygenated blood.

Right ventricle: It pumps blood to the lungs through the pulmonary artery.

Septum: It prevents oxygenated blood and de-oxygenated blood from mixing.

It divides the heart into two.

Left ventricle: It pumps blood to all body parts through the aorta.

Left atrium: It creates space for oxygenated blood.

Blood circulation

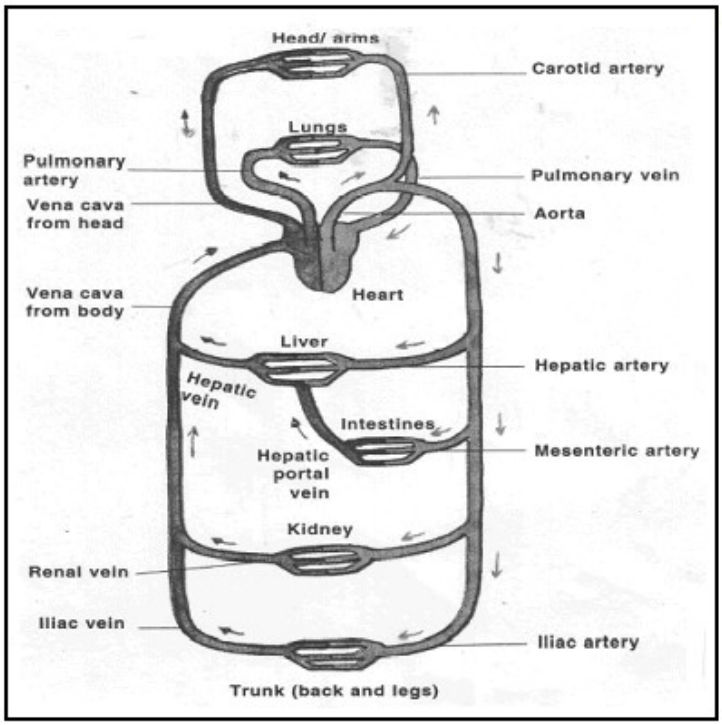
This is the movement of blood round in the body.

This was discovered by Sir William Harvey.

Doctors listen for the heart beat and sound produced during breathing using an instrument called **stethoscope.**This is normally worn by doctor in their ears and they put it on the chest of a sick person.

Doctors also use an instrument called **sphygmomanometer** to measure blood pressure.

A diagram showing circulation of blood



Activity

1. State the functions of the following parts
    a. Aorta
    b. Pulmonary artery
    c. Pulmonary vein
    d. Vena cava
    e. Septum
2. Why is the left hand side of the heat thicker than the right hand side?
3. Give the reason why blood goes to the lungs before being pumped to all parts of the body.
4. Name any four organs involved in blood circulation..

BLOOD: This is a liquid that moves around in the body to transport required substances to the organs and tissues and removes waste products from organs and body tissues

Or it is a liquid part for the body.

Components of blood

It is composed of the following components

i. Red blood cells (Erythrocytes)
ii. White blood cells (Leucocytes)
iii. Platelets (Thrombocytes)
iv. Plasma

Red blood cells:

These are red because they have a red pigment called haemoglobin that easily combines with oxygen to transport to all parts of the body. Blood containinghaemoglobin is called oxyhaemoglobin.

Functions of Red blood cells

It also transports Carbondioxide from the body to the lungs.

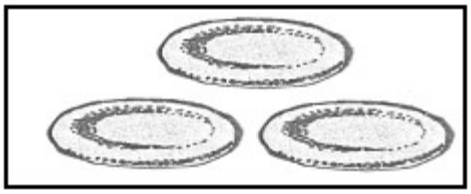
To transport oxygen to all parts of the body.

Red blood cells are made in the bone marrow of the short bones like : sternum, scapula, ribs, vertebra and pelvis

They do not have the nucleus, and are

Disc shaped.

Diagram showing red blood cells



Activity

i) What do you understand by the term "blood circulation"?
ii. What is blood?
iii. Name the three components of blood circulatory system
iv. State the main function of red blood cells.

White Blood Cells

They have the nucleus in their cytoplasm. They are made in the bone marrow of long bones, lymph nodes and spleen.

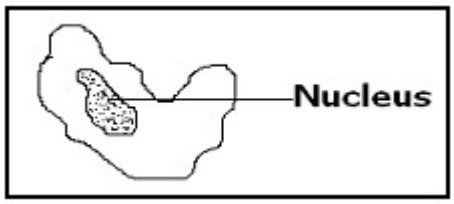
Functions of white blood cells

To defend the body against disease causing germs.

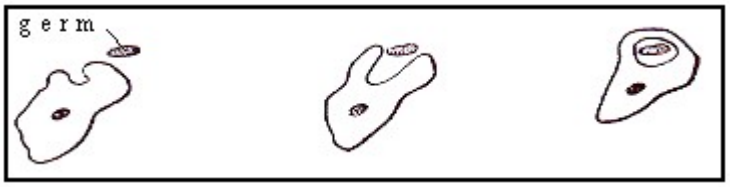
Ways through which the white blood cells defend the body

- By engulfing and digesting germs before the symptoms appear.
- By producing antigens against germs.
- By producing anti bodies against germs

Diagram of a white blood cell



Diagrams showing white blood cells and how they engulf the germs

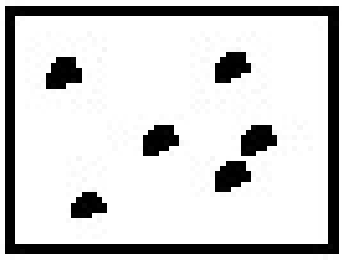


Platelets: they are also made in the red marrow, vitamin K also helps in the formation of platelets

Functions of platelets

They help in clotting of blood when a body part supplied with blood is cut

Diagram of platelets



Blood clot formation

- When the skin is cut and the blood started oozing out, the platelets come and form a network of fibres to prevent further loss of blood.
- Food rich in vitamin k eg cabbages help in the formation of platelets
- White blood cells sense danger and collect around the cut to engulf and fight germs (pathogens). Dead white blood cells and germs form pus.

Plasma: Is a Liquid watery part of blood

Functions of blood *plasma*	**Plasma contains the following substances**
▪ It transports hormone in a solution form. ▪ It transports antibodies ▪ It also transports digested food ▪ It also transports heat ▪ It transports waste products from all parts to where they are removed out of the body eg. Urine and sweat	ii) Water iii) Blood protein iv) Dissolved food v) Mineral salts vi) Urea vii) Carbondioxide viii) Hormones ix) Adrenalin x) Insulin etc.

Blood groups

There are four blood groups namely:-

Group A, Group B, Group AB and Group O

A donor: is a person who gives blood while a **recipient /receiver**: is a person who receives blood. Loss of a lot of blood causes a condition known as **shock**. This condition is therefore addressed through **blood transfusion**.

1. What is blood transfusion?
   This is the transfer of screened blood from one person to another so long as the blood groups agree.

Study the table below

Receiver /recipient	Donor
GROUP	GROUP
A	A,O
B	B,O
AB	AB,A,B,O
O	O

The blood grouping was first discovered by an Austrian Scientist called Karl Landsteiner in 1990.

In the above table, a person whose blood group is AB, receives blood from any group, therefore he/she is called a universal recipient and can only donate blood to AB. Whereas a person with

blood group O can give blood to any blood group , therefore he/she is called a universal donor, but gets blood from O group only.

Blood vessels

Blood vessels are tubes in which blood flows round the body.

There are three blood vessels namely;-

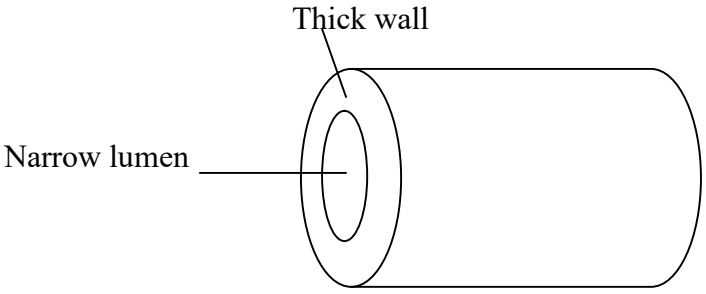
- Arteries
- Veins
- Capillaries

ARTERIES

They transport blood away from the heart to all parts of the body.

They are thick walled, muscular and have pulse. Pulse is a arrhythmic flow of blood through an artery. The biggest artery is Aorta. You can feel your pulse in your wrist

A diagram showing the walls of an artery.



VEINS

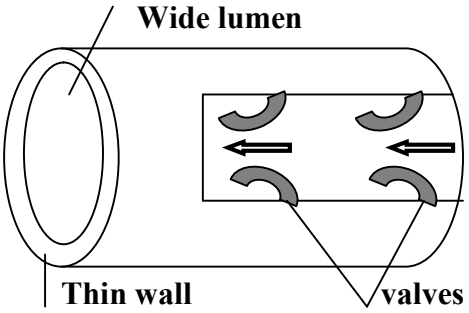
b. **Veins**

They return deoxygenated blood from the body to the right auricle of the heart
They have valves that prevent the backward flow of blood.

The blood in the veins contains less oxygen but more carbondioxide. The main (biggest) vein is the **venacava**.

NB: All veins carry de-oxygenated blood except pulmonary vein.

The structure of the vein



NB: all arteries carry oxygenated blood except pulmonary artery.

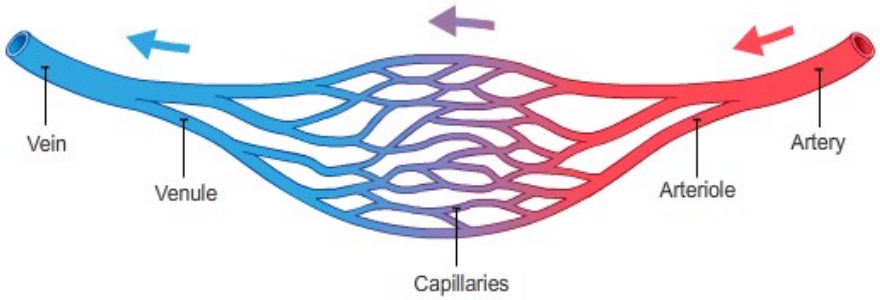
Oxygenated blood is bright red in colour, while de oxygenated blood is dark in color .

c. Capillaries:

These are tiny blood vessels about one cell thick and found in every living tissue of our bodies. They connect arteries to the veins

Functions
To allow exchange of body materials

A diagram showing the location of capillaries



Comparison between an artery and a vein

No	An artery	A vein
1	Arteries carry blood away from the heart	Veins carry blood back to the heart
2	Arteries carry oxygenated blood except pulmonary artery	All veins carry deoxygenated blood except pulmonary vein
3	Arteries have thick walls	Veins have thin walls
4	Arteries have narrow lumens	Veins have wide lumens
5	Arteries carry blood with a high pressure	Veins carry blood with a low pressure
6	Arteries do not have valves	Veins have valves which prevent back

		flow of blood

EXERCISE

1. Give the meaning of the following

a) Universal donor

b) Universal recipient

2. What are blood vessels?

3. Name any two blood vessels

4. State any three difference between arteries and veins.

DISEASES OF THE CIRCULATORY SYSTEM.

These diseases include:-

1. Heart attack or heart failure
2. Coronary heart disease
3. Heart stroke
4. Malaria (affects the red blood cells)
5. Sickle cell anaemia
6. ***Haemophilia***
7. ***Sickle cell***
8. ***Blood cancer (Leukemia)***
9. ***Hypertension***
10. ***HIV/AIDS***

<u>Diseases of the heart</u>

i) Heart attack / heart falure

ii) Coronary heat disease

iii) Heat stroke

<u>Diseases of blood</u>

i) Malaria

ii) HIV/AIDS

iii) Sickle cell anaemia

iv) Blood cancer

<u>Disorders of blood</u>

HIV /AIDS AND BLOOD

HIV- Human Immuno deficiency virus.

AIDS- Acquired Immune Deficiency Sydrome.

HIV is a virus that causes AIDs . HIV attacks and kills the white blood cells which defend the body from diseases.

Effects of HIV/AIDs to

Individual.

-Kills the white blood cells hence , reducing immunity.

i) Family.

- Much money is spent to care for the sick

-Children become orphans after losing parents.

-It brings sorrow to family members for losing loved ones.

Community

-Poor job performance.

-Increases the number of widows and widowers.

-Increases the number of orphans.

- Leads to low population.

Increasing the volume of Blood

The volume of blood can be increased by eating food rich in iron. Iron is needed in the body to make blood.

Ways of preventing Circulatory disease

i. Eat food that makes up a balanced diet
ii. Eat meals containing low animal fat
iii. Do regular exercises
iv. Avoid smoking to prevent coronary heart disease
v. Sleep under a mosquito net to prevent malaria
vi. Spray against mosquitoes
vii. Destroy places where mosquitoes breed to prevent malaria.

Advantages of regular exercises to the body

i. The heart muscles grow strong and larger.
ii. The heart delivers more blood to the muscles
iii. You do not get tired and get out breath easily.
iv. It reduces the level of fats in the body.
v. It reduces the risk of heart disease and high blood pressure.

vi. More enzymes are made in the muscle tissue to break down glucose and fatty acids to release more energy.
vii. Ligaments and tendons become more stronger and reduces chances of injuries
viii. Joints become more flexible.
ix. Digestion of food is carried out quickly and easily.

They help to prevent obesity.

Increase the volume of blood

The volume of blood can be increased by eating food rich in iron. Iron is needed in the body to make blood

Activity

1. Which disease of the circulatory system off destroys the red blood cells?
2. Apart from the disease named above, state any other four diseases of the circulatory system.
3. Identify any four ways of circulatory system.
4. Suggest any four advantages of doing regular body exercises

ALCOHOL AND ALCOHOLISM

Alcohol is any liquid which can make the person drunk if taken in the body in excess.

Alcoholism is a condition in which a person depends on alcohol and cannot do anything unless he has taken alcohol. (This is the frequent and regular use of alcohol)

Reasons why people drink

i) To show happiness or sadness
ii) To socialize with other people.
iii) To celebrate their success
iv) To act maturely
v) To improve on their mental performance
vi) To forget their problems
vii) To pass time

Reasons why people become alcoholics / factors that lead to alcoholism

viii) Poverty – advertisements made about alcohol.
ix) Family background – peer pressure
x) Poor social environment of alcoholics – idleness – frustrations
xi) Broken homes.

Types of alcohol

xii) Ethyl alcohol / Ethanol
xiii) Methyl alcohol / Methanol

Methyl alcohol

This is alcohol used to sterilize instruments. It is very dangerous if taken in the body in excess.

It can cause blindness e.g spirit and enguli.

Ethyl alcohol

This is the one contained in alcoholic drinks. It is commonly drunk by people. It can be used in as a disinfectant to kill germs.

Methods of producing alcohol.

xiv) Fermentation

xv) Distillation

(a) Fermentation method.

This is the process that involves turning sugar added to water into alcohol.ie water + Sugar , yeast _ Co2, Alcohol + energy , Alcohol + Carbondioxide + Energy (by products).

Common examples of drinks in Uganda containing alcohol.

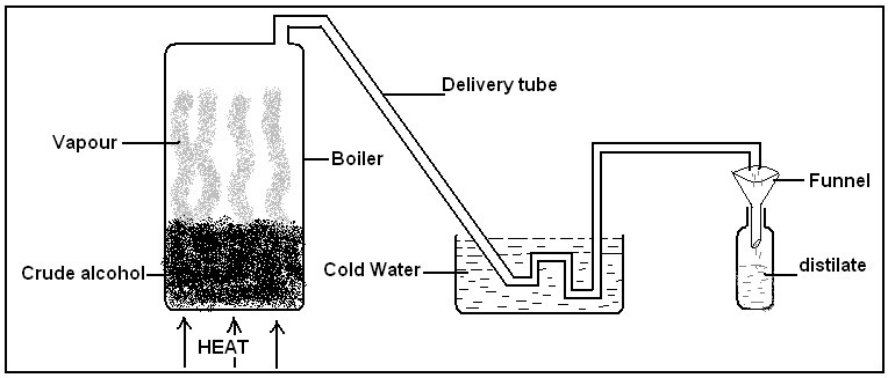
1. Tonto made from ripe bananas
2. Kwete made from maize.
3. Malwa made from millet.
4. Beer made from barley.
5. Munanasi made from pineapples.
6. Bwapo made from ripe bananas.
7. Muramba made from sorghum.

(b) **Distillation** is the process of obtaining alcohol by boiling and evaporating it then the vapour condensed.

NOTE: (i) Liquids made by distillation contains more alcohol e.genguli, kasese, liralira, dollar and vodka etc.

(ii) When distilling, the first drops of liquids that come contain more alcohol than water. This is because alcohol has a lower boiling point than water. Alcohol boils at 78^0C and water 100^0C.

Diagram showing Distillation.



(i) Distillate is a clear liquid got after distillation.

(ii) A residue is the remaining crude after distillation.

(iii) Cold water condenses the alcohol steamto form liquid .

Physical changes that take place during distillation

i) Evaporation ii) Condensation

Activity

1. What is alcohol?
2. Define alcoholism
3. Who is an alcoholic?
4. Give any four reasons why people drink?

USES OF ALCOHOL

i) Alcohol is sold for income.

ii) Used in the manufacture of some drugs.

iii) Used for making cosmetics and perfumes.

iv) Used for sterilizing medical instruments.

v) It is used as fuel

vi) Used in pressure lamps e.g spirits.

vii) Used in thermometers to take temperatures.

Addiction of alcohol

This is a condition when someone has strong desires to take alcohol every time or day.

Effects of alcohol on an individual

i. It damages the brain and make someone think less clearly.

ii. It affects the movement of hands and legs.

iii. It damages body organs like kidneys, stomach, liver and heart.

iv. It causes abdominal diseases leading to abdominal pain and damage to the pancreas.

v. Alcohol worsens stomach ulcers.

vi. Alcohol leads to self neglect

vii. It lowers appetite for food.

viii. Alcohol leads to body tremors.

Effects of alcohol to the family.

i. Alcohol leads to family neglect.

ii. It causes child and spouse abuse.

iii. It causes loss of income.

iv. Children lack moral guidance as parents are ever drunk.

v. Poverty

Effects of alcoholism to the community

i. Leads to fatal accidents.

ii. Leads to high crime rates.

iii. Poverty

Life skills for overcoming alcoholism

i. Assertiveness

ii. Self-awareness

iii. Decision making

How to prevent alcoholism

i. Avoid groups that drink alcohol.

ii. Have self determination to overcome drinking alcohol.

iii. Never drink alcohol to overcome problems.

iv. Join church choirs, foot ball teams and net ball clubs to occupy your free time.

v. Take the elders warnings about alcoholism.

vi. Never believe in advertisements that praise alcohol as a good drink.

The Ugandan laws against Alcohol.

i. People below the age of 18 are not allowed to take alcohol and enter bars.

ii. Home distillation of alcohol is prohibited.

iii. Never drink alcohol and drive.

iv. Bars should open between 4:00pm and 10:00pm.

v. All bar owners should have a licence.

Activity

1. Write any four uses of alcohol.
2. Give the meaning of the term “addiction “ of alcohol.
3. Identify any three effects of alcohol to an individual.
4. Give two life skills for overcoming alcoholic

SMOKING AND DRUGS

SMOKING

Smoking is the regular and frequent use of tobacco

Ways how smoking is done

- Chewing tobacco
- Inhaling of smoke
- Snuffing in the nose
- Smoking of pipes

Types of smoking

- Passive smoking
- Active smoking

Active smoking

Active smoking is where a person inhales tobacco smoke from the pipes or cigarettes they are smoking.

Passive smoking

Passive smoking is when a non smoker inhales air filled with tobacco smoke from someone else smoking.

Reasons why people smoke

- To relax their minds
- To feel and look mature
- To fit in groups
- To concentrate on their work
- To kill or pass time
- To look a real star.

Conditions which can lead a person to smoking/ factors that lead to smoking

- Peer pressure (group influence)
- Admiring smokers
- Advertisements made on cigarettes

Why can't the government of Uganda stop the products and importation of cigarettes. It gets a lot of taxes as revenue to the country

Dangerous substances found in tobacco

- Tar
- Nicotine

Name the dangerous gas found in tobacco

Carbon monoxide

NOTE

Nicotine causes high blood pressure

Tar causes lung cancer

Harmful effects of smoking to an individual

- Smoking leads to self-neglect
- Smoking causes lung diseases e.g. lung cancer
- Smoking causes cancer of the lips, mouth and the throat
- Smoking leads to high blood pressure
- Smoking worsens asthma and tuberculosis
- Smoking causes coronary heart diseases
- Smoking leads to loss of teeth.

Effects of smoking to pregnant mothers

- Smoking leads to pre-mature births
- Smoking leads to producing under weight babies
- Smoking leads to still birth

Effects of smoking to non-smokers

- Passive smokers will develop lung cancers
- Patients of asthma, tuberculosis and heart diseases will be worsened
- Children may copy the habits of smoking

Dangers of smoking to the family

- Smoking leads to family neglect
- Smoking leads to loss of income to the family
- Members of the family may get lung diseases

Effects of smoking to a community

- Leads to poor job performance hence loss of a job
- Smoking leads to air pollution in the community
- Smoking may lead to fire accidents

How to stop smoking

- Join good social groups which don't smoke
- Learn facts about smoking
- Decide one day never to smoke again
- Destroy all things connected to smoking e.g. lighter
- Avoid bad peer groups
- Never believe in misleading advertisements

Diseases worsened by smoking

- Bronchitis
- Asthma
- Tuberculosis

Exercise

1. Write brief notes about the following
    a) Alcoholism
    b) Fermentation
2. Mention two methods of producing alcohol
3. Mention the fungus used in making alcohol
4. Give two uses of alcohol to man
5. How is alcohol dangerous to an individual?
6. Which body organ is mostly affected by drinking alcohol
7. Name the Ugandan law against alcohol
8. Write brief notes about the following
    a) Smoking
    b) Passive smoking
    c) Active smoking
9. Why do people smoke
10. What is the effect of smoking to the non smokers?
11. What is the danger of smoking to the pregnant women?
12. Name three lung diseases associated to smoking

DRUGS

Qtn. What is a drug?

A drug is any chemical substance which can affect the proper function of the body if taken.

Qtn Identify any example of materials used to make drugs

- Plants
- Animals
- Minerals

Qtn State any use of drugs in the body

- To prevent diseases
- To cure diseases
- To reduce symptoms of a disease

Qtn What are vaccines?

Vaccines are medical substances which are introduced in the body to produce antibodies against diseases.

Qtn What are essential drugs?

Essential drugs when used can reduce pain, prevent, cure or reduce symptoms of a disease.

Essential drug are chemicals which meet peoples common health needs.

Qtn Name two drugs which can relieve pain

- Panadol
- Aspirin'
- Magnesium

Qtn Name two qualities of essential drugs

- They should be accessible
- They should be affordable
- They should be effective
- They should be safe

Qtn Name the two types of essential drugs

- Laboratory manufactured drugs
- Locally or traditionally manufactured drugs

NOTE: Laboratory manufactured drugs are drugs made from laboratory

Qtn. Identify two qualities of laboratory manufactured drugs

- There strength is known

- Their effect to the body is known
- They show expiry dates of the drug
- They indicate expiry date of a drug
- They are made carefully and tested
- They are always the same ***strength*** for each quantity

Qtn. What is an expiry date?

This is the date at which the drug becomes too old to use any more.

Qtn. Mention any two examples of laboratory manufactured drugs

- Chloroquine
- Quinine
- Panadol

Qtn. What is drug prescription?

This is a written medical instruction showing the proper use of a drug

This is written information by a medical worker on the use of a drug.

Qtn. Name any two examples information shown under drug prescription

- Name of the drug
- Disease the drug cures
- Dosage and duration of treatment
- Expiry date of the drug

Qtn.Name two advantages of drug prescription

- It prevents wrong use of drug
- It prevents under dose of a drug
- It prevents over dose of a drug
- It controls drug misuse

Qtn. Identify two things to consider when prescribe a drug

- Age of the patient
- Weight of the patient
- Type of drug to be prescribed
- Type of illness

Qtn.What are the dangers of buying drugs from local shops?

- Drugs may become contaminated due to poor storage
- You may be given poisonous drugs which are expired
- The shopkeepers may sell you fake drugs
- You may be given over dose or under dose

Qtn. How are the following dangerous in drugs medical?

i. Over dose

It can lead to poisoning of the body

ii. Under dose

It makes germs resistant to medicine hence worsening the sickness.

Proper storage of drugs

- Keep drugs in place free from moisture
- Keep drugs from direct sunlight
- Keep drugs out of reach of children
- Keep drugs away from dirt

Why drugs should be kept away from reach of children

To prevent overdose that lead to child poisoning

Name two examples of traditional drugs

- Ebbombo for cough
- Enkejje for measles
- Mululunza for malaria

Identify any three disadvantages of locally manufactured drugs

- They can lead to overdose or under dose
- Their strength is not known
- They lack expiry dates
- Their effect on human health is not known

DRUGS OF DEPENDENCE

Define the following

Useful drugs

These are drugs that are used to overcome illness in the body

Examples of useful drugs

- Asprin
- Chloquine
- Quinine
- Panadol

Useless drugs

These are drugs which do no good or harm to the body

E.g.Cold tablets.

Harmful drugs

These are drugs that can cause harm to the body once taken

Example of harmful drugs

- Cow dung for cuts
- Tea leaves for wounds
- Cooking oil for burns and scalds

What is drug misuse?

This is the use of a drug with out the proper medical prescription

This is the use of a drug without a doctor's advice.

Ways how drugs can be misused

- Sharing the same dose of one patient by many people.
- Taking overdose or under dose of a drug.

Qtn.<u>What is drug dependence</u>?

Drug dependence is the continuous use of drug in which a person can not do without it.

Qtn.<u>What are drugs of dependence?</u>

These are drugs which cause addiction to the body when taken.

What is drug abuse?

Drug abuse is the use of a drug in a way that is harmful to the body.

Or

Drug abuse is the illegal use of a drug that is punishable by law.

Qtn.Name the common drugs of dependence

Opium	Hashish	Aviation fuel
Marijuana /bhang	Mirra	Tobacco
Aspirin	Cocaine	Tirraglu
Valium	Alcohol	Caffeine

Qtn. Why do people abuse drugs?

- To stay awake
- Peer pressure
- To stimulate sexual desires
- To relax their minds

Qtn. How is drug dependence dangerous to an individual?

- It affects body organs like brain, heart, kidney, liver, stomach
- It leads to self neglect
- It leads to lack of sleep
- It causes lack of concentration on the Job.
- It leads to body immunity lowering
- It causes body tremors
- It leads to job neglect
- It brings shame or loss of respect

Commonly abused drugs

i) Cannabis
ii) Cocaine
iii) Caffeine
iv) Alcohol
v) Mirals

Qtn. What are the effects of drug abuse to the famil0 ?

- It leads to family neglect
- It leads to loss of income to the family
- It leads to violence in a home
- It brings poverty

Identify the effects of drug abuse to the community

- It leads to high crime rate acts like rape, defilement and robbery
- It leads to accidents in the community
- It leads to air pollution

- It leads to poor job performance.

Life skills to overcome drug abuse

- Be assertive
- Avoid moving with groups that take drugs
- Join church choirs, football and netball teams to avoid boredom.

Who is a drug addict?

A drug addict is a person who cannot do anything without taking drugs.

What is drug addiction?

- Drug addiction is a condition in which a person cannot do anything without a certain drug.
- Drug addiction is a condition that results from prolonged use of drugs