

PRIMARY SIX

SCIENCE

TERM I NOTES

THEME: WORLD OF LIVING THINGS _____ TOPIC: CLASSIFICATION OF ANIMALS

LESSON: 1 CLASSIFICATION OF VERTEBRATES.

Classification of living things (basic characteristics)

- ❖ Classification means grouping of organisms according to their characteristics.
- ❖ **Basic characteristics of living things are:**
 1. They reproduce.
 2. They respond to stimuli
 3. They respire
 4. They feed
 5. They grow
 6. They excrete

Groups of animals

- ❖ Animals in the environment are grouped into **vertebrates** and **invertebrates**.
- ❖ Vertebrates are animals with a back bone/vertebral column/spine.

Characteristics of vertebrates.

1. Vertebrates have a back bone/spine/vertebral column
2. Vertebrates have endo skeleton.
3. They have a water proof skin.

Classification of vertebrates./Classes of vertebrates

Vertebrates are classified or grouped into two groups/classes namely;

1. Warm blooded vertebrates
 - Birds
 - Mammals
2. Cold blooded vertebrates
 - Reptiles
 - Fish
 - Amphibians

❖ **Warm blooded animals**

Are vertebrates whose body temperature is constant

Groups of warm blooded vertebrates

Birds and mammals

❖ **Cold blooded animals**

are vertebrates whose body temperature is not constant

Groups of cold blooded vertebrates

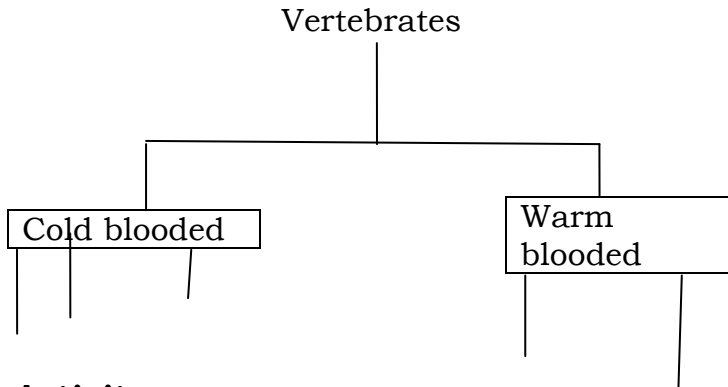
✓ reptiles

- ✓ amphibians
- ✓ fish

Examples of cold blooded vertebrates

Lizards, snakes, crocodiles, frogs, toads and fish

Classification table of vertebrates



Activity

1. List any two characteristics of living things

- i) _____
- ii). _____

2. In one sentence explain the term vertebrates.

3. Identify any one characteristic common to all vertebrates.

4. Write one sentence to explain the following terms

a) Warm blooded animals

b) Cold blooded animals

5. Give two groups of cold blooded vertebrates.

- i). _____
- ii) _____

6. In one sentence give a reason why animals move.

7. identify one group of warm blooded vertebrates

8. identify any one factor considered when classifying animals

SUB TOPIC: WARM BLOODED VERTEBRATES LESSON 2 : BIRDS (CHARACTERISTICS OF BIRDS)

A bird is warm blooded vertebrate covered with feathers, two wings, two legs and a beak.

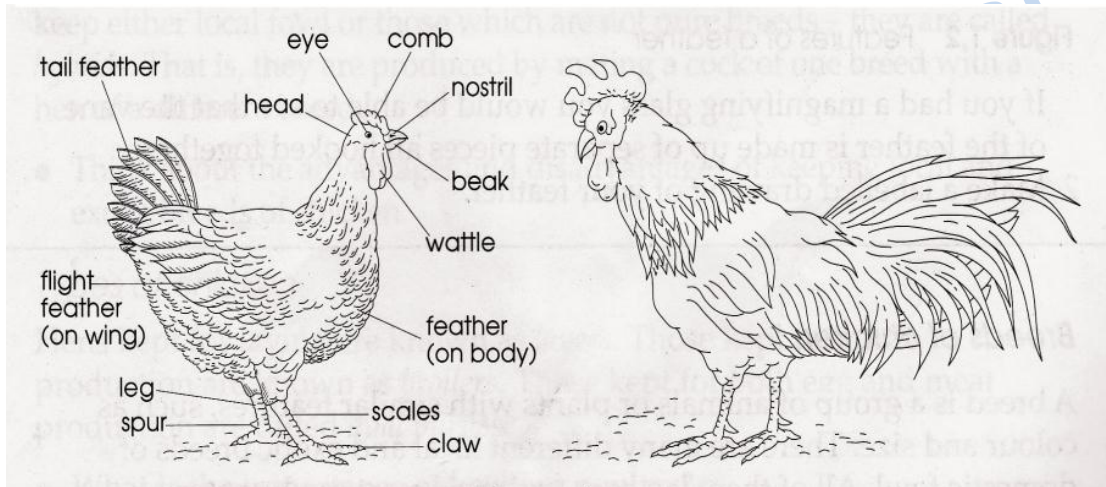
Characteristics of birds

- ❖ They are warm blooded vertebrates.
- ❖ Their legs are covered with scales
- ❖ Their bodies are covered with feathers
- ❖ They reproduce by means of laying eggs.
- ❖ They undergo internal fertilization
- ❖ They breathe using lungs.

NOTE 1: birds use their front limbs modified as wings for flying and the hind limbs for walking.

An illustration showing the external parts of a bird.

NOTE 2: Their skin is dry, loose and has no sweat glands so cooling is by panting. Birds cool their body by panting



Note 3:

A bird has spurs on the legs for protection/defence.

Uses of feathers to birds.

- Feathers provide warmth to the body of the bird.
- Feathers help the bird to fly
- Feathers protect the skin from injury

Activity

1. Give any two characteristics of birds.

i) _____

ii) _____

2. In one sentence give the functions of the following parts of the bird.

a) Talons

b) feathers

c) Beak

3. State how birds reproduce

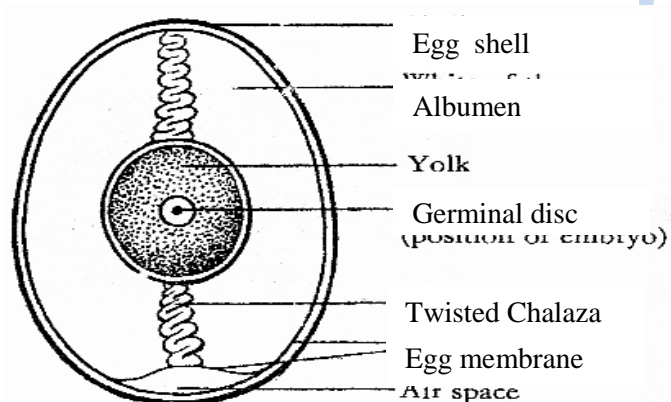
4. Why are birds called warm blooded animals
5. How do birds cool their bodies when it is hot
6. Give two differences between a hen and a cock
 - i).
 - ii).
7. How do feathers keep birds warm

SUBTOPIC: VERTEBRATES
LESSON 4; BIRDS (REPRODUCTION IN BIRDS)

Reproduction in birds

- ❖ Birds reproduce by means of laying eggs.
- ❖ Their eggs are fertilized internally before they are laid out.
- ❖ A hen will sit on the eggs (incubate) until they hatch into young ones (chick)

An illustration showing parts of a fertilized egg.



Functions of the parts.

Egg shell: protects the inner part of an egg.

It is porous to allow gaseous exchange.

Air space: It stores air

It provides oxygen to the embryo.

Egg Yolk; provides food to the growing embryo.

Germinal disc: develops into a chick.

Albumen or egg white; Provides food to the growing embryo.

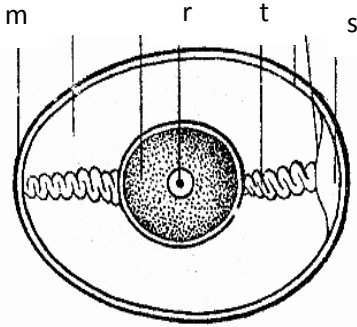
Chalaza; holds the Yolk and embryo in one position.

It transports oxygen to the growing embryo

Learners' activity

1. Which type of fertilization occurs in birds.

2. The diagram below shows a fertilized egg. Use it to answer the questions that follow.



a) Name parts of an egg marked

r _____

t _____

b) State the functions of each of the following parts

i) s _____

ii) m _____

c) What class of food is obtained from eating eggs?

d) How do birds reproduce?

SUBTOPIC: VERTEBRATES.

LESSON 5: GROUPS OF BIRDS.

Birds of prey

These are birds that hunt and kill their own prey.

Examples of birds of prey

- ✓ Eagle
- ✓ Owl
- ✓ Kite
- ✓ Hawk
- ✓ Falcon
- ✓ Secretary bird

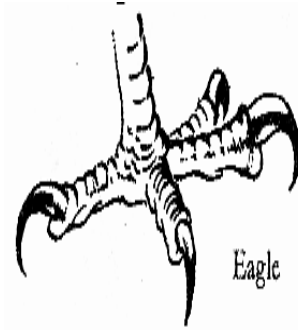
Characteristics of birds of prey

- ❖ Have strong sharp hooked beak for tearing their prey
- ❖ Have strong curved talons for easy gripping of their prey.
- ❖ Have a strong eye sight to locate their prey.

A Beak of a bird of prey



A foot of a bird of prey



Scavenger birds.

- ❖ Are birds which feed on carrion(decaying flesh)

Importance of scavenger birds

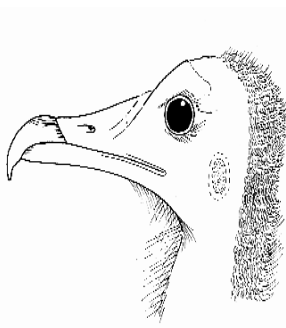
- they clean the environment by feeding on carrion
- they reduce bad smell the environment by feeding on carrion

Examples of scavenger birds

- ✓ crows
- ✓ vultures
- ✓ marabou storks

Diagram showing a beak and foot of scavenger bird

Beak



Foot



Note: scavenger birds have beaks similar to the birds of prey.

Compare the beaks of a bird of prey and a scavenger bird

Learners' Activity

1. State any one example of a scavenger birds.

2. State the way a scavenger bird differs from a preying bird

3. How useful are scavenger birds in our environment

4. Apart from birds, name any other example of scavenger animals

5.State the meaning of the term scavenger birds.

6. What are birds of prey?

7.Name any two examples of birds of prey.

i). _____

ii). _____

8.Give one adaptation of birds of prey.

9.why is a kite called a bird of prey.

Perching birds:

- ✓ These are birds that perch on branches of trees.
- ✓ Have one toe pointing backwards and three toes pointing forward

The diagram showing the foot and head of a perching bird

Structures showing a robin and sparrow birds.



Robin



Sparrow

Note: Perching birds are grouped according to their habits and feeding.

Groups of perching birds

- ✓ Seed eaters
- ✓ Insect eaters
- ✓ Nectar suckers
- ✓ Fruits eaters

Seed eaters: these have short conical beaks for easy splitting of seeds.

Examples include, pigeons, dove, weaver birds, finches

Insect eaters: These have short narrow beaks for easy picking up of the insects from barks of trees.

Examples include robins, sparrows, swift, swallows.

Note: Insect eaters have the ability to catch their prey on flight.

Structures showing a robin and sparrow birds.



Robin

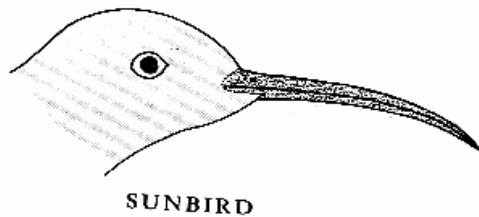


Sparrow

Nectar suckers; these have long slender beaks for easy sucking of nectar from flowers.

Examples are; the sun bird and humming bird.

An illustration showing a beak of a sun bird.



SUNBIRD

Fruits eaters:

These have long stout /strong beaks for collecting fruits from trees.

❖ They are also called foresters and help in seed or fruit disposal.

A horn bill is the best example of a fruit eater

A diagram showing the head of a horn bill

ACTIVITY

1. Give one example of a perching bird.

2. Give one adaptation of perching birds.

3. Give an example of each of the following groups of perching birds.

a) seed eaters

b) insect eaters

c) nectar suckers

d) fruit eaters

4. How is a sun bird adapted to feeding on nectar?

5. How is a hornbill adapted to eating fruit

Scratching birds

- ❖ These are birds which scratch earth to find their food.
- ❖ Such birds get worms, small insects and seeds from soil.

Characteristic of scratching birds.

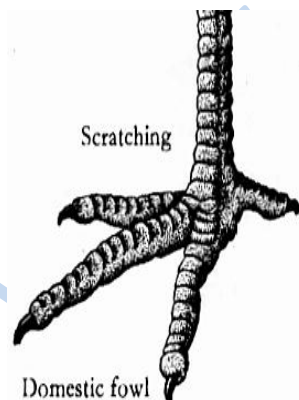
- ❖ They have strong feet with thick toes and blunt talons for scratching the ground
- ❖ They have strong pointed beaks for picking up things from the ground.

Examples of scratching birds

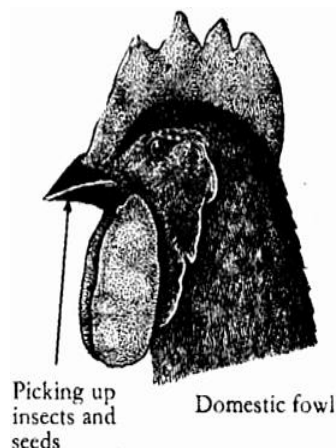
- ✓ Chicken
- ✓ Guinea fowl
- ✓ Turkey
- ✓ Crested francolin

An illustration showing a beak and foot of a scratching bird.

Strong foot thick toes and blunt claws



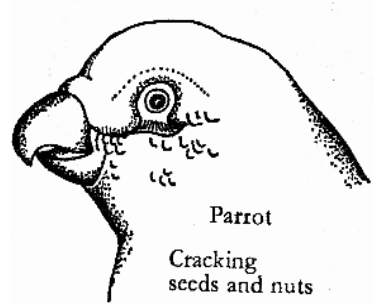
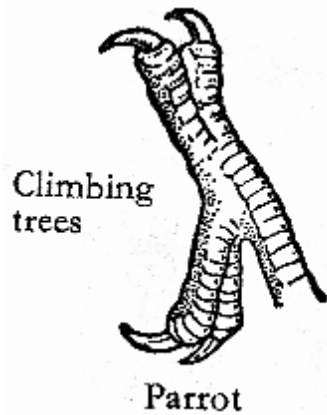
Strong short pointed beak for picking up food from soil



Climbing birds

- ❖ These are birds with two toes pointing forward and two pointing backwards.
- ❖ The toe arrangement helps them to climb trees looking for seeds and insects.
- ❖ They commonly live in trees and run about on branches of trees.

An illustration showing the toes of a climbing bird.



A structure of a head of a parrot

Two toes pointing forward and two toes backwards.

Examples include

- ✓ Parrots and wood pecker.

Learners' Activity

1. Give one example of a climbing bird.

2. State one adaptation of climbing birds

3. Give one example of a scratching bird

4. Write one adaptation of scratching birds

5. Name one food eaten by scratching birds

SUBTOPIC: VRTEBRATES (BIRDS)

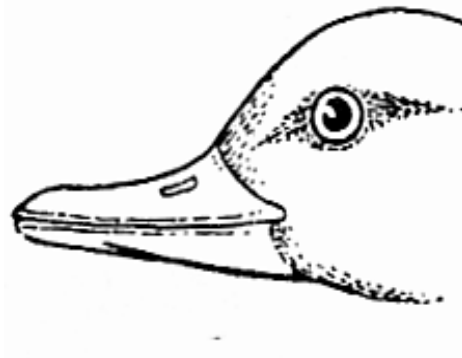
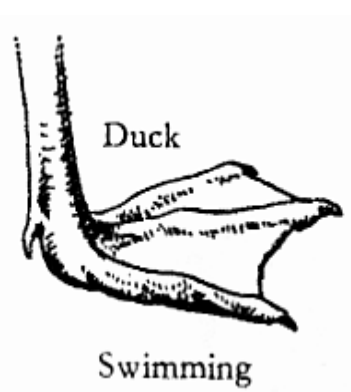
LESSON 7: SWIMMING BIRDS

- ❖ These are birds with webbed feet for swimming in water
- ❖ Examples include, swan, duck, goose, penguin, sea gull, pelican.

Adaptations of swimming birds

- ❖ They have a spoon shaped beak for easy sieving of their food from mud/water.
- ❖ They have webbed feet for swimming in water

An illustration showing the foot and a beak of a swimming bird.



A webbed foot for padding in water

Spoon shaped beak for easy sieving of food from water/mud.

Learners' Activity

i) What is meant by the term swimming birds?

ii) List any two examples of swimming birds

a). _____

b). _____

iii) State two ways in which swimming birds are adapted to their mode of life.

a). _____

b). _____

iv) In the space below draw a foot of a swimming bird.



v). What do swimming birds feed on

LESSON 8: Wading birds

Wading birds;

❖ Wading birds are birds that walk through water to find their food.

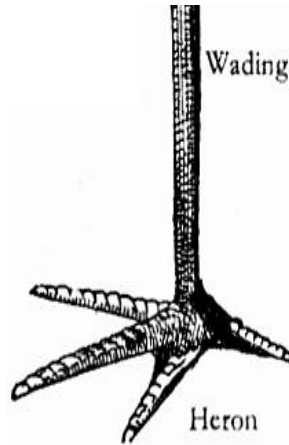
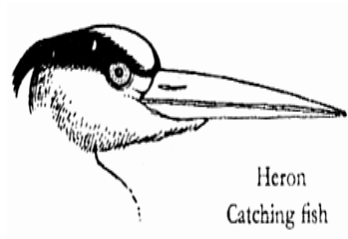
Wading birds have the following characteristics.

1. Have long beaks for easy catching of small fish and worms from water for food.
2. Have long thin legs for walking in water

Examples of wading birds.

Ibis, heron, egrets, crested crane, flamingo birds, storks.

An illustration showing a beak and a foot of wading bird.



Flightless birds.

❖ These are birds which cannot fly

Why flightless birds can't fly

- ✓ They have bone marrow which increases their body weight
- ✓ They do not have flight feathers
- ✓

Examples of flightless birds includes;

Ostrich, kiwi, emu, penguin, cassowary, hrea

Note: ostriches are commonly kept in the zoo and their eggs are edible.

A structure showing an ostrich.



Learners' Activity

1) In one sentence state the meaning of the following terms:

i) Wading birds

ii) Flightless birds

2) Give two examples of;

- i) Wading birds
 - a). _____
 - b). _____
 - ii) Flightless birds
 - a). _____
 - b). _____
- 3) Name the flightless bird commonly kept in the zoo.

 - 4) how are wading birds adapted to feeding?

 - 5) give two reasons why an emu bird cannot fly

 - 6) how is a flamingo bird able to live in wetlands

Adaptation of birds to flight

- ❖ Their front limbs are modified into wings for easy flight.
- ❖ Most have hollowed bones to reduce their body weight for easy flying.
- ❖ They have a stream lined body to overcome viscosity during flight.
- ❖ They have no pinna to obstruct the flow of air on flight.
- ❖ Their bodies are covered with feathers to provide warmth
- ❖ They have a nictitating membrane which protects their eyes against foreign bodies into the eye on flight.

Advantages of birds to people

- ❖ Birds provide people with meat and eggs as food.
- ❖ Some birds (scavengers) help to keep the environment clean
- ❖ Domestic birds are a source of income once sold.

Disadvantages of birds in the environment.

- ❖ Many birds spoil farmer's crops
- ❖ Birds cause noise pollution especially weaver birds in the environment.
- ❖ Bird feathers keep vectors to human health like fleas and mites.

Learners' Activity

- 1) State any two ways in which birds are adapted to flight.
 - i). _____
 - ii). _____
- 2) In two sentences state the importance of birds to people.
 - i). _____
 - ii). _____
- 3). State how birds can be dangerous in our environment.

- 4). How is a nictitating membrane important to birds during flight.

5). How is an eagle able to fly

Mammals

Mammals; These are warm blooded vertebrates with mammary glands

General Characteristics of mammals include;

- ❖ They have mammary glands
- ❖ They have well developed ear lobes to trap sound waves.
- ❖ They have fur on their bodies.
- ❖ They breathe through the lungs.
- ❖ Most mammals give birth to their young ones
- ❖ They have back bones.
- ❖ All mammals are warm blooded.

Specific characteristics of mammals

- ❖ Their bodies are covered with fur
- ❖ They have mammary glands
- ❖ They feed their young ones on breast milk produced by the mammary glands.

Classification of mammals.

Mammals are grouped into nine sub classes according to their features and behavior.

These are;

- ❖ Primates (most advanced mammals)
- ❖ Rodents (gnawing mammals)
- ❖ Ungulates (hoofed mammals)
- ❖ Chiroptera (flying mammals)
- ❖ Monotremes (egg laying mammals)
- ❖ Carnivores (flesh eaters)
- ❖ Marsupials (pouched mammals)
- ❖ Insectivores (insect eating mammals)

Learners' Activity

1) In a sentence explain the term mammal.

2) Give a reason why mammals are referred to as vertebrates

3) Give two groups of mammals.

i). _____

ii). _____

4). In one sentence, give a reason why a kangaroo is regarded as a mammal.

5). How do mammals reproduce.

6) why are mammals regarded as warm blooded vertebrates

Primates

Primates (most advanced mammals)

- ❖ Primates are the most advanced subclass of mammals.
- ❖ They have a well developed set of teeth (32)
- ❖ Primates have an advanced brain.

Characteristics of primates.

- ❖ They have five fingers on each hand and five toes on each foot.
- ❖ They use their front limbs for holding things while hind limbs for walking.
- ❖ All primates are omnivores ie feed on both flesh and vegetables)

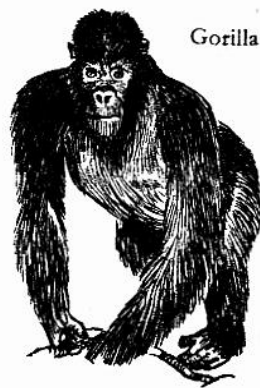
Examples of primates includes;

People, gorillas, chimpanzee, baboon, bush baby, monkey, apes, gibbon orang utan

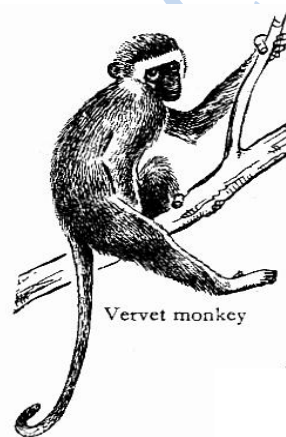
Drawn structures showing a bush baby, a monkey and a gorilla.



A bush baby



A gorilla



A monkey

Egg – laying mammals (monotremes)

- ❖ These are mammals which reproduce by means of laying eggs.
- ❖ They feed their young ones on milk from mammary glands.

Examples of monotremes include;

There are only two examples of monotremes namely; duck billed platypus and spiny anteater (echidna)

Illustrations showing monotremes



Duck-billed platypus



Spiny ant eater

Activity

- 1) What is meant by the term monotremes.

- 2) Give any two examples of monotremes
 - i). _____
 - ii). _____
- 3) State any two reasons why primates differ from other mammals.
 - i). _____
 - ii). _____
- 4) Explain why monotremes are grouped under mammals.

- 5) In which way is duck billed platypus similar to a spiny anteater.

- 6) How does a duck billed platypus reproduce?

- 7) Why is spiny anteater called a mammal.

- 8) How are monotremes similar to birds in terms of reproduction?

- 9) Why is a monkey regarded to as a primate?

- 10) Name the largest group of mammals.

- 11) Which group of mammals is regarded to as primitive?

Chiroptera (flying mammals)

- ❖ These are the only mammals that fly.
- ❖ They have fold skin attached to the fore limbs which act as wings. Bats are the only true examples of chiropteras.

Note; Bats are nocturnal animals i.e they are more active during the night.

- ❖ Bats use echoes to locate food at night.
- ❖ Bats use echoes to dodge obstacles on flying.

An illustration showing a bat flying.



- 1) State any one example of a flying mammal.

- 2) Of what importance are echoes to bats?

- 3) In one sentence state a reason why bats are regarded as mammals.

- 4) Why are bats called nocturnal animals?

- 5) How are bats important to plants?

Pouched mammals;

- ❖ These are mammals with pockets on their abdomen inside where mammary glands are found.
- ❖ They are commonly found in Australia and South Africa.
Examples of pouched mammals include;
Kangaroo, koalabear, wallabies, opossums, wombat

An illustration showing a kangaroo with its young one.



- Note;** The word marsupial means a pouch or a bag
- ❖ A kangaroo can leap or jump a great distance.

Learners' Activity

- 1) Apart from kangaroos give any two other example of pouched mammals.

- 2) Explain why Marsupials are called mammals

- 3) State two ways in which marsupials are adapted to their mode of life
i). _____
ii). _____
- 4) why are kangaroos called pouched mammals

Flesh eating mammals (carnivores)

These are sub groups of mammals with well developed canine teeth and feed on flesh.

Characteristics of fresh eating mammals.

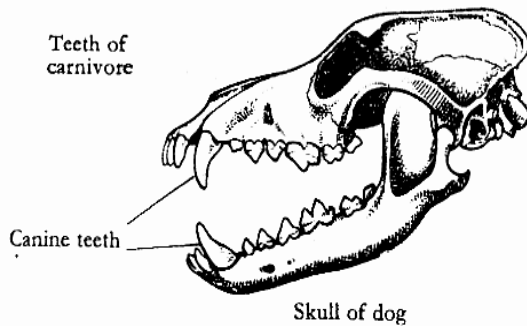
- ❖ They have sharp claws for holding, killing and tearing their prey.
- ❖ They have soft pads on their feet to enable them run after their prey without making noise.
- ❖ They have a good speed, sense of smelling and vision even at night.

Groups of carnivores include;

Carnivores are sub divided into two divisions namely;

- a) **Cat family;** these have features of the domestic cat.
Examples include; lion, cheetah, leopard, tiger etc.
- b) **Dog family;** these are carnivores with specific features to that of a domestic dog.
Examples include, domestic dog, hyena. Jackals. Fox etc

An illustration showing the skull of a dog.



Note Carnivores are also called preying mammals and are predators.

A predator is an animal that hunts and kills its prey.

Learners' Activity

1) Explain the term carnivores.

2) State two ways in which carnivorous animals are adapted to their mode of feeding.

i). _____

ii). _____

3) Give any two ways in which scavengers are useful in the environment.

i). _____

ii). _____

4) Identify a group a carnivorous animals in which the following animals belong

i) Leopard _____

ii) Domestic dog _____

5) State one difference between a preying mammal and a predator.

6) How are dogs able to move after?

7) How are the teeth of a lion able to tear meat?

8) Why is a cat called a predator?

9) Mention two examples of scavenger mammals.

i). _____

ii). _____

Sea mammals;

These are mammals which commonly live in water of seas and oceans.

Characteristics of sea mammals

- ❖ They breathe through the lungs.
- ❖ They give birth to live young ones
- ❖ They have fur on their bodies.
- ❖ They have mammary glands

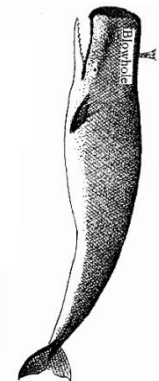
Examples of sea mammals.

Whale, dolphins, porpoise, seals and dugongs, wolrus, sea lion

- ❖ A whale is the largest mammal.
- ❖ It has a thin layer of fats called blubber which keeps the body warm
- ❖ and it is an important food store.

Drawn structures showing different examples of sea mammals.

A whale



Dolphin

Seals

Porpoise



Learners' Activity

1) In one sentence explain the meaning of the word sea mammals.

2) List any three examples of sea mammals.

i). _____

ii). _____

iii). _____

3) Write any two characteristics of sea mammals.

i). _____

ii). _____

4) Name the largest mammal.

5) Of what importance is blubber to a whale?

6) How do whales reproduce?

SUBTIPOC; VERTEBRATES (MAMMALS) LESSON 16: GNAWING MAMMALS (RODENTS)

Gnawing mammals (rodents)

- ❖ These are mammals with well developed incisor teeth and chew rapidly.

Examples of rodents include;

- ❖ Rabbits
- ❖ Rats
- ❖ Squirrels
- ❖ Porcupine
- ❖ Mice
- ❖ Moles
- ❖ Beavers.

Characteristic of rodents.

- ❖ They have well developed incisor teeth for biting and chewing rapidly.
- ❖ They don't have canine teeth.
- ❖ Most gnawing mammals feed on vegetables.
- ❖ Most rodents make holes in soil called burrows for protection and as a habitat.
- ❖ They have sharp strong claws for digging up root crops.

Disadvantages of rodents to crop farmers.

- ❖ All rodents are crop pests

Drawn structure showing a rat and a squirrel.



A rat

A squirrel

Learners' Activity

- 1) Write one sentence to explain the meaning of the word gnawing mammal.

- 2) List any two characteristics of gnawing mammals.

i). _____

ii). _____

- 3) Give one ways in which rodents are a disadvantage to a crop farmer.

- 4) State how rodents are adapted to their mode of feeding.

- 5) How can rodents be controlled in the garden.

SUBTOPIC: VEGETERIAN (MAMMALS)

LESSON 17: UNGULATES (HOOFED MAMMALS)

Ungulates (hoofed mammals)

These are mammals which feed on vegetables and have hooves on their toes.

Characteristics of ungulates or hoofed mammals.

1. They mainly feed on plant materials.
2. They have hooves.

Groups of hoofed mammals

(i) **Even toed ungulates** e.g cow, goat, sheep. Deer, camel

(ii) **Odd toed ungulates** e.g elephant, horse, zebra, donkey, rhino

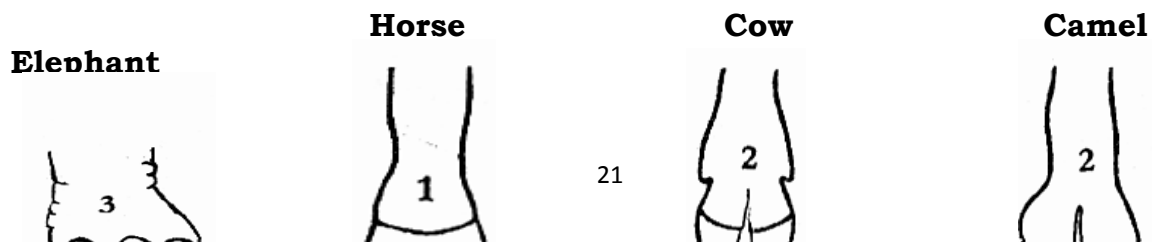
NB. Some ungulates are ruminants i.e chew cud.

Ruminant ungulates have four chambered stomachs.

Some ungulates do not chew cud and have one true stomach.

Examples of non-ruminant animals are, hippopotamus, pigs and warthogs.

Drawn structures showing different toes of ungulates.



Insectivores.

- ❖ These are mammals that feed on insects.
- ❖ Most of them are nocturnal.

Examples of insectivores include;

- hedgehog – Antbear
- Pangolin – Shrew.

Things to note:

- ❖ A hedge hog curls or rolls into a ball for protection.

Learners activity

1. State any two characteristics of ungulates.

- i). _____
- ii). _____

2. How are odd toed ungulates different from even toed ungulates.

3. In one sentence explain the term ruminants.

4. Give two examples of ruminant animals.

- i). _____
- ii). _____

5 How does a porcupine protect its self.

6.How does a hedge hog protect itself.

7.why is goat called a ruminant animal

8.name the largest stomach of a ruminat.

9.why is the abomasum called a true stomach in ruminants.

Reptiles.

- ❖ Reptiles are animals which move by crawling
- ❖ The word reptile comes from reptalia meaning crawlers.
- ❖ Reptiles commonly live in warm countries.

Characteristics of reptiles.

- ❖ All reptiles are cold blooded (poikilothermic)
- ❖ Reptiles breathe through their lungs.

- ❖ They reproduce by means of laying eggs.
- ❖ They undergo internal fertilization.
- ❖ All reptiles have their bodies covered with scales.

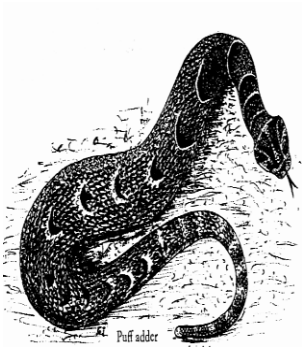
Groups of reptiles.

The main groups of reptiles include, snakes, lizards, tortoises, alligators, crocodiles.

Snakes.

- ❖ Snakes are groups of reptiles with no limbs and move by gliding/slithering/crawling caused by contraction of their muscles.
- ❖ They moult to grow a new skin and increase in size.
- ❖ They have a forked tongue which acts as a sense organ for smelling food
- ❖ Snakes commonly move with their tongues out for protection and easy trapping of its prey.
- ❖ Snakes are carnivorous animals.

Diagrams of different snakes



Note; Moulting is the removal of the outer old skin to allow the snake grow a new skin and increase in size.

Classification of snakes;

Snakes are grouped or classified according to their features and adaptations There are basically three groups of snakes. These are;

- ❖ Poisonous snakes
- ❖ Non-poisonous snakes
- ❖ Constrictors.

Learners activity

1. Give any two characteristics of reptiles.

i). _____

ii). _____

2. Identify any two groups of reptiles.

i). _____

ii). _____

3. In a sentence, state what is meant by the term moulting as used in reptiles.

4. State any one structural difference between poisonous and non poisonous snakes.

5. Name two examples of poisonous snakes.

i). _____

ii). _____

6. Why is a chameleon called a reptile.

7. Give two examples of non poisonous snakes.

i). _____

ii). _____

8. How do snakes move?

9. How is a cobra similar to a gecko?

10. How are reptiles and fish similar in terms of reproduction?

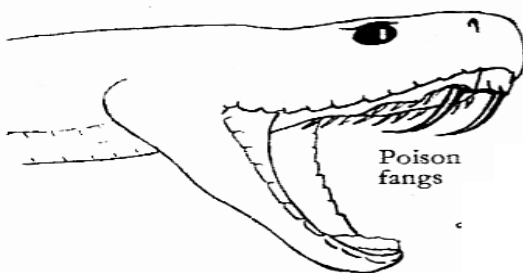
Poisonous snakes;

- ❖ These are groups of snakes with poison glands and fangs.
- ❖ They have a pair of long hollow teeth (fangs) connected to the poison glands.
- ❖ When snakes bite, they inject their poison in the bitten area of the animal. This poison from snakes is called venom.
- ❖ Snake venom can be used to make serum used for providing treatment against snake bites.

Effect of snake poison on blood.

- Venom lowers the temperature of blood thus clotting it, once clotted, the part affected is cut off (amputated).

Diagram show a head of a poisonous snake



Note: each type of a poisonous snake has different types of venom.

Some snakes have their poison gland situated at the back on the mouth with others near the front part of the mouth.

First aid for snake bites.

- ❖ Calm the casualty
- ❖ Identify the fang marks.
- ❖ Tie slightly above the bitten part.
- ❖ Take the casualty to the nearest health unit.

Examples of poisonous snakes.

Cobra, black mamba, puff Adder, Gabon viper, rattle snake and boomslang

Non-poisonous snakes.

- ❖ These are groups of snakes with fangs with no venom.
- ❖ They kill their prey by suffocating them to death

Examples; Grass snakes, brown house snake, bull snake, king snake

Note; Non-poisonous snakes help to feed on other organisms such as fogs, rats and mice.

- ❖ **Constrictors** are snakes with developed fangs.
- ❖ They kill their prey by crushing and suffocating them.
- ❖ They lick their prey making it slippery for easy swallowing.

Examples include; pythons, anaconda, boa.

Note: the jaws of a snake are specially constructed to enable them to swallow their prey much larger than their width.

Learners activity

1. How does a poisonous snake differ from non poisonous snake.

2. State one characteristic of poisonous snakes.

3. Give two examples of poisonous snakes.
i). _____
ii). _____
4. How does venom affect blood?

5. What first aid would you give to a P.2 boy who has been bitten by a snake?

6. Why do snakes move with their tongue outside?

7. Why is an anaconda called a constrictor?

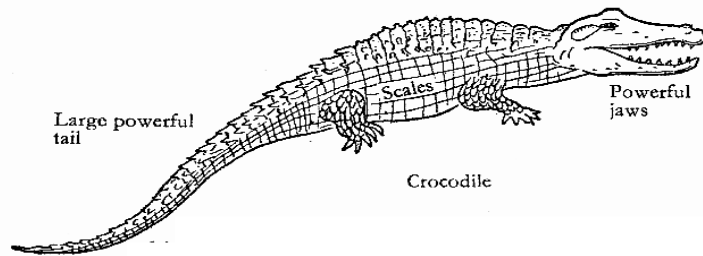
8. How do snakes protect themselves?

9. Why is a snake called a reptile?

Crocodiles and alligators.

- ❖ They have a long powerful tail for swimming and attacking their prey.
- ❖ The female lay hard-shelled eggs in sand or mud.
- ❖ Alligators have similar features to the crocodiles however, they live in big waters.

An illustration showing a crocodile.

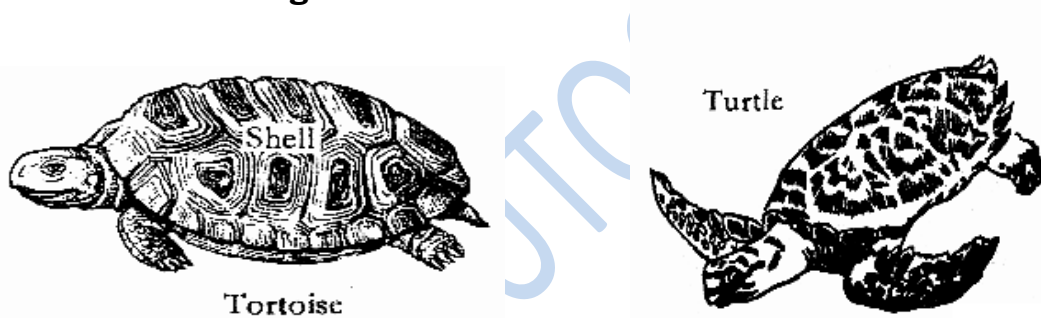


Tortoises and Turtles/Terrapins.

Tortoises are reptiles enclosed in a complete hard shell made of bony plates..

- ❖ They withdraw and hide in their hard shell incase of danger.
- ❖ Turtles have flippers for easy swimming in water
- ❖ All tortoises/terrapins and turtles use lungs for breathing.
- ❖ They reproduce by means of laying eggs commonly laid in sand.
- ❖ Tortoises commonly live on land while turtles live in muddy waters.

Structure showing a tortoise and a turtle.



A tortoise with hard shell Turtle with flipper for swimming

Learners activity

1. Identify any one habitat for crocodiles.

2. State one characteristic of crocodiles.

3. How are crocodiles and alligators adapted to swimming?

4. How do crocodiles protect themselves?

5. In one sentence, state how a tortoise is adapted to its mode of life.

6. State how reptiles reproduce.

7. How does a tortoise protect itself from its enemies?

Lizards:

Lizards have two pairs of limbs i.e front and hind limbs for movements.

Examples of lizards include:

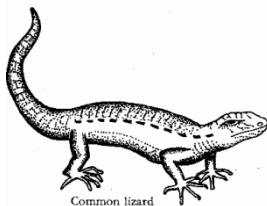
Monitor lizards, geckoes, skink, agama lizard and chameleons.

Characteristics of lizards.

- ❖ They have a fleshy forked tongue for easy trapping of their prey.
- ❖ They have movable eye lids.
- ❖ They moult to grow new skins and increase in size.
- ❖ Geckoes are commonly found in houses and move up side down the ceilings.
- ❖ They have suction pads on their feet to enable them walk upside down the ceilings.
- ❖ A chameleon has building eyes close to the top of its head to see in all directions back, sideways and forward)
- ❖ Chameleons feed on insects such as mosquitoes, house flies using its sticky forked tongue.
- ❖ Chameleons camouflage to protect themselves from enemies and easy location of their food.

Diagrams of a common lizard and chameleon

Lizard



Chameleon



Importance of reptiles.

- ❖ Some reptiles are sources of food to some people.
 - ❖ Snakes provide skins for making leather.
 - ❖ Reptiles attract tourists who bring income
 - ❖ Reptiles control crop pests like rats
- Reptiles help to eat harmful insects in the environment.

Learner's activity

1. List two examples of lizards.
 - i). _____
 - ii). _____
2. Explain how geckoes are adapted to their mode of life.

3. State how a chameleon protects its self against danger.

4. State how geckoes are adapted to moving upside down the ceilings.

5. Give any two importance of reptiles to people.
i). _____
ii). _____
6. How is the tongue of a chameleon adapted to feeding?

7. Why do lizards moult.

8. How do geckoes help to control malaria?

9. Why do chameleons camouflage

Amphibians;

- ❖ Are cold blooded vertebrates that live both on land and in water.
- ❖ Amphibians are adapted for early life on water and later life on land.

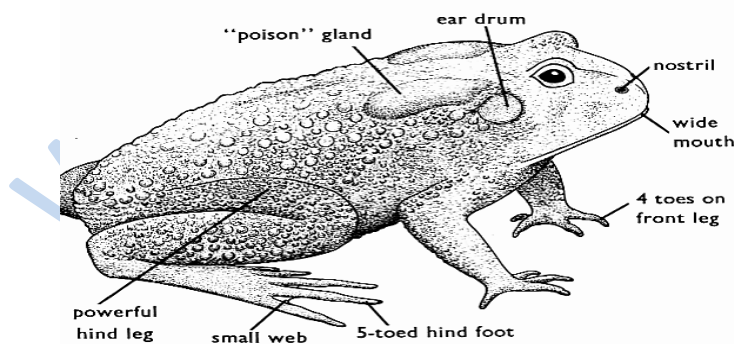
Examples of amphibians.

These include toads, newts, frogs and salamander.

Characteristics of amphibians.

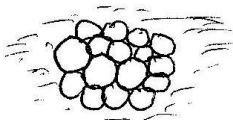
- ❖ On land they use lungs for breathing
- ❖ They live both on land and in water.
- ❖ All amphibians are cold blooded animals (poikilothermic)
- ❖ They reproduce by means of laying eggs
- ❖ They undergo external fertilization..
- ❖ They have back bones

A structure showing external features of a toad.

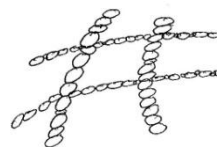


Differences between a frog and a toad

Frog



Toad



Frog: Lay eggs in big masses (cluster) batches

Toad: Lay eggs in a double ribbon like structure called spawn.

Frog: Breathes through their moist skin and the lungs

Toad:Breathes through lungs only

Frog:Commonly live in water at late stages.

Toad:Commonly live in water at early stages and on land at late stages.

Frog:Have long hind legs to make long jumps

Toad:Have short hind legs and make short jumps

A frog: has a smooth moist skin.

A toad: has a rough warty skin.

A frog: Have poison glands.

A toad: has no poison gland

How useful is the slimy jelly around eggs of amphibians?

- protect the eggs from predators
- protects the eggs from mechanical injury
- prevents eggs from drying up
- It keeps eggs together

Learner's activity

1. In one sentence, explain the term amphibian.

2. Give two example of amphibians.

i). _____

ii). _____

3. State two characteristics of amphibians.

i). _____

ii). _____

4. State one difference between a frog and a toad.

5. How is a newt similar to a salamander?

6. How do amphibians reproduce?

7. How is a frog similar to snake in terms of reproduction.

8. How do amphibians protect their eggs from predators.

9. why do amphibians lay many eggs.

10.)name the amphibian that lays eggs in double ribbons.

11)name the amphibian that lays these eggs below



How amphibians respire.

- ❖ A frog breathes through its moist skin in water and lungs on land.
- ❖ A frog keeps its skin moist by secretions from the mucus glands.
- ❖ A toad also uses lungs for breathing.
- ❖ A tadpole uses external gills for breathing.

Adaptations of a frog to living in water.

- ❖ Frogs have streamlined bodies to enable them move easily in water.
- ❖ Frogs have fully webbed hind feet for swimming in water.
- ❖ Frogs use their moist skins for breathing while in water.

Learners activity

1. state how frogs breathe while in water.

2. How are tadpoles similar to fish in terms of breathing?

3. State how the following amphibians obtain food.

i).frogs _____

ii) toads _____

4. How is a frog adapted to living in water?

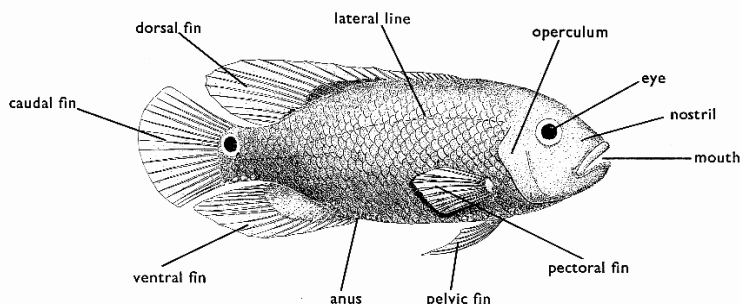
SUBTOPIC: COLD BLOODED VERTEBRATES (FISH) LESSON 24: CHARACTERISTICS OF FISH

Fish.

Characteristics of fish;

- ❖ They reproduce by means of laying eggs.
- ❖ They undergo external fertilization.
- ❖ They use gills for breathing.
- ❖ They are cold blooded vertebrates.

An illustration showing the external parts of a fish.



Functions of the parts.

Scales - covers the body of the fish.

- Protect the skin from injuries.

Gill cover - Protect the gills from external damage. Its also called operculum

Nostril – for smelling and tasting food.

Tail fin – For steering on swimming or changing directions.

- It's also called the caudal fin.

Dorsal fin – for protection /defence.

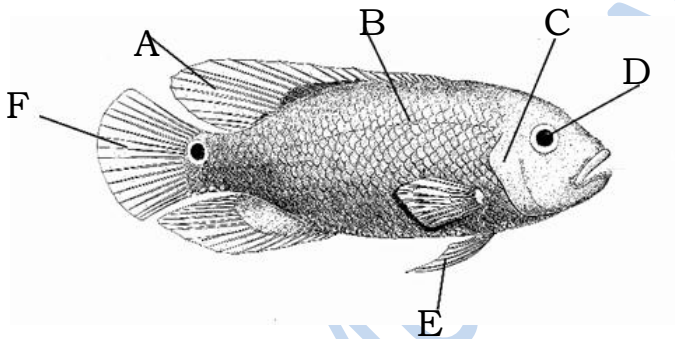
Pectoral and pelvic fins. – For slowing down or stopping or act as brakes during swimming.

Mouth; is a passage of food and water with dissolved oxygen to the gills.

Lateral line – detects sound waves in water.

Learners activity

1. Below is a diagram of a fish. Use it to answer the questions that follow;



a). name part

B _____

C _____

D _____

b). state the functions of parts marked

F _____

E _____

2. What name is given to the young fish?

3. State the type of fertilization that occurs in fish.

4. Why does a fish die soon it is removed from water?

5. Which food value do we get from fish?

6. Give any one characteristic of fish.

7. How is the reproduction of fish different from that of reptiles?

8. How fish adapted to living in water?

9. How does a fish protect itself?

10. Name two types of fish.

i). _____

ii). _____

Reproduction in fish.

- ❖ Female fish lay eggs in shallow water where the male sheds sperm over them.
- ❖ Fish undergo external fertilization.

Many eggs are laid but only a few hatch and develop into adults.

Note; most fish do not take care of their young one except the tilapia fish.

SUBTOPICS: COLD BLOODED VERTEBRATES (FISH)

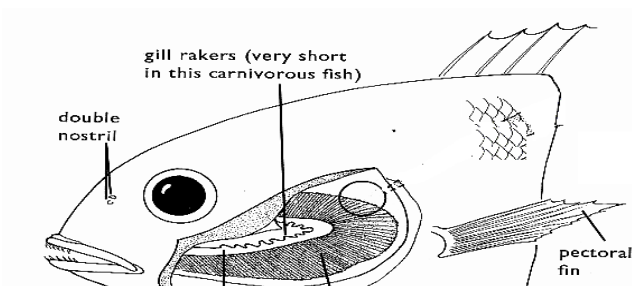
LESSON 26: BREATHING OF THE FISH.

Breathing system of a fish.

- Fish breathe in dissolved oxygen using gills.
- Dissolved oxygen in water is allowed to enter through the mouth cavity and trapped by the gill filament.
- Gill rakes help to filter water before passing through gills.
- Gill bar helps to hold the gill filaments.
- Gaseous exchange takes place in the gill filament.
- A fish has a number of gill filaments to increase the surface area for respiration (intake of oxygen).

Note: A fish will die shortly in case it is removed from water due to lack of dissolved oxygen.

An illustration showing parts of the gills.



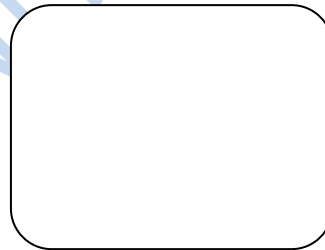
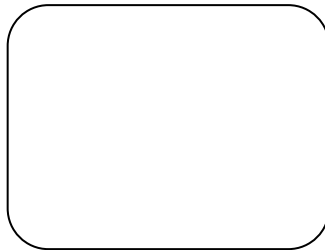
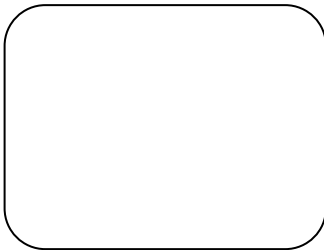
Adaptations of the fish to living in water.

- Fish use gills for breathing.
- They are stream lined for easily swimming in water.
- Fish use swim bladder for buoyancy in water.
- Some fish are slippery to escape easy from their enemies.
- Fish have lateral line to detect sound waves in water.
- They have fins for easy swimming in water.

Learner's activity

1. State how a fish breathe.

2. In the space below, draw a structure of a gill and name the following parts;
i]. gill raker. ii] gill bar iii] gill filament



3. State any two ways how a fish is adapted to living in aquatic environment.

i). _____

ii). _____

4. How are the gill rakers useful to a fish?

5. How are the gill filaments adapted to it function of breathing?

SUBTOPIC: INVETEBRATES

Invertebrates;

- ❖ These are animals with no back bone or vertebral column/spine.
- ❖ Most have got an exo-skeleton and do moult.

Groups of invertebrates

molluscs, worms and Arthropods.

SUBTOPIC: INVERTEBRATES.

LESSON 28: MOLLUSCS.

Molluscs;

These are invertebrates which are soft bodied and usually protected by a shell. They live in shells in seas and other fresh water bodies. Some of them live on land.

Examples of molluscs.

Oyster, octopus, cuttlefish, garden snail, water snail, slugs, squids.

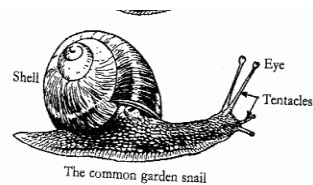
- ❖ The garden snail and slugs live on land.
- ❖ They have tentacles for detecting sound, smell and temperature.
- ❖ Sea molluscs have gills for breathing while land molluscs use simple lungs.

Illustrations showing different examples of molluscs

Slug



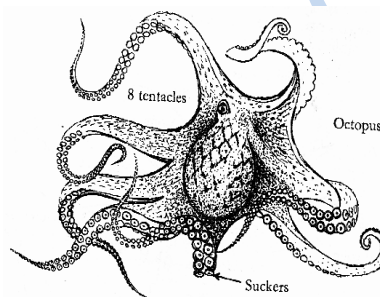
Garden snail



Oyster



Octopus



Dangers of molluscs to people.

- ❖ Fresh water molluscs are vectors to people.
- ❖ They spread worms that cause bilharziasis..

Learner's activity

1. Explain the term invertebrates in one sentence.

2. Identify any two groups of invertebrates.

- i). _____
- ii). _____

3. Give two examples of each group of invertebrates in (2) above.

- i). _____
ii). _____
4. What characteristic is shared by all invertebrates?

5. State the mollusc that spreads bilharziasis.

6. Write any two examples of mollusks.
i). _____
ii). _____
7. State one way in which some molluscs are dangerous to human health.

8. How useful are tentacles to a garden snail.

9. What type of skeleton do snails have?

SUBTOPIC: INVERTEBRATES (WORMS)
LESSON 29: SEGMENTED WORMS.

Worms;

- ❖ These are long thin and soft bodied invertebrates.
- ❖ They use their moist skins for breathing.
- ❖ They have hydrostatic type of skeleton.

Categories of worms

- ❖ worms are grouped into three major groups namely:
 - segmented worm (annelids)
 - round worms (nematodes)
 - flat worms.

Segmented worm:

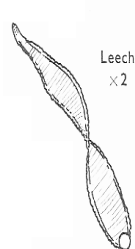
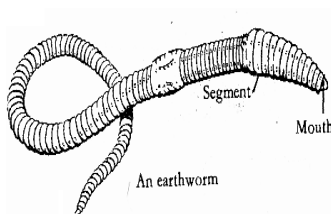
These are worms with segmented bodied or rings. they mostly live in most places.

Examples of segmented worms **include:**

An earthworm, bristle worm, leech and lugworm.

Earth worms feed on plant materials.

Below are diagrams showing an earthworm and a leech



Note; An earthworm is a hermaphrodite. i.e have both female and male reproductive organs.

- ❖ Earth worms help in aeration of soil as they make channels in the soil.
- ❖ Earth worms come out of the soil when it has rained to breath in oxygen.
- ❖ Earth worms also soften the soil.
- ❖ Their excreta help in the formation of humus sub-groups

How earthworms move.

Earth worm move by contraction of their body muscles.

Learner's activity

1. what are segmented worms?

2. Give two examples of segmented worms.

i). _____

ii). _____

3. Identify any other two groups of worms apart from segmented worms.

i). _____

ii). _____

4. Why do earth worms come out of the soil when it has rained?

5. State the importance of earth worms to a farmer.

6. how do earth worms benefit the soil?

LESSON 30
FLAT WORMS.

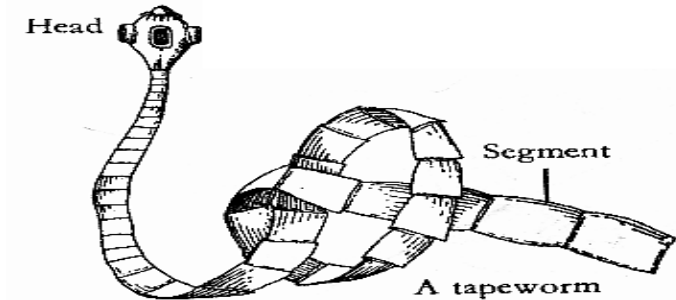
Flat worms:

- ❖ These are worms with flattened and segmented bodies made up of three layers.
- ❖ They are parasites to animals and live in the animals' intestine.
- ❖ They feed on animals digested food.

Examples of flat worms.

- ❖ Tape worm, liver flukes and pond flat worm.
- ❖ Tape worms live in the small intestines in animals and feed on the digested food
- ❖ They have the hooks and suckers for attachment on the intestinal walls.

a) Diagram showing parts of a tape worm.



Learners activity

1. List two examples of flat worms.
 - i). _____
 - ii). _____
2. How do tape worms enter into our bodies?

3. State the dangers of having tape worms in our bodies.

4. Give any one way of avoiding tape worm infestation.

5. how do tape worms reproduce?

6. how do tape worms feed?

7. how are the following parts important to a tape worm
 - a)suckers

 - b)hooks

**LESSON: 31
ROUND WORMS**

ROUND WORMS

- These are groups of worms with a cylindrical body.
- They are also parasites to animals and people.
- Some live in water and others in soil.
- The commonest type of round worms lives in animal's small intestine and usually seen through faeces of infected animals.

Examples of round worms

- hook worms
- pin worms
- guinea worms
- ascaris worms
- filarial worms
- eel worms
- Thread worms.

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How hook worms enter our body?

- By penetrating through bare feet.

A DIAGRAM OF A HOOKWORM



Dangers of worms to people

- They suck blood hence causing anaemia.

WAYS OF PREVENTING HOOK WORM INFECTION

- By wearing sandals/shoes when visiting dump places such as latrines.
- By washing hands after visiting a latrine.
- By washing fruits before eating them in raw form.
- Through proper disposal of human wastes.
- By regular deworming.
-

Learner's activity

1. What do hook worms feed on?

2. How do hook worms enter into our bodies?

3. State any one way in which hook worms are dangerous to people.

4. State any three ways of preventing hook worm infection.

i). _____

ii). _____

iii). _____

LESSON 33:

GROUPS ARTHROPODS (MYRIAPODS)

Arthropods:

These are animals with jointed legs and segmented bodies.

- ❖ Their bodies are covered with an exo-skeleton.
- ❖ The exo skeleton controls their growth and size.
- ❖ Arthropods do moult to remove their exo-skeleton in order to grow a new one and increase in size.

Sub groups of arthropods.

Arthropods are sub divided into four sub groups. myriapods, arachnids, crustaceans, insects.

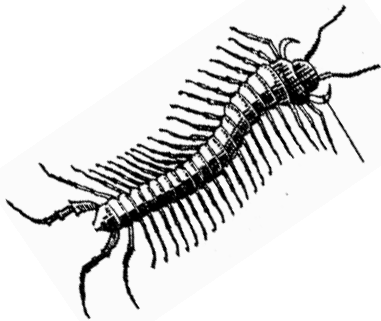
Myriapods;

Myriapods are arthropods with many jointed legs with an exo-skeleton.

Examples of myriapods include millipedes and centipedes.

Diagram showing a centipede and millipede.

Centipede



Millipede



- ❖ A centipede has one pair of jointed legs on each segment.
- ❖ A centipede is a carnivore and feeds on insects and other small worms.
- ❖ A centipede has poison glands which produce poison used to inject in its prey and for protection.
- ❖ A millipede is a herbivore and makes holes in soil hence helping in soil aeration.
- ❖ A millipede protects itself from enemies by curving up into a ball like structure/by coiling.
- ❖ Some small millipedes produce a smelly fluid for protection.
- ❖ They also roll on their backs when disturbed to scare their enemies

Similarities between centipedes and millipedes

- ❖ Both have jointed legs on each segment
- ❖ Both have an exoskeleton
- ❖ Both roll on their backs when disturbed to scare their enemies

Differences between centipedes and millipedes

- ❖ A centipede is a carnivore while a millipede is a herbivore
- ❖ Unlike a centipede a millipede has more legs
- ❖ A centipede has poison glands for protection while a millipede protects itself by coiling

Learner's activity

1. What are arthropods?

2. Mention the different groups of arthropods.

3. List any two characteristics of arthropods.

i). _____

ii). _____

4. In two sentences, state how a centipede is similar to a millipede.

5. How does a millipede protect itself from enemies?

6. How do centipedes protect themselves from their enemies.

SUBTOPIC: INVERTEBRATES (ARTHROPODS)

LESSON 34:

GROUPS OF ARTHROPODS (ARACHNIDS)

Arachnids

△ These are arthropods which have four pairs of legs.

Characteristics of arachnids.

1. Have two main body parts (head and cephalothorax).
2. Have four pairs of legs.
3. They use lung books for breathing.

Examples of arachnids include

Ticks, scorpions and spiders.

Spiders

- ☞ Spiders are commonly seen on walls of houses.
- ☞ They use lung books for breathing
- ☞ They make webs for protection and also for trapping prey.
- ☞ The males also use the web to trap the females for mating.

Reasons why spiders are not classified as insects.

- ☞ They have two main body parts instead of three
- ☞ Spiders have four pairs of jointed legs instead of three.
- ☞ Spiders use lung books for breathing while insects use spiracles.

Scorpion

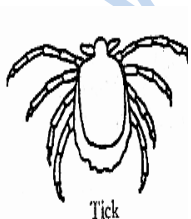
- ☞ A scorpion has a large tail with poison which it injects into its enemies after stinging them.
- ☞ A scorpion produces live young ones.

Ticks

Ticks are vectors because they spread relapsing fever.

Draw structures showing a tick, spider, scorpion and a mite.

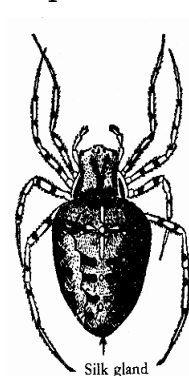
tick



scorpion

Mite

spider



Learner's activity

1. What are arachnids?

2. List any two characteristics of arachnids.
i). _____
ii). _____
3. Give two reasons why spiders are not classified as insects.
i). _____
ii). _____
4. Give one disease spread by ticks to people.

5. Mention any two tick borne diseases in cattle.
i). _____
ii). _____
6. In two sentences, state how a farmer can control spread of tick borne diseases on a farm.

7. How is a tick similar to spider?

8. Name the breathing organs for scorpions.

9. How are scorpions similar to mammals in terms of reproduction?

10. How are mites dangerous to human health?

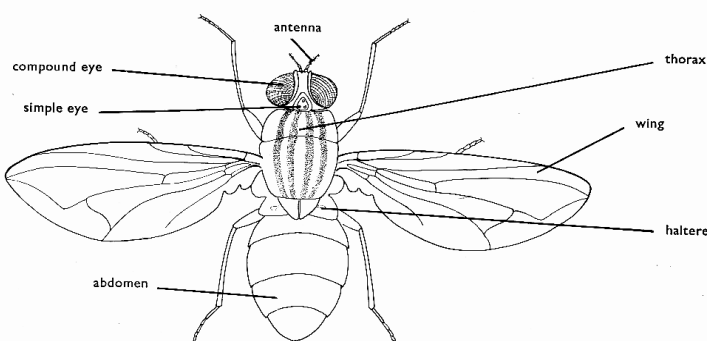
SUB TOPIC: INVERTEBRATES (INSECTS) LESSON 35: INSECTS CHARACTERISTICS OF INSECTS.

- ↳ They have three main body parts.
- ↳ They have three pairs of jointed legs
- ↳ Insects breathe through spiracles.

Examples of insects:

- ↳ Houseflies, tsetse flies, dragon flies, grasshoppers, cockroaches, moth, bees etc.

External parts of a housefly.



Function of the above parts.

- a) Compound eyes: used for vision or sight.
- b) Antennae: for smelling and feeling.
- c) Proboscis: for sucking food or fluids.
- d) Mandibles: for chewing its food.
- e) Wings: for flying.
- f) Halteres: for balancing in air while flying.
- g) Spiracles: for gaseous exchange/breathing.

Importance of the thorax to the insect

- ☛ Provides attachment of wings.
- ☛ Is where wings and jointed legs are attached
- ☛ Has halteres used by the insect to balance in air during flight.

Learner's activity

1. List down two characteristics of insects.
 - i). _____
 - ii). _____
2. State the function of the following parts of an insect;
 - i]. antennae

 - ii]. Spiracles

 - iii]. Halteres

3. What name is given to the larva of a mosquito?

4. why is a housefly called an insect?

5. which body part do we find the following
 - a)halteres _____
 - b)spiracles _____

SUB-TOPIC: INVERTEBRATES (INSECTS)

LESSON 36

REPRODUCTION IN INSECTS.

Reproduction in insects

- ☛ most insects reproduce by means of laying eggs.
- ☛ there are basically two types of metamorphosis namely complete metamorphosis and incomplete metamorphosis.

Complete metamorphosis

This is a type of metamorphosis (complete life cycle) in which an insect undergoes four distinct stages of development.

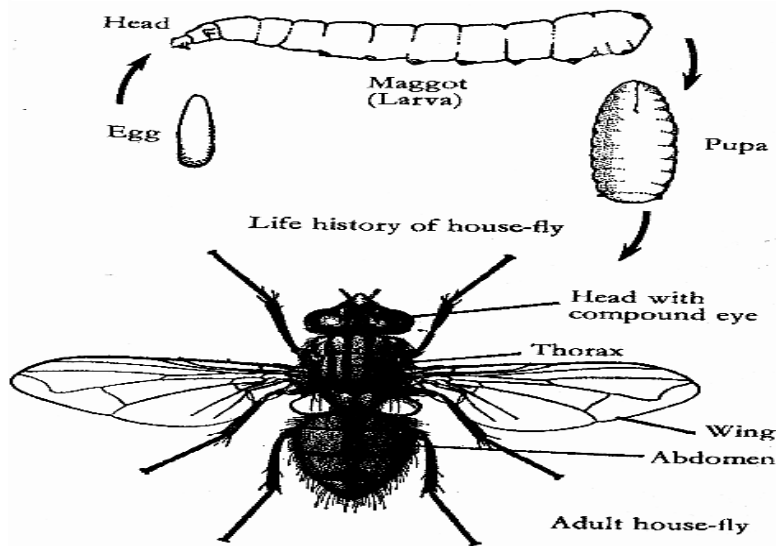
These include eggs, larva, pupa and adult.

Note: the larva stage of a housefly is the most active stage while the pupa stage is the most dormant stage

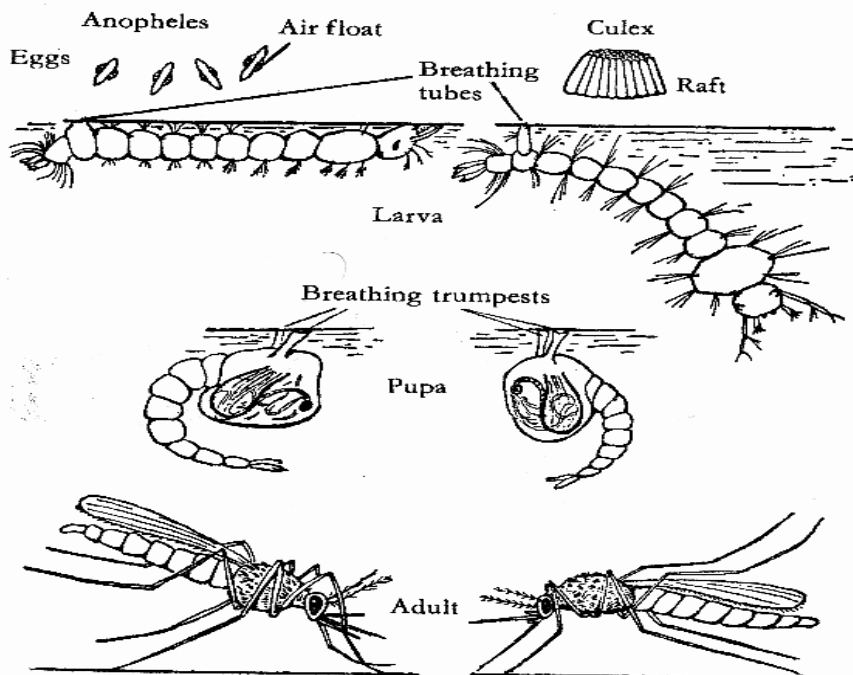
The larva stage of the following insects ;

- housefly-maggots
- mosquito-wrigglers
- butterflies-caterpillar
- cockroach-nymph

A diagram showing a complete metamorphosis of a housefly.



A diagram showing a complete metamorphosis of a anopheles and culex mosquito.

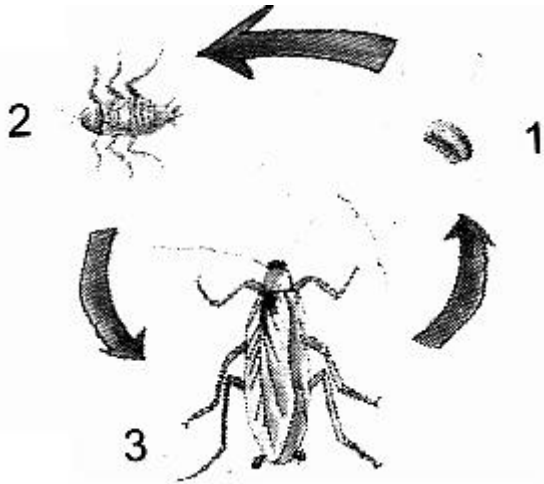


Examples of insects that undergo complete life cycles
Houseflies, mosquitoes, bees, wasps, butterflies, moth.

Incomplete metamorphosis.

- ▲ This is type of life cycle in which insects undergo three stages of development.

A diagram showing incomplete metamorphosis of a cockroach



Examples of insects which undergo incomplete metamorphosis, cockroaches, grasshoppers, locusts.

Importance of insects.

- some insects are eaten as food.
- Some insects pollinate plants.
- Some bees provide us with honey.
- Some insects are sold to get honey.

Dangers of insects

- Some insects destroy crops.
- Some insects spread disease germs.

CRUSTACEANS

The term crustacean comes from the word crust. A crust is hard substance.

Crustaceans are arthropods with hard crusty skins

CHARACTERISTICS OF CRUSTACEANS.

- They have four pairs of legs.
- They breathe through the gills.
- They have two pairs of feelers.

Examples of crustaceans

- Crabs, lobsters, prawns, wood lice, barnacle, Cray fish, Cyclops, shrimps

Importance of crustaceans.

- Prawns and lobsters are eaten.

Care and protection of vertebrates and invertebrates.

- Treat the sick animals.
- Clean their habitats

- c. Conserve the natural habitats and species of animals.
- d. Provide feeds to the animals.
- e. Discourage poaching of wild life.

ACTIVITY

1. What type of life cycle do the following insects undergo

- a) houseflies _____
- b) cockroaches _____
- c) mosquitoes _____
- d) tsetseflies _____

2. Name any one disease spread by:-

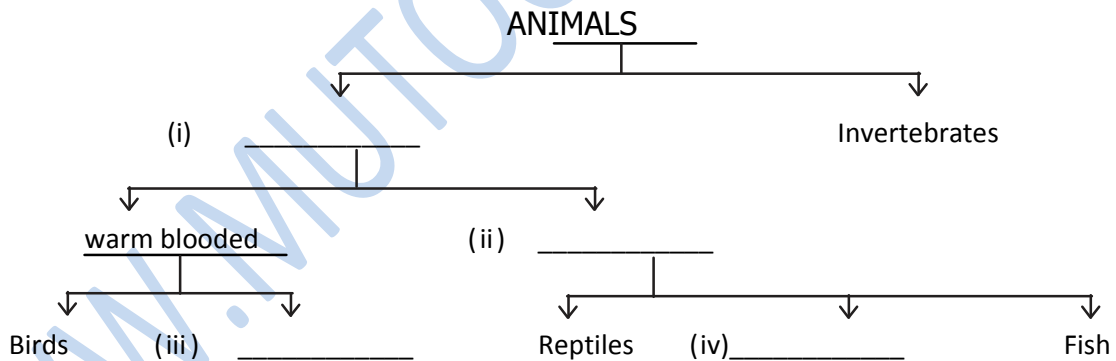
- a) housefly _____
- b) tsetsefly _____
- c) cockroach _____

3. How is the nymph different from an adult cockroach?

4. How can vectors be controlled at home?

TOPICAL TEST

1. Complete the animal classification table below.



2. What are vertebrates ?

3. Mention any two examples of vertebrate animals.

(i) _____ (ii) _____

4. State three characteristics of vertebrate animals.

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

5. How are warm blooded animals different from cold blood animals ?

6. Why are animals referred to as Multicellular organisms ?

7. Give any three characteristics of birds.

(i) _____

(ii) _____

(iii) _____

8. Why are birds said to be homoiothermic animals?

9. Why do flying birds have hollow bones ?

10. Mention any three groups of birds.

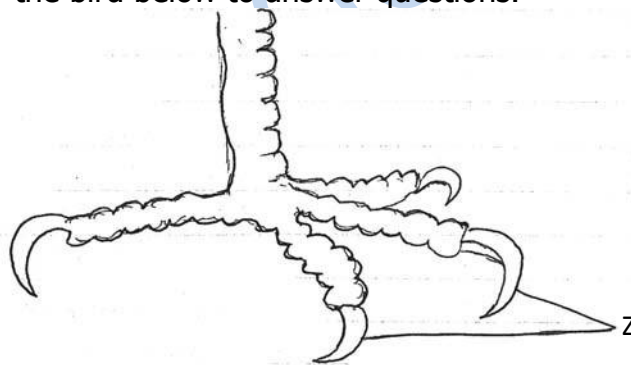
(i) _____ (ii) _____

(iii) _____

11. How is a prey different from birds of prey?

12. In which way is a sun bird adapted to feeding on nector?

13. Use the foot of the bird below to answer questions.



(a) List three examples of birds with the kind of foot drawn above.

(i) _____ (ii) _____

(iii) _____

(e) Describe the beak of the birds whose foot is shown in the above diagram.

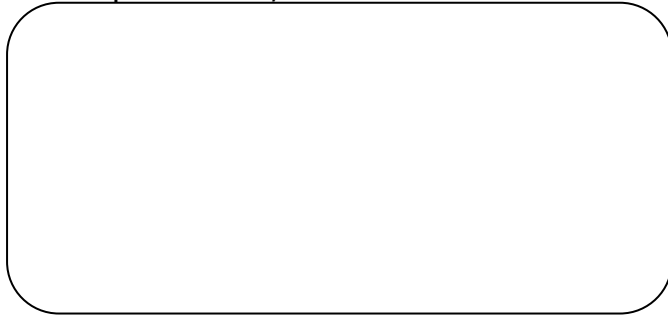
14. How are the bodies of swimming birds protected against coldness while in water?

15. Write three examples of swimming birds apart from ducks.

(i) _____ (ii) _____

(iii) _____

16. In the space below, draw the foot of a swimming bird.



17. Why are birds of prey said to be carnivorous ?

18. A part from an ostrich , mention two other examples of flightless birds.

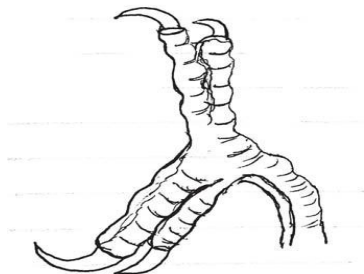
(i) _____ (ii) _____

19. Why is an ostrich unable to fly?

20. To which group of birds would you classify chicken and guinea fowls?

21. State one danger of birds of prey to people.

22. The diagram below shows the toes of a certain bird. Use it to answer questions.



(a) Name the group of birds that have such toes shown in the diagram.

.....

(b) Mention two examples of birds with such toes drawn above.

(i) _____ (ii) _____

23. Give two examples of scavenger birds.

(i) _____ (ii) _____

24. How do scavenger birds help to clean the environment?

25. State three ways in which birds are adapted to flight.

(i) _____

(ii) _____

(iii) _____

26. Why do birds have a streamlined body.

27. Name the membrane that protects the eyes of birds from air borne particles

28. Give two advantages of birds in the environment.
(i) _____
(ii) _____
29. Write down two disadvantages of birds in the environment.
(i) _____
(ii) _____
30. Define the term mammals.

31. List any three characteristics of mammals.
(i) _____
(ii) _____
(iii) _____
32. Mention any four groups of mammals.
(i) _____ (ii) _____
(iii) _____ (iv) _____
33. State any two characteristics of primates.
(i) _____
(ii) _____
34. Why are primates said to be omnivorous ?

35. Write any four examples of primates.
(i) _____ (ii) _____
(iii) _____ (iv) _____
36. What is meant by the term dentition ?

37. Define ungulates.

38. Why are most ungulates said to be herbivorous animals?

39. Name the two groups of ungulates.
(i) _____ (ii) _____
40. How are even toed ungulates different from odd toed ungulates?

41. What are ruminant animals ?

42. A part from chewing cud, state one other characteristic common among ruminant animals.

43. How are carnivorous animals able to run after their preys without making noise on ground?

44. In which way are the canine teeth important to carnivorous animals?

45. Give two examples of carnivorous animals grouped under;

(a) dog family (i) _____ (ii) _____

(b) cat family (i) _____ (ii) _____

46. How are carnivorous animals able to get their prey at night when it is dark ?

47. List two examples of insectivores.

(i) _____ (ii) _____

48. State one characteristic of insectivores.

49. How are nocturnal animals different from diurnal animals ?

50. List three examples of rodents.

(i) _____ (ii) _____

(iii) _____

51. Bats have a poor sight, how are they able to locate their way and food at night ?

52. To which group of mammals would you classify bats ?

53. Give one way in which insect eating bats are useful in the environment.

54. Why is a duck billed platypus called a mammal yet it reproduces by laying eggs?

55. A part from a duck billed platypus, give two other examples of egg laying mammals.

(i) _____

(ii) _____

56. (a) State two characteristics of sea mammals.

(i) _____

(ii) _____

(b) Mention any three examples of sea mammals.

(i) _____ (ii) _____

(iii) _____

57. How are sea mammals able to survive the coldness under the sea ?

58. To which group of mammals do the Kangaroos and wallabies belong ?

59. How do kangaroos protect their young ones ?

60. List three characteristics of reptiles.

(i) _____

(ii) _____

61. Give any three examples of reptiles.

(i) _____ (ii) _____

(iii) _____

62. State the difference between oviporous and viviporous animals.

63. Write any two characteristics of snakes.

(i) _____

(ii) _____

(iii) _____

64. How is moulting important to snakes ?

65. Why do snakes hang out their tongues while moving?

66. List the three groups of snakes.

(i) _____ (ii) _____

(iii) _____

67. State the use of snake venom to people.

68. Give one effect of snake venom to;

(i) Heart _____

(ii) Blood _____

69. Mention two examples of poisonous snakes.

(i) _____ (ii) _____

70. The diagram below shows the head of poisonous snake. Use it to answer questions.



T

(a) Name the structures of a poisonous snake labelled with letter T

(b) Why are the structures labelled with letter T curved backwards ?

71. How do constrictors kill their prey ?

72. Mention any two examples of constrictors.

(i) _____ (ii) _____

73. State the first aid for snake bites.

74. How is tying of a tourniquet slightly above the bitten area important to a victim of a snake bite?

75. Apart from protection, give one other reason why chameleons change their colours ?

76. How are wall geckoes able to move upside down on the ceiling without falling ?

77. Name the largest reptile.

78. How do tortoises protect themselves ?

79. State any three importance of reptiles.

(i) _____

(ii) _____

(iii) _____

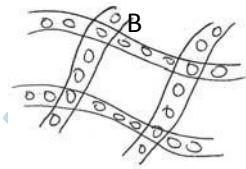
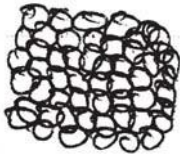
80. Give two reasons why toads are grouped under amphibians.
 (i) _____
 (ii) _____

81. Besides toads, give two other examples of amphibians.
 (i) _____ (ii) _____

82. How is the breathing of a tadpole different from that of an adult amphibians ?

83. State two differences between toads and frogs.
 (i) _____
 (ii) _____

84. Name the amphibian that lays eggs drawn below.



85. How are the eggs of a toad and frog protected from predators before they hatch?

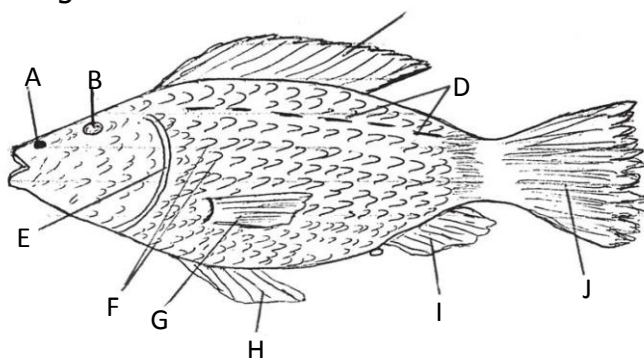
86. What kind of fertilization do amphibians undergo ?

87. State two ways a frog is adapted to living in water?
 (i) _____
 (ii) _____

88. What does the term to "hibernation" mean ?

89. Give three characteristics of fish.
 (i) _____
 (ii) _____
 (iii) _____

90. The diagram below shows external features of a fish. Use it to answer questions.



(a) Name the parts of a fish labelled with letter;

A : _____ B : _____

C : _____ D : _____

E : _____ F : _____

G : _____ H : _____

I : _____ J : _____

(b) State the function of the part labelled A to a fish.

(c) Give the function of the structures covered by part marked E.

(d) How is the function of part C different from that of J?

(e) Identify the fins on a fish that help it to swim upwards, downwards and slowing down the speed.

(f) How do scales help a fish to escape from its enemies?

(g) Name the fin on a fish that gives it forward movement.

92. How does a lateral line help a fish to detect danger in water?

93. Why is the body of a fish streamlined?

94. How do fish kept in a pond at home help to control the spread of malaria?

95. How do we call the young one of a fish?

96. Name the type of fertilization undergone by fish.

97. Why does a fish die shortly after being removed from water?

98. State any three ways in which fish is adapted to living in water.

(i) _____

(ii) _____

(iii) _____

99. How is a swim bladder useful to tilapia fish?

100. A part from being eaten as food, state two other uses of fish.

(i) _____

(ii) _____

101. How do cobblers benefit from fish?

102. Define invertebrates.

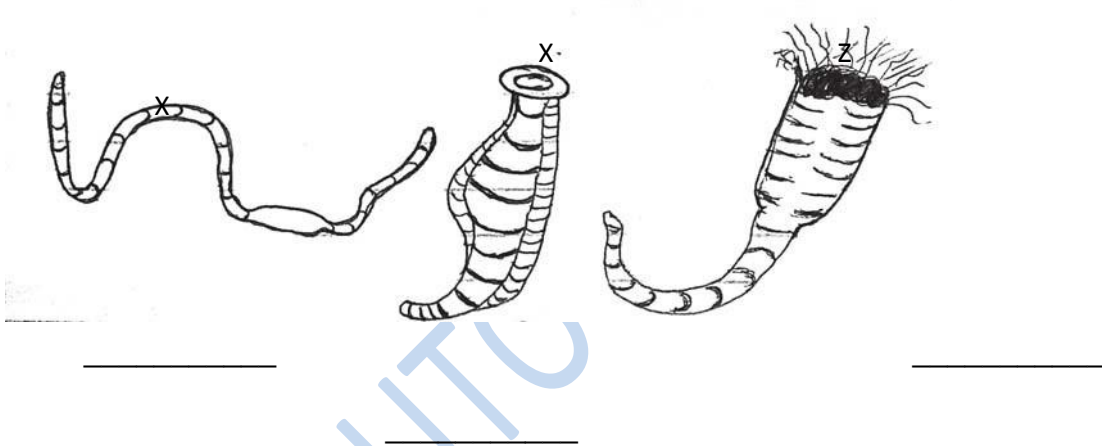
103. List five groups of invertebrates.

(i) _____ (ii) _____

(iii) _____ (iv) _____

(v) _____

105. Name the segmented worms



106. What do worms use for breathing ?

107. Why are earth worms said to be hermaphrodites ?

108. State two ways crop farmers benefit from earth worms.

(i) _____

(ii) _____

109. Why do earth worms normally come out of the ground immediately after it has rained ?

110. Why does an earthworm die when oil is poured on its body?

112. Name two examples of flat worms.

(i) _____ (ii) _____

113. Mention the four groups of arthropods.

- (i) _____ (ii) _____
(iii) _____ (iv) _____

114. Identify the myriapod that protects itself by;

- (a) biting : _____
(b) curling : _____

115. What is the use of poison claws to centipedes ?

116. List any three characteristics of arachnids.

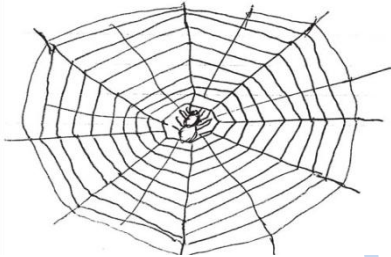
- (i) _____

117. Write any two examples of arachnids.

- (i) _____ (ii) _____

118. What do the arachnids use for breathing ?

119. The diagram below shows a home of an arachnid. Use it to answer questions that follow.



(a) Name the arachnid that builds such a home.

(b) What special name is given to the home of the arachnid named above ?

(c) A part from being at home, how else is the structure drawn above useful to the arachnid?

(d) Why is the organism that builds the home above not regarded as an insect ?

120. Give two characteristics of crustaceans.

- (i) _____
(ii) _____

121. Mention any three examples of crustaceans.

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

122. List any three characteristics of insects.

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

123. How are halteres useful to an insect during flight ?

124. What does an insect use the ovipositor for?

125. Give the difference between a maggot and an imago in relation to housefly.

(i) _____

(ii) _____

126. How is a siphon useful to the mosquito larva ?

127. Name the germ that causes each of these diseases.

(i) Malaria : _____

(ii) elephantiasis : _____

(iii) yellow fever : _____

128. Identify the kind of metamorphosis undergone by;

(a) tsetse fly : _____

(b) cricket : _____

129. What name is given to the second stage of growth in incomplete metamorphosis?

130. How is the breathing of sea molluscs different from that of land molluscs?

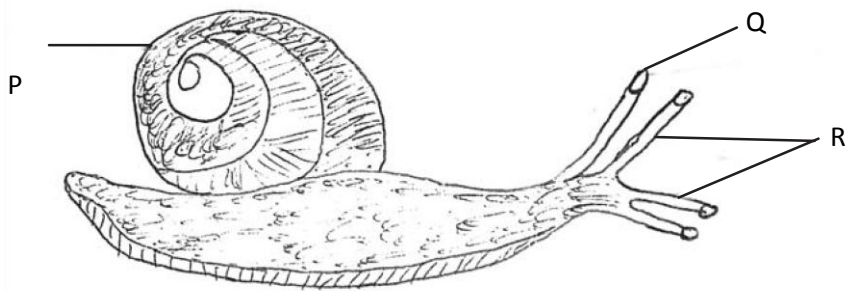
131. Apart from snails, mention three other examples of molluscs.

(i) _____ (ii) _____

(iii) _____

132. Name one example of a molluscs vector.

133. The diagram below, shows a water animal. Use it to answer questions.



(a) Identify the animal shown in the diagram.

(b) Name the parts labelled;

P : _____ Q : _____ R :

(c) State one function of structures labelled R.

(d) How does the animal shown in the diagram protect itself ?

(e) Name the disease spread by the animal drawn above.

133. List two examples of echinoderms.

(i) _____

(ii) _____

THEME: MATTER AND ENERGY

TOPIC: SOUND ENERGY.

LESSON 1 TYPES OF SOUND.

Sound

- ❖ Sound is a form of energy produced by vibration of an object.
- ❖ Sound is a form of energy that stimulates the sense of hearing.
- Why is sound called a form of energy?**
- ❖ Sound is regarded as form of energy because it enables people to do work.
- ❖ vibration is the to and from or up and down movement of an object.

How is sound produced?

By vibration of an object.

How does sound travel?

By means of sound waves

Types of sound

- Loud sound,
- soft sound,
- high and low sound.
- ✓ music is an organized sound produced by regular vibrations while noise is sound produced by irregular vibrations.

Sources of sound

- A source of sound is where sound waves originate from
- Sound travels through a medium by sound waves.
- Sound travels fastest in solids, faster in liquids and fast in gases.

N.B sound doesn't travel through a **vacuum**.

Reason; there is **no medium** to transmit sound.

Natural sources of sound

These are materials that produce their own sound naturally i.e.

- ✓ sound from birds,
- ✓ sound from animals
- ✓ thunder

- ✓ volcanic eruptions.
- ✓ Wind blowing
- ✓ Flowing water

Artificial sources of sound.

These are materials controlled by people in order to produce sound. They are mainly musical instruments.

e.g.

- ✓ guitar,
- ✓ drum,
- ✓ brute,
- ✓ keyboard,
- ✓ flute, tube fiddle
- ✓ , xylophones etc.
- ✓ Bomb blast
- ✓ gunshot

How living things produce sound.

- ▲ Mammals produce sound by the vibration of their vocal cords.
- ▲ Birds produce sound by vibration of their rings of cartilage in of the trachea.
- ▲ Insects like bees and mosquitoes produce sound by rapid flapping of their wings.
- ▲ grasshoppers and locust produce sound by rubbing their hind legs against their wings.

Learners' Activity

1) In one sentence explain the term sound.

2) List two main sources of sound.

i). _____

ii). _____

3) How is sound produced?

4) Give a difference between noise and music.

5) How do human beings produce sound?

6) How does sound travel?

7) Give one natural source of sound.

8) Give one artificial source of sound.

9) How do birds produce sound?

10) How do bees produce sound?

SUB TOPIC MUSICAL INSTRUMENTS.
LESSON 2.
GROUPS OF MUSICAL INSTRUMENTS.

Musical instruments,

- All musical instruments are material used to produce sound.
- They are used to accompany or give a beat to the flow of music.

Groups of musical instruments.

There are basically three categories of musical instruments basing on how they produce sound, how they are played and their features.

1. PERCUSSION MUSICAL INSTRUMENTS

These are musical instruments which produce sound by vibration of their skins or the wood when beaten or hit.

Examples of percussion musical instruments.

Xylophones, drums, bells, thumb pianos, rattles, clappers/strikers, ankle bells, shakers

Diagrams showing different examples of percussions.

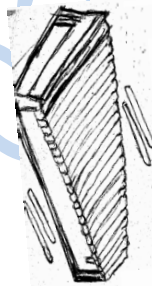
A long drum



A drum



Xylophone



bell



Note; pitch of percussion musical instruments can be determined by heating their skin to expand or tightening the skin.

Learners' Activity

- 1) Write one word to mean instruments that produce sound by hitting.

- 2) List two examples of such instruments.

i). _____

ii). _____

- 3) How does a drum produce sound?

- 4) In which way are drums similar to xylophones?

- 5) In the space below draw one example of a percussion instrument.

6) Give one example of a percussion musical instrument.

LESSON 3.
WIND MUSICAL INSTRUMENTS (AEROPHONES).

Wind musical instruments.

- ❖ These are musical instruments which produce sound by the vibration of air blown inside them
- ❖ Some have holes numbered to produce different pitch of sound. Each hole produces a different pitch of sound.

Examples of wind musical instruments.

flute, trumpet, pan pipes, empty bottles, horns etc.

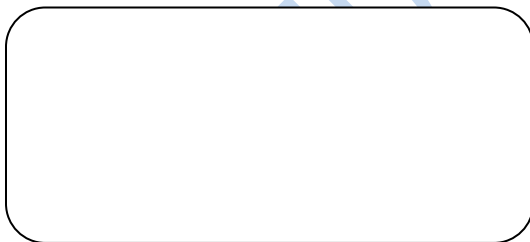
Learners' Activity

- 1) Why is panpipe called a wind instrument?

- 2) Apart from panpipes give any two other examples of wind musical instruments.
i). _____
ii). _____
- 3) How would you change the pitch of sound in a bottle half filled with water?
(a) In order to produce a high pitch

(b) In order to produce a low pitch

- 4) In the space below draw and name any one wind musical instrument



LESSON 4: STRING INSTRUMENTS (CHORDOPHONES)

String musical instruments.(chordophones)

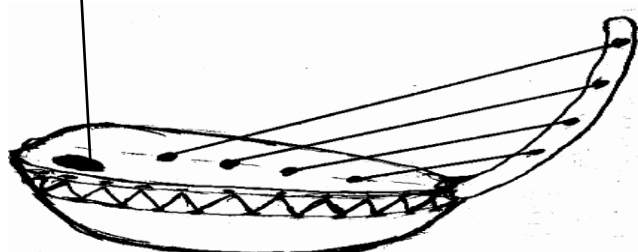
- These are instruments that produce sound by vibration of their strings when plucked/bowed.
- They are mainly played by plucking of their strings or by bowing.

Examples of string musical instruments.

Guitar, tube fiddle, lyre, a harp, violin and bow harp.

Diagram showing a structure of a bow harp.

resonator



NB: The resonator amplifies sound.

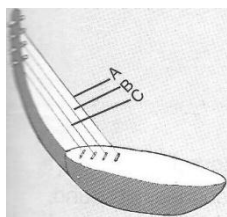
- Strings of a bow harp have different lengths to produce different pitch of sound.
- From the diagram above, string A will produce low pitched sound while string D will produce high pitched sound when bowed.

Learners' Activity

- 1) Use one sentence to explain string instruments.

- 2) Write two examples of string instruments.
 - i). _____
 - ii). _____
- 3) How does a bow harp produce sound?

- 4) The diagram below show a musical instrument. Use it to answer the questions that follow.



- a) Identify the instrument above.

- b) Identify the string which produces the highest sound.

- c) Give a reason for your answer.

HOW SOUND TRAVELS

LESSON 5

SPEED OF SOUND

Speed of sound

- ▲ For sound to travel there must be a medium.
- ▲ Sound needs a medium to transmit sound waves from the source to the destination.
- ▲ A medium should be a state of matter such as solids, liquids and gases.
- ▲ Sound travels fastest in solids, faster in liquids and fast in gases.
- ▲ The speed of sound in normal air is 330m/sec.

Class activities:

- a) How sound travels through solids.
Place a watch on one end of a wooden table place your ear on the other end, you will clearly hear the ticking of the clock hands.
- b) How sound travels through liquids.

Put a stone in water and hit it using another stone from normal air.

The sound heard is loud showing that sound travels in liquids.

Factors affecting the speed of sound.

The following are some of the factors that interrupt the speed of sound.

- Wind, heat (temperature) and altitude.
- Wind carries sound waves further to many directions
- Wind can also obstruct the sound waves by blowing it in opposite directions.
- During a hot day, sound waves move at a higher level compared to cold days.
- Sound waves find it easy to move along a lower altitude than going up a hill or mountain.

SUB TOPIC TERMS USED IN SOUND

LESSON 6

ECHOES:

Echoes

- ▲ An echo is a reflected sound.

How is an echo formed?

By obstruction and reflection of sound waves.

- ▲ Echoes have the same characteristic as the original sound.
- ▲ Smooth hard surfaces produce the best echoes while soft surfaces absorb sound.

Advantages of echoes to bats

- Bats use echoes to locate their food at night.
- Bats use echoes to dodge obstacles at night.

Importance of echoes to people

- Pilots use echoes to dodge obstacles during flight.
- Sailors use echoes to determine the depth of the sea.
- Fishermen use echoes to locate large groups of fish in water.

Disadvantages of echoes.

- Echoes make sound difficult to interpret.
- Echoes cause accidents and noise pollution.
- Echoes interrupt communication

How are echoes reduced in cinema halls and theatres.

- Use of woolen curtains.
- Using soft boards
- Using woolen carpets in cinema halls

Volume of sound

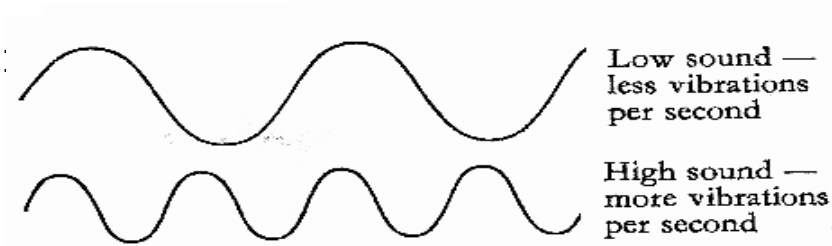
- Volume is the loudness or softness of sound.
- The volume of sound depends on the amplitude.
- **Amplitude** is the width of vibration.

NB: Volume of sound is measured in decibels

Frequency

- Frequency is the number of vibrations produced per second.
- The greater the amplitude, the louder the volume of sound and vice versa.

Diagram showing frequency produced by different strings.



A man standing near a building shouts and hears an echo after 10 seconds.

How far is the man from the building?

Distance=

ACTIVITY

1. What is an echo?

2. How are echoes formed?

3. Name two animals that make use of echoes apart from bats.

i). _____

ii). _____

4. How are echoes important to :

a). pilot

b.)sailors

5. How do bats make use of echoes?

6. What is volume of sound?

7. What is meant by the term frequency?

8. What is amplitude as used in sound?

9. How are echoes important to fishermen?

LESSON:7
PITCH OF SOUND.

Pitch of sound.

- pitch of sound is the highness or lowness of sound..
- Pitch of sound can also be caused due to the amplitude produced.
- The faster the body vibrates, the higher the frequency of sound produced.

Factors that affect pitch of sound.

The following are the conditions that may make produced sound heard with a low or high pitch.

- ↻ Frequency.
- ↻ Tension of the string.
- ↻ Surface area for vibration.
- ↻ Length of the string.
- ↻ Size of the vibrating space

- ⦿ The smaller the surface area for vibration, the higher the pitch produced.
- ⦿ High frequency produces high pitched sound.
- ⦿ When a string of a musical instrument is short, it will produce high pitched sound.

An experiment showing pitch of sound.

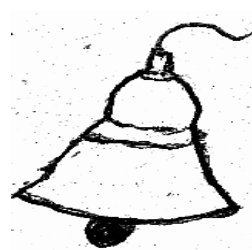
Bell A



Bell B



Bell C



Observation:

Bell A: Will produce sound of the highest pitch.

Bell B: produced low pitched.

Bell C: will produce the lowest pitched sound.

Learners' Activity

- 1) Which term refers to the highness or lowness of sound?

- 2) Mention one factor that determine the pitch of sound.

- 3) How can you change the pitch of sound of a string instrument?

- 4) Mention any one way of reproducing stored sound.

5) Give two factors that determines the pitch of sound

- i). _____
ii). _____

An experiment shows the pitch of sound.

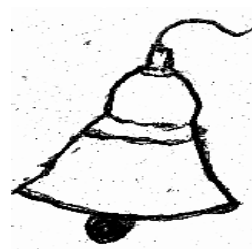
Bell A



Bell B



Bell C



7. Which bell produces the lowest pitch?

8. Give a reason for your answer in 7 above.

Methods of storing sound.

- Recording sound
- By sol-fa notation
- By staff notation

Importance of storing sound

- ♣ For future use
- ♣ Stored sound can be used for entertainment
- ♣ Stored sound can be used as evidence in courts of law

Devices which are used to store sound

- ✓ Memory cards
- ✓ Magnetic tapes
- ✓ Cassette tapes
- ✓ Computer diskettes
- ✓ Compact disc
- ✓ Flash disc
- ✓ Video compact disc
- ✓ Video tapes
- ✓ Floppy disc

Ways of reproducing stored sound

- ✓ By singing sofas
- ✓ By playing recorded sound in radio cassettes, computers, mobile phones etc

Devices which reproduce stored sound

- ♣ Record player
- ♣ DvD Player
- ♣ Mobile phones
- ♣ Computers
- ♣ Video disc players
- ♣ Radio cassettes

ACTIVITY

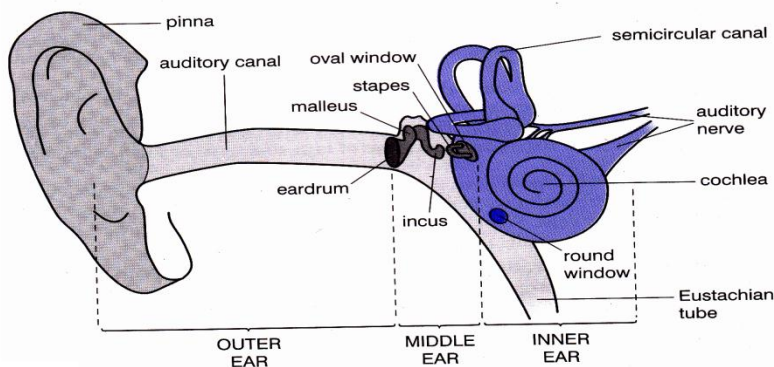
- 1) Name any two devices that store sound.
 - i). _____
 - ii). _____
- 2) Mention two ways sound can be stored.
 - i). _____
 - ii). _____
- 3) Give two reasons why people store sound.
 - i). _____
 - ii). _____
- 4) Give two ways stored sound can be reproduced.
 - i). _____
 - ii). _____

SUB TOPIC: THE MAMMALIAN EAR LESSON:8 STRUCTURE OF THE MAMMALIAN EAR.

Human ear.

The human ear is a sensory organ used for hearing sound.
The ear also helps in balancing the body in the right position.

A diagram of the human ear



Functions of each part of the ear

- ✓ **Pinna:**
It traps and collects sound waves from the environment
- ✓ **Ear canal/Auditory canal**
It is a passage of sound waves to the ear drum
- ✓ **Ear drum**
It changes sound waves into sound vibrations
- ✓ **Ossicles**
It amplifies sound vibrations
The ossicles is made up of three bones namely

- MIS-Malleus Incus Stapes
- HAS-Hammer Anvil Stirrup

✓ **Cochlea**

It changes sound vibration to sound messages/sound impulses

The cochlea has two fluids namely

- Perilymph
- Endolymph

They change sound vibrations into sound impulses

✓ **Auditory nerves**

They send sound messages/impulses to the brain for interpretation

✓ **Semicircular canal**

It balances the body in the right posture

✓ **Eustachian tube**

It balances the air pressure on both sides of the ear drum

Disorders of the human ear

- ✦ Temporary deafness
- ✦ Permanent deafness

Diseases of the human ear

- ✓ Otitis
- ✓ Menieres disease

Care for the human ear:

- Avoid staying near noisy places.
- treat infections as soon as symptoms are sighted
- Avoid pushing sharp/piercing object into the ear.
- Clean the ear daily with clean water and soap.
- Regular syringing of the ear

Compare the human ear with the organs of other animals used for hearing e.g. the snake, fish, insects, amphibians, birds.

Organs used for hearing in the following animals

- **Fish**.....Lateral line
- **Insects**.....feelers
- **Amphibians**....ear drum
- **Birds**.....ear
- **Snake**.....

ACTIVITY

1) Give two uses of the ear to people.

- i). _____
- ii). _____

2) How are the following parts useful in the process of hearing

- a)pinna _____
- b)ear canal_____
- c)ear drum_____
- d)ossicles _____

- f)semicircular canal _____
- g)Eustachian tube _____
- h)auditory nerves _____

3. Name any two disorders of the ear.

- i). _____
- ii). _____

4. Name one disease of the ear.

5. How useful is the ear to a deaf person?

6. Give one way of caring for the human ear.

TOPICAL TEST II: SOUND ENERGY

1. What is sound?

2. Name the two kinds of sound

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

3. Mention any three natural sources of sound.

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

4. List two examples of man-made sources of sound.

- (i) _____ (ii) _____

5. How is sound produced ?

6. What do we call the up and down movement of an object at regular intervals ?

7. How do the following produce sound ?

Mammals: _____

Birds: _____

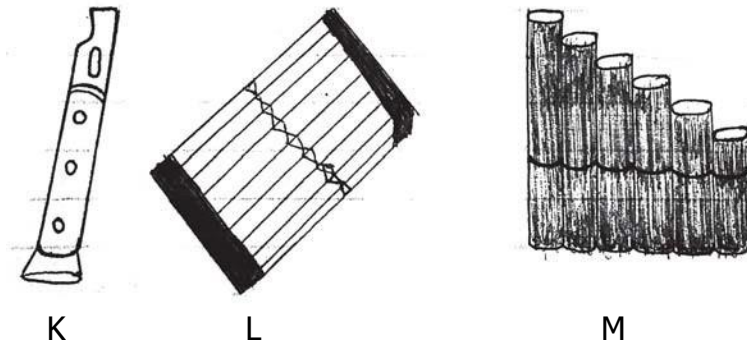
Bees : _____

Grasshoppers : _____

8. Identify the three groups of musical instruments.

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

9. The diagram below shows three musical instruments. Use it to answer questions.



(a) Name the instrument labelled;

(i) K : _____ (ii) L : _____
(iii) M : _____

(b) Which two of the above musical instruments can be grouped together?

(c) Give a reason for your grouping.

(d) How does musical instrument labelled L produce sound?

10. State the difference between pitch and frequency of sound.

11. Why do small and short vibrating objects produce high pitched sound ?

12. Why do big and long vibrating objects produce a low pitched sound ?

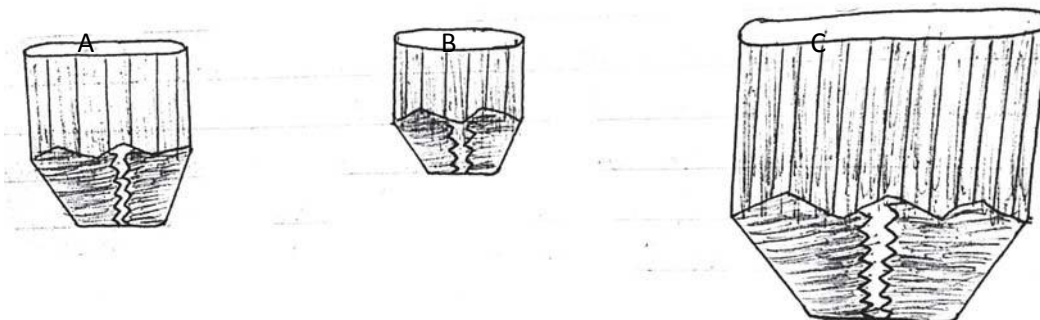
13. Write any three factors that determine the pitch of sound.

(i) _____

(ii) _____

(iii) _____

14. The diagram below shows three different sizes of drums. Use it to answer questions.



(a) To which group of musical instruments do the above drums belong?

(b) Which of the above drums will produce the highest pitch of sound?

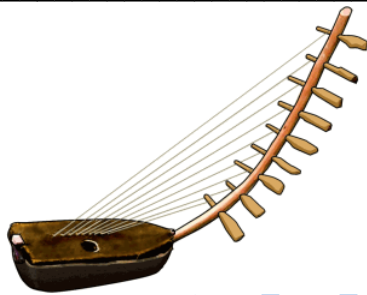
(c) Give a reason for your answer above.

(d) Which letter shows a drum that will produce the lowest pitch of sound?

(e) Give a reason your answer in (d) above.

(f) How does a drum produce sound?

(g) From which animal fibre is the top part of the drum made ?



(i) Under which group of musical instruments would you put a bow harp ?

(ii) Which of the strings on the above instrument will produce the highest pitch?

(iv) Which string will produce the lowest pitch ?

(v) Give a reason for your answer above.

(vi) How does the instrument above produce sound ?

(vii) State the importance of the hole marked X on the diagram.

(viii) Give two ways in which the pitch of the above instruments can be changed.

(i) _____

(ii) _____

(iii) _____

15. The diagram below shows bottles of the same size holding water of different volumes. Use it to answer questions.



(a) Which letter shows a bottle that will produce the highest pitch of sound when blown ?

(b) Give a reason for your answer above.

(c) Which bottle will produce the lowest pitch on blowing ?

(d) How do the above bottles produce sound ?

(e) Assume the above bottles were musical instruments. To which group would you put them ?

16. What is meant by volume of sound ?

17. How does sound travel;

18. Identify the state of matter through which sound travels

(i) Slowest _____

(ii) fastest _____

19. Why can't sound produced in a vacuum be heard ?

20. State the speed of sound in normal air.

21. Write any two factors that determine the speed of sound.

(i) _____

(ii) _____

22. How does wind affect the speed of sound?

23. Why is it difficult to hear words in an echo ?

24. Mention three places where echoes can be produced.

(i) _____

(ii) _____

(iii) _____

25. How are echoes produced?

26. Give one use of echoes to the following;

(i) pilots : _____

(ii) sailors : _____

(iii) bats : _____

27. Precious shouted in a thick forest. She heard similar sounds from a distance. What name is given to these similar sounds she heard ?

28. How is a fathometer useful to sailors ?

29. State three ways in which sound echoes can be reduced in theatres.

(i) _____ (ii) _____

(iii) _____

30. List any four devices used to store sound.

(i) _____ (ii) _____

(iii) _____ (iv) _____

31. State any three ways of storing sound.

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

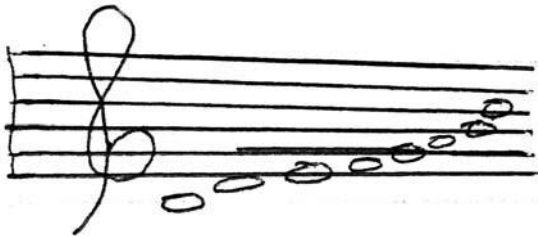
32. Mention four devices used to reproduce sound.

- (i) _____ (ii) _____
- (iii) _____ (iv) _____

33. Give three ways of reproducing stored sound.

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

Below is a method of storing sound. Use it to answer question



35.

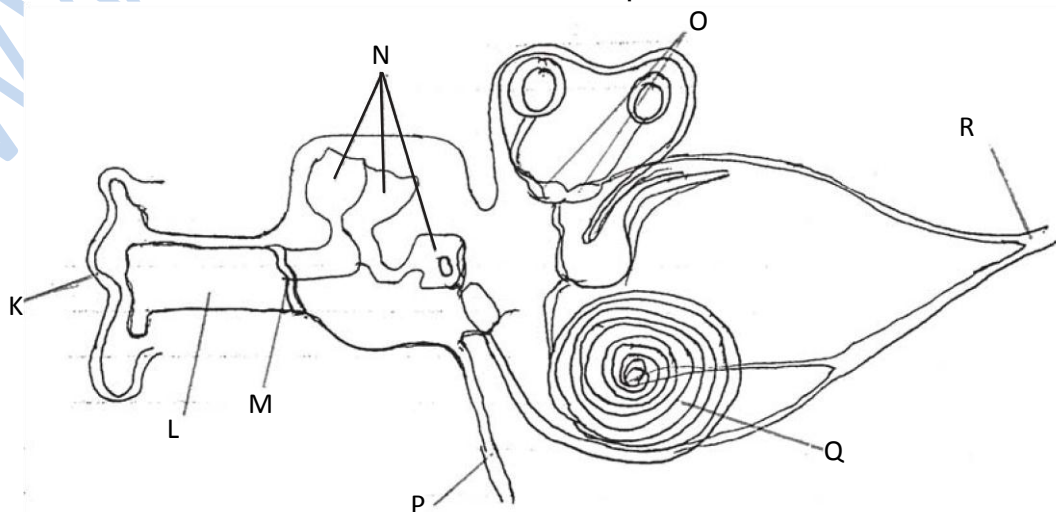
34. How can sound by the above method be reproduced ?

35. What does the term notation mean in sound ?

36. State two functions of the human ear..

- (i) _____
- (ii) _____

Use the structure of the human ear beow to answer questions.



(a) Name the three regions of the human ear.

(i) _____

(ii) _____

(iii) _____

(b) State the name of each of the parts labelled;

K : _____ O: _____

L : _____ Q : _____ M

: _____ R : _____

P : _____

(c) Of what function is the wax found in the part labelled L?

(d) What general name is given to the bones in the middle ear labelled with letter N ?

(e) State the function of the small bones of the ear in the process of hearing?

(f) How is the ear drum useful during the process of hearing?

(g) What part of the ear helps to maintain body balance?

(h) Name the two fluids found in the cochlea.

i). _____

ii). _____

(i) What is the importance of the fluids found in the cochlea ?

(j) Give the function of part marked R on the human ear.

(k) What role does the brain play in the process of hearing?

38. Name the three types of ear defects.

(i) _____ (ii) _____

(iii) _____

39. What do we call the total inability to hear?

40. Name one disease that can affect unborn babies and result into deafness.

41. What is the commonest cause of partial deafness?

42. State the term used to describe the practice of removing wax in the ear using warm water and a syringe?

43. Identify the type of ear defect that makes it difficult for one to differentiate between sounds.

44. Write any two diseases of the ears.

(i) _____

(ii) _____

45. Why is it dangerous to clean the ears with sharp objects?

46. Give two causes of sensory deafness.

(i) _____

(ii) _____

47. State three ways of caring for the ears.

(i) _____

(ii) _____

(iii) _____

(iv) _____

48. What danger can very high pitch sound cause to the ear drums?

THEME: THE HUMAN BODY.

TOPIC: CIRCULATORY SYSTEM.

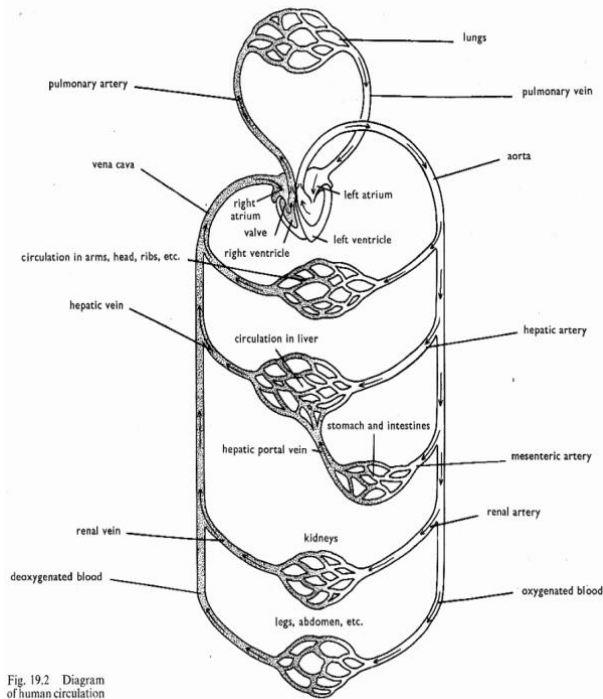
SUBTOPIC: COMPONENTS OF THE CIRCULATORY SYSTEM.

LESSON: 1

Components of the circulatory system.

- The circulatory system is also called the transport system of the body.
- It involves the supply body cells with fluids in the body.
- Components of the circulatory system are the features that connect to allow smooth flow of the body fluids.

Diagram showing the main blood circulation



Components of the circulatory system

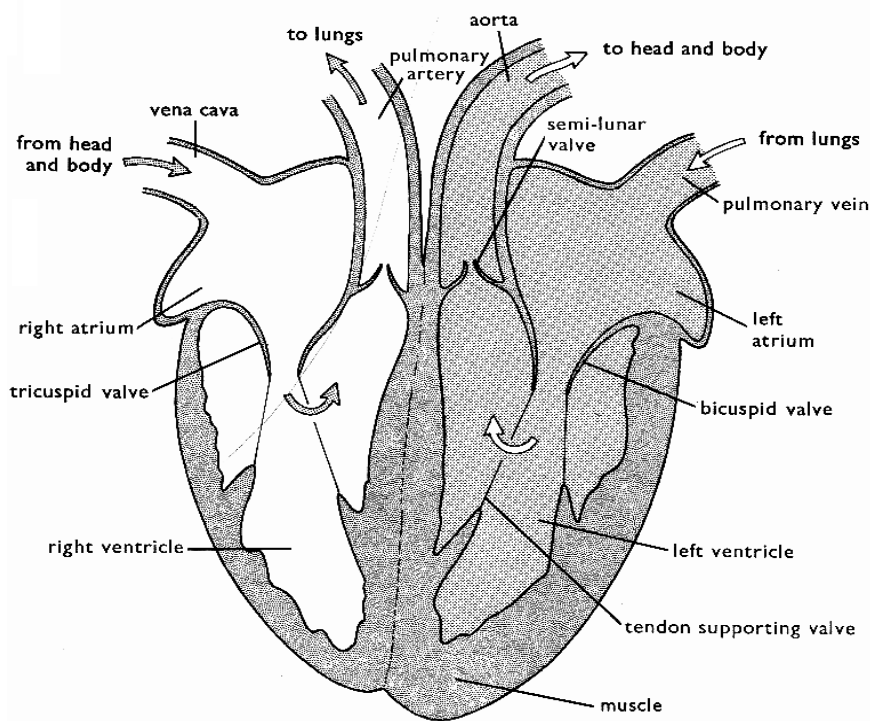
These are the

- ✓ Heart
- ✓ Blood
- ✓ blood vessels.

The heart;

- The heart is the main organ in mammalian body that pumps blood to all body parts.
- It is enclosed or located in the **chest cavity** in a tough membrane called **pericardium**.
- The heart has four chambers, the two upper chambers and two lower chambers.
- The upper chambers are called **auricles** while the lower chambers are called **ventricles**
- the heart is made up of cardiac muscles

The structure of the human heart



Note; The heart is protected by the **ribcage**
The normal pumping of the heart is **72 times per minute**

SUBTOPIC: THE HUMAN HEART LESSON 2:

Circulation of blood in the heart is supported by four main vessels. These are;

- ✓ Vena cava
- ✓ pulmonary artery
- ✓ pulmonary vein
- ✓ Aorta.

➞ **Vena cava**

-It transports deoxygenated blood back to the heart

➞ **Pulmonary artery**

-It transports deoxygenated blood from the heart to the lungs

➞ **Pulmonary vein**

-It transports oxygenated blood from the lungs to the heart

➞ **Aorta**

-It transports oxygenated blood from the heart to different parts of the body

NB: The **valves** prevent the back flow of blood in the heart

: The **septum** prevents oxygenated blood from mixing with deoxygenated blood

: The left **ventricle is thick walled** to pump blood with enough pressure to all body parts

Learners' Activity

- 1) Name the main organs of the circulatory system.
 - a). _____
 - b). _____
 - c). _____
- 2) List the three blood vessels of the circulatory system.
 - i). _____
 - ii). _____
 - iii). _____
- 3) Apart from the red blood cells mention any other two components of blood.

- 4) What is the role of heart?

- 5) Identify any one disease of the circulatory system.

6. List the two upper chambers of the heart.
 - i). _____
 - ii). _____
7. Which blood vessel leads blood from the body to the heart ?

8. Give one functional difference between the pulmonary artery and the pulmonary vein.

9. Why is the left ventricle thicker than the right ventricle?

10. Why does blood flow to the lungs before it is supplied to the rest of the body parts?

LESSON: 3

SUBTOPIC: BLOOD VESSELS

Blood vessels;

- Blood vessels are muscular tubes that help in proper circulation of blood in the human body
- They run from the heart to all other parts of the body.

Types of blood vessels.

- Arteries
- Veins
- Capillaries

Arteries.

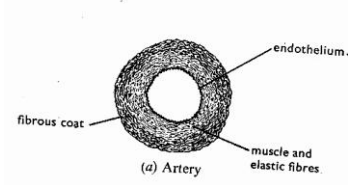
- Arteries are blood vessels that carry blood away from the heart.
- The main artery is called **aorta**

Characteristics of arteries

- They have thick walls
- They have narrow blood passage or lumen.
- They lack valves/have no valves
- Blood in arteries flow at a high pressure.
- They carry blood away from the heart

NB: Arteries have thick walls to resist high blood pressure

The structure of an artery



Note: most arteries carry oxygenated blood except pulmonary artery

Veins:

These are blood vessels that carry blood towards the heart.

The **vena cava** is the main vein

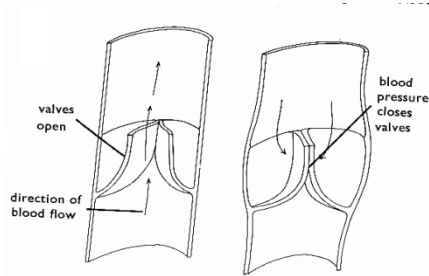
Characteristics of veins

- They have valves
- They have wider lumen
- They have thin walls
- Blood in veins flow at a low pressure.

NB: Valves in veins prevent the back flow of blood

- All veins carry deoxygenated blood except the pulmonary vein which carries oxygenated blood

The structure of a vein



Structural difference between the veins and arteries

Veins	arteries
1.have valves	1.have no valves
2.have thin walls	2.have thick walls
3.have wider lumen/blood passage	3.have narrow lumen/blood passage

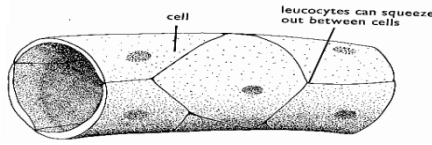
Functional difference between veins and arteries

- ✓ Veins carry blood towards the heart while arteries carry blood away from the heart
- ✓ Most arteries carry oxygenated blood while most veins carry deoxygenated blood

Capillaries

- These are the smallest blood vessels that help to connect the veins to arteries.
- Capillaries help to allow the exchange of blood materials.

Structures showing blood capillaries.



Learners' Activity

- 1) Identify any two blood vessels.
 - i). _____
 - ii). _____
- 2) Give the functions of the following blood vessels
 - a) Arteries

 - b) Veins

- 3) Give any two structural differences between arteries and veins.
 - i). _____
 - ii). _____
- 4) State any one functional difference between arteries and veins.

- 5) How are valves useful in veins?

- 6) Why are arteries thick walled?

- 7) Why are veins thin walled?

- 8) Give one role of blood capillaries in the human body.

- 9) Name the blood vessel that transports oxygenated blood from the lungs to the heart.

SUBTOPIC: BLOOD LESSON : 3. COMPONENTS OF BLOOD.

Blood.

- Blood is the red liquid that flows in the body.
- It becomes bright red when oxygenated and dark red when de-oxygenated.

Components of blood.

Blood component are

- platelets (thrombocytes)
- plasma (fluid of blood)
- white blood cells (leucocytes)
- red blood cells (erythrocytes)

Note: an adult person has a capacity of 5-6 liters of blood in the body.

Red blood cells.

These are blood components made of circular disc shapes.

- They are made in the red bone marrows of short bones.
- They appear red due to the existence of the haemoglobin.
- When the hemoglobin combines with oxygen it forms oxy-haemoglobin blood which is reddish bright in colour.



Diagram of a red blood cell

FUNCTION OF RED BLOOD CELLS.

- Helps to carry oxygen around the body.

Note: Plasmodia parasites attack the red blood cells hence causing malaria to the people.

LESSON: 4

PLASMA

Blood plasma

- It's the liquid part of blood

Components of plasma.

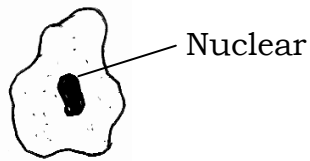
- ❖ blood proteins
- ❖ digested food
- ❖ hormones
- ❖ mineral salts
- ❖ water
- ❖ antibodies

Functions of blood plasma

- ✓ Blood plasma transports carbon dioxide from all body parts to the lungs.
- ✓ blood plasma transports digested food to all parts of the body
- ✓ Blood plasma also transports hormones from the glands to where they are needed.
- ✓ Transports antibodies in the body.

White blood cells.(leucocytes)

- They have a nucleus.
- They have irregular shapes.



- ❖ White blood cells are commonly made from lymph nodes, the spleen and white bone of long bones.

Uses of white blood cells

- ❖ They help fight against disease germs in the body

How do white blood cells fight against disease germs;

- By engulfing and digesting the germs
- producing anti bodies against the germs.
- The white blood cells have an irregular shape to enable them engulf the germs.

Blood platelets. (thrombocytes)

- ❖ Blood platelets are also made in the red bone marrows.

Uses of platelets

- They help in blood clotting.

- ❖ They are very many in the body with no nucleus and live shortly.

Diagrams showing platelets



Note; shortage of blood platelets result into uncontrolled bleeding in case of a wound/cut

- Too many white blood cells in the body may cause a disease called leukaemia/blood cancer

Learners' Activity

1) How useful are the following components of blood in the body?

a) Red blood cells

b) White blood cells

c) Platelets

d) Blood plasma

2) Identify a disease that attacks the following

a) Red blood cells _____

b) White blood cells _____

3. How are red blood cells different from white blood cells?

4. Where are the following components of blood made?

a) White blood cells

b) Red blood cells

5. Give one component of plasma.

6. How does HIV affect the white blood cells?

7. Which germ attacks the red blood cells?

LESSON: 5

DISEASES OF THE CIRCULATORY SYSTEM

LESSON

BLOOD AND HEART DISEASES

Diseases of the circulatory system

These are diseases which commonly attack the blood components and the heart.

- ❖ Malaria
- ❖ Leukaemia/blood cancer
- ❖ Anaemia
- ❖ Haemophilia
- ❖ HIV/AIDS
- ❖ Diabetes
- ❖ sickle cell anaemia
- ❖ High blood pressure
- ❖ Low blood pressure.
- ❖ Coronary heart disease

Disorders of the circulatory system.

These include

- thrombosis
- heart attack
- hypertension/high blood pressure
- heart failure
- heart stroke
- irregular heartbeat
- a hole in the heart

- ❖ Anaemia is caused due to lack of enough iron in one's diet.
- ❖ Iron helps in the formation of haemoglobin which easily combines with the oxygen in the red blood cells.
- ❖ Sickle cell anaemia is a condition when one's red blood cells are sickle shaped and therefore unable to carry enough oxygen around the body.
- ❖ Haemophilia is condition in which one's blood is unable to clot in case of an injury.
- ❖ Leukaemia is blood cancer which makes the number of white blood cells abnormally higher.
- ❖ Malaria is caused by plasmodia germs spread by female anopheles mosquito. These commonly attack and destroy the red blood cells.

Heart diseases;

These are diseases that mainly affect the normal functioning of the heart. They include; coronary thrombosis, hypertension and heart attack.

Coronary thrombosis

- ✓ This is a disease that affects the heart and is caused due to the blockage of the coronary arteries that supply oxygenated blood and digested food to the heart.
- ✓ It makes the cardiac muscles weak and may stop working due to limited oxygen and digested food supply.

Hypertension.

- ✓ This is a disease of the walls of the arteries making or reducing their lumen.
- ✓ This is caused mainly due to smoking of poisonous drugs contained in tobacco.
- ✓ The poisonous drugs damage the cardiac muscles reducing their functioning.

Diabetes;

- ✓ It is a condition of having too much sugar in blood
- ✓ It is caused by lack of insulin hormone

Learners' Activity

- 1) Write two diseases of the circulatory system.
 - i). _____
 - ii). _____
- 2) Identify one vector disease of the circulatory system.

- 3) Mention one circulatory disease which affects white blood cells.

- 4) Mention one cause of heart diseases.

- 5) Suggest one way of improving proper functioning of the circulatory system.

- 6) Which heart disease is caused by smoking cigarettes?

- 7) Give two ways of caring for the circulatory system.
i). _____
ii). _____
- 8) How is insulin useful in the body?

- 9) Which blood disease is caused by having abnormally higher number of white blood cells in the body?

- 10) Give two disorders of the heart.
i). _____
ii). _____

HIV/AIDS

- ❖ HIV/AIDS is a disease that affects the circulatory system.
- ❖ HIV stands for : Human Immunodeficiency Virus
- ❖ AIDS stands for : Acquired Immune Deficiency Syndrome
- ❖ This disease attacks one's immune system making the body lack defense to infections.
- ❖ HIV destroys white blood cells
- ❖ The victim's body becomes weak or unable to defend itself from infections due to the destroyed white blood cells.
- ❖ HIV/AIDS does not kill the victim, it's the secondary infections untreated that kill the victim.

Ways through which HIV/AIDS is spread.

- ❖ Having unprotected sex with an infected person.
- ❖ Sharing skin piercing objects with an infected person.
- ❖ From an infected mother to the baby through breastfeeding.
- ❖ From the infected mother to the baby during birth.
- ❖ Through some cultural practices that promote the spread of HIV
 - ✓ Traditional Circumcision
 - ✓ Traditional tattooing
 - ✓ Wife inheritance
 - ✓ Traditional ear piercing
 - ✓ Traditional tooth extraction

Effects of AIDS to an individual.

- ❖ AIDS weakens ones immune system
- ❖ AIDS causes death of the victim.
- ❖ AIDS causes stress to the victim
- ❖ AIDS can make one lose the job
- ❖ AIDS may lead to self neglect

Effects of AIDS to the family

- ❖ AIDS can lead to poverty in the family
- ❖ Lack of basic needs in case the bread winner dies
- ❖ AIDS has led to increased number of orphans in the family

Effects of AIDS to the community

- Loss of useful labour force in the community
- Leads to increased number of orphans in the community

Signs of HIV/AIDS

- Oral thrush
- Herpes zoster
- Chronic cough
- Chronic diarrhoea
- Loss of body weight

Ways of controlling the spread of HIV/AIDS.

- ❖ having protected sex with trusted sex partners
- ❖ avoid sharing skin piercing objects with an infected person
- ❖ Having one faithful sexual partner
- ❖ Having safe male circumcision

Caring for HIV/AIDS victims

- ✓ Feeding them on a balanced diet daily
- ✓ Making sure they take their drugs on time
- ✓ Washing for them clothes
- ✓ Giving them company
- ✓ Providing them clothes to wear
- ✓ Taking them to the hospital

PIASCY

Presidential Initiative on AIDS Strategy for Communication to Youth

PIASCY messages

- ✓ **AIDS** has no cure
- ✓ **AIDS** kills
- ✓ Virginity is healthy
- ✓ Abstain from sex
- ✓ Body changes are healthy
- ✓ Refuse gifts for sex

Importance of PIASCY in schools

- ✓ It helps children to protect themselves against AIDS
- ✓ Helps children to stay in school

NOTE: Tuberculosis and measles victims are mistaken to be HIV/AIDS victims due to the same signs and symptoms.

-The only way you can tell that one has HIV/AIDS is by going for blood checkup or testing

Care of the organs of the circulatory system

- Eating a balanced diet.
- doing regulatory physical exercises
- Regular visits to hospital for medical check up
- Avoid eating too fatty/oil food stuffs.
- Avoid rough games.

Ways of increasing volume of Blood in the body

- Eating foods mainly rich in iron e.g. beans, greens, liver and kidneys
- Taking iron tablets
- Through blood transfusion

Learners' Activity

1. Write the following in full

i). HIV _____

ii) AIDS _____

2. Identify the cause of AIDS.

3. Suggest two ways in which AIDS is spread.

i). _____

ii). _____

4. Why are adolescent girls at a higher risk of getting HIV and AIDS than boys of the same age group?

5. Suggest a piece of advice adolescent boys and girls for the prevention of HIV and AIDS.

6. List two disorders of the circulatory system.

i). _____

ii). _____

7. Suggest one way of increasing the volume of blood circulation in the body.

8. Name any two cultural practices that have led to easy spread of HIV.

i). _____

ii). _____

9. Write PIASCY in full.

10. Name any two PIASCY messages.

i). _____

ii). _____

11. How important is PIASCY in schools?

TOPIC III : THE CIRCULATORY SYSTEM

1. Name the three parts that make up the blood circulatory system.

(i) _____ (ii) _____

(iii) _____

2. State the major organ of the circulatory system.

3. What is the chief function of the human heart ?

4. Name the tough membrane that encloses the heart.

5. In which part of the body is the human heart situated ?

6. State two conditions that can make one's heart beat go beyond the normal.

7. Identify the part of the skeleton that protects the heart.

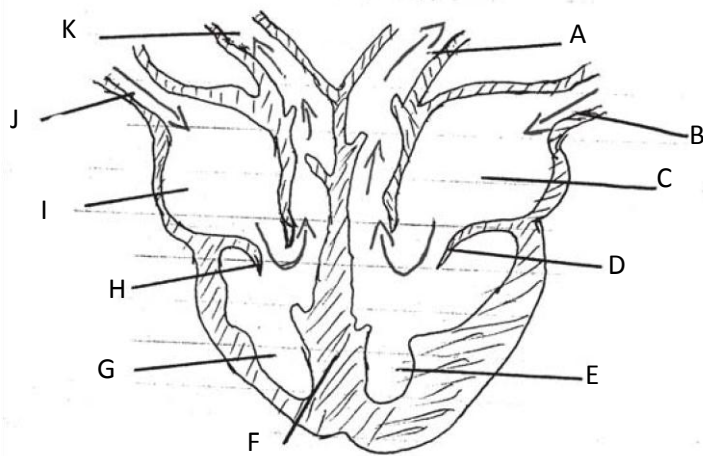
8. The human heart is divided into four chambers. What do we call the;

(a) upper chamber : _____

(b) lower chamber : _____

9. Name the thick wall that divides the heart into the left and right hand sides.

10. Use the structure of the human heart below to answer questions that follow.



(a) Name the parts of the human heart labelled;

- | | | | | | |
|---|---|-------|---|---|-------|
| A | : | ..... | F | : | ..... |
| B | : | ..... | G | : | ..... |
| C | : | ..... | H | : | ..... |
| D | : | ..... | I | : | ..... |
| E | : | ..... | J | : | ..... |
| K | : | ..... |  | : | ..... |

(b) What do arrows represent on the diagram ?

(c) State the general function of the part labelled D.

.....

(d) To which body organ does blood vessel F lead blood?

.....

(e) Why is the left hand side of the heart thick walled?

.....

(f) Name the type of blood carried by the following blood vessels.

- | | | | | | |
|---|---|-------|---|---|-------|
| A | : | ..... | F | : | ..... |
| B | : | ..... | G | : | ..... |

(g) What type of blood is handled by;

(i) left hand side of the heart :

(ii) right hand side of the heart :

11. How is the heart able to pump blood?

.....

12. Apart from picking oxygen, give one other reason why blood goes to the lungs before other body parts.

.....
.....

13. Name the three types of blood vessels.

- (i) (ii).....
(iii)

14. State the name given to blood vessels that;

- (i) carry blood away from the heart:
(ii) carry blood back to the heart:

15. Why is the pulmonary artery called a special artery ?

.....
.....

16. Why do arteries have thick walls ?

.....

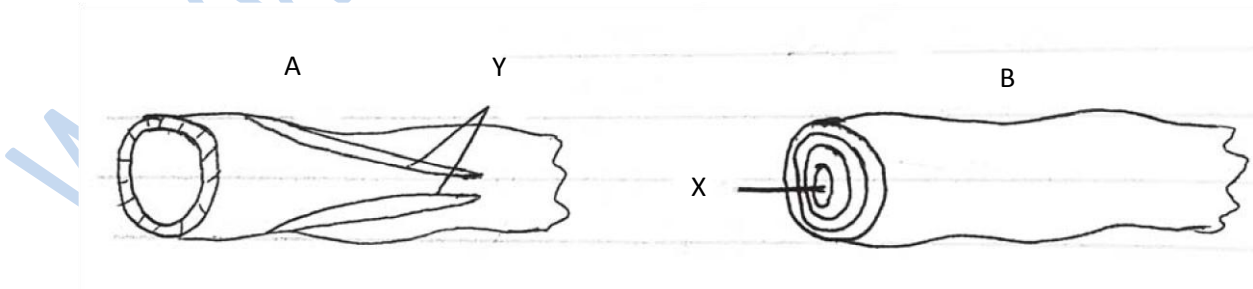
17. State the name given to blood vessels that;

- (i) largest artery in the body :
(ii) largest vein in the body :

18. How is the pulmonary vein different from all other veins ?

.....

19. The diagram below shows blood vessels. Use it to answer questions.



(a) Name the blood vessels labelled A and B.

.....

(b) Give the function of the structures labelled Y on blood vessel A.

.....

(c) Name the part labelled X on blood vessel B.

.....

20. Give two structural difference between arteries and veins.

(i)

(ii)

21. State one functional difference between veins and arteries.

.....
.....

22. What important body process takes place in blood capillaries?

.....

23. Mention the four major components of blood.

(i)..... (ii)

(iii) (iv)

24. What is the major function of the white blood cells in the body?

.....

25. Give one structural difference between white blood cells and red blood cells.

.....
.....

26. State two ways in which white blood cells defend the body against germs.

(i).....

(ii)

27. What important role do red blood cells play in the body?

.....

28. Identify the pigment that makes blood to appear red.

.....

29. Draw diagrams to show the shape the shape of;

A


White blood cell.



B

Red blood cell.



30. Mention two parts of the body where;
- (i) White blood cells are made :
- (ii) Red blood cells are made :
31. What is the liquid part of blood called?
-
32. How are blood platelets able to stop the flow of blood when the skin is cut ?
-
33. State any three functions of blood in the body.
- (i).....
- (ii)
- (iii)
34. Give two diseases of the circulatory system which are;
- (a) Caused by germs. (i) (ii)
- (b) Hereditary. (i) (ii)
- (c) poor feeding (i) (ii)
35. How does blood help to control body temperature.
-
-
36. **After a laboratory test, Luisa was found having red blood cells with the shape shown below.**
-  What circulatory disease was she suffering from ?
-
37. Write the following abbreviations in full form.
- (a) AIDS :
- (b) HIV :
- (c) STIs :
38. State any two ways of maintaining the proper working of the circulating system.
- (i).....
- (ii)
39. How can the volume of blood in circulation be increased ?
-
40. What is the importance of increasing blood in circulation ?
-

41. State one way one can increase the volume of blood in the body.

42. Give at least three importance of physical exercises.
 (i)
 (ii)
 (iii).....

THEME HUMAN HEALTH
TOPIC: ALCOHOL IN OUR SOCIETY
LESSON 1
SUBTOPIC: TYPES OF ALCOHOL.

Alcohol:

Alcohol is a chemical substance that makes people drunk once taken in.

Types of alcohol.

There are basically two types of alcohol namely;

- Ethyl (ethanol) alcohol
- Methyl (methanol) alcohol

Ethyl (alcohol) is the most common type of alcohol found in alcoholic drinks. It's the type of alcohol formed immediately after the ripening of a plant fruit.

Plant fruits ripen due to **ethylene hormone**.

Methyl alcohol (e.g. methanol) is the most dangerous type of alcohol. It can easily cause blindness in case of contact with the eyes.

Examples of alcoholic drinks include:

‘malwa’, ‘tonto’, wine ,waragi whisky and beer.

Reasons why people drink alcohol.

People drink alcohol for a number of reasons

- People drink alcohol due to happiness
- To celebrate their successes
- To forget their problems
- To be bold/gain confidence
- Due to peer influence

Learners activity

1. In one sentence, explain the term alcohol.

2. Identify any two examples of alcoholic drinks

i). _____ ii). _____

3. Mention the two main types of alcohol.
 - i). _____
 - ii). _____
4. Give any two reasons why people take alcohol.
 - i). _____
 - ii). _____
5. Which type of alcohol causes blindness when it comes into contact with the eyes?

LESSON2 METHODS OF PRODUCING ALCOHOL.

Methods of producing alcohol.

There are basically two methods of producing alcohol namely;

- Fermentation method.
- Distillation method

Fermentation method.

-Fermentation is the process of turning sugar from plant juice and water into alcohol

-This is aided by yeast (zymase enzyme)

-The sugar found in fruit juice is worked upon by yeast to form fermented alcohol.

-fruit juice + yeast → alcohol + carbon dioxide

-NB: Yeast speeds up the process of fermentation

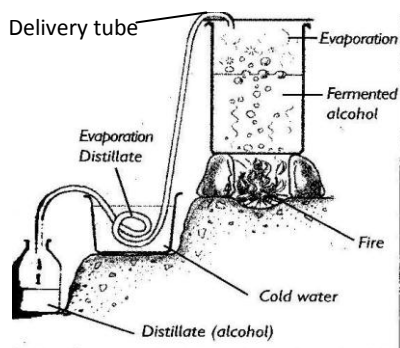
Example of plant materials used to produce fermented alcohol are;

Ripe banana, cassava flour, maize, millet, sorghum

Distillation method.

- This is a process of obtaining pure alcohol from fermented alcohol by boiling evaporating and condensing of the alcohol vapour to form distillate
- Distillation method involves two processes ie **evaporation and condensation**
- The liquid obtained using this method is called a **distillate**.
- Examples of alcoholic drinks obtained through this method are waragi, whisky and beer

Diagram showing distillation method of making alcohol.



- Heat source provides the heat to cause evaporation.
- Cold water helps to condense the vapourised alcohol into a liquid.
- The delivery tube is coiled to increase the surface area for condensation
- **Note: home distillation of alcohol is illegal due to the likely accidents that may occur.**

Learners activity

1. In one sentence, explain each of the following terms;

a) fermentation

b) distillation

2. State the importance of each of the following during distillation;

a) cold water

ii) heat source

3. In one sentence, give a reason why home distillation of alcohol is illegal.

4. Give any three examples of plant local materials used to produce fermented alcohol.

i). _____

ii). _____

iii). _____

5. Name the two methods of making alcohol.

i). _____

ii). _____

6. How is yeast important when preparing alcohol?

LESSON;3

Uses of alcohol in the society.

- Alcohol is used by doctors to sterilize medical instruments
- Alcohol can be used in some thermometers.
- Alcohol is source of income
- Alcohol can be used to clean the skin before an injection is taken.
- Alcohol is also used to clean wounds.
- Alcohol can be used by builders to mix paints and dyes.

Alcoholism

- This is a condition that results from the prolonged use of alcohol.
- The person who is addicted to taking alcohol called an alcoholic.

Factors that may lead to alcoholism

- Stress
- Peer pressure
- Family background or life styles.
- Seductive advertisement.
- Poor social environment

LESSON: 4

Effects of alcoholism.

The habit of taking alcohol causes social and health problems in the society. These effects are caused to; individuals, family or the community.

a) Individuals.

- It damages body organs such as, liver, brain, kidney and stomach walls
- Leads to self neglect
- Leads to loss of appetite for food resulting into stomach ulcers.
- Leads to poverty

b) To the family

- Family poverty.
- Family neglect.
- Loss of family respect.
- Leads to divorce
- Leads to child abuse

c) To the community.

- Alcoholism leads to road accidents
- Alcoholism leads to high crime rates in the community.

- **Laws governing alcohol in Uganda**
- Drivers are not allowed to drive under the influence of alcohol.
- Alcohol should not be sold to people below the age of 18
- All public places selling alcohol should be licensed
- Home distillation of alcohol is not allowed

ACTIVITY

Learner's activity

1. Explain the following terms;

a] alcoholic

b] alcoholism

2. Mention any three factors that may lead to alcoholism.

i). _____

ii). _____

iii) _____

3. State any two ways in which alcohol is important in the society.

i). _____

ii). _____

4. State how alcohol affects;

i] an individual

ii] the family

iii]. The community _____

5. State the law governing the use of alcohol in Uganda.

6. Give two uses of alcohol in hospitals.
 - i). _____
 - ii). _____
6. Name two body organs damaged by excessive drinking of alcohol.
 - i). _____
 - ii). _____
7. state one health effect of drinking alcohol to an individual.

8. give any two life skills that safeguard one against drinking of alcohol.
 - i). _____
 - ii). _____
9. How can one avoid drinking alcohol.

SUBTOPIC: SMOKING

LESSON: 5

Smoking

- This is the inhalation of tobacco smoke from a burning cigarette.

Commonly smoked drugs:

- marijuana
- opium
- cocaine
- Tobacco

Ways/how people use tobacco include;

- Through the burning pipes.
- Through burning cigarettes.
- By sniffing tobacco powder.
- By chewing the leaves of tobacco.

Harmful substance found in tobacco

- ✓ Nicotine-causes addiction
- ✓ Tar-causes lung cancer
- ✓ Carbon monoxide

Types of smoking.

- Active smoking.
- Passive smoking.

-Active smoking is the act of inhaling tobacco smoke directly from a burning cigarette.

-Passive smoking is the inhaling tobacco smoke from an active smoker

- Passive smoking is the inhaling of second hand smoker

Reasons why people smoke;

- Some smoke to warm their bodies.
- Some smoke due to peer pressure.
- Some smoke to concentrate on their work.
- Due to addiction
- To pass the time

Learner's activity

1. What is smoking?

2. Give any two commonly smoked drugs.
 - i). _____
 - ii). _____
3. State one way people use tobacco.

4. Name any two harmful substances found in tobacco.
 - i) _____
 - ii). _____
5. Give two reasons why people smoke.
 - i). _____
 - ii). _____
6. Give two diseases caused by smoking.
 - i). _____
 - ii). _____
7. Explain the following types of smoking
 - a) Active smoking

 - b) Passive smoking

LESSON: 6

Effects of smoking to an individual

- It causes lung cancer and emphysema
- It stains teeth
- It causes bad breath
- It spoils taste buds
- It leads to high blood pressure

Disease caused due to smoking.

- Lung cancer
- Emphysema

Disease worsened by smoking

- Tuberculosis
- Pneumonia
- Asthma
- Bronchitis

Effects of smoking to a pregnant woman

- Causes miscarriage/abortion.
- Causes pre mature birth
- Still birth.
- Causes low birth weight

Effects of smoking to the community.

- Smoking can easily result into fire out breaks in an area.
- Smoking causes air pollution.
- It creates bad practices among children in the area.

Effects of smoking to the family.

- All family members become passive smokers.
- Children copy bad habit of smoking.
- It can also lead to loss of family income

How to avoid smoking.

- Keeping busy during free time ie by involving in football etc
- Avoid joining peer groups of people who use tobacco and other drugs.
- Advise friends who smoke about the dangers of smoking.

Learner's activity

1. Explain the term smoking.

2. Identify the different ways people use tobacco.

3. Differentiate between passive and active smoking.

4. Give any two reasons why people smoke.

i). _____

ii). _____

5. State two ways in which smoking can be dangerous to pregnant mother.

i). _____

ii). _____

6. Outline any two ways of controlling smoking.

i). _____

ii). _____

7. Give one effect of smoking to the family.

SUBTOPIC: DRUGS IN SOCIETY.**LESSON: 7****ESSENTIAL DRUGS.****Drugs;**

-A drug is any chemical substance introduced in the body and affects the functioning of the body systems.

Types of drugs..

- Essential drugs.
- Narcotic drugs.

Narcotic drugs are drugs which cause addiction after a prolonged use or dependency.

Essential drugs.

These are drugs used by people to meet their health needs.

Examples of essential drugs

- ♣ Panadol
- ♣ Coartem
- ♣ Quinine
- ♣ Septrine
- ♣ Fansidar

Qualities/ characteristics of essential drugs.

- ❖ They should be common
- ❖ They should be affordable.
- ❖ They should be available
- ❖ They should have value for money.
- ❖ They cure diseases
- ❖ They reduce pain
- ❖ They reduce signs and symptoms

Drug storage.

- Drugs need to be kept in a clean dry place to prevent them from contamination.
- Drugs should also be kept away from children to prevent child poisoning at home.
- Some drugs should be kept in freezers/fridge

Dangers of poor storage of drugs.

- Drugs may easily become contaminated
- Drugs lose their curative value.
- Poorly stored drugs become poisonous to one's health.
- Keeping drugs in children's reach can easily cause child poisoning in homes.

Ways drugs are introduced in the body.

- By swallowing (tablets)
- By injections (injectables)
- By drinking (syrups)
- By smearing (ointments)

Learner's activity

1. In one sentence, explain the term drug.

2. Identify the different types of drugs.

3. What are essential drugs?

4. In three sentences, explain the qualities of essential drugs.

5. State any two ways in which essential drugs are introduced in the body.

i). _____

ii). _____

iii). _____

6. Why is coartem called an essential drug?

7. Give one danger of poor storage of drugs.

8. Why should drugs be kept away from children?

9. Why is it a bad practice to expose essential drugs to direct sunlight?

LESSON 9

Drugs prescription;

-This is the written information given by a health worker on how to use a certain drug.

Factors considered when prescribing drugs

- Age
- Body weight
- The degree of sickness
- The type of disease

Importance of drug prescription.

- ♣ It prevents people from taking under dose
- ♣ It helps the patient to avoid drug misuse.
- ♣ It prevents people from taking over dose
- ♣ It prevents people from taking a wrong dose

Under dosage is when one takes less than the recommended dose

Over dose is when one takes more than the recommended dose

Dangers of buying drugs from shops or markets.

- Drugs may be harmful or expired.
- Such drugs are not well prescribed and stored.
- Drugs may be contaminated
- They may be spoilt/damaged
- They may be fake drugs.

Drug misuse

-drug misuse is the wrong use of drugs

Ways of misusing drugs

- ♣ By sharing drugs meant for one person
- ♣ By taking a wrong dose
- ♣ By taking drugs when you are not sick
- ♣ By taking drugs at a wrong time
- ♣ By taking expired drugs

Dangers of misusing drugs

- It leads to poisoning
- It delays recovery
- It leads to drug resistance
- It can lead to death
- It can lead to damage of body organs

Learners activity

1. Explain the following terms;

i] drug prescription

ii] drug misuse

2. Give two reasons why health workers should give drug prescription to their patients.

i). _____

ii). _____

3. State any two dangers of buying drugs from shops.

i) _____

ii). _____

4. State any two ways in which people misuse drugs today.

i). _____

ii). _____

5. Name any two drugs that are commonly misused.

i). _____

ii). _____

6. Give the danger of taking under dose.

7. Give two factors to be considered when prescribing drugs.

Narcotic drugs/drugs of dependency

-Narcotic drugs are drugs which cause addiction after a prolonged use.

Example of narcotic drugs

- ✓ Alcohol
- ✓ Tobacco
- ✓ Opium
- ✓ Mirra
- ✓ Marijuana
- ✓ Cocaine

Drug abuse;

- Is the use of a drug in way that is harmful to the body

Reasons why people abuse drugs.

- To improve performance
- To concentrate on work
- To feel warm
- To celebrate successes.
- Due to peer influence
- Due to poor social environment

Factors that lead to drug abuse

- ▲ Stress
- ▲ Poor social environment
- ▲ Due to peer influence
- ▲ Seductive advertisement

Effects of drug abuse;

- It can cause health damages to the body organs such as the brain, liver pancreas etc.
- Drugs abuse can cause abnormalities or improper body function.
- Drug abuse can easily result into death. It leads to divorce/spouse/child abuse.

Note: drugs of dependency are drugs which cause addiction incase of prolonged use.

Drug dependency is when one's body becomes addicted to a certain drug.

Life skills to safe guard against drug dependency.

- Keeping busy with sports and games in free time
- Avoid peer groups which exercise the use of common drugs.
- Engage in good social clubs.
- Never wish to taste any drug any day.

Learners activity

1. What is drug abuse?

2. Why do people abuse drugs?

3. Give any two effects of drug abuse to an individual.

i). _____

ii). _____

4. Explain what is meant by the term drug dependency.

5. State any two life skills of safe guarding against drug dependency.

i). _____

ii). _____

6. Give one factor that may lead to drug abuse.

7. Give two ways people can avoid drug abuse.

i). _____

ii). _____

TOPIC IV : ALCOHOL, SMOCKING AND DRUGS IN THE SOCIETY.

1. Explain each of the terms below.

(a) Alcohol:.....
.....

(b) Alcoholism:.....
.....

(c) Alcohol Addiction:.....
.....

2. Why is Alcohol called a drug ?

.....

3. Who is an Alcoholic ?

.....

4. Name the two types of Alcohol.

(i).....

(ii).....

5. Identify the type of alcohol used to sterilize medical instruments in hospitals.

.....

6. State the two methods used to obtain alcohol.

(i).....

(ii).....

7. Name the common fungus used in the fermentation method of producing alcohol.

.....

8. What gas is produced during fermentation method?

.....

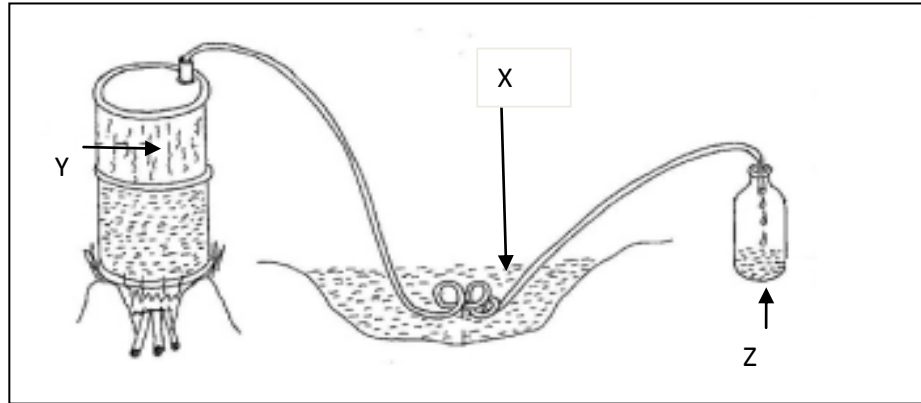
9. Match the examples of alcohol produced by fermentation to their raw materials.

<u>Alcohol</u>	<u>Raw material</u>
(i) Tonto	Sorghum
(ii) Kwete	Millet
(iii) Mulamba	sweet bananas
(iv) Malwa	maize

10. What do we call the process of getting alcohol from fermented juice by distilling ?

.....

11. The illustration below shows a local method of obtaining alcohol. Use it to answer questions.



(a) Identify the method of making alcohol shown in the diagram above.

.....

(b) Name the process taking place at points labelled;

(i) X:.....

(ii) Y:.....

(c) Why is the delivery tube passed through cold water ?

.....

(d) Give a reason why the delivery tube is coiled.

.....

(e) Write the scientific name given to the substance labelled with letter Z.

.....

(f) Write two examples of alcohol obtained using the method shown in the diagram.

(i)..... (ii)

12. A part from drinking and selling it to get money, give two other uses of alcohol in the society.

(i).....

(ii)

13. List three reasons why some people drink alcohol.

(i).....

(ii)

(iii)

14. Mention any three factors that may lead to alcoholism.

(i).....

(ii)

(iii)

15. Give two effects of alcohol to each of the following.

(a) An individual :

(b) Family :

(c) Community :

16. Name two body organs that can be damaged by alcohol.

(i) (ii).....

17. How can alcoholism lead to poverty to an individual ?

.....
.....

18. What effect can a child get as a result of a father being an alcoholic ?

.....
.....

19. State two Uganda laws on alcohol.

(i)

(ii)

20. Why should a police officer arrest a P.6 boy found drinking alcohol in a bar ?

.....
.....

21. Give two life skills that can help to avoid alcoholism.

(i).....

(ii)

22. Define the term smoking.

.....
.....

23. Mention the two types of smoking.

(i)..... (ii)

24. How is an active smoker different from a passive smoker?

.....
.....

25. Identify the two poisonous substances contained in tobacco smoke.

(i)..... (ii)

26. What do we call the poisonous gas contained in tobacco ?

.....

27. State two reasons people give for smoking.

(i).....

(ii)

28. Name the addictive chemical found in tobacco.

.....

29. Give two harmful effects of smoking to an individual.

(i).....

(ii)

30. Mention two diseases that result from tobacco smoking.

(i) (ii)

31. State two effects of smoking to non-smokers in a family.

(i)

(ii)

32. How is tobacco smoking dangerous to pregnant women ?

.....

.....

33. Besides smoking it, give two other ways in which people use tobacco ?

(i).....

(ii)

34. Give two life skills to safe guard against smoking.

(i)

(ii)

35. What is a drug ?

.....

36. Name the two types of drugs.

(i)..... (ii)

37. What do we call the drugs useful to meet peoples' health problems ?

.....

38. State the four groups of essential drugs.

(i) (ii)

(iii) (iv)

39. Write any three examples of essential drugs.

(i) (ii)

(ii)

40. State any two characteristics of essential drugs.

- (i)
- (ii)

41. List three ways essential drugs are introduced into the body.

- (i)
- (ii)
- (iii)

42. Write the two types of essential drugs.

- (i) (ii)

43. Give any three characteristics of laboratory manufactured drugs.

- (i)
- (ii)
- (iii)

44. Mention two examples of laboratory manufactured drugs.

- (i) (ii)
- (iii)

45. Define an expiry date of a drug.

.....
.....

46. Musa went to the hospital when he was seriously sick. After a medical test, the doctor gave Musa medicine with on as shown below.



(a) What medicine term is given to the writing on the medicine given to Musa ?

.....

(b) What does the writing on the medicine illustrate to Musa ?

.....

47. Give two characteristics of local drugs.

- (i)
- (ii)

48. Match the drugs in List A to their uses in list B.

List A

List B

- | | |
|----------------------|-----------------------------------|
| (i) Panadol | correct nutritional deficiencies. |
| (ii) Chloroquine | used for immunisation. |
| (iii) Vaccines | relieves pain. |
| (iv) vitamin tablets | cures Malaria. |

49. Mention any four prescriptions written on drugs.

- (i) (ii)
(iii) (iv)

50. State any two importance of drug prescription.

- (i)
(ii)

51. How is overdose of a drug different from under dose ?

.....
.....

52. State one effect of taking under dose of a drug.

.....
.....

53. Why should medical drugs be kept out of children's reach ?

.....
.....

54. Give two importance of proper storage of drugs.

- (i)
(ii)

55. What effect can be cause on drugs as a result a keeping them in places with high temperatures ?

.....
.....

56. Give the difference between drug abuse and drug misuse.

.....
.....

57. List four examples of narcotic drugs.

- (i) (ii)
(ii) (iv)
(iii)

58. State any three reasons why people abuse drugs.
- (i)
 - (ii)
 - (iii)
59. Give two ways in which people misuse drugs.
- (i)
 - (ii)
60. What do we call the continuous use of a drug after the has become used to it ?
-
-
61. Define drugs of dependence.
-
-
62. State three effects of drug abuse and dependence to an individual.
- (i)
 - (ii)
 - (iii)
63. In which two ways can drug abuse affect the family ?
- (i)
 - (ii)
64. Give two effects of drug abuse to the community.
- (i)
 - (ii)
65. What effect can a pregnant woman get as a result of using narcotic drugs ?
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66. How can you as a P.6 pupil avoid drug abuse and drug dependence ?
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67. Give two causes of drug misuse.
- (i)
 - (ii)
68. State one effect of self medication to an individual.
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THE END