

ASBAT

Education Consult



Revised Lesson Notes

SCIENCE - P.6

FULL YEAR

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TERM 1

P6

SCIENCE

NOTES

TOPIC ONE: CLASSIFICATION OF LIVING THINGS

CLASSIFICATION OF LIVING THINGS

- This is the grouping of living things according to their characteristics and features.

LIVING THINGS

- These are things that have life.

CHARACTERISTICS OF LIVING THINGS

- | | |
|--|---|
| <ul style="list-style-type: none"> ▪ They feed ▪ They reproduce ▪ They excrete ▪ They respond to their stimuli | <ul style="list-style-type: none"> ▪ They respire ▪ They grow ▪ They move (locomote) ▪ They breathe |
|--|---|

GROWTH

- This is the increase in size of organism

REPRODUCTION

- This is the process by which living things multiply
- ✓ It prevents extinction of living things
- ✓ It increases the population of living things
- ✓ It promotes continuity of life

MOVEMENT

- Living things move to different places for some reasons.
- All locomotions are movements but all movements are not locomotions

Why do animals move (locomote) from one place to another?

- | | |
|---|---|
| <ul style="list-style-type: none"> ▪ To look for food ▪ To look for shelter ▪ To look for mates ▪ To run away from their enemies (to escape danger) | <ul style="list-style-type: none"> ▪ To look for their friends ▪ To look for their young ones |
|---|---|

How do animals move from one place to another? (Forms of locomotion)

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> ▪ By swimming ▪ By walking ▪ By flying | <ul style="list-style-type: none"> ▪ By jumping ▪ By leaping (hopping) | <ul style="list-style-type: none"> ▪ By crawling ▪ By slithering ▪ By wriggling |
|--|---|--|

EXCRETION

- This is the removal of metabolic waste products from the body.
- It prevents body poisoning

RESPIRATION

- This is the oxidation of food (glucose) in the living body cells to produce energy.
- Respiration provides energy to the body

Name the two types of respiration

- Aerobic respiration
- Anaerobic respiration
- ✓ **Aerobic respiration** needs oxygen to occur while **anaerobic respiration** does not need oxygen

SENSITIVITY

- This is the ability of an organism to respond to external stimuli
- A stimulus is any change in the environment that causes an organism to react.
- ✓ Sensitivity enables living things to detect danger

EXAMPLES OF EXTERNAL STIMULI

LIVING THINGS	STIMULI
Plants	<ul style="list-style-type: none"> ✓ Touch ✓ Light ✓ Gravity ✓ Water ✓ Chemicals

Animals	<ul style="list-style-type: none"> ✓ Heat ✓ Pain ✓ Cold ✓ Smell
---------	---

FEEDING

- This is the act of taking food into the body

Why do living things feed?

- To replace the worn out cells
- To be healthy
- To get energy
- To grow
- To stay alive

NUTRITION

This is the study of food and how it is used in the body

TYPES OF NUTRITION IN LIVING THINGS

- Autotrophic nutrition: In plants
- Heterotrophic nutrition: In animals and fungi

MODES OF HETEROTROPHIC NUTRITION / FEEDING

- Parasitic e.g in leeches, ticks, lice, mites, tapeworms and hookworms
- Saprophytic e.g in mushrooms, toadstools, yeast, moulds and puffballs
- Holozoic e.g in human beings, dogs and cats

REASONS FOR CLASSIFICATION OF LIVING THINGS

(Why do we classify living things?)

- For easy identification
- For easy naming
- For easy study
- For conservation

FEATURES AND CHARACTERISTICS USED TO CLASSIFY LIVING THINGS

- | | |
|---|---|
| <ul style="list-style-type: none"> • Body symmetry • Body colour • Body size • Body shape • Body divisions • Number of legs | <ul style="list-style-type: none"> • Form of reproduction • Type of respiration • Mode of movement • Mode of feeding • Adaptation to the environment |
|---|---|

EXAMPLES OF LIVING THINGS

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> • Bean plant • Maize plant • Orange plant • Pomegranate plant • Cow • Pig • Goat • Sheep | <ul style="list-style-type: none"> • Lion • Zebra • Horse • Donkey • Hen • Duck • Turkey • Kite | <ul style="list-style-type: none"> • Hawk • Owl • Egret • Bee • Butterfly • Tick • Mite |
|---|---|--|

KINGDOMS OF LIVING THINGS

- Animal Kingdom (Kingdom Animalia)
- Plant kingdom (Kingdom Plantae)
- Kingdom Monera
- Kingdom Protista
- Kingdom Fungi

GROUPS OF LIVING THINGS

- Animals
- Plants
- Monerans / prokaryotes
- Fungi
- Protists

DIFFERENCES BETWEEN PLANTS AND ANIMALS

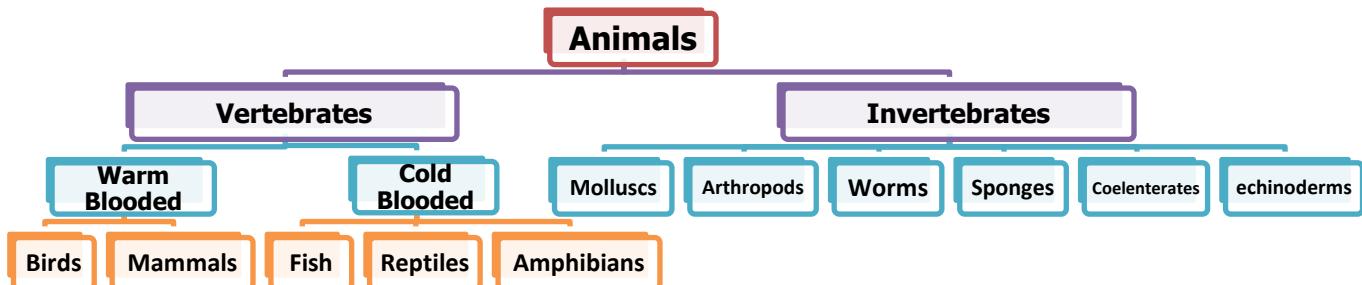
- Plants are autotrophs (make their own food) while animals are heterotrophs (feed on already made food)
- Plants have chlorophyll while animals lack chlorophyll

- Plants lack sense organs while animals have sense organs
- Plant cells have cell walls while animal cells have cell membrane
- Plants respond slowly to stimuli while animals respond quickly to stimuli
- Most plants are fixed in one place while most animals can move from one place to another freely
- Growth in plants occurs throughout life while growth in animals stops before their death.

ANIMALS

- These are multicellular organisms that are mobile, have no chlorophyll and have cells with cell membranes.
- ✓ A multicellular organism is an organism with many cells

A FLOW CHART SHOWING CLASSIFICATION OF ANIMALS



GROUPS OF ANIMALS

- Vertebrates
- Invertebrates

VERTEBRATES

- These are animals with a backbone (spine or vertebral column)

IMPORTANCE OF A BACKBONE

- It protects the spinal cord
- It controls reflex actions
- It connects all nerves to the brain

CHARACTERISTICS OF VERTEBRATES

- They have a backbone
- They have endoskeleton
- They have waterproof skin
- They have alimentary canal
- They have large brain protected by the skull
- Their backbone is made up of many small bones called vertebrae
- They have bilateral symmetry
- They have closed circulatory system

NB: Vertebrates are also grouped into two;

- Warm blooded (homoeothermic or homoiothermic)
- Cold blooded (poikilothermic)

Warm blooded (homoeothermic)

- Are animals that have a constant body temperature.
- ✓ Mammals
- ✓ Birds

Cold blooded (poikilothermic)

- Are animals whose body temperature changes according to the surrounding.
- ✓ Fish
- ✓ Reptiles
- ✓ Amphibians

GROUPS OF VERTEBRATES

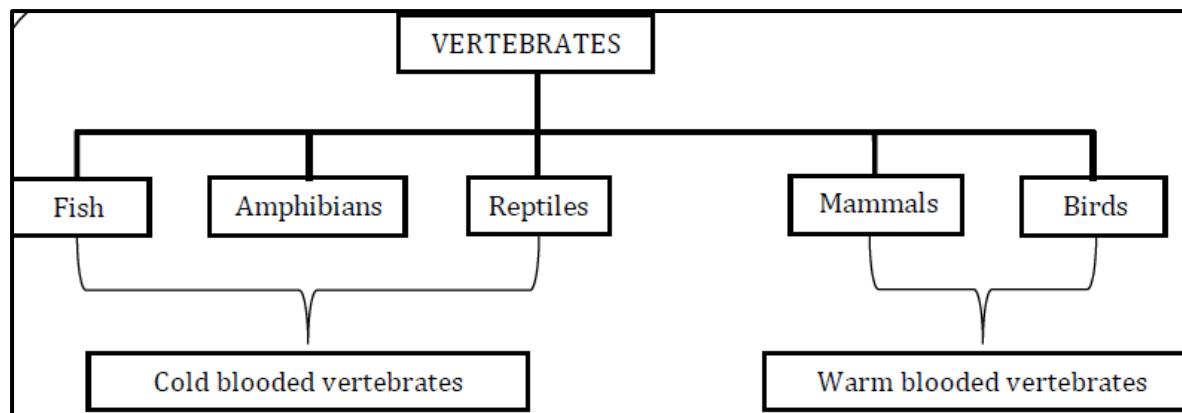
- Fish
- Amphibians
- Reptiles
- Mammals
- Birds



Mention the two main classes of vertebrates

- Warm blooded (homoeothermic or endothermic animals)
- Cold blooded (poikilothermic or ectothermic animals)

A FLOW CHART SHOWING CLASSIFICATION OF VERTEBRATES



WARM-BLOODED VERTEBRATES (HOMEOTERMIC ANIMALS)

- These are animals that maintain a constant body temperature

GROUPS OF WARM-BLOODED VERTEBRATES

- Mammals
- Birds

EXAMPLES OF WARM-BLOODED VERTEBRATES

- | | | |
|----------|----------|-------|
| ▪ Parrot | ▪ Turkey | ▪ Dog |
| ▪ Duck | ▪ Pigeon | ▪ Cow |
| ▪ Emu | ▪ Goat | ▪ Cat |

COLD-BLOODED VERTEBRATES (POIKILOTHERMIC ANIMALS)

- These are animals whose body temperature changes with the surroundings

GROUPS OF COLD-BLOODED ANIMALS

- Fish
- Reptiles
- Amphibians

EXAMPLES OF COLD-BLOODED VERTEBRATES

- | | | |
|--------------|-----------------|---------------|
| ▪ Tilapia | ▪ Gecko | ▪ Green snake |
| ▪ Mudfish | ▪ Common lizard | ▪ Frog |
| ▪ Nile perch | ▪ Crocodile | ▪ Toad |
| ▪ Chameleon | ▪ Turtle | ▪ Newt |

BIRDS

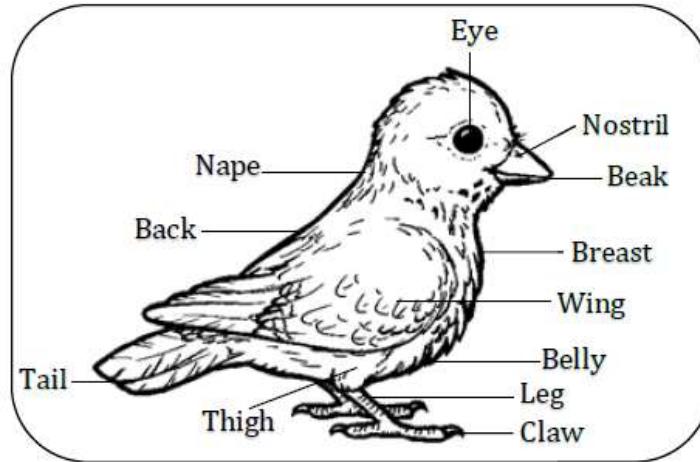
- These are vertebrates with feathers on their bodies

CHARACTERISTICS OF BIRDS

- They have feathers
- They have beaks
- They have wings
- They have streamlined bodies
- They reproduce by laying eggs

- They undergo internal fertilization
- They have scales on their legs
- They are warm blooded animals
- They have a backbone
- They breathe by means of lungs
- They have three eyelids (the lower, upper and nictitating membrane)
- They care for their young

EXTERNAL FEATURES OF A BIRD



PART OF A BIRD	FUNCTION
Eyes	✓ For sight
Beak	✓ For feeding ✓ For protection ✓ For egg turning during incubation
Legs	✓ For walking
Wattle and comb	✓ For temperature regulation
Nostril	✓ For smelling
Wings	✓ For flight
Claws	✓ For protection

ADAPTATIONS OF BIRDS TO FLIGHT

ADAPTATIONS	REASONS
They have a streamlined body	To reduce air resistance/viscosity/friction in air
They have hollow bones	To reduce body weight
They have many quill (flight) feathers	For flight
They have strong wings	To support the bird in air To propel the bird forwards
They have large pectoral muscles	To move the wings
They have a keel on their breast bone	For attachment of pectoral muscles
They have no pinna	It would obstruct wind
They have air sacs attached to the lungs	To improve gaseous exchange
They have nictitating membrane on their eyes	To protect the eyes from wind
They have a high metabolic rate	To provide the high amount of energy needed
They have a keen eye sight	To judge distances correctly
They have a quick digestive system	To remain nourished and healthy

REASONS WHY SOME BIRDS ARE UNABLE TO FLY

- They have heavy bones with bone marrow

- They have weak and small wings
- They have few flight feathers.
- They have no keel on their breast bone

MOULTING IN BIRDS

- This is shedding of old feathers in birds
- Birds moult once each year

Why do birds moult their feathers?

- To grow new feathers

FEATHERS

- These are the outermost covers of the bird's body

USES OF FEATHERS TO A BIRD

- They help a bird to fly (for flight)
- They streamline the bird's body (they give the bird shape)
- They keep the bird's body warm (for warmth)
- They protect the bird's body from injury (for protection against injury)
- They help a male bird to attract mates (for courtship)
- They give the bird colour for identification

USES OF FEATHERS TO PEOPLE

- They are used as costumes
- They are used for decoration
- They are used to make pillows
- They are used to make mattresses
- They are used as writing materials

TYPES OF FEATHERS

- Quill (flight) feathers
- Covert (body) feathers
- Down feathers
- Filoplume feathers

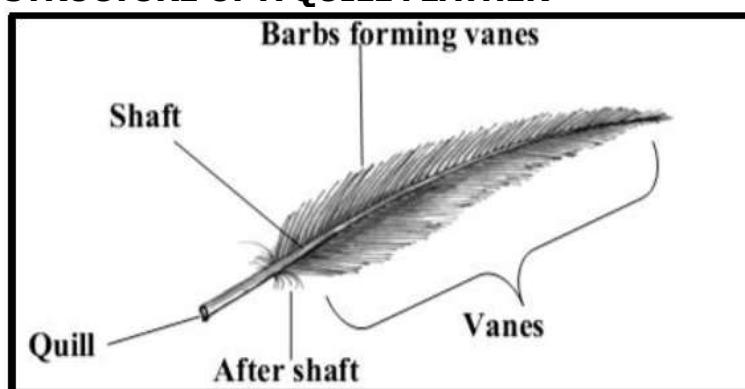
QUILL FEATHERS (FLIGHT FEATHERS)

- They are found on the wings and tail
- They are divided into primary and secondary feathers
- Primary feathers are bigger than secondary feathers

IMPORTANCE OF QUILL FEATHERS

- For flight (they help in flying)

STRUCTURE OF A QUILL FEATHER



Shaft (rachis)

- It holds the vane (it is where the vane is attached)

Vane

- It is the flat expanded part of the feather

Barbs

- They form the vane

Quill (calamus)

- It is the extreme end of the shaft

COVERT FEATHERS (BODY FEATHERS)

- They are found on the neck and bases of wings and tail
- They cover most of the body
- They are smaller than the quill feathers

IMPORTANCE OF COVERT FEATHERS

- They insulate the bird's body
- They streamline the bird's shape (they give the bird shape)

STRUCTURE OF A BODY FEATHER



Why are bird streamlined?

- To overcome viscosity (to reduce air resistance)

What is viscosity (fluid friction)?

- This is the friction in liquids and gases

DOWN FEATHERS

- They are found on the abdominal region
- They are the first feathers to appear on a bird
- They have no vane
- They have loose barbs

IMPORTANCE OF DOWN FEATHERS

- They insulate the bird's body

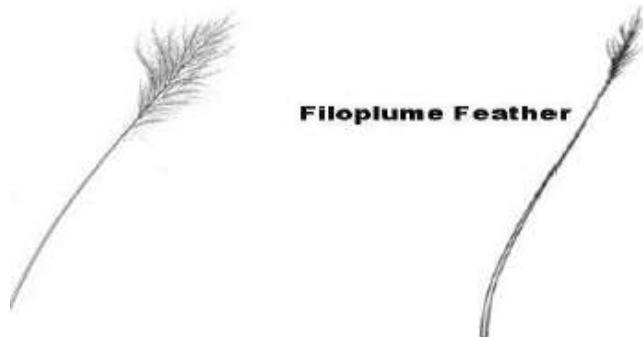
STRUCTURE OF A DOWN FEATHER



FILoplume FEATHERS

- These are the feathers that remain when a bird has been plucked
- They are found nearest to the skin between the covert feathers
- They are the tiniest (smallest) feathers
- They have no quill

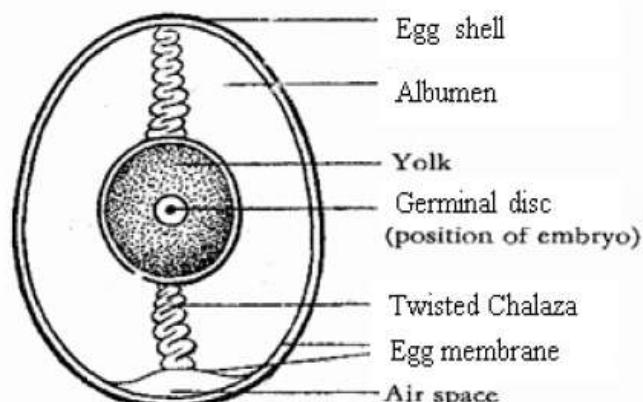
A DRAWING OF A FILOPLUME FEATHER



REPRODUCTION IN BIRDS

- They reproduce by laying eggs (they are oviparous)
- Their eggs are fertilized internally
- Birds undergo internal fertilization
- Fertilization in birds occurs in the oviducts

STRUCTURE OF A FERTILIZED EGG OF A BIRD



FUNCTIONS OF EACH PART OF A FERTILIZED BIRD'S EGG EGG SHELL

- It protects the inner parts of an egg
- It allows exchange of gases

Why is the egg shell porous?

- To allow gaseous exchange

How is the egg shell adapted to gaseous exchange?

- It is porous

How is the egg shell adapted to protection of the inner parts of an egg?

- It is hard

Why should layers be given mash (feeds) rich in calcium?

- To lay hard shelled eggs

Why should layers be given mash (feeds) rich in calcium?

- To lay hard shelled eggs

SHELL MEMBRANE

It prevents an egg from drying up

AIR SPACE

- It keeps oxygen for the embryo
- It supplies oxygen to the embryo

EGG YOLK

- It provides fats and proteins to the embryo

ALBUMEN (EGG WHITE)

- It provides water and proteins to the embryo

CHALAZA

- It holds the yolk and embryo in position
- It is the passage of oxygen to the embryo
- It is the passage of wastes from the embryo

GERMINAL DISC

- It is found in unfertilized egg
- It develops into an embryo after fertilization

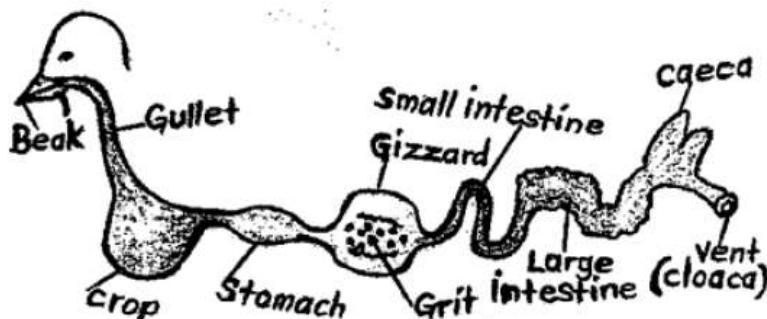
EMBRYO

- It is found in a fertilized egg
- It develops into a young bird

FEEDING IN BIRDS

- Birds have no teeth
- They have horny beaks (bills)
- The shapes of beaks indicates the bird's general diet

DIGESTIVE SYSTEM OF A BIRD (HEN)



FUNCTIONS OF EACH PART OF THE DIGESTIVE SYSTEM OF A BIRD

BEAK (BILL)

- It picks food

GULLET (OESOPHAGUS)

- It passes food to the crop

CROP

- It stores food for a short time (for temporary storage of food)
- It moistens and softens food
- It produces crop milk to feed the chicks e.g. in pigeons

Things that happen to food while in the crop of the bird

- Food is moistened
- Food is softened

Examples of birds that do not have a crop

- Owl
- Goose
- Button quail

Why does a goose have no crop on its alimentary canal?

- It eats little food at a time

TRUE STOMACH (PROVENTRICULUS)

- It is where food is mixed with digestive juices
- It secretes digestive enzymes that begin the digestion of proteins

GIZZARD

- It crushes (grinds) food

How is the gizzard adapted to its function?

- It has grit (small stones) that grind food

How is the gizzard able to withstand the grit?

- It has thick (muscular) walls

Which part of the human digestive system perform the same function as the gizzard of a bird?

- Teeth

GRIT

- These are small stones found in the gizzard
- They crush food into small particles

SMALL INTESTINES (ILEUM)

- It is where food digestion ends
- It is where food absorption occurs (it absorbs digested food)

Main processes that take place in small intestines

- Food absorption
- Food digestion

LARGE INTESTINES

- It is where water absorption occurs (it absorbs water)

CAECUM

- It stores undigested food for a short time

VENT (CLOACA)

- It passes out droppings

FACTORS CONSIDERED WHEN GROUPING BIRDS

- Way of feeding
- Type of beak
- Type of foot
- Type of food they eat
- Way of movement

GROUPS OF BIRDS

- Birds of prey (preying birds/raptors)
- Perching birds
- Scratching birds
- Swimming birds
- Wading birds
- Flightless (walking) birds
- Climbing birds
- Scavenger birds

BIRDS OF PREY (RAPTORS)

- These are birds that hunt and kill their prey
- ✓ A prey is an organism which is eaten by another organism

CHARACTERISTICS OF PREYING BIRDS

CHARACTERISTICS	REASONS
▪ They have strong sharp hooked beaks	✓ For tearing their prey (flesh)
▪ They have strong sharp curved claws or talons	✓ For gripping and killing their prey
▪ They have strong eye sight	✓ To spot their prey from long distances

EXAMPLES OF PREYING BIRDS

- Hawks
 - Eagles
 - Secretary birds
 - Owls
 - Kites
 - Falcons
 - Osprey
 - Buzzard
 - Harrier
- ✓ An eagle is termed as the king of all birds.

AN OWL

- It is a nocturnal bird of prey
- It has no crop

Why is an owl able to see at night?

- It has more rod cells than cone cells in its eyes

FOOD FOR PREYING BIRDS (RAPTORS)

- Rats
- Fish
- Mice
- Geckos
- Chicks
- Smaller birds

DIAGRAM SHOWING BEAK AND FOOT OF A PREYING BIRD



How are birds of prey (raptors) dangerous to poultry farmers?

- They eat chicks (they kill poultry)

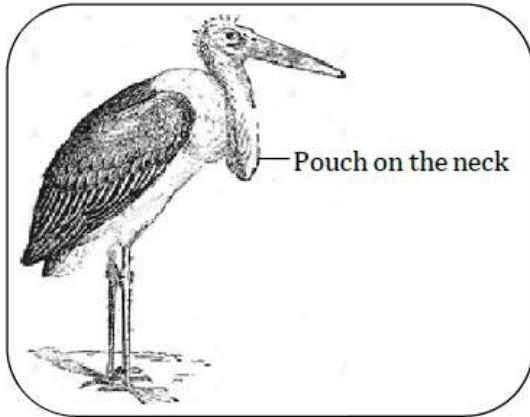
SCAVENGER BIRDS

- These are birds that feed on carrion (leftover meat/carcasses/abandoned meat)

EXAMPLES OF SCAVENGERS

- Vulture (condor)
 - Crows
 - Marabou stork
- ✓ A marabou stork has long pointed heavy beak and long legs

A DRAWING SHOWING A MARABOU STORK



Of what importance is the pouch on the neck of a marabou stork?

- It is used during courtship

How are scavenger birds important in the environment?

- They clean the environment by eating carrion (rotten meat)

How do scavengers clean the environment?

- By feeding on carrion (dead animals)

PLACES WHERE SCAVENGER BIRDS ARE COMMONLY FOUND

- Dustbins
- Abattoirs
- Rubbish heaps

Explain the meaning of the term carrion

- This is the dead decaying meat

Name one scavenging bird of prey

- Vulture

CLIMBING BIRDS

- These are birds that climb trees.

EXAMPLES OF CLIMBING BIRDS

- Parrot
- Woodpecker

Why does a woodpecker peck trees?

- To make nesting sites
- To look for food (insects)

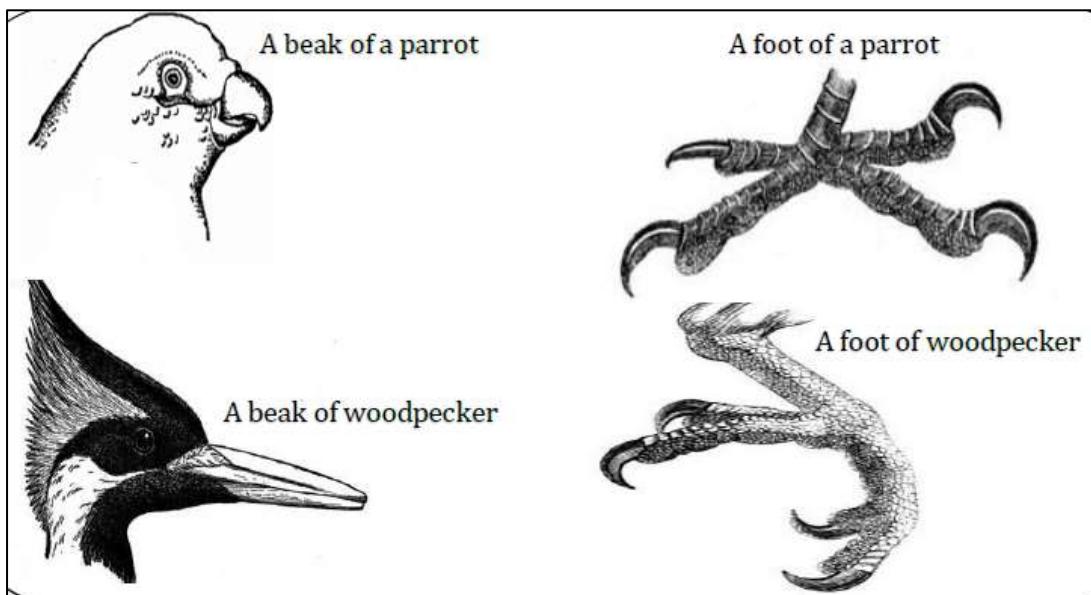
Why does a woodpecker drum on trees?

- To attract mates
- To chase away predators
- To communicate to other woodpeckers

CHARACTERISTICS OF CLIMBING BIRDS

CHARACTERISTICS	REASONS
They have two toes facing forward and two backward	For climbing trees
They have long stiff tails	For support when climbing upwards
They have long toes with claws	For holding trees
A parrot has strong short hooked beak	For cracking hard seeds (nuts) For climbing trees
A parrot has a small space between the upper and lower beak	To hold seeds
A woodpecker has chisel-shaped beak	For making holes in trees (for pecking wood)
They live in trees	They love the security they feel, and the shelter from the elements

DIAGRAMS SHOWING BEAKS AND FEET OF CLIMBING BIRDS



FOOD FOR CLIMBING BIRDS

- Insects
- Seeds

SWIMMING BIRDS

- These are birds that have fully webbed feet for swimming in water.

EXAMPLES OF SWIMMING BIRDS

- | | |
|------------|-------------|
| ▪ Ducks | ▪ Seagulls |
| ▪ Swans | ▪ Pelicans |
| ▪ Geese | ▪ Cormorant |
| ▪ Penguins | |

STRUCTURE OF A FOOT AND BEAK OF A SWIMMING BIRD



CHARACTERISTICS OF SWIMMING BIRDS

CHARACTERISTICS	REASONS
▪ They have fully webbed feet	✓ For swimming (paddling in water)
▪ They have broad breastbone.	✓
▪ They have many oil glands in their skins	✓ To produce oil that protects the bird from cold water. ✓ To produce oil that makes the feathers waterproof
▪ They have a spoon shaped beak (have a beak with small cross plates on the margins)	✓ To strain (sieve) food from water

FOOD FOR SWIMMING BIRDS

- Tadpoles
- Worms
- Pond weeds
- Insects
- Small fish

WADING BIRDS

- These are birds that can walk through water

- These birds live near water bodies to get food easily

EXAMPLES OF WADING BIRDS

- | | | |
|-------------------------|--------------|-------------|
| ▪ Heron | ▪ Sandpiper | ▪ Plover |
| ▪ Flamingo | ▪ Ibis | ▪ Jacana |
| ▪ Crested crane (crane) | ▪ Egret | ▪ Spoonbill |
| ▪ Marabou stork (stork) | ▪ Kingfisher | |

How are white egrets important to cattle farmers?

- They eat up ticks on their cattle

STRUCTURE OF A BEAK AND FOOT OF HERON



CHARACTERISTICS OF WADING BIRDS

- They have long flexible necks
- To reach food below water surface
- They have thin long legs with half webbed feet
- To prevent the bird from sinking in water
- They have thin long beaks
- To catch food in water

How are the thin long legs with half webbed widely spread toes useful to a wading bird?

- They prevent the bird from sinking in water

FOOD FOR WADING BIRDS

- | | | |
|--------|---------|---------|
| ▪ Fish | ▪ Frogs | ▪ Worms |
|--------|---------|---------|

FLIGHTLESS BIRDS (WALKING BIRDS)

- These are birds that cannot fly

EXAMPLES OF FLIGHTLESS BIRDS

- | | | |
|-----------|--------|-------------|
| ▪ Kiwi | ▪ Emu | ▪ Cassowary |
| ▪ Ostrich | ▪ Rhea | ▪ Penguin |

CHARACTERISTICS OF FLIGHTLESS BIRDS

- They have small weak wings.
- They have heavy bones with bone marrows
- They run very fast

FOOD FOR FLIGHTLESS BIRDS

- | | | |
|---------|-----------|-----------------|
| ▪ Worms | ▪ Insects | ▪ Small animals |
|---------|-----------|-----------------|

KIWI

- It is the only bird with a nostril at the end of its beak

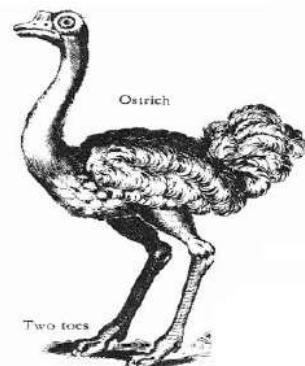
AN ILLUSTRATION SHOWING A KIWI



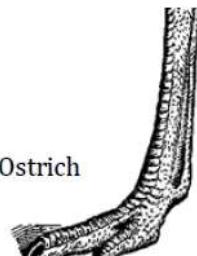
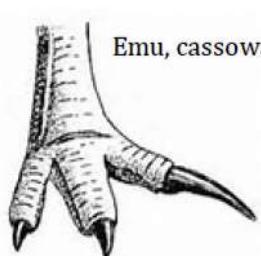
OSTRICH

- It is the largest and fastest flightless bird.
- It can run faster than most horses.
- It can run at an average speed of 45 miles per hour
- It is the only bird with two toes on each foot

A DIAGRAM SHOWING AN OSTRICH



DRAWINGS SHOWING FEET OF FLIGHTLESS BIRDS



How do some flightless birds (ostrich, emu and cassowary) protect themselves?

- By kicking with their strong huge legs

Give a reason why some domestic fowls are unable to fly high

- They have heavy bones with bone marrow

Why is penguin not regarded as a ratite yet it is a flightless bird?

- It lacks a flat breast bone
- It lacks a bony palate
- It has well developed chest muscles and sternum

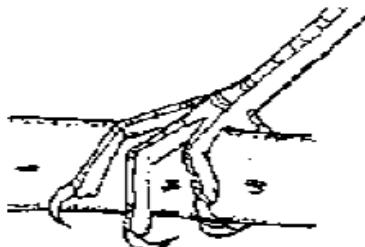
PERCHING BIRDS (SONG BIRDS/PASSERINES)

- These are birds that can roost (rest) on branches of trees.
- ✓ A perch is a piece of wood on which a bird sleeps (rests)

CHARACTERISTICS OF PERCHING BIRDS

- They have split feet and walking legs.
- They have three toes pointing forwards and one pointing backward
- For gripping the perches
- They have strong toes to grip on the trees.

A DRAWING SHOWING FOOT OF PERCHING BIRDS



GROUPS OF PERCHING BIRDS

- ✓ Perching birds are grouped according to their feeding habits
 - Seed eaters
 - Nectar suckers
 - Insect eaters
 - Fruit eaters

1. INSECT EATERS

- These are perching birds that feed on insects.
- They have short narrow beaks;
- ✓ For picking up insects from tree barks

Examples of insect eaters

- Swifts
- Shrikes
- Swallows
- Nightjars
- Sparrows
- Robins
- Woodcreepers
- Bee-eaters

A DRAWING SHOWING A BEAK OF INSECT EATERS (E.G SWIFT)



Why do swifts and swallows have short and wide open beaks?

- To catch insects while flying

Why shrikes are sometimes called butcher birds?

- They spear insects on thorns to eat it later

2. SEED EATERS

- These are perching birds that feed on seeds.
- They have strong short conical beaks;
- ✓ For breaking up seeds

EXAMPLES OF SEED EATERS

- Pigeon
- Dove
- Weaverbird
- Finch

A DRAWING SHOWING A BEAK OF A SEED EATER (E.G DOVE)



3. NECTAR SUCKERS (HONEY EATERS)

- These are perching birds that feed on nectar from flowers.
- They have long slender curved beaks;
- ✓ For sucking nectar from flowers

EXAMPLES OF NECTAR SUCKERS

- Sunbird
- Hummingbird

DIAGRAMS SHOWING A BEAK AND FOOT OF A SUNBIRD



4. FRUIT EATERS (FRUGIVORES)

- These are perching birds that feed on fruits from trees.
- They have long down curved beaks;
- ✓ For collecting fruits from trees

EXAMPLES OF FRUIT EATER

- Hornbill
- Toucan

A DRAWING SHOWING A BEAK OF HORNBILL



Importance of fruit eating birds

- They help in fruit and seed dispersal

Disadvantage of fruit eating birds

- They are crop pests

SCRATCHING BIRDS

- These are birds which scratch the ground for food.

CHARACTERISTICS OF SCRATCHING BIRDS

CHARACTERISTICS	REASONS
▪ They have strong feet with blunt claws.	✓ For scratching
▪ They have strong short pointed beaks	✓ For picking up food from soil

EXAMPLES OF SCRATCHING BIRDS

- Chickens
- Turkeys
- Guinea fowls
- Pheasants
- Crested francolin

FOOD FOR SCRATCHING BIRDS

- Seeds
- Insects

STRUCTURE OF THE BEAK AND FOOT SCRATCHING BIRD



IMPORTANCE OF BIRDS IN THE ENVIRONMENT

- Some birds are a source of meat
- Some birds are a source of eggs
- Some birds are a source of income when sold
- Some birds attract tourists e.g flamingo birds and ostriches
- Some birds pollinate flowers e.g sunbirds and hummingbirds
- Some birds help in seed dispersal
- Some birds are used as dowry
- Some birds are used as sacrifices
- Some birds help to clean the environment by feeding on rotten meat (carrion)
- Their droppings are used as manure
- Their bones are used for making glue
- Their feathers are used for decoration
- Their feathers are used to make costumes

DISADVANTAGES (DANGERS) OF BIRDS

- Some birds are crop pests e.g weaverbirds
- Some birds cause airplane accidents. (They lead to bad strikes)
- Some birds make a lot of noise e.g weaverbirds.
- Some birds hide parasite e.g fleas and mites
- Birds of prey kill poultry

MAMMALS

- These are animals with mammary glands

MAIN /UNIQUE CHARACTERISTICS OF MAMMALS

- They have mammary glands
- They have hair (fur) on their bodies
- They have ossicles (they have three middle ear bones)
- They have sweat glands

OTHER CHARACTERISTICS OF MAMMALS

- They are warm blooded
- They breathe by means of lungs
- They have backbone
- They undergo internal fertilization
- They care for their young
- They have four chambered heart
- Most mammals give birth to live young ones (most of them are viviparous)
- Most mammals have well developed pinnae (ear lobe)

State the importance of mammary glands to female mammals

- To produce milk for feeding their young

IMPORTANCE OF BODY HAIR/FUR ON MAMMALS

- It keeps the body warm (for temperature regulation)
- It protects the body from injury
- For sensing

MAIN GROUPS / CLASSES OF MAMMALS

- Pouched mammals (marsupials)
- Egg laying mammals (monotremes)
- Placental mammals

1. POUCHED MAMMALS

- These are mammals that give birth to immature young and care for them inside their pouch

2. MONOTREMES

- These are mammals that reproduce by laying eggs

3. PLACENTAL MAMMALS

- These are mammals that give birth to fully grown young

GROUPS OF PLACENTAL MAMMALS

- Primates (fingered mammals)
- Ungulates (hoofed mammals)
- Carnivorous mammals (flesh eating mammals)
- Gnawing mammals (rodents and lagomorphs)
- Insectivorous(insect eating mammals)
- Flying mammals (chiroptera)
- Sea mammals (cetaceans and sirenians)

PRIMATES (FINGERED MAMMALS)

- These are mammals with well-developed brain

Why are primates regarded as the most advanced group of mammals?

- They have well developed brain

CHARACTERISTICS OF PRIMATES

- They have a well-developed brain

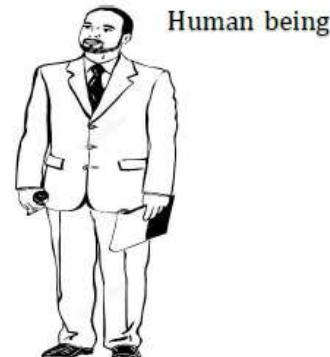
- They have 5 fingers on each hand and 5 toes on each foot.
- They are omnivores
- They have forward facing eyes
- They have four types of teeth (incisors, canines, premolars and molars)
- They have four limbs
- Fore limbs for holding and hind limbs for walking.

Why are mammals called omnivores?

- They feed on both meat and vegetation

EXAMPLES OF PRIMATES

- Human being
 - Chimpanzee (bonobo)
 - Gorilla
 - Orangutan
 - Gibbons
 - ✓ Monkey
 - ✓ Baboon
 - ✓ Bushbaby
- Apes



What are apes?

- ✓ These are primates with no tails

DIAGRAMS SHOWING SOME PRIMATES



Gorilla



Orangutan



Monkey



Bush baby

EGG LAYING MAMMALS (MONOTREMES)

- These are mammals that lay eggs
- ✓ They lay 1 to 3 eggs
- ✓ Monotremes have characteristics of birds, mammals and reptiles

REASONS WHY MONOTREMES ARE THE MOST PRIMITIVE IN THE CLASS OF MAMMALS

- They lay eggs
- They have only one opening (cloaca) for reproduction and excretion
- They feed using a beak (bill)

Why are monotremes regarded as mammals?

- They have hair on their bodies
- They have mammary glands (they produce milk for their young ones)
- They care for their young after hatching

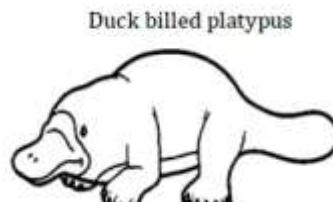
EXAMPLES OF EGG LAYING MAMMALS (MONOTREMES)

- Duck billed platypus
- Spiny anteater (echidna)

DIAGRAMS SHOWING MONOTREMES



Spiny anteater

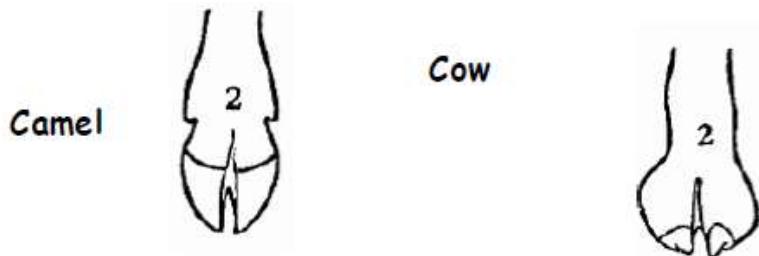


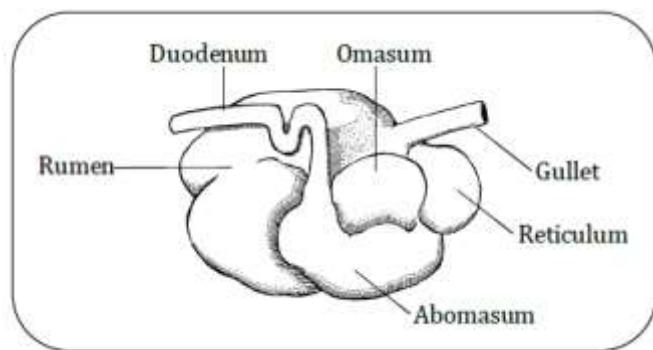
Duck billed platypus

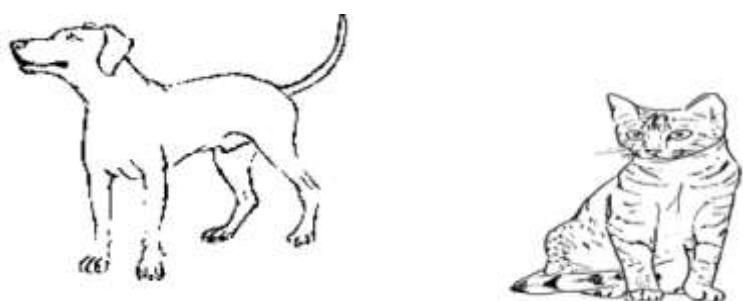
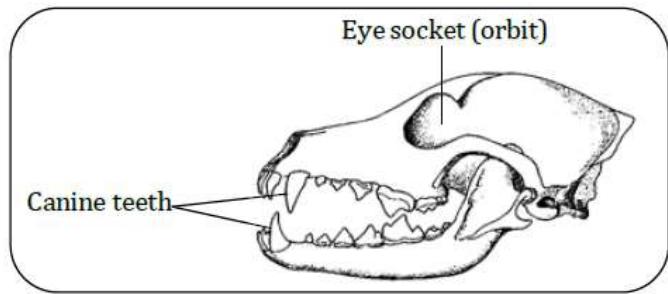
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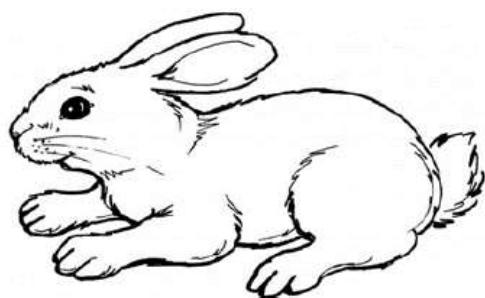
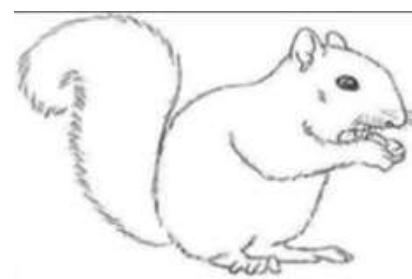
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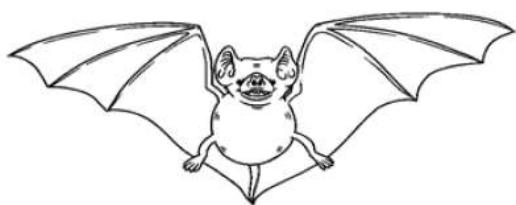
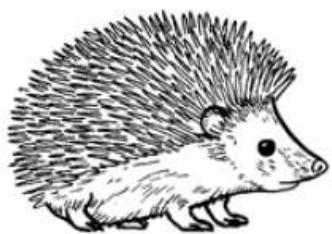
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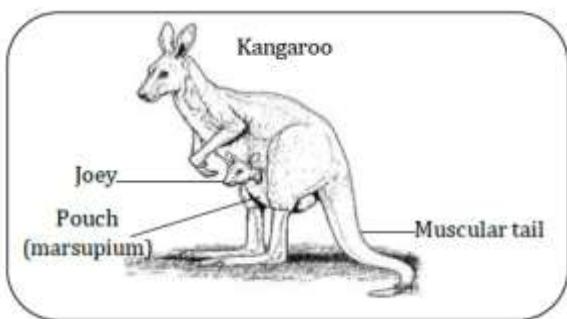




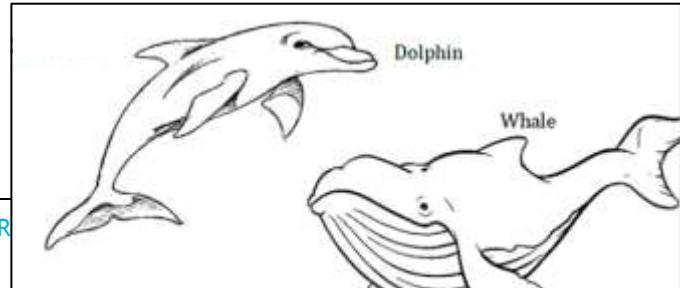


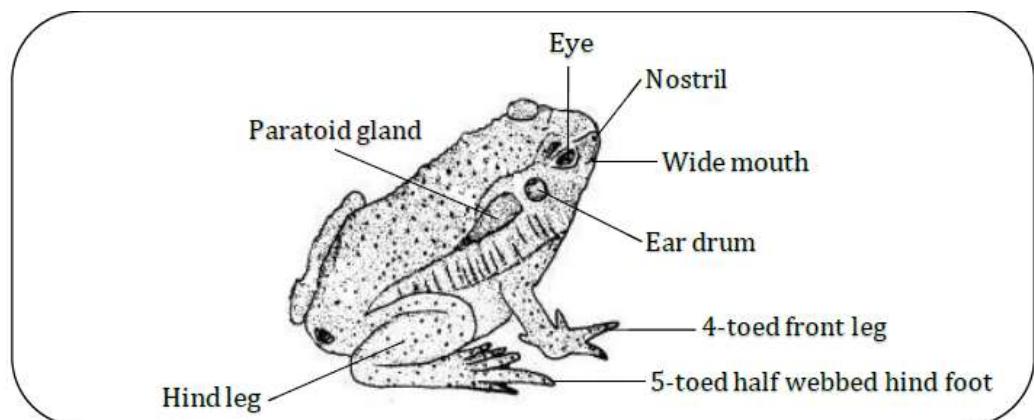
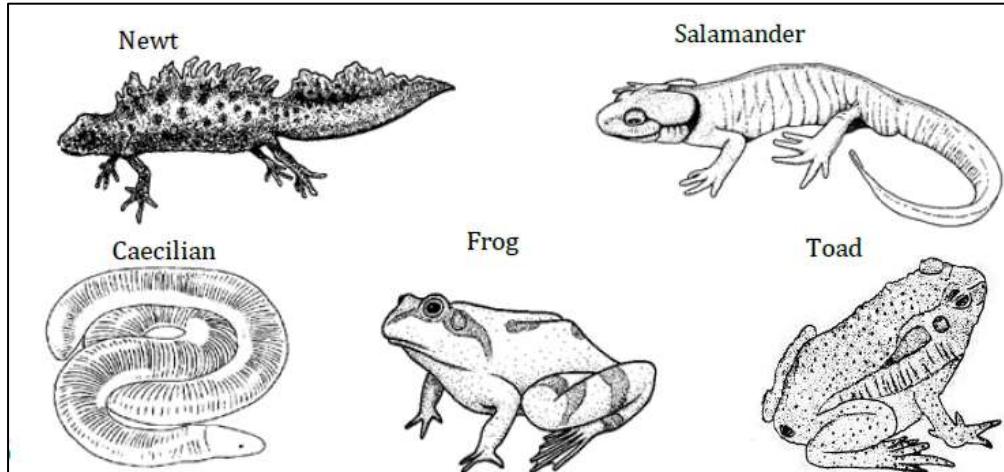


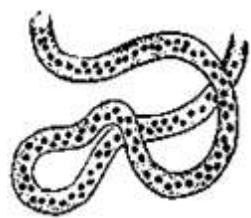
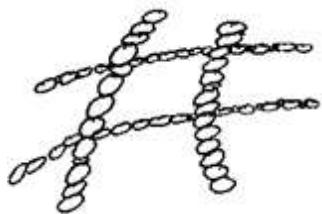
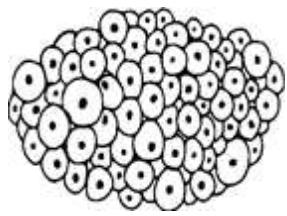


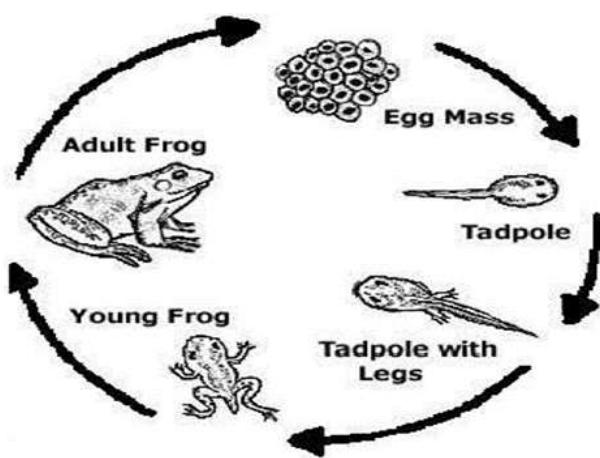


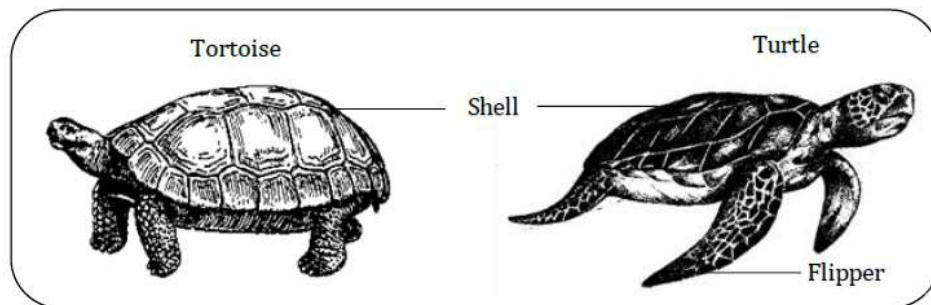
} Cetaceans

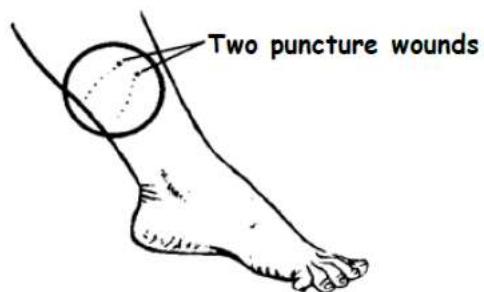
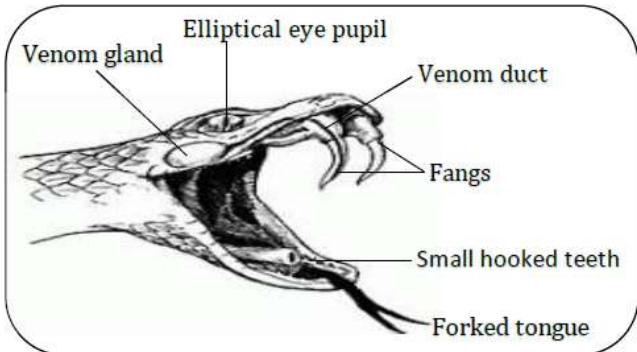




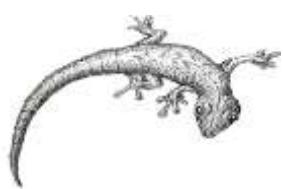


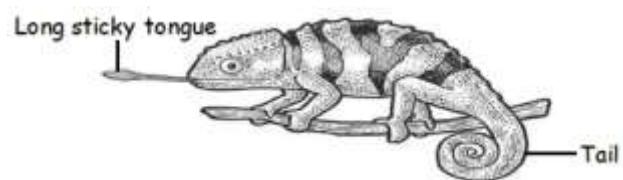


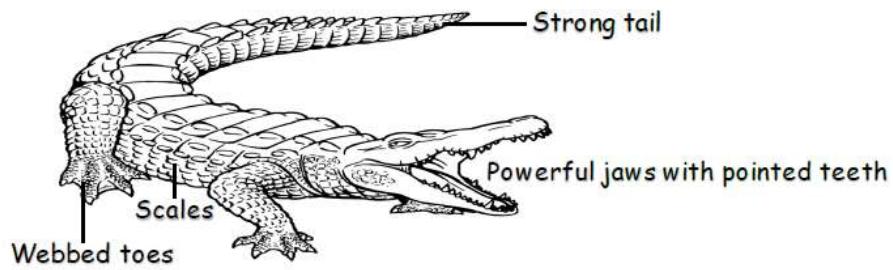


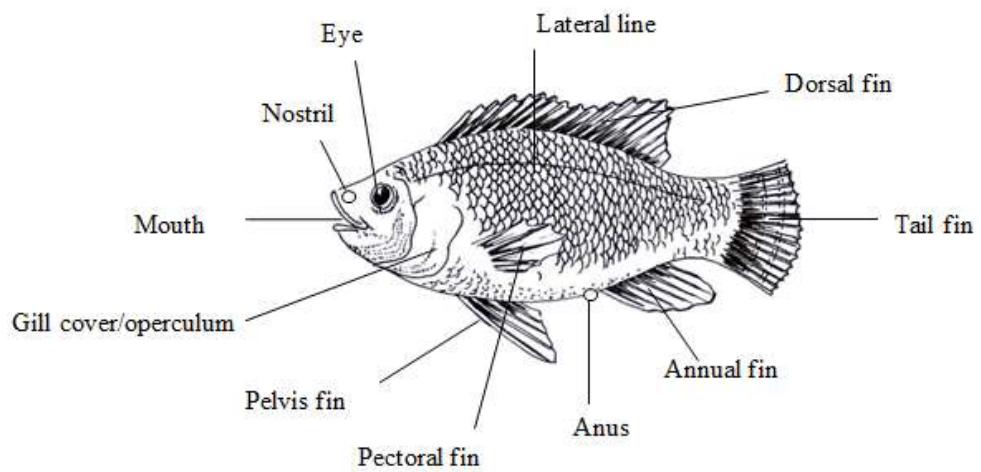


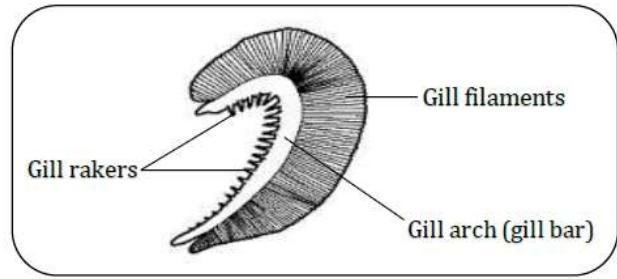




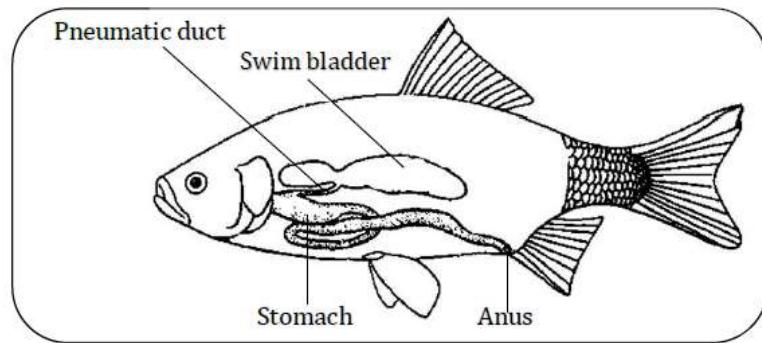


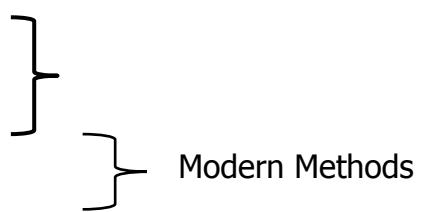




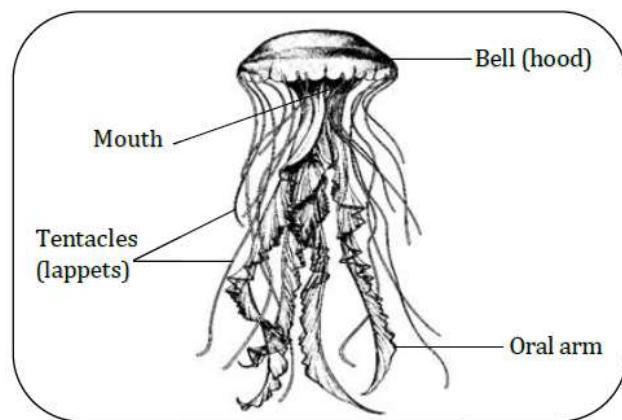


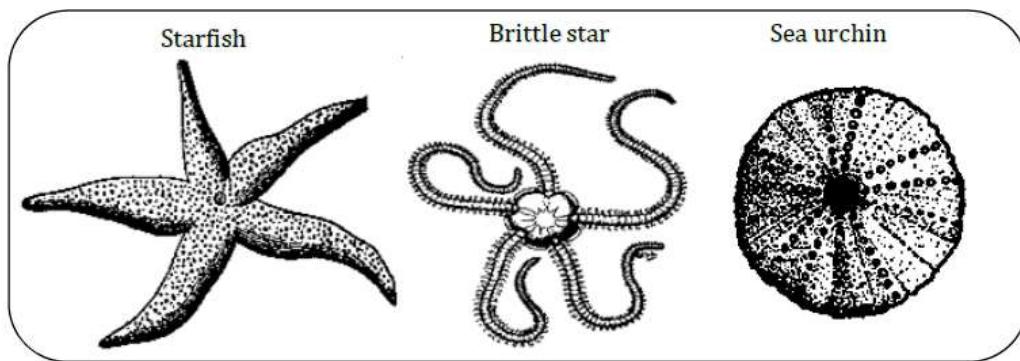


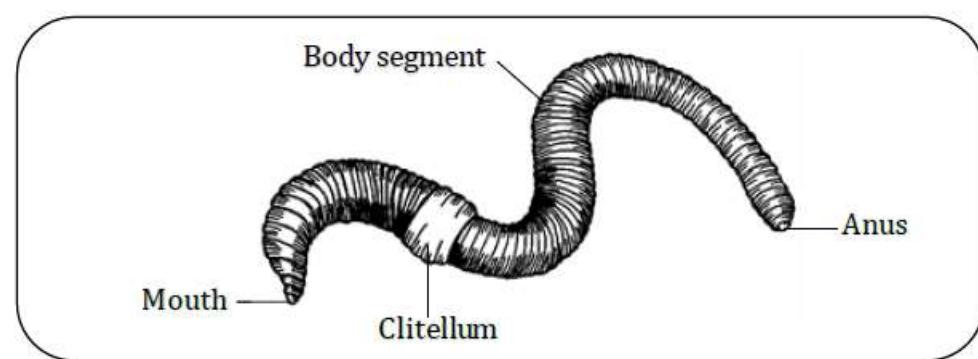
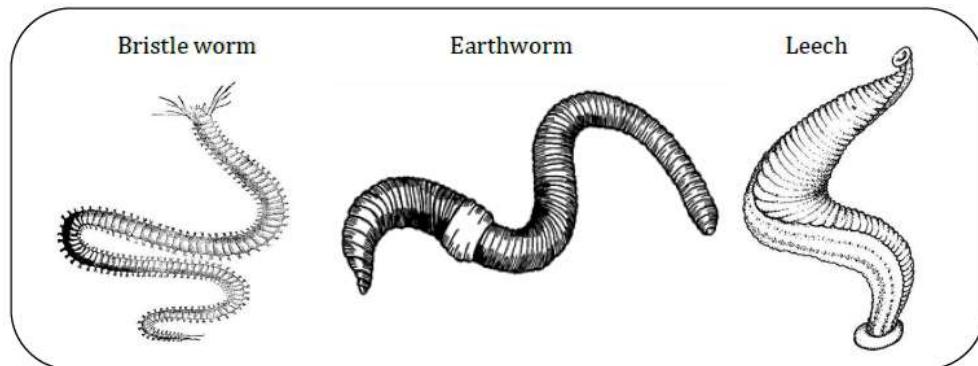


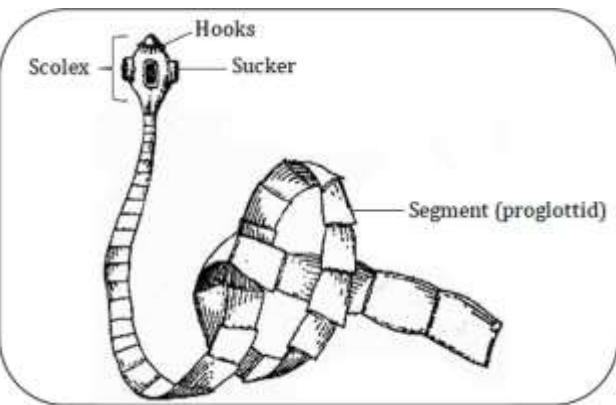
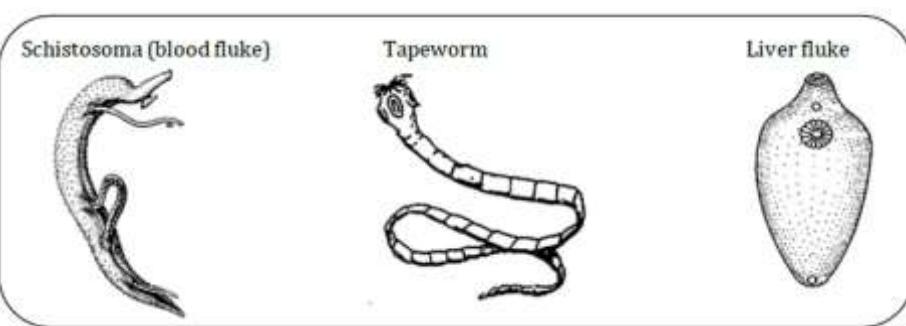


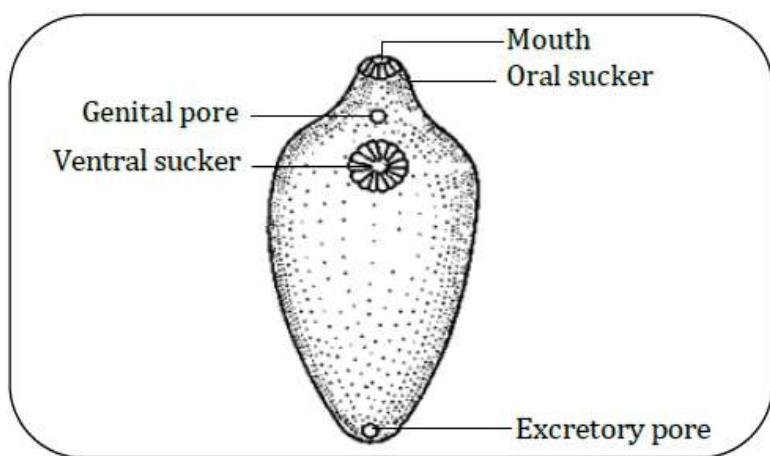
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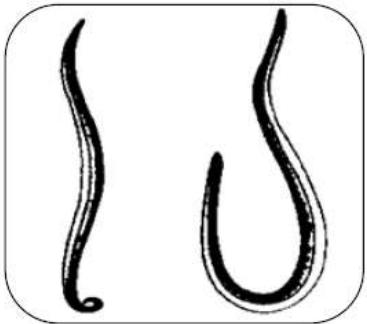


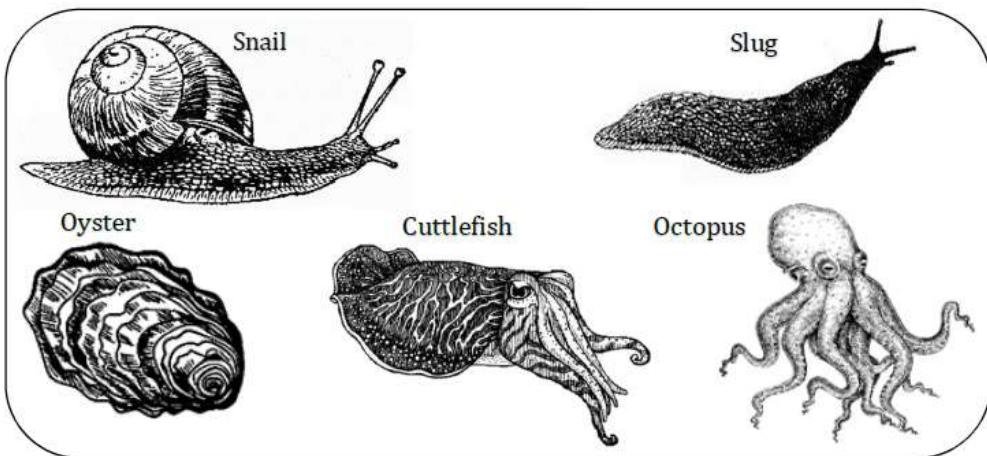


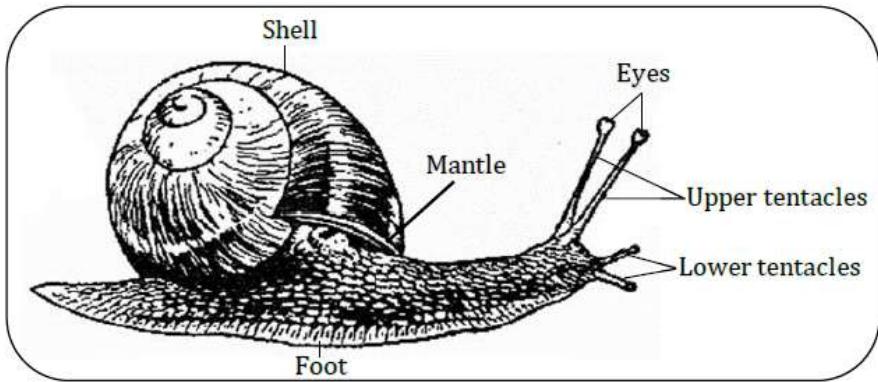




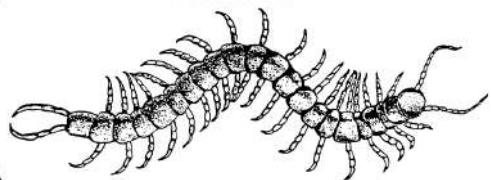




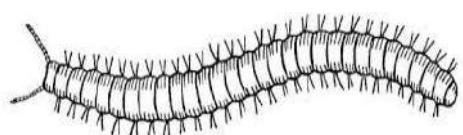


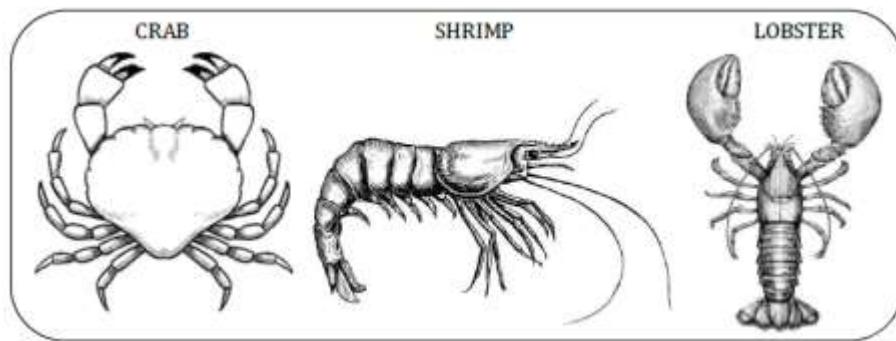


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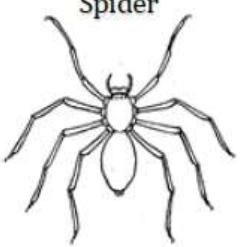


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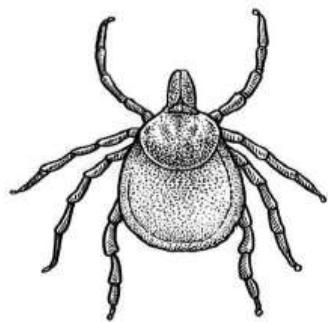


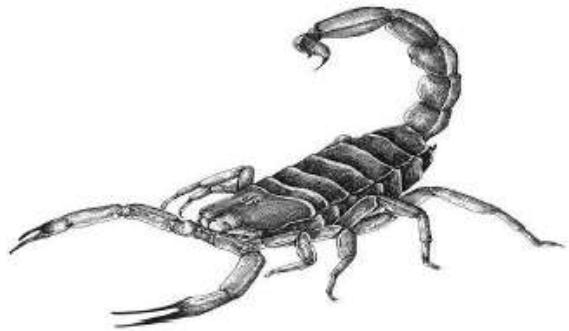


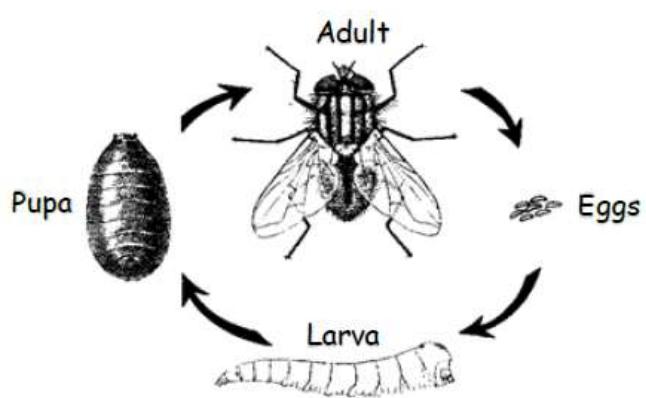
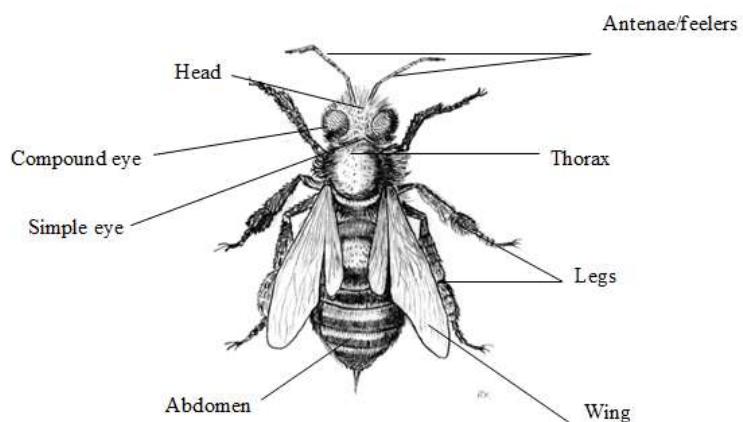
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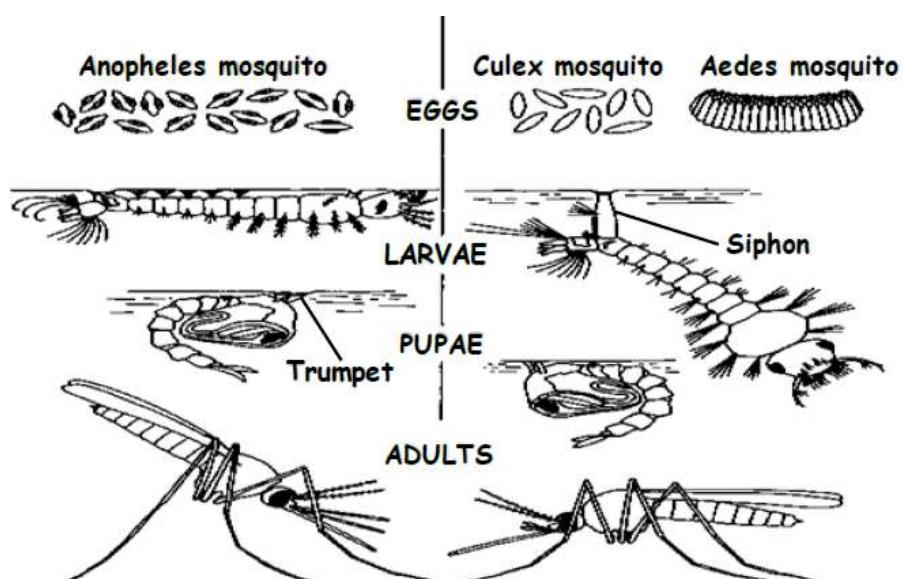


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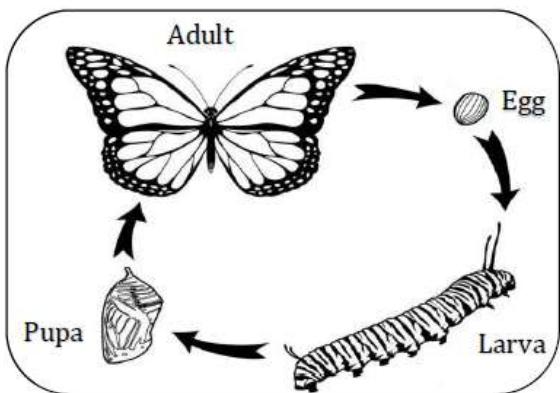


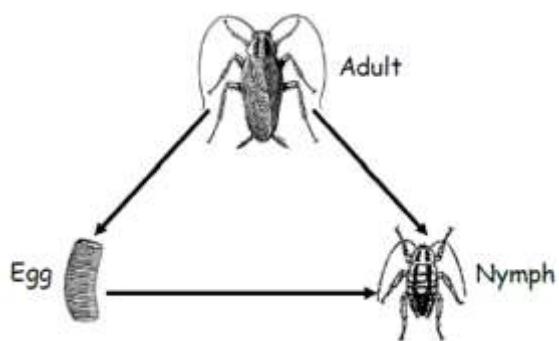
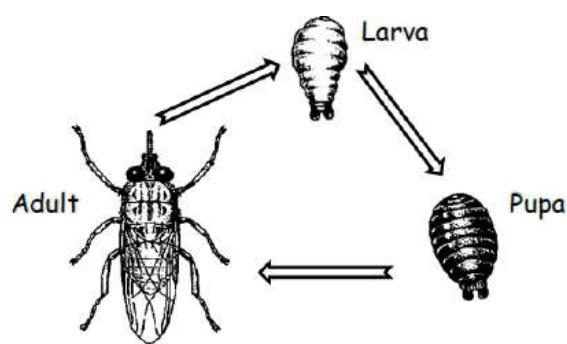


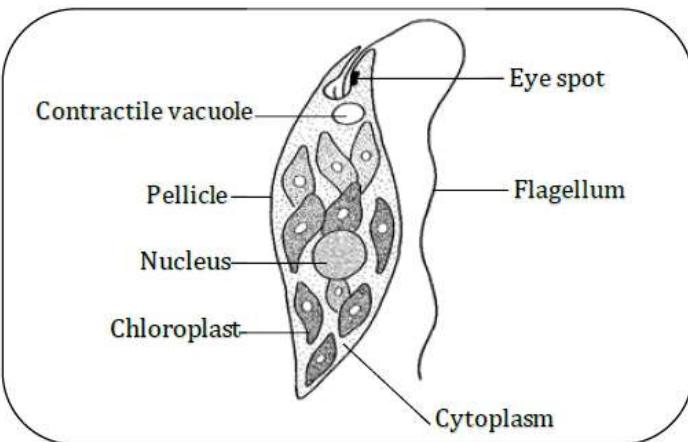
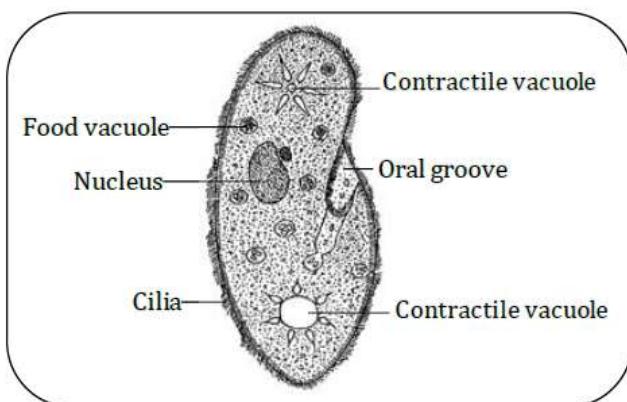
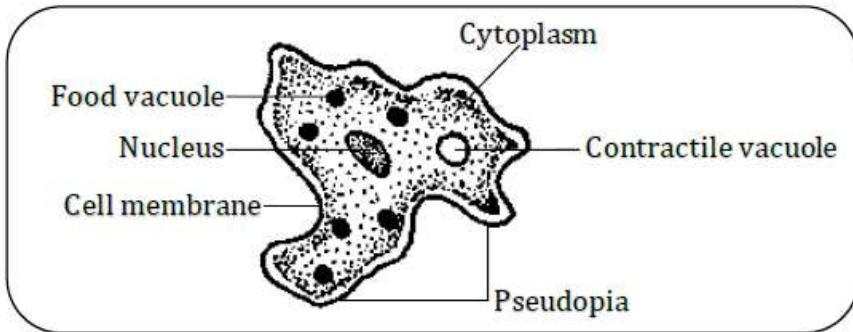


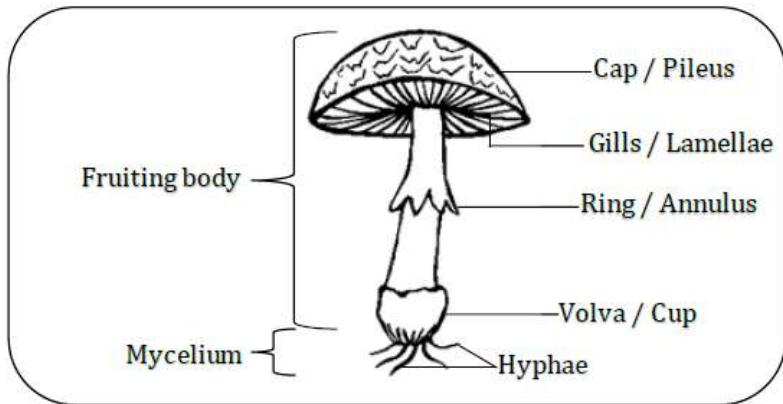


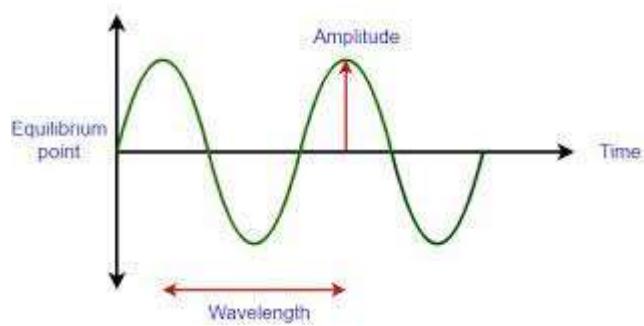
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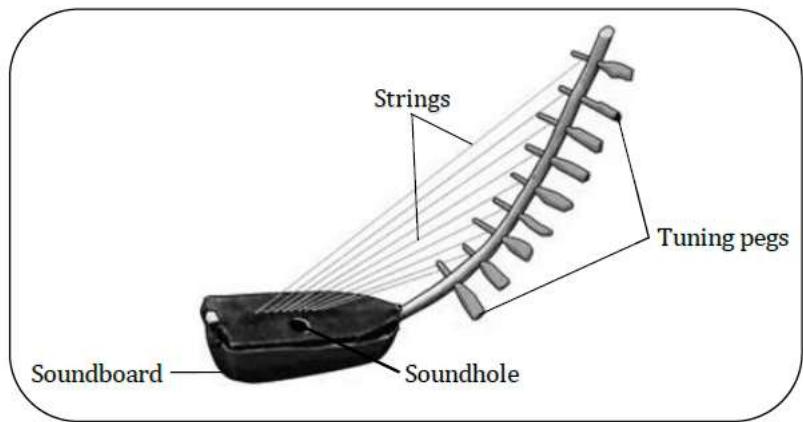


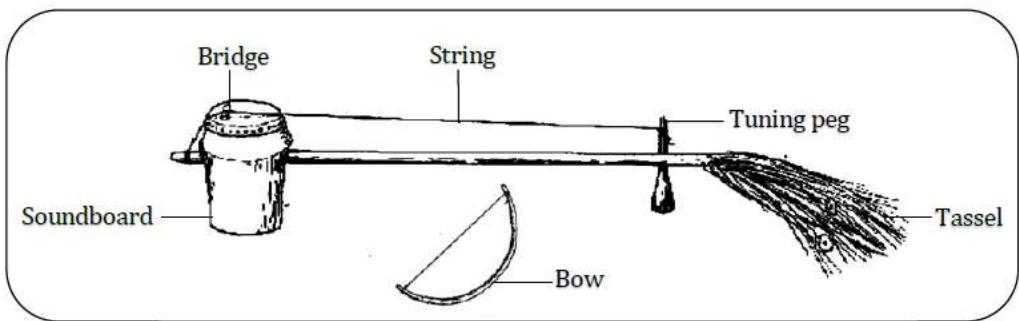


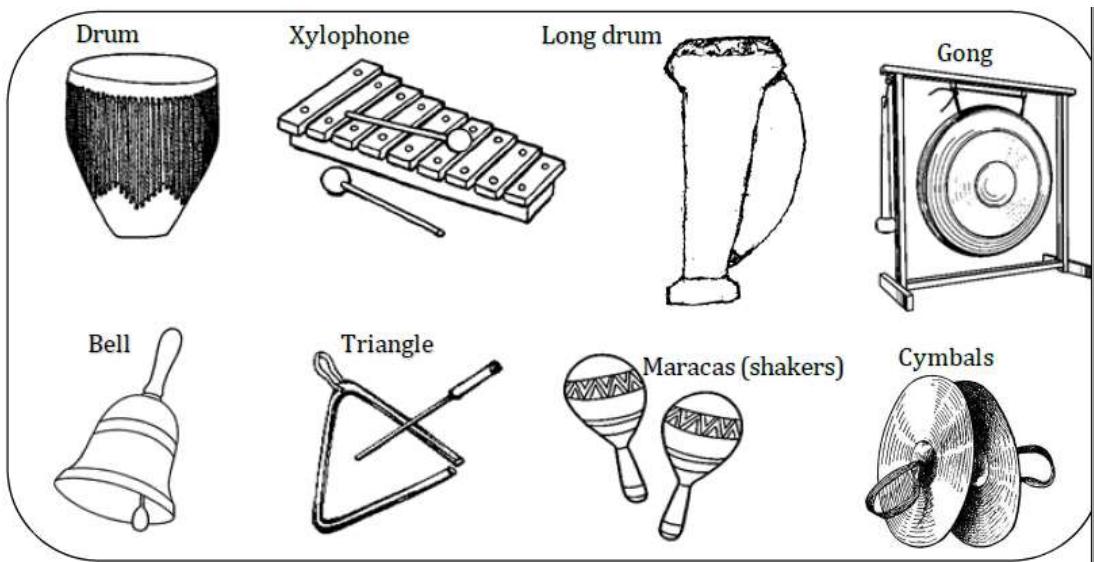


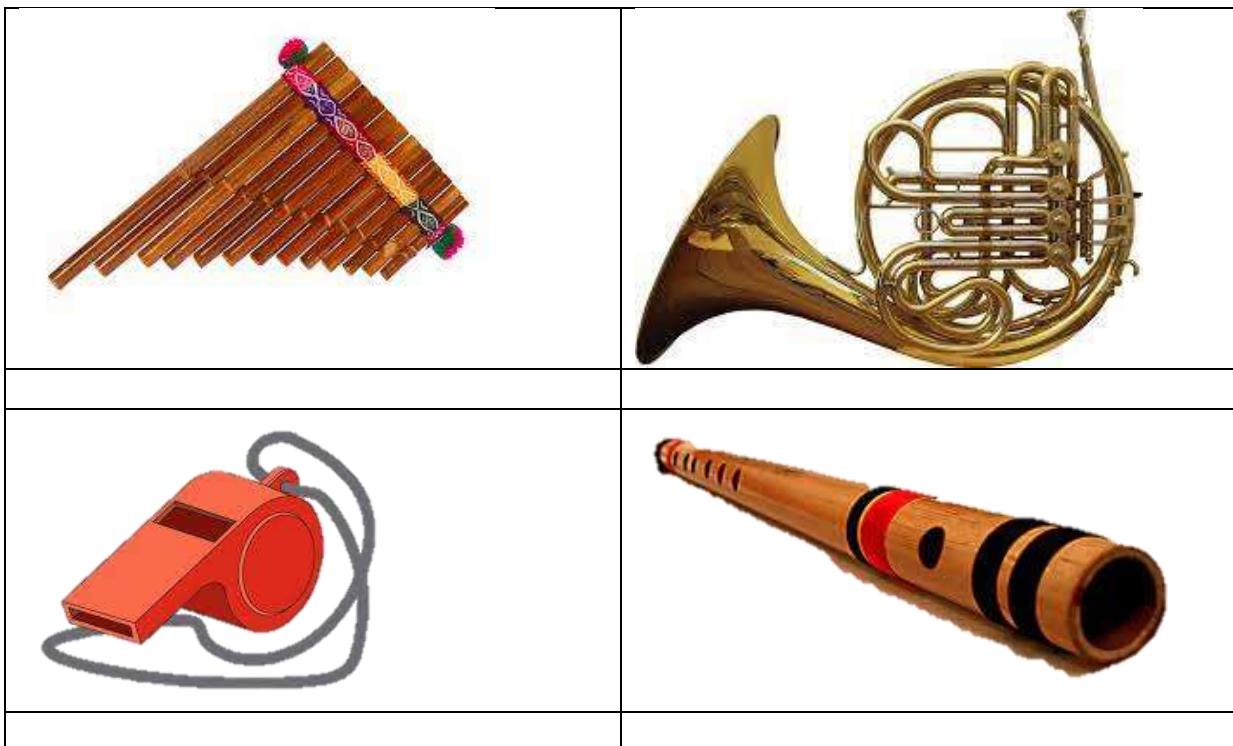


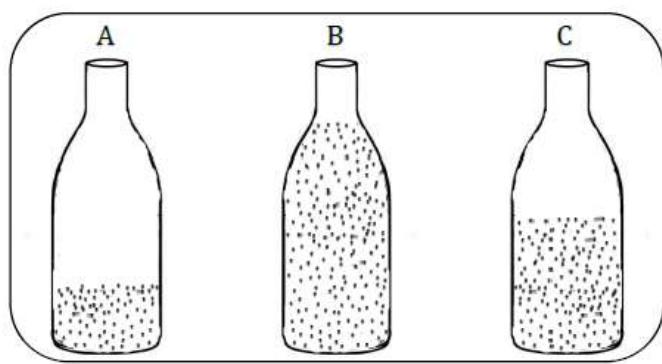


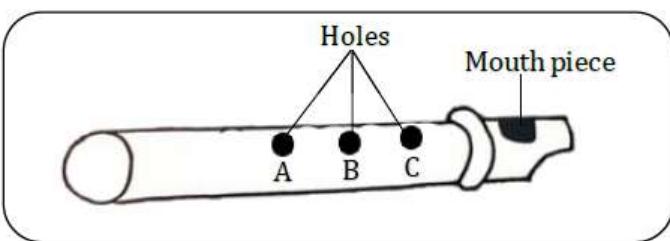
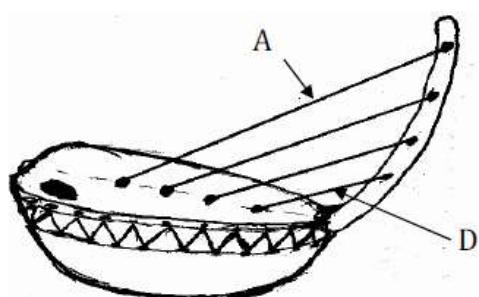
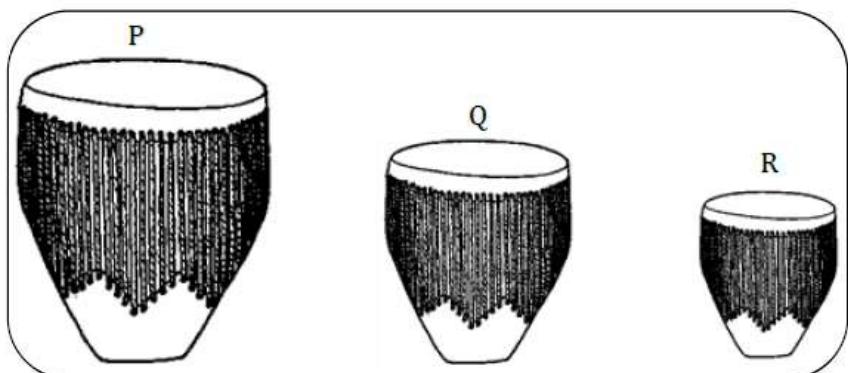


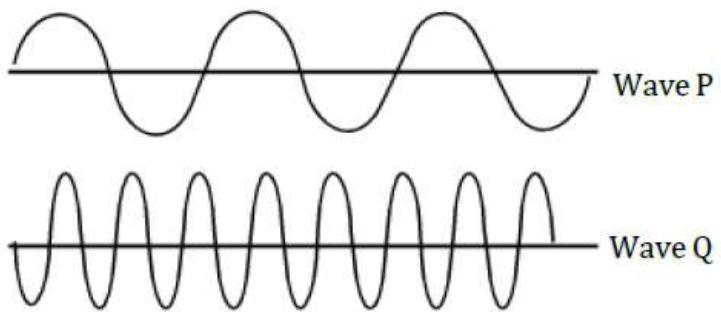
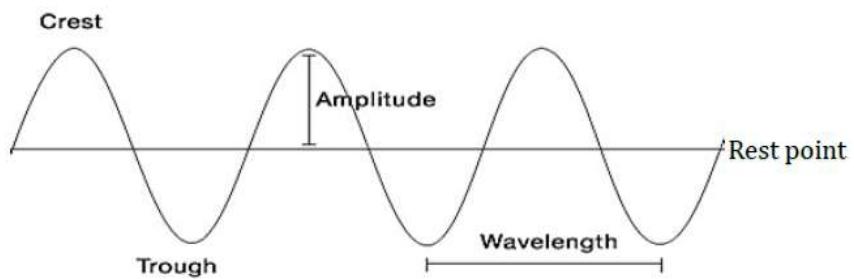


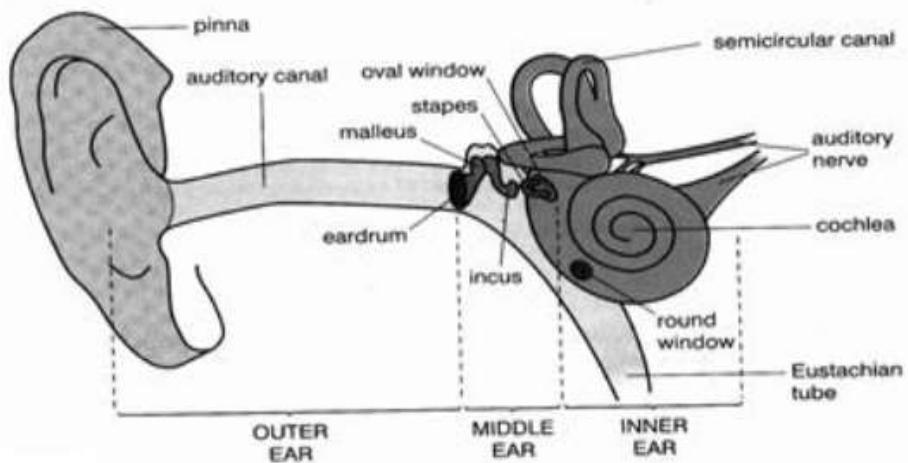






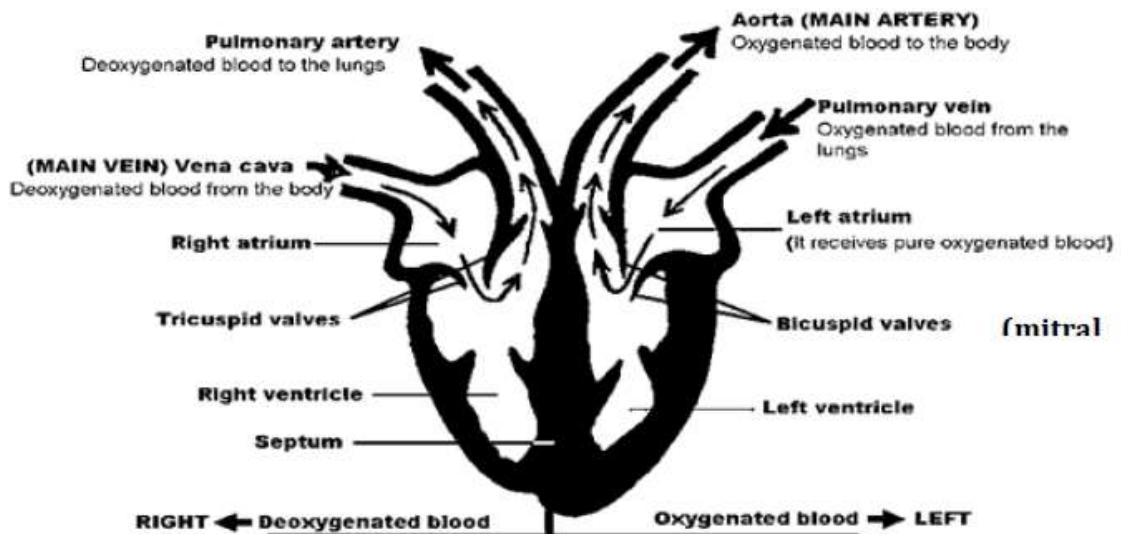


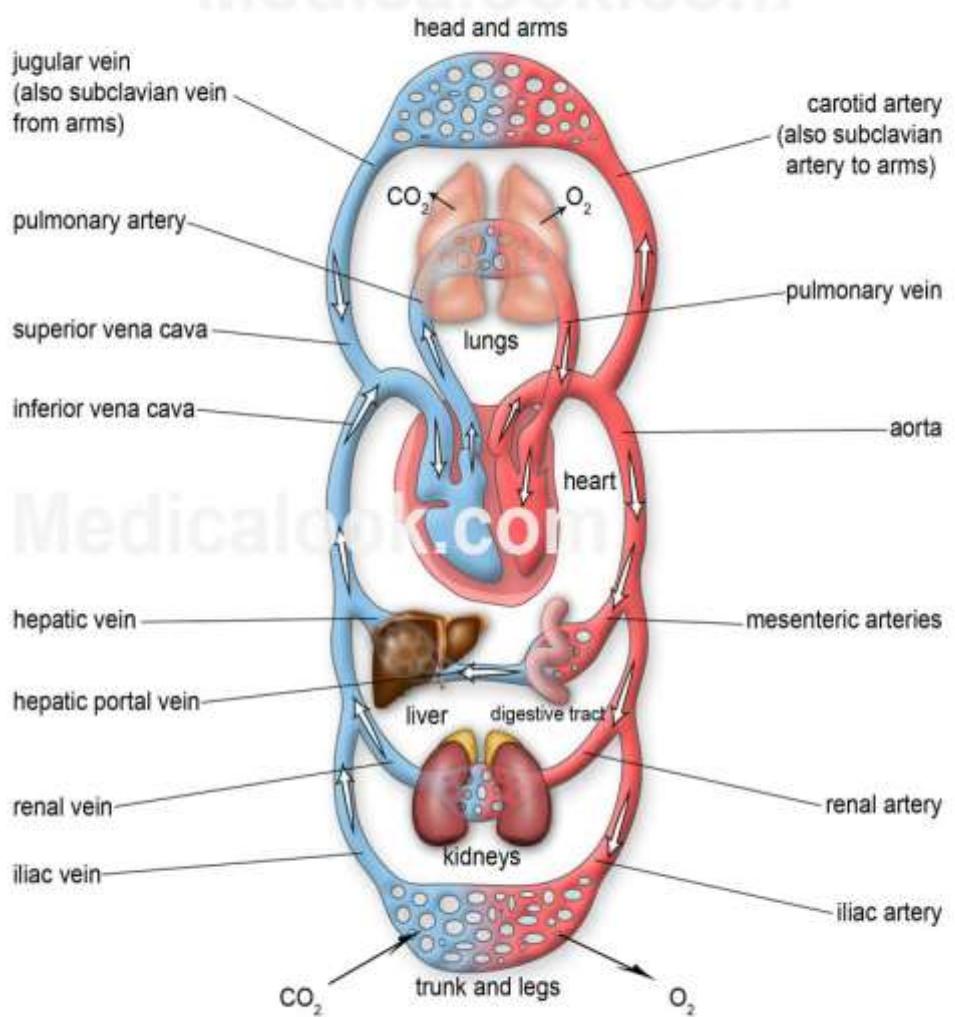


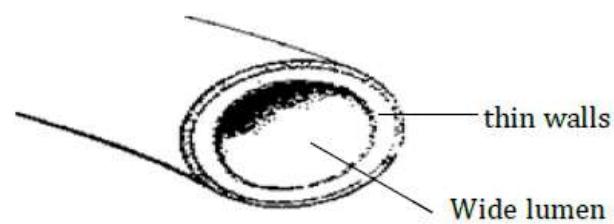
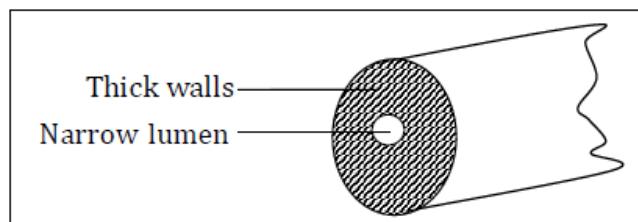


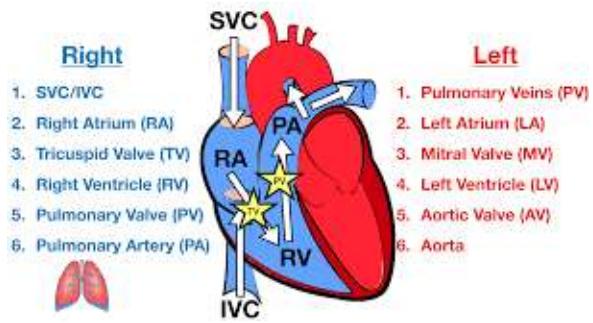


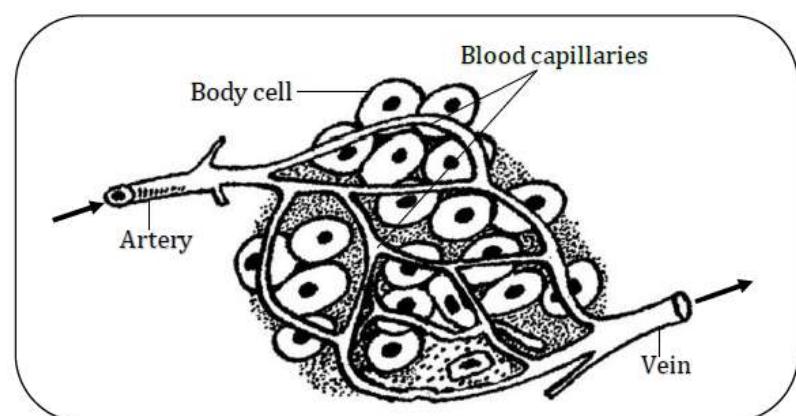


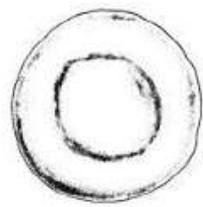


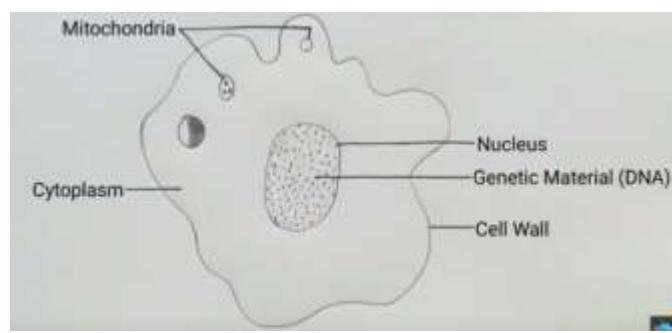






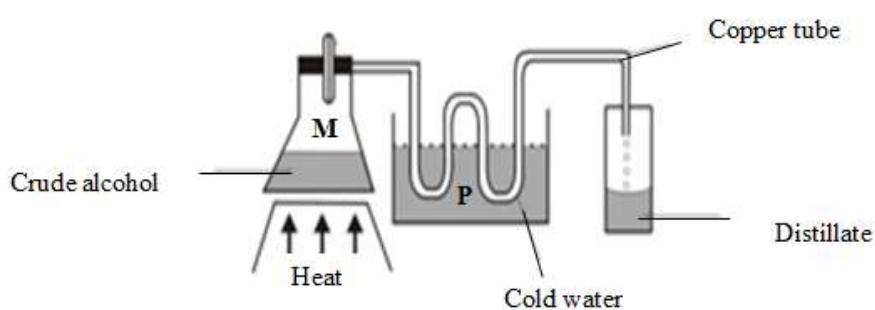




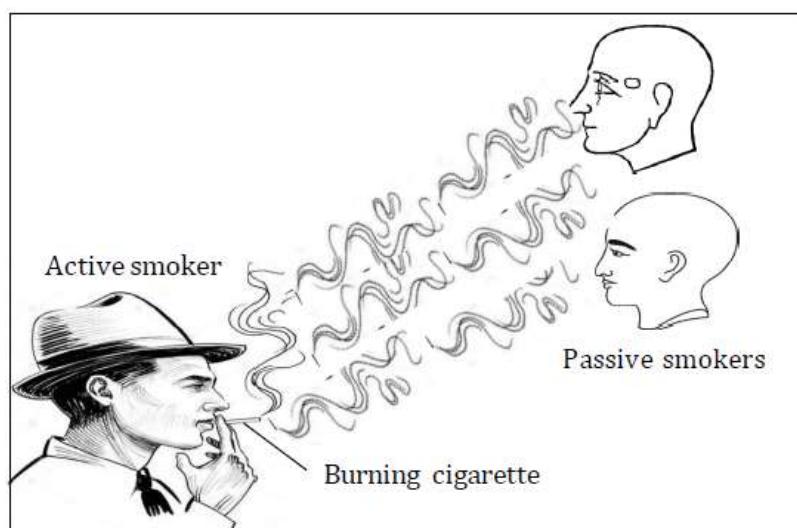


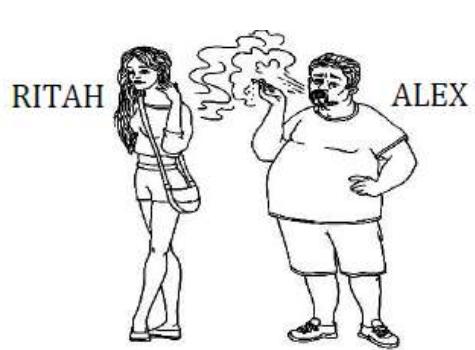


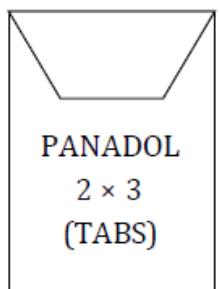
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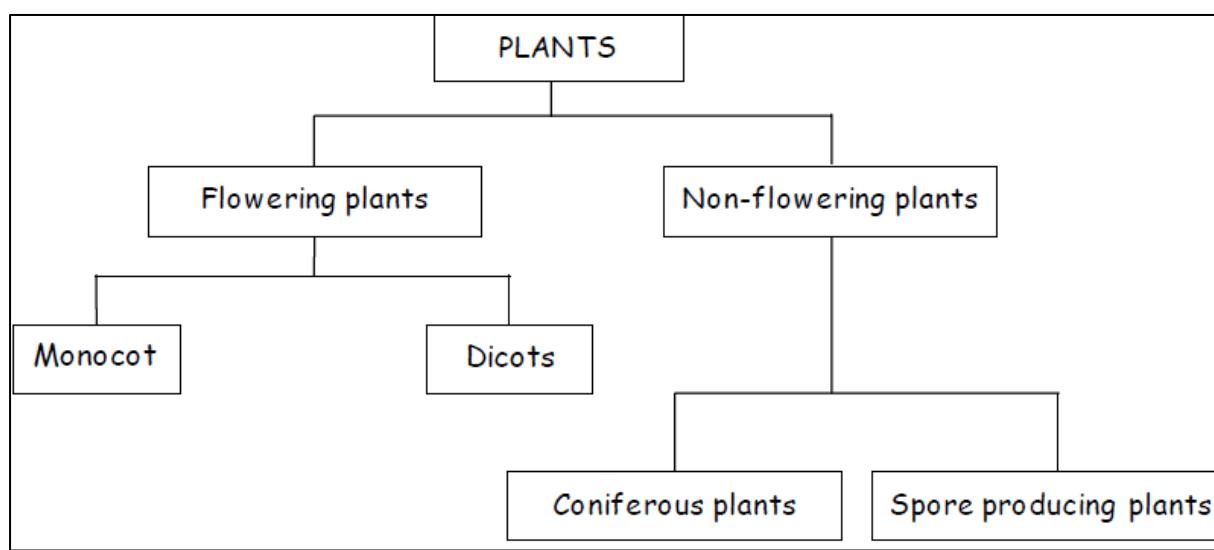


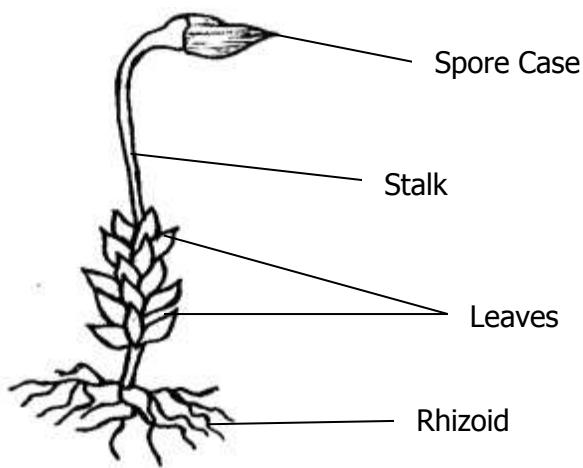
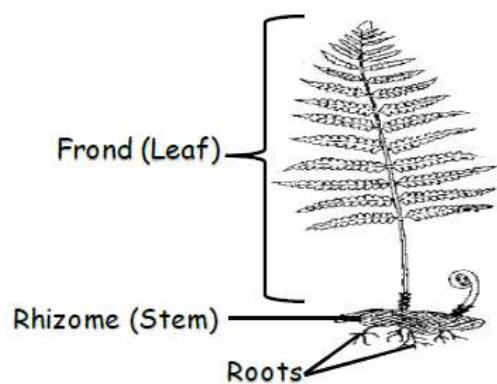
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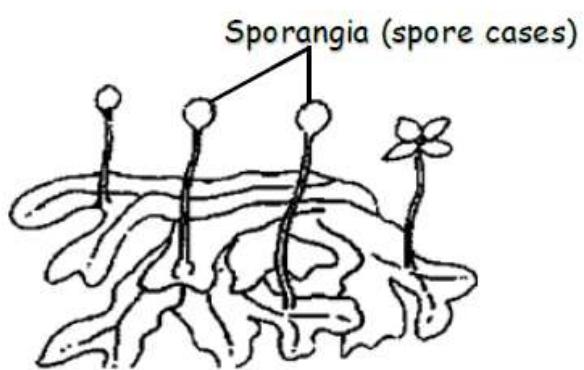
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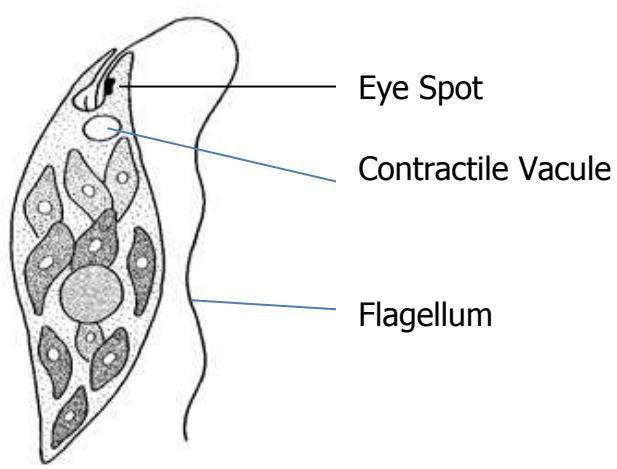
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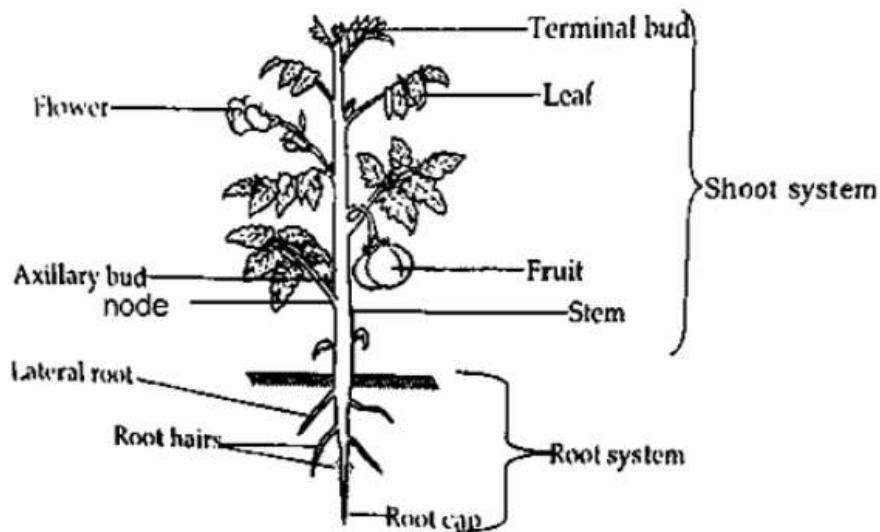
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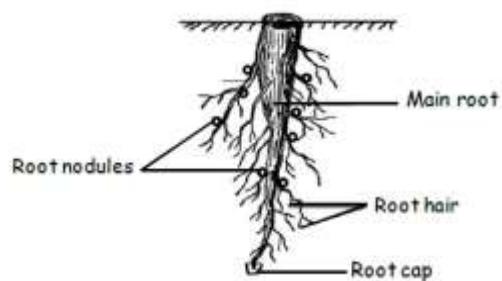
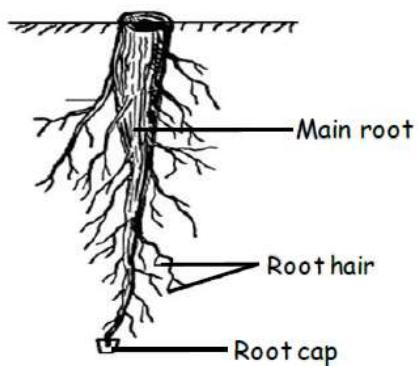


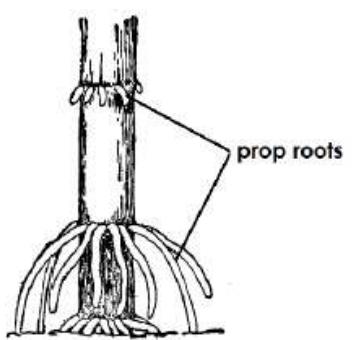
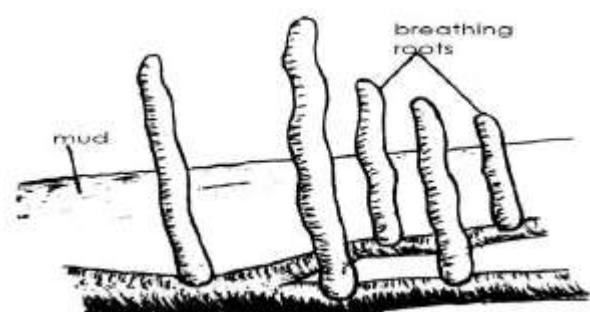
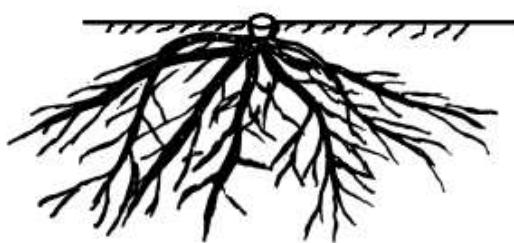


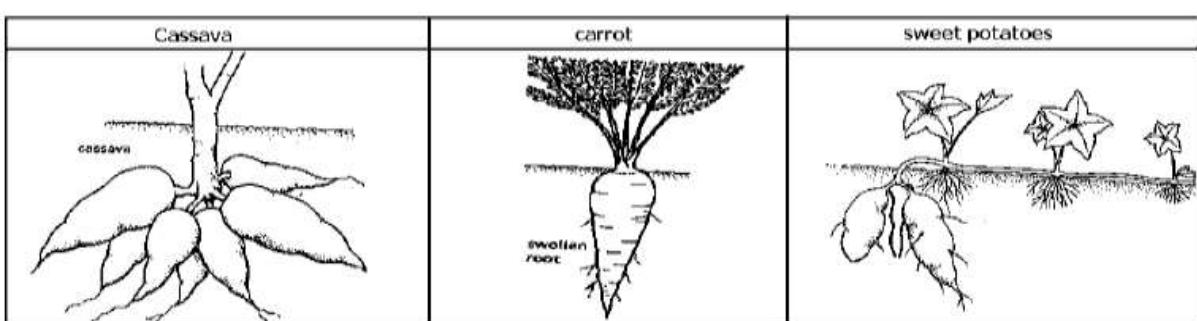
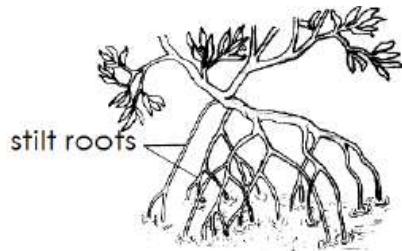


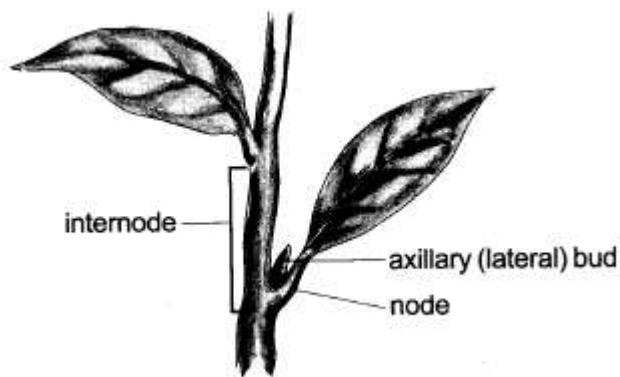
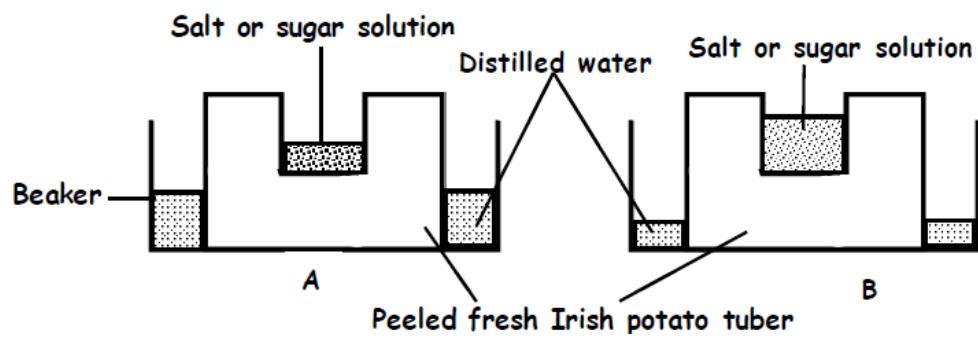


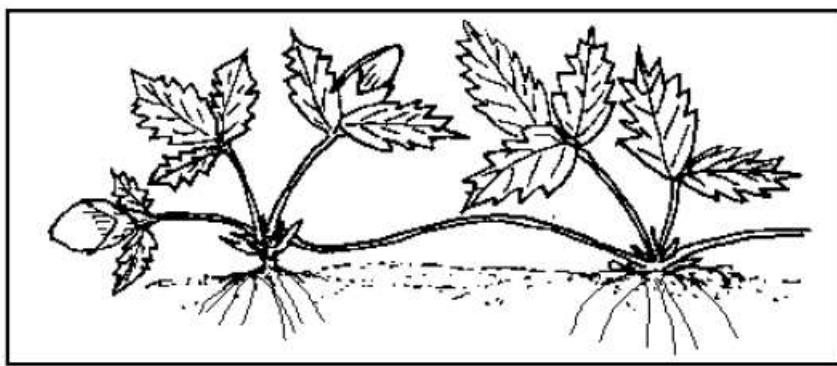


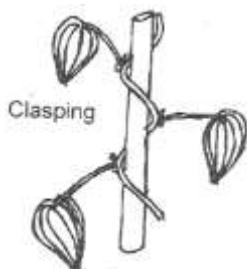
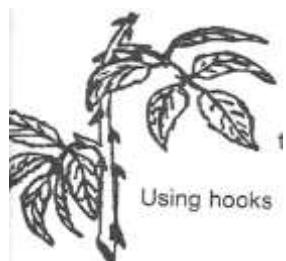
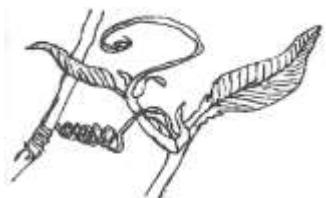


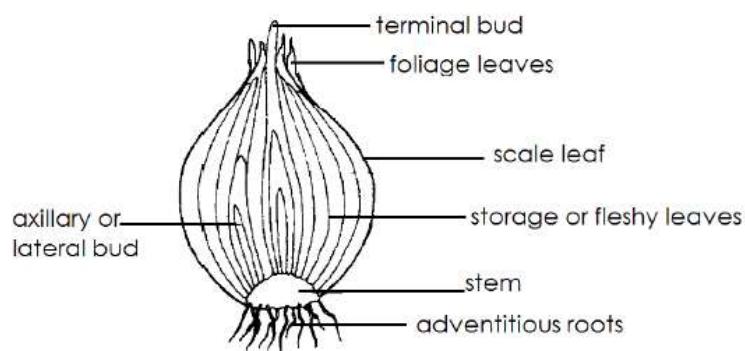


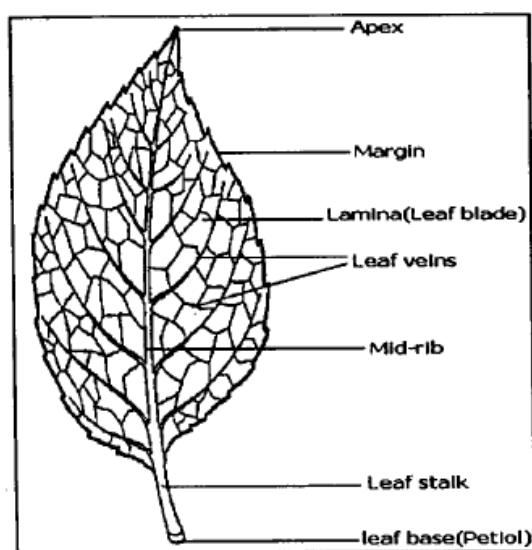
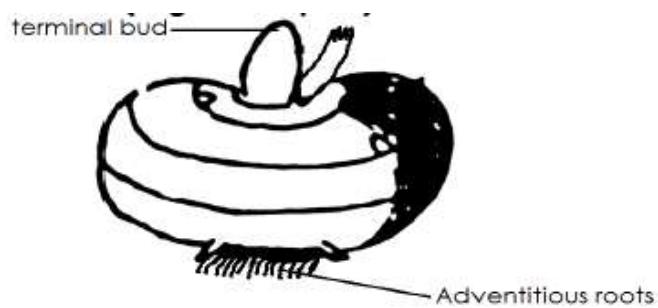
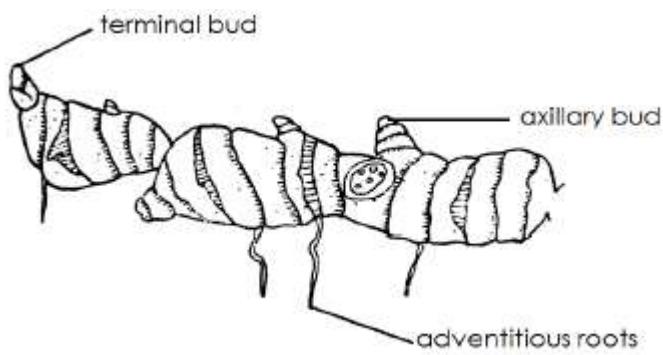


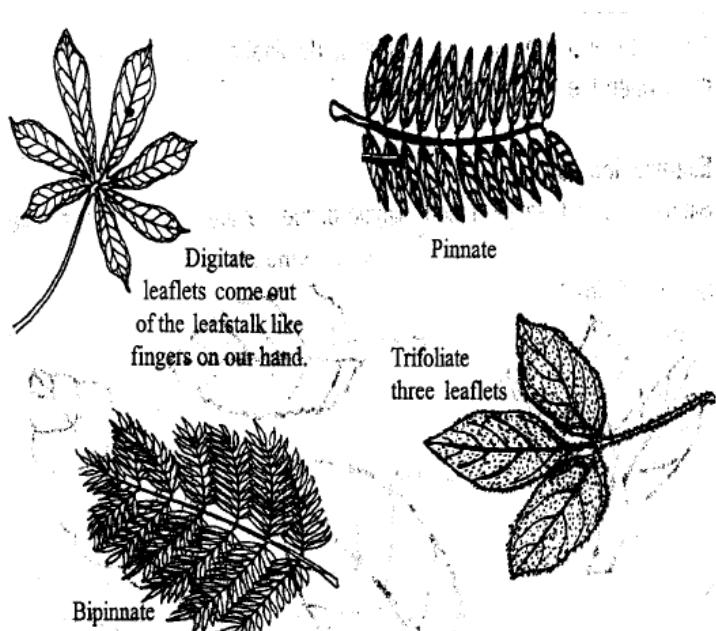
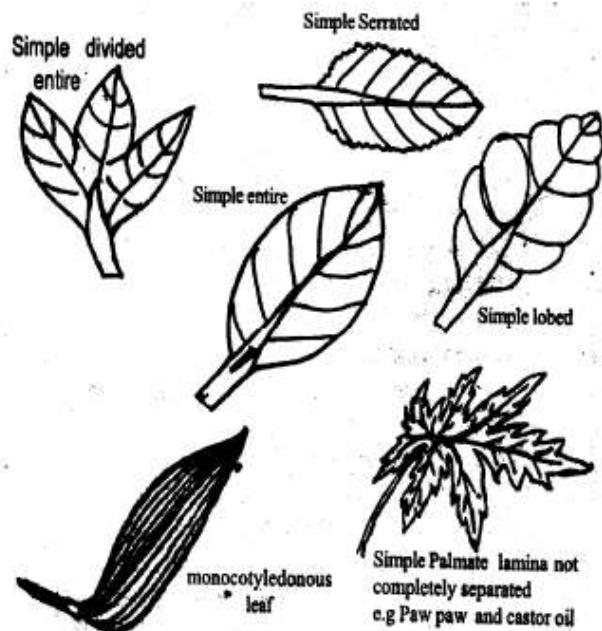


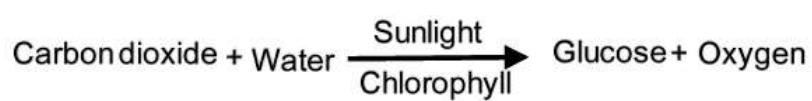
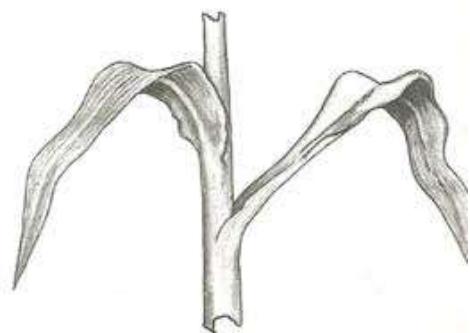
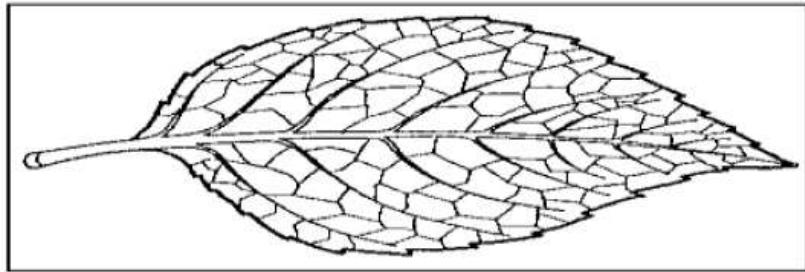


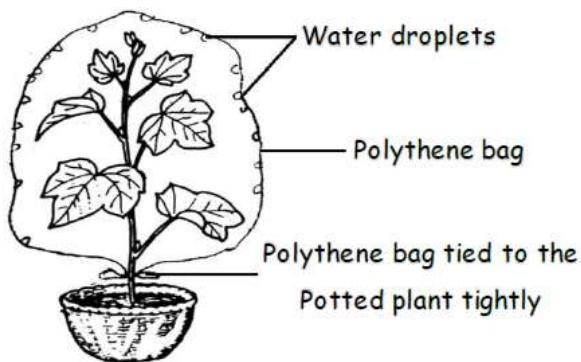


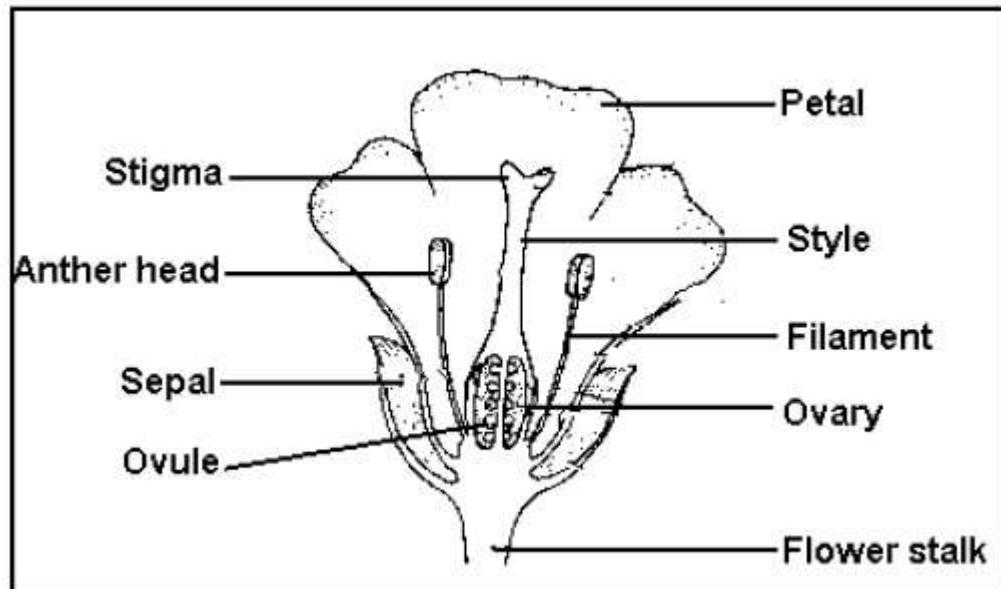


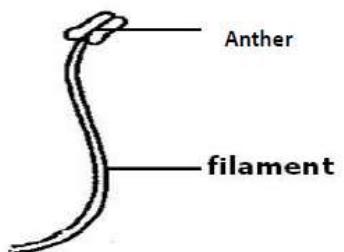
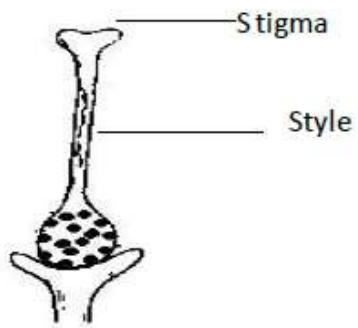


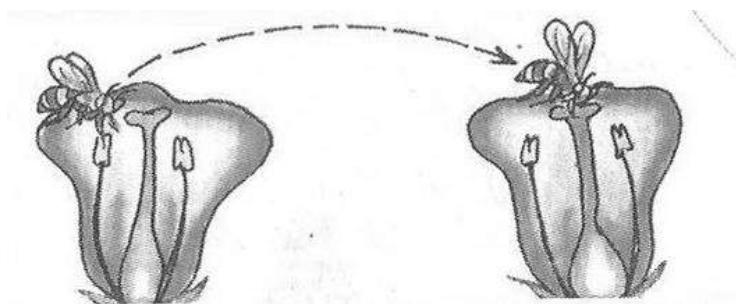
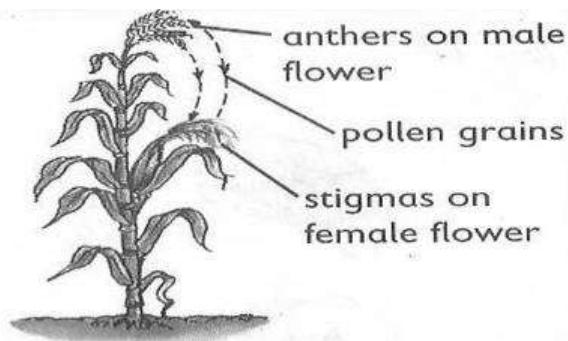


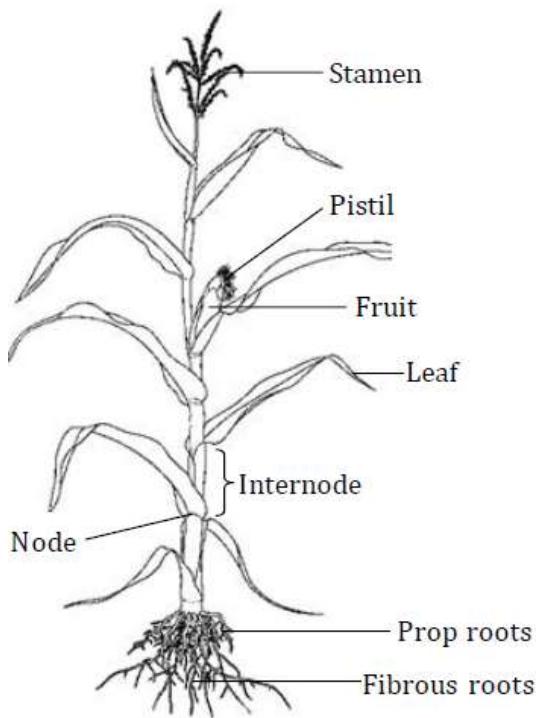






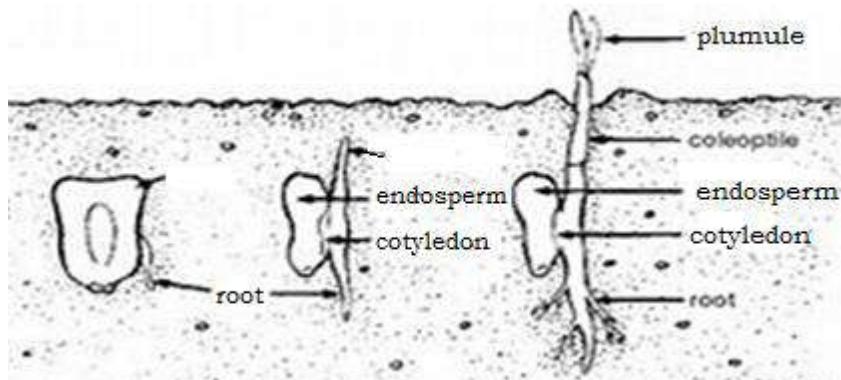
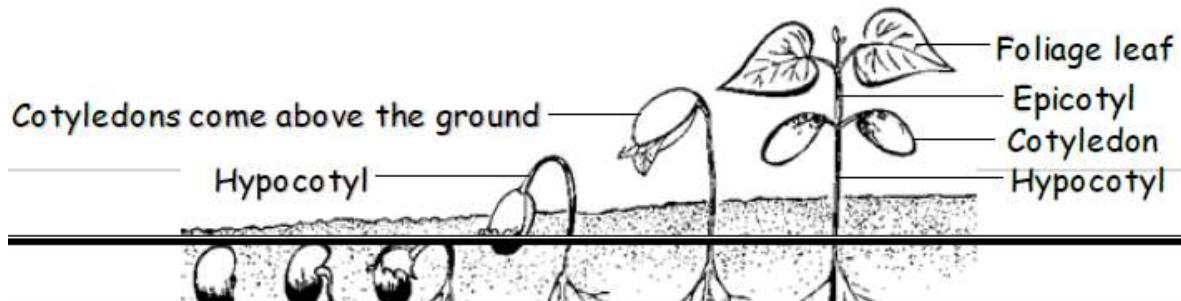












Kept in the laboratory

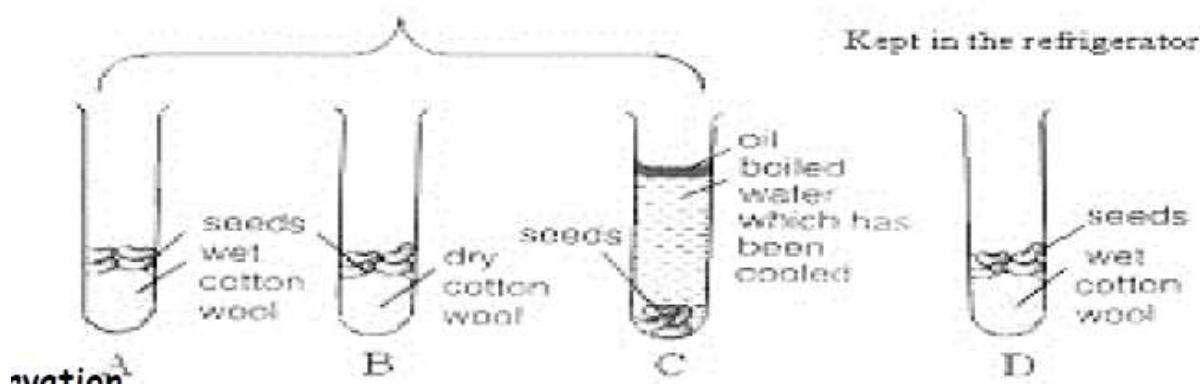


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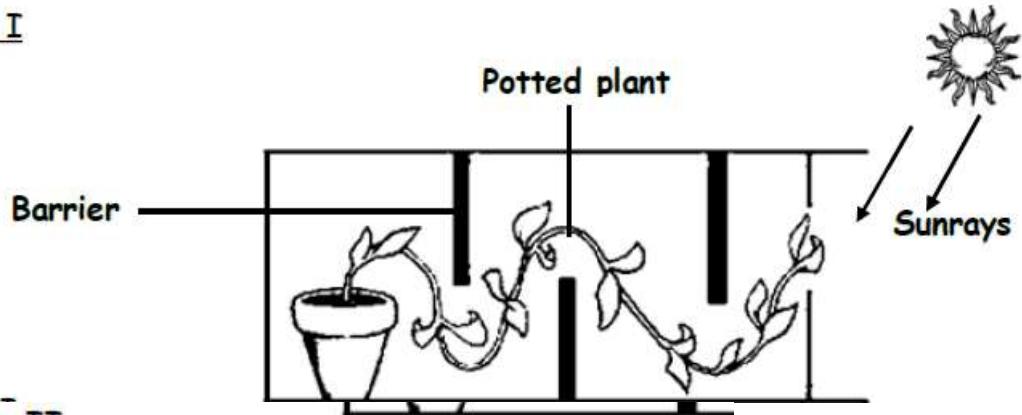
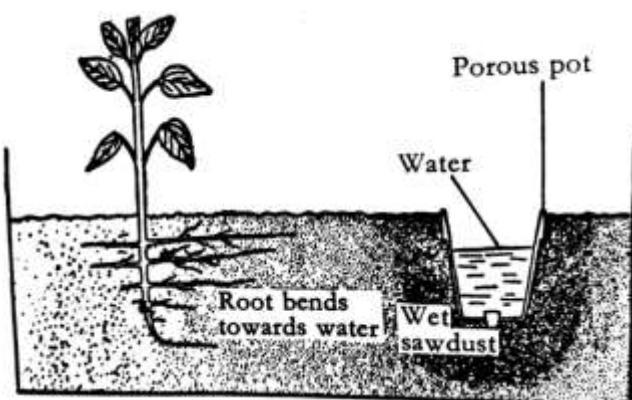
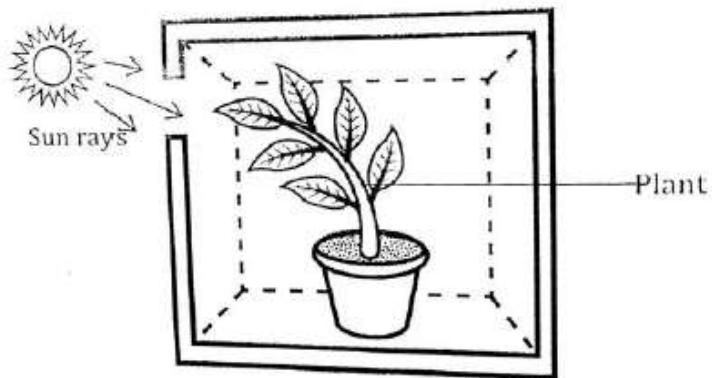
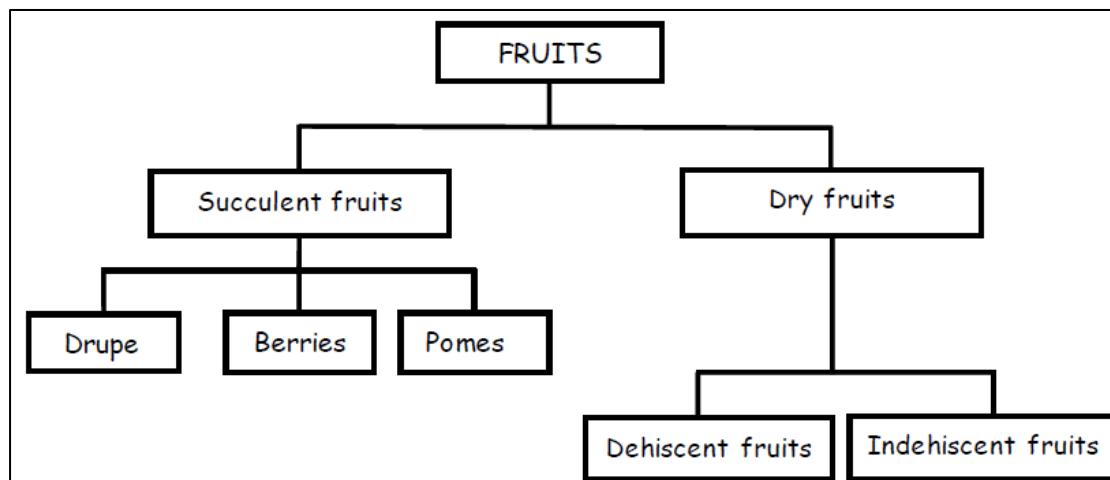
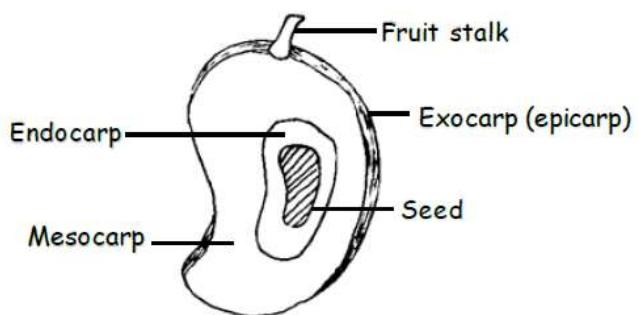
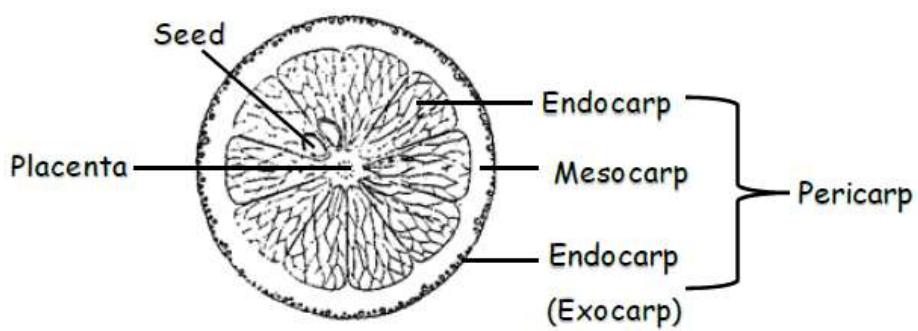
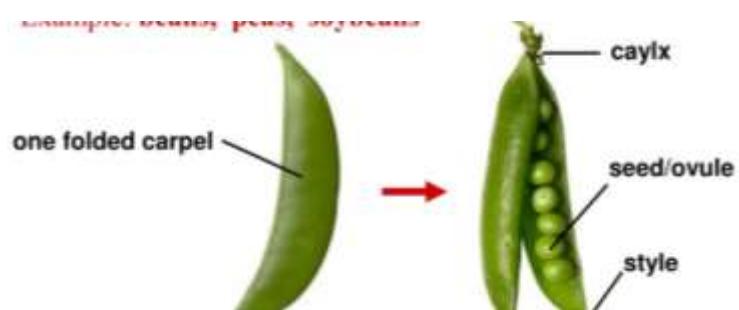
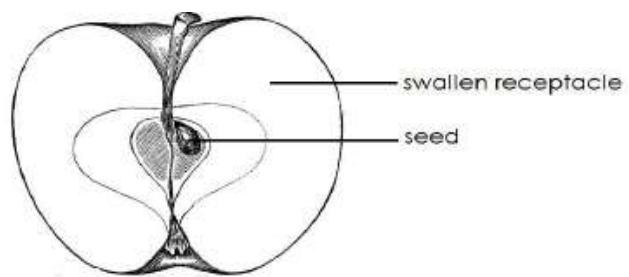


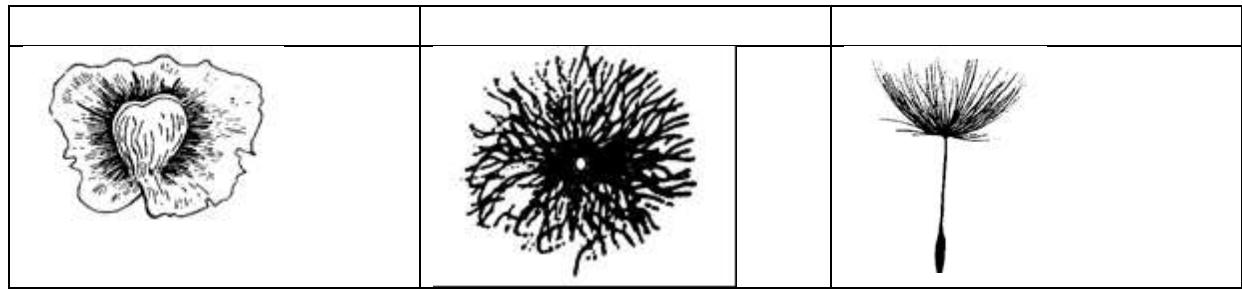
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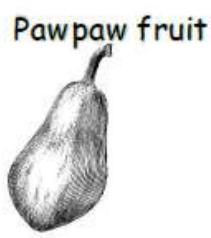
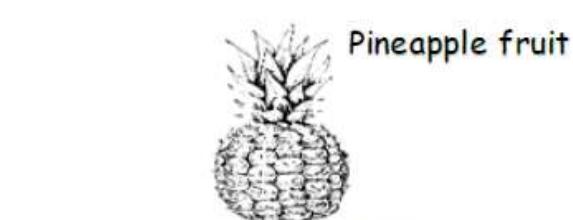
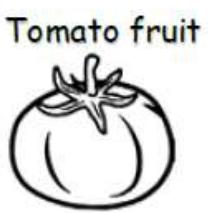
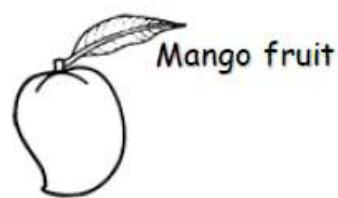
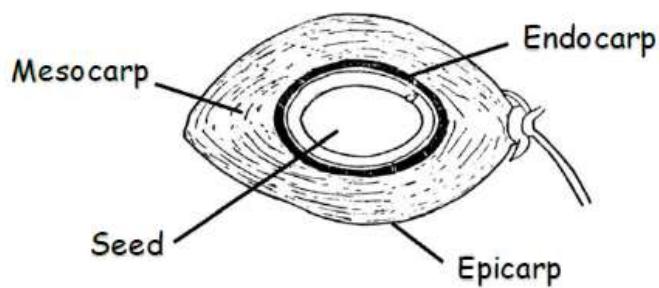




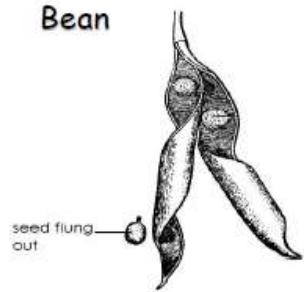






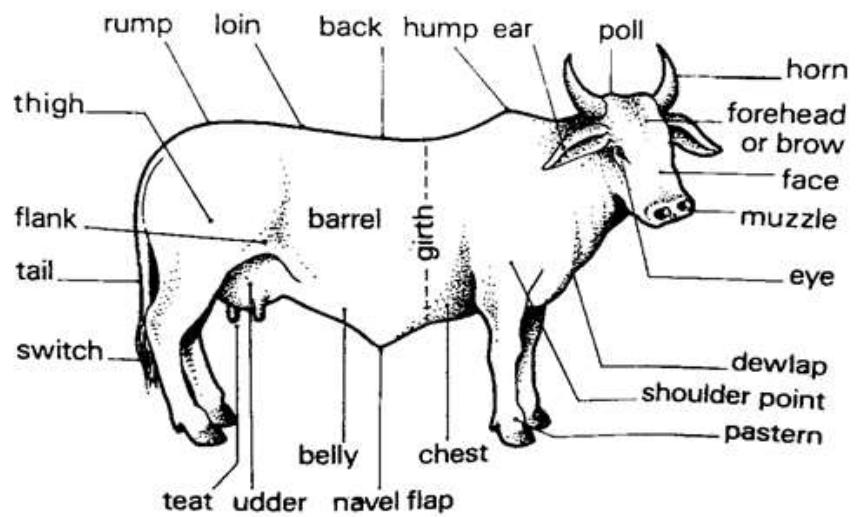


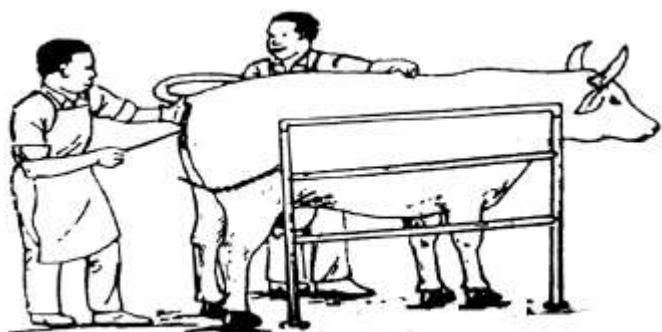
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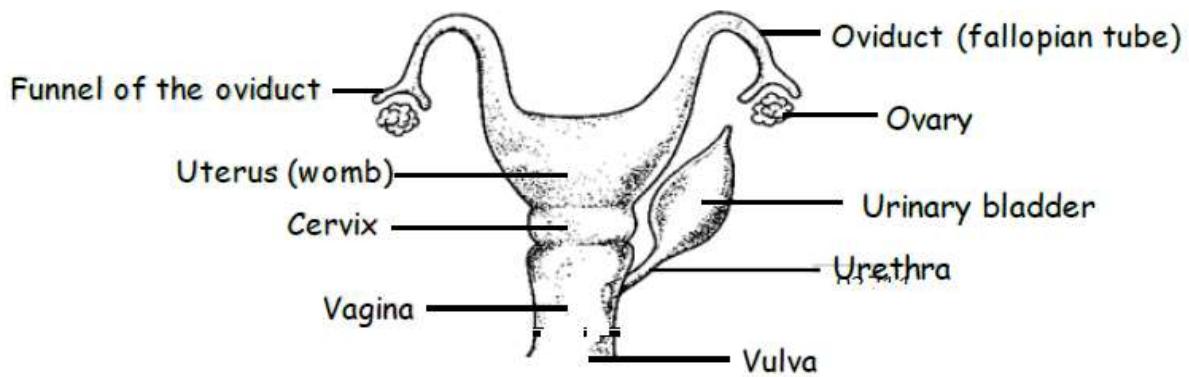


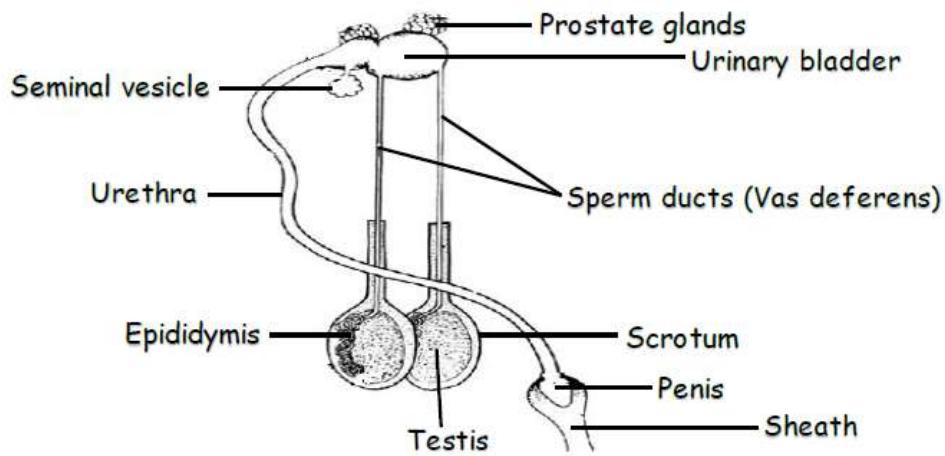
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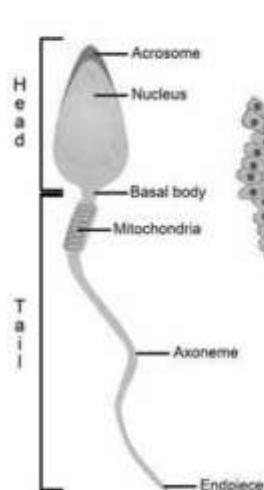




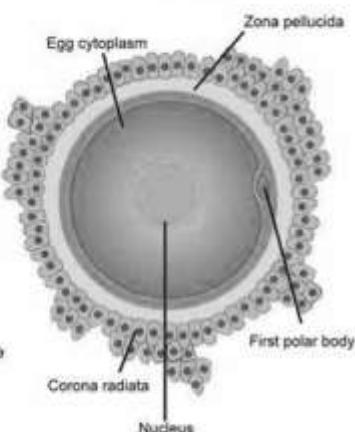


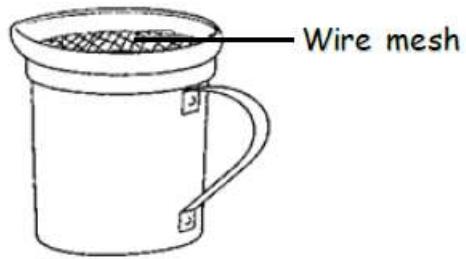


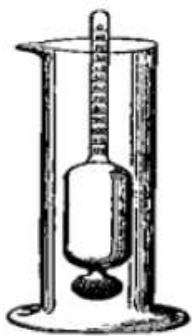
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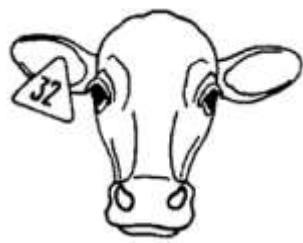
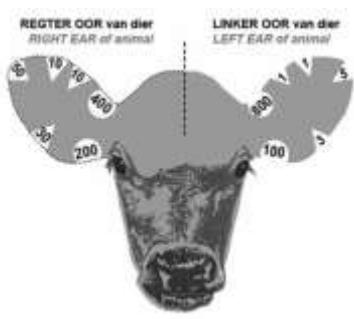


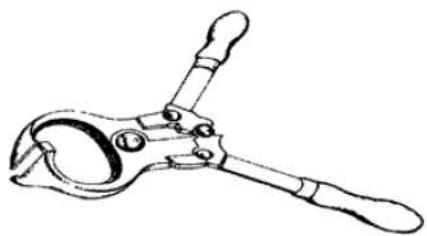
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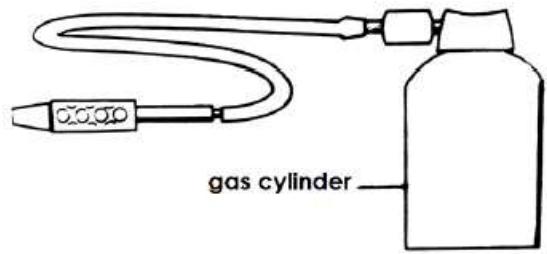


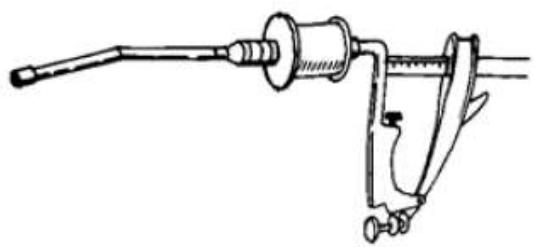


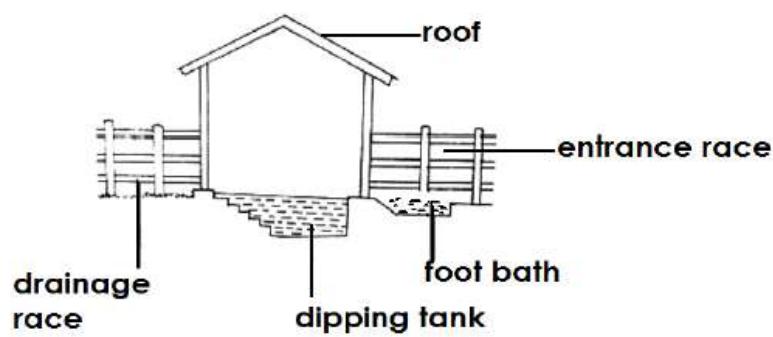


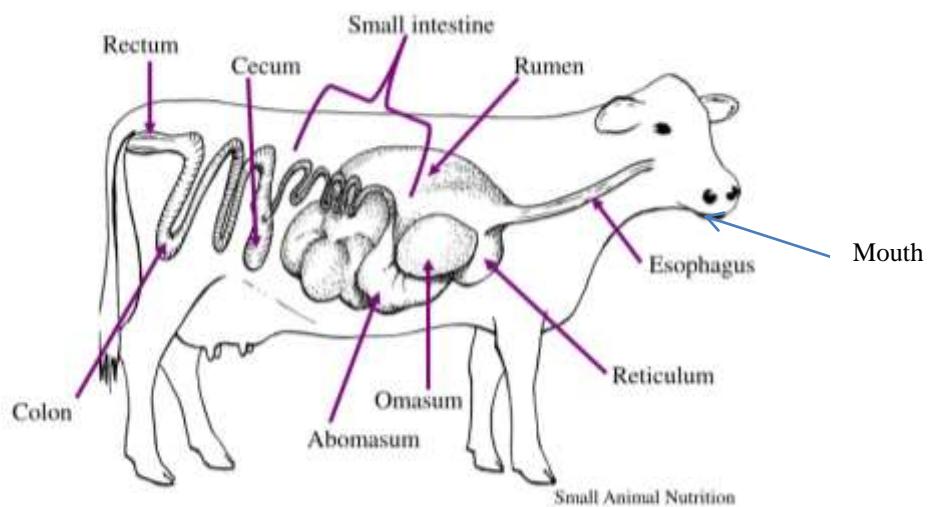






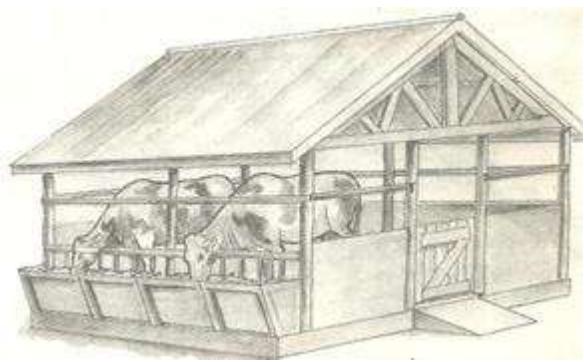


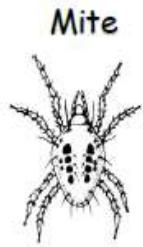
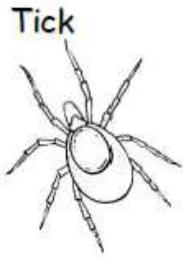




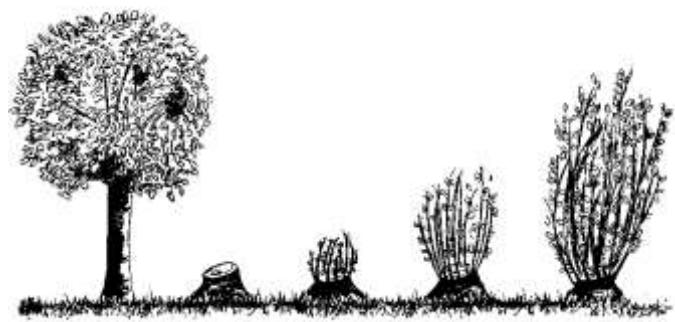


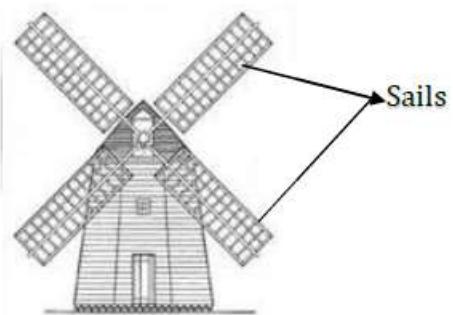






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TERM 3

P6

SCIENCE

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