MOTHER MAJERI PRIMARY SCHOOL
P.5 SCIENCE LESSON NOTES
TERMI 2020

POULTRY KEEPING

- Poultry keeping is the rearing and management of domestic birds.

What is poultry?

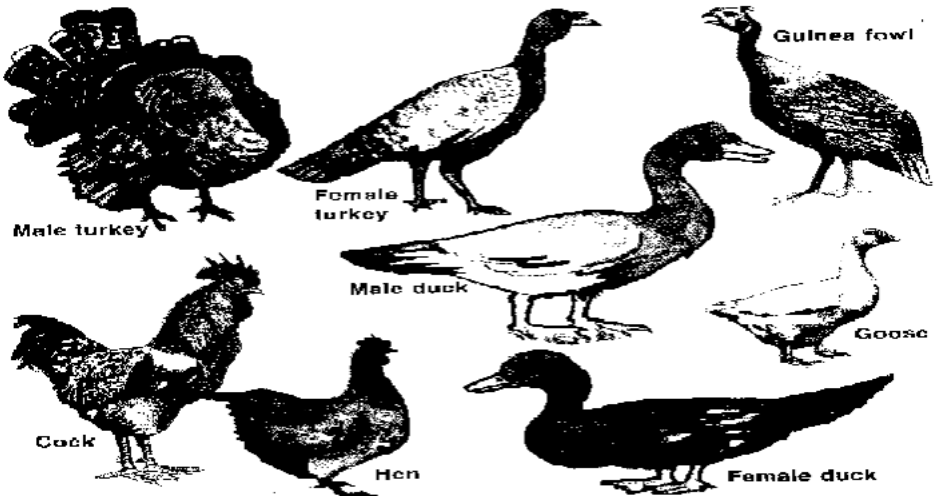
- Poultry are the domestic birds.
- It refers to all kinds of domestic birds.

Common terms used in poul

1. **Poultry** are domestic birds.
2. **Hen** is a mature female chicken
3. **Cock** is a mature male chicken
4. **Chick** is a young one of a hen
5. **Capon** is a castrated male chicken
6. **Rooster** is a sexually mature male chicken.
7. **Pullet** is a young female chicken.
8. **Cockerel** is a young male chicken.
9. **Incubation** . It is the provision of suitable conditions for the embryo in a fertile egg to develop.

Examples of poultry / types of poultry

- Chicken
- Ducks
- Pigeons
- Turkeys
- Guinea fowl
- geese



Reasons for keeping (poultry) domestic birds

- Some birds are kept for egg production.
- Some birds are kept for meat production.
- Birds are also kept for generating income.
- Droppings frompoultry are used as manure.
- Feathers frombirds are used for decoration, making pillows, dancing props, cushions.
- Some birds are kept for cultural purposes. e.g. Marriage, sacrifices.
- The bones of some birds can be used in the making of buttons, glue and fertilizers.
- Some birds are kept as pets. e.g. peacocks, hens, parrots.

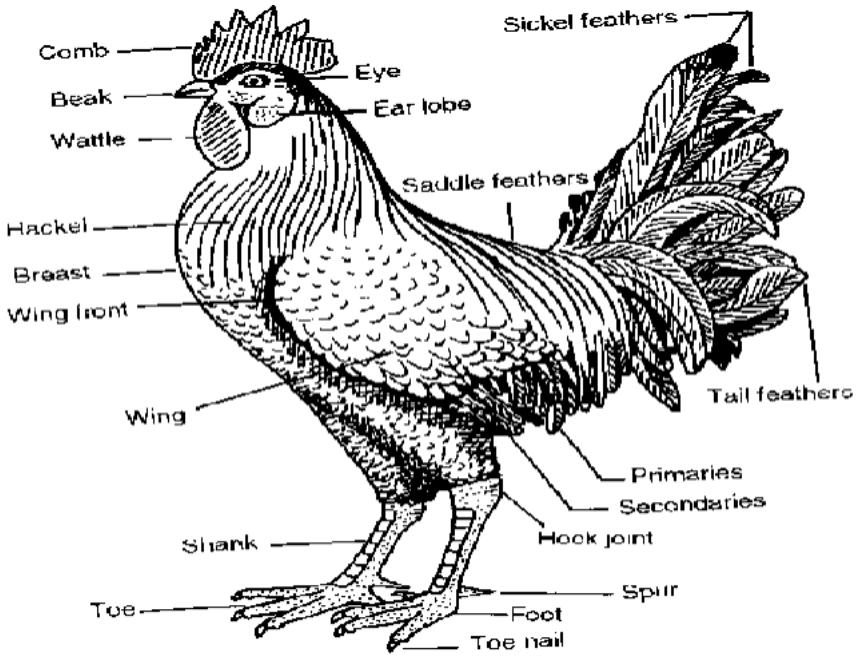
Advantages of keeping poultry

- It requires a small piece of land
- Farmers easily get their profits
- They multiply faster

Factors to consider before starting poultry farm

- Market for their poultry products
- Security in the area the place should secure fromthieves and predators
- Capital to buy equipment and to pay workers.
- Labour should be enough both skilled and unskilled
- Management there should be people who supervise the farm

The external parts (features) of a cock



Importance of each part on a bird

1. **Spur** -For protection / defence
2. **Beak / bill**

- For picking food
- For defence

- For building their nests

3. **Toe nails (claws)**

- To scratch for food
- For defence

4. **Comb and wattle**

- For attraction of mates

5. **Feathers**

- For identification
- For attracting mates.
- To protect the delicate skin
- To keep the birds warm
- For incubation of eggs.
- For brooding their young ones.
- For body shape.

NB: Cocks have bright feathers for courtship (Attracting of opposite sex for mating)

DIFFERENCES BETWEEN A HEN AND A COCK

A cock	A Hen
• Has a long spur • Has a large comb • Has a large wattle • Has large ear lobes • Has long strong claws • Has a large beak • Has long hackle feathers • Has bright feathers	Has a short spur Has a small comb Has a small wattle Has small ear lobes Has short claws Has a small beak Has short hackle feathers Has dull feathers

NB: Observe the real bird (cock and hen)

FEATHERS

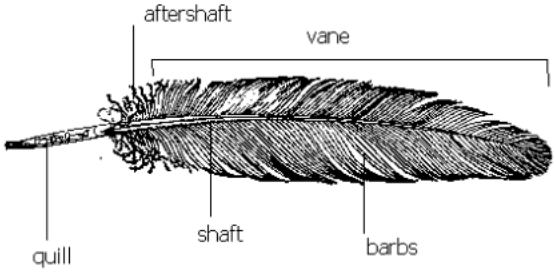
There are four types of feathers:

- Quill feathers.
- Covert feathers.(body feathers)
- Down feathers.
- Hair (filoplume) feathers.

The quill feather.

- ❖ They are flight feathers.
- ❖ They are found on the tail and wings.

Parts of a quill feather



Covert feathers.

- They are also known as body feathers.
- They cover most of the bird's body.
- They keep the bird warm
- They give the body a streamlined shape.

Structure of a covert feather



The down feather.

- They are the first feathers to appear on a chick.
- They lie under the body feathers.
- They help in insulating the bird's body.
- They help in insulating eggs during incubation.
- They keep the chick warm during cold weather.

Structure of a down feather



The filoplume (hair) feather.

- They are found near the skin of the bird.
- They be seen clearly after removing the body and down feathers
- They are the hairy feathers on the birds body

Structure of filoplume feather



Uses of feathers to birds

- The feathers enable the birds to fly.
- Feathers keep the bird warm
- The feathers give the birds colour for identification.

Uses of feathers to man

- Feathers can be used to make pillows, mattresses and cushions.
- Feathers are used as writing materials.
- Feathers are used for decoration.
- Feathers are used to make craft materials.

TYPES OF CHICKEN REARED

- A type of chicken is a class of chicken kept for a specific purpose.

There are three types of chicken reared:

- Layers.
- Broilers
- Dual-purpose birds.

LAYERS

- Layers are kept purposely for egg production.
- They are also called light birds and consume less feeds.

Examples of layers:

- White leghorn.
- Brown egger.
- Thornber.
- The New Hampshire.
- Ancona.
- Mnorca.
- Sykes.
- Sumatra
- phoenix

Off-layers are birds whose egg production rate has greatly lowered.

BROILERS

- Broilers are kept for meat production.
- Broilers are also known as table birds. Or heavy birds

Examples of broilers:

- Light Sussex.
- Orpington
- Ply mouth rock
- New Hampshire
- Rhode island Red
- Cornish white
- Jersey black giant
- Black Australorp

DUAL PURPOSE BIRDS

- Dual-purpose birds are kept for both meat and egg production.
- Dual-purpose birds are both good layers and give a lot of meat.

Examples of Dual purpose birds.

- Rhode Island Red
- New Hampshire.
- The black Australorp
- Araucana
- Orpigton
- Ligt sussex

BREEDS OF CHICKEN

What is a breed?

A breed refers to chicken with similar characteristics and origin.

The breeds of chicken can be divided into three:

- Local breeds (indigenous) breeds.
- Exotic (foreign) breeds.
- Crossbreeds. /
- Hybrids.

Characteristics of local breeds

- Local breeds take long to mature.
- They are more resistant to diseases compared to exotic breeds.
- They produce little meat and usually hard.
- They produce fewer eggs compared to the exotic ones.
- Local breeds have different feather colour.
- They produce small eggs.
- Local breeds can survive on little food and water.

Disadvantages of keeping local breeds of chicken

- They take long to mature
- They lay few eggs
- They produce hard meat
- They lay small eggs
- They produce little meat

How to improve upon the local breeds of chicken

- Through cross breeding
- Through selective breeding
- Through proper feeding

EXOTIC BREEDS

- These are breeds which are imported from outside Africa

Examples of exotic breeds:

- Rhode Island Red
- Light Sussex
- White leghorn
- The New Hampshire
- The Orpington
- Ancona
- Ameruacana
- Plymouth Rock
- Araucana.
- Sumatra
- Black Australorp
- Phoenix

Advantages of keeping exotic breeds

- They have tender meat.
- They are good layers.
- They lay big eggs.
- They have a lot of flesh on them
- They grow and mature faster.

Disadvantages of keeping exotic breeds of chicken

- They are less resistant to diseases.

- They can't survive on little food and water
- They cannot brood their own chicks
- They don't incubate their own eggs
- They cannot look for their own food.

CROSS BREEDS

- Crossbreeds are breeds got after mating an exotic breed and a local breed.
- The quality of local breeds can be improved by **cross breeding**.

Advantages of cross-breeding

- Encourages fast growth in birds
- Results into more eggs being laid by the offspring.
- Results into more meat being produced.

HYBRIDS.

These are chicken got after mating two different pure breeds.

Examples include

- Thumper 404
- Thumper 707
- Black rock
- Black star
- Rose birds
- Hiline stock
- Bo vans [Rhode island red and light Sussex]
- Speckledy+

Characteristics of hybrids

- They produce more meat.
- They lay bugger eggs.
- They have improved growth rates.
- They lay more eggs

SYSTEMS USED IN POULTRY KEEPING

- Free range system
- Deep litter system
- Fold pen system
- Battery cage system

FREE RANGE SYSTEM

- Free-range system is the system where birds are allowed to roam about and look for their food.
- It is common in rural areas **(that is why it is cheap to maintain.)**

Advantages of free range system

- Birds get a variety of food.
- Birds get a balanced diet through natural means
- Birds look for their own food.
- Birds get enough physical exercises as they move round looking for their food.
- Free-range system cuts down the cost of feeding.
- Poultry vices such as cannibalism are not common
- Manure in form of poultry droppings is distributed all over the area birds feed from

- Free range is cheap to maintain
- Reduces labour to farmers

Note: Free-range system is the cheapest method in poultry keeping and management. This is because the birds look for their own feeds and the farmer only supplements.

Disadvantages of free range system

- The birds can easily get diseases (easy spread of diseases)
- The birds can easily be eaten by wild animals.
- The birds can get lost.
- It is difficult to collect eggs
- The birds can easily be stolen.
- Birds easily destroy crops.
- It requires a large piece of land
- It is difficult to keep farm records
- It is difficult to control diseases and parasites.

DEEP LITTER SYSTEM

- This is a system of keeping large number of birds indoors on a floor covered with litter.
- The feeds and water are given to birds inside the house
- This is the most common method of poultry keeping used in Uganda for large scale production.
- It is common in urban areas because it requires a small space.

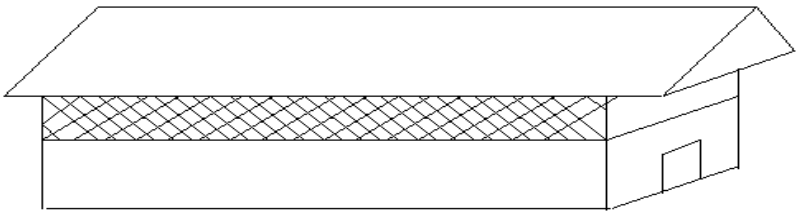
What is litter?

- These are soft materials used to cover the floor of the poultry house

Materials used as litter.

- Sawdust.
- Coffee husks.
- Wood shavings.
- Crashed maize cobs.
- Rice husks

The structure of a deep litter house.



Inside a deep litter house



Things found in a deep litter house

- Laying nests or boxes for the birds to lay eggs.

- Perches for the birds to play and rest.
- Feeding troughs for placing poultry feeds.
- Water troughs for the birds to drink water from
- Litter on the floor to absorb moisture from chicken droppings.

Note

The litter should be put on the floor regularly and replaced after sometime.

Why should litter be turned regularly?

- To mix birds droppings with litter
- To prevent litter from hardening.

Importance of litter in a deep litter house

- To keep the poultry house dry and warm
- To provide soft landing for eggs.
- To keep chicken busy scratching.

How does litter keep the poultry house dry and warm?

- It absorbs moisture from chicken droppings.

Disadvantage of litter

- Litter habours parasites
- Litter is a fire hazard

Advantages of deep litter system

- Many birds can be kept in a small house (structure)
- It is easy to collect manure.
- Eggs don't get lost.
- The birds are protected from wild animals. (Predators).
- Eggs are easily collected from the laying boxes.
- It is easy to control parasites and diseases.
- Birds cannot easily get lost as their movement is controlled.

Disadvantages of deep litter system

- In case of an outbreak of a disease, it can easily spread.
- The system encourages poultry vices.
- It is difficult to keep individual hen's production record.
- In case of a wet (rainy) season, the air is too humid thus making it difficult to keep the litter dry.
- It is very expensive to start and maintain.
- Culling is difficult.
- It requires much attention
- Birds do not get enough exercise.

BATTERY SYSTEM/ CAGE SYSTEM

- This is a system where birds are kept in doors in cages.
- 2-4 birds are kept in each cage.
- The number of birds in each cage depend on the size of the cage.
- The food and water are put outside the cage.
- Cages can also be constructed in rows and one above each other.
- The cages should be cemented to allow easy cleaning.

Advantages of Battery cage system

- The record of individual birds can be easily kept.
- Eggs don't get lost.
- Easy identification of unproductive birds.
- Food and water cannot easily be contaminated by droppings.
- Control of parasites and diseases is easy.

- Poultry vices are greatly controlled.
- Culling birds is easy.
- Birds are protected fromthieves and wild animals
- Clean eggs are collected

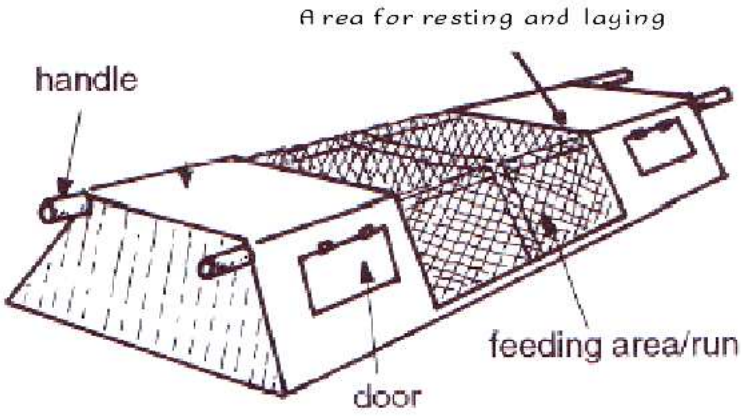
Disadvantages of Battery cage system

- There is limited space for physical exercises.
- It is expensive to construct cages./to start
- It is tiresome to feed the birds.
- It requires skilled labour
- Birds need much attention

FOLD/ ARK/ PEN SYSTEM

This is a systemwhere a small number of birds are kept in a small movable house called cages, pens, arks, or folds.
Birds lay eggs in pens, ark or folds.
These folds are moved fromone place to another every day (daily)
The fold is made of wood and wire mesh

Structure of A movable fold



Advantages of Fold pen system

- Birds are restricted frommovements (kept under close observation).
- Manure is easily distributed on the farm
- It is cheaper when handling a small number of birds.
- Parasites and diseases are easy to control.
- The folds are easy to make.
- Birds are protected fromwild animals.

Disadvantages of Fold pen system

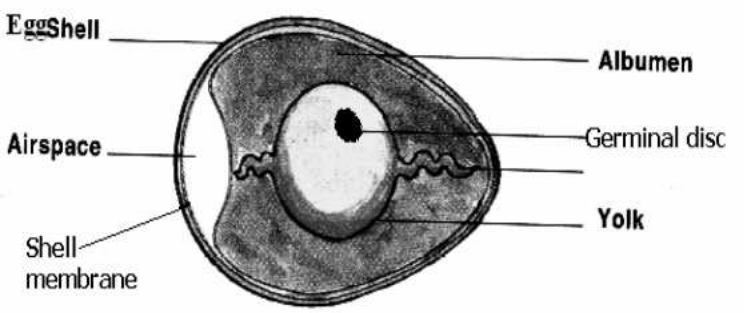
- Only a small number of birds can be kept in a fold or an ark.
- It is expensive to make the folds
- It is not suitable for swampy areas
- Birds do not get enough physical exercise.
- It is tiresome to move the pen.
- The folds get old easily due to frequent movement.

REPRODUCTION IN POULTRY

QN. How do birds reproduce?

- Birds reproduce by laying eggs.

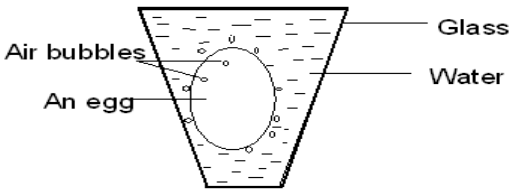
The structure of an egg



Functions (uses) of parts of an egg

1. **Eggshell**
   - It protects the internal parts of an egg.
   - An egg shell allows exchange of gases because it is porous.
   - It is made up of mineral salt called **calcium**

An experiment to prove that an eggshell is porous.



Germinal disc

It develops into an embryo after fertilization

Embryo

Develops into a chick during incubation

Air space

It keeps and provides air to the embryo.

Chalaza

It holds/ balances the yolk in position to get equal temperature during incubation

Yolk

It is the source of proteins and fats for the embryo.

Albumen (egg white)

It supplies water and proteins to the growing embryo.

ABNORMALITIES IN POULTRY EGGS

- Soft eggshells.
- When an egg has two yolks.
- Blood stains in the egg white.
- Meat spots in the egg white.
- In case an egg has an abnormal shape
- In case an egg is too small in size.
- Yolkless eggs

Favourable conditions for eggs to hatch

- warmth
- moisture
- oxygen

Qn. Give three reasons that may cause an egg to fail to hatch in the presence of favourable conditions.

- **Cracked shells**
- **Dirty eggs**
- **Over stayed eggs**
- **When an egg is un fertilized**

Qn. How can a farmer detect defects in eggs?

- By egg candling.

Qn. What is egg candling?

- It is a way of determining the quality of eggs using light.

Qualities of a good egg.

- Should be of medium size.
- Should have an oval shape
- Should have a clean, strong, thick, and a rough shell.
- Should be fertilized.
- Should have one egg yolk
- Should be clean.

INCUBATION

- Incubation is the process by which a fertilized egg is given favourable conditions to hatch.
- Incubation period is the time taken for a fertilized egg to hatch.

Incubation periods of some domestic birds

Birds	Incubation period
Hens	21 days / 3weeks
Ducks	2 8 days/ 4weeks
Turkeys	28 days / 4 weeks

Geese	30 days/ 4weeks 2days
Pigeons	14 days / 2weeks
Parrot	28 days / 4weeks
Guinea fowls	28 days/ 4weeks

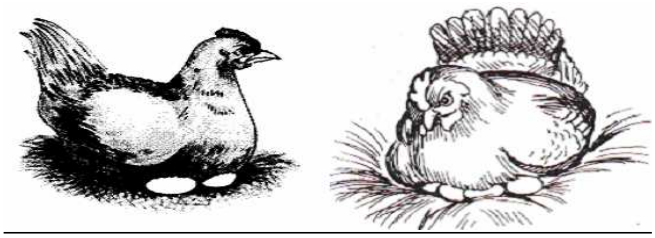
Types of incubation in chicken

- Natural incubation.
- Artificial incubation.

NATURAL INCUBATION IN CHICKEN

- This is where by a broody bird sits on her eggs to provide necessary conditions for hatching.
- A broody hen can incubate between 15-20 eggs

Illustration of natural incubation.



Conditions needed for natural incubation.

- The eggs must be fertilized.
- The nest should be clean, dry and comfortable.
- The place should have dimlight.
- The place should be free fromstrong wind.
- The place should be free fromvermin e.g snakes and rats.

Advantages of natural incubation in chicken

- The incubating hen needs less attention.
- It is cheap and manageable.

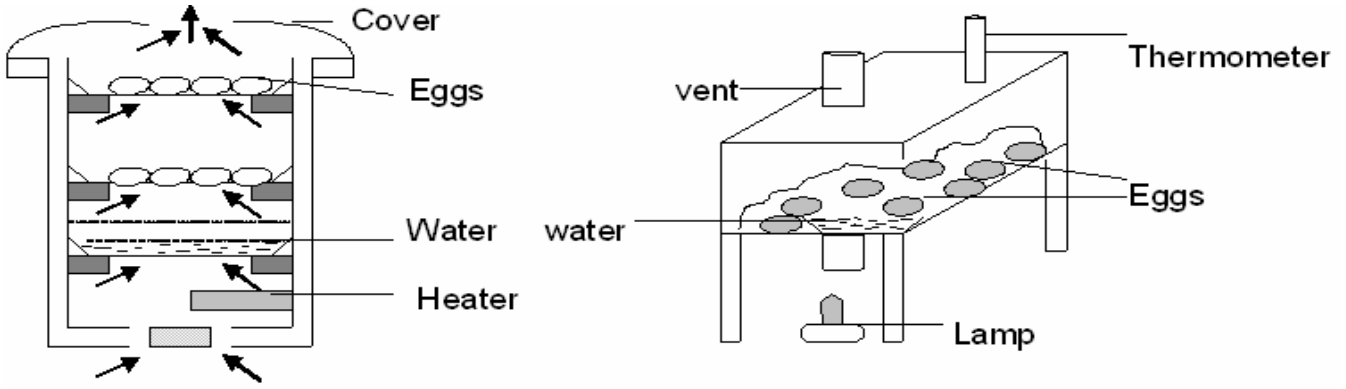
Disadvantages of natural incubation in chicken

- Few eggs are incubated.
- Natural incubation cannot be used for commercial farming.
- The incubating hen can be attacked by vermin.
- The hen may not be good at incubating

ARTIFICIAL INCUBATION IN CHICKEN

- This is the method where a machine is used to hatch the eggs.
- **An incubator** is the machine used to hatch eggs.

An electric incubator **Local incubator**



Importance of some parts of the incubator

Source of heat – to provide warmth
Water – it evaporates to provide moist conditions
Thermometer – for measuring temperature in the incubator

Advantages of artificial incubation in chicken

- Many eggs are hatched once.
- It is suitable for commercial purposes.
- Eggs are free from vermin.

Disadvantages of artificial incubation in chicken

- It is expensive to buy an incubator.
- A lot of attention is needed.
- It needs qualified workers.

Factors that may make an egg fail to hatch

- When the egg was not fertilized.
- When the egg shell was damaged.
- When the pores are completely blocked by dirt.

BROODING CHICKS

Brooding is the special care given to chicks from hatching time up to nearly 8 weeks.

Types of brooding

- Natural brooding.
- Artificial brooding.

NATURAL BROODING IN CHICKEN.

- This is a method where a mother hen takes care of her chicks.
- She provides warmth, security and looks for food for the chicks.
- When the chicks have grown, they are left on their own.

An illustration of natural brooding.



Advantages of natural brooding in chicken.

- It is cheap in terms of expense and attention.
- The hen looks for food for its chicks.
- The chicks get security from the mother hen.
- Toe pecking is reduced in chicks because they move with their mother.

Disadvantages of natural brooding in chicken.

- Chicks can be eaten by wild animals.
- It cannot be used on large scale.
- The mother hen can be killed and leaves the chicks on their own.

ARTIFICIAL BROODING.

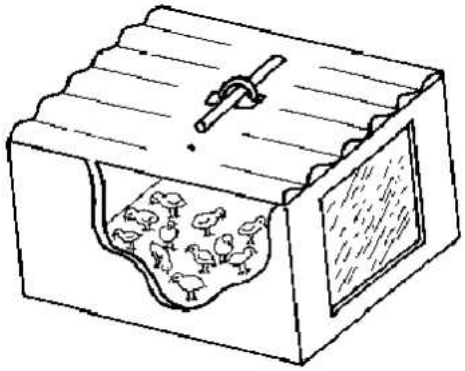
This is a method where chicks are kept in a **brooder**.

A brooder is a special structure where farmers keep their chicks below 8 weeks.

There are two types of brooders:

- Kerosene (paraffin) brooder)
- Infrared lamp brooder.

A local brooder



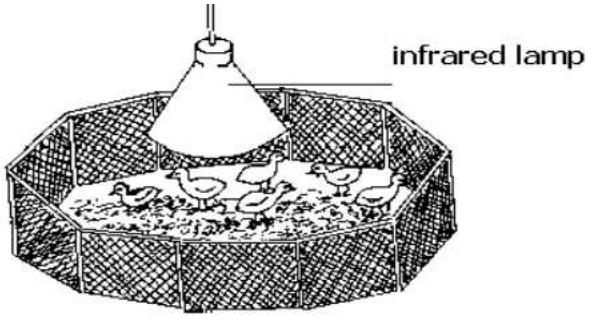
Disadvantages of a Kerosene (paraffin) brooder)

- It needs a lot of close attention.
- Lamp without guards can burn the chicks.
- Soot from the lamp can accumulate in the brooder.

Infrared lamp brooder

- It is where an infrared lamp provides **heat** and **light** energy
- Electricity is the source of light and warmth in the brooder.
- The infrared lamp is hanged at the ceiling, the height of the lamp is adjusted upwards as the chicks grow.

The structure of an infrared lamp brooder



The purpose of the lamp in a brooder

To provide chicks with light.
To provide warmth to the chicks.

Behavior of chicks in a brooder

1. When it is cold, the chicks crowd together or around heat source.
2. When it is hot, the chicks roam around.

NOTE: In both brooding systems, chicks should be vaccinated.

FEEDING IN POULTRY

- Farmers need to feed birds well to maximize production
- Birds are fed on special feeds called **mash**
- Birds also require clean water all the time

Composition of chicken mash

- Silver fish (mukene)
- Bone meal
- Common salt
- Maize meal
- Sea shells
- Wheat brand
- Cotton seed cakes
- Rice brand
- Soybean
- Crushed egg shells

CHICKEN FEEDS

The feeds given to poultry birds should be of a balanced diet containing:

- Proteins
- Carbohydrates
- Vitamins
- Mineral salts

Mineral salt	**Purpose**
i) Calcium	Proper formation of egg shells. Formation of strong bones.

ii) Phosphorus	
Iron	Formation of red blood cells.

TYPES OF CHICKEN FEEDS

There are four types of feeds commonly given to poultry birds:

- Chick or starters' mash.
- Layers' mash.
- Growers' mash.
- Broilers' mash.

Chick or starters' mash.

This is fed to chicks between the ages of one day to eight weeks.
It is rich in protein.

Growers' mash.

Layers from 4-16 weeks are referred to as **growers.**
Such chicks are fed on growers' mash.

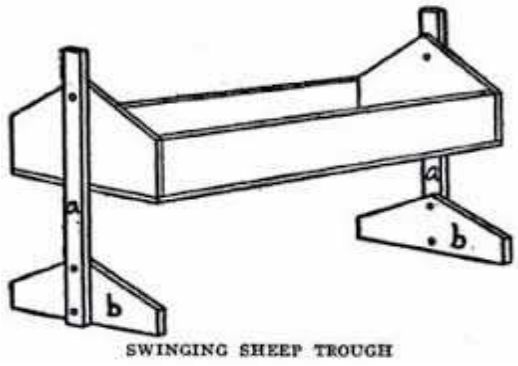
Layers' mash.

This poultry feed is specially prepared for the birds that lay eggs.
This poultry feed has a high mineral content.
A layer lacking calcium usually produces eggs with soft eggshells.

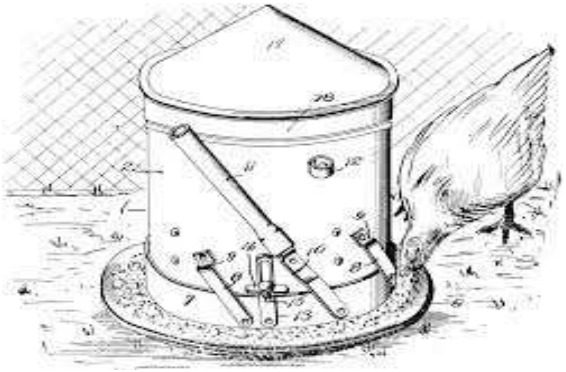
Broilers' mash.

This is a special feed for broilers.

FEEDING AND DRINKING EQUIPMent

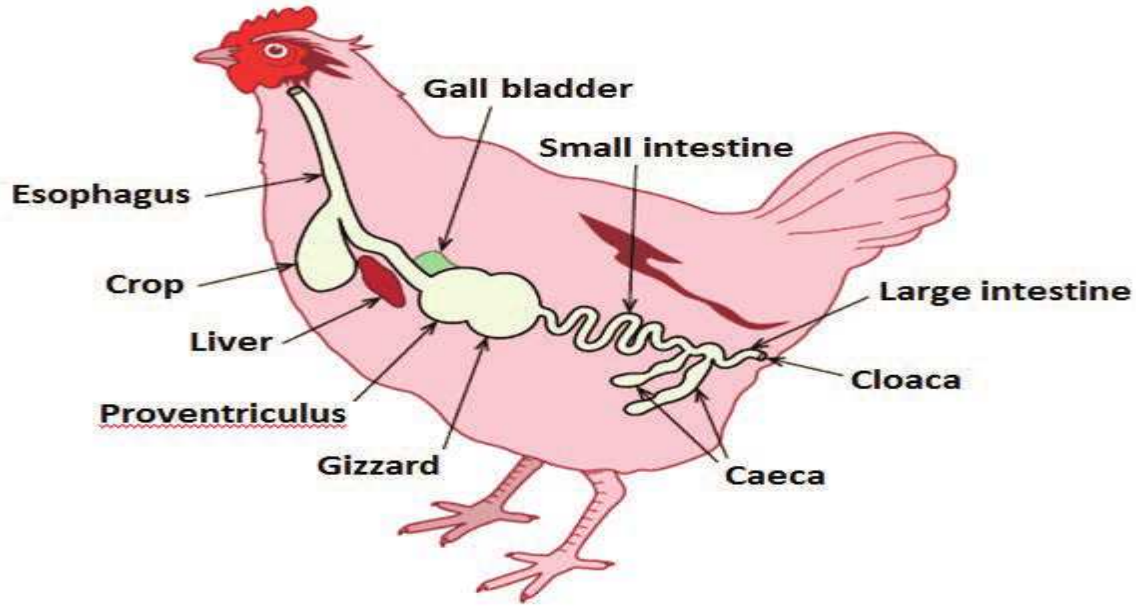


A structure of a feeding trough



A structure of a drinking trough

THE DIGESTIVE SYSTEMOF A DOMESTIC FOWL



Functions of different parts

1. **Beak**
   - ❖ Picks the food for the bird.
   - ❖ Breaks food into small particles

2. **Gullet**
   - Passes food to the crop
3. **Crop**
   - Stores food.
   - Food is moistened and softened.
4. **Proventriculus**
- Secrets digestive enzymes that mix with food
5. **Gizzard**
- It stores grits / palables
- Grits are small stones found in the gizzard
- Food is crashed into smaller particles by the grits.
6. **Small intestine**
   - Final Digestion of food takes place.
   - It is where absorption of food occurs.
7. **Large intestines.**
   - Absorption of water takes place.
8. **Vent**
   - Passes out droppings. or
   - It lets out droppings

VICES IN POULTRY

What are poultry vices?

Vices are bad habits in poultry.

Examples of poultry vices

- Egg eating.
- Cannibalism
- Feather pecking

Causes of poultry vices

- Overcrowding of birds.
- Poor feeding (little or no food)
- Boredom

CANNIBALISM

- This is where birds feed on the flesh of their fellow birds.



Forms of cannibalism

- Vent pecking
- Toe pecking
- Skin pecking

Causes of cannibalism

- Boredom
- Introduction of new birds in the flock
- Prolapse in case of laying birds
- Overcrowding
- Bright light in the house
- Starvation

Sign of cannibalism

- Blood stains on the beaks.
- Chicken bleed at the vent.
- Fighting among birds.

Prevention and control of cannibalism

- Hang bundles of fresh vegetables to keep the birds busy.
- Debeaking beak.
- Isolate the pecking birds and the pecked birds.
- Feed birds on mash containing proteins
- Avoid bright light in the poultry house
- Provide enough space for birds.

EGG EATING

This is where some layers eat their eggs.



Signs of egg eating

- Yellow stains on the beaks.
- Eggshells in the poultry house

Causes of egg eating

- Lack of enough food
- Failure to collect eggs in time
- Presence of broken egg shell in the poultry house
- Boredom
- Too much light around the nesting area
- Lack of calcium given to birds

Prevention of egg eating

- Debeak the birds.
- Provide laying boxes.
- Identify the egg eaters and remove them from the house.
- Keeping laying boxes in the dark.
- Give birds feeds rich in calcium
- Remove broken egg shell from the house
- Provide enough feeds to the birds
- Paint laying nests black
- Collect laid eggs regularly
- Provide enough space to birds.

FEATHER PECKING

- It is the act where a bird pulls off feathers from other birds using its beaks.

Causes of feather pecking

- Overcrowding
- Boredom
- Lack of enough space
- Bright light in the poultry house
- Lack of vitamins in the mash given to birds

Signs of feather pecking

- Fewer feathers on the birds body
- Presence of feathers in the poultry house.

Ways of controlling and preventing feather pecking

- Provide birds with enough feeds in time
- Provide structures such as perches in the poultry house
- Give birds mash containing vitamins (premix)
- Isolate the pecked birds
- Provide enough space for birds
- Debeaking birds
- Hang up vegetables in the poultry house

POULTRY DISEASES AND PARASITES

- Diseases in poultry are caused by:
  - Viruses
  - Bacteria
  - Protozoa

Examples of viral diseases in poultry

- New castle disease
- Bird flu/ avian leucosis
- Gumboro disease
- Fowl pox

Examples of bacterial diseases in poultry

- Fowl typhoid
- Pneumonia

Examples of protozoan diseases in poultry

- Coccidiosis
- Black head

Factors that promote the spread of diseases in a poultry farm

- Over crowding.
- Poor feeding.
- Poor housing.
- Contaminated water and feeds.
- Poor ventilation

COCCIDIOSIS

- It is caused by protozoa.
- It attacks the lining of the small intestine and the liver.
- It is common to poultry, rabbits, kids, lambs and calves.

Signs and symptoms of Coccidiosis

- Bloody diarrhoea.
- Feathers appear rough
- Dullness and dropping of wings
- Chicks crowd together
- Birds stand still in one place.
- Loss of weight (emaciation)

Prevention and control of Coccidiosis

- Add coccidiostats in the feeds or water.
- Cull the infected birds.
- Keep all the feeding troughs clean
- Isolate or kill all the infected birds
- Keep the brooder and the areas around it dry and clean

BLACK HEAD

- It is caused by Protozoa.

- It affects the **liver** and the **caecum**

Signs and symptoms of black head

- Sulphur coloured diarrhoea.
- Dark purple head.
- Loss of appetite
- Darkening of the skin and wattle.
- Yellow green circular wounds (lesions)

Prevention and control of Black head

- Avoid over crowding.
- Separate turkeys from other fowls.

FOWL POX

- It is an infectious disease caused by a virus.
- The virus enters the body through wounds brought about by biting insects and pecking birds.

Signs and symptoms of fowl pox

- Tinny wounds on the wattle comb and wings.
- Ulcers in the mouth.
- Difficulty in breathing.
- Eyes go sleepy and stuck.
- Sudden death of infected birds
- Watery sores on the comb, wattle, and around the eyes.
- Discharge from the nostril and eyes
- Moulting and shedding feathers

Prevention and control of fowl pox

- Routine vaccination.
- Ensure proper hygiene in the poultry house.
- Cull and slaughter the infected birds.
- Disinfect the poultry house.

NEW CASTLE DISEASE

- It is a highly infectious disease caused by a **virus**.
- It kills unvaccinated poultry birds over a large area.

Signs and symptoms of New castle

- Thick mucus discharged from the mouth.
- Difficult breathing.
- Staggering with drooping wings
- Watery yellowish white diarrhoea.
- Reduction in egg production.
- Loss of appetite
- Birds twist their neck
- Thick mucus discharge from the mouth.
- Poor egg formation
- Sudden death of several birds.
- coughing

Prevention and control of New castle

- Vaccinate the birds regularly.
- Cull the infected birds.
- Isolate the sick birds.

FOWL TYPHOID

- This is a highly infectious disease in poultry caused by **bacteria called salmonella typhi**.
- The disease is transmitted to chicks by carrier hens through eggs.
- Salmonella also affects human beings, so it is dangerous to eat raw eggs.

Signs and symptoms of fowl typhoid.

- White yellowish or green yellowish diarrhoea.
- Pale wattle
- Ruffled feathers
- Birds fold their heads close the body
- The liver, kidney and spleen may become enlarged.
- The comb or the wattle gets shrunken and pale yellow.

Prevention and control of fowl typhoid

- Cull the infected birds.
- Keep the poultry house clean.
- Regular vaccination.
- Kill and burry the infected birds

PNEUMONIA

- Pneumonia is a contagious disease.
- It is caused by bacteria and virus

Signs and symptoms of pneumonia.

- Watery discharge from the mouth part and nostrils.
- High temperature.
- Coughing
- Difficulty in breathing
- Loss of appetite

Prevention and control of pneumonia

- Treat with antibiotics.
- Keep the poultry house warm during cold seasons.
- The poultry house should be well ventilated.
- Isolate the sick ones.

Avian leucosis

- It is caused by a virus

Signs and symptoms

- Paralysis of legs and wings
- Swollen legs
- Reduced egg production
- Pale combs
- Dehydration
- Enlarged liver

Prevention and control

- Vaccinate all the birds
- Keep the poultry house clean
- Use disinfectant to clean equipment
- Rear birds in isolation with adequate ventilation

What is culling?

- Culling is the removal of sick and unproductive birds from the flock

Why is culling done in poultry?

- To control poultry diseases
- To control poultry parasites.

PARASITES IN POULTRY

- Parasites are living organisms that depend on other living organisms for food and shelter.
- A living organism on which the parasites depend on is called a **host.**

Types of parasites.

- Ecto parasites (external parasites)
- Endo parasites (internal parasites)

Ecto parasites (external parasites) in poultry

- These are parasites that live outside the body of a host.

Examples of ecto parasites in poultry include:

- Lice
- Mites
- Fleas
- Ticks

Prevention and control of ecto parasites

- By dusting laying nests using acaricides
- Ensuring good hygiene in the poultry house
- Smearing the head of a bird with paraffin.

What are Endo parasites (internal parasites) in poultry?

- These are parasites that live inside the body of a host.

Examples of endo parasites in poultry

- **round worms**.
- Gizzard worms
- Tape worms

Signs of worms in poultry

- White chalky droppings
- Watery diarrhoea
- Few eggs are laid

Prevention and control of endo parasites

- By deworming.
- Giving birds clean food and water
- Observing proper hygiene in the poultry house

POULTRY MANAGEMENT PRACTICES

- These are routine activities that a poultry farmer carries out to maintain good production and avoid losses.

These activities include:

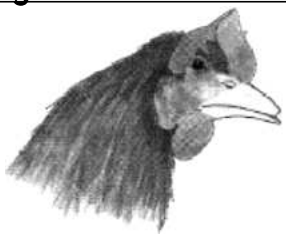
- Debeaking.

- Deworming and dusting.
    - Egg collection.
    - Culling.
    - Regular feeding.
    - Record keeping.
    - Vaccination.

Debeaking

a. This is the cutting of the bird's beak short.
b. Farmers debeak to avoid or prevent egg eating, pecking and cannibalism

Drawing of a debeaked bird



Deworming and dusting

These are done to control endo and ecto parasites respectively.

Egg collection

Eggs should be collected at least 2 to 3 times a day to avoid the following:

- Egg eating.
- Breakage of the eggs.
- Eggs getting dirty.

Culling

- Culling is the removal of the unproductive and infected birds from the flock.
- This can be done by selling or killing the effected birds.

Regular feeding

A farmer should provide both commercial feeds and green vegetables to birds at regular times.

Vaccination

Birds should be regularly vaccinated to protect them from diseases (to boost their immunity)

FARM RECORD KEEPING

This is the keeping of information regarding the farm

What are farm records?

It is written information about all the activities carried out on the farm

Types of farm records

- Production record.
- Health record.
- Sales and expense record.
- Flock record.
- Feed record.
- inventory

Production record

This shows the production percentage and number of eggs collected daily.

Health records

These indicate the treatment given to birds e.g vaccination or deworming.

Sales and expense records

These show the expenditure and income from feeds, eggs, labour etc.

Flock records

These indicate the total number of live, sold, killed or dead birds every day.

Feed records

These show the type of feed, quantity of feed eaten and the quantity of spoilt feed.

Inventory - show the property owned by the farm

Reasons for keeping farm records

- To know whether the farm is making profits or losses.
- To identify areas that need improvement.
- To know the expenditure on the farm
- To plan for the farm
- To avoid repeating mistakes.
- To easily get loans from Banks.
- To be taxed fairly.
- For proper decision making

Topical evaluation exercise

BEE KEEPING

- Bee keeping is sometimes called **apiculture**

What is apiculture?

- Apiculture is keeping and management of bees.

What is an apiary?

- An apiary is a place where beehives are kept

Why are bees referred to as social insects?

- Bees live and work together.

Common termused in apiculture

A colony

- This is a large group of bees living in one place.

A swarm

- This is a large group of bees flying together looking for a hive.
- This is when a colony of bees leaves an old hive.

Grub

- This is a larva stage of a bee.

Brood

- These are group of young bees in a comb.

Royal jelly

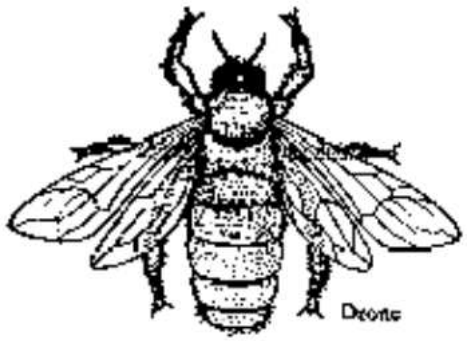
- This is the special food given to the queen bee.

A comb

- This is a group of cells.

.

External parts of a bee



_____

Importance of each part

Sting	for protection
Ovipositor	for laying eggs
Pollen baskets	for carrying pollen
Wings	for flight
Spermsac	for storing sperms after mating

TYPES OF BEES IN A HIVE

There are three types of bees:

- Queen bee.
- Drone bee.
- Worker bee

QUEEN BEE



Characteristics of queen bee

- The queen bee is a female bee that lays eggs.
- A queen bee mates only once in its lifetime.
- It stores sperms in a sperm sac in the abdomen.
- Its wings are shorter compared to its body.
- It is larger than the drone and the worker bees.
- A queen bee is fed on a special food called **Royal jelly**.

Components of royal jelly

- Water
- Pollen
- Sugar
- Nectar

DRONE BEE



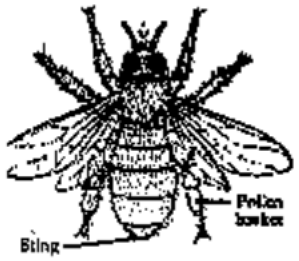
Characteristics of the drone bee

- This is the male bee whose main function is to mate with the queen bee.
- It hatches from unfertilized eggs.
- A drone bee is more hairy than the worker bee.
- It has a blunt abdomen without a sting.
- A drone bee makes a **buzzing sound** when flying.
- A drone bee is not often found in the hive because it is killed after mating with the queen and its body is removed from the hive.
- The drone bees are chased out of the hive after the wedding flight

Wedding flight / maiden flight

- A wedding flight is a flight during which the drone bee mates with the queen bee.

WORKER BEE



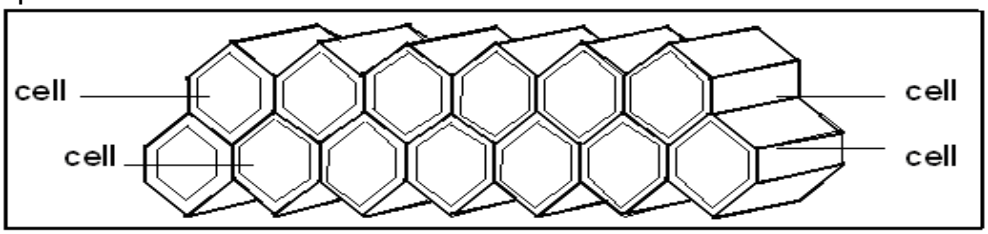
Characteristics of the worker bees

- The worker bees are sterile (barren) female bees.
- Worker bees are small in size but very many in numbers.
- They have pollen baskets on their hind leg for carrying pollen.

- They do most of the work in the hive.
- They are also called nurse bee.

Duties of a worker bee

- ❖ To guard the hive
- ❖ To collect nectar, water and pollen
- ❖ Clean the hive
- ❖ Feed the queen bee on royal jelly
- ❖ Feed the grubs on honey
- ❖ They smoothen the hive
- ❖ They repair cracks in the hive
- ❖ They fan the hive to lower the temperature
- ❖ They produce honey and store it in honey combs
- ❖ Worker bees build the comb using wax. The comb is divided into small hexagonal apartments called cells.



How do worker bees reduce temperature in the hive?

- ➢ By flapping their wings rapidly

Uses of propolis

- It is used to smoothen the interior of a hive.
- It is used to waterproof the brood cells.
- It is used to repair the cracks in the hive.

Note: worker bees feed on pollen.

SWARMNG

Swarming is the massive movement of bees from one place to another looking for a new hive.
A swarm is a group of bees.

Reasons to why bees swarm

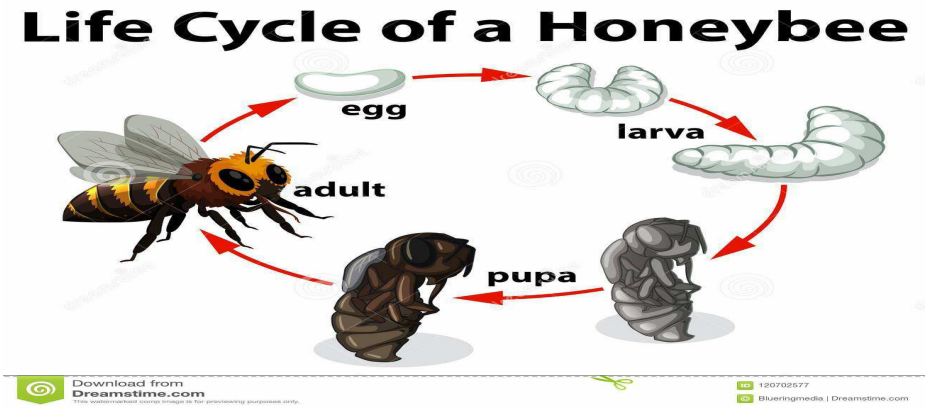
- Overcrowding of bees in the hive.
- Dampness in the hive.
- Lack of proper ventilation.
- Excessive heat in the hive.
- When a queen becomes old and less productive.
- When a new queen is groomed.
- When the brood cells are damaged.
- Too much Smoke near the hive.
- Too much noise in the area.
- Shortage of food and water near the hive in the area.
- Leakage in the hive.
- Frequent attacks by enemies.
- Bad smell around or in the hive.

THE LIFE CYCLE OF BEES

Bees undergo a complete metamorphosis, i.e. eggs – larva – pupa - adult

- The queen bee lays the eggs in the cells.
- The eggs hatch into the larvae (grub).
- The larvae are fed by the worker bees and sealed in the cells.
- The larvae develop into the pupa.
- The pupa then develops into a young bee.

Note: The grub is fed on honey.



BEEHIVES

APIARY

Apiary is a place where beehives are set.

Factors considered when setting up an apiary.

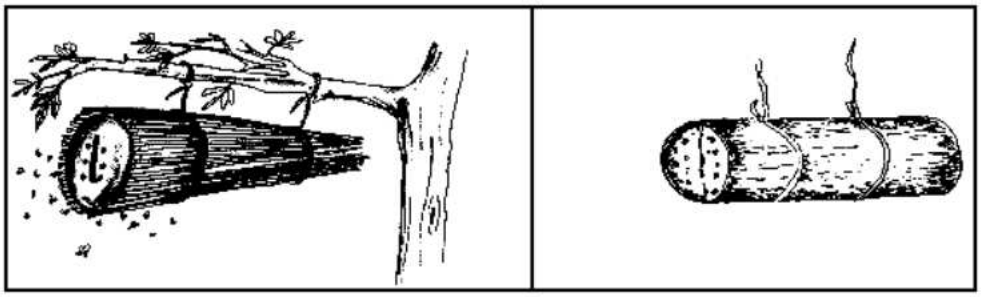
- A place free fromnoise.
- Near flower gardens.
- Free fromdampness.
- Near water source.

Types of hives:

- Traditional hives.
- natural beehives
- Modern hives.

Examples of traditional hives:

Kigezi hive. The dug out log hive.



Materials used to make local beehives

- Logs
- Small sticks
- Dry grass

- Mud
- Banana fibres etc.

Advantages of local beehives

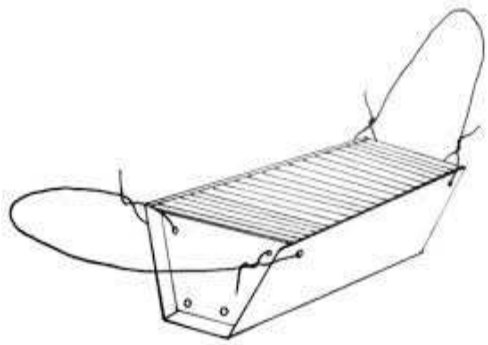
- ❖ They are easy to make
- ❖ They are cheap to maintain

Disadvantages of local beehives

- ❖ They are easily destroyed
- ❖ It is not easy to inspect combs
- ❖ It is not easy to harvest honey
- ❖ Honey is not always clean

Examples of modern hives.

Top-bar hive b) **Box hive** **c) tin hive**



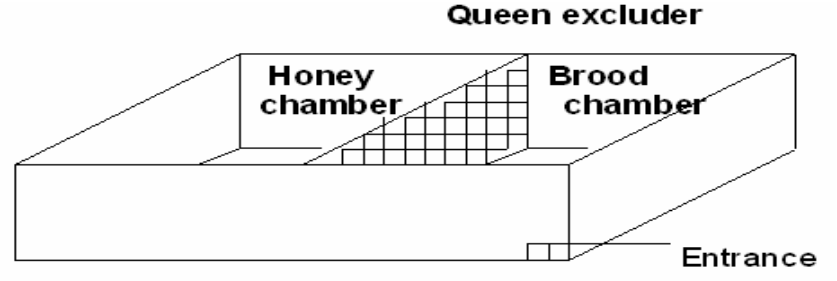
Advantages of top-bar hive over other hives

- ➢ Honey collected is often of high quality.
- ➢ The bars can be removed individually for inspection.
- ➢ Harvesting of honey is easily done.
- ➢ It avoids wastage of combs that are not ready.
- ➢ It is easy to control swarming

Disadvantages of modern bee hives

- ➢ They are expensive to make

The internal structure of a modern hive



A brood chamber contains the following:

- Eggs
- Larvae
- Pupa
- Young bees.

Importance of the queen excluder

- ❖ The queen excluder prevents the queen fromentering and laying eggs in the honey chamber.
- ❖ It separates the honey chamber fromthe brood chamber
- ❖ The queen excluder is made-up of small wire mesh, which does not allow the queen to pass through but only the worker bees.
- ❖ The honey chamber is basically for **honey**.

Natural beehives
Bees naturally live in **caves, tree trunks**, **holes in rocks** and **anthill**

Stocking a hive
- It is the way of encouraging bees to occupy an empty hive

How is stocking done in apiculture?
- Using a swarmcatcher box
- By smearing propolis on the entrance of the hive
- By trapping bees using a swarmcatching net

Diagramof a swarmcatcher





SITTING NG A HIVE
It is the selection of a suitable place to set up a hive.

Factors to consider when sitting a hive
- Away frompeople or animals to avoid disturbance
- Away fromthe road
- Near a water source
- Near a flowering garden
- In a sheltered and quiet place
- A place free frombad smel
-

FEEDING BEES
- Bees feed on nectar and honey
- They need availability of water all the time
- A sugar solution should be provided in case the flowers are not there
- Plant flowers near the hive to provide nectar

HARVESTING HONEY
- Honey harvesting is the removal of honey combs froma hive.
- Care should be taken when harvesting honey because bees can sting if they are disturbed.

Methods of harvesting honey
- Modern method – using a smoker
- Traditional method – using fire to kill bees

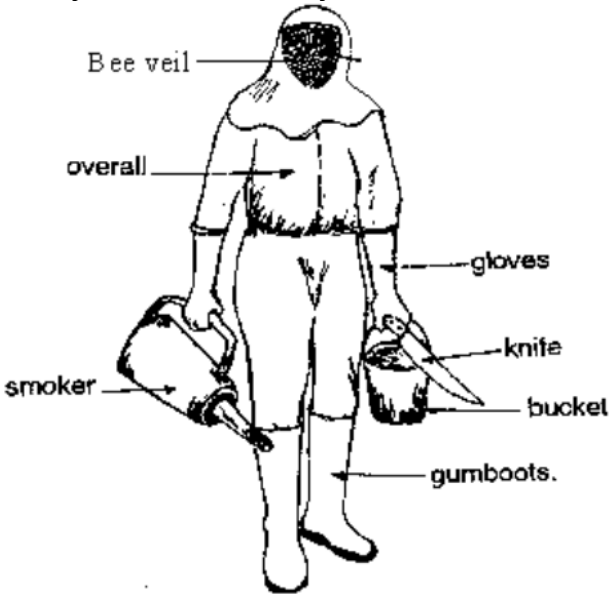
Disadvantages of using fire to harvest honey
- It kills bees
- It burns the hive
- Fire causes bees to swarm

- Fire melts honey combs
- Spoils the quality of honey.

When harvesting honey, one should have the following:

- A bucket (pan) for collecting honey.
- A knife: used to cut honey combs
- Overall to protect the harvester from stings.
- Bees veil: to protect the face from bee stings
- Gloves: to protect the hands
- Gum Boots: to protect the feet.
- A smoker: to produce smoke that calms bees.

A person ready to harvest honey



Procedure for harvesting honey

- Blow the smoke into the hive through the entrance holes
- Lower the hive to the ground so that the combs are not broken or damaged
- The bars should be lifted out one by one and inspected
- Good quality honey is found in white combs.
- Cut the comb away from the bar and put in a clean container.

Products from bees

- Honey
- Bee wax
- Pollen
- Propolis
- Royal jelly
- Combs
- Bee venom
- Brood

Importance of honey to man

- Honey is eaten as food
- Honey is used to sweeten tea.

- Honey is eaten with bread and cakes.
- Honey is used to make alcoholic drinks.
- Honey is used to treat cough.
- Honey can be sold to get money.

Industrial uses of honey

- Honey is used to make medicine e.g. cough syrups.
- It is also used to make sweets, chocolate.
- It is used in fruit canning as a preservative.
- Honey is used to make cosmetics e.g lip shiner.
- Honey is also used in hospitals to dress wounds in surgical cases.

Which food value do you mostly get from eating honey?

We mostly get carbohydrates

Importance of bee wax to man

- For making shoe polish
- For making crayons.
- For making candle wax
- To make varnish for furniture
- To make cosmetics like body creams / Vaseline.
- For making lip bums.
- For making chewing gum

Uses of propolis to bees.

- It is used to smoothen the interior of the hive.
- It is used to water proof the brood cells.
- It is used to repair the cracks in the hive.

Uses of propolis to man

- It treats scabies
- It can be used to treat burns and scalds
- It can be sold to get money
- For making antiseptics, antifungal, and antiviral medicines.

EXTRACTION OF HONEY

- This is the removal of honey from combs.

Methods of extracting honey

- Floating the wax method
- Pressing the honey method
- Centrifuging method

Floating the wax method

- Golden yellow combs are removed and crushed and placed into the saucepan.
- Another bigger saucepan is halfway filled with water and water is boiled.
- The saucepan with honey combs is placed on top of the boiling water.
- The wax and honey melts, the wax floats on top of honey.

- Honey is then placed in clean containers for storage.

Pressing honey method

- The combs are broken into small pieces
- The broken honey combs are placed on the cloth tied.
- Allow honey to drip into a clean container

Centrifuging method

- A centrifugal honey extractor is used to remove honey from honey combs.
- The wax that seals the cmbs is removed before they are put in the machine.
- The machine then turns the combs round at a high speed.
- The force that turns the combs around forces honey to come out.
- The honey then settles at the bottom of the machine.
- The honey is then boiled and stored in clean containers.

An illustration to show a centrifugal honey extractor



LESSON 25

How to obtain bee wax

- Honey combs are placed in a sauce pan filled with warm water.
- The water may be heated but not at boiling point.
- The bee wax melts into the warm water.
- After cooling, wax forms on top of the water.

Importance of bees to man

- Bees provide bee wax
- Bees provide honey
- Bees help in pollination
- They are source of income

Importance of bees to plants

- Bees pollinate flower.

BEE ENEMES AND DISEASES

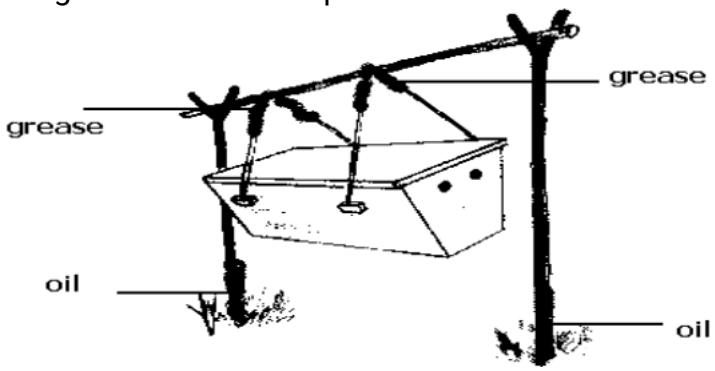
Examples of bee pests include

- Wood ants
- Safari ants
- Wasps
- Wax moths
- Sugar ants
- Pirate ants

- Honey badgers
- Hawk moth
- Birds
- Hivebeetle.

Protection of bees fromants

a. Hang the hive between poles.



Diseases of bees

The following diseases can attack bees.

- American foul brood
- Stone brood
- Bald brood
- European foul brood
- Nosema

How can we prevent enemies from destroying bees?

- By oiling the base of the poles on which hives are.
- Putting grease on the wires to prevent the ants from climbing.
- Spraying insecticides at the base of poles to kill the pests.
- Keeping the grass around the hives short.
- Hanging the hives in trees 100cm – 150cm high.

Ways of caring for honey bees

- Protect them from direct sunlight, rain, pests and diseases
- Remove weeds which grow below the hive
- Sitting an apiary in a quiet place.
- Provide bees with water and sugar during hot days.

MATTER AND ENERGY

MEASURESMENTS

To measure means to find the size, amount, length, area and quantity of an object. **MEASUREMENT**

It is the process of finding out how long, short, big, small, heavy or light an object is.

Mass

- It is the quantity of matter in an object.
- It is measured in grams (g), kg (kilograms).
- NB: Its standard **unit is kg.**

Weight

- Weight is the force of gravity acting on an object by the earth
- Weight is measured in new tons

Gravity:

- Is the force of the earth that pulls down objects?

Or It is the force of attraction that pulls objects towards the center of the earth.

NB On earth the gravitational force acting on mass **is 10N**

LENGTH

- It is the distance between two point
- It is measured in metres (m), centimeters (cm) Hectometres (hm), millimetrees (mm) decamitre (Dm) decimeters (dm).

NB: The standard units for length is **Metres**

Instruments used to measure length

Tape measures

- Metre rulers
- Foot rulers

How to measure length using body parts

- Using hand spans
- Using strides
- Using the feet
- Using armlength

A line segment: Is a line between two points.

Activity

- Learners draw line segments of different length.
- a). 4cm b) 6cm c) 8cm d) 14cm

LESSON 28

AREA

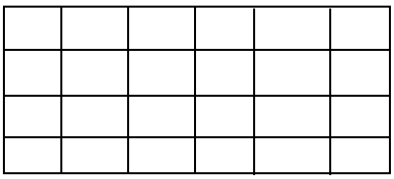
- It is the total space covered by an object.
- It is measured **in Square Units** cm^2, m^2, dm^2, km^2.

Area of a rectangle



Width (w)

The width is the shorter side of a rectangle
The length is the longer side of a rectangle
Area = Length x Width = sq. units



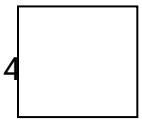
6 squares

By counting the squares
24 squares
Area = L x W
= 6 squares x 4 squares
= 24 squares

NB: A rectangle has two opposite sides equal.

Area of a square

A square has all its sides equal
Area = s x s
S^2



Area = s x s
= 4cmx 4cm
= $16cm^2$

CAPACITY AND VOLUME.

CAPACITY.

- Capacity is the amount of liquid a container can hold.
- Capacity of liquids is measured in liters.

Metric table for capacity of liquids

KL	HL	DL	L	dl	cl	ml
1	0	0	0	0	0	0
	1	0	0	0	0	0
		1	0	0	0	0
			1	0	0	0
				1	0	0
					1	0

VOLUME.

- Volume is the space occupied by an object.
- Volume is measured in cubic units e.g.
  - Cubic centimetres- cm^3 or cc
  - Cubic millimetres – mm^3
  - Cubic metres – m^3

The basic unit for measuring volume is cubic centimetres (cc).

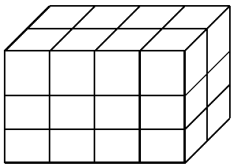
FINDING VOLUME OF REGULAR OBJECTS.

1. Regular objects are objects which have proper dimensions.
   I.e. Length, width, height

For example

- Cuboids
- Cubes.

Finding the volume of a cube or cuboid using cubes.



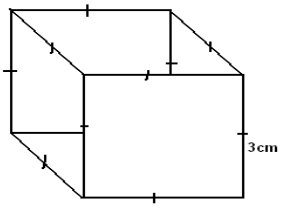
How many cubic blocks make up the above figure?

.....

Finding the volume of a cube or cuboid using the formula.

Example I.

Find the volume of a cube whose side is 3cm

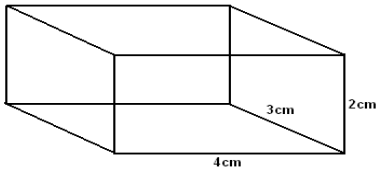


Volume of a cube= Area of base x height.
= side x side x side.
= 3cmx 3cmx 3cm
= $27cm^3$.

Note: A cube has all sides equal.

Example II.

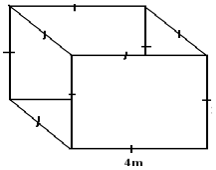
Find the volume of the cuboid shown bellow.



Volume = area of base x height.
= L x W x H
= 4cmx 3cmx 2cm
= $24cm^3$

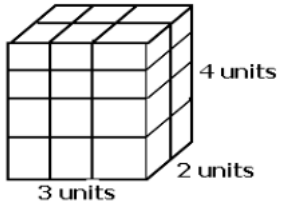
Example III.

Find the volume of the figure shown bellow.



V = L x L x L
= 4mx 4mx 4m
= $84m^3$

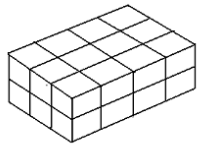
Example III

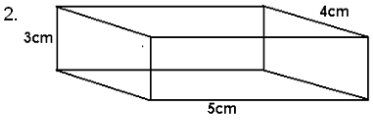


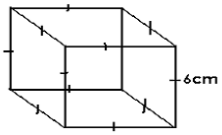
V = 3 units x 2 units x 4 units
= 24 cubic units

EXERCISE

Find the volume of the following objects.

1. 

2. 

3. 

1. Find the volume of a rectangular block whose length is 6cm, width 4cm and height 3cm

FINDING THE VOLUME OF IRREGULAR OBJECTS

- Irregular objects are objects that don't have proper dimensions. E.g. stones.
- The volume of irregular objects that sink in water is measured using **displacement method.**
- It is called the displacement method because the irregular object displaces water.

- When an irregular object is fully immersed in water, it displaces the amount of water equal to its volume.

Why can't displacement method be used to find volume of a leaf?

- ❖ It floats on water.
- ❖ It does not displace any amount of water

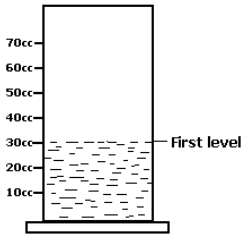
Things needed to help you find the volume of irregular objects.

1. Measuring cylinder.
2. Water.
3. An irregular object e.g. a stone.
4. An over flow can or eureka can.
5. String.

Steps taken when finding the volume of an irregular object using a measuring cylinder.

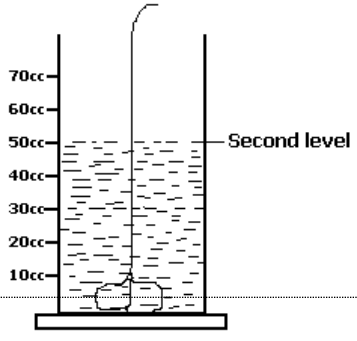
Step I

1. Pour water into a measuring cylinder so that it is about half full
2. Record the first volume of water. Say 30cc.



Step II

1. Get a stone and tie it with a string.
2. Lower the object into the measuring cylinder so that the object is covered by water.
3. Record the volume of water again say 50 cc.



Volume of the stone will be equal to:

V = 2^{nd} level- 1^{st} level

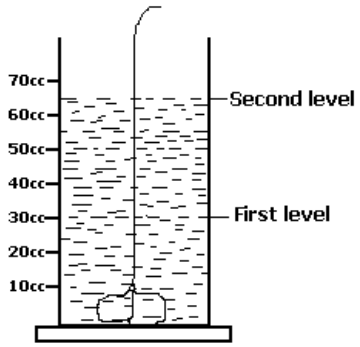
= 50cc- 30cc

= **20cc.**

The volume of the stone is 20cc because when an object is lowered in water, it displaces an amount of water equal to its volume.

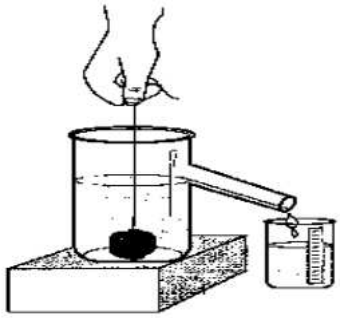
EXERCISE:

An experiment was carried out by P.5 pupils to find the volume of the stone using a measuring cylinder as shown below.



1. Calculate the volume of the stone.
2. Why is the volume of the stone equal to that answer you have given?

Finding the volumes of irregular objects using an over flow can



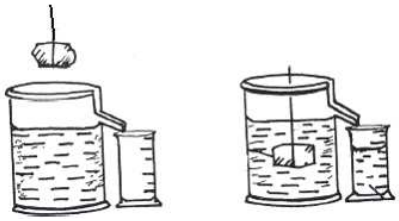
Step I

1. Fill the can with water so that the water pours out through the spout.(i.e. until it over flows).
2. When no more water pours out, then the water is up to the level of the hole or spout.

Step II

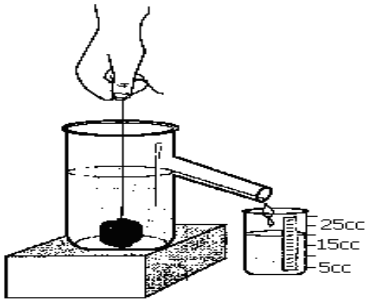
- Lower an object whose volume you want to measure into the can.
- The water will overflow and pour into the measuring cylinder.
- Find the volume of the object by reading the level of water in the cylinder.

Note: When an object is lowered in water, it displaces an amount of water equal to its volume.

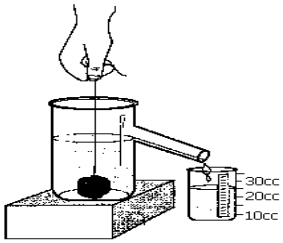


EXERCISE

1. A p.5 class carried out an experiment as shown in the diagram
What was the volume of the stone?

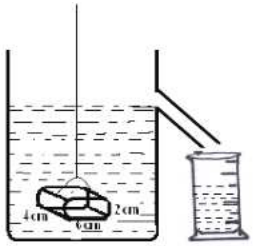


2. Find the volume of the stone in the experiment below.

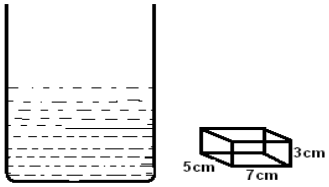


Displacement using regular objects.

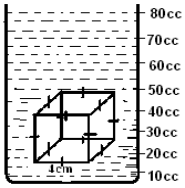
1. Find the volume of water that will be displaced by the block as shown below.



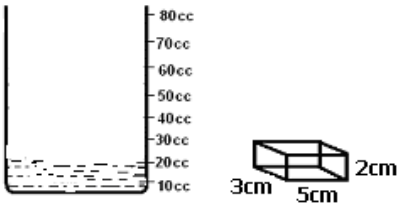
2. What volume of water will be displaced if the block below is immersed in the water?



3. What will be the level of water if the object is removed from the measuring cylinder?



4. What will be the level of water if the object is put into the measuring cylinder?



MASS

1. Mass is the amount of matter in an object.
2. The standard unit for measuring mass is kilograms (kg)

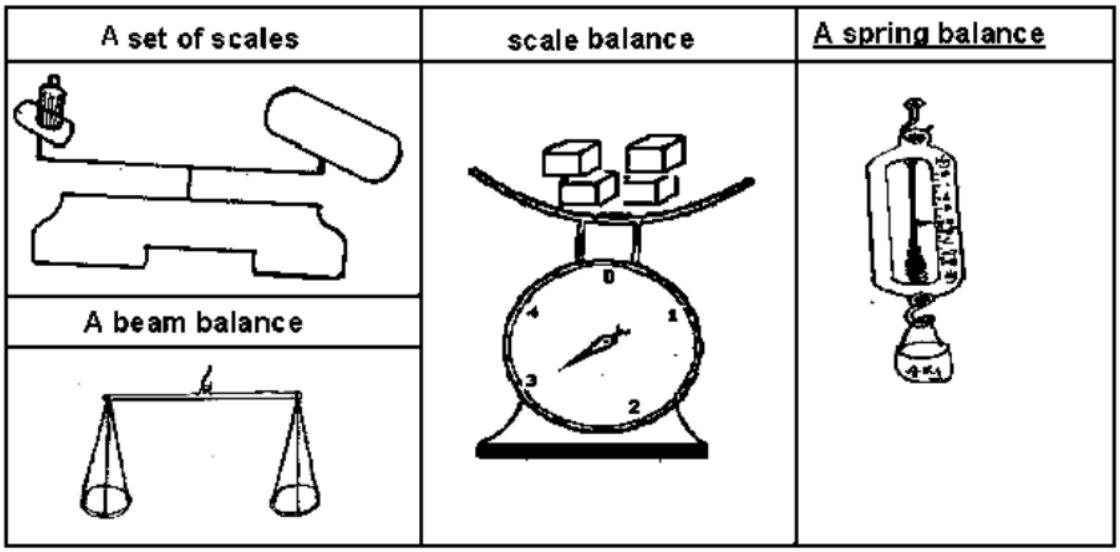
WEIGHT

- Weight is a gravitational pull on an object.
- Or Weight is the force of gravity acting on an object.
- Or Gravity is the force that pulls objects towards the centre of the earth.

- Weight is measured in Newtons (N).

Machines used to measure weight. And mass

a. Beam balance.
b. Spring balance
c. Set of scales.
d. Scale balance.



DIFFERENCES BETWEEN WEIGHT AND MASS

MASS	WEIGHT
Measured in kilogram	Measured in Newton (N)
Mass does not change	Weight changes
Mass is the amount of matter in a body.	Weight is the gravitational pull on an object.

Density.

- Density is the mass of an object per unit volume.
- Density is measured in g/cc.
- Density = mass/volume
- **Hygrometer** is an instrument used to measure density of liquids

FINDING MASS, VOLUME AND DENSITY OF OBJECTS.

MASS.

$$\text{Mass} = \text{Density} \times \text{Volume}$$

Examples

1. Find the mass of an object whose volume is 5cc and density of 10g/ cc.

   Volume = 5cc
   Density = 10g/cc
   Mass = ?g

   Mass = Density x Volume

   M = 10x 5

   M = 50g

2. Work out the mass of an object whose volume is 3cm and density of 5g/cc

   Volume = 3cc
   Density = 5g/cc
   Mass = ?g

   Mass = Density x Volume

   M = 5x 3

   M =15g.

Exercise

1. What is the mass of an object whose density is 10g/cc and volume of 6cc?
2. Find the mass of a stone whose density is 20 g/cc and volume of 5cc.

DENSITY

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

Examples

1. What is the density of an object whose mass is 14g and volume 7cc

   Mass = 14g

   Volume = 7cc

   Density = ?g/cc

   Density = mass/ volume

   D = $^{14}/_{7}$

   D = 2g/cc.

2. Find the density of an object whose mass is 20g and volume 5cc.

   Mass = 20g

   Volume = 5cc.

   Density = ?g/cc

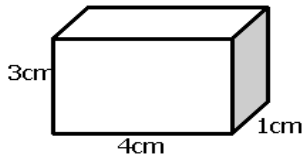
   Density = Mass/ volume

   Density = $^{20}/_{5}$

   Density = 4g/cc.

EXERCISE

1. What is the density of an object whose mass is 30g and volume 5 cc.
2. Work out the density of an object whose mass is 24g and volume 6cc.
3. What is the density of an object whose mass is 10g and volume 5cc.
4. Find the density of the object below whose mass is 48g.



5. Work out the density of an object whose mass is 50g and volume 5cc.

VOLUME.

Examples.

1. What is the volume of an object whose mass is 14g and density2g/cc

   Mass = 14g

   Density = 2g/cc

   Volume = ?cc

   Volume = mass/density.

   = 14g/2g/cc

   = 7cc.

2. Work out the volume of an object whose mass is 15g and density of 5g/cc

   Mass = 15g
   Density = 5g/cc
   Volume = ?cc
   Volume = mass/density.
   = 15g/5g/cc.
   Volume = 3cc.

EXERCISE

1. What is the volume of an object whose mass is 30g and density 6g/cc.
2. Work out the volume of an object whose mass is 24g and density 3g/cc.
3. What is the volume of an object whose density is 2g/cc and mass 10g?

BEHAVIOUR OF OBJECTS WITH WATER

When objects are placed in water, some sink, float or displace water.

FLOATING AND SINKING.

FLOATING

- Floating is when an object stays on top (the surface).of the liquid in which it is put.
- Objects float because they are less dense than liquid in which they are put.

  Note: When an object floats on water, it displaces the amount of water equal to its weight.

SINKING

Sinking is when an object goes down to the bottomof the container of the liquid it is put.
Objects sink because they are more dense than the liquid in which they are put.

Note:

When an object sinks, it displaces an amount of water equal to its volume.

Floating Objects	**Sinking objects.**
A pencil	A nail.
A leaf	A stone
A piece of paper	A coin
A bottle top.	Knife
A piece of wood	A set of rubbers
A toothbrush.	A key
A plastic mug/plate.	A padlock
A piece of cork	A pin
Boats	Sand
Ships etc.	Soil
	A glass, etc

- When objects are dropped in water, there is always a force, which tends to push themupwards.
- This force is called **up thrust** or **buoyancy.**
- Up thrust is the upward force in water, which tends to push objects upwards.
- Up thrust force make objects weigh less in water.

Qn. **Why does a ship float on water yet it's made up of metals**?

- Its average density is less than that of water
- It is supported by the buoyant force of water

IMMUNITY AND IMMUNISATION

Immunity is the ability of the body to resist disease causing germs.

Types of Immunity:

- Natural Immunity:
- Artificial Immunity:

Ways of acquiring natural immunity

- After recovering from sickness.
- From mother to the baby through the placenta.
- Through breast feeding.

Ways of acquiring artificial immunity

Artificial immunity can be acquire through immunization (vaccination)

Importance of immunity

- It enables the body to fight against disease causing germs
- It helps to keep the body healthy
- It reduces death rates
- It strengthens the immune system

What is immunization?

Immunization is the introduction of vaccines into the body to make it produce antibodies against certain diseases.

What are antibodies?

- These are chemicals produced by the white blood cells to defend the body against diseases.
- Substances that stimulates the production of antibodies are called **antigens.**

Why is immunization carried out free of charge especially in government health centres in Uganda?

To encourage / enable all parents to take their children for immunization.

Methods of immunization.

- Oral method (drops in the mouth)
- Injection method

Importance of immunization

- Immunization helps to protect children against the eight killer immunizable disease.
- Immunization helps to boost the immunity of the body.
- Immunization reduces the rate at which children die before the age of eight years. / Reduces infant mortality rate.

WHAT ARE VACCINES?

- Vaccines are special drugs introduced in the body to make it resistant to certain diseases.
- Vaccines are made from killed or weakened germs.
- The word immunization means the same as **vaccination** or **inoculation.**

How are vaccines important in the body?

- They make the body produce antibodies against disease causing germ

STORAGE OF VACCINES

Vaccines are stored in cold-chain boxes (coolers) and refrigerators

Note. Vaccines are kept in cool containers to keep the germs dormant.

Why are vaccines kept in cold chain boxes?

- To maintain their effectiveness
- To prevent them from getting spoilt
- To keep the germs dormant

TYPES OF VACCINES

There are three types of vaccines

- Toxoids
- Attenuated vaccines
- Killed vaccines

TOXOIDS

There are prepared from toxins produced by bacteria in the body. They are made harmless and injected into the body like T.T vaccines

KILLED / DEAD VACCINES

These are killed bacteria or virus that has been grown in suitable host cells. They are made harmless before being injected into a person e.g. cholera and the sack anti polio vaccine, DPT vaccine, typhoid vaccine, etc.

ATTENUATED VACCINES

These are live bacteria or virus which has been weakened in such a way that they can not cause diseases.

When injected into the body, they cause immunity.

E.g. BCG vaccine, measles vaccine, rabies vaccine, yellow fever vaccine, chicken pox vaccine

THE INFANT IMMUNISABLE DISEASES

- There are eight childhood killer immunisable diseases.
- They attack mostly children below the age of six years because their immunity against those diseases is still weak.
- The immunisable diseases include the following:

1. measles
2. Polio
3. Whooping cough
4. Tuberculosis
5. Tetanus
6. Hepatitis B
7. Diphtheria
8. Haemophili influenza B.

MEASLES

- It is caused by a virus spread from one infected person to another through air.

Signs of measles

- Fever
- Red eyes
- Sore mouth and throat
- Rash all over the body
- Dry cough
- Runny nose

Symptoms of measles

- Loss of appetite

Effects of measles

- It slows down the child's normal growth
- It causes death
- It causes blindness
- It interferes with the normal functioning of the brain.

Prevention and control of measles:

- Immunization with the measles vaccine.
- Isolation of the infected one.

Note: The measles vaccine is given at 9 months and not before. This is because the child is born with immunity against measles that lasts up to around 9 months.

TUBERCULOSIS (TB)

- Tuberculosis is abbreviated as TB
- It is caused by bacteria(myco- bacterium tuberculosis affect lungs and myco- bacterium bovis affects bones and alimentary canal



How TB spreads

- The bacterium which causes tuberculosis of the lungs spread by droplet infection through air.
- The infected person coughs and the germs are carried by air to a healthy person.
- The bacterium which causes tuberculosis of the alimentary canal and the skeleton is spread through drinking unboiled milk from tubercular cows i.e. cows infected with tuberculosis.

Signs of TB

- Persistent cough
- Loss of body weight
- Coughing and spiting mucus with blood stains

- Over sweating at night.

Symptoms of TB

- Pain in bones, joints and back

Effects of tuberculosis

- It damages lungs
- it damages bones
- it damages lymph nodes
- It can lead to death

Prevention and control of TB

- ❖ Immunization with BCG vaccine.
- ❖ Isolation of the infected ones
- ❖ Early Treatment of the infected ones in recognized hospitals
- ❖ Drink properly boiled milk

Note: BCG vaccine is given at birth because a child is born with no immunity against tuberculosis.

POLIOMYELITIS (POLIO)

- ❖ Polio is caused by a virus passed out by an infected person through faeces.
- ❖ The virus can be spread through drinking contaminated water.
- ❖ The disease affects the limbs



Effects of polio

- It weakens body muscles
- It causes lameness
- It can lead to death
- It causes paralysis

Signs of polio

- ❖ Paralysis or weakness in one or more limbs
- ❖ Fever

Prevention and control of polio

- ❖ Immunization with the polio vaccine.ie Salk polio vaccine (IPV) and Sabin polio vaccine (OPV)
- ❖ Boiling drinking water
- ❖ Proper disposal of all faeces in latrines.

TETANUS (LOCKJAW)



- ❖ It is usually caused by bacteria found in the soil called **clostridiumtetani**
- ❖ The bacteria enter the body through fresh cuts or wounds.
- ❖ In newborn babies, it can enter through the umbilical cord if it is cut with a dirty or unsterilized instrument like razorblade.

Effects of tetanus

- ❖ It damages the nervous system
- ❖ It can lead to death
- ❖ It leads to convulsions

Signs of tetanus

- Stiff muscles all over the body
- Spasms when touched
- The baby stops suckling the mother's breast.
- Fever

Prevention and control of tetanus

- ➢ Immunization with DPT vaccine.
- ➢ Use sterilized cutting tools to cut the umbilical cord of babies.
- ➢ Give T.T vaccine to pregnant women, adolescent girls, accident victims,
- ➢ Wounds and cuts should be dressed.

Note: DPT vaccine is not given at birth because the baby is born with immunity against tetanus which lasts up to 6 weeks.

Why is T.T vaccine given to pregnant women?

- ➢ To prevent tetanus infection to both the mother and the baby

WHOOPING COUGH

- ❖ Whooping cough is also called pertussis.
- ❖ It is caused by bacteria and spread through air by coughing



Signs of whooping cough

- ❖ Coughing spells which end in vomiting.
- ❖ Gasp for breath.

- ❖ Runny nose.
- ❖ Loss of weight
- ❖ Fever at the on set

Effects of whooping cough

- ❖ It damages the lungs
- ❖ It leads to death

Prevention and control of whooping cough

- ❖ Immunization with DPT vaccine.
- ❖ Isolation of the infected ones.

DIPHTHERIA

- It is caused by bacteria spread through air.



Signs of diphtheria

- Sore throat.
- Swollen neck.
- Difficulty in breathing
- Very bad breath
- fever

Effects of diphtheria

- It leads to death
- It damages blood vessels in the throat.

How to prevent and control diphtheria

- Through immunization with DPT vaccine
- Isolate the infected children

HEPATITIS B

- It's caused by **Hepatitis B virus.**
- It affects the **liver**.
- It is spread by contact with blood of an infected person.
- It is a water borne disease.

Symptoms of hepatitis

- ❖ Body weakness
- ❖ Stomach upset

Signs of hepatitis

- Very dark urine
- Eyes turn yellow
- Tiredness
- Vomiting
- Loss of appetite
- Very pale stool

How to prevent and control hepatitis B

- Immunize with Hepatitis B (Hepatitis B serum) HIB vaccine

HAEMOPHILUS INFLUENZA TYPE B

- It is caused by a bacteria spread through air.

Signs and symptoms of haemophilus influenza B

- Body weakness
- Stiffness of the neck
- Vomiting
- Fever

How to prevent and control haemophilus influenza B

- By immunizing with haemophilus influenza B vaccine

OTHER IMMUNISABLE DISEASES

Cholera

- Cholera is an acute infectious disease caused by bacteria called **vibrio cholerae.**
- The incubation period of the disease is 3-6 days after infection and cholera kills with in 12 to 48 hours after the first sign if it is not treated very quickly.

How is cholera spread

- Cholera spreads through drinking water contaminated with cholera germs.
- Cholera spreads through eating food contaminated with cholera germs.
- Cholera can also spread when a health person touches a sick person.

Signs and symptoms of cholera

- Serious watery diarrhoea
- Severe vomiting.
- Cramps, shock and dehydration
- Weakness collapse and death
- Abdominal pain
- The body becomes copld
- Severe dehydration
- Death due to dehydration

Prevention and control of cholera

- Through immunization.
- Boiling drinking water.
- Cover all food to avoid houseflies.
- Take the infected patients to the hospital as soon as possible.
- Putting all faeces in a latrine.
- Wash hands before eating food and after using the latrine.
- Reheat left food.
- Isolate the infected people to avoid spreading the disease to others.
- People who die of cholera should be buried immediately.

Effects of cholera

- It damages the intestines
- Causes dehydration

- It affects blood circulation
- The patient loses appetite
- It may easily lead to death

Note:

Give a lot of oral rehydration solution to prevent dehydration

Meningitis

- It is caused by bacteria.
- The bacteria attacks the membrane which covers the brain called **meninges.**
- The bacteria is spread through air.
- It can lead to **blindness** and **deafness**

Signs and symptoms of meningitis

- Stiff neck
- Severe vomiting
- Convulsions or fits
- The child lies with the head and neck bent backward
- Upward bulging of the fontanelle
- Severe headache
- Fever

How to prevent and control meningitis

- Through immunization with a meningococcus vaccine
- Living in well ventilated houses
- Any sign of meningitis should be reported to the hospital

Yellow fever

- Yellow fever is caused by a virus.
- It is spread by the aedes or tiger mosquito.

Signs and symptoms of yellow fever

- Yellowing of the eyes, palm and soles of our feet.
- Dark urine
- Fever
- Headache
- Loss of appetite
- Nausea
- Stiffness of joints

Effects of yellow fever

- It damages the liver and the kidney

How to prevent and control yellow fever

- Immunization against yellow fever through injection on the left upper arm
- Spraying insecticides to kill mosquitoes.

Small pox:

- It is caused by a virus called **variola virus.**
- It is transmitted through saliva
- It is spread through air
- This disease has been eradicated from the world through constant immunization.

Typhoid

- It is caused by bacteria called Salmonella typhi.
- Spread through:
    - Drinking contaminated water.
    - Eating contaminated food
    - By houseflies and cockroaches.

Influenza

- It is caused by a virus.
- It spreads through air.
- It affects the respiratory system

Rubella (German measles)

- It is caused by virus
- It is a highly infectious disease which causes a rash and fever.
- It usually affects older children and adolescents.

Typhus

- It is caused by bacteria.
- It spreads when lice bite an infected person and then it bites a healthy person.

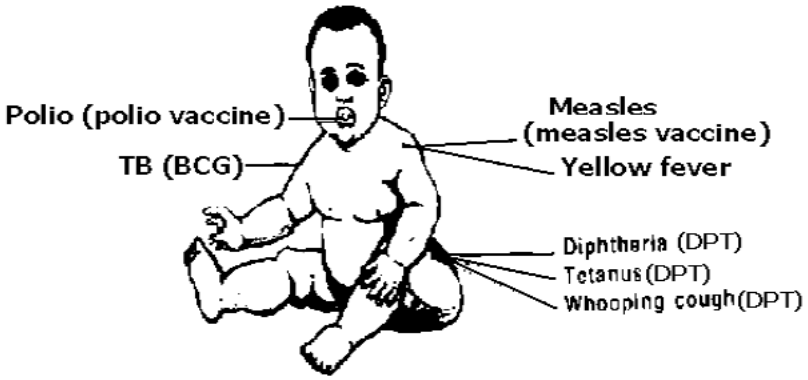
Plague

- It is caused by bacteria.
- It is spread by rat fleas.
- One should be immunized every after 6 months against it.

Rabies

- It is serious disease caused by a virus.
- It affects the nervous system
- The disease is spread by the bite of an infected dog or fox and cats

IMMUNISATION SITES



IMMUNISATION SITES AND SCHEDULE

AGE	VACCINE	DISEASE (S)	MODE OF ADMNISTRATION	SITE
At birth	a. BCG b. Polio O	a. Tuberculosis b. Polio	Injection Drops.	a. Right upper arm b. Mouth
6 weeks	Polio	Polio	Drops.	a. Mouth.
	DPT I	a. Diphtheria b. Whooping cough c. Tetanus	Injection.	Left upper thigh.
	Heb 1	Hepatitis B	Injection.	Left upper thigh.
	Hib 1	Haemophilius Influenza Type B	Injection.	Left upper thigh
10 weeks	Polio II	Polio	Drops.	Mouth.
	DPT II	a. Diphtheria b. Whooping cough c. Tetanus	Injection.	Left upper thigh.
	Heb 2	Hepatitis B	Injection.	Left upper thigh
	Hib 2	Haemophilius Influenza Type B	Injection.	Left Upper thigh
14 weeks	Polio vaccine	Polio	Drops.	Mouth.
	DPT III	a. Diphtheria b. Whooping cough c. Tetanus	Injection.	Left upper thigh.
	Heb 3	Hepatitis B	Injection	Left upper thigh.
	Hib 3	Haemophilius Influenza Type B	Injection	Left upper thigh.
At 9 months	a. Measles vaccine b. Vitamin A	a. Measles b. Blindness	a. Injection. b. Drops.	a. Left upper arm b. Mouth.
Girls and Women between 15-49 years	Tetanus Toxoid Vaccine (TT vaccine)	Tetanus	Injection	Left upper arm
Pregnant women	Tetanus Toxoid Vaccine (TT vaccine)	Tetanus	Injection	Left upper arm

IMMUNIZATION CARD (C H C) CHILD HEALTH CARD

- This is a card given by health workers at a health centre to every child (baby) who receives immunization.
- It is a written record that monitors the child's health.

A child health card shows the following information about a baby

1. Date of birth (D.O.B)
2. Date of next visit for immunization
3. Vaccine received and date
4. Birth weight of the child
5. Child's name
6. Parent's name,
7. Place of residence,
8. Parent's occupation.
9. Birth order
10. Doctor's advice to health growth and nutrition of the child.

Importance of a child health card

To the parents

- It helps the parents to know when the next dose will be given.
- It helps the parents to monitor the growth of their child

To the health workers

- It provides information on the child's name, sex, date of birth, birth order, mother's name, mother's occupation, father's name, father's occupation and where the family lives.
- Helps them to know the next vaccine to be given
- To monitor the child's growth
- To know the health history of the child
- To identify the given vitamin supplementation

To the school health committee

- To determine the child's age
- To identify the vaccines that were given to the baby
- To identify whether the child was fully immunized.

ROLES OF INDIVIDUAL ,FAMLIES AND COMMUNITIES IN IMMUNIZATION

a) Individuals

- Helps to inform other family members and neighbors on immunization dates and venue.
- Help to accept and convince other people to accept immunization as an important programme
- Encourage others to take their children for immunization.
- Assisting health workers in arranging the places selected for immunization
- Mobilize people in the area for immunisation

b) Family

- ❖ Share all information that they know about immunization.
- ❖ Parents should make sure that all children and pregnant women are immunized.
- ❖ To take children for immunization

c) Community

- Organize seminars, workshops, plays and concerts to educate others about immunization
- Build immunization centers.
- Encourage members to take their children for immunization.
- Sensitizes community members about the importance of immunization.
- Schools should perform plays and concerts about immunization on open days and speech days.

NOTE: The common immunization centers in our communities include; **hospital, clinics, dispensaries, health centers etc.**

Common abbreviation used in immunization

2. **UNEPI:** Uganda National Expanded Programon Immunization.
3. **NID:** National Immunization Days.
4. **WHO** World Health Organization

Roles of UNEPI

- To organize immunization days.
- Provides vaccines
- Sensitizes communities

Note NIDS These are days on which country wide immunization is carried out.

DIGESTIVE SYSTEMOF MAN

- A digestive system is a group of body organ that helps in the digestion and absorption of food
- It is made up of an alimentary canal with other associated organs like the liver and the pancreas

What is Digestion?

- Digestion is the process by which food is broken down into simpler substances that can be absorbed in the blood stream
- Digestion begins from the mouth and ends in the ileum

What is an alimentary canal?

- It is a muscular tube running from the mouth to the anus.
- It is about 10m long.

Types of digestion

a) Mechanical digestion
b) Chemical digestion

Mechanical digestion

- This is where food is broken down into small particles by the help of teeth and muscles.

Chemical digestion.

- This is where food is broken down by chemical substances called enzymes.
- Chemical digestion starts in the mouth and ends in the ileum

Enzymes.

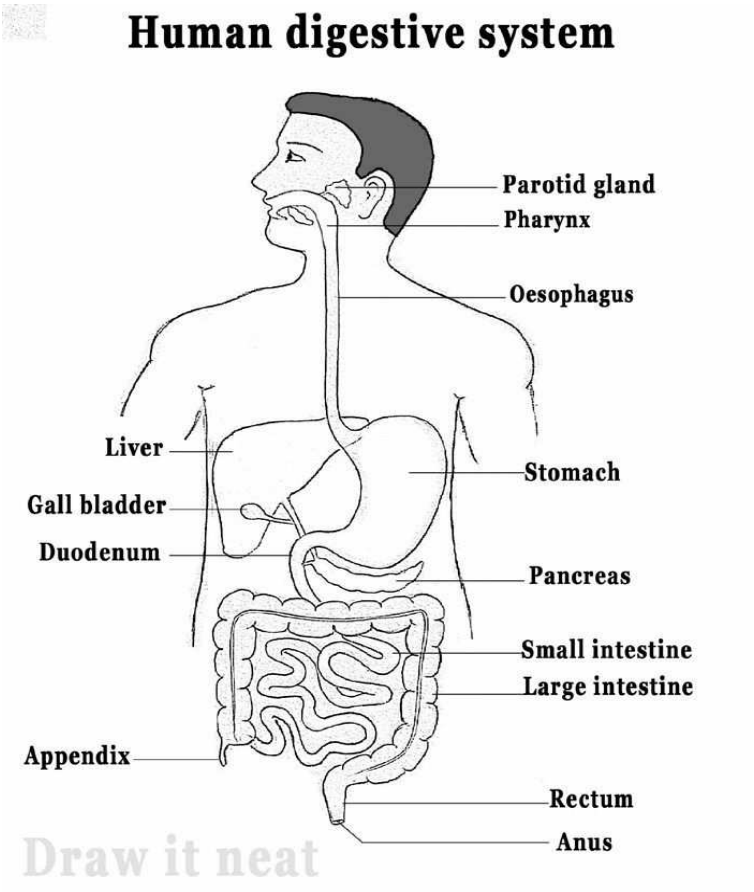
- Enzymes are chemical substances that speed up the rate of digestion.

Characteristics of enzymes.

- They are destroyed by too much heat
- They are protein in nature.
- A particular group of enzymes always forms the same end product.
- They are specific i.e. each enzyme acts upon particular class of food.
- They work best under a certain PH conditions i.e. some prefer acidic, others alkaline
- They best under optimum temperature.

Examples of enzymes

- Salivary amylase
- Rennin
- Pepsin
- Maltase
- Erepsin
- Lipase
- Lactase
- Trypsin
- Sucrase



Digestion of food in the mouth.

- Digestion of food starts fromthe **mouth**
- The mouth contains: **teeth**, **salivary glands** and **the tongue.**
- In the mouth, food is chewed and mixed with saliva.

The teeth:

- They help to chew, tear ,crush or grind food into smaller particles
- They protect the tongue.

Importance of chewing food

- Makes food soft for easy swallowing
- Increases surface area for the action of enzymes

The salivary glands:

- ❖ They are located under the tongue
- ❖ They Produce saliva.

Factors that stimulate the production of saliva.

- Smell of the food.
- Sight of food.
- Taste of food.

Roles of saliva in digestion

- ❖ It softens and moistens food for easy swallowing
- ❖ Saliva lubricates the mouth
- ❖ It cools down food in case it is hot

- ❖ It provides an alkaline condition for the action of an enzyme called ptyalin or salivary amylase
- ❖ Digestion of cooked starch (carbohydrates) in the mouth forms maltose
- ❖ It contains an enzyme called salivary amylase.

Role of the tongue in digestion.

- It tastes food.
- It rolls the food into a bolus.
- It pushes food to the gullet for swallowing to take place.
- It mixes food with saliva
- It turns food during chewing

Roles of the epiglottis in digestion

- ➢ The epiglottis closes over the opening of the trachea to prevent food particles fromentering into it.

Roles of the gullet in digestion

- It is the passage of food to the stomach.
- Actions of salivary amylase continues in the gullet.
- Food in the gullet moves by **peristalsis**

What is peristalsis?

- ➢ It is a wave like contraction of the walls of the alimentary canal that pushes food through it

Digestion of food in the stomach:

- The movement of muscles of the stomach churn the food into a semi-liquid substance called **chyme.**
- The stomach walls also secretes (produce) a juice called **gastric juice** and **hydrochloric acid.**

Gastric juice contains two enzymes namely;

- Pepsin enzyme
- Rennin enzyme

Pepsin breaks down proteins to **peptides.**
Rennin clots milk proteins, it is common in babies.

Functions of hydrochloric acid.

- Stops the action of the salivary amylase.
- Activates pepsin and rennin
- Provides suitable acidic conditions in which pepsin works best.
- Kills germs which escapes with food to the stomach

Importance of the stomach

- Temporary store for food.
- Produces gastric juice.
- Produces hydrochloric acid.
- Absorbs alcohol, medicine and simple sugars.
- Churns food into chyme.
- It is where digestion of proteins starts.

Note:

- ➢ When digestion in the stomach is complete, the pyloric sphincter relaxes at intervals to let chyme into the first part of the small intestine called **duodenum**

Digestion of food in the duodenum

- The duodenum is the first part of the **small intestines**
- It receives digestive juice from two parts namely: liver and the pancreas
- The first food to be digested in the duodenum is **fats.**

Importance of the liver in digestion

- It produces bile juice.
  - Bile is stored in the gall bladder
  - The duodenum receives bile juice through the bile duct
  - Bile does not contain any enzyme but contains bile salts

Importance of bile

- To break down fats
- Bile neutralizes hydrochloric acid in chyme and makes it alkaline
- It emulsifies fats into tiny droplets to form an emulsion. That process is called **emulsification.**
  - **Emulsification is the breakdown of fats into tiny droplets.**

Other uses of the liver

- Stores food like vitamins
- Helps to detoxify harmful substances
- Regulates sugar level
- Produces heat

Importance of the pancreas:

- Produces pancreatic juice.
  - The duodenum receives pancreatic juice through the pancreatic duct

The Pancreatic juice contains three enzymes;

- **Trypsin**: which breaks down proteins to peptides and peptides to amino acids.
- **Pancreatic amylase**: breaks down carbohydrates to maltose to glucose.
- **Lipase:** which breaks down fats to fatty acids and glycerol.
- Pancreatic juice also contains sodium hydrogen carbonate salts that neutralizes hydrochloric acid.

Digestion of food in the ileum

- It is the second part of the small intestines.
- Digestion of food is completed and ends in the ileum

The ileum secretes an intestinal juice called succus enteric us which contains enzymes like;

- **Peptidase:** breaks down peptides to amino acids.
- **Lipase**: breaks down fats to fatty acids and glycerol.
- **Maltase:** breaks down maltose to glucose.
- **Sucrase**: breaks down sucrose to glucose.
- **Lactase**: breaks down lactose to glucose.
  - The ileum also produces **mucus**, which lubricates the food passage and prevents enzymes from digesting the walls of the ileum
  - The hepatic portal vein takes blood rich in digested food from the ileum to the liver.

Importance of the ileumin food digestion

- Produces intestinal juice.
- Final digestion of food takes place here.
- Absorption of digested food takes

What is food absorption?

➢ It is the process by which digested food is taken into the bloodstream

Absorption in the ileum

- Absorption of digested food takes place in the ileum

This takes place with the help of the finger-like structures called villi.

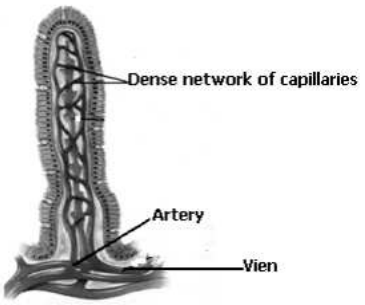
An illustration of an ileum



Adaptation of the ileumto absorption of digested food.

- The ileumis fairly long to increase surface area for absorption.
- It has villi, which also help to increase the rate of food absorption of digested food.
- It has thin walls to allow easy diffusion of food.
- It has a dense network of capillaries that carry away absorbed food.
- It has secretory glands which secretes enzymes to complete food digestion.

An illustration of a villus.



Importance of the colon

- Absorbs water fromthe undigested food.

Rectum

- Temporary store for undigested food.

Anus:

- Passes out the undigested food as faeces.

Diseases of the digestive system

- Stomach Ulcers
- Appendicitis
- Cholera

- Dysentery
- Diarrhoea
- Typhoid.
- Pancreatitis
- Gall stone

1. **Appendicitis**

- It is caused by bacteria that enters the appendix
- It leads to swelling of the appendix
- It causes too much pain in the lower right side of the abdomen.
- It can be treated by cutting it off.

2. **cholera**

- cholera is used by bacteria
- it is spread by houseflies, cockroaches.
- It is also spread by drinking contaminated water, eating contaminated food.

Symptoms of cholera

- Pain around the abdomen
- Severe diarrhoea
- Severe vomiting.

Control of cholera

- Boil water before drinking it.
- Kill houseflies by spraying
- Wash hands before eating, serving or handling food.
- Wash hands after visiting the toilet or latrine
- Cover cooked food to keep away houseflies.
- Properly dispose human faeces

3. **Typhoid**

- It is caused by bacteria
- It can be spread by house flies
- Typhoid can be spread by drinking contaminated water and eating dirty food

Signs of typhoid

- Diarrhea
- Vomiting

Symptoms of typhoid

- Headache
- Fever
- Loss of appetite
- Body weakness

Prevention of typhoid

- Boiling water for drinking
- Spraying insecticides to kill houseflies
- Washing hands before eating food

- Wash hands after visiting the latrine or toilet
- Properly disposing rubbish and faeces

4. Dysentery

- The frequent passing out of watery stool with blood stains.
- **Amoebic dysentery** is caused by amoeba.
- **Bacillary dysentery** is caused by a bacteria

Spread of dysentery

- Drinking contaminated water
- Eating contaminated food
- Houseflies carry germs onto the food and hands.

Control of dysentery

- Boiling water for drinking
- Washing fruits before eating them
- Spraying insecticides to kill houseflies
- Washing hands before eating, serving food
- Wash hands after visiting the toilets

Dangers of dysentery

- It leads to dehydration
- It leads to anaemia

5. Peptic ulcers (stomach ulcers)

- They are wounds formed in the stomach or small intestine
- They cause a lot of pain especially when one is hungry

Disorders of the digestive system

What are disorders?

- These conditions that may fail the digestive system to work properly.

Constipation:

- This is a condition where one passes out faeces with difficulty or fails to pass out faeces at all.

It is prevented by;

- Including roughage in the diet.
- Taking enough water after meals.
- Eating plenty of fruits and vegetables
- Doing physical exercises

Sources of roughage.

- Pineapple.
- Mangoes.
- Green vegetables.
- Cereals.

Intestinal obstruction:

- It occurs when a part of the intestines gets blocked

- Solved through surgical operation.

Vomiting:
Vomiting usually occur when there is stomach irritation.
It can also occur as a result of stomach infection (food poisoning).

Indigestion
- ➢ It is pain, a burning feeling or discomfort in the upper abdomen that occurs after eating.

Signs of indigestion
- Heart burn
- Diarrhoea
- Bloating
- Acidic taste
- Feeling uncomfortably full

Causes of indigestion.
- Over eating where the stomach is full and fails to churn the food.
- Taking big lamps of food without proper chewing.

How to maintain the efficiency of the digestive system
- ❖ Proper chewing of food
- ❖ Eating at right intervals.
- ❖ Reheating left over food before eating it.
- ❖ Wash hands after visiting latrines.
- ❖ Eat well looked food
- ❖ Having enough rest after eating
- ❖ Brushing the teeth after eating food
- ❖ Avoid eating very hot or cold food
- ❖ Wash hands before eating
- ❖ Having regular physical exercise
- ❖ Drinking enough boiled water
- ❖ Avoid smoking or drinking alcohol
- ❖ Do not take un prescribed drugs

P.5 SCIENCE REVISION TOPICAL QUESTIONS
POULTRY KEEPING AND MANAGEMENT

Name: _____Stream: _____

1. What is poultry?

   _____

2. In which way is a lamp useful in a brooder?

   _____

3. Mention the part of the digestive system of a domestic fowl where food is softened and stored.

   _____

4. Name the poultry feeds prepared specifically for broilers.

   _____

5. What is a capon in poultry keeping?

   _____

6. Name the type of poultry record that shows the number of eggs collected daily.

   _____

7. What is the function of chalaza?

_____

8. Identify the poultry system that allows birds to roam about and look for their own food.

_____

9. Name the poultry disease that attacks the lining of the small intestine.

_____

10. How is fowl pox transmitted from one bird to another?.

_____

11. State the poultry vice where birds kill and eat fellow birds.

_____

12. What name is given to the mouthpart of a bird?

_____

13. In which way is an incubator useful in poultry farming?

_____

14. Which system in poultry keeping and management makes it hard for farmers to keep production records? _____

15. In which way are the grits useful to a bird?

_____

16. How long is the incubation period of a hen?

_____

17. Why is an eggshell porous?

_____

18. What name is given to the container in which poultry feeds are put?

_____

19. Why do farmers cross breed their local birds?

_____

20. Name the type of mash given to chicks from one day old to about 8 weeks.

_____

21. What are dual-purpose breeds of birds?

_____

22. How can internal parasites be controlled in poultry?

_____

23. Why is free-range system the most common poultry system carried out in rural areas?

_____

24. Which part of an egg provides an embryo with proteins and fats?

25. State the name given to small stones found in the gizzard of fowls?

26. State the name given to the machine used to hatch eggs.

27. What name is given to an immature female domestic fowl?

28. On which part of a bird do we find the quill feathers?

29. Identify one sign of cannibalismin poultry.

30. Why do some layers lay eggs with soft eggshell?

P.5 SCIENCE REVISION TOPICAL QUESTIONS

BEE KEEPING

Name: _____ Stream: _____

1. Why are bees referred to as social insects?

2. Apart from bees, give any other example of social insects.

3.

4. Give an example of solitary insect.

5. Mention the types of bees found in a hive.

6. What is the main function of a queen bee?

7. What special food is fed to a queen bee?

8. Why would it be difficult to find a drone bee in a hive?

9. Name the sterile female bee in a hive.

10. What type of bees is usually seen on flowers?

11. Which type of bees feed the larvae?

_____

12. How many pairs of legs has a bee?

_____

13. What name is given to a group of bees?

_____

14. What is the best time to harvest honey?

_____

15. Give a reason why bees swarm

_____

16. What is an apiary?

_____

17. Why do bees visit flowers?

_____

18. What do bees use to protect themselves?

_____

19. What type of bees collects propolis?

_____

20. State one use of propolis in a hive.

_____

21. What name is given to the larva stage of a bee?

_____

P.5 SCIENCE REVISION TOPICAL QUESTIONS

IMMUNITY AND IMMUNISATION

Name: _____Stream: _____

1. What is immunity?

_____

2. Define the term immunisation.

_____

3. Mention one type of immunity.

_____

4. State one way of acquiring the type of immunity you have mentioned above.

_____

5. What is a vector?

_____

6. Point out one method of administering vaccines.

_____

7. Name the vaccine given through the mouth.

_____

8. Give a reason why it is important to immunise children.

_____

9. Why is it necessary to store vaccines in cold chain boxes?

_____

10. What is another name for whooping cough?

_____

11. **Fill in the blank spaces in the table below**.

Disease	Cause	Vaccine	Age
Tuberculosis			At birth
	Virus		9 months
Pertusis		DPT	

12. Why must babies be immunized at birth against tuberculosis?

_____

13. Identify the immunisable disease that has these signs and symptoms: high fever, red eyes and rash. _____

14. Name the childhood immunisable disease that cause spasmin the body and the muscles become stiff. _____

15. Apart fromthe childhood killer disease. Name any other disease a person can be immunised against. _____

16. State the importance of a child health card to:

a) the parent. _____

b) The health worker.

_____

17. Write the following abbreviation in full.

a) UNEPI. _____

b) NID. _____

P.5 SCIENCE REVISION TOPICAL QUESTIONS

DIGESTIVE SYSTEM

Name: _____Stream: _____

1. What is meant by the termdigestion?

   _____

2. Where in man does digestion begin?

   _____

3. In which part of digestive systemdoes digestion end?

   _____

4. Give one type of digestion?

   _____

5. What type of digestion takes place in the mouth?

   _____

6. Give one importance of chewing food.

   _____

7. Give any one factor that stimulates the production of saliva.

   _____

8. What is the importance of saliva in the mouth?

_____

9. Of what use is the pyloric sphincter in the digestive system?

_____

10. Bile contains bile salts. How are the bile salts important during the process of digestion?

_____

11. Under what condition does salivary amylase work best?

_____

12. What digestive juice is produced by the stomach walls?

_____

13. Give one use of hydrochloric acid in the stomach.

_____

14. Give one cause of indigestion

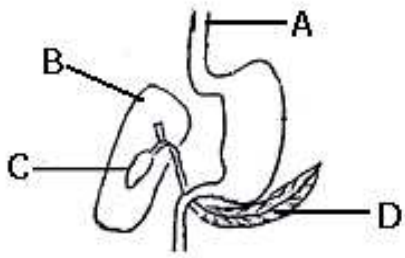
_____.

15. Mention one way the ileum is adapted to absorption of digested food.

_____

SECTION B

16. ***Study the diagram below and answer the question about it.***



a) Name the parts marked A and C:

i) A _____

ii) C _____

b) Give the function of the part marked B.

_____

c) Nar part marked D.

_____

17a) What is an enzyme?

_____

b) Give one example of an enzyme.

_____

c) Mention two characteristics of enzymes.

_____

18 Name any two diseases of the digestive system

_____

b). State two ways of preventing the diseases you have mentioned above.

_____

19. **Complete the table below.**

Food class	End product
	Glucose
Fats	
	Amino acids

b) How are amino acids important to the body?

_____

18. Write down the function of each part of the digestive system of man listed below:

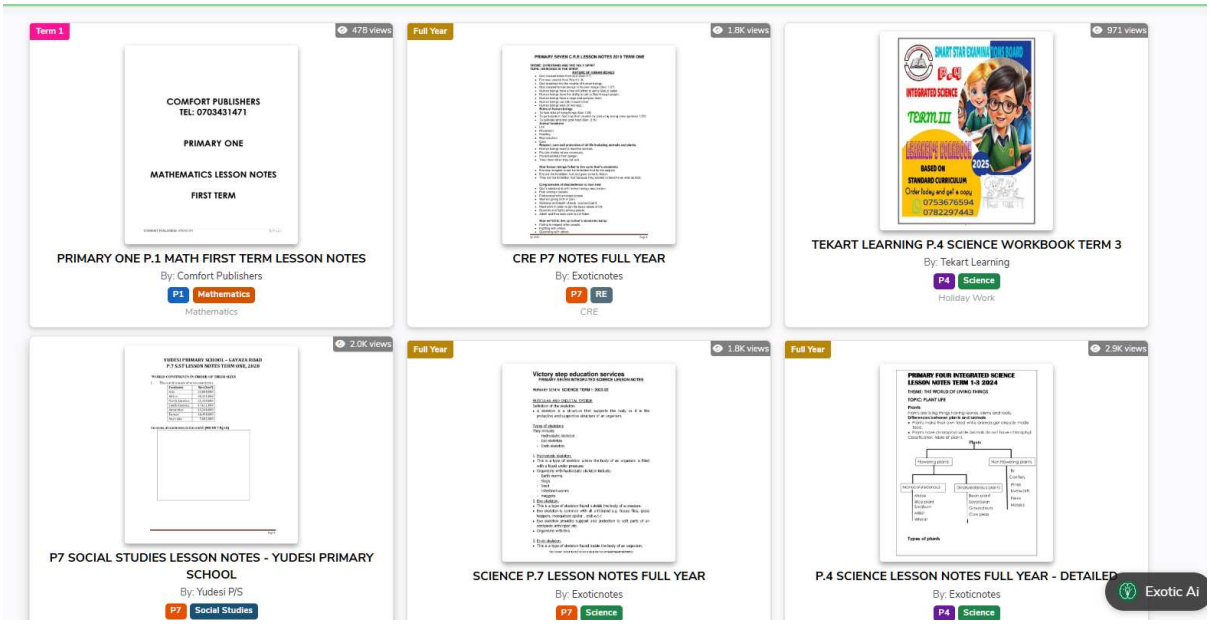
a) the teeth. _____

b) the colon. _____

c) the rectum_____

d) the stomach._____

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