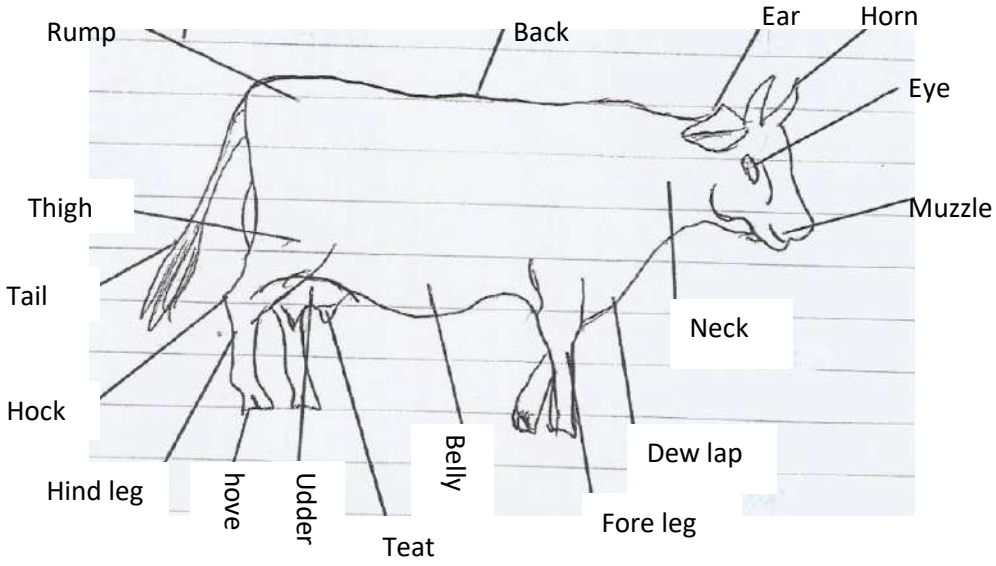


P.6 SCIENCE LESSON NOTES
TERM II and III

CATTLE KEEPING

Cattle - These are cows, bulls, heifers, bullocks, calves and oxen.
Cattle keeping – This is the keeping or rearing of cows, bullocks, bulls, calves and oxen.
Bulls - These are male mature cattle.
Cows – These are female mature cattle.
Oxen - These are castrated bulls reared for doing work like ploughing and transport.
Steers - These are castrated bulls reared for meat production.
Heifer – This is a young female.
Bullocks - This is a young male castrated cattle.

THE EXTERNAL FEATURES OF A COW



A tail is used by the cattle to chase away flies on it's body by swinging it.

REASONS WHY PEOPLE KEEP CATTLE

- For meat production
- For milk production
- For provision of labour like transportation and ox-ploughing by oxen.
- For cultural purposes like paying dowry
- For income generation after sale.
- For production of skins which are used in the making of shoes, bags, belts, etc.
- For prestige
- To utilize the unproductive land (infertile land as for cattle grazing).
- To get manure from their wastes.

BREEDS OF CATTLE

A breed of cattle is a family of cattle having similar characteristic like colour, shape , size and milk yield.

There are three types of cattle breeds.

- Local breeds (indigenous breeds)
- Exotic breeds (foreign breeds)
- Cows breeds
- Cross breed

LOCAL BREEDS

These are breeds of cattle which have been kept in a country for a long period of time.

Examples of local breeds of cattle

- Boran cattle
- Ankole cattle
- The zebu cattle

Characteristics of local breeds of cattle

- They have big humps.
- They have big dewlaps
- They have different colours.
- They mature slowly.
- They have low milk production.
- They are resistant to most cattle diseases.
- They can survive on poor pasture and little water.
- They are small in size.
- They produce hard meat.
- They are easy to keep and care for.
- They are resistant to harsh weather conditions.

Identify advantages of keeping local breeds of cattle.

- They are resistant to diseases.
- They can withstand harsh weather conditions.
- They are cheaper in terms of management.
- They produce high quality meat and milk.
- They can survive on poor pasture and little water.

Disadvantages of local breeds

- They have low growth rate.
- They have low milk yield capacity.
- They produce little meat.
- Their meat is very hard.

EXOTIC BREEDS

These are breeds which where imported into the country from outside countries because of their good qualities.

Examples of exotic breeds

- Friesians - The short horn cattle
- Ayrshire - The galloway
- Guernsey - American braham
- Jersey
- Hereford
- Charolais
- Aberdeen angus

Characteristics of exotic breeds

- They have specific colours
- They mature faster.
- They have high meat and milk yield.
- They have very short or no horns.
- They have very small or no humps.
- They are not resistant to harsh weather.
- They can't survive on poor pasture and little water.
- They produce soft meat.

Advantages of exotic breeds

- They mature faster
- They have high meat and milk yield
- They produce soft meat
- They grow faster.

Disadvantages of exotic breeds

- They are not resistant to harsh weather/ conditions
- They need a lot of care and management.
- Their meat is very soft and not tasty.
- They are not resistant to cattle diseases.

CROSS BREEDS

These are breeds of cattle got after mating of un related breeds in local breeds with exotic breed.

Qn: What is cross breeding?

This is the mating of animals of different types of breeds, i.e local breeds with exotic breeds.

Characteristics /qualities of cross breeds.

- They have higher milk production than local breeds.
- They produce higher meat yield than local ones.
- They mature faster than local breeds.
- They are more resistant to diseases than exotic breeds.
- They have bigger body size than local breeds.

BREEDING IN CATTLE

Breeding is the maintaining of inherited characteristics in cattle.

OR

Breeding is the mating of selected animals in a planned manner.

Examples of characteristics inherited in cattle.

- Colour
- Type
- Growth
- Milk ability
- Resistance to diseases
- Ability to live longer.

Types of breeding

- In breeding
- Upgrading
- Out breeding
- Cross breeding
- Line breeding.

IN BREEDING

This is the continuous mating of very closely related animals like brothers and sisters. Farmers are not advised to use this method because it may lead to production of poor quality animals, e.g, small and weak, animals of low milk production and may not be resistant to diseases.

LINE BREEDING

This is the mating of animals that are closely related such as cousins. This may also lead to poor production in animals.

OUT BREEDING

This is the mating of distantly related animals.
This type of breeding helps to restore good qualities that may be disappearing from the flock.

CROSS BREEDING

- This is the mating of unrelated animals of different breeds. This may involve mating of exotic breeds with local ones.
- Cross breeding results into production of better off springs with some good qualities.
- The result of cross breeding is a hybrid/cross breed.

UPGRADING

This means improving the quality of one breed by using a breed of superior qualities several times.

TYPES OF CATTLE

A type of cattle is the cattle kept for specific purpose.

There are four types of cattle

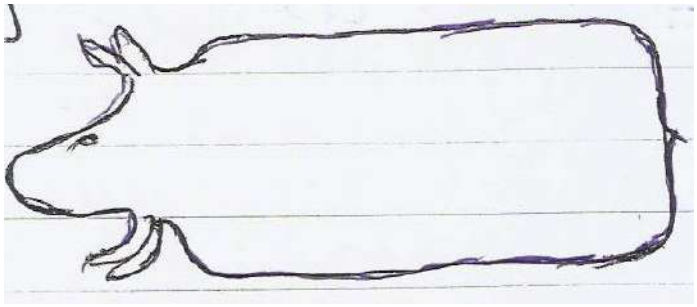
- Beef cattle
- Dairy cattle
- Dual purpose cattle
- Drought cattle.

BEEF CATTLE

This is the type of cattle mainly kept for meat production.

Characteristics of beef cattle

- They have rectangular or block body shapes.
- They mature faster.
- They have short legs.
- They have small heads.
- They have the ability to survive drought without losing weight.



Beef cattle body conformation

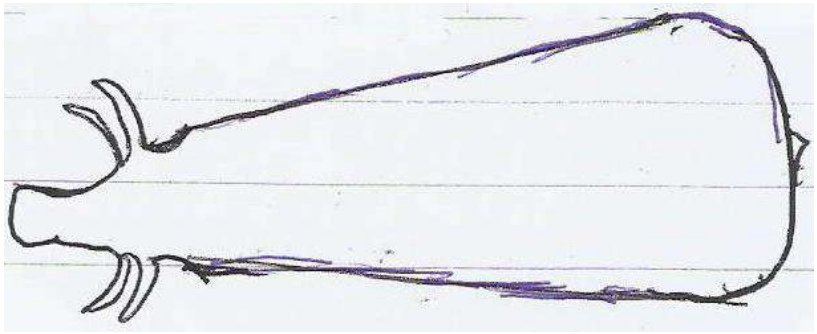
Examples of beef cattle

- Hereford
- Charolais

- Aberdeen Angus
- Galloway
- Boran

DAIRY BREEDS
These are cattle breeds kept mainly for milk production.

Characteristics of diary cattle
- They have higher milk production
- They have a triangle body shape
- They have small necks
- Their hind quarters are wider.
- They have big udders
- They have four medium teats.



A dairy cow body shape.

Examples of dairy cattle breeds are:
- Friesian (known for high quantity milk production)
- Jersey
- Sahiwal
- Ayrshire
- Guernsey

DUAL PURPOSE CATTLE BREEDS
Dual purpose cattle is the type of milk cattle kept for both meat and milk production.

Examples of dual purpose breeds are:
- Red poll cattle
- Short horn cattle
- Ankole cattle

- zebu cattle

RE-PRODUCTION IN CATTLE

- Reproduction is the process by which living organisms produce new members similar to their young ones.
- Reproduction enables animals increase in number.

HEAT PERIOD (OESTRUS)

This is the period when the animal is READY FOR MATING.

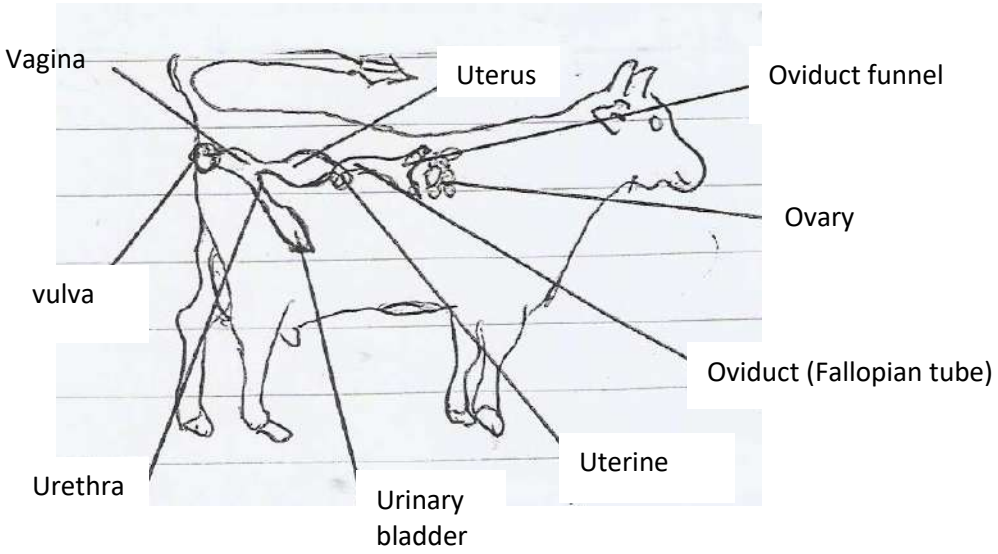
MATING

Mating is the sexual union of the male and female partners.

Signs of heat period in cattle

- A cow becomes restless.
- A cow mounts others cows.
- A cow urinates frequently.
- A cow putts its tail up to expose its vulva.
- There will be drop in milk production in lactating cows.
- The vulva swells and turns pinkish.
- A cow makes a lot of noise (frequent bellowing)
- Loss of appetite to graze.
- A cow stands stiff when it is mounted by a bull.
- There will be mucus discharge from the vulva.

THE REPRODUCTIVE SYSTEM OF A COW



Functions of each labeled parts.

Vulva - It receives and guides the penis inside during mating.

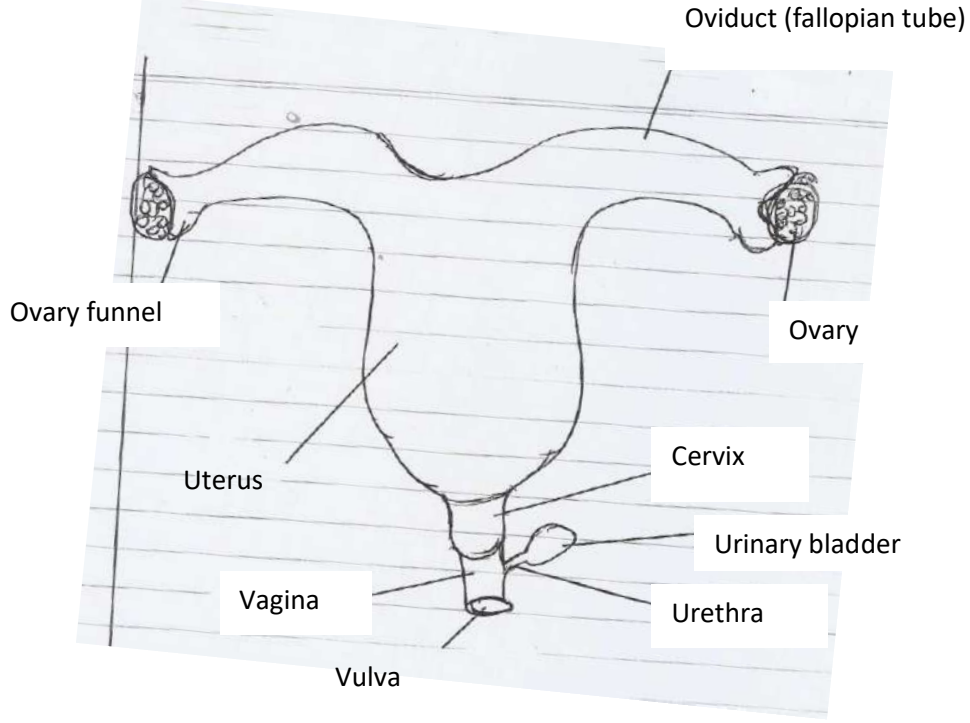
Vagina – It is where sperms and semen are deposited on their way to the uterus.

Cervix – It closes the lower part of the uterus to protect the foetus during pregnancy.
Ovary - It stores and produces the ova.
- It produces the hormone called oestrogen which controls the sexual cycle during pregnancy.

Ova – These are the female reproductive cells (gametes)
Oviduct funnel - It directs the ovum to the oviduct.
Oviduct - It is where fertilization takes place.
Uterus - It is where the foetus develops from.

What is implantation?
This is the attachment of the foetus on the uterus walls.

THE REPRODUCTIVE SYSTEM OF A BULL



<u>Functions of different parts of a reproductive system of a bull</u>
Testis
- They reproduce the sperms.
- They also produce hormones called testosterone.

NOTE: Testosterone increases the sexual desire of a bull.
Sperm duct – It carries sperms and semen to the urethra.
Urethra - It passes out sperms and urine.
Penis - It deposits semen and sperms into the vagina of a cow.

Prostate and seminal vesicle - They produce semen which allows free movement of sperms.
Epididymis - They store sperms.
Scrotum - They cover the testicles hence protecting them against harm.
They also regulate the temperature within the testicles.

FERTILIZATION IN ANIMALS
Fertilization is the union of male and female gametes to form a zygote.
Gametes - These are reproductive cells in animals and plants.

Types of animal reproductive cells
- Male reproductive cell called sperms
- Female reproductive cell called ovum

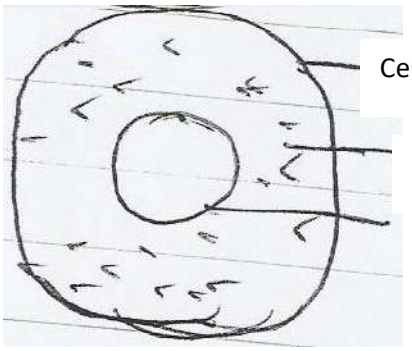
Types of fertilization
- Internal fertilization
- External fertilization

Internal fertilization
This is the type of fertilization which takes place inside the body of a female organism.

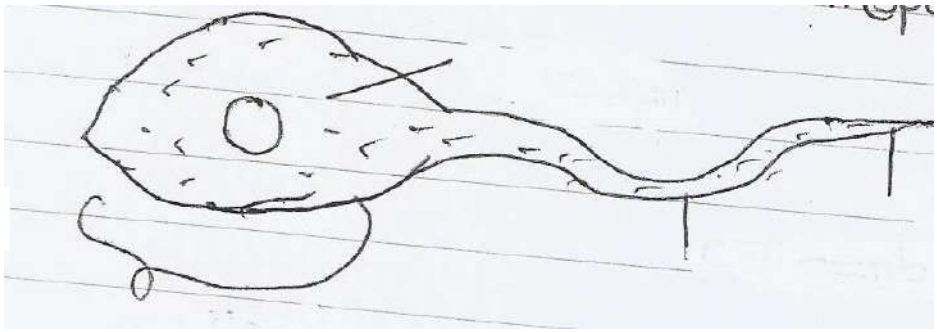
Examples of animals which undergo internal fertilization
- Pigs
- Man
- Cows
- Goats

External fertilization
This is the type of fertilization which takes place outside the body of an organism.
Examples of organisms which undergo external fertilization
- Fish
- Newts
- Frogs
- toad

The structure of s a female reproductive cell (ovum)



The structure of a male reproductive cell (sperm)



Conception

This is the repeated division of an ovum to form an embryo after fertilization.

NOTE: After fertilization, implantation takes place.

Implantation

This is the process by which the fertilized ovum attaches itself on the uterus walls.

NOTE: Implantation takes place in the uterus.

GESTATION PERIOD PREGNANCY

This is he time taken by a calf to develop in the cows womb.

This is the period between fertilization and calving\birth.

THE TABLE SHOWING GESTATION PERIOD OF ANIMALS

An animal	Gestation period in months	Gestation period in days
Cow	9 months	270 days
Goat (nanny)	5 months	150 days
Sheep (Ewe)	5 months	150 days
Rabbit (Doe)	1 month	30 days
Pig (sow)	3 months, 3 weeks, 3 days	112 – 115 days
Dog (bitch)	2 months and 3 days	63 days
Man	9 months	270 days
Elephant	22 months	660 days
Gorilla	8 months , 2 weeks (15 days)	240 days
Lion	3 months 15 days	90 -105 days
Monkey	7 – 8 months 5-6 days	150 – 180 days
Chimpanzee	3 months 5 days 7 -8 months	210 – 240 days
Cheetah	3 months 5 days	90 – 95 days
Leopard	3 months 15 days	90 – 105 days
Baboon	6 months	180 days

Signs of a pregnant cow

- a cow does not go heat period after 21 days form the time of insemination.
- The uterus enlarges between the 2nd and 3rd months.
- There is mucus around the cervix.
- The udder increases in size
- The cervix closes up during pregnancy.
- Foetus movement is observed.

Lactating cow - This is a cow which is breast feeding.

Dry up period - this is the period when no more milking is done.

Steaming up - this is the act of feeding a cow on food rich in proteins.

Advantages of steaming up.

- They prepare the cow's body for calving.
- It encourages the foetus to grow healthy.
- It increases on milk production in a lactating cow.
- It strengthens the lactation period of a cow.
- It prevents low birth weight.

THE DIAGRAM SHOWING A DEVELOPING FOETUS.

Calving (parturition)
This is the act of giving birth to a calf by a cow.
Note:
- Furrowing is the act of giving birth to piglet by a sow
- Kindling is the act of giving birth to a burmy by a doe.
- Kidding is the act of giving birth to a kid by a nanny.
- Lambing is the act of giving birth to a lamb by an Ewe.

Signs of calving
- The vulva enlarges and turns pinkish.
- The udder increases in size.
- The cow isolates itself.
- The cow stops grazing.
- The teats open.
- The cow becomes restless.

Colostrums
This is the first thick yellow milk produced by the cow after calving (parturition).
Importance of colostrum
- It opens up the digestive system of a calf.
- It contains anti bodies which enables the calf to resist against disease causing germs.
- It provides the calf with vitamins, fats and proteins for proper growth if the calf.

Milking
This is the method of obtaining milk from the udder of the cow.
The flow of milk down the udder through the teats is called milk let down.
Methods of milking
- Hand milking
- Machine milking

Hand milking - This is the method of squeezing the teats of the cow in order to produce milk using hands.
Note: Hand milking is sometimes called full-hand milking.
Machine milking – This is a method of milking using machine.

What should be done before milking?
- Wash the udder and teats with clean water.
- Wash the hands with clean water and soap.
- Clean (wash) the container for putting milk.

Ways (methods)of preserving milk.

Pasteurization - This is a method of preserving by boiling it to high temperature and condensing.
Note – Pasteurization was discovered by a great scientist called Louis Pasteur
The bacteria can feed on the sugar and proteins in milk and make the milk sour.
Refrigeration - Is a method of preserving milk by keeping it under low temperature.
Sterilization - This is a method of preserving milk by boiling it to high temperature and cooling.
Homogenization - This is the method of treating milk to make the fats break down to cream.

TYPES OF MILK

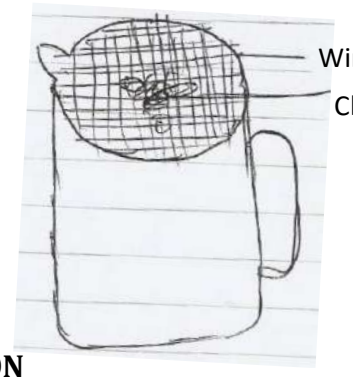
Sterilised milk - This is the type of milk got by boiling and cooling the milk to be free from bacteria.
Skimmed milk - This is the type of milk without fats.
Pasteurised milk - This is the type of milk got by boiling it to high temperature.
Condensed milk - This is the type of milk which does not contain water content.
Evaporated milk - This is the milk got after homogenizing and removing water from it.
Fortified milk – This is the type of milk which contains all the food values.
Cultured milk - This the milk got when bacteria has been added to.

Reasons why people preserve milk.
- To prevent it from going bad
- To make it stay for long.

Products of milk
- Butter
- Cheese
- Yoghurt
- Caseins
- Ghee
- Ice cream
- Whey

Lactometer
This is an instrument which is used to detect whether water has been added to milk.
It also detects whether fats has been removed from milk.
Note:
A lactometer sinks in milk in case water has been added in and floats if there is no water in milk.

A strip cup . This is the instrument used for detecting mastitis in milk.



INSEMINATION

This is the act of depositing sperms in the vagina of a cow.

TYPES OF INSEMINATION

- Natural insemination
- Artificial insemination

NATURAL INSEMINATION

This is the type of insemination where by a bull deposits sperms into the vagina of a cow using its penis.

Advantages of natural insemination

- It is easier for a bull to notice a cow/heifer on heat.
- Both the bull and the cow are not denied sexual feeling.
- It does not need a qualified inseminator.
- It is easy for a bull to inseminate.

Disadvantages of natural insemination

- It encourages in breeding.
- It is difficult to control venereal or hereditary diseases
- Small cows and heifer can be injured by heavy bulls during mounting.
- It is expensive to transport a bull from one place to another.

NOTE: System of natural insemination (Types of mating)

- Hand mating
- Pasture mating

Hand mating - This is a process where by the bull is kept separately from a cow and is brought to a cow when the cow is on heat or ready for service.

Pasture mating - This is the system where by the bull rooms about by the cow and they end up mating.

Artificial insemination (AI) - This is a method of introducing (depositing) semen and sperms into the vagina of a cow using a syringe by an inseminator.

Advantages of artificial insemination (AI)

- It controls the spread of venereal and hereditary diseases.
- It controls inbreeding in live stock.

- Semen from good dead bulls can still be used.
- It prevents injuries to small cows and heifers.
- It is easy to transport semen from one place to another.

Disadvantages of artificial insemination (AI)

- It is difficult to get a qualified inseminator.
- It can result to poor breeds
- It is difficult to identify a cow on heat.
- Semen may not be stored under good conditions.

Ways of managing calf in farm (farm practices)

- Number lace
- Castration
- Branding
- Ear tagging
- Tail bobbing
- Ear notching
- Ear tattooing
- Dehorning
- Numbering

Numbering – This is done to an animal for easy identification.

Branding - This is putting of a mark on an animal. Branding can be done using a hot iron marked with a desired symbol /sign.

Ear notching – TH=his is done by cutting part of the ear of an animal.

Ear tagging - This is done by fixing tags into the ear of an animal.

Ear tattooing - This is when a permanent mark is made on the ear of an animal.

Dehorning (disbudding) - This is the act of removing a horn from the animal's head.

METHODS OF DEHORNING

- Using chemicals
- Using dehorning iron (Saw)
- Using a spoon dehorner.

Dehorning using chemicals

This is done by rubbing the iron using a caustic stick until it starts bleeding.

Dehorning using dehorning iron

This is done by placing a hot iron on the horn for a short time.

Note:

Use of dehorning iron is applied in calves.

Dehorning using a spoon dehorner

This is when a cylindrical tool is used to scoop out the horn when they are about two months.

Advantages of dehorning

- It makes animals easy to handle.
- It reduces the risk of animal injuries
- Many animals can be kept in a small space.
- Dehorned animals are good to look at.

Castration

This is the method of making the male sexual organ of animal unable to produce sperms to fertilize the ova of a female animal.

Methods of castration

- Open operation method (surgical method)
- Closed operation method
- Use of a loop

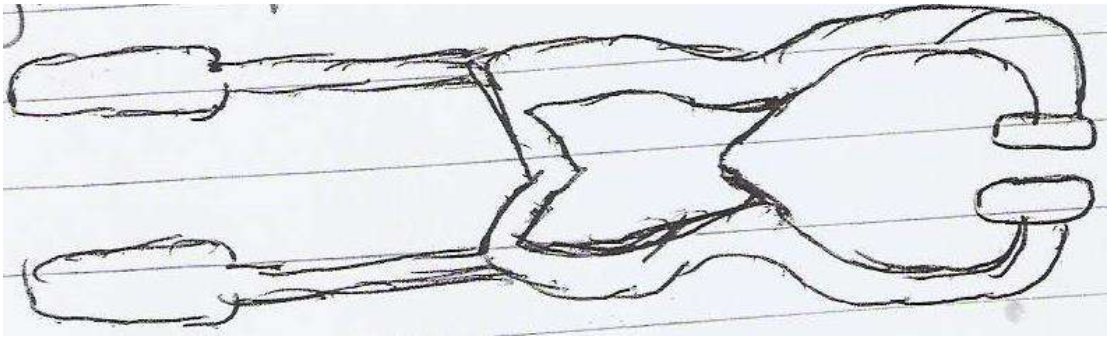
Open operation method

This is the method of castrating an animal where by the scrotum is curt vertically in order to remove the testicles out side.

Closed operation

This is a method of castrating an animal where by an instrument called burdizzo with blunt pincers is used to crush the sperm duct.

The diagram of burdizzo



Uses of a loop

This is when a rubber ring is used to squeeze out the testis after breaking the sperm duct and blood vessels to cut the supply of sperms to the urethra of a bull.

Advantages of castrating animals

- Castrated animals grow fast and fat.
- It controls inbreeding in cattle.
- Castration makes the animal calm and easy to handle.

- It controls unwanted pregnancy.

Disadvantages of castration
- The wound may become septic.
- The animal may lose a lot of blood in the process.
- Animals are denied their natural sexual feelings.
- The animal may end up dying.
- The animal experiences a lot of pain during the operation.

A table showing an animal and the name giving to a castrated one

Name of an animal	Name given to a castrated one
A bull	bullock
A boar	hog
A ram	A wether
A cock	capon
A calf	steer

GRAZING

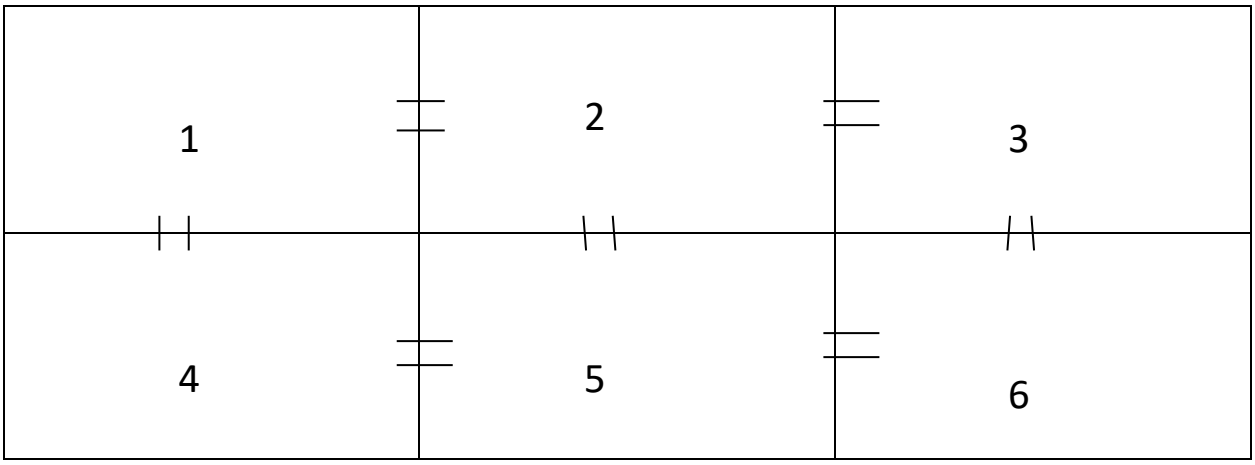
This is the proper use of pasture by animals.

Methods of grazing animals (system of grazing animals)
- Rotational grazing - strip grazing , paddock system of grazing
- Zero grazing
- Tethering
- Free range system – communal system of grazing, herding

Paddock system of grazing

This is the type of grazing where by animals are kept in small divisional plots (portions) called paddock.

Animals are grazed in one paddock for a short period of time before being shifted to another plot.



Advantages of paddock system of grazing
- There is proper use of pasture
- Pasture is given time to grow.
- It controls soil erosion since it controls over grazing.
- It controls diseases and parasites.
- Manure is spread allover the land.

Disadvantages of paddock system of grazing
- It is very expensive to fence the piece land when making paddocks.
- It needs a large piece of land.
- Animals can be harmed by barbed wires.

Tethering

This is a method of grazing an animal where by an animal is tied on a peg using a rope.

Advantages of tethering method of grazing
- It is very cheap to maintain
- It prevents wastage of pasture
- Animals can be protected from poisonous pasture.
- It requires no fencing.

Disadvantages of tethering method of grazing
- Few number of animals can be kept using tethering.
- The animal is restricted from some pasture.
- It is tiresome since it involves transferring the animal from one place to another.
- The animal is exposed to predators.
- The animal is denied the chance of having physical exercise.

Zero grazing

This is the type of grazing where by animals are kept in a built up structure (indoor) and food and water is provided to them.

Advantages of zero grazing
- It is easy to collect manure.
- It controls unnecessary movement of animals.
- Many animals can be kept in a small area.
- It is easy to control and monitor the animal.

Disadvantages of zero grazing
- There is no easy spread of parasites and diseases.
- It is tiresome.
- It requires much labour hence making it expensive.
- The animal is denied a chance of carrying out physical exercise.

Herding

This is the type of grazing where by animals are allowed to move freely but guided by a herdsman where there good pasture.

Advantages of herding
- Animals get enough body physical exercise.
- Animals are closed washed by a herdsman.
- Animals are directed to where there is good pasture.

Disadvantages of herding
- Animals can destroy farmers' crops.
- There is easy spread of diseases and parasites.
- The animal can over graze and starve for pasture.

Communal grazing

This is a method where by people of the same area gather their animals and graze together.

Animal feeds

A feed is a ration to an animal.

Ration – is the amount of food needed by an animal per day.

Pasture

This is a field of graze where animals are grazed.

Types of pasture
- Natural pasture
- Prepared pasture

Natural pasture

This is a type of pasture which grows on its own.

Examples of natural pasture
- Alfalfa
- Kikuyu grass
- Elephant grass
- Nandi grass
- Guinea grass
- Nopier grass
- Rat fowl grass
- Lamon grass

Fooder crops

These are crops grown purposely for animals to feed on.

Examples of fooder crops
- Cassava
- Millet
- Maize
- Cloves

- Sweet potatoes
- Oats
- Sorghum

Qualities of good pasture

- A good pasture should contain a lot of nutrients
- A good pasture should be resistant to pests and diseases.
- A good pasture has good taste.
- A good pasture should be attractive to animals.
- A good pasture should be of a good size.
- A good pasture should be resistant to harsh weather conditions e.g drought.

Types of animal feeds

- Concentrates
- Supplements
- Additives
- Hay and silage
- Roughage
- Succulents

Concentrates - This is the type of food which contains high food values and low moisture.
Concentrates can be got from oil seeds of cotton and beans.
Concentrates helps animals to grow faster because they contain proteins.
Concentrates also enables animals to produce a lot of milk.

Succulents

This is the type of animal feeds with high quality of moisture and low quality of plant fibre.

Examples of succulent feeds

- Banana peelings
- Sweet potato leaves
- Cassava leaves
- Banana suckers
- Alfalfa

Succulents provide farm animals with vitamins.
Supplements - These are cattle feeds with a lot of proteins, vitamins and iron.

Examples of supplements

- Local salt
- Soap

Additives - These are substances added to cattle feeds in small qualities.

Examples of additives

- Drugs
- Flavor
- Chemicals

- Hormones

Hay and silage

These are green grass which is cut and dried for feeding animals during drought.

THE DIAGRAM OF THE DIGESTIVE SYSTEM OF A COW

Functions of different parts of a digestive system of a cow.

Mouth

This is where chewing of food occurs.

Food is also mixed with saliva in the mouth to make it slippery for easy swallowing.

Gullet (Oesphogus)

Food moves down through the gullet to the stomach by a process called **peristalsis**.

Rumen - This is the first stomach and it's the biggest stomach in ruminants.
- Fermentation of plant fibre takes place in the rumen with the help of bacteria.

Note :

Ruminants vomit cuds (Regurgitate) ion order to rechew it.

Reticulum - This is where the large particles of food substances are separated with the fine food particles.

Omasum - This is were food is grinded to enable water to be absorbed from food.

Abomasums - This is where enzymes work up on food i.e is where chemical digestion occur. It is the smallest stomach chamber.

<u>The table below shows parts of the stomach of a ruminant and other names</u>

PARTS	OTHER NAMES
Gullet	Oesophogus
Rumen	Paunch
Reticulum	Honey comb
Omasum	Book like
Abomasum	True stomach
Small intestines	Leum
Large intestines	Colon

FENCES

A fence is a barrier of live and dead materials separating two pieces of land.

Types of fences

- Natural fence (live fence)
- Artificial fence (dead fence)

Dead fence – This is the type of fence which is made by man out of dead materials.

Examples of dead fences

- Barded wire fences
- Wooden fences
- Plain wire fences
- Block fences
- Chain link fences

Importance of fences

- Fences are wind breakers
- Fences prevent animals from destroying farmers' crops.
- Fences control the movement of animals.
- Fences help in controlling the spread of parasites and diseases.
- Fences ensure proper use of pasture in a farm.

CATTLE PARASITES

A parasite is a living organism which depends on another living organism for food and shelter without killing but causing harm to it.

Types of parasites

- Internal parasites
- External parasites

Internal parasites (Endo parasites)

This is a type of parasite which lives inside the body of a host.

Examples of End parasites (internal parasites)

- Tape worms
- Hook worms
- Thread worms
- Round worms
- Leech
- Liver flukes

Note: A hook worm feeds on blood whereas a tape worm feeds on digested food.

External (Ecto parasites)

This is the type of parasite which lives out side the body of a host.

Examples of Ecto (External) parasites

Ticks Lice Fleas Tsetse fly

Ways of controlling cattle parasites

- By de-worming farm animals
- By spraying farm animals using a caricides
- By dipping the farm animals in a mixture of water and acaricides
- By grazing animals in a well drained piece of land.

De-worming

This is the act of giving drugs to animals in order to kill the internal parasites.

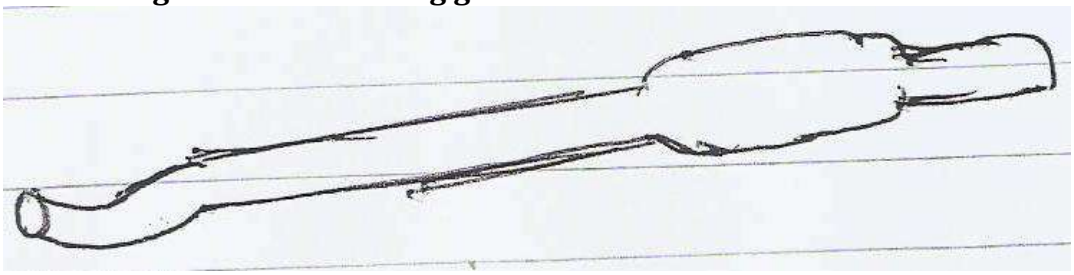
Ways of de-worming animals

- Drenching
- Dosing

Drenching - This is the introduction of liquid drugs in the body of an animal in order to kill internal parasite.

Note: Drenching is done using an instrument called a drenching gun incase of no drenching gun a bottle with narrow path (neck) can be used.

The diagram of a drenching gun



Dosing - This is the introduction of solid drugs into the body of an animal using a dosing gun.

A DIPPING DITCH (A DIPPING TANK)

This is a farm structure where animals are dipped in a mixture of water and acaricide in order to control the external parasites.

Here the vaccination of animals is in a mixture of acaricide and water

A STRUCTURE OF A DIPPING DITCH/TANK

Note:

Dipping of the animals should be done in the morning when the animals are not thirsty in order to prevent them from drinking a mixture of water and chemicals. Young pregnant and sick animals should not be dipped because they may fail to come out.

Birds like egrets and tick birds are very important in live stock because they eat up the external parasites like ticks and lice.

Cattle crushes

These are farm structures which allow/direct animals only to move in one direction.

Importance of a cattle crush

- It helps to keep the animals in one place during time of milking.
- It helps the farm during time of operation e.g dehorning.
- It helps the farm during time of carrying out artificial insemination.
- It helps during time of vaccination.

THE STRUCTURE OF A CATTLE CRUSH.

Cattle diseases

- Mastitis
- East coast fever (ECF)
- Foot and mouth disease
- Heart water
- Nagana
- Tuberculosis
- Brucellosis
- Bloat
- Anthrax -
- Black quarter
- Rinder pest
- Red water
- Pneumonia
- Calf scour
- Foot root

Group of cattle diseases

Cattle disease are categorized according to their causative agents

Causative agent	Name of a disease
Virus	Viral diseases
Bacteria	Bacterial diseases
Protozoa	Protozoan diseases

Viral cattle diseases

These are diseases which are caused by virus. Viral disease in cattle spread very fast and cause fever and rise in temperature.

Note: Viral diseases have got no cure.

Examples of viral diseases

The table below shows viral diseases.

Disease	How its spread	cause	Sign	Control
Foot and mouth disease	Dirty food and water	Virus	- Swollen feet - Blisters on the tongue -High fever -Flow of saliva from the mouth - Lameness	Apply quarantine. Vaccinate animals after every six weeks.
Rinder pest	Body contact and dirty pasture.	Virus	- High fever - Watery eyes - Severe diarrhea - Gridding of the teeth.	Vaccinating animals after every six months
Pneumonia	Through dirty air	Virus bacteria	- Difficulty in breathing. - Low and high body temperature. - Loss of appetite sleepy eyes.	Treating the animal with antibiotics.

Other viral diseases include rift valley fever and milk fever.

Bacterial cattle disease.

- These are cattle diseases which are caused by bacteria.
- It spreads slowly in cattle.
- It causes a slight change in the body temperature.

The table below shows the cattle bacterial diseases.

Disease	How its spread	cause	Sign	Prevention/Control
Mastitis	Poor milk hygiene	Bacteria	- Swollen udder - Clots of blood in milk - Wounds on the teats - Redish milk.	Treat the animals as early as possible.
Anthrax	Body to body contact	Bacteria	- High fever - Sudden death - Shivering - Blood form the nose, mouth, and anus - Loss of appetite.	Burry the carcass. Burn the carcass to ashes.

Tuberculosis	Through contaminated water and air.	Bacteria	- Chronic cough - Loss of body weight - Loss of appetite.	Vaccinating animals with antibiotics.
Black quarter	Ticks	Bacteria	- High fever - Shivering - Lameness - Swollen muscles - Dullness of animals	Treat animals with antibiotics
Foot root	Wet weather condition	Bacteria	- Swollen hooves which are painful. - Lameness of animal - Discharge of pus from the hooves.	Trimming hooves Treating the animal with antibiotics

Protozoan disease

These are disease in cattle which are caused by protozoa.

Disease	**How its spread**	**cause**	**Sign**	**Prevention/Control**
Nagana (Trypanosomiasis)	Tsetse fly	Trypanosome Protozoa	- High fever - Dullness - Loss of body - weight - Running eyes - Loss of appetite.	-Spraying the area using insecticides. -Use of tsetse fly traps. -Clearing the bushes around.
Heart water rickettisiosis	Tick	Protozoa	- Fever - Nervousness (feeling sleepy)	Control the ticks.
Red water (Babesiosis)	Ticks	Protozoa	- Fever - Constipation - Redish urine	Treat the animal using antibiotics. Control of ticks.
East coast fever (ECF)	Ticks	Protozoa	- High body temperature. - General body weakness. - Blood stained droppings - Loss of body weight	Eradicate ticks. Teat using antibiotics

Tick born disease

These are diseases which are spread by ticks in cattle.

Examples of tick borne diseases

- Heart water
- Red water
- East coast fever

- Anaplasmosis (gall sickness)

Farm records

These are written information concerning different activities carried out on a farm.

Types of farm records

- Feeding records
- Operations records
- Field records
- Labour records
- Marketing records
- Production records
- Inventory books
- Breeding records.

Importance of keeping farm records

- It helps farmers to plan for the farm profitably
- It helps a farmer to know the back ground of the farm.
- It helps a farmer to make decision
- It helps the government to tax the farmers fairly.
- It helps the farmers to know losses and profits.
- It helps the farmers to know the production on their farms.

AGROCHEMICALS: These are substances which are used in agriculture.

The table showing agrochemicals and their uses

Agrochemical	Uses
Acaricides	For killing external parasites like ticks, lice, and flea.
Fertilizers	It improves on soil fertility.
Nematocicioles	It is used for killing nematodes.
Antibiotics	It is used to kill infections.
Worm cides	It is used for internal parasites.
Disinfectants	It is used for killing germs and disease vectors.
Insecticides	For killing insect pests and vectors.
Herbicides	For killing weeds in the crop field.
Pesticides	It is used for killing pests.
Fungicides	It is used to prevent fungal infections.

Cattle products

- Hides
- Milk
- Hooves
- Cow dung
- Meat
- Horns
- Blood
- Bones

Methods of preserving skin and hides

- Suspension
- Wet salting

Wet salting

This is a method of drying and preserving skins using salt to absorb the water or moisture from them.

Suspension method

This is a method of drying and preserving skins and hides by exposing them to direct heat from the sun.

NB: - A skin is got from a small animal like a goat, or sheep.

- A hide is got from a big animal like a cow, an elephant or a buffalo.

Importance of skins and hides

- They are used for making belts.
- They are used for making bags.
- They are used for making balls.
- They are used making jackets
- They are used for making handles of watches and wallets.
- They are used for making drums.

The process of turning skins and hides into leather is called leather tanning.

Factors considering before starting alivestock farm

- Land
- Market
- Management
- Labour
- Capital
- transport

RESOURCES IN THE ENVIRONMENT

A resource is any thing which can be used by man to satisfy his needs.

Types of resources

- Renewable resources (exhaustible resources)
- Non renewable resource (non exhaustible resources)

Renewable resources

These are resources which can be replaced naturally when they exhausted (used up).

Examples of renewable resources

- Plants
- Animals
- Water
- Soil
- The sun
- wind

How can plants as resources be renewed.

- By afforestation
- By re-afforestation
- By using alternative sources of fuel besides fire wood,
- By using energy serving charcoal stoves.

How can soil as a resource be renewed?

- By practicing bush fallowing
- By applying fertilizers

- By growing of cover crops
- By practicing crop rotation.
- By practicing mulching of gardens.
- By practicing agro forestry

Non renewable resources

These are resources which cannot be replaced naturally back when they are exhausted (used up).

Examples of non renewable resources

- Minerals like coal
- Uranium
- Natural gas,
- Rocks, etc.

Groups of resources

- Living resources
- Non living resources

Living resources

These are resources which have life.

Examples of living resources

Plants, Animals

Non living resources

These are resources which do not have life.

Examples of no living resources

- Wind - Soil
- The sun - Minerals
- Rocks

Plants as a resource

Plants are called resources because they can satisfy man's needs.

Uses of plants as a resource

- Plants are eaten as food by animals.
- Plants provide oxygen to animals.
- Plants are sources of wood fuel e.g charcoal.
- Some plants are used as herbal medicines.
- Some plants are raw materials for a gro based industries.

Agro-forestry

This is the growing of crops, planting of trees and rearing of animals on the same piece of land.

Advantages of agro forestry

- Trees provide shade to the crops grown together.
- Trees also give support to crops with weak stems.
- Agro forestry improves on soil fertility.

- Trees provide wood fuel.
- There is triple income generation.
- It helps to control soil erosion.
- It helps in rain formation
- It helps to protect some crops from strong wind.

Disadvantages of agro forestry

- There is over crowding of crops, animals and trees.
- There is competition for nutrients between plants and crops.

Animals as a resource

- Some animals are sources of food
- Some animals provide labour like for ploughing,
- Animals can also be used for transport.
- Some animals are sources of animal fibre e.g wool, fur, silk.
- Animal droppings can be used as manure.
- Animal wastes can also be used for making biogas.

Water as a resource

Water is called a renewable resource because it can be replaced when exhausted (used up). Water is renewed naturally through the rain cycle.

Uses of water as a resource

- Fat flowing water is used in generating hydro electric power.
- Water is used for domestic purpose e.g cooking.
- Water is used in industries and factories as raw material and for cooling the engines.
- Animals use water for drinking.
- Water also supports plants growth.
- Water is used for agricultural purposes fore example, irrigation.

The sun as a resource

The sun is also called a renewable resource because it can be replaced back.

Uses of the sun as a resource

- The sun is used for drying up crops
- The sun is used for drying harvested crops.
- Sunlight is used by plants for photosynthesis.
- The sun is also used for generation of solar electricity.
- The sun also heats water which helps in rain formation.

Air (wind) as a resource

Air (wind) is called a renewable resource because it can be replaced when is exhausted.

Uses of air as a resource

- Moving air (wind) is used in wind mills
- Air is used for winnowing

- Air is used for drying up clothes
- Air is used for moving some boats in water.

Note: Air is a mixture of gases.

Components of air

- Nitrogen
- Oxygen
- Carbondioxide
- Rare gases

Nitrogen gas

Nitrogen occupies a percentage of 78% in the atmosphere.

Uses of nitrogen gas

- Nitrogen gas is used in electric bulb
- Nitrogen gas is converted to nitrates which are used by plants as food.

Uses of oxygen gas

- Oxygen supports burning (combustion)
- Oxygen gas is used by animals and plants for respiration.
- Oxygen is used by seeds during germination.

Processes which occur due to presence of oxygen

- Respiration
- Burning (combustion)
- Rusting

Note: Photosynthesis is a natural process which adds oxygen in the environment.

Carbondioxide gas

Carbondioxide occupies 0.03% of the air in the environment.

Uses of carbon dioxide gas.

- Carbondioxide is used for food preservation e.g sodas
- Carbondioxide is used for extinguishing fire using fire extinguishers.
- Carbondioxide is used by plants during the process of photosynthesis.

Note: Carbondioxide is used for food preservation because it does not support the multiplication of germs.

Processes which add carbondioxide in the environment

- Respiration
- Decomposition
- Combustion (burning)

Note: Carbondioxide is reduced from the atmosphere by the process of photosynthesis.

Soil as a resource

Soil is called a renewable resource because it can be replaced when exhausted (used up).

Soil – This is the top layer of the earth crust surface.

Process through which soil is formed

- Weathering
- Decomposition
- Rusting

Uses of soil as a resource

- Soil is a medium in which plants grow.
- Soil is used for building houses.
- Soil is used for making ceramics e.g, pots.
- Soil is used for making bricks.

Rocks and minerals as a resource

A rock is a hard substance found in the earth's crust.

A mineral is a valuable substance which occurs naturally under the ground.

Examples of minerals

- Oil - Clay - Lime stone
- Sand - Gold - chalk
- Copper - Tin

Note: Scientists who study about rocks are called geologists.

Uses of rocks

- It is used as mineral for making cement.
- It is used for construction of houses, etc.
- It is used for scientific research.

Types of rocks

- Igneous rocks
- Metamorphic rocks
- Sedimentary rocks

Fossils

These are remains of dead plants and animals.

They are found deeply in the earth crust in the sedimentary rocks.

They are usually bones, teeth, and roots of plants and stems of plants.

Groups of fossils

- Fossils of birds
- Fossils of animals
- Plants fossils.

Uses of fossils

- Fossils are used by geologists to determine the age of a place.
- They also enable geologists to know the species of animals and plants which existed and disappeared.
- It helps to tell how land looked like before.
- Rocks tell about the earth's history.
- Rocks also contain very valuable minerals.

ALLOYS

An alloy is a mixture of two or more metals.

Reasons for making alloys

- To make metals harder.
- To lower the melting point metals
- To make the metals more resistant to corrosion i.e wear and tear.
- To increase the electric resistance on metals.

Alloy	**Combination**	**Uses**
Brass	Copper and zinc	For tubing cases for bullets. For making cables and electric wires. For decorating ornaments.
Bronze	Copper, zinc and tin	For decorating metals For decorating metals For making coins and models Dental filling of the teeth.
Dentist Amalgam	Mercury and copper	Dental filling of the teeth.
Gold	Gold and copper or gold copper and mercury	For making coins.
Solder	Land and tin	For joining metals
Steel nickel steel	Carbon and iron Nickel and steel	For making cutlery For making cutlery
Manganese steel	Steel and manganese	
Cobalt steel	Cobalt and steel	
Stainless steel	Chromium and steel	For making cutlery

FUELS

Fuel is any thing that can burn and produce heat.

Examples of fuels

- Fire wood
- Oil
- Coal
- Charcoal

Note: When coal is burnt it produces thermal electricity.

Products of oil

- Petrol
- Diesel
- Kerosene
- Tar
- Grease

Fossil fuel - These are fuel formed from dead plants and animal remain.

Examples of fossil fuel

- Oil
- Coal

FIBRE

These are a mass of thread like structures extracted from plants materials or animals.

Types of fibre

- Plant fibre
- Animal fibre
- Synthetic fibre

Plant fibre

These are fibres got directly from lint plant tissues.

Examples of plant fibres

- Jute
- Linen
- Cotton lint
- Sisal

Note: Linen is got from flax plant.

Animal fibres - These are fibres got from animals.

Examples of animal fibres

- Wool
- Fur/hair - Silk

Synthetic fibres

These are fibres which are got from animals and plant material after being processed artificially.

Examples of synthesis fibre

- Nylon
- Rayon
- Cash milon
- Terylene
- Acrilon
- orlon

Note: Rayon is made from wool pulp or crushed wool of plants.

Nylon is made plastic materials.

Products of Nylon

- Clothes
- Ropes

- Fishing nets
- Mosquito nets

CONSERVATION OF RESOURCES

- Conservation is the protection and preservation of resources in our environment.
- Conservation also means looking after resources or things so that they will always be available.
- The major reason for conservation is to keep resources for future use.

Examples of resources that should be conserved

- Forests - Wild life
- Water - Soil
- Rocks - minerals, etc.

Wildlife refers to animals and plants in our environment.

Why we conserve wildlife

- Some animals and plants are eaten as food by man.
- Some animals and birds are valued as cultural heritage by some countries, tribes and clans.
- Plants provide wood fuel, timber and homes of wild animals.
- Plants balance the amount of carbondioxide and nitrogen in the atmosphere.
- Plants provide shade.
- Trees and forests help in rain formation.
- Animals, birds and trees serve as tourist attractions
- Trees act as wind breaks

How to conserve wildlife

- By taking care of animals in game parks and game reserves.
- By banning the hunting of endangered animals such as rhinos and elephants.
- By banning the selling and buying of wild life trophies.
- By controlled fining to conserve fish.
- By catching rare animals and breeding them in wildlife educational centres and later in game parks.

Note: Uganda Wildlife Authority is a department responsible for wildlife.

How to conserve the natural vegetation

- By discouraging overgrazing because it causes soil erosion.
- By restricting bush burning to certain areas.
- By discouraging over stocking because it leads to overgrazing.
- New trees should be planted whenever old ones are cut.
- Wetlands and swamps should be declared restricted areas since they help in drainage of water.

- By practicing agro forestry and afforestration.

How to conserve non renewable resources

- By using other alternative resources.
- All petroleum products should be used wisely and sparingly to prevent g further exploitation.
- Metal wastes, garbage and plastic materials should be recycled and used instead of new ones.
- By applying energy saving technologies
- By using distances to conserve fuel
- Manure and fertilizers should be used to keep the soil fertile.
- Soil erosion should be controlled by terracing, crop rotation, strip cropping, etc.
- Renewable resources should be used to provide fuel light and heat energy.

SCIENCE AT HOME AND IN OUR COMMUNITY

Preparation of clean water and safe water for drinking and washing.

Methods of making water safe for drinking.

- By boiling
- By applying water purifying chemicals

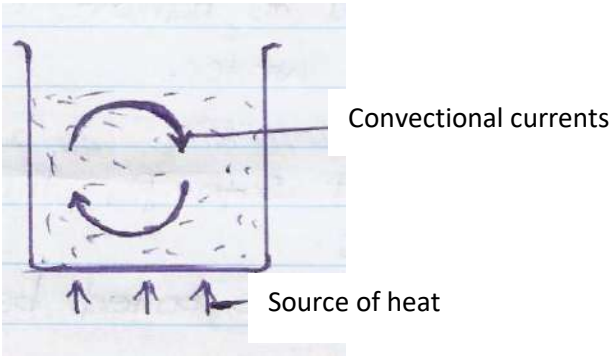
Other methods of making water clean

- By distillation
- By decanting
- By filtration

Boiling

This is a method of making water safe for drinking by heating it to kill germs,

The diagram illustrating boiling



Note: Drinking water should be put in clean containers to prevent water contamination.

Water contamination

This is a way how water is made dirty.
Ways through which water can be contaminated.

- Washing clothes into the water source
- Urinating into the water source
- Defecating into the water source.
- Bathing into the water source
- Spitting saliva into the water source.
- Putting water in dirty containers.

Note: Water can be contained by putting it in dirty containers.

Making water safe for drinking using chemicals

This is done by applying water purifying chemicals into the water to kill the germs.

Examples of chemicals used for water purification.

- Chlorine
- Calcium chrolide
- Iodine
- Potassium permanganate

Note: These chemicals are applied in water in small amount to avoid water contamination.

Disadvantages of using water purifying chemicals

- They are very expensive to buy.
- They do not make the water clear.
- They add certain smell and taste to water.

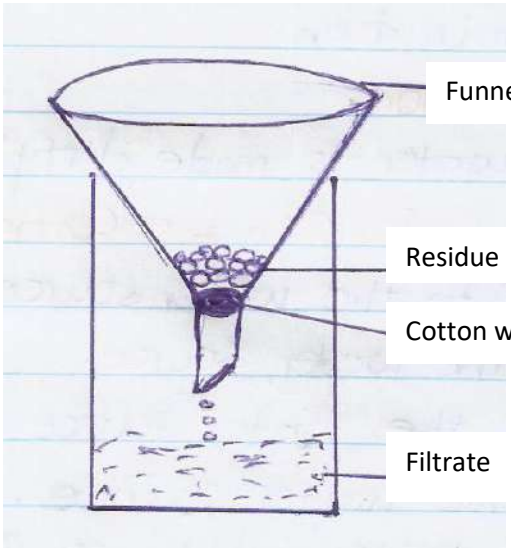
Filtration method

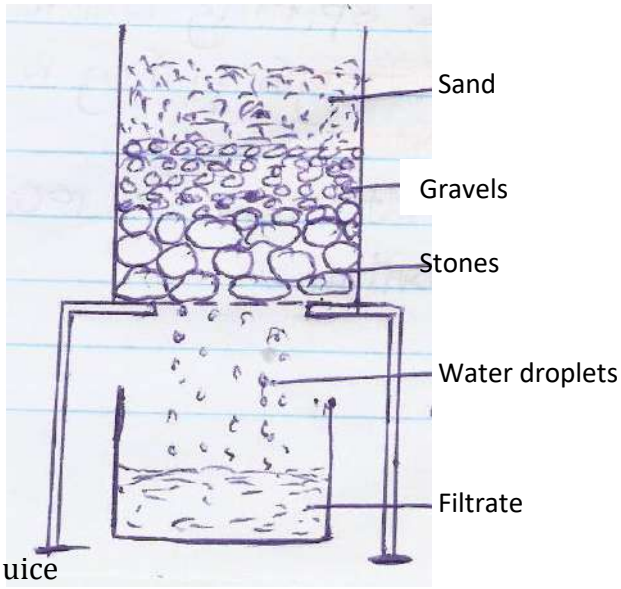
This is a method used to remove dirt and small solid particle from the water.

Note: Filtered water is not safe for drinking because it still contains germs.

Filtered water should be boiled before drinking.

The diagram showing filtration method





Importance of filtration method

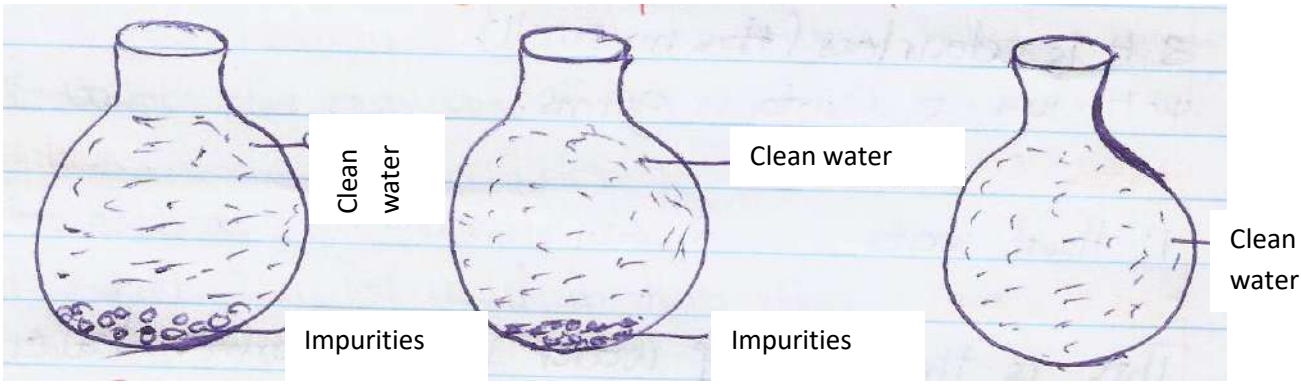
- It helps in separating seeds from fruits juice
- It helps in separating tea leaves from tea.
- It helps in separating solid particles from the local brew.

Decanting (settling) methods

This is a method of making water clean by putting water in a clean container and allowing the impurities (solid particles) to settle at the bottom.

Note: Decanted water is not safe for drinking because it contains germs.

Decantation using three pot methods



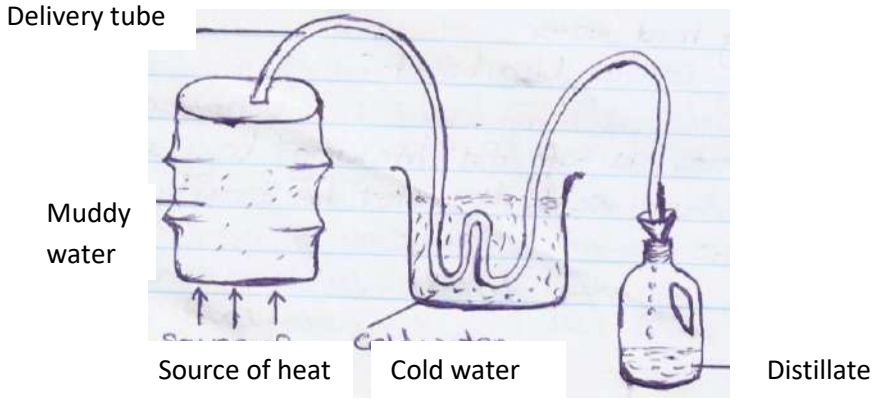
Ways of using decanted water.

- For washing clothes.
- For washing cooking utensils.

Distillation method

This is a method of obtaining pure water from muddy by boiling to form a vapour and to condense a vapour to form a distillate.

<u>The diagram showing distillation method</u>



Note: Distilled water is not good for drinking because does not contain mineral salts.

<u>Importance of distilled water</u>

- Distilled water is used for dissolving powdered medicine.
- Distilled water is used for diluting drugs.
- Distilled water is added in the blood through drips in hospitals.

<u>Properties of pure water</u>

- It is colour less
- It is tasteless
- It id odourless (has no smell)
- It does not contain germs.

<u>Types of water</u>

- Hard water
- Soft water

Soft water

This is the type of water which forms lather easily from the soap.

Examples of soft water

- Rain water
- Distilled water
- Spring water

Hard water

This is the type of water which does not form lather easily from the soap.

Examples of hard water

- Bore hole water
- Sea water
- Ocean water
- Muddy water

Methods of making hard water soft

- by boiling hard water
- By adding calcium bicarbodanate

Note: Borehole water is safe for drinking because it cannot be easily contaminated b y germs.

General properties of water

- It finds its own level
- It takes the shape of any container used
- It is a solvent
- It exerts pressure (pressure increases with depth)

Uses of water in the human body

- For discovering digested food
- It regulates body temperature
- It helps in formation of blood plasma
- It helps in reducing friction in the joints.

How to make local salts from plant materials

- Cut down a number of plants
- Leave them to dry for sometime.
- Burn them into ash.
- Collect the ash and filter it to get a filtrate.

Note: The filtrate is the salt

This salt can be used in two forms i.e,

- Liquid form
- Solid form by evaporating the filtrate to dryness.

ENERGY

Energy is the ability of the body to do work

Forms of energy

- Heat energy
- Sound energy
- Light energy
- Chemical energy
- Electric energy
- Mechanical energy
- Kinetic energy
- Potential energy

Heat energy – This is a form of energy which increases the temperature of the body.

Uses of heat energy

- Heat is used for cooking
- Heat energy is used for drying clothes
- Heat energy is used for ironing clothes
- Heat energy maintains our body warmth
- Heat is used to kill germs
- Heat is also used in baking.
- Heat energy is also used for burning bricks.

ACCIDENTS AND FIRST AID

An accident is a sudden happening which causes harm or injury on the body.

- Fractures
- Burns and scalds
- Sprains and strains
- Foreign bodies
- Animal bites/snake bites
- Fainting
- Electric shock
- Fever
- Convulsions
- Nose bleeding
- Poisoning

FIRST AID

First Aid is the first help given to a casualty before he/she is taken to the hospital.
Casualty is a person who has got an accident and needs help.

Reasons why we give first aid

- To save life
- To reduce pain
- To promote recovery
- To prevent further injuries
- To prevent the condition from becoming worse.

Qualities of a good first aider

- He/she must be quick/fast
- She/he must be observant
- He/she must be kid and merciful
- He/she must be quick in decision making.
- He/she be always equip with first aid equipment.

A first aid box

A first aid box is a structure where first aid kits are kept.
A first aid kit is any material used in giving first aid.

Examples of first aid kits/materials found in a first aid box.

- Cotton wool
- Sprit
- Razorblade
- Bandage
- Tourniquet
- Panadol /pain killers

BURNS AND SCALDS

Scalds are injuries caused by wet heat or hot liquids.

Sources of wet heat

- Hot soup
- Hot water
- Hot porridge
- Steam
- Hot milk, etc.

First aid for a scald

Remove the cause of the accident
Dip the injured part in cold water for atleast 10-15 minutes.

How to prevent scalds

- Cook from raised places.
- Avoid telling young children to cook food or boil water.
- Always handled hot liquids with much care.
- Keep children away from cooking places.

BURNS

A burn is an injury on the body caused by dry heat.

Sources of dry heat

- Hot saucepan
- Flat iron
- Burning charcoal
- Acid
- Flames of fire
- Hot wall
- Hot knife.

Types of burns

Chemical burns

These are burns caused by hot detergents like soap, jelly, and acids.

Radiational burns

These are burns caused by direct sunrays or any reflected ray from a glitt.

Cold burns

These are burns called by very cold blocks.

Dry burns

These are burns caused by very hot objects.

CLASSIFICATION OF BURNS

There are three classes of burns namely:

- First degree burn
- Second degree burn
- Third degree burn.

FIRST DEGREE BURN

This is a minor burn in which blisters are not formed on the skin.

Signs of first degree burns

- Pain at the burnt part.
- The skin becomes tender/soft for sometime.

First aid for a first degree burn

Put the burnt part in cold water immediately.

SECOND DEGREE BURN

This is a more severe burn in which blisters are formed on the skin.

Signs of second degree burn

- Blisters are formed on the burnt part.
- Swelling and painful feeling for along time.
- Slightly greater and deeper damage on the skin.

First for second degree burn

- Quickly put the burnt part in cold water for at least 15 minutes.
- If blisters are formed, don't burst them/break them to prevent infections.
- If blisters are broken, wash the area with clean water and soap and cover the skin with a clean cloth to keep away germs.

THIRD DEGREE BURNS

This is the most severe burn in which the skin is burnt deeply and there is total destruction of the body tissue.

Signs of third degree burns

- There is complete loss of the skin layer.
- The skin is charred and blackened/ appears black
- The skin appears shinny white.

First aid for third degree burns

- First put the burnt part in clean cold water.
- Cover the burnt part with a clean piece of cloth to prevent infections.
- Encourage the casualty to drink a lot of fluids to replace the water lost through the sin by evaporation.

Why is it not advisable to put sugar on the burnt area?

- Sugar attracts houseflies which carry germs to the burnt area.

Why is it not advisable to put herbals, cooking oil or cow dung on the burnt area?

They are not used because they may lead to infection at the burnt or scald.

FEVER AND CONVULSIONS

Fever – This is the condition when the body temperature goes beyond the normal 37^0Cor 98.4^0F

CONVULSIONS

These are uncontrolled jerky movements of the body caused by high fever.

Fever is not an illness but a symptom of many illnesses like, malaria, measles, typhoid, meningitis.

Convulsion at times is a sign of epilepsy.

Sings of fever

- High body temperature
- Excessive sweating
- Frequent urinating
- Foaming mouth
- Shivering

Signs of convulsions

- Violent shaking involuntarily.
- Jerky movements of the body.

First aid for fever

- Remove the clothes of the victim
- Carry out tepid sponging using a clean wet cloth dipped in cold water.
- Give plenty of cold drinks like juice, water, milk to the victim in order to prevent dehydration.

Tepid sponging

This is the act of putting a clean wet cold cloth on the body.

This helps to lower the temperature of the body.

First aid for convulsion

- Chase away all people around the victims to provide enough flesh air.
- Remove all tight clothes and loosen others.
- Clear the place where the person is convulsing from.
- Put an object in the mouth to prevent the victim from biting the tongue.
- Carry out tepid sponging to lower the temperature.
- If conscious, give the victim plenty of drinks.
- If convulsion persists, seek medical attention.

DROWNING AND NEAR DROWNING

Drowning - This is when a person dies as a result of the lungs being filled with water and therefore unable to take in air.

Near drowning – This is when a person stops breathing after his/her lungs are filled with water but not yet dead.

SITES WHERE NEAR DROWNING CAN HAPPEN

- Lakes
- Wells
- Rivers
- Fish ponds
- Streams and Swimming pools
- Rivers
- Bath tabs
- Rivers
- Basins

Possible causes of near drowning

- Playing near water bodies
- Swimming with out enough experience.
- Sending young children to fetch water from unprotected wells.
- Accidents on water transport as a result of rapture of boats and ships.
- Playing in bath tubs at home.

First aid for near downing

- Yell/shout for help from people
- If you can manage remove the person from the water as soon as possible and check the pulse immediately.
- If the person is not breathing, lie the victim on his/her back.
- Carry out mouth to mouth respiration or a kiss of life/mouth to mouth breathing or artificial breathing.

NB: This helps the drowned person to regain his/her breathe.

- Push the belly with the heels of your hands between the navels and ribs.
- Repeat that several times with mouth to mouth breathing.
- When the breathing starts, put the person in the recovery position.

PREVENTION OF DROWNING AND NEAR DROWNING

- Water places near homes must be fenced.
- Little children should not attempt to draw water from wells.
- Young children should not go swimming with out help.
- One should go swimming with life savers.
- Don't' leave bath filed with water.
- Babies should not be left in basins filled with water.
- All septic tanks should be covered properly.
- Always wear life jackets when travelling on water bodies.

FAINTING

Fainting is the loss of consciousness for a short time.

What is the main cause of fainting?

Reduce supply of blood carrying oxygen to the brain.

CONDITIONS WHICH CAN LEAD TO REDUCED SUPPLY OF BLOOD TO THE BRAIN

- Pronged hunger
- Standing for so long
- Flight
- Too much pain
- Extreme sorrow or anger
- Long exposure to heat
- Staying in places which have over crowded illness (sickness)
- Being afraid or frightened by something strange.
- Too much exercise

- Over excitement.

First aid for fainting

- Put the casualty in an open place and ensure proper supply of flesh air.
- Remove the clothes on the body of the fainted victim in case she/he is a child. For the older one loosen the clothes.
- Hire the victim on his back with legs slightly raised above the head to allow blood flow to the brain.
- Far the victim to help in provision of flesh air.
- When the casualty gains consciousness, give him/her sweet and warm drinks, glucose and some soft foods if available.

Signs of fainting

- One becomes un conscious
- Weakness of the body
- Loss of body senses
- Un able to stand on two legs.
- Breathing very fast or very slowly.
- The victim may sweat heavily.

FOREIGN BODIES

These are objects which enters the body through natural body openings.

Examples of natural body opening

Nose	- Ear
Mouth	- Eyes
Vagina	- Anus

Examples of foreign bodies

- Small stones
- Insects
- Coins
- Seeds
- Dust
- Pieces of meat and bones
- Beads

FOREIGN BODIES IN THE THROAT

Examples of foreign bodies are:

- Small stones
- Coins
- Dust
- Lump of food

Cause of foreign bodies in the throats

- Bad eating habits e.g, talking while eating.
- Swallowing big lumps of food

- Playing with small objects like coins and buttons
- Easting bony meat and fish carelessly.

First aid for the foreign bodies in the throat

- Give several sharp blows on the persons back to force the foreign body out.
- If it fails, stand behind the person and wrap your hands around the persons' waist with your first, press it into the belly with sudden upward jerk to force the air from lungs with the foreign body out.
- If the person is very big and un conscious, lay the person on his back, sit over the person and with heels on your lower hands on the belly and make a quite strong up wards push.
- If a person is smaller, turn him/her upside down by the legs and give sharp blows on the back.

NB: If the foreign body is severe e.g glass, bones, small metals, don't' apply the above methods but just seek for medical management.

FOREIGN BODIES IN THE EARS

Examples are beads

- Insects
- Small stones

Signs of foreign bodies in the ear

- Pair and itching in the ear
- Hearing difficulty.
- In case of an insect, there will be a funny noise in the ear(vibrations)

First aid for the foreign bodies in the ear

- Let the person sit and bend the head on one side of the un affected ear.
- Pour clean water repeated and pour ir out until the insect comes out.
- If the foreign body is not an insect, don't attempt to remove it because you can push it further and damage the ear drum just seek for medical help from the hospital.

FOREIGN BODIES IN THE EYES

Examples are:

- Dust
- Smoke
- Check dust
- Small piece of woods
- Small stones

Signs and symptoms of foreign bodies in the eyes

- Pain and itching of the eye.
- Flow of tears from the eye.
- The eyes turn red or pinkish.
- Loss of proper sight
- Swelling of the eyelids.

First aid for foreign bodies in the eyes

- In case of light objects like dust, insects, and smoke wash the eye with clean water.
- Some insects can be removed using a piece of cloths as the victim opens up the eyes widely.
- Also the person can open the eyes widely and you blow air strongly into it.
- If the foreign body has injured the eye, the casualty should be rushed to the health worker.

FOREIGN BODIES IN THE RECTUM ANUS AND VAGINA

Examples of foreign

- Small stones
- Seeds

First aid for the foreign bodies in the rectum and vagina

- If it is dust, wash that part with clean water and soap.
- Such foreign bodies like stones, bad insects, may be difficult to remove; therefore, a casualty should be rushed to the doctor for proper management.

FOREIGN BODIES IN THE NOSE

Examples

- Beads
- Insects
- Seeds
- Stones

First aid for foreign bodies in the nose

- If it is an insect, just blow the noise.
- If the foreign body is not an insect, don't attempt to remove the object but just seek for medical help for better management.

NOSE BLEEDING

This is the sudden flow of blood from the nose.

Causes of nose bleeding

- It is caused by breaking of the nose blood capillaries due to external forces e.g, boxing
- Rough pressing of the nose.

First aid for the nose bleeding

- Let the casualty squat and bend the head forward to allow the blood to flow out until it stops.
- When blood stops to flow, then wash the nose with clean water.

NB: Never try to stop blood from flowing by telling the casualty her/his back and face up. This can result into other bleeding which can turn out to be very dangerous.

ELECTRICAL INJURIES

These are injuries of the body cause by electric current or lightening.
The body's reaction to electric current is electric shock.

Examples of electric appliances
- Electric cooker
- Flat iron
- Refrigerator
- Television
- Coils
- Water electric heater

CAUSES OF ELECTRIC SHOCKS
- Touching naked electric wires
- Touching electric switches and sockets with wet fingers
- Repairing electric appliances with out experience.
- Using electric equipment without enough knowledge.

CAUSES OF LIGHTENING STRIKES
- Standing under tree shades during raining
- Playing under rain

Signs and symptoms of electric shock
- A painful feeling
- Sudden paralysis of the body muscles
- A burn at the sigh of injury which may be internal or external.

First aid for the electric shocks
- Switch off the cause of electricity.
- Remove the casualty from the cause of the shock with a dry stick or cloth.
- Lie the casualty on his/her back and examine the burn and breathing.
- Give the casualty a warm drink to keep his body warm.

WAYS OF PREVENTING ELECTRIC SHOCK
- Avoid touching naked electric wires
- Do not build houses under electric wires.
- Avoid repairing electric appliance without mechanical experience.
- Avoid touching switches and sockets with wt fingers.
- Sockets and switches be put away from reach of children.
- Always use properly insulated wires to install electricity in the houses.

FRACTURE

A fracture is a broken bone in the body.

Types of fractures

- Simple fracture
- Compound fracture
- Communicated fracture
- Green stick fracture

Simple fracture

This is the type of fracture where the broken bone remains inside the body.

Compound fracture

This is the type of fracture where the broken bone pierces the skin or comes out of skin.

Green stick fracture

This is the type of facture where a bone just bends but don't break.

Communicated fracture

This is the type of fracture where the bone breaks more than two parts.

Draw the flowing types of fractures

i) Compound fracture
ii) Simple fracture
iii) Communicated fracture

SIGNS AND SYMPTOMS OF FRACTURES

- Swelling of the part with the fracture
- Painful broken limb
- Difficult to move the broken limb
- The broken bone can come out.

First aid for the fracture

- Tie splints on the broken limb to keep the broken bone in position.

DISLOCATION

This is the movement/ displacement of a bone from the joint.

SANITATION

This is the keeping of our environment clean.

Elements/component of sanitation

- Latrine/toilet
- Rubbish pit (dust bin)
- Rack
- Bathroom
- Kitchen

Importance of some elements of sanitation

Latrine

It is used for proper disposal of human wastes, i.e, urine and feaces.

Dust bin

It is used to keep rubbish temporally.

Rubbish pit – It is taken for proper disposal of rubbish.

Rack – It is where the utensils are put to dry up to prevent them from contamination after washing them.

Kitchen – It is where food is cooked from and stored after cooking it.

Bathroom – It is the bathing place.

Ways of promoting environmental sanitation

- Sweeping the rubbish from the compound.
- Slashing bushes from the compound.
- Draining a way stagnant water from the environment.
- Constructing latrines to promote proper disposal of human wastes.
- Scrubbing and mopping houses/class rooms.
- Smoking latrine s to prevent bad smell.
- Burning the rubbish from dust bins and rubbish pits.
- Digging the rubbish pits and providing dust bins for proper disposal of rubbish.

Advantages of proper sanitation

- It prevents the easy spread of diarrhoeal diseases.
- It prevents breeding of vectors e.g, house flies, and mosquitoes.
- It prevents contamination of food.
- It prevents pollution of the environment.
- It prevents water sources from contamination.

Examples of diseases which can result from poor sanitation

- Cholera
- Diarrhea
- Typhoid
- Dysentery

LATRINES

A latrine is a place used by people for defecation and urination.

OR

This is the place where human excreta is deposited.

Latrines are considered important elements in the clean home because they are used for proper disposal of human excreta which helps to lower the risks of the easy spread of diarrhoeal diseases.

Types of latrines

- Pit latrines

- Toilets
- Potties

PIT LATRINE

A pit latrine is a pit dug in the ground for disposal of human wastes.

Characteristics of a Pit Latrine (qualities of a good pit latrine)

- It should be deep enough to hold faeces for a long time.
- It should have a strong floor to prevent accidents.
- Floors should be smooth to allow easy cleaning.
- It should have walls and doors for privacy.
- If it is an ordinary pit latrine, it should have a lid on the hole to keep away bad smell and flies.
- It should be well roofed.
- The hole should be big enough to allow feaces through and small enough to prevent children from falling into it.

TYPES OF PIT LATRINES

- Ventilated improve pit latrine (VIP latrine)
- Ordinary/conventional pit latrine.

Ventilated pit latrine (VIP latrine)

These are pit latrines with a vent pipe and the screen on it to trap houseflies.

Characteristics of ventilated pit latrines

- They have the vent pipe which helps to let out bad smell from the pit latrine.
- They have a screen on the vent pipe to trap houseflies until they die.
- They don't have the lid on the hole to allow free air circulation in the pit which lets out bad smell through the vent pipe.
- They have got the spiral wall for privacy.

Qns: Why is a VIP latrine said to be ventilated?

It has a vent pipe which lets out bad smell from the latrine.

Why is the VIP latrine call improved?

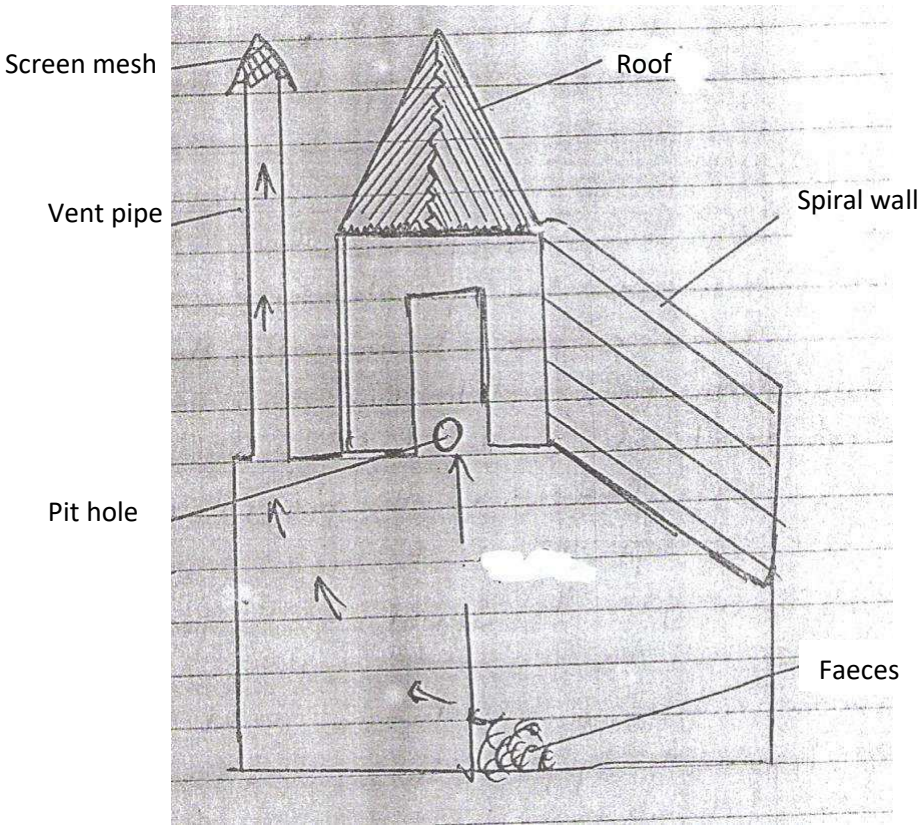
It is because if is well maintained, it doesn't smell badly and has a screen to trap flies.

Why shouldn't a VIP latrine have a lid or a cover on the hole?

To allow free air circulation in the pit which take out the bad smell through the vent pipe.

NB: Bad smell move out of the VIP latrine through the vent pipe by means of conventional currents.

THE STRUCTURE OF THE VIP LATRINE



Functions of each part

Screen – It traps house flies until they die.
Vent pipe – It lets out bad smell from the latrine by mean of convention.
Pit hole - It is a hole where wastes are deposited through the VIP.
Spiral wall – It gives an obstruction for privacy.

Ways of maintaining the VIP latrine

- By sweeping it and mopping if if it is cemented.
- Slashing bushes around the latrine.
- Pushing wastes into the pit hole.

NB: The VIP latrine is disadvantage is that, it is very expensive to construct.

Advantages of the VIP latrine

- They don't smell badly if maintained properly as they have the vent pipe to let out the bad smell.
- They don't have flies if maintained well as they have the screen to trap house flies.
- They are easy to clean.

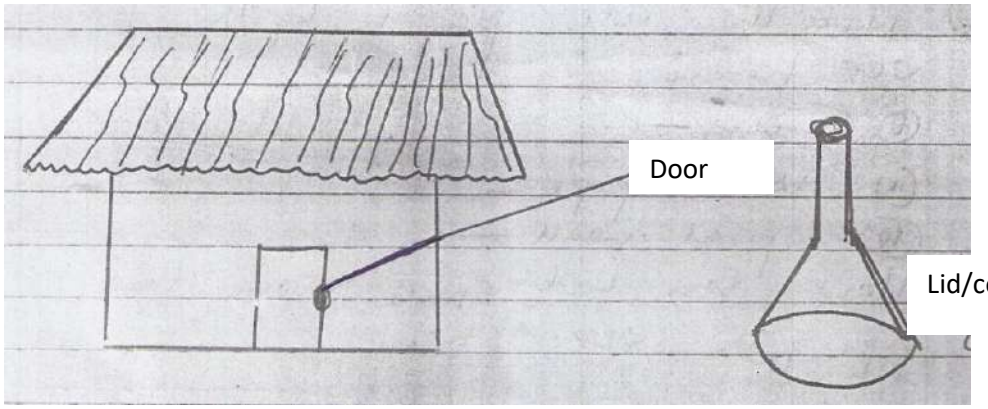
AN ORDINARY PIT LATRINE

They are also called conventional pit latrines.

Characteristics of the Ordinary pit latrines

- They have a cover or the lid on the pit hole to keep away bd smell and house flies.
- They don't have the screen.
- They lack the vent pipe.

STRUCTURE OF THE ORDINARY LATRINE



NB: The above latrine is cheaper compared to the VIP latrine.

Disadvantages of the ordinary latrine

- They contain house flies.
- They smell badly.

Differences between the VIP latrines add ordinary latrines.

Vip latrines	**Ordinary latrines**
They have the screen on top of the vent pipe.	They don't have he screen.
They have the vent pipe.	They have no vent pipe.
They don't have the lid to cover on the hole.	They have the lid on the hole.
They have the spiral wall that promotes privacy.	They have no spiral wall

TOILETS (WATER CLOSET) FLUSH TOILETS (WATER BORNE)

This is a type of latrine which uses water to flush away human waste into the septic tank.

Parts of a toilet

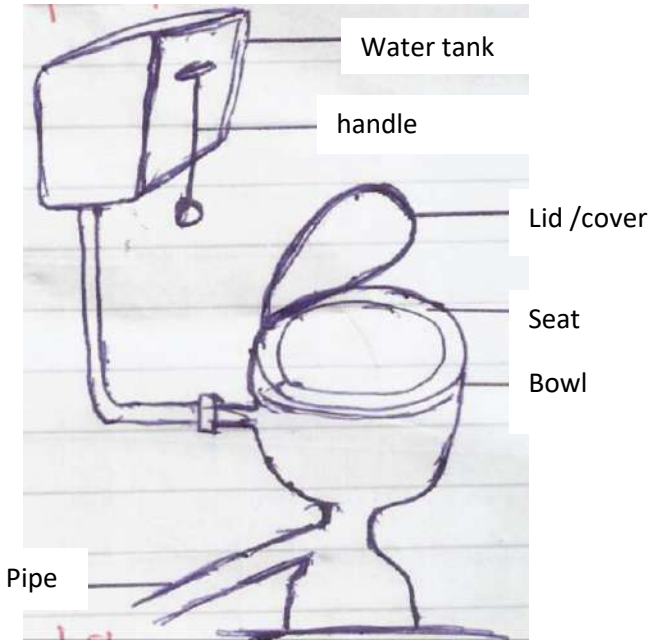
A bowl – This is a container where faeces and urine is deposited.

A seat - This is where a person seats.

A lid (cover) - It is used for covering the bowl.

Handle - This is used to push or pull the flush.
Pipes - They lead the faeces to the septic tank.
Septic tank – This is where faeces and urine are stored until they are emptied by emptier vehicle.
Water tank – It holds water for flushing after depositing human waste.

THE STRUCTURE OF A FLASH TOILET



Proper use of toilets
- Flush the toilet after urinating and defecating.
- Place back the lid/cover after using the toilet.
- Wash your hands after using a toilet.
- Use toilet tissues which are soft to prevent the blockage of pipes.
- Avoid using hard materials like pieces of paper, polythene paper which can block the pipes.
- Use disinfectants to kill germs in the toilets.

Examples of disinfectants
Jik - Vim - Jazzy
Importance of using latrines/toilets
- To prevent house flies from spreading germs.
- To prevent contamination of water sources.
- To prevent the spread of diarrhoeal diseases.

Diseases spread through faeces
- Polio - Cholera - Dysentery - Diarrhoea - Typhoid

Problems faced by urban toilets
- Lack of water for flushing

- Blockage of the pipe by hand materials

THEME : THE HUMAN BODY
TOPIC : GROWTH DEVELOPMENT AND REPRODUCTION

Growth - This is the increase in size of a living organism.
Development – This is the increase in maturity of a living organism.
Reproduction - Reproduction is the process by which living organisms produce young ones similar to themselves.
OR
Reproduction is the ability to produce and increase in number.
Types of reproduction
- Sexual reproduction
- A sexual reproduction

Sexual reproduction
This is the type of reproduction which involves the union of reproductive cells/gametes.

Asexual reproduction
A sexual reproduction is the type of reproduction in which reproductive cells/gametes are not involved.
Gametes are reproductive cells of organisms.
The part of an organism in which the reproductive cells are produced is called a gonard.
The male gonard is called testis.
The female gonard is called ovaery.
The male gametes are called sperms produced by testes.
The female gametes are called ova produced by ovaries.
Sperms are to animals while pollen grains are to plants.
Ova are to animals while ovules are to plants.

How are sperms similar to pollen grains?
They are both male reproductive cells.
How are ova similar to ovules?
They are both female reproductive cells.
Animals which have both the male and female reproductive organs are called **hermaphrodites.**
Examples of hermaphrodites
- Earth worms
- Tape worms
- Snails

Examples of a sexual reproduction

- Binary fission in bacteria and amoeba
- Spore formation in fungi like mushrooms and spore producing plants.
- Budding in yeast and coelenterates.
- Vegetative reproduction e.g stem cutting and use of suckers.

What is puberty?
Puberty is a period of sexual maturity.
This is the period of development during adolescence when the person becomes sexually mature and can produce a baby.
What is adolescence?
This is a transitional stage of development between childhood and adult hood.
An adolescent is a person between childhood and adulthood.
Normally in female, adolescence begins at 12 years and ends at 21 years.
In males, adolescence normally begins at 15 years and ends at 21 years.

Types of changes in adolescence
There are four types of changes during adolescence:
- Primary sex characteristics/basic sex characteristics.
- Secondary sex characteristics/physical sex characteristics/features.
- Out step adolescent changes.

Primary sex characteristics
These are change with in adolescence which are responsible for development of the reproductive sex organs to prepare them to their functions in reproduction.
Examples of primary sex characteristics in boys (males)
- The penis increases in size.
- The testes start producing sperms.
- Boys start experiencing wet dreams at night.

Examples of primary sex characteristics in girls/females.
- Ovaries develop/development of the ovaries
- Ovulation begins
- Menstruation begins
- Development and enlargement of the uterus.

Secondary sex characteristics/physical sex changes
These are changes/features which show the difference between a mature woman/female and a mature male/man.
Examples of secondary sex characteristics in boys/males
- Sweat glands become more active
- Hair grows around the penis
- Hair grows in the armpits
- Hair grows around the chest and enlargement of the chest.

- The voice breaks and deepens
- Development of skeletal muscles showing masculine features.
- Growth of beards/hair grows on the face.

NB: The hormone responsible for development of secondary sex characteristics in males is called testosterone produced by the testes.

Secondary sex characteristics in females

- Sweat glands become more active
- Hair grows under the armpits and around the vagina
- Development of the breasts, they increase in size, look tender and attractive.
- The girls face becomes smooth and good looking.
- Development of the muscular skeletal system showing feminine features.

PSYCHOLOGICAL AND EMOTIONAL CHANGES AMONG ADOLESCENTS

These changes take place in the minds and they are not seen and may not be realized by the adolescent.

They occur similarly in boys and girls. They include the following:

- Adolescents become interested in opposite sex.
- The react quickly to different situation ie, those who where docile or humble, cooperative become active and disobedient.
- They always want freedom.
- They become angry and disappointed quickly.
- They reject rules and orders of the elders.
- They always want to be recognized as mature.
- They always move in peer groups.

OUT STEP ADOLESCENCE CHANGES

These shows sudden growth and development of individuals of the same age group both differently in the different individuals.

- Sudden increase in size
- Sudden increase in the body length.

PROBLEMS ASSOCIATED WITH ADOLESCENCE

- Adolescents will never be satisfied with material demands.
- They always gain forms of wishes/desires which result into theft.
- They always begin fornication due to sexual maturity.
- Adolescence begins conflicts between adolescents and culture/regions
- Adolescence causes sexual conflicts among adolescents as they always want to experience their sexual ability.
- Adolescence makes adolescents develop antisocial behaviours like drug abuse.

Spelling exercise

- Adolescence

- Gamete
- Puberty
- Implantation
- Copulation
- Conception
- Ejaculation
- Gestation period
- Fertilization
- Oviduct
- Zygote

Pre lesson activity

Write two secondary sex characteristics which occur in both male and female adolescents

Write short notes on the following:

- Copulation
- Ovulation
- Fertilization
- Gametes
- Conception
- Implantation
- Spermatozoa

Copulation – This is the act of playing sex in human beings (sexual intercourse)

Ejaculation – This is the releasing of sperms by the penis.

Ovulation - This is the process by which the mature ovum is releases by the ovary into the oviduct for fertilization.

Fertilization - This is the fusion of the male and the female gametes to form the zygote.

Gamete - This is the reproductive cell of an organism.

Conception - This is the process by which the embryo divides and implants itself on the walls of the uterus.

Implantation - This is the attachment of the foetus on the walls of the uterus.

Ovum /ova - These are female reproductive cells produced by the ovaries.

Spermatozoa (sperms) - these are male reproductive cells produced by the testicles.

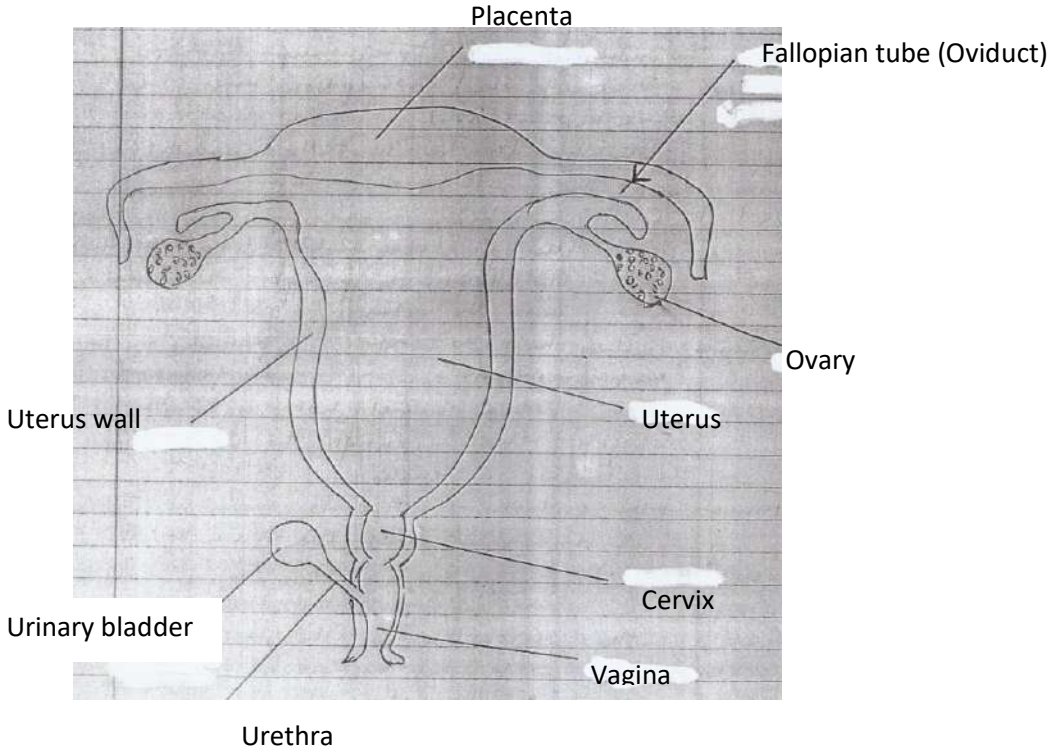
Hermaphrodite - This is a organism with both the male and female or reproductive organs.

Zygote /embryo - This is the name given to the developing baby from the time of conception to eight weeks.

Foetus - This is he name given to the developing baby between eight weeks and before birth.

NB: A man undergoes sexual reproduction.

PARTS OF THE FEMALE REPRODUCTIVE SYSTEMS



Functions of each part

Vagina

- This is the birth canal (where the baby passes during the time of giving birth)
- This is where sperms are deposited during sexual intercourse.

Cervix

It helps to close the lower part of the uterus during pregnancy.

Uterus

This is where conception takes place (implantation)

It provides the suitable conditions for the growth of the baby.

Oviduct /fallopian tube

It is where fertilization takes place.

It allows the passage of the ovum into the uterus.

Ovaries

They help to store and produce the mature ovum.

They produce several hormones called estrogen which control the secondary sex characteristics in females.

Funnel of the oviduct

It receives and directs the ovum to the oviduct.

NB : Progesterone hormone

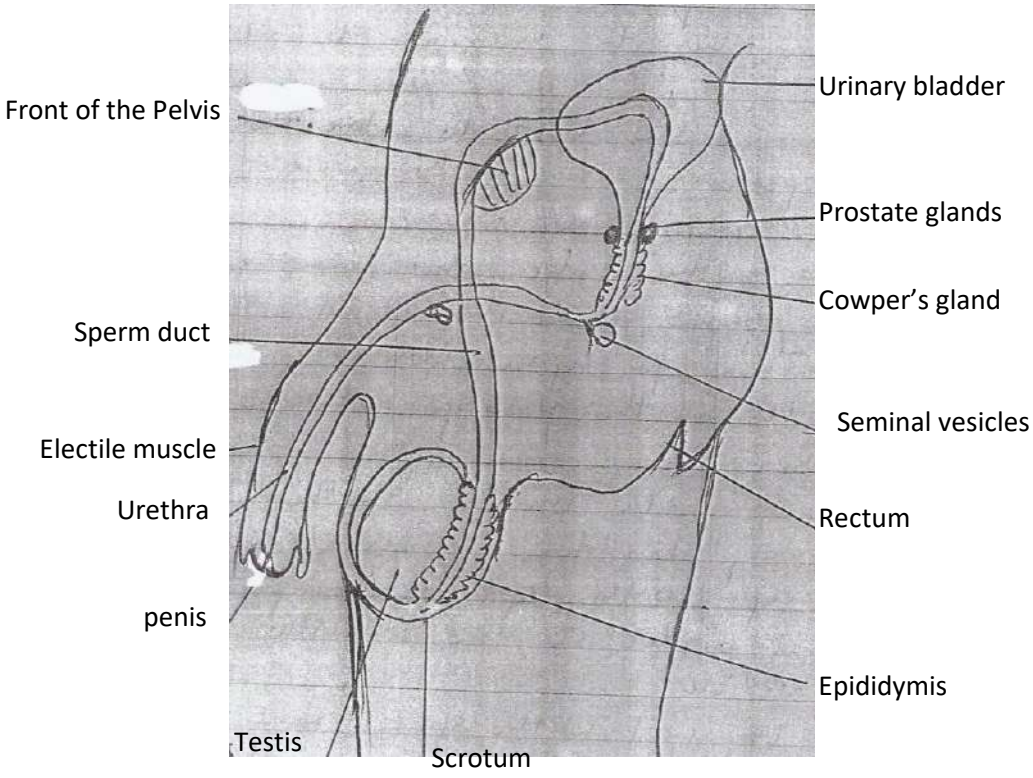
It is responsible for the future thickening of the uterus walls and increase in blood supply to the wall of the uterus.

Vulva

It is an opening to the vagina which directs the vagina during copulation.

It also directs/allows urine out during excretion.

THE VERTICAL SECTION OF A MALE REPRODUCTIVE SYSTEM



Functions of each part

Scrotum

- This is the outer covering of the testis.
- They protect the testis from harm
- They regulate the temperature around the tests.

Testicles/tests

- They produce the male reproductive cells called sperms.
- They produce the hormone testosterones which is responsible for the secondary sex characteristics in males during adolescence.
- They also help to increase the sexual desire.

Epididymis

- It helps to store the manufactured sperms

- It is the tube which carries/directs the sperms from the epididymis to the urethra for ejaculation.
- OR It is the passage of sperms to the urethra.

NB: The sphincter muscles at the opening of the urinary bladder which prevents urine from mixing up with sperms during sexual intercourse. (Urine is acidic, it can kill sperms)

Seminal vesicle

It produces the sperms semen which help the sperms to move through the urethra.

Conoper's glands

It produces the fluid which washes the urine bladder in the urethra for the sperms to move smoothly.

Prostrate gland

It produces the fluid which closes the urinary bladder during sexual intercourse to prevent urine to mix with sperms.

Urethra

It is thee passage of sperms from the sperm duct to the penis.

Penis

It is an erectile muscle/tissue which helps to deposits sperms/semen in the vagina during copulation.

NB: It becomes stiff for the easy penetration into the vagina where it deposits the sperms.

Fore skin/sheath

It covers the head of the penis from physical damage.

Sometimes it is cut off (circumcised) for hygiene reasons.

EXERCISE

- *Why is the sperm duct useful on the male reproductive system?*
- *Which hormones is produce by the testes to enable the development of secondary sex characteristics in males?*
- *How is the work of the tests different from that of the epididymis?*
- *A part from protecting the tests, how else is the scrotum useful to the male reproductive system?*
- *Of what importance is the semen produced by the seminal vesicles?*
- *Which muscle on the urinary bladder helps to close the urinary bladder to prevent urine from mixing up with sperms?*
- *What is ejaculation?*

OVULATION AND FERTILIZATION

Pre-lesson exercises

1) What is ovulation?
2) Where does ovulation occur?
3) What is the immediate result of ovulation?

4) Apart from ovulation, which other process occurs in the oviduct.
5) What is menstruation?
6) What is menopause?
7) Where does fertilization occur in females?
8) What is an immediate result of fertilization?
9) Which type of fertilization does man undergo?
10) Give two animals which undergo external fertilization.
11) Which other name can be used to mean fertilization?
12) What is copulation?
13) State another name for copulation.
14) Differentiate between a zygote and a foetus.
15) What is conception?
16) How do we call the attachment of the foetus on the uterus walls.

What is ovulation?
This is the process by which the mature ovum is released by the ovary into the oviduct for fertilization.

When does ovulation occur?
It occurs every after 12 -14 days from the day of menstruation.
At what age does ovulation occur?
It begins at an age of 11 to 16 years.
NB: The ovum is released alternatively from either two ovaries every month.
The ovum takes around 3 days travelling down the oviduct to the uterus.
Always ovulation stops at an age of 45 years and that is called menopause.
What is menopause?
This is the period when ovulation stops.

FERTILIZATION
This is the fusion of the male and the female gamete to form a zygote.
Types of fertilization
- External fertilization
- Internal fertilization

Internal fertilization
This is the type of fertilization which occurs inside the body of the female organism, eg birds, mammals, reptiles.
External fertilization
This is the type of fertilization which occurs out side the body of the female organism e.g frogs, toads, fish, etc.
In human beings fertilization occurs after mating.

What is mating?

This is the sexual union of a male and female partner.

<u>Sexual intercourse/coitus/copulation</u>

This is the playing of sex in human beings.

During copulation, a man releases three hundred sperms in the single ejaculation which move through the uterus to the oviduct where they meet with the ovum.

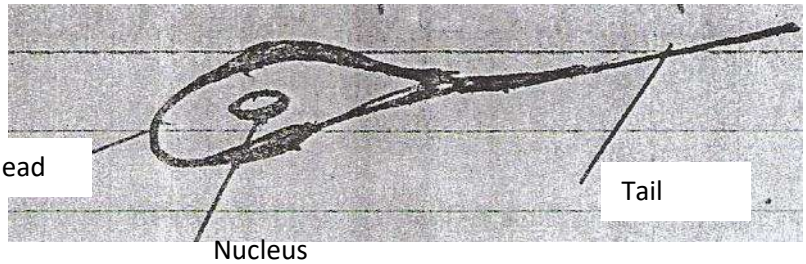
When the sperms meet the ovum its fusion into its nuclear and then the zygote is formed which later grows into the foetus.

What is a foetus?

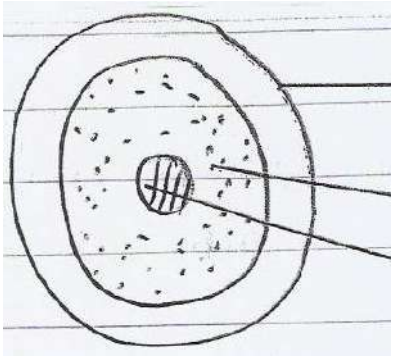
This is the name given to the developing baby between eight weeks and before birth.

NB: In human beings a released ovum is through to live for about 24hrs and the sperms can stay in the body of the female for 2 -3 days after their release.

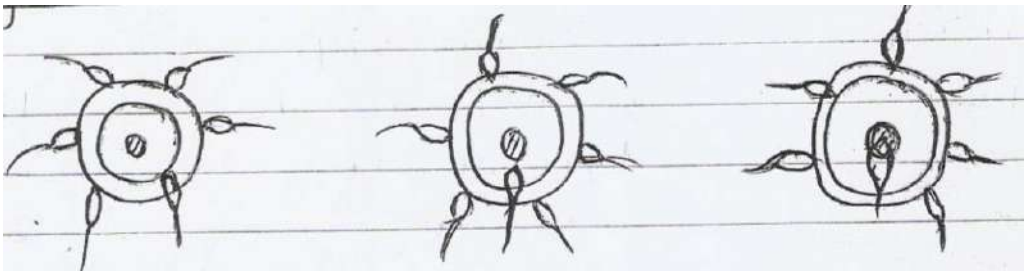
THE STRUCTURE OF THE SPERM



AN OVUM



STAGES OF FERTILIZATION



MENSTRUATION

- Menstruation is the monthly shedding of blood by the uterus walls when fertilization does not take place.
- Menstruation occurs every after 28 days and usually lasts for 3 – 5 days in normal cases

CONCEPTION

This is the process by which the embryo repeatedly divides and implants itself on the wall of the uterus.

After the attachment of the foetus on the uterus walls, the embryo starts absorbing food through the placenta.

Gestation period/pregnancy

This is the time taken from fertilization or conception to birth.

Gestation period of different animals

Animal	**Gestation period in months**	**Gestation period in days**
Rat		21 days
Rabbit	1 month	30 days
Guinea pig	2 months 7 days	67 days
Dog/bitch	2 months 3 days	63 days
Pig /sow	3 months 3 weeks 3 days	112 days – 115 days
Elephant	1 year and 10 days	660 days
Man	9 months	280 days
Sheep/ewe	5 months	150 days
Goat/nanny	5 months	150 days
Leopard	3 -5 months	90 – 105 days
Lion	3-5 months	90 – 105 days
Cheetah	3 months 5 days	90 – 95 days
Baboon	6 months	180 days

Monkey	5-6 months	150 -180 days
Cow	9 months	280 days
Gorilla	8-5 months	240 days
Chimpanzee	7-8 months	210 – 240 days

Qn: *Of what importance is the placenta to the growing embryo?*

SIGNS OF PREGNANCY

- Menstruation stops.
- Breasts grow bigger
- Some women experience morning sickness in the first 3 months
- The abdomen enlarges and hardens.
- Passing out urine more frequently than normal.
- Vomiting normally in the morning and the evenings.
- Severe headache and difficulty in seeing.
- Hard and severe painful belly.
- Frequent spitting of saliva
- Arouse of appetite to particular food.
- Swelling of the legs, face and hands.

How to care for the pregnant mother

1. Giving them antenatal care

Ante – means before

Natal – means birth

Therefore antenatal care is the special care given to the pregnant mother in the hospital.

- Health check ups
- Diagnosing problems associated with pregnancy e.g, bleeding (severe vomiting, sickness)

2. **Good nutrition**

They should always eat nutritious foods to promote the proper growth of the foetus and maintain the good health of the woman.

3. **Physical exercise**

This helps to promote body fitness of the woman's body and allows the proper function of the circulatory system.

4. **Personal hygiene**

Pregnant mothers should observe high standards of hygiene during pregnancy and after delivery to avoid catching diarrhoeal diseases.

5. **Adequate rest and sleep**

This allows proper functioning of the internal mechanisms leading to the proper growth of the foetus and good health of the mother.

6. Avoiding drug abuse (alcoholism and smoking)

Such practices should be avoided because they can lead to:

- Miscarriages (pre-mature birth)
- Death of the foetus

7. Wearing of the comfortable clothes in order to allow good blood circulation, proper walking so as to avoid backache.

Description of the diet for the pregnant mother

Type of food value	sources	Function
Iron	Vegetables, meat, blood, liver, kidney	Adds haemoglobin to both the mother and foetus.
Proteins	Eggs meat, fish, bean, chicken	-Builds up the body tissues of the foetus. -Repairs the mothers' worn out body tissues.
Calcium	Milk, small fish, iodized salt, egg shell	Builds up strong bones of the foetus and the mother.
Carbohydrates	Maize flour, cassava, rice, bread, matooke, millet, wheat.	Provides energy to the women to support pregnancy.
Vitamins	Fruits, vegetables, blue band	Improves on the mothers' immunity. Builds up the foetus' immunity.

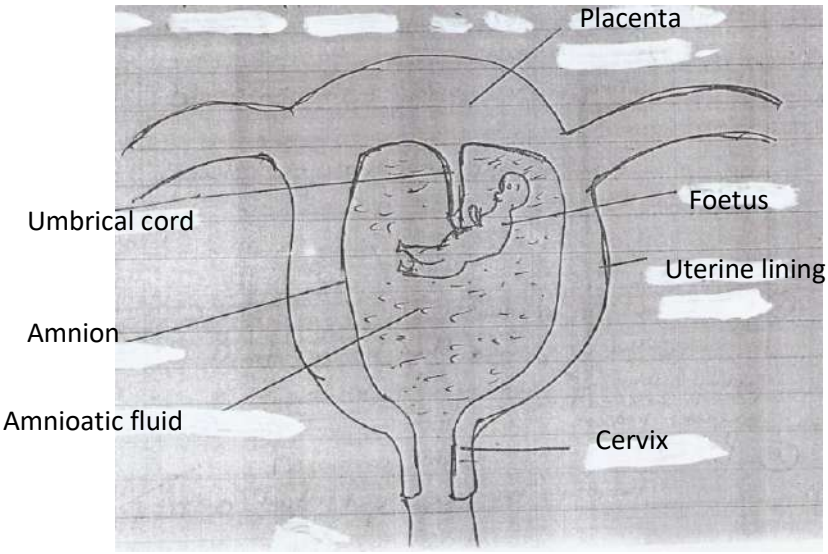
<u>Services given to the pregnant mother in antenatal clinics</u>

- Immunization against tetanus using tetanus toxoide (TT)
- Teaching them how to care for the newly born babies.
- Diagnosing problems associated with pregnancy.
- Provision of hygiene and modern facilities for delivery.
- Sensitizing them about proper feeding.

EXERCISE

- What is antenatal care?
- Mention three ways of caring for the pregnant mother.
- Why are pregnant mothers immunized with T.T vaccine?
- What is TT vaccine in full?
- Why pregnant mothers should be provided with proteins rich foods.

- What is gestation period?
- What is menstruation?
- Where does conception occur?
- Differentiate between the zygote and a foetus.
- State the importance of the oviduct in the reproductive system of a female.
- What causes anaemia to pregnant mothers?
- Apart from fertilization, identify any other process which occurs in the oviduct.



Functions of each part

Umbilical cord

It contains arteries and veins therefore;

- The arteries transport food and oxygen from the placenta to the foetus.
- The veins transport waste products and oxygenated blood from the foetus to the placenta.

Placenta

- It attaches the foetus on the uterus.
- It prevents the blood of the mother to mix up with the blood of the foetus.
- It prevents toxic dangerous chemicals to reach the embryo.
- It stores waste products from the foetus until they diffuse out of the mother's blood.
- It stores food and oxygen for the foetus.

Amniotic fluid

It protects the foetus from harm (shock) by lubricating the walls of the womb.

Amnion /amniotic sac

It is the sac which keeps the amniotic fluid.

PROBLEMS ASSOCIATED WITH YOUNG MOTHERS

1. OBSTRUCTED LABOUR

This is when the baby fails to come out fully during giving of birth as a result of the small pelvis.

2. PREMATURE BIRTH

This is the un intended coming out of a foetus.

3. MISCARRIAGES

This is when the foetus is expelled from the mother's womb before it is fully developed.

4. ABORTION

This is an intended removal of the foetus before the actual time of birth.

REASONS WHY PEOPLE ABORT

- To keep in schools.
- Being abandoned.
- Fear to lose parental love
- Fear of responsibility

EFFECTS OF ABORTION

- It can lead to death
- It leads to maintain anaemia (much bleeding)
- It can lead to loss of the uterus
- It can lead to sterility.

5. **SCHOOL DROP OUTS**

Many girls live school after getting pregnant

6. Failure to get married officially.
7. Inability to care for their children and themselves.
8. Loss of parental love

PROBLEMS FACED BY YOUNG CHILDREN BORN BY YOUNG MOTHERS

- They lack basic needs like clothes, food.
- They may get diseases as young mothers lack knowledge of preventing infections to babies.
- It results into high mortality rate due to a lot of diseases which might affect them.
- Lack of parental love,
- Getting abandoned as a result of lacking basic needs.

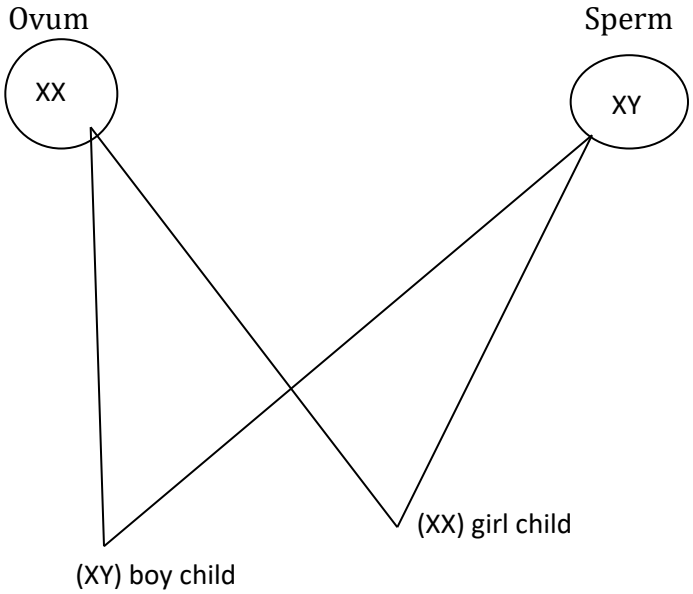
WHAT DETERMINES THE SEX OF THE CHILD

Se is determined by the sex chromosomes contained by the reproductive cells.

All the ova contain XX chromosomes representing female sex whereas all sperms contain XY chromosomes representing a male sex. i.e,ovum chromosomes a tiny substances found in the nucleus of a reproductive which determines the sex of an offspring.



During fertilization, an ovum contributes only X chromosomes and sperm contribute X chromosome or Y chromosome.
It is the sperms chromosome which determines the sex of the child by contributing either X to make XX for female child and by contributing Y chromosome to make XY for the male sex.



Twins are two children born at the same time to the same mother.
TYPES OF TWINS
- Fraternal twins
- Identical twins
- Siamese twins

Identical twins
These are twins of the same sex and similar in nearly every physical respect.
These are twins formed when a fertilized ovum divides into two parts at an early stage of cell division and each part develops separately into a normal embryo.

Fraternal twins

These are twins formed from two ova which are released at ago from either ovaries and fertilized by two separate sperms.
These twins may be different in sex and physically unlike.

Siamese twins

These are twins formed when a fertilized ovum divides but fails to separate full. These children will be born when joined together and may share some vital organs like the liver, heat, brain, etc.

Multiple births

Multiple births are triplets or more children at the same birth.
It happens when several ova are releases and fertilized by different sperms at the same time. These may be identical or fraternal.

DISEASES OF THE REPRODUCTIVE SYSTEM

Disease of the reproductive system a mostly spread through sexual intercourse with infected the person.
They are referred to as sexually transmitted disease/venereal diseases.

Write the following in full

STDs - Sexually Transmitted Diseases
STIs - Sexually Transmitted Infections.
VDs - Venereal Diseases.

What are STDs?

These are disease spread through having unprotected sexual intercourse with an infected person.
Examples of sexually transmitted diseases

- Syphilis
- Genital herpes
- Cancroids
- Trichomoniasis
- Gonorrhoea
- HIV/AIDS
- Candidiasis

GONORRHOEA

This is caused by the rod shaped bacteria called Neisseria gonorrhoeae.
It attacks and affects the urethra and other parts of the males and females.
How Gonorrhoea is spread?

- It is spread through having un protected sexual intercourse with an infected person.
- It can be spread from the infected mother to the baby during delivery.

Signs and symptoms of gonorrhea

Males

- Pus discharge from the penis (urethra)
- Difficulty in urination.
- Burning pain when urinating.

Females

- Pain in the lower part of the abdomen
- Pain during menstruation period
- Passing out smelling urine with pus.

Effects of gonorrhea

If gonorrhea is not treated, it can lead to:

- Painful joints in both men and women.
- Blocking of the urethra.
- Pain in lower abdomen.
- Blocking of the oviduct in women leading to barrenness.
- Pus in eyes and blindness in the newly born baby (it affects the yes of the newly born baby)

SYPHILIS

It is caused by the bacteria called treponema pallidum.

How syphilis is spread.

- Through sexual intercourse with the infected person.
- It is spread to babies from the infected mother at birth.

SINGS AND SYMPTOMS OF SYPHILIS

- Painful sores appear on the penis or vulva.
- Painful rush all over the body if it becomes severe.
- Swollen joints
- Abdominal pain which becomes severe with time.

NB The types of syphilis acquired by the foetus during pregnancy is called congenital syphilis.

Effects of syphilis

If not treated can be passed to the babies

Prevention of syphilis

- Get early treatment.
- Abstain from sex
- Always play protected sex.

HIV/AIDS

A - Acquired (got from)
B - Immune (protected)
D - Deficiency (lack of)
S - Syndrome (group of sings and symptoms)

Write in full AIDS

AIDS - Acquired Immune Deficiency Syndrome.

HIV - Human Immunno deficiency Virus

AIDS does not kill but the HIV lowers the immunity of the person and makes a persons body not protected against infections.

Therefore the HIV attacks and destroys the white blood cells.

<u>Ways how AIDS is spread.</u>

- Playing un protected sex with an infected person.
- Sharing un sterilized piercing objects with the infected person.
- Through blood transfusion.
- Through cultural practices like circumcision.
- Through blood contact from the mother to the baby at birth.

<u>Social practices which can increase risks of catching AIDS</u>

- Sex out side marriage (adultery)
- Pre-marital sex . (fornication)
- Being raped or defiled
- Circumcision
- Polygamy
- Inheriting widowers by marrying them.
- Alcoholism
- Drug abuse e.g opium.

NB: A sign is a mark seen showing that a person is sick while a symptom is a mark felt by a person suffering from a sickness.

SIGNS AND SYMPTOMS OF AIDS

- Persistent fever
- Chronic diarrhea
- Chronic dry cough
- Herpizoster
- Mental disturbance
- Tuberculosis
- Sudden loss of body weight with in a short time.
- skin rush
- white coating on the mouth
- red lips
- Mental disturbance
- loss of hair on the head

<u>CATEGORIES OF PEOPLE AT HIGH RISK OF GETTING AIDS</u>

- Youth involved in fornication
- Sex-workers (prostitutes)
- Bar maids
- Polygamists
- People who are raped
- Young boys who run for sugar mummies
- Young girls who run for sugar daddies

NB: A person who goes for a blood test and tests HIV positive, it means that he/she has got the HIV virus. While the one who tests HIV negative, he/she has HIV virus.
If a person has HIV but shows no sign, then we say he/she in are window stage
If a person with HIV starts showing signs then we say that such a person has developed AIDS.
METHODS OF CONTROLLING HIV/AIDS

- Abstaining from sex until marriage.
- Having only one long life partner (avoid sex outside marriage or avoiding post marital sex)
- Blood used for transfusion should be well screened.
- Having HIV test with your partner before marriage.
- Through correct use of condoms during sexcual intercourse.
- Being faithful to your partner.
- Avoid sharing un sterilized piercing objects with more than two people.

ABC - abbreviation represents the ways how one can prevent STDs (AIDS)

A - Abstinence from sex
B - Be faithful to your partner
C - Condom use.

EXERCISE

- *What is the best way of preventing AIDS in school going pupils?*
- *Why is AIDS very common among the youth?*
- *State the reason why AIDS is said to be a deadly STD.*
- *Write ABS in full as used in control of STDs.*
- *Write HIV in full.*
- *What are STDs?*
- *Which component of blood is affected by the AIDS parasites?*

CANDIDIASIS

Candidiasis is caused by the fungus called candida.
How candida is spread?

- Through sexual intercourse with the infected person.
- Through sharing knickers and pant with the infected person (poor hygiene)
- From the urinal ground by girls.

SIGNS OF CANDIDIASIS

- Thick whitish vaginal discharge.
- Smelly discharge from the vagina
- Burning pain when urinating.

Control and prevention of candidiasis

- Keep the reproductive organs clean.
- Wash the vagina with warm water or lemon juice in water.

- Avoid unprotected sexual intercourse.
- Use of condoms during sexual intercourse.

GENITAL HERPES. They are:

- Small but very painful blisters in the penis, vagina, anus and buttocks.

Prevention

Keep sexual organs clean

GENERAL WAYS OF PREVENTING STDS

- Have only one faithful partner
- Abstain from sex/ Use condoms during sexual intercourse
- Always go for blood test before marriage.
- Always use well sterilized objects.

DISORDERS OF THE REPRODUCTIVE SYSTEM

These are abnormal factors that many fail the proper functioning of the reproductive system.

- **Ectopic pregnancy**

This is the situation where by the zygote implants itself and develop in the oviduct instead of the uterus.

- **Cancer of the cervix**

This is the abnormal growth on the cervix.

- **Penis cancer**

This is the abnormal growth/tumours on the penis.

- **Importance barrenness**
- Fistula – This is the abnormal passage in the layer separating the rectum and vagina
- These lead to faeces passing via the vagina.
- Blockage of the oviduct.
- Poor election in men
- Miscarriage due to weak uterus.

EXERCISE

- *What are STDs?*
  Write the following in full.
  HIV
  AIDS
  ABC in STDs
  STDs
  STIs
  UDs
- *Identify 5 examples of STDs.*
- *State the fungal STD which attacks ladies.*

- *Which STD attacks and affects the eyes of newly born babies.*
- *How best can school going children prevent getting AIDS?*
- *Start two causes of early marriage in Uganda.*
- *State two dangers of early sexual involvement to pupils.*
- *Give three dangers of early marriage/pregnancy.*
- *State three disorders of the reproductive system in men.*
- *Why is prevention better than cure in STDs?*
- *Mention one reason why AIDS victims should be isolated?*
- *State one way of caring for AIDs victims.*
- *What causes the following:*
  AIDS
  Gonorrhoea
  Syphilis
  Candida
- *What is antenatal care?*
- *Which component of blood is mostly affected by HIV?*
- *How is tuberculosis similar to AIDS?*
- *Define ectopic pregnancy.*
- *What is pre-marital sex?*
- *Why is pre-marital sex dangerous?*
- *Identify one sign of gonorrhoea to a person?*
- *Point out three sings of AIDS to the victim.*

FAMILY PLANNING AND CHILD SPACING

What is family planning?

Family planning is the decision made by the parents on how many children to produce and when to produce them.

Birth control

This is the use of different methods to avoid pregnancy for proper spacing of children.

What is child spacing?

This is the act of providing enough time between the birth of children in the family.

ADVANTAGES OF FAMILY PLANNING (BIRTH CONTROL METHOD)

- It enables the women's body to rest and prepare for the next birth.
- It enables parents to have limited number of children they can manage to look after effectively.
- It prevents un wanted pregnancies,
- It prevents frequent birth which causes maternal anaemia and miscarriages.
- It enables the children born to have enough care and parental love.

Dangers of Frequent births

- Maternal anaemia
- Miscarriages

- Premature birth
- Low birth weights
- Proneness to diseases
- High mortality rate
- Still birth

Define the following?

Miscarriage - This is the death of the babies during the time of birth.

Pre-mutual birth

This is the act of giving birth to the baby before the actual time of giving birth.

Abortion

This is an intentional removal of the foetus before the actual age of giving birth.

REASONS WHY PARENTS PRODUCE MANY CHILDREN

- Ignorance of family planning methods
- High infant mortality rate.
- In order to get enough labour force in the family.
- To get the desired sex child in a boy or a girl.
- For more bride wealth from female children.
- For prestige (proving man hood)

INFANT MORTALITY RATE

This is the rate at which young children die before the age of six years.

Ways of reducing the high mortality rate

- Using the family planning methods to reduce frequent births
- Proper breast feeding of babies
- Immunizing children against killer diseases
- Treating children against dehydration.
- Regular visiting of health centres

NB: An organization responsible for family planning in Uganda is (FPAU)

FPAU – Family Planning Association of Uganda.

METHODS OF FAMILY PLANNING

Methods of family planning are categorized into two i.e:

- Natural methods of family planning
- Artificial methods of family planning.

NATURAL METHODS OF FAMILY PLANNING

Natural methods of family planning don't involve using drugs and operation.

- Prolonged breast feeding
- With draw method (coitus interrupts)
- Abstinence
- Rhythm method (safe days, calendar method)

Prolonged breast feeding

It helps to delay monthly ovulation and works effectively in the first 6 months after birth.

Withdrawal/coitus interrupts)

This involves the withdraw of the penis from the vagina as soon as the man senses he is going to ejaculate.

Abstinence method

This is the method in which some one avoids sex completely before the actual age of giving birth or during marriage.

Safe days (Ryhthm method)

This involves studying the menstrual cycle and only sexual intercourse is restricted on only when the ovum is absent (safe days)

Advantages of natural family planning methods

- They are risky not effective like artificial methods
- They need co-operation between the female and male partner which may be not available.
- Apart from abstinence but all other methods don't prevent STDs.

ARTIFICIAL METHODS OF FAMILY PLANNING

These are methods which involve using of artificial devices to control pregnancy.

- Birth control pills
- Birth control injection (injecta plan)
- Looping method i.e IUDs or IUCDs /coils
- Condom use
- Forms and jellies (spermicides)
- Diaphragm (using a cap)
- Tubal ligation
- Vasectomy
- Nor plant

Birth control pills

These are small tablets containing hormones which help to prevent ovulation to take place. They are swallowed daily.

Disadvantages of using pills

- They can lead to morning sickness
- It can lead to swelling of breasts
- They may be not effective if not properly used.
- They don't prevent STDs apart from condom use.

Birth control injection

This is when the hormones are given in form injection every after specific period of time e.g, after 3 months, 6 months, etc.

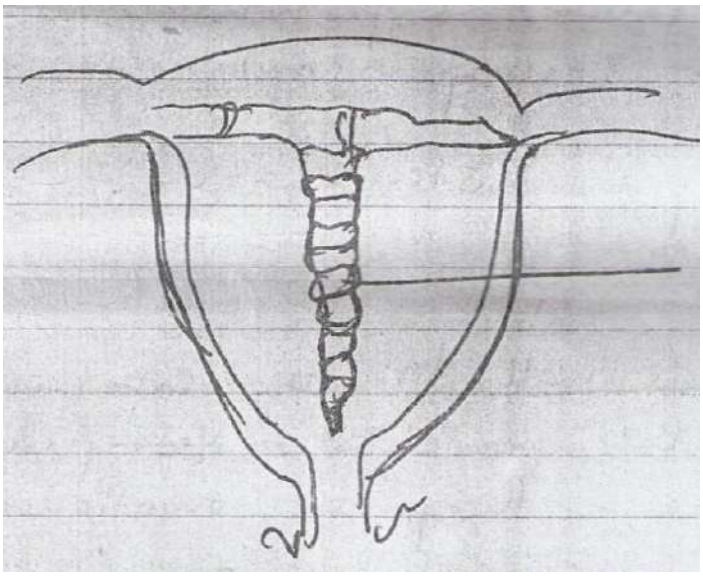
Looping methods (IUDs or IUCDs) coil

IUDs - Intra Uterine Devices

IUCDs – Intra Uterine Contraceptive Devices

They are plastic or metallic devices (coils) inserted into the uterus by a well trained worker.

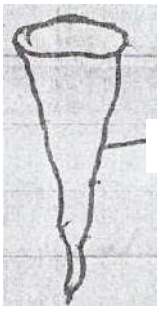
These coils inserted will prevent implantation from taking place for over years.



Coil /IUD

Condom use

These are two types of condoms i.e, a male and a female condom. A male condom is put on an erect penis while a female condom is inserted into the vagina up to the cervix.



A male condom

NB: Condoms are not 100% effective if they are not handled and used properly.

Spermicides (forms and jellies)

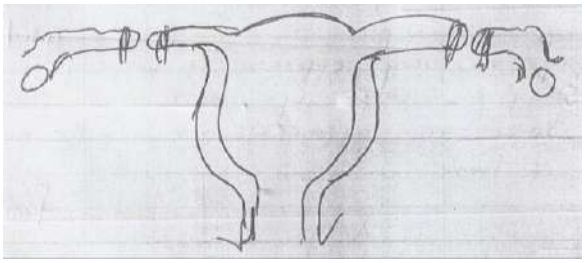
These are chemicals which kill sperms. They are inserted into the vagina before having sex.

Diaphragm (cap)

This is a rubber barrier that is inserted inside the woman's vagina to cover the uterus in order to prevent sperms from getting into the uterus. They should b e used with the spermicides.

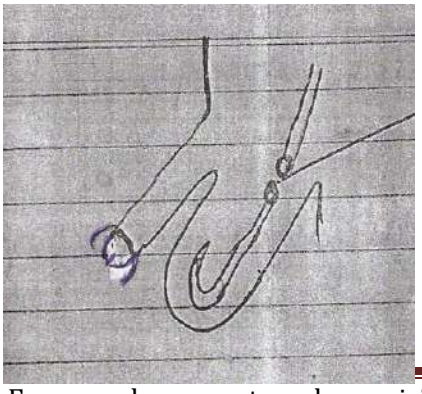
Tuballigation

Tuballigation is the cutting of the oviduct and tired during a surgical operation to block the passage of the ova from the ovaries.



Vasectomy

This is the cutting of the sperm duct and tying them through a simple surgical operation.



Vasectomy

Norplant

This involves simple operation in which the capsules containing hormones are inserted in the upper arm on the woman's left arm. They prevent ovulation to take place. Each capsule lasts for I year.

Permanent methods of family planning

- Vasectomy
- Tuballigation
- Looping (IUDs)

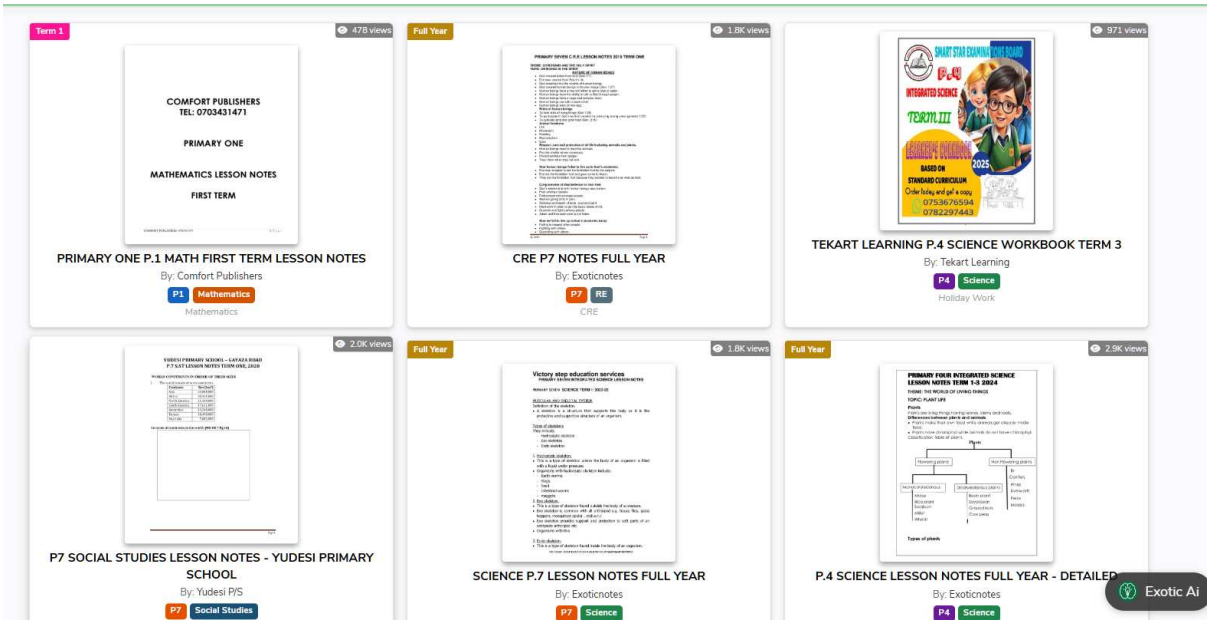
Advantages of artificial methods of family planning

- They are very effective if properly used.
- They are commonly available
- Some are affordable

Disadvantages of artificial methods of family planning

- They are expensive (costly)
- They can cause other health problems like high blood pressure and over bleeding
- They can only be used under the supervision of health workers.

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