

FOREWORD AND RECOMMENDATION

COVID 19 pandemic caused a disruption in our education system and made learners missed schooling for two years of 2020 to 2021 schooling period. This has created a need to rethink what and how learners will be taught when schools open.

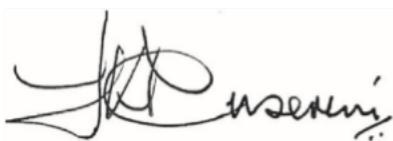
The Kolfram Educational Services Kampala has developed a series of teaching materials for preprimary, primary and secondary schools in Uganda. These materials are prepared in accordance to the abridged curriculums right from primary two up to senior six.

"Special thanks go to all the board of director and staff of Kolfram Educational Services Kampala for the great work done.'
Congratulations

This material presents a selection of priority learning competences and concepts, along with psychological support, which should be focus of instruction in the 2022 school year in order to achieve learning recovery.

This material is not a departure from the existing old curricula for this level but is a modification of the same with a purpose of recovering the lost learning time with maximum learning loss. They have been packed for all primary and secondary classes in Uganda including **pre- primary, primary one, senior one** and **senior five** that are still using the old standard curriculums.

I therefore, recommend this material and ask all stake holders, educational fraternity to support its implementation as a strategic intervention towards the mitigation of the effects of COVID 19 pandemic on the education system. The effective implementation of this material by the implementers will be a great milestone towards the recovery of lost learning time and giving hope and confidence to learners and teachers.



HON. Janet K. Museveni

First Lady and Minister for Education and Sports



ACKNOWLEDGEMENT

- I'm very grateful to the Almighty God the Most High who enabled us to accomplish the mission and publish this book.
- Similarly, we wish to express and convey our gratitude to all those who contributed to the production and reproduction of this book, materially, spiritually and professionally. Thank you very much.
- Lastly we do sincerely regret any error, mistakes or incorrect writing in a paragraph which may be found in this book; it could have cropped up unknowingly.
- All rights to photocopy, print, reproduce or duplicate this material found herein are strictly reserved.

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 - ✓ Sumbatala Hawah among others.

MESSAGE FROM THE DIRECTOR NCDC- UGANDA

Dear reader, having gone through this book reasonably, I strongly recommend you to adopt its implementation with confidence as it covers a wide range of everyday real life experience carefully selected for this level in accordance to the abridged curriculum.

Dr. Grace K. Baguma


DIRECTOR,



NATIONAL CURRICULUM DEVELOPMENT CENTRE



PREFACE

The Standard Kolfram in Use; Abridged Curriculum, Religious Education pupil's workbook 7 is purely based on the New revised Primary seven Syllabus 2021. It is one of the 60 books set in the same series set to solve the challenges caused by COVID 19 pandemic in teaching and learning in primary and secondary schools. Other books in the series cover all the classes and other subjects which do exist in Ugandan schools.

Features of this book

- ✓ This book is simple and easy to use instead, it is learner friendly.
- ✓ Topics and explanations have been simplified to suit the level and the age of the learners.
- ✓ The topics and subtopics in this book have been logically and systematically arranged to guide learners in their own revision time.
- ✓ The languages used in the book are learner friendly.
- ✓ The book contains a number of assessment exercises and tests which guides both the teachers and the learners using the book in preparation for the examinations.
- ✓ Hundreds of live examples from the Past Primary Leaving Examinations are also included in this book.

We hope the content in this book will not only amuse or attract the users, but also play a tremendous role in solving the teaching and learning problems in **Religious Education** in both urban and rural private and government primary schools in Uganda.

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Head of department

0777886622/ 0784044408



KOLFRAM EDUCATIONAL SERVICES KAMPALA

"Let's Discover Our Potentials"

TABLE OF CONTENT

FOREWORD AND RECOMMENDATION	2
ACKNOWLEDGEMENT.....	3
PREFACE.....	4
TABLE OF CONTENT	5
PART I: TERM ONE WORKBOOK	
TERM I	
TOPIC 1: sanitation	6
TOPIC 2: ACCIDENTS AND FIRST AID.....	11
ACCIDENT	
FIRST AID	
TOPIC 3: SCIENCE AT HOME AND IN OUR COMMUNITY.....	30
TOPIC 4: Muscular and Skeletal System.....	
Skeletal system.....	
Muscular system:	
TOPIC 5: Respiratory system	
TOPIC 6: Reproductive System	

THEME: HUMAN HEALTH
TOPIC 1: SANITATION
LESSON

- 1) **Sanitation:** is the general cleanliness of an area.
- 2) Sanitation is the steps taken to promote public cleanliness involving community effort to disease prevention.
- 3) **Sanitation** is the general cleanliness of the environment.

Elements of sanitation

Sanitation involves the following measures:

1. Provision of good housing
2. Proper disposal of human wastes
3. Supply and use of safe water
4. Vector control
5. Safe guarding of food against contamination
6. Prevention of air and water pollution

Ways of promoting sanitation.

1. Draining away all stagnant water to deny mosquitoes breeding grounds.
2. Digging rubbish pits and provision of dustbins for proper disposal of rubbish.
3. Having a latrine or toilet for proper disposal of faeces and urine.
4. Spraying vectors with insecticides.

Reasons for practicing good sanitation

1. Good sanitation prevents spread of diseases.
2. It prevents accidents like cuts from broken bottles.
3. It prevents water and air pollution.
4. Good sanitation prevents food contamination.

Activity

1. Define the word **sanitation**.

2. State any **two** elements of sanitation.

3. Write down **two** ways of promoting sanitation.

4. State **two** reasons for practicing good sanitation.

5. State **two** ways in which sanitation prevents spread of diseases.

6. Mention any **two** accidents we can reduce by practicing sanitation.

LESSON

Latrines

A latrine is a place for urination and defecation.

Latrines and toilets are very important to our health because they keep faeces and urine in places where flies, other insects, animals and people cannot bring them to our food and shelter.

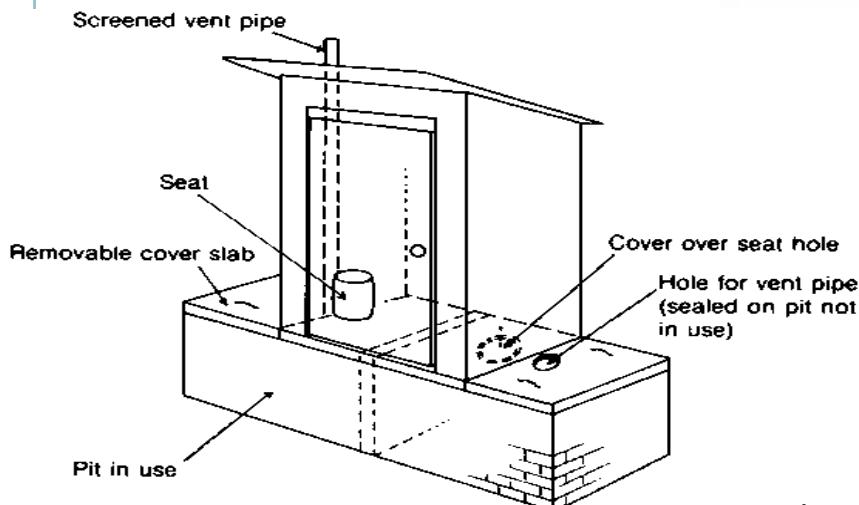
Types of latrines;

1. Ordinary pit latrines
2. Ventilated improved Pit latrines
3. Toilets
4. Potties

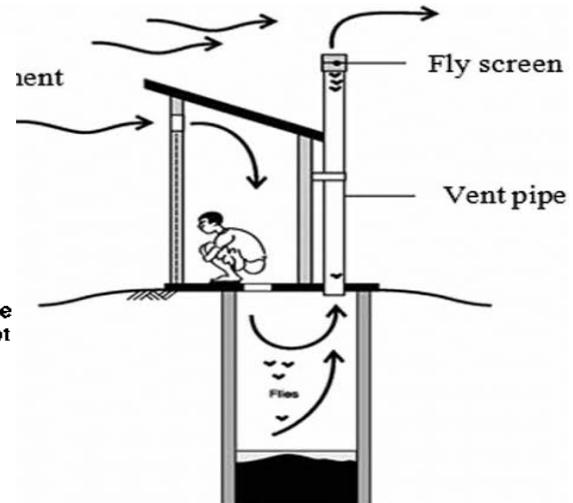
Characteristics of pit latrines;

1. They are deep to hold faeces of the users for so many years.
2. They have strong floors to stand on and smooth enough to sweep and clean.
3. They have enough holes to allow in faeces and urine but small enough to prevent children from falling in.
4. They have a lid to cover the hole completely and keep houseflies out of it.
5. They have walls and doors for privacy.
6. They have a roof which protects people from rain and sunshine.

Structures of VIP latrines



External structure of a VIP latrine



Internal structure of a VIP latrine

Differences between a VIP latrine and an ordinary pit latrine;

1. A VIP latrine has a vent pipe whereas an ordinary pit latrine doesn't have a vent pipe.
2. A VIP latrine doesn't have a lid whereas an ordinary pit latrine has a lid.
3. A VIP latrine has a screen whereas an ordinary pit latrine doesn't have a screen.

Similarities between a VIP latrine and an ordinary pit latrine

1. Both latrines can be smoked. Both latrines have a hole
2. Both latrines have a slab.

Advantages of VIP latrine over an ordinary pit latrine;

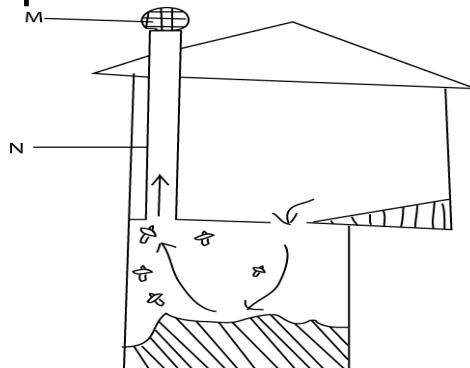
1. A VIP latrine does not smell badly.
2. A VIP latrine has a screen which traps houseflies.

Ways of keeping pit latrines clean.

1. Regular sweeping helps to push faeces and urine into the hole.
2. Slash tall grass around it to prevent dangerous insects and animals.
3. Regular smoking with dry plant materials.

Activity

1. The diagram below is of a ventilated improved Pit (VIP) latrine. Use it to answer the questions that follow.



- (a) Name the parts marked m and n

(i) M _____
(ii) N _____

- (b) Give the function of the part marked M

- (c) What do the arrows in the diagram show?

2. What good health habit should be practiced after visiting a latrine or toilet?

3. Why is a Ventilated Improved Pit latrine left without a cover?

4. Give any one characteristic of a Ventilated Improved Pit Latrine

5. Give any one reason why people should use latrines /toilets properly.

6. How does a vent help to reduce smell in a VIP latrine?

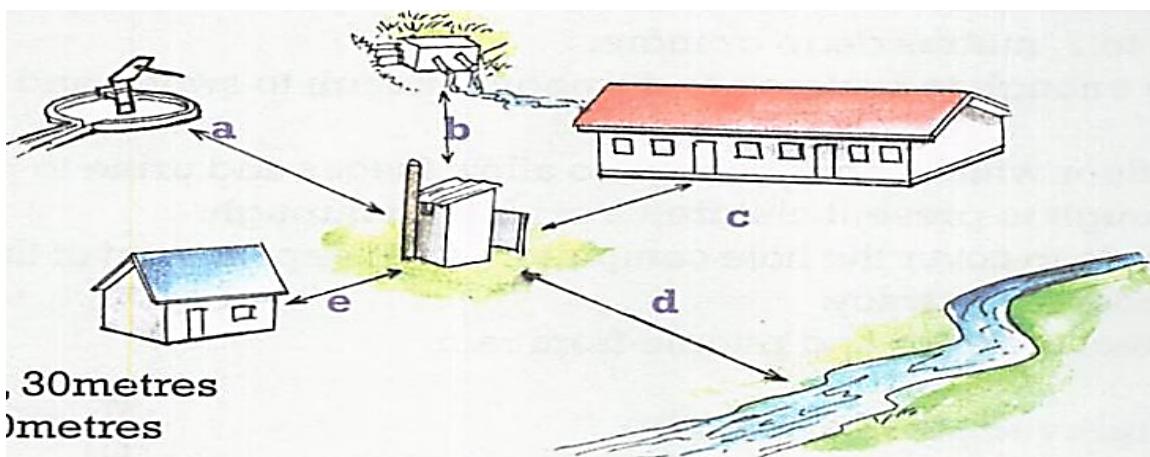
7. Why is it not necessary for a VIP latrine to have a lid for the hole?

LESSON

Site for latrines

- ✓ All latrines should be below or down hill near the water source. This prevents faeces from mixing with water to contaminate it.
- ✓ All latrines should be 30 metres away from water sources to allow water

- which comes into contact with faeces to filter out into the soil.
- ✓ All latrines should be at least 10 metres away from school, home, hotel to prevent bad odour from reaching people.



Toilets

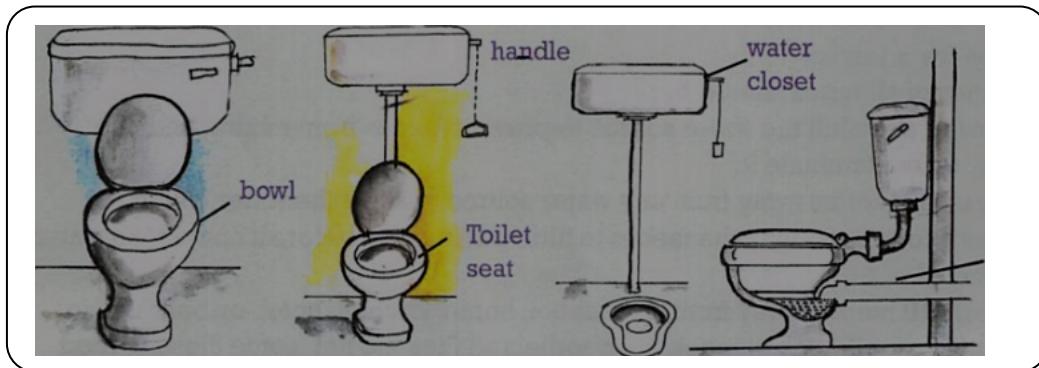
- ✓ Toilets are commonly found inside modern houses in cities and towns.
- ✓ Toilets unlike latrines use water to flush waste matter into septic tanks or into the sewage pipes.

A good toilet should have the following:

- ✓ A bowl: This is a basin containing water where faeces and urine are deposited
- ✓ A handle: It is found on the water closet. We pull it or push it to flush the faeces and urine away down the septic tank or sewerage system.
- ✓ Pipes: These are found underground to carry faeces to the septic tank or sewerage system pipes.
- ✓ Septic tank: This is a very big underground tank where faeces and urine are stored until they are taken away by a cesspool emptier to the sewerage tanks for treatment.

In Uganda, Uganda National Water and Sewerage Corporation (NSWC) is the one responsible for connecting and collecting or emptying septic tanks.

Structure of a water closet toilet



Functions of the parts of a water closet toilet

A seat

It has a cover to protect it.

It is where a person sits to deposit human waste.

1) A bowel

It is a basin containing water where faeces and urine are deposited.

2) Lid

It covers the bowel to prevent vectors from coming into contact with faeces and urine.

3) Water closet/tank

It holds water for flushing.

4) Handle

It is pulled or pushed to flush faeces and urine away.

5) Sewage pipes

They carry faeces and urine to the septic tank or sewage system.

Ways of maintaining toilets clean;

1. Flush the toilet away after use.
2. Wash hands with clean water and soap after use.
3. Avoid using any other hard material like clothes, sticks, stones because they block the pipe to the septic tank.
4. Do not put any other thing in the toilet apart from faeces, urine and toilet tissue.

Activity

1. What advice would you give to a person wishing to construct a pit latrine?

2. Why is it advisable to leave the pit of a VIP latrine open?

3. Name the difference between pit latrine and VIP latrine.

4. State one advantage of the ventilated improved pit latrine (VIP) over ordinary pit latrine.

5. Give any **one** way in which a VIP latrine is different from an ordinary pit latrine.

LESSON

Potties;

Potties are small containers used by young children for depositing faeces and urine



A picture of a potty

Uses of potties:

It collects faeces and urine of young children.

Ecosan toilets

These are toilets which help to separate urine from faeces at the source and the faeces are not mixed with water.

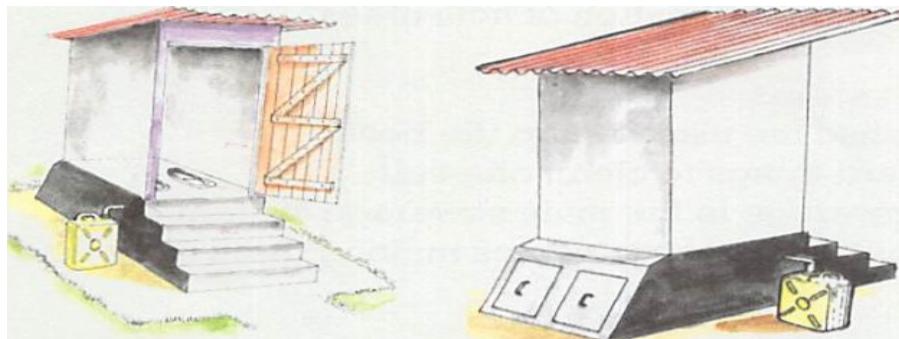
- Ecosan comes from the word **ecological sanitation** where we get Eco from the word ecological and san from the word sanitation.
- Ecological comes from the word ecology.
- Ecology is the interrelationship between living organisms in an ecosystem or their surroundings.
- An ecosystem is made up of all the living things in a habitat as well as the nonliving part of the environment.
- Ecological sanitation is the type of sanitation that recognizes human excreta and water from households not as a waste but as a resource that can be recovered, treated and where possible used again.
- Ecological sanitation is based on the idea that urine, faeces and water are resources in an ecological cycle.
- Ecological sanitation is away that protects public health, prevent pollution and at the same time returns valuable nutrients and humus to the soil.
- In ecological sanitation, urine and faeces are separated at the source and are not mixed with water. In this way, this sanitation avoids contamination of large volumes of water with pathogens or harmful germs. . This makes it easy to separate urine and faeces and makes it easier to recover and recycle nutrients such as phosphorous and nitrogen.
- After separation, urine is allowed to ferment for about two weeks and then it is diluted with water and then applied to the soil as a hygienic fertilizer.
- The faeces on the other hand are composted and then applied to the garden.
- Ecological sanitation system safely recycles excreta and other organic waste products to crop production in such a way that the use of non-renewable resources is minimized.
- Ecological sanitation is being promoted as an alternative sanitation in rural areas with difficult condition for constructing ordinary pit latrines.

Types of Ecosan toilets

In Uganda, there are only three which are being promoted:

These are:-

- ✓ Urine diversion dry toilet (UDDT)
- ✓ Arborloo toilet
- ✓ Fossa ulterna



Problems faced by urban toilets;

- ✓ Blockage due to use of hard things.
- ✓ Lack of water for flushing
- ✓ In case of leakage of sewage from pipes, contamination of water occurs this may lead to easy spread of water borne diseases.
- It is constructed above the ground ^e It has two chambers which are used in turns of defecation and outlet for urine.
- There is no mixing of urine and faeces
- When the first chamber is filled, it is closed for six months in the meantime the second chamber is opened for use.
 - During the six months, the faeces in the first chamber decompose. Then the chamber is opened up and the compost scooped and taken to the garden for soil conditioning
- Add dry ash, lime sawdust, husks or dry soil after every defecation.
- It is wise to premix the dry soil and ash at a ratio of four parts of soil to one part of ash, put it in a container and store it the toilet for use.

Activity

1. Give any **two** reasons why people should use latrines /toilets properly.

2. Give any **one** reason why a latrine should be 10 metres away from the living house.

3. Our school pit latrine smells a lot and is always full of flies. What measures can we take to prevent this situation?

4. Why should a pit latrine be covered?

5. Why is it not good to pour paraffin into a pit latrine?

LESSON

Importance of using ash or lime:

1. It lowers the moisture content of the faeces.
2. It eliminates bad odour or smell.
3. It makes it easier to handle and transfer the materials
4. It makes faeces less attractive to fly for breeding
5. It raises the acidity of the contents which helps to kill the germs or pathogens

Advantages of using ecosan toilets

7. They can be constructed in a small space.

2. The UDDT saves the burden of digging space.
3. The UDDT saves land for digging pit
4. They give ready and cheap manure latrines. which can
5. They preserve the fertility in the soil.
6. They are user friendly because they don't waste land.
7. UDDT reduces the cost of frequent construction of latrines.

Problems or disadvantages of using Ecosan toilets

1. The urine diversion pipe blocks yet it does not provide safe cleaning.
2. Lack of ash or lime for daily use.
3. No one wants to remove the compost from the chambers or the pits.
4. Some people do not know how to use the UDDT so urine easily mixes with the faeces and cause a lot of smelling.
5. The UDDT are not user friendly for the old and the disabled because they have to climb the high stairs.
6. They are not user friendly to Muslims who use water to clean themselves.
7. They are expensive to construct.

Importance of using toilets and latrines;

1. They prevent houseflies from spreading germs
2. They prevent contamination of water sources if properly used.
3. They promote sanitation
4. They control air pollution.

Diseases spread due to poor sanitation;

- | | | |
|--------------|------------------|------------------------|
| 1. Cholera | 5. Hepatitis | 9. Dengue fever |
| 2. Typhoid | 6. Malaria | 10. Sleeping sickness. |
| 3. Dysentery | 7. Elephantiasis | 11. Worm infections |
| 4. Diarrhoea | 8. Yellow fever | |

Activity

1. Why should a pit latrine be smoked from time to time?

2. What is the recommended minimum distance between a drinking water and VIP latrine?

3. State any **one** way of controlling the bad smell in an ordinary pit latrine.

4. Give **one** way in which bacteria in pit latrines are useful.

5. Give **one** reason why washing of hands after visiting a latrine is a good practice.

6. Give **two** items used for cleaning hands after visiting a latrine.

THEME: HUMAN HEALTH

TOPIC 2: ACCIDENTS AND FIRST AID

LESSON

An accident is a sudden happening that causes harm to the body unexpectedly. Accidents may result into simple injuries to the body like bruises and cuts, major complications like broken bones, burns, scalds, failure to breathe, unconsciousness or even death.

Examples of accidents

- | | | |
|--------------------------------------|------------------|----------|
| ✓ Fainting | ✓ Bruises | ✓ Burns |
| ✓ Animal bites | ✓ Choking | ✓ Scalds |
| ✓ Nose bleeding | ✓ Food poisoning | ✓ Cuts |
| ✓ Foreign bodies in natural openings | | |

What is first aid?

First aid is the immediate help/ assistance given to a casualty before he/she is taken to the nearest health centre.

Who is a casualty?

A casualty is a person who has been involved in an accident and needs assistance of first aid.

Reasons for giving first aid

1. First aid saves life
2. First aid promotes quick recovery
3. First aid stops bleeding
4. It reduces pain
5. It prevents further injuries

What is a first aid kit?

A first aid kit is a set of equipment used when giving first aid for a certain type of an accident

Items found in a first aid kit

- | | |
|----------------|-----------------------|
| 1. Cotton wool | 4. Bandage |
| 2. Plaster | 5. Pain killers |
| 3. Razor blade | 6. A pair of scissors |

Who is a first aider?

A **first aider** is any person who gives first help to a casualty.

Or a first aider is any person who gives assistance to a casualty.

Qualities of a good first aider

1. He/she should be quick in giving first aid.
2. He/she should be knowledgeable enough
3. He/she should have skills
4. He/she should be clean
5. He should be time saving

Activity

1. What is an accident?

2. Mention any **two** examples of accidents commonly met at school.

3. What is first aid?

4. Who is a casualty?

5. State any **two** reasons for giving first aid to a casualty.

6. What is a first aid kit?

7. Mention any **two** metallic items found in a first aid kit.

8. Who is a first aider?

9. State any **two** qualities of a first aider.

LESSON

BURNS:

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

A burn is an injury caused by a dry hot object.

Causes of burns

1. Through body contact with hot plates, cookers and hot burning charcoal.
2. Through body contact with un-insulated electric wires carrying current
3. Through body contact with chemicals like acids
4. Through body contacts with fire

Degree of burns

Degree of burns is a term used to describe how severe the burn is.

Degrees of burns include

1. First degree burn
2. Second degree burn
3. Third degree burn

First degree burn

A first-degree burn is a minor burn in which there are no blisters formed.

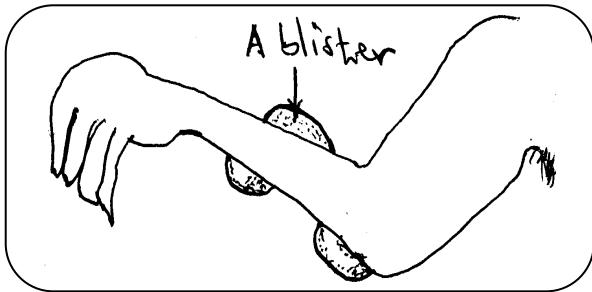
What is a blister?

A blister is a raised skin with some liquid underneath.

The only sign of a first-degree burn is that the skin is tender for several days after the accident.

First aid:

- Put the burned or scalded area in cool water immediately after the accident.



Second degree burn

A second-degree burn is a severe burn in which blisters are formed on the skin at the site of the injury.

First aid for second degree burn

- If the blister is not broken, leave it to prevent infection of the wound.
- If the blister is broken, wash the area with soap and clean water and then cover the skin with cloth to prevent flies bringing germs.
- Avoid putting things like fats, oils, coffee, herbs, or dung because they can cause the burn or scald to be infected.
- Don't put sugar because it attracts flies which can bring germs on to the wound

Third degree burn

This is the most severe burn in which the skin is burnt deeply and appears shiny white.

First aid for a third-degree burn

- ✓ First put the burnt area in cold water then cover with a clean cloth.
- ✓ Encourage the burnt casualty to drink a lot of fluids like ORS because victims of second- and third-degree burns lose a lot of water from their bodies through the burnt skin by evaporation.

Activity

1. What is a burn?

2. Mention any **two** objects that can burn people either at home or at school.

3. State any **two** causes of burns.

4. Name the degree of burn in which there are no blisters formed.

5. What is a blister?

6. Write any **two** first aids for second degree burn.

LESSON

SCALDS

A scald is an injury caused by wet heat.
Or a scald is an injury caused by hot liquids.

Causes of scalds

- ✓ Through body contact with hot water.
- ✓ Through body contact hot tea, hot milk, hot soup, hot porridge

First aid of scalds

Put the injured part in cold water for at least 10 – 15 minutes

Reasons for putting injured part in cold water

- ✓ To cool the temperature of injured part
- ✓ To prevent further damage of the underlying body cells

NOTE: If the injured part cannot be put in cold water, pour cold water on the injured part



Prevention of scalds and burns

1. Keep hot objects far from children's reach.
2. Cook food in raised fire places
3. Prevent children from playing near fire places
4. Avoid children from playing with hot liquids and metals
5. Keep away inflammable liquids such as petrol from the living house.
6. Construct fire guards around places where cooking is done
7. People should use insulators when lifting hot objects from the fire
8. People should avoid using appliances with bare electric wires.

Activity

1. What is a scald?

2. Mention any **two** causes of scalds.

3. State the main first of scalds.

4. Give any **two** reasons for putting part injured by scald in cold water.

5. Suggest any **two** ways of preventing scalds and burns.

6. State **one** way in which burn is different from the scald.

LESSON

Fever and convulsions

Fever is a condition of the body when the temperature goes beyond the normal.

Note: Fever is not a disease but a symptom of many diseases.

Convulsions:

- ✓ It is sudden violent body movements which cannot be controlled
- ✓ Convulsion is when the body shakes or jerks involuntarily.

Causes of fever and convulsions

- ✓ Diseases/illness like malaria, measles, meningitis, typhoid.
- ✓ Epilepsy (Fits)
- ✓ Exposure of the body to high temperature
- ✓ Poisoning

Note: High fever causes convulsions

First aid for fever

- ✓ Remove most of the persons clothes
- ✓ Perform turbid sponging or put a wet cloth or cold compress on the person's skin like the forehead back or chest to reduce the body temperature.
- ✓ Encourage the person to drink more cold fluids than normal
- ✓ Report the sick person to a health worker.

First aid for convulsions

- ✓ Make the person get enough air supply
- ✓ Remove all the tight clothes and loosen others
- ✓ Clear the space where the victim is convulsing from
- ✓ Put an object between the teeth to prevent the victim from biting the tongue.

Activity

1. Why is tepid sponging an important First Aid to a person with high fever?

2. Why is a wet cloth put on the body of a person with fever?

3. What can be done to lower the temperature of a person with high fever?

4. What is the First Aid for high fever?

5. Fever is not a disease but a symptom of many diseases.

Mention any **two** of these diseases.

6. Define convulsions.

7. State any **two** causes of fever and convulsions.

8. Write down any **two** first aid for fever

9. Mention any two first aid for convulsions
-

LESSON

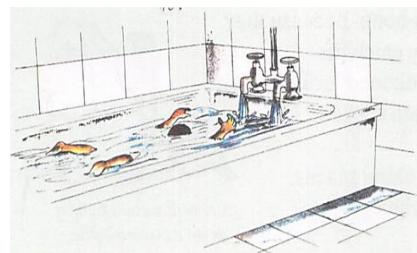
Near drowning and drowning.

Near drowning: Is a condition when a person stops breathing due to having a lot of water in lungs but not yet dead.

Drowning is dying as a result of the lungs being filled with water.

Causes of near drowning and drowning

1. Swimming pools
2. Bath tubs
3. Ponds
4. Basins full of water
5. Ditches
6. Lakes and rivers



Prevention of drowning and near drowning

1. People should not swim in deep water without life savers
2. People sailing on water should wear life jackets
3. People should acquire swimming skills.
4. Swimming pools should be fenced
5. Septic tanks and other sewerage systems should be covered
6. Children should not go near big water sources without grown up people
7. Bath tabs should not be left with water
8. Containers filled with water should be kept out of reach of children.

First aid for near drowning

1. Yell for help from people around
2. Remove the person from water as soon as possible
3. If the person is not breathing lie the casualty on his back with the head tilted
perform mouth to mouth breathing (kiss of life)



Mouth to mouth resuscitation or a kiss of life
belly

Pushing on the

Activity

1. What is near drowning?
-

2. How is near drowning different from drowning?

-
3. Mention any **two** causes of near drowning and drowning.
-
4. Mention two measures to promote prevention of drawing and near drowning
-
5. State any **two** reasons why swimming pools should be fenced
-
6. Mention any **two** ways you can help a casualty for near drowning
-
7. Why would it be dangerous for a boy of 11 years to try to remove an adult, who is near drowning, from water?
-
8. Suggest **two** things the boy in (b) above should do to save the adult from drowning.
-
9. How does mouth to mouth breathing help a victim of near drowning?
-

LESSON

Fainting

Fainting is the brief loss of consciousness for a short time normally one to two minutes.

Causes of fainting

Shortage of enough oxygenated blood flowing to the brain

Conditions that can lead to fainting

The following conditions can lead to reduced blood supply to the brain or can lead to fainting.

1. Prolonged hunger
2. Standing in sunshine for a long period of time
3. Extreme sorrow or anger
4. Extreme pain
5. Shocking news
6. Too much excitement
7. Vigorous/strenuous exercises
8. Illness

First aid for fainting

1. Remove tight clothes around the neck, chest and waist
2. Put the casualty in an open space with fresh air
3. Make the casualty lie on the back facing up while raising the legs to encourage enough flow of blood containing oxygen to the brain

4. Fanning the casualty if the day is hot

- | Activity |
|---|
| 1. Define the term fainting.
_____ |
| 2. What is the main cause of fainting?
_____ |
| 3. Mention any two conditions that can lead one to faint.
_____ |
| 4. Suggest any two first aids for fainting.
_____ |
| 5. State any two qualities of a good first aider for fainting.
_____ |
| 6. Why are the legs of a person who has fainted raised higher than the head when giving first Aid?
_____ |

LESSON

Foreign bodies

A foreign body is any external matter that enters the body either through a natural opening or wound.

Examples of natural openings

- | | | |
|----------------|------------------|---------------|
| ✓ Mouth | ✓ Dirt/dust | ✓ Thorns |
| ✓ Seeds | ✓ Broken glasses | ✓ Small bones |
| ✓ Grains | ✓ Coffee berries | ✓ Tear gas |
| ✓ Small stones | ✓ Insects | |
| ✓ Nib of a pen | | |

First aid of foreign bodies in the eyes

1. Wash the eyes with plenty of clean water
2. Use a clean corner of a soft piece of cloth to wipe the foreign body out of the eye.

Note: Never use sharp objects because they can damage the eye and cause more pain.

If the foreign body remains in the eye, take the casualty to hospital.

First aid for foreign body in the ear

If it is an insect, tell the victim to sit and bend the head to one side and pour clean water.

Note: If it is not an insect, do not attempt to remove it because you can push it further and injure the ear drum.

First aid of foreign body in the nose

- ✓ Blow the nose if it is an insect, dirt, dust or small stones.

First aid of foreign body in the throat

- ✓ Observe good eating habits

Prevention of accidents caused by foreign bodies

1. Keep away objects like seeds buttons, beads, coins, bottle tops etc from children
2. Food must always be chewed properly before swallowing
3. Observe good eating habits.
4. Avoid talking and laughing while eating.
5. Teach the children not to put objects in their ears, eyes, nose, rectum and vagina.
6. Advising children not to put objects in their ears, eyes and nose

Activity

1. Define foreign bodies.

2. State any **two** examples of natural openings found in human being.

3. Suggest **two** first aids of foreign bodies in the eyes.

4. Give any **two** first aids of foreign body in the nose.

5. State one first aid of foreign body in the throat.

6. Mention any **two** ways of preventing accidents caused by foreign bodies.

LESSON

Poisoning

Poisoning is the act of taking any harmful substance which can affect our health.

Poison is any substance either solid, gas or liquid which when taken into the body may damage our health or cause death.

Common poisonous substances

- | | | |
|-----------------|-------------------|-----------|
| 1. Rat poison | 3. Agro chemicals | 5. Petrol |
| 2. Insecticides | 4. Paraffin | |

Signs of a poisoned person

- | | |
|-------------------------|-----------------------------|
| 1. Vomiting | 5. The person feels thirsty |
| 2. Rapid breathing | 6. Fever and sweating |
| 3. Diarrhoea | 7. Bleeding |
| 4. Loss of body balance | 8. Mental confusion |

First aid for poisoning

Give the casualty plenty of fluids like water, juice, milk to dilute the poison

Note: A person who has taken paraffin/ jik should not be made to vomit because it causes more damage to the lungs, throat and stomach.

Activity

1. What is poisoning?

2. How is poisoning different from poison?

3. State any **two** states of matter in which poison do exist.

4. Mention any **two** common poisonous substances at home.

5. Suggest **two** signs of a poisoned person

6. Give any **two** first aids for poisoning.

7. What First Aid would you give to a child who has taken paraffin?

8. Give the main reason why person who has taken paraffin should not be made to vomit.

LESSON

Fractures

A fracture is a broken or cracked bone in the body.

Types of fractures

✓ **Simple fracture**

Simple fracture is a type of fracture where the broken or cracked bone remains inside the flesh

✓ **Compound fracture**

Compound fracture is a type of fracture where the broken or cracked bone comes out of the body.

✓ **Green stick fracture**

Green stick is a type of fracture which occurs in young children where the bone tears like a twig.

Causes of fracture

1. Accidents

2. Rough play/games

3. Vigorous exercises

First aid of fractures

Tie splints around the injured part.

Note: Splints are used to keep the broken bones in their normal position
Splints also control further injuries.

Note the following:

When considering first aid for a fracture, you should consider the 3Bs.

B- Breathing

B Bleeding

B Broken bone

Prevention of burns and scalds:

1. Keep hot objects far from children's reach.
2. Cook food in raised places.
3. Prevent children from playing near fire places.
4. Avoid children from playing with hot liquids and metals.
5. Keep away inflammable liquids such as petrol from the living house.
6. Construct fire guards around places where cooking is done.
7. People should use insulators when lifting hot objects from the fire.
8. People should avoid using appliances with insulated electric wires.

Activity

1. Define the term fractures.

2. State any **two** common types of fractures.

3. State the type of fracture:

a) Where the broken or cracked bone remains inside the flesh.

b) Where the broken or cracked bone comes out of the body.

4. Suggest **two** common causes of fracture in adults.

5. Name the first aid item used to keep the broken bones in their normal position.

6. When considering first aid for a fracture, you should consider the 3Bs. Write all these 3Bs.

7. State **two** ways of preventing burns and scalds at home.

THEME: SCIENCE IN HUMAN ACTIVITIES AND OCCUPATION

TOPIC 3: SCIENCE AT HOME AND IN OUR COMMUNITY

LESSON

Water is a chemical substance made up of hydrogen and oxygen

Components of water

1. Hydrogen

2. Water

Sources of water

Rain is the main source of water; however, water can be found in:

- | | | |
|----------|-----------|------------------|
| ✓ Lakes | ✓ Oceans | ✓ Swamps |
| ✓ Rivers | ✓ Springs | ✓ Artesian wells |
| ✓ Seas | ✓ Ponds | |

Pure water

Pure water is water which contains no impurities.

Properties or characteristics of pure water

1. It is colorless
2. It is tasteless
3. It is odorless (has no smell)

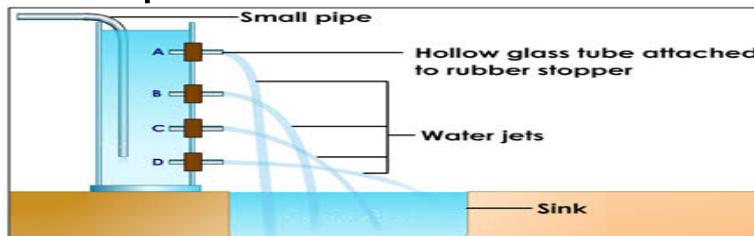
4. It is free from bacteria and other living creatures like algae
5. It is free from dissolved salts and gases

Properties of water

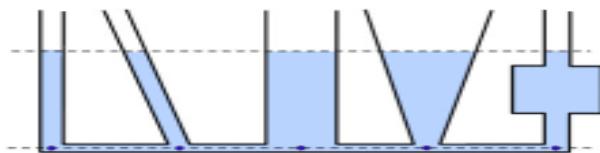
1. Water exerts pressure
2. Water finds its own level
3. Water is a good solvent
4. Water can dissolve gases

Diagrams showing the properties of water

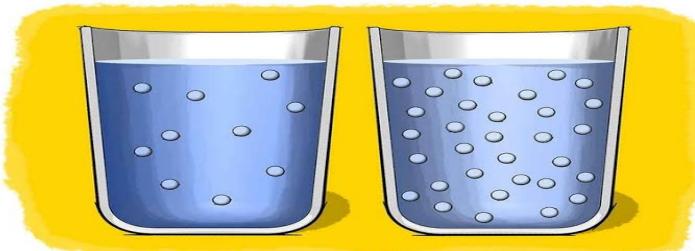
1. Water exerts pressure



2. Water finds its own level



3. Water can dissolve gases



Uses of water in the body

1. Water makes up part of blood as plasma
2. Water helps to dissolve digested food for easy digestion
3. Water maintains the shape of the body cells
4. Water takes part in changes that must occur in the body such as cooling as sweat.
5. Water is a medium where chemical changes take place in the body.

Domestic uses of water

1. Water is used for cooking food
2. It is used for washing clothes
3. Water is used for bathing our bodies
4. Water is used for washing utensils
5. Water is provided to animals to drink

Industrial uses of water

1. Water is used for generating electricity
2. Water is used for recreation like swimming and boating
3. Water is used for cooling machines in industries

4. Water is used to clean machines in industries

Activity

1. Name the chemical substance made up of hydrogen and oxygen.

2. Mention **two** components of water.

3. Suggest the main source of water in the environment.

4. State **two** characteristics of pure water.

5. Mention any **two** properties of water.

6. Give any **two** uses of water in the body.

7. Point out **two** industrial uses of water

8. Name the type of electricity generated from fast flowing water.

LESSON

Preparation of clean water

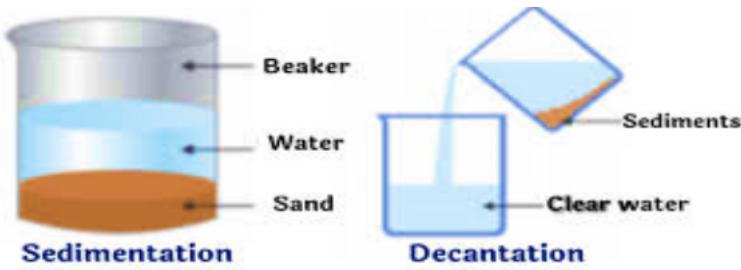
Methods of obtaining clean water from dirty water include:

1. Decantation/Decanting method
2. Filtration/Filtering method
3. Distillation (clean water is water that does not contain germs)

Decantation

This is the method of removing solid particles from water

Experiment to show decantation

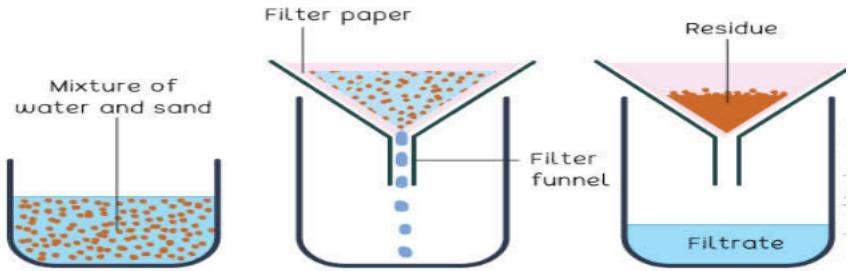


Filtration

This is the process of separating solid particles from water

The solid particles that remain on the filter are called the filtrate

Experiment to show filtration



Distillation

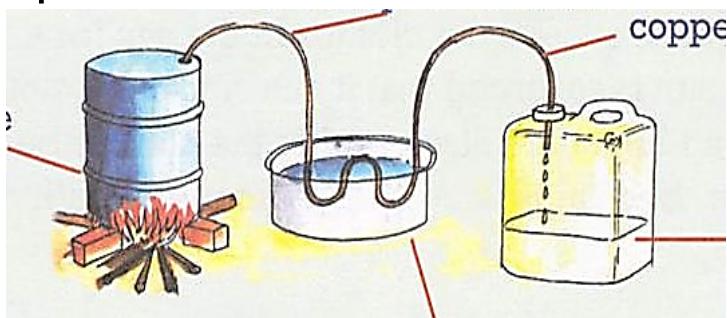
This is the process which involves evaporation of the liquids and then condensing the vapour to liquid form.

The water obtained through distillation is called distilled water

Note: Distilled water is used by doctors to mix drugs for injection.

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

Experiment to show distillation method



Preparation of safe water

Safe water is water which is free from germs

Methods of preparing safe water

- ✓ Boiling water
- ✓ Distillation
- ✓ Treating water using chemicals like chlorine, water guard, Florine, calcium chloride, potassium permanganate

Activity

1. Mention any two methods of obtaining clean water from dirty water.

2. Name the method of obtaining clean water where solid particles are removed from it.

3. What term is used to mean the solid particles that remain on the filter?

Name the method of obtaining distilled water.

4. State the main reason why distilled water is not good for drinking.

5. Mention **two** chemicals used for treating water

LESSON

Diseases associated with water

There are four ways how unprotected water can spread diseases or germs and cause diseases in people.

These are:-

- Water borne diseases. Water cleaned diseases.
- Water habitat vector diseases. Water contact diseases.

Water borne diseases

These are diseases spread through drinking contaminated unprotected water.

They include the following:

- 1) Polio caused by virus and it attacks the skeleton or bones.
- 2) Bilharzia, caused by blood flukes or worms called Schistosoma spread by a water snail it attacks the urinary bladder.
- 3) Typhoid, caused by bacteria called salmonella typhi, it attacks the digestive system.
- 4) Dysentery; caused by two organisms that attack the digestive system.
(a) Bacilli called shigella. (b) a protozoa called entamoeba histolytica .
i. Cholera caused by bacteria called vibrio cholerae. It attacks the digestive system.
- 5) Diarrhoea caused by bacterium, virus, worms or and any disorder of the digestive system. It also attacks the digestive system.
- 6) Intestinal worms; many different types of worms attack the small and large intestines.
- 7) Hepatitis; caused by a virus it attacks the liver.

Water habit vector diseases

These are diseases that are spread by vectors which at one stage develop or live or obtain their food from water. They include the following:

- ✓ Malaria; caused by a protozoa called plasmodia which is spread by a female anopheles mosquito.
- ✓ Yellow fever and dengue fever; they are both caused by virus which is spread by tiger or aedes mosquito.
- ✓ Bilharzia.
- ✓ River blindness; caused by a worm called onchocerca vulvulus which is spread by the black fly. It attacks the skin and eyes.
- ✓ Elephantiasis caused by a worm called filaria which is spread by the culex mosquito. It attacks and blocks the blood vessels and nerves in the legs

making them to swell and grow big like those an elephant.

Water cleaned diseases:

These are diseases which we get if we do not use enough water to keep clean.

They include:

- i. Conjunctivitis.
- ii. Diarrhoea.

It is caused by either bacteria or virus.

iii. Impetigo.

They can also be spread by houseflies

It is caused by bacteria.

It attacks the contaminated hands, handkerchiefs, skin and causes spots with pus in water or towels.

It attacks the eyes, the face, nose, ears and head.

iv. Scabies:

It is caused by an itch mite. It attacks the skin and causes a lot of itching.

Water contact diseases

These are diseases we get from bathing and swimming in unprotected contaminated water. They include:-

1. Sore eyes and ears; pus comes out of the ears and they pain.
2. The nose pains and becomes stiff.
3. Swimmer's itch, it causes itching all over our bodies
4. Bilharzias.

Activity

1. What are water borne diseases?

2. State any **two** examples of water borne diseases.

3. What are water habit vector diseases?

4. Mention any **two** water habit vector diseases

5. What is water cleaned diseases?

6. State any **two** examples of water cleaned diseases.

7. Define water contact diseases.

8. State any **two** examples of water contact diseases.

LESSON

Water pollution or water impurities

Water pollution is the process of making water contaminated.

Water impurities are substances added to water and change the nature of quality of water

Examples of water impurities

- | | |
|---|------------|
| 1. Bacteria | 2. Viruses |
| 3. Microscopic plants and animals like amoeba and spirogyra | |
| 4. Dead plant matter | 6. Sand |
| 5. Fine particles of mud | |

Ways of polluting water

1. Urinating in water sources
2. Defecating in water sources
3. Dumping industrial wastes in water sources
4. Dumping heavy metals in water sources
5. Silting
6. Leakages of petroleum products into water sources

Silting

This is the deposition of soil and other materials into the water bodies by erosion.

- Silting is caused when people who stay near rivers and lake shores cultivate the banks and shores removing the grass cover.

Examples of silts

- | | | |
|----------|-----------------|--------------------|
| 1. Soil | 3. Metal scraps | 5. Polythene paper |
| 2. Grass | 4. Plastics | |

Effects of silting to water bodies

- 1) Silts reduces the depth of water bodies
- 2) Water becomes dirty or contaminated.
- 3) Silts leads to dryness of rivers, swamps and lakes
- 4) Silting leads to flooding of surrounding areas
- 5) Silts kill aquatic animals
- 6) Silts cover the breeding ground for fish

Ways how to control silting:

- Controlling soil erosion.
- People should not be allowed to cultivate along river banks.

Dangers of water

- ✓ Water carries harmful germs that cause diseases like cholera and typhoid
- ✓ Poisonous substances from factories, human wastes, detergents are often dumped into rivers and lakes by water.
- ✓ Flowing water causes soil erosion
- ✓ Heavy floods destroy man's crops and cause a lot of damage to property.

Activity

1. Define water pollution.

2. What do you understand by the term water impurities?

3. Mention any **two** examples of water impurities

4. State any **two** ways of polluting water

5. How is silting different from silt?

6. Mention any **two** examples of silts

7. Give any **two** effects of silting to water bodies.

8. Write **two** ways of controlling silting of water.

9. Mention any **two** examples of aquatic animals affected by the silts.

LESSON

Hard and soft water

- ✓ **Hard water** is water that contains certain mineral salts dissolved in it. Hard water does not form scum with soap easily.
- ✓ **Soft water** is water that forms scum easily with soap

Ways of removing hardness from water

- ✓ Adding chemicals to hard water e.g. chlorine and water guard
- ✓ Boiling water

Cleaning clothes in a home

1. **Sorting** is the practice of identifying dirty clothes which have been used.

Main reason for sorting clothes before washing them

To identify dirty clothes from the clean ones

2. **Soaking** is the act of sinking clothes in water and soap for easy removal of dirt and other spots on a cloth

3. **Washing** is the act of squeezing of the cloth together with soap

Types of washing clothes

- o Hand washing
 - o Machine washing
4. **Rinsing** is the act of dipping soapy clothes in clean water to remove soap solution
5. **Drying** is done by putting the clothes in the sun to dry. The heat energy from

the sun causes evaporation of water from the clothes

Ironing:

Ironing is when you use a flat iron to press on the clothes to remove the wrings, twists and squeezes in the cloth.

Reasons for ironing clothes

1. To kill parasites like lice, itch mites etc
2. To kill germs
3. Ironing makes the cloth straight and smart

Activities after washing clothes

1. Drying clothes
2. Ironing clothes
3. Packing clothes

Items used to clean clothes

- | | |
|----------------|----------|
| 1. Clean water | 3. Soap |
| 2. Detergents | 4. Basin |

Activity

1. What is the difference between hard water and soft water?

2. Mention any **two** ways of removing hardness from water.

3. State any **two** activities done before washing clothes in a home.

4. Suggest **one** main reason for sorting clothes before washing them.

5. State any **two** factors to be considered before sorting clothes for washing them.

6. How is soaking clothes different from rinsing clothes?

7. State any **two** disadvantages of soaking clothes for so long.

8. Why do we soak clothes before washing them?

9. Mention **two** reasons for ironing clothes to a P.7 candidate.

10. Suggest **two** places where we pack washed clothes in a home.

THEME: THE HUMAN BODY
TOPIC 4: MUSCULAR AND SKELETAL SYSTEMS
LESSON

Definition of the skeleton

- ✓ A skeleton is the supportive structure of the body of an organism.
- ✓ A skeleton is a frame work of bones.

Types of skeletons

They include;

- a) Hydrostatic skeleton
- b) Exo skeleton
- c) Endo skeleton

1. Hydrostatic skeleton.

This is a type of skeleton where the body of an organism is filled with a liquid under pressure.

In this skeleton, there is no hard tissue on the body of an organism.

Organisms with hydrostatic skeleton

- a) Earthworm
- b) Slugs
- c) Snail
- d) Caterpillars
- e) Star Fish,
- f) Jelly Fish
- g) Intestinal Worms

2. Exo skeleton.

This is a type of skeleton found outside the body of a creature.

Exo skeleton is common with all arthropod/ insects like house flies, grass hoppers, mosquitoes, spider, crab, crustaceans, myriapods, arachnids, terrapins and tortoise.

Exo skeleton provides support and protection to soft parts of a centipede arthropod

Animals with exo skeleton periodically shed their outer most layers and form the new cuticle on the exposed surface. This is called **ecdysis (moult)**

3. Endo skeleton.

This is the type of skeleton where the hard tissues are found inside the body of an organism.

All vertebrates have endo skeleton.

Examples of animals with endo-skeleton

Man, Goat, Cat, Sheep, Lion, Hen

They have bony skeleton in their bodies.

These animals can grow by a continuous increase in the size and not by a series of ecdysis.

Activity

1. Define the word skeleton.

2. State any two types of skeletons found in living organisms.

3. Name the type of skeleton where the body of an organism is filled with a liquid under pressure.

4. Give any two organisms with hydrostatic skeleton.

5. Which type of skeleton is commonly found in all insects?

6. State **one** reason why insects moult.

7. All vertebrates have endo skeleton.

a) What do you understand by this statement?

b) State any **two** examples of these vertebrates with endo skeleton.

8. Give any **two** examples of organisms with endoskeleton.

LESSON

The structure of the human skeleton

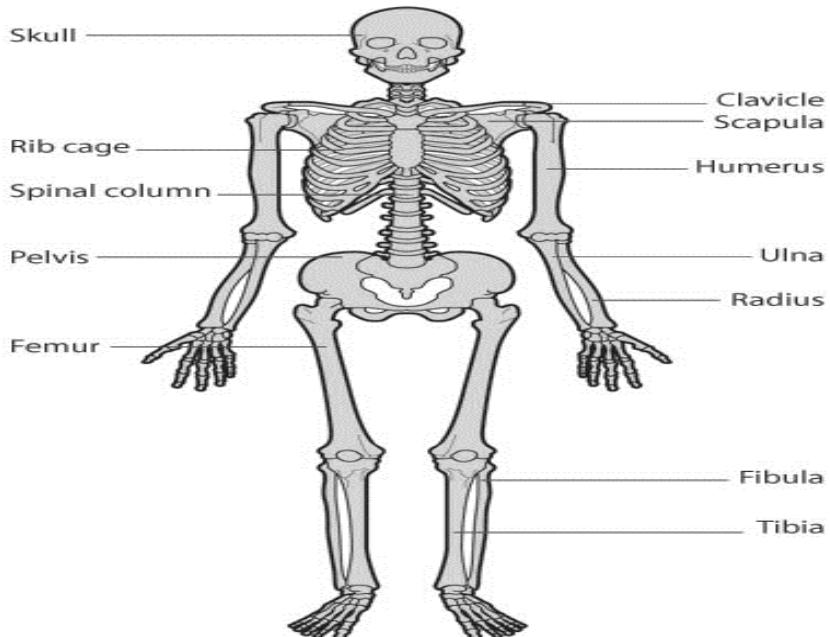
The human skeleton is made up of 206 bones in total.

The human skeleton is subdivided into two main regions namely

1. Axial skeleton
2. Appendicular skeleton.

The structure of human skeleton





Axial skeleton

This region consists of the vertebral column/spine and skull. It forms the foundation of the skeleton and on this the ribs are attached.

i) The back – bone

This forms the central axis of the body and has 33 bones called vertebrae.

The back bone is divided into 5 regions.

1. Cervical region

This is found in the neck and has seven bones.

2. Thoracic region

This is found behind the chest and the ribs are attached on it.

The ribs together form the rib cage.

The thorax region has 12 vertebrae

3. Lumbar region

This is found in the abdomen and has 5 vertebrae.

4. Sacral region - the sacrum is found in the pelvic and has 5 vertebrae fused together.

5. Coccyx region– this is found in the tail and has 4 vertebrae fused together.

The rib cage – this is made up of 24 ribs (12 pairs) all of which are attached to the back – bone (spine)

The upper 14 ribs (7 pairs) are attached directly to the sternum (breast bone) by means of cartilages.

ii) The skull

This is made up of 22 bones.

It consists of the cranium and face – bones.

The cranium is formed by many bones fused together by interlocking serrated edges. These edges become fused in adulthood.

2. Appendicular skeleton

This consists of the girdles and the four limbs.

Pectoral (shoulder) girdles.

- ✓ These are made up of 4 bones, two on either side.
- ✓ These bones are scapula (shoulder bones) and clavicle (idler bones)
- ✓ Pelvic (hip girdle). This is made up of 3 bones.

The limbs

These include two upper limbs and two lower limbs

a The upper limbs (arms)

- These have three (3) long bones each.
- The three bones are humerus, radius and ulna.
- In each arm there are short bones such as carpals (8), metacarpals / bones of the palm (5) and phalanges / finger bones (14)

b The lower limbs (legs)

- These also have 3 long bones each.
- The three bones are femur, tibia and fibula
- In each limb there are patella / knee bone(1), tarsal / ankle bones (8), metatarsals / foot bones, (5) and phalanges / toe bones (14)

Functions of the skeleton

1. It gives support to the soft parts of the body.
2. It helps in movement which is caused by the muscles attached to it.
3. It provides surface for attachment of muscles.
4. It protects the delicate organs.
 - ✓ The skull protects the inner ear and the brain.
 - ✓ The eye sockets protect the eyes
 - ✓ The rib cage protects the heart and lungs.
 - ✓ The pelvis (pelvic girdle) protects the reproductive organs.
 - ✓ The backbone, spine or vertebral column protects the spinal cord.
5. It contributes to the formation of blood cells e.g. in porous ends of the long bones the red blood cells and some white blood cells are made.

Activity

1. Name the process by which the upper ribs (are attached directly to the sternum (breast bone))

2. Name the part of the body where femur, tibia and fibula are found.

3. State any **two** functions of the skeleton.

4. Name the skeletal part that protects the inner ear and the brain.

5. Which sense organ is protected by the eye sockets?

6. Mention any **two** delicate body organs protected by the rib cages.

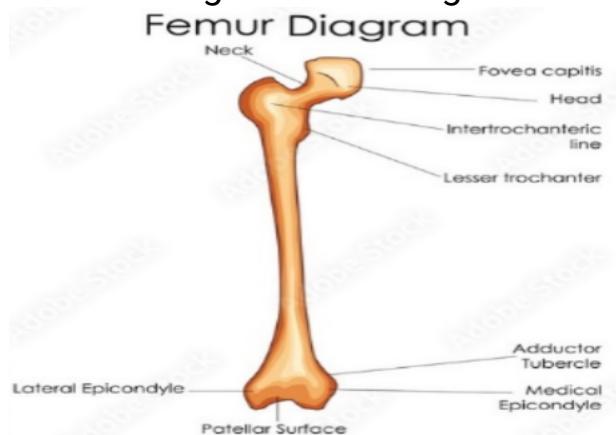
7. Name the skeletal structure which protects the spinal cord.

LESSON BONES

Bones are hard connective tissues found in the body of an organism.

1 Long bones

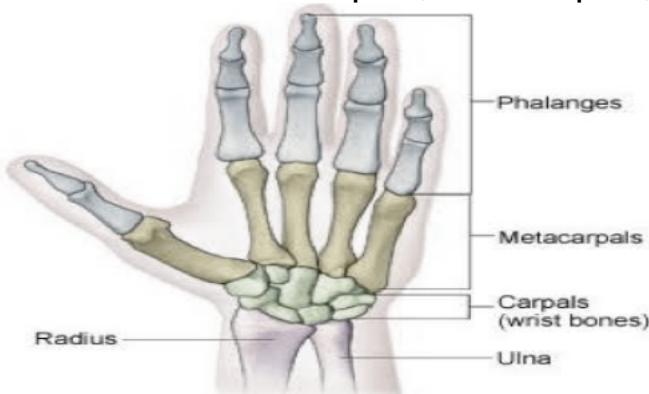
These bones are found in the arms and legs e.g femur, radius, fibula, ulna and tibia. The femur is the longest and strongest bone in the body.



2 Short bones

These are found in the last edges of the limbs.

These include the carpal, metacarpals, phalanges, tarsals, metatarsals



3 Flat bones

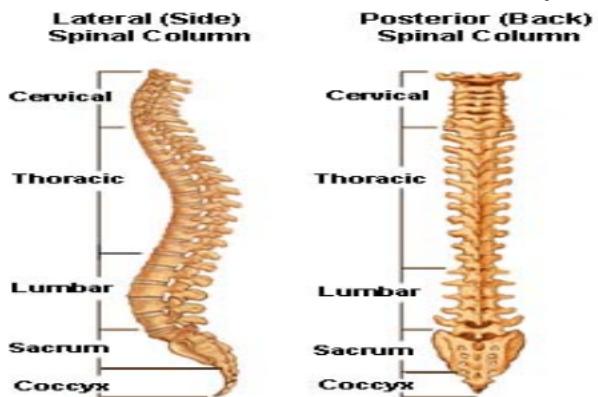
These include the bones of the skull, scapula, patella (knee cap).

Structure of the skull



4 Irregular bones

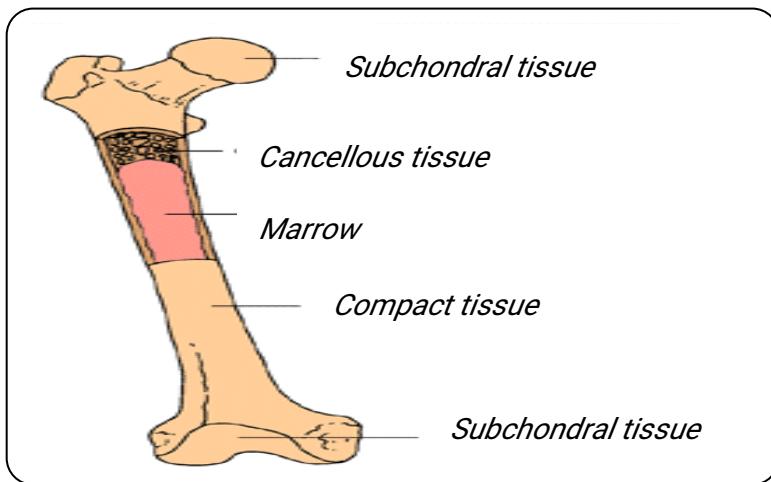
These include the vertebrae of the spinal column.



Functions of the bones

1. They manufacture blood cells i.e
 - ✓ White blood cells are manufactured in the yellow bone marrows of long bones.
 - ✓ red blood cells are manufactured in the red bone marrows of short bones
2. It provides the surface area for attachment of muscles

The structure of a bone



Cartilage

These cover the ends of the bone that moves.

They act as cushions to absorb friction when bones rub each other.

Yellow bone marrow

This is where white blood cells are manufactured from. It also contains fat cells.

Activity

1. What name is given to the hard connective tissues found in the body of an organism?

2. Name the longest and strongest bone in the body.

3. Mention any **two** examples of flat bones

4. Name the blood cells manufactured in the yellow bone marrows of long bones.

5. Where are red blood cells manufactured from in the short bones?

6. State any **two** importance of bones in the body of an organism.

LESSON

Spongy bone

This is the porous part of the bone which is filled red bone marrow.

Hard bone

This part protects the bone marrow from escaping. It contains calcium.

Main bones and their other bones

1. Skull – cranium
2. Scapula – shoulder bone
3. Sternum – breast bone
4. Clavicle – collar bone
5. Jaw bone – mandible
6. Back bone – spine/ vertebral column
7. Pelvis – hip bone
8. Tail bone – coccyx
9. Patella – knee cap
10. Femur – thigh bone
11. Tibia – shin bone
12. Palm bones – metatarsals
13. Ankle bone – tarsals

JOINTS

- A joint is where two or more bones meet in the body.
- ✓ At the joint, the bones are joined to each other by ligaments.
- ✓ The ligaments also help to prevent dislocation of the bones.
- ✓ At the end of some bones, there are cartilages which act as slippery and smooth surface. Within the joint there is synovial fluid which helps to reduce friction

Types of joints

These include:

- Movable joints
- Immovable joints

1. Movable joints

- These are joints which allow movement.
- Movable joints are held together by ligaments and tendons.

Examples of movable joints

- Hinge joint.
- Ball and socket joint.
- Pivot joints.
- Gliding / plane joints.

Hinge joint

- This is a type of movable joint which allows movement in one plane.

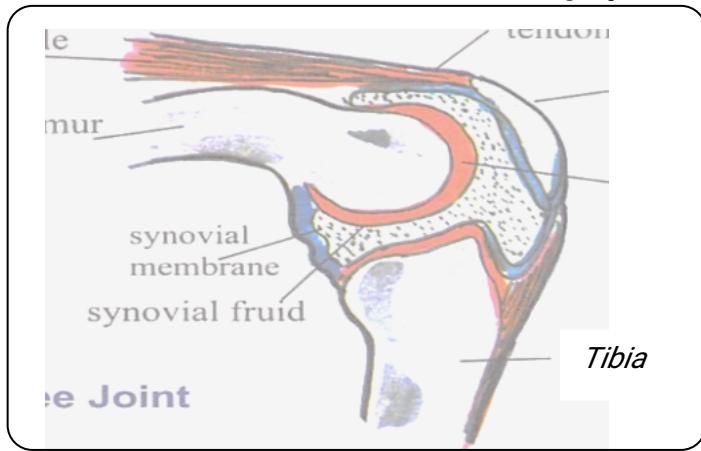
Examples of hinge joint

1. The elbow joint.

2. The knee joint

NB: They are called hinge joints because their movement is like that of a door on its hinges.

Illustration of the structure of hinge joints



Ball and socket joints

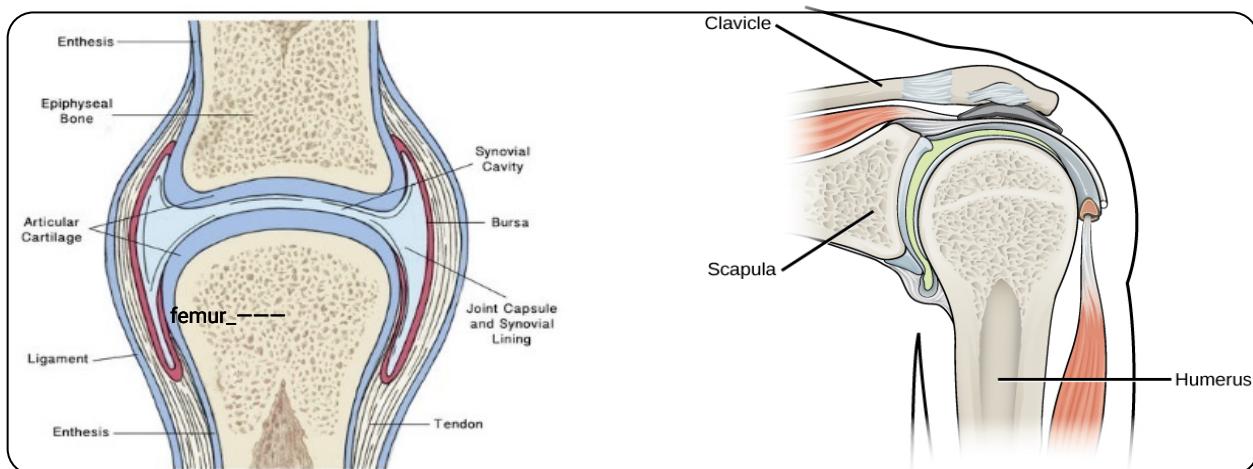
This is a type of movable joints which allow movement in three planes all round movements. I.e. forward, backward, sideways and in circular form.

Examples:

- The shoulder joint.
- The pelvic girdle (hip joint)

They are called ball and socket because the ball shaped end of one bone fits into a socket in the other bone.

Illustration of the structure of ball and socket joint



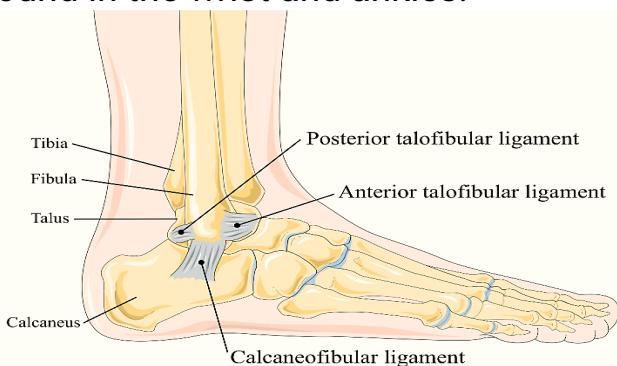
Pivot joints

- This is a type of joint which allows rotation of certain parts of the body on other parts.
- An example of pivot joints is the neck vertebra.
- Pivot joints help us to nod our heads.

Gliding joints / plane joint

- This is a type of joint where two moving bones are flat and slide over one

- another easily.
- Gliding joints are found in the wrist and ankles.



Importance of joints

- Joints allow movements in the body.
- They enable us to stretch and bend the body.

Features of a typical movable joint

- The cartilage and synovial fluid – reduce friction in the joint.
- Ligaments – structures which join bones together at a joint.
- Tendons – structures which join muscle to bone.
- Synovial membrane / synovium – is a capsule of fibrous material whose inner membrane secretes synovial fluid.

2. Immovable joints

- This is a type of joint that does not allow any movement because they are tightly fixed together.

Examples:

The suture joints found in the skull

Activity

- What name is given to the joint at the knee?

- In which one way friction reduced at a joint?

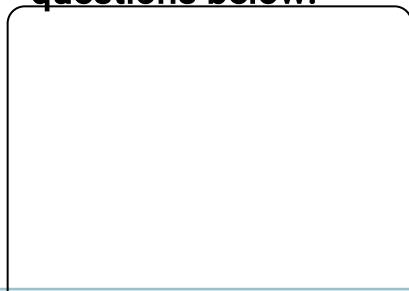
- Give one example of the following types of joints

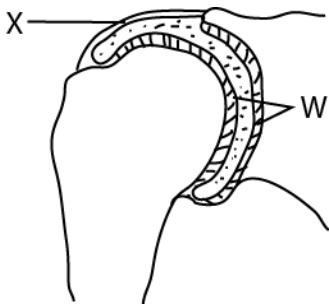
(i) Hinge joint _____

(ii) Ball and socket joint _____

(c) Name the food substance that helps in formation of strong bones.

The diagram below shows part of a joint. Study it and uses it to answer questions below.





4. Name the part marked X _____

5. How is the part marked W important to the joint?

6. The table below shows joints and their position in the human body. Study and complete it correctly

Joints	Position in the body
Pivot joint
.....	shoulder
.....	Knee
Suture joint

LESSON

MUSCLES

These are elastic substances found in the body of animals or muscles are the soft flesh attached to the bones.

- Muscles are connected to the bones by tough fibrous tissues called tendons.
- Muscles only relax and contract.

There are three types of muscles namely;

1. Voluntary or skeletal muscles
2. Involuntary or smooth muscles.
3. Cardiac muscles.

(A) Voluntary or skeletal muscles

These are muscles whose movement can be controlled.

1. They are always attached to the skeleton.
2. These are muscles that contract and relax at one's will.
3. These are muscles attached or joined to the bones i.e skeletal muscles.
4. These muscles form the bulk of the body.
5. They contract and relax at will.

Examples of voluntary muscles:

1. Biceps muscles
2. Triceps muscles
3. Calf muscles
4. Fermalis muscles
5. Masseler muscles

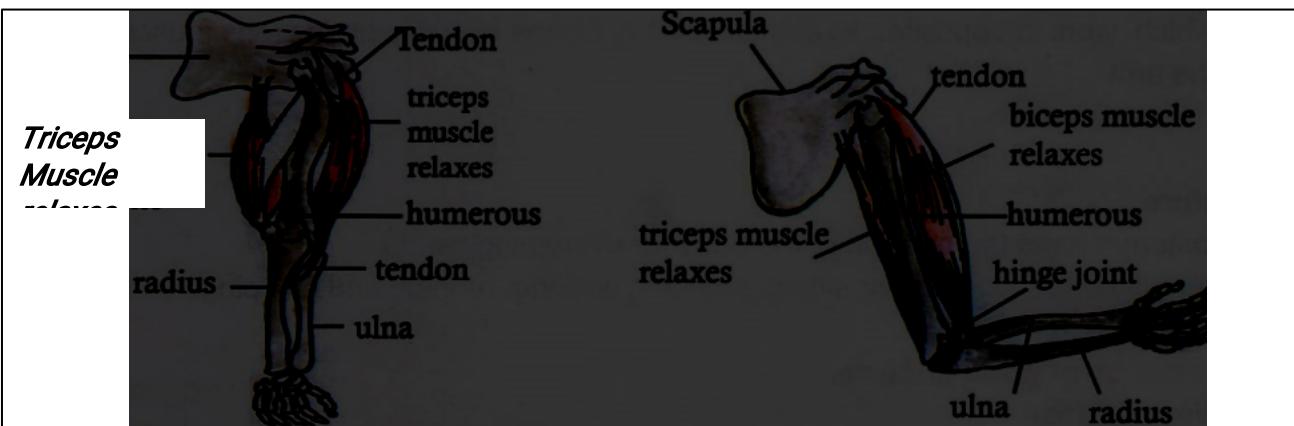
Characteristics of voluntary muscles

1. They are attached to bones.
2. They relax and contract at one's will

When bending the arm, the biceps contract while the triceps relax.

When the arm straighten the biceps relax and the triceps contract

Diagram showing the arm and its parts



(B) Involuntary or smooth muscles

- ✓ These are muscles whose movement is automatic.
- ✓ We have little or no control over them.
- ✓ These muscles are not connected to the bones.
- ✓ They do not contract and relax at will.

Characteristics of involuntary muscles

1. They are not attached to the bones.
2. They have automatic movement
3. They are located on body organs
4. Intercostal muscles
5. These muscles move automatically

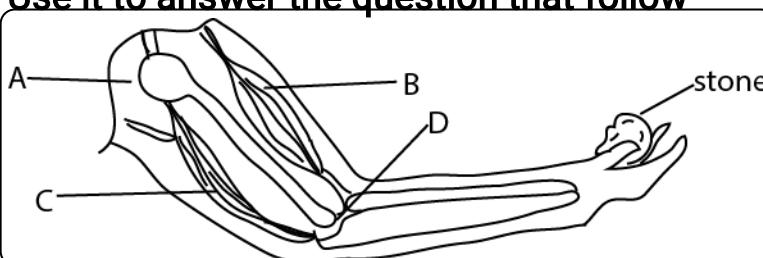
Examples of the involuntary muscles:

1. Muscles of the walls of the alimentary canal.
2. Muscles of the reproductive system.
3. Muscles of the blood vessels.
4. Muscles of the excretory system.

Activity

The diagram below shows the human arm holding a stone.

Use it to answer the question that follow



(a) Which muscle acts as the effort in order to lift the stone?

(b) What happens to muscle C when the arm is raised?

(b) What kind of movement is possible at each of the following joint?

(i) Joint A _____

(ii) Joint D _____

Why are the triceps and biceps muscles referred to as voluntary muscles?

LESSON

(C) CARDIAC MUSCLES

These muscles combine both structures of the voluntary and involuntary muscles.

They contract and relax alternatively without any nervous stimulation
They move automatically and rhythmically.

Examples of cardiac muscles

Muscles of the heart;

These have the capacity to contract and relax throughout life without getting tired.

They only stop when the person is dead.

Function of muscles.

1. They help in joining bones in our body.
2. They help in movement (Locomotion)
3. They help animals to perform work.
4. They aid in movement of food through the alimentary canal
5. Some muscles help in controlling blood pressure
6. They are used in storage of oxygen
7. Muscles maintain proper body postures

NOTE:

- Antagonistic muscles are muscles which work in pairs.
- When one relaxes the other contracts.
- Examples are the Biceps and Triceps muscles of the arm.

Importance / functions of the skeletal and muscular system

1. They give the body shape.
2. They help in body movement
3. They protect the inner delicate organs of the body.
4. They help in manufacturing of blood cells.
5. They provide room for muscular attachment

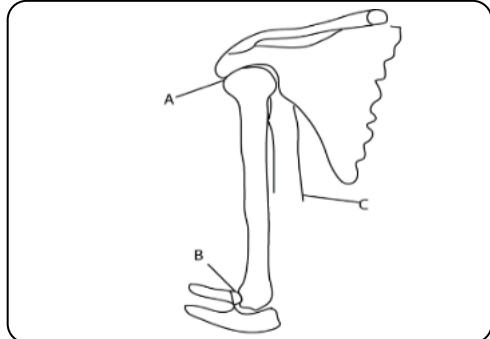
Activity

1. State the injury that results from tearing of muscles.
-

2. Mention the structure that joins a bone to a muscle
-

3. Name the muscles which helped Kandi to remove the foot immediately after stepping on the fire.
-

4. The diagram below is of a part of a human arm, use it to answer the questions which follow



(a) Name the joint A

(b) What kind of movement does the joint A allow?

(c) Complete the drawing of muscles C to show where its lower end is attached.

(d) If the arm is in the position shown, name the muscle which must be contracted.

LESSON POSTURES

Posture is the way a person positions his or her body when performing an activity. There is correct posture for sitting, standing, walking, running and sleeping.

Types of posture

✓ Good posture ✓ Bad posture

Good posture:

This is the proper way of positioning the body when performing an activity.

How to promote good posture

1. Always sit properly without bending.
2. By tightening the ankles and knees during movement.
3. By placing all the feet on the ground during movement
4. By putting all body weight on both buttocks when sitting.

Good standing posture	Good sitting posture	Good lifting posture

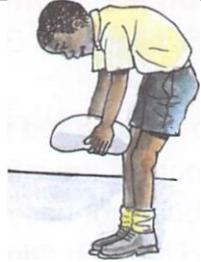
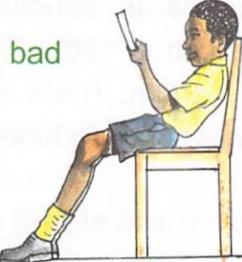
Importance of having good body posture

1. It makes the muscles and bones strong.

2. It allows proper growth and development of body organs.
3. It prevents skeletal and muscular disorders and deformities
4. It allows proper digestion of food
5. It makes one look smart
6. It prevents chest and back pain

Bad posture

This is the improper positioning of our bodies when performing an activity.

Poor lifting posture	Poor sitting posture	Poor standing posture
		

Activities that can lead to bad posture

1. Standing while bending forward.
2. Sleeping while bending some body parts
3. Sitting while bending forward
4. Walking and running while bending forward

Dangers/Effects of bad posture

1. It leads to deformation of bones and muscles
2. It causes chest and back pain
3. It causes indigestion
4. It leads to poor blood circulation in the body
5. It causes skeletal disorders

Importance of body exercise

1. It promotes physical fitness
2. It allows proper circulation of blood in the body
3. It makes the joints more flexible
4. It reduces the level of fats in the body
5. They strengthen bones and muscles
6. They break fatigue
7. They increase energy production in muscles
8. They promote the proper functioning of the body organs and system
9. It reduces the risks of getting heart diseases
10. It eases food digestion

Activity

1. What do you understand by the term posture?

2. State any two types of postures.

3. Mention **two** ways of promoting good posture.

4. Give any **two** importance of having good body posture.

5. Mention any **two** activities that can lead to bad posture.

6. State any **two** effects of bad posture to the body.

7. Give any **two** importance of body exercise

LESSON

Diseases and disorders associated with the skeletal and muscular system.

Diseases associated with the skeletal and muscular system.

- | | | |
|------------------------|-----------------|------------------|
| 1. Polio | spine | 8. Cancer of the |
| 2. Rickets | 5. Leprosy | bones |
| 3. Osteomalacia | 6. Osteoporosis | 9. Arthritis |
| 4. Tuberculosis of the | 7. Tetanus | |

(i) POLIO.

- It is caused by a virus passed out by an infected person in faeces.
- The virus can get into our bodies through drinking contaminated water.
- The virus can also get into our bodies by eating contaminated food.
- The disease affects bones especially the limbs.
- That is why it is called the disease of the limbs or bones.

Signs and symptoms

1. Deformed bones of the limbs
2. High fever
3. Paralysis of the limbs
4. General body weakness
5. Lameness

Prevention and control of polio

1. Immunization with polio vaccine by giving drops in the mouth.
2. Use latrines wherever possible.
3. Wash hands with soap and water before eating food.
4. Drink boiled water.

(ii) TUBERCULOSIS OF BONES

- ✓ Tuberculosis is caused by a bacterium called a mycobacterium.
- ✓ The bacterium was first discovered by Robert Koch in 1882.
- ✓ The bacterium is spread through air and milk from infected cows.
- ✓ There are several types of mycobacterium.
- ✓ There is one which causes Tuberculosis of the lungs and the other which cause Tuberculosis of the spine or backbone.

Symptoms of tuberculosis of bones

1. Long lasting painful backache.
2. A lump grows on the spine.
3. Pain in the backbone while walking.
4. Paralysis of the legs and failure to walk.

Prevention and control of tuberculosis

1. Immunization with BCG vaccine on the right upper arm at birth.
2. Isolate the infected person.
3. Treatment of the infected person.
4. Drink boiled or pasteurized milk because the bacteria also attack cows and can be spread through unboiled milk.

(iii) TETANUS

- It is caused by a bacterium found in the soil.
- The bacteria enter the body through fresh cuts or wounds.
- It attacks muscles making them stiff and also breathing becomes difficult.
- In new born babies, it can enter through the umbilical cord if its cut with a dirty unsterilized instrument like a razor blade or knife.

Signs and symptoms of tetanus

1. Stiff muscles all over the body.
2. Spasms when touched.
3. The baby stops sucking mother's breasts.

Prevention and control of tetanus

- Early immunization with DPT vaccine on the left upper thigh.
- Treatment of the infected people

Leprosy

- ✓ It is caused by bacteria.
- ✓ It is spread through direct body contact with an infected person
- ✓ It attacks both muscles and bones.

Prevention

- ✓ Isolating infected person
- ✓ Avoid sharing towels, basins, beddings with an infected person.
- ✓ Treat early cases with antibiotics

RICKETS

It is a deficiency disease which affects bones especially during pregnancy when the mother did not have enough foods containing Vitamin D, Calcium and phosphorous.

- It causes oxbow legged or knock-knees legs.
- In adults, rickets can cause common fractures.

Signs and symptoms of Rickets

1. Weak bones especially leg bones.
2. Poor teeth formation.
3. Fractures very common to one person.

4. Oxbow legs.
5. Knock-knee legs.

Prevention and control of Rickets

Eat foods containing vitamin D, Calcium and Phosphorous in the diet.

Activity

1. State any **two** ways one can get polio viruses into one's body.

2. Suggest **two** signs and symptoms of polio.

3. State **two** ways of preventing and controlling polio in our community.

4. Mention any **two** muscular and skeletal infections caused by bacteria.

5. Mention **one** deficiency disease which affects bones.

6. Tendo's child has the following signs and symptoms,

i. Stiff muscles all over the body.

ii. Spasms when touched.

iii. The baby stops sucking mother's breasts.

- a) Name the disease the baby is suffering from.

- b) Mention **two** ways of preventing the disease named above.

- c) Name the body part affected by the leprosy.

LESSON

Disorders of the skeletal and muscular system

- | | |
|---------------|-----------------|
| 1. Fractures. | 3. Strains. |
| 2. Sprains. | 4. Dislocation. |

Fracture

A fracture is a cracked or broken bone in the body.

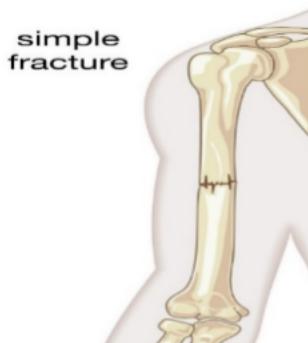
Types of fracture

1. Simple fracture
2. Compound fracture
3. Green stick fracture
4. Comminuted fracture

Simple (closed) fracture

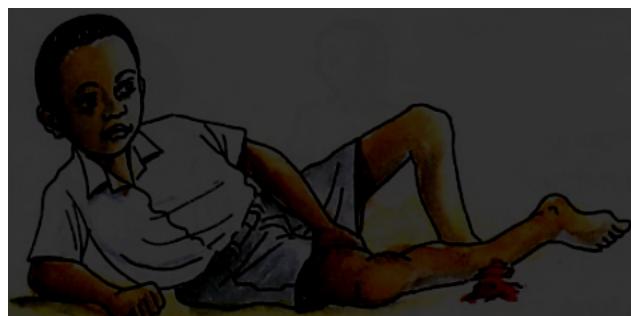
This is when a bone breaks and remains inside the skin (flesh).

- It is also called a closed fracture.
- However the muscles and blood vessels surrounding the bone may be damaged



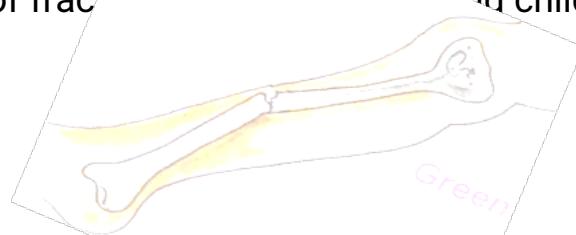
Compound (open) fracture

This is when the bone breaks and comes out of the skin (flesh).



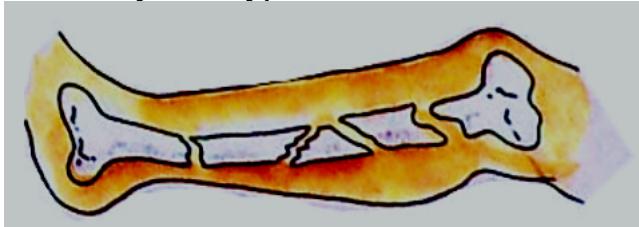
Green stick fracture

This is a type of fracture where the bone does not break completely. Part of the bone remains attached. This type of fracture is common in children because their bones are soft.



Comminuted fracture

- ✓ This is a type of fracture where the bone is broken into several parts.
- ✓ Pieces of the bones may pierce the skin but may not pierce the skin.
- ✓ This is why this type of fracture is also called a complicated fracture.



Signs of fracture

1. Severe pain and tenderness of the site of injury.
2. Failure to move the fractured part with ease.
3. Bleeding of the wound in case of a compound fracture.
4. In case of a compound fracture, the bone is seen pushing out of the skin.

5. The casualty may have felt a snap of the bone.
6. Swelling and bruising of the fractured part.
7. The injured limb may be shortened or may lie in an unusual position.
8. The broken limb appears crooked.

First aid for fractures

1. Tie splints around the injured part.
2. Removes any object which may have caused the fracture.
3. Stop any bleeding around the injured part.
4. Give comfort and assurance that he / she is to recover soon.
5. Prevent infection of the injured part by using antiseptics.
6. Prevent any further movement of the injured part.
7. Apply a splint to keep the bones in position.

		
Splint tied with an arm sling	Splints tied on a fractured thigh	Splints tied on a fractured knee cap

If the bones keeps moving further more injuries may occur.

NB: An arm sling is tied around the neck to support a broken arm.

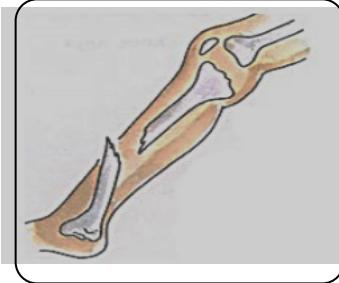
Activity

1. Which type of fracture is also called a complicated fracture?

2. Name the type of fracture which is common in young children.

3. State the reason to support your answer in (a) above.

4. Name the type of fracture when the bone breaks and comes out of the skin (flesh).



5. Name the type of fracture shown below.

6. Name the type of fracture which is also called a closed fracture.

7. What is a fracture?

LESSON

Sprains and strains

- ✓ A sprain is an injury on the ligament.
- A sprain is a torn or over stretched ligament.
- ✓ A strain is a torn or over stretched muscle.

Signs and symptoms of sprains and strains

1. Severe pain at the injured part.
2. Sudden swelling and bruising of the injured part.
3. Failure to move the affected part with ease.
4. Pain at the point of injury
5. The point of sprain or strain becomes hot

First aid for sprains and strains

1. Use a firm bandage to support the affected part.
2. Movement of the affected part should be stopped.
3. In case of a sprained wrist, an arm sling should be applied for support.
4. Take the patient to a doctor.

Dislocation

A dislocation is when the bones that form a joint have been displaced.

Signs and symptoms a dislocation

1. Severe pain at the affected part.
2. Sudden swelling and bruising of the affected part.
3. Failure to move the affected part with ease.

First aid for dislocation

1. Prevent any further movement of the affected part.
2. Comfort the patient and assure him / her of quick recovery.
3. Take the patient to the doctor.
4. Avoid tampering with the affected part by trying to put the bones back into their normal position.

How to keep the muscular and skeletal systems healthy

1. Eat a balanced diet.
2. Always maintain a good posture.
3. Take all children for immunization.
4. Avoid bad games.
5. Carry out regular physical exercises.

Activity

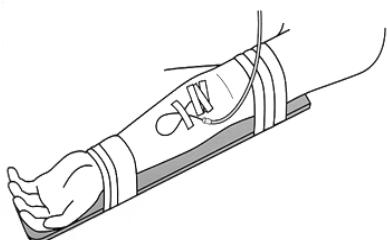
1. What is a sprain?

2. What do you understand by the word strain?

3. How is sprain different from a strain?

4. Suggest any **two** signs and symptoms of sprains and strains

5. Write down **two** first aid for sprains and strains



6. Name the first aid component above.

7. State any **two** signs and symptoms of a dislocation.

8. State any **two** ways of keeping the muscular and skeletal systems healthy

How to maintain proper skeletal and muscular system

1. Eat food containing a balanced diet especially mineral salts like calcium and phosphorous and also food containing vitamin D.
2. Have children taken for early immunization against tuberculosis, Polio and Tetanus.
3. Avoid bad games
4. Carry out regular physical exercises
5. Carry out regular body exercises.

Exercises are important because;

- ✓ The heart muscles grow stronger and larger.
- ✓ The heart delivers more blood to the muscles.
- ✓ More enzymes are made in the muscle tissue to break down glucose and fatty acids.
- ✓ Ligaments and tendons become stronger to reduce chances of injury
- ✓ Joints become more flexible.
- ✓ Weight is lost, i.e. you don't become extra fat.
- ✓ The risk of heart attack is reduced.
- ✓ Digestion of food is carried out quickly and easily.

Activity

1. State any **two** diseases that children can be taken for early immunization against.

2. Mention any **two** bad games that can lead to skeletal disorders.

3. Give any two ways in which regular physical exercises are important in the body.

4. In which way is the physical exercise important to the human heart?

THEME: HUMAN HEALTH

TOPIC 5: THE RESPIRATORY SYSTEM

LESSON

Respiration is the process by which the body uses oxygen to burn down food to produce energy, carbon dioxide and water vapours.

- Respiration takes place in the body cells.

Types of respiration

- There are two types of respiration i.e.
1. Aerobic respiration – One which uses oxygen.
 2. Anaerobic respiration –One which does not use oxygen.
- **Difference between breathing and respiration.**

Breathing is the taking in of air rich in oxygen and taking out of air with more carbon dioxide.

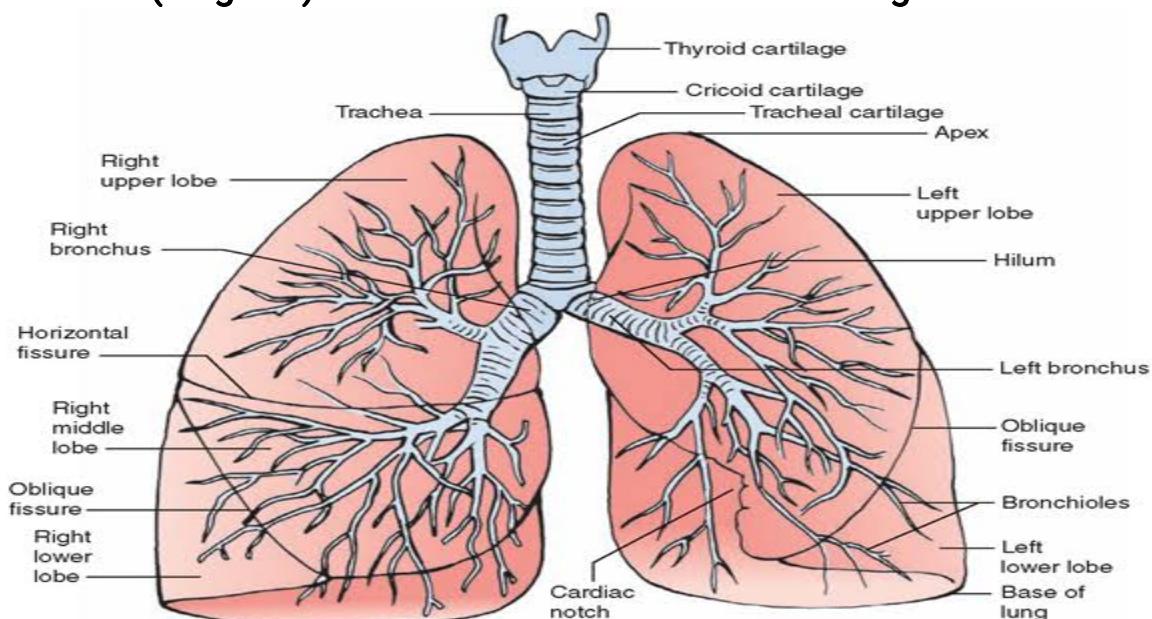
Waste products of respiration

1. Water vapour
2. Carbon dioxide

Major breathing organs

1. Nose
2. Trachea
3. Lungs

Illustration (diagram) of the internal structure of the lungs



ORGANS OF RESPIRATION AND THEIR FUNCTIONS

- **Epiglottis** – Is a flap which protects the opening of the trachea during swallowing of food.
- **Nose**- The air passage into the trachea.
- It contains cilia and mucus which help to trap germs and dirt which enter the nose.
- In the nose, air is cleaned, warmed and moistened.
- **It is not advisable to breathe through the mouth because;**
 1. The air will not be warmed so it can chill or make the lungs very cold.
 2. The mouth has no cilia to trap dust and germs.

THE TRACHEA

- It is also called the wind pipe.
- It is a passage of air down the lungs.
- The trachea contains tiny cilia for trapping dirt and germs.
- The trachea is made up of cartilage rings to keep it open.
- It divides into the bronchi which continue to divide into bronchioles and end up into the air sacs / alveoli.

The lungs

- The lungs are both excretory and respiratory organs.
- This is because they are used in respiration and also putting out waste products.
- The lungs excrete carbon dioxide from the body which is a waste product of respiration.
- It is in the lungs where gaseous exchange takes place in the body. However, in the lungs, gases exchange takes place in the air sacs or alveoli.

Adaptations of air sacs / Alveoli to their function

- They are thin walled to allow gases diffuse through easily.
- They are surrounded by a net work of blood capillaries which supply them with blood.

Composition of air breathed in and out.

Type of air	Inspired air	Expired air
Oxygen O ₂	21%	16%
Carbon dioxide Co ₂	0.03%	4%
Nitrogen N ₂	78%	78%
Water vapour	Less	More
Rare gases	0.97%	0.97%

Explanation:

- 21% of oxygen is breathed in but only 16% is breathed out because most of it is used by various body reactions.
- 0.03% of carbon dioxide is breathed in and 4% is expired because more of it is produced by various reactions like respiration.
- 78% of Nitrogen is inspired and 78% expired because nobody reaction needs nitrogen to occur.

- Less water is inspired but more is expired because more water vapour is produced by different body organs.
- 0.97% rare gases is inspired 0.97% expired because nobody reactions required it to occur.

Activity

1. What is respiration?

2. Suggest any **two** types of respiration

3. State the main difference between breathing and respiration.

4. Why is it not advisable to breathe through the mouth?

5. Name the body organ which acts as excretory and respiratory organs.

6. Suggest the reason why trachea is made up of cartilage rings?

7. Name the waste product excreted by the lungs from the body.

8. Suggest any two adaptations of air sacs / alveoli to their function.

9. State the reason why:

a) The amount of oxygen breathed in is greater than the amount of oxygen breathed out

b) The amount of carbon dioxide breathed in is less than the amount of breathed in.

10. State the main reason for the equal amount of nitrogen inspired and expired.

LESSON

BREATHING

Breathing is the taking in and out of air from the body.

Types/ Process of breathing

⇒ Breathing in (Inspiration / inhalation)

→ Breathing out (Expiration / exhalation)

Mechanism of breathing (expiration and inspiration)

Inpiration:

- Inspiration is the taking in of air by an organism.
- We breathe in to get oxygen for respiration in the body.

During inspiration, the following actions take place.

1. The volume of the chest and lungs increase.
2. The diaphragm and the intercostal muscles contract.
3. The ribs go up and outwards.
4. The lungs expand.
5. The stomach enlarges and swells.

Expiration:

1. The volume of the chest and the lungs decrease.
2. The ribs go down wards and inwards.
3. The diaphragm and intercostal muscles relax.
4. The lungs and the stomach go to their original size.

The pleural membranes

1. The lungs are covered by the pleural membranes which secrete fluid called pleural fluid.
2. This fluid lubricates and reduces friction between the lungs and the ribs.
3. The ribs are held together in position by the intercostal muscles.

Activity

1. How is inspiration different from expiration?
-

2. Name the muscles that hold the lungs together in a fixed position.
-

3. Name the fluid which is secreted by the pleural membranes.
-

4. How important is the fluid mentioned above to the lungs and the ribs?
-

5. State what happens to the following parts during breathing in

a) Diaphragm : _____

b) Lungs : _____

c). Intercostal muscles:

-
6. By what process does oxygen enter into blood?
-

Diseases and disorders of the respiratory system

Disorders:

4. Yawning.

5. Coughing

Diseases.

Communicable

- Tuberculosis
- Influenza
- Diphtheria
- Whooping cough (pertussis)
- Pneumonia

Non-communicable

- Emphysema
- Lung cancer
- Asthma
- Bronchitis

Care for the respiratory system.

1. Eat a balanced diet.
2. Perform regular exercise.
3. Eat meals containing low animals' fats.
4. Avoid smoking.

Habits that improve the working of the respiratory system

1. Avoid smoking
2. By having regular physical exercises.
3. Feeding on a balanced diet meal.
4. Keep away from dusty places etc.
5. Stay in well ventilated houses/places

Advantage of regular body exercises

- 1 The heart muscles grow stronger and larger.
- 2 The heart delivers more blood to the body muscles.
- 3 They reduce the level of fats in the body.
- 4 The risk of high blood pressure and heart diseases is reduced.
- 5 Ligaments and tendons become stronger and reduce chances of injury.
- 6 Joints become flexible.
- 7 Weight is lost.

Activity

7. Mention any two disorders of the respiratory system

8. Mention any two examples of:

a) Communicable diseases which affect the respiratory system

b) Non-communicable diseases which affect the respiratory system

9. State any two ways of caring for the respiratory system.

THEME: HUMAN HEALTH

TOPIC 6: THE REPRODUCTIVE SYSTEM

LESSON

- ✓ Growth is an increase in size of an organism.

- ✓ Development is an increase in maturity.
- These two things are ever happening in our lives but they appear more at puberty in adolescence stage.
- ✓ Puberty is a period of time when a boy or a girl becomes sexually mature.
- ✓ Adolescence: Is a transitional stage between childhood and adulthood.
- ✓ An adolescent is a boy or girl who is between childhood and adulthood.

Stages of adolescence;

There are four stages of adolescence/changes in adolescents. They are;

- Primary sex characteristics
- Secondary sex characteristics
- Social and emotional changes
- Out of step adolescent changes

1. Primary sex characteristics

These are changes involving the sexual organs to prepare them for their function in reproduction.

They can also be called basic sex characteristics.

Examples of primary sex characteristics in boys;

1. The penis increases in size.
2. The testes start producing sperms
3. Wet dreams start.

Examples of primary sex characteristics in girls

1. The uterus and the ovaries develop
2. Production of ova begins (Ovulation).
3. Menstruation period begins.

2. Secondary sex characteristics

These are changes that are related to physical features that distinguish a grown up man from a mature woman.

They can also be called physical sex characteristics.

Examples of secondary sex characteristics in boys (males);

1. In males, changes are as a result of the production of a hormone called testosterone.
2. The voice breaks and deepens as the larynx enlarges
3. Growth of hair under the armpits on the face, chest and around the sexual organs.
4. The sweat glands become more active.
5. The body becomes more muscular showing masculine structures.
6. Pimples develop on the face

In girls (Females)

The ovaries produce two hormones which coordinate the ovaries to control the body reactions.

These include; Oestrogen and progesterone

Characteristics include;

- Development of the breasts and stimulation of the mammary glands
- Enlargement of the hips and lining of the uterus

- The sweat glands become more active
- There is growth of hair under the arms on the pubes and around the sexual organs
- Heavier development of the skeleton and muscular structures showing feminine structures
- The face becomes smooth and good looking
- The voice becomes soft and attractive.

LESSON

3. Social and emotional changes.

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

N.B: They occur the same way in boys and girls. These changes include;

- The adolescent becomes interested in the member of the opposite sex.
- The adolescent reacts quickly to different situations i.e a boy or a girl who was docile, humble and cooperative becomes resistant, irritable and disobedient.
- The adolescent wants a lot of freedom.
- The adolescent becomes angry and disappointed quickly.
- The adolescent rejects the rules of his/her parents
- The adolescent wants to be looked and be recognized as mature.
- The adolescents move in groups with boys and girls of the same age and interest.

N.B: This group is` called **peer group**

4. Out of step adolescent changes;

These are changes which occur differently to different people in the same age group.

Some of these changes occur earlier or individuals. They include;

1. The boy who was previously short may find himself taller compared to his age mates
2. A girl who was once considered small may find herself too fat compared to her age mates.

Anxiety may be created on those who mature later and left behind by their age mates.

Problems of adolescence;

1. This stage brings conflict between adolescents and their culture and religions
2. Adolescents are never satisfied with their demands
3. This stage also brings conflicts among adolescents.
4. This stage leads to development of antisocial behaviours such as sex offences.
5. Some adolescents can end up being imprisoned
6. Some adolescent girls may drop out of school due to early pregnancies.

Activity

1. Define the term growth.

2. How is growth similar to the development?

3. What do you understand by the word puberty?

4. Mention any **two** examples of primary sex characteristics in boys.

5. Suggest any **two** examples of primary sex characteristics in girls.

6. Give any **two** examples of secondary sex characteristics in males.

7. Mention any **two** social and emotional changes experienced by both boys and girls.

LESSON

Reproduction in humans

- Reproduction is a process where living things increase in number.
- Reproduction is the process by which living things multiply themselves by producing young ones of their own kind.
- Reproduction is the process by which living organisms produce young ones similar to them.

Forms of reproduction;

1. Sexual reproduction
2. Asexual reproduction.

Asexual reproduction;

This is a type/form of reproduction where reproductive cells are not involved.

Examples include:

1. Binary fission in bacteria and protozoa
2. Spore formation in fungi
3. Budding in yeast and coelenterates
4. Vegetative propagation
5. Seed propagation

Sexual reproduction

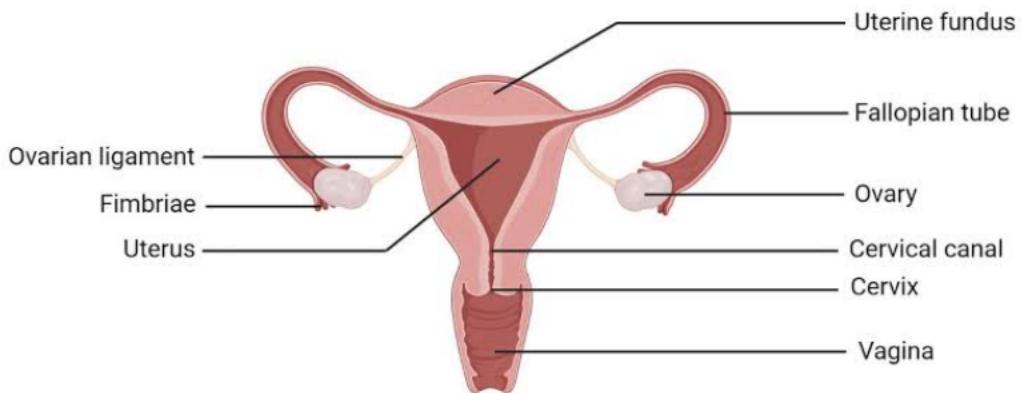
It is a type/form of reproduction where reproductive cells are involved.

Terms used in sexual reproduction

- **Gametes**; these are reproductive cells.
- **Sperm cells**: These are male reproductive cells in animals.
- **Ova/eggs**; Female reproductive cells in animals.
- **Pollen grains**: They are male reproductive cells in flowering plants.
- **Ovules**: They are female reproductive cells in flowering plants.

- **Gonads:** These are specialized parts which produce reproductive cells.

Diagram of the female reproductive organ;



Functions of the parts;

- **Vulva:** It directs the penis into the vagina.
- **Vagina:** This is where the sperm cells are deposited. It also allows the baby to pass through at the time of birth (Birth canal)
- **Cervix:** It is a ring of muscular which closes the lower end of the uterus during pregnancy
- **Uterus/womb:** It is a point where conception takes place. It is also the part where foetus develops from.
- **Uterus wall;** It is where implantation takes place.
- **Oviduct/fallopian tube:** this is the part where fertilization takes place
- Ovaries:**
- **Ovaries** produces ova/eggs

Ovaries produce several hormones called Oestrogen and progesterone which control the development of secondary sex characteristics

Activity

1. Define the word reproduction.

2. Mention any two forms of reproduction.

3. What do you understand by the word asexual reproduction?

4. Name the form of reproduction in which bacteria undergo.

5. Which type of reproduction involved reproductive cells?

6. How are the gametes different from the sperms?

7. Name the male reproductive cells in flowering plants.

8. State the female reproductive cells in flowering plants.

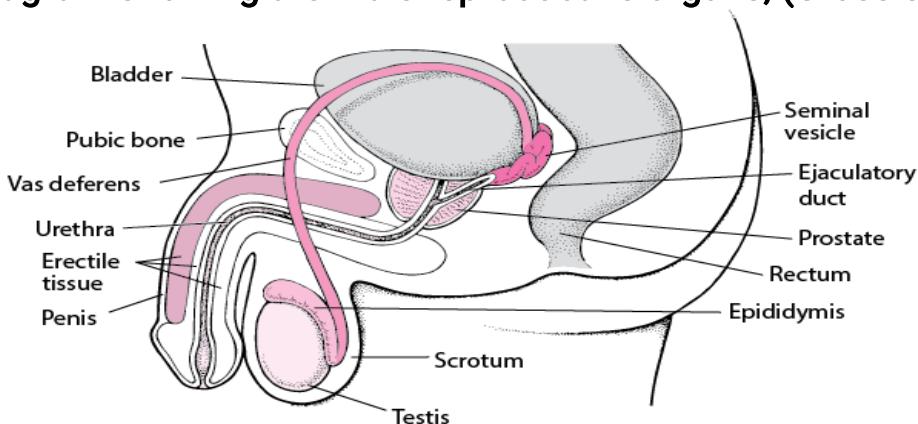
9. Name the part of a female reproductive organ where:

- a) the sperm cells are deposited._____
- b) conception takes place._____
- c) implantation takes place._____
- d) fertilization takes place._____
- e) Production of female hormones

(b) Give any one use of the placenta to the fetus during pregnancy

LESSON

Diagram showing the male reproductive organs; (Cross section)



Functions of the different parts;

Scrotum;

- It protects the testis from harm
- It regulates the temperature around the testes.

Testes;

- Testes produce sperms
- Testes also produce a hormone called testosterone which determine the secondary sex characteristics.

Epididymis

- It stores sperm cells.

Penis

- The penis is used to deposit sperms into the vagina.

N.B: Most sensitive part of the penis is the glans found at the tip of the penis.

Fore skin

- It covers the head of the penis (glans)
- It can be cut off or circumcised for hygiene reasons.

Urethra:

- This is the passage for both urine and sperm cells.

Sperm duct;

- This is a tube which passes the sperms to the urethra.

Prostate gland [Cowper's gland]

- These produce the seminal fluid called semen which assists the sperm in movement.

Ovulation

This is a process by which the ovary releases a mature ovum into the oviduct.

N.B: Ovulation takes place every after 12 to 14 days from the day of menstruation.

The time when ovulation stops is called menopause, probably at the age of about 45 years

Activity

1. Name the part of a male reproductive organ which

- a) regulates the temperature around the testes_____
- b) produce sperms_____
- c) stores sperm cells_____
- d) covers the head of the penis_____
- e) acts as the passage for both urine and sperm cells_____

2. Name the most sensitive part of the penis.

3. Which part of the reproductive organ can be cut off or circumcised for hygiene reasons.

4. Write down the function of testes in a human reproductive system

5. Name the male reproductive cell in flowers.

6. State the reason why the Scrotum expand during warm days and contract during cold days.

7. How is the function of the testes similar to that of the anthers of the flower?

LESSON

MENSTRUATION/MENSTRUAL CYCLE

Menstruation is the monthly shedding of blood by the uterus wall when fertilization fails to take place.

This is the periodic release of blood from the uterus as a result of rapture of the uterus walls when fertilization has not taken place.

Ovulation takes place every after 12 – 14 days from the day of menstruation.

The time when ovulation stops is called **menopause**, probably at the age of about 45 years

This happens because a hormone called oestrogen is released by the ovary which causes the uterus wall to thicken with layers of cells into which the ovum will sink if fertilized.

If the ovum is not fertilized the uterus wall breaks, the unwanted cells contain certain amount of blood are lost through the cervix and vagina.

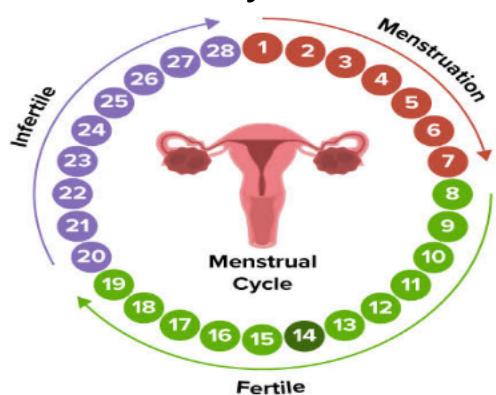
N.B:

Menstruation occurs once every four weeks or 28 days and usually lasts for 3 – 5 days in normal cases.

NB:

- ✓ The first menstruation called **menarche** starts in girls between the age of 9-15 years. The last menstruation period end at around 45 years and is called **menopause**
- ✓ Normal menstruation takes 3-4 days.
- ✓ It takes place after every 28 days if all conditions are normal.
- ✓ It may be interrupted by conception, strong fever, or any abnormalities in the body.

The menstrual cycle



Care during menstruation

- a) To prevent infection and avoid germs, diseases, one must be clean.
- b) Use sanitary materials such as tampon, tampons, always, cotton wool.
- c) Visit health workers incase abnormalities are noted.

Fertilization;

This is the fusion or union of the nuclei of the male and female gametes to form a zygote from which an individual develops.

Types of fertilization;

1. External fertilization
2. Internal fertilization

External fertilization;

This is the type of fertilization which involves fusion of gametes but outside the body of females

Examples of animals which have this type of fertilization .

1. Frogs
2. Fish
3. Toads

Internal fertilization;

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

Examples of animals which undergo internal fertilization

1. Birds
2. Reptiles
3. Mammals

Implantation

This is the process where a fertilized ovum attaches itself onto the uterus wall. After implantation, we say conception has taken place and that confirms pregnancy

Pregnancy/gestation period;

This is the period from fertilization to birth.

In man, it lasts for 9 months.

N.B: Implantation takes place in the uterus while conception takes place in the uterus.

Signs of pregnancy (Dangers)

1. Monthly menstrual periods stop.
2. Breasts enlarge
3. Morning sickness especially in the 2nd and 3rd month of pregnancy.
4. Enlargement of the belly.
5. Cervix closes
6. Movement of the baby can be felt
7. Vomiting a lot and often.
8. Bleeding or coloured discharge from the vagina.
9. Prolonged anaemia
10. Severe swelling of the legs, face and hands.

Problems of frequent pregnancy or birth

1. Premature births
2. Maternal anaemia
3. Miscarriage
4. Local birth weight
5. Proneness to diseases
6. High maternal mortality rate

Development of the foetus in the uterus;

Stages in pregnancy

- The fertilized ovum develops villi into the uterus.
- The part with the villi develops into a specialized organ called a placenta.
- The uterus wall under the influence of oestrogen and progesterone develop rich supply of blood vessels to facilitate exchange of materials between the mothers and foetus's blood.
- Developed oxygen, glucose, amino acids and salts from the mother's blood pass to the embryo while carbon-dioxide and other nitrogenous wastes pass in the opposite direction through the umbilical cord.
- A water sack called amniotic sac which cushions it from damage surrounds the embryo.

Requirements needed by females during pregnancy;

- Ante-natal care
- Good nutrition (balanced diet)

- Regular physical exercises
- Adequate sleep and rest. However, oversleeping is not good.
- She should observe proper personal hygiene.
- She needs appropriate clothing like maternity dresses, brassiers.

N.B: Ante – natal care is sub – divided into three stages. Namely;

1. Pre – natal care
2. Ante – natal care
3. Post – natal care

Activity

1. What term is used to mean the monthly shedding of blood by the uterus wall when fertilization fails to take place?

2. Define the term fertilization

3. Mention any **two** types of fertilization in living organisms.

4. Name the type of fertilization which involves fusion of gametes but outside the body of females.

5. Examples of animals which have the above type of fertilization.

6. What is internal fertilization?

7. Mention any **two** examples of organisms which undergo internal fertilization

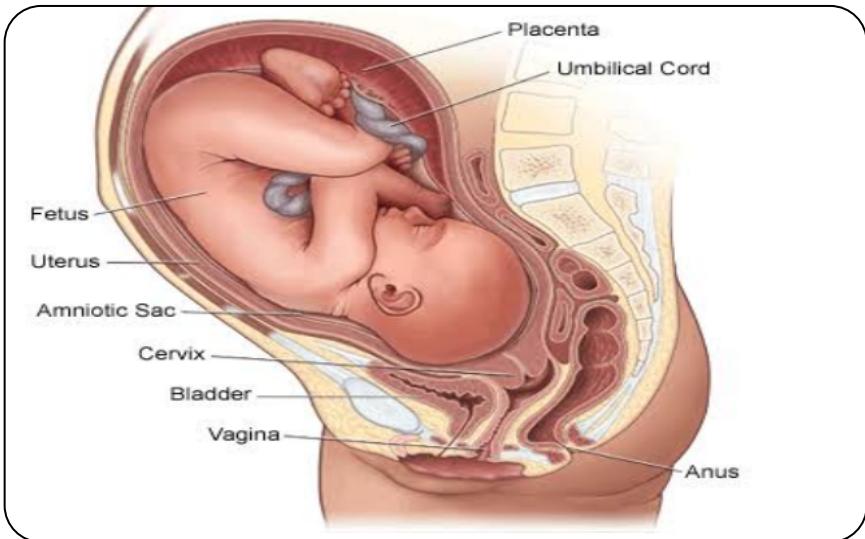
8. Define implantation

9. What is the gestation period of a human being?

10. Implantation takes place in the uterus while conception takes place in the uterus.

LESSON

Diagram showing the human foetus in the uterus



Functions of different parts;

- **Umbilical cord:** Contains an artery and a vein through which materials are conducted to and from the foetus.
- **Amnion:** It holds the amniotic fluid.
- **Amniotic fluid:** It protects the foetus from damage or external harm.
- **Placenta:** Stores digested food and oxygenated blood used by the foetus.
It does not allow toxic substances to reach the foetus
It is where waste materials from the foetus are first stored before they diffuse in the mother's womb.
- **Cervix:** It helps to separate the uterus from the vagina and closes the uterus during pregnancy.

Activity

1. State any **two** signs of pregnancy.

2. Mention any **two** problems associated with frequent pregnancies.

3. Mention any **two** conditions that may fail a woman to conceive.

4. State any **two** requirements needed by females during pregnancy;

5. Mention any **two** importance of Placenta during the pregnancy.

6. Name the structure that protects the foetus from being damaged by the external harm.

LESSON

Teenage pregnancy

This is a type of pregnancy in a young woman who has not reached her 20th birth day when the pregnancy ends.

Teenage pregnancies mostly occur in unmarried women.

Causes of teenage pregnancies

1. Lack of information about sexual and reproductive health and rights
2. Family, peer and community pressure
3. Sexual violence
4. Child marriage
5. Poverty
6. Interest of material goods
7. Exposure to phonographic materials
8. Forced/ early marriage
9. Lack of education

Problems associated with teenage pregnancy;

1. Dropping out of school.
2. Parental and family rejection.
3. Complications during pregnancy
4. The cervix is so weak to hold the foetus.
5. Difficulty in delivering.
6. The young mother may not take care of the baby properly.
7. Community discrimination
8. She may fail to get marriage in future they are considered to be second-hand.

Solutions to teenage pregnancy

1. Through sex education
2. Saying no to early sex
3. Guidance and counseling girls and community
4. Use of family planning methods
5. Avoiding bad peers
6. Avoiding risky behaviors

Common diseases and disorders of the reproductive system

Sexual transmitted diseases

These are diseases transmitted (STDs) through having unprotected sex with an infected person.

Note: Such diseases accumulate in the victim's body as a result of the destruction of the white blood cells by the HIV virus.

Examples of STD's

- | | |
|----------------|--------------------|
| 1. HIV/AIDS | 6. Genital herpes |
| 2. Gonorrhoea | 7. Genital warts |
| 3. Syphilis | 8. Lymphogranuloma |
| 4. Candidiasis | 9. Trichomoniasis |
| 5. Chancroid | |

Activity

1. What is a teenage pregnancy?

2. State any two problems associated with teenage pregnancies today.

3. Mention any two effects of teenage pregnancies to a school ongoing child.

4. Define the term Sexual Transmitted Diseases.

5. Write down any two examples of STD's

6. Write these short forms in full.

a) HIV _____

b) AIDS _____

c) STDs _____

LESSON

HIV/AIDS

HIV in full is Human Immune Deficiency Virus

AIDS in full is Acquired Immune Deficiency Syndrome

This is the most infectious of all the STDs.

It is caused by the HIV virus

Ways through which HIV virus is spread

1. Through playing unprotected sex with an infected person
2. Through mother to child transmission
3. Through blood transfusion with infected blood
4. Through sharing sharp objects with an infected person.

Practices that may lead to HIV infection

1. Circumcision
2. Skin tattooing
3. Sharing sharp objects
4. Blood transfusion
5. Having unprotected sex with infected person

6. Sharing wives in some communities especially in Eastern Uganda.

Signs and symptoms of HIV/AIDS infection

1. Loss of body weight within a short period of time
2. Prolonged fever
3. Itchy skin rash
4. Prolonged dry cough
5. General body weakness

6. Oral thrush (White coating in the mouth)

7. Herpers zoster

Effects of HIV/AIDS infection

- ✓ AIDS lead to death of many people because it has no cure
- ✓ AIDS has led to loss of productive class of people in the community
- ✓ AIDS has caused a lot of worries, misery and hatred especially to the infected and affected ones. (Stigmatization)
- ✓ AIDS infection has caused some working groups to lose jobs and poor performance at work

Prevention of HIV/AIDS

- ✓ Having one life longer partner
- ✓ Avoid sharing skin piercing instruments
- ✓ Blood to be used for transfusions should be tested for HIV.
- ✓ Having an AIDS test with one partner before marriage
- ✓ Correct use of condoms during sexual intercourse

Note: Condoms do not give 100% safety but offer higher chances of safety against STDs

Activity

1. How is HIV different from AIDS?

2. What causes Acquired Immune Deficiency Syndrome?

3. State any **two** ways through which HIV virus is spread from one person to another.

4. Mention any **two** practices that may lead to HIV infection

5. Mention **two** categories of people who are at the highest risk of contracting HIV/ AIDS.

6. State any **two** signs and symptoms of HIV/AIDS infection.

7. Mention any **two** effects of HIV/AIDS infection to:

a) An individual

b) The community

8. Mention any **two** ways of preventing HIV/AIDS.

LESSON

Gonorrhoea:

It is caused by a bacterium called gonococci or Neisseria gonorrhoea

Signs and symptoms in males

- ✓ Pain when urinating
- ✓ Smelly discharge of pus from the penis

In females

- ✓ Discharge of pus from the vagina
- ✓ Pain in the lower belly
- ✓ If not treated earlier, in pregnant women germs can easily affect the fetus's eyes hence blind babies.

Prevention and control of gonorrhoea

- ✓ Abstain from sex at early stages (Premature sex)
- ✓ Have regular medical check ups
- ✓ Married couples should avoid extra marital sex
- ✓ Get early treatment in case of discovered signs.

Syphilis

Syphilis is caused by a germ called spirocharete treponema palladium

Syphilis develops in the body into three stages. Namely;

- ✓ Primary stage
- ✓ Secondary stage
- ✓ Tertiary stage

Primary stage

This stage occurs after 2 – 5 days after sexual intercourse.

Signs and symptoms

- ✓ Painless sores around the sexual organs
- ✓ In case they are not treated, they spread to the heart and brain.

Secondary stage

This shows up after 5 weeks and beyond.

Signs and symptoms

1. Painful rashes all over the body
2. Sores in the throat
3. Swollen joints and pain in the bones
4. The body becomes anemic
5. Mild fever.

Tertiary stage

This happens between 5 – 20 years of the infection and difficult to heal.

Signs and symptoms

1. Big painful sores all over the body
2. Severe abdominal pain
3. Development of heart, brain and liver disorders
4. The victim may even become mad or insane
5. A lot of damage is done on the body system at this stage.

Note: If a pregnant woman has untreated syphilis, she can easily pass it to the

unborn baby.

This type of syphilis is called **congenital syphilis**

Prevention of syphilis infection

Get early treatment with antibiotics

Go for regular medical check ups

Abstain, use condoms for untrusted partners or be faithful to our sexual partners. (ABC)

Activity

1. Name the sexually transmitted disease caused by a bacterium called gonococci.

-
2. State any **two** signs and symptoms of the above disease:

- a) In males

-
- b) In females

3. Mention any **two** ways of preventing and controlling of gonorrhoea

-
4. Name the germ which causes syphilis.

5. State any **two** signs and symptoms of syphilis in the:

- a) Primary stage

-
- b) Secondary stage

-
- c) Tertiary stage

6. Suggest any **two** ways of preventing syphilis infection in our community.

LESSON

Care for the reproductive organs

- ✓ Always maintain the cleanliness of the sexual organs
- ✓ Avoid wearing dirty and wet clothing around the sexual organs
- ✓ Abstain from sex to avoid contraction of the STDs
- ✓ Avoid sharing sharp skin piercing objects that may transmit STDs
- ✓ Married people should be faithful to prevent the transmission of STDs
- ✓ Couples should go for HIV test before having sex in order not to get HIV/AIDS

- ✓ Practice ABC measures.

Note: A - Abstain from sex

- B- Be faithful to your partner
- C- Condom usage

Family planning and child spacing

Family planning is the use of birth control methods to plan when to have a child or not in a family.

Child spacing is the provision of adequate space between the births of a family's children

Importance of child spacing

- ✓ It promotes healthy growth of the children
- ✓ It promotes relaxation of the mother's body

Activity

1. State any **two** activities we can do to care for the reproductive organs.

2. Mention any **two** reasons why school children are advised to abstain from sex.

3. Why should couples go for HIV test before having sex?

4. Write in full: ABC as a measure in controlling Sexually Transmitted Diseases.

5. Define family planning

6. How is family planning different from child spacing?

7. Mention any two importance of child spacing in a home.

LESSON

Methods of family planning

Family planning methods are practices that help to prevent conception among women.

Categories of family planning methods

1. Artificial methods

These are methods that involve the use of man-made devices to control or prevent conception.

Examples

- ✓ Use of a condom
- ✓ Use of a diaphragm, use of intra – uterine devices

- ✓ Use of foams and jellies (Spermicides)
- ✓ Use of birth control pills and injections.

Note: All the above are said to be temporary birth control methods.

Permanent methods

1. Tuballigation

This is a surgical method which involves cutting of the oviducts and tying them through a surgical operation

2. Vasectomy:

This is a method which involves cutting of the sperm ducts and tying them through a **surgical operation**.

Advantages of using artificial methods of family planning:

- ✓ They are effective and well conducted
- ✓ They are convenient and time saving
- ✓ They are helpful in the control of some STDs such as use of a condom
- ✓ HIV infected mothers can easily live longer without child bearing.

Disadvantages of using artificial methods of family planning

- ✓ Some, if not practiced well may destroy the ovaries and cause barrenness
- ✓ Some result into complete sterility in one's life time
- ✓ They are expensive to many families.

LESSON

Natural methods of family planning

- ✓ Abstaining from sex (Good for school going children)
- ✓ Withdrawal/coitus interruption method gametes with the female gametes
- ✓ Use of a calendar and rhythms. This involves studying ones menstrual cycle and having sex only when ovulation is likely not to take place.
- ✓ Prolonged breast feeding. This helps to delay the ovulation but it varies in women.

Advantages

- ✓ They are easy, cheap and convenient.
- ✓ They do not have complications.

Disadvantages

- ✓ They are not effective as the artificial methods.
- ✓ They require complete cooperation for both husband and wife.
- ✓ They require great amount of teaching and supervision.

Importance of family planning

- ✓ It enables the mother to regain her health in preparation for the next pregnancy.
- ✓ It enables parents to have a manageable number of children in a family.
- ✓ It enables children to have enough basic needs.
- ✓ It checks on the population of a country.
- ✓ It helps in the control of unwanted pregnancies.

Reasons why some parents produce many children

- ✓ Ignorance about family planning methods.
- ✓ High infant mortality rate.

- ✓ Desire for a particular sex of a child.
- ✓ Cultural benefits and the need to show that one is sexually strong.
- ✓ Myths and misconceptions about family planning
- ✓ People think family planning methods lead to barrenness.

Activity

1. Mention **two** examples of family planning methods that involve the use of man-made devices to control or prevent conception.

2. Define the following terms:
a) Tuballigation

b) Vasectomy:

3. State any **two** advantages of using artificial methods of family planning.

4. Suggest **two** disadvantages of using artificial methods of family planning

5. Name the best methods of family planning suitable for school going children.

6. State any **two** reasons why the above method is good for the school children.

7. Which family planning method helps to delay the ovulation in women?

8. State any **two** importance of having a small family.

9. Suggest **two** reasons why some parents produce many children

LESSON

PIASCY MESSAGES

PIASCY messages about adolescence and reproductive health

PIASCY stands for:

P – Presidential

I – Initiative on

A – AIDS

S – Strategy for

C – Communication to the

Y – Youth

The following messages are passed to us through PIASCY activities

- Abstaining from sex until marriage
- Learn how HIV is transmitted
- Pre-marital sex is bad
- Boys and girls should see each other as friends but not sexual partners.
- Follow your religion to stay healthy.
- Stay in school until marriage.
- HIV damages the immune system
- People living with HIV and AIDS need care and support
- Testing for HIV
- Managing menstruation well
- You need to understand how your body changes at puberty
- Sexually transmitted infections make it easier for HIV infections
- Say No to sex for gifts
- Life skills help to protect you from HIV.
- Using violence to get sex is wrong
- You have the right to say No to forced marriages.
- Say No to bad touches
- Choose to delay sex
- Avoid risky places and risky behaviours

ACTIVITY

1. Write PIASCY in full.

2. State **two** reasons why school ongoing child is supposed to abstain from sex until marriage.

3. Why should one test for HIV?

4. Mention **two** life skills that can help to protect a P.7 child against HIV/ AIDS.

5. Mention any **two** risky places that we should avoid in order to control HIV/ AIDS.

6. Give any **two** ways of caring for people living with HIV and AIDS.

7. State any **two** challenges got from pre-marital sex.

8. Mention **two** ways one can control oneself from pre marital sex.
