P.4 SCIENCE LESSON NOTES FOR TERM II

Topic : OUR FOOD

Food Is something good to eat or drink and adds a nutritional value to the body.

Feeding Is the taking in of food into the body.

Nutrition: Is the process by which food is taken in and used by the body.

Reasons why people eat food

- It is a habit
- To reduce hunger
- To promote good health
- To show happiness
- To show hospitality

Note

The reasons why people eat food are summarized used the 5Hs.

- Habit Hunger Happiness Health Hospital

Uses of food in the body

- Provides energy
- Protects us from diseases / Boost the immunity of the body.
- Builds the body cells for growth.
- Replaces worn out body cells

Sources of food

- Plants
- Animals

Places where people get food from

- Gardens
- Shops
- Markets
- Supermarkets
- Water bodies
- Forests

Ways people get food

- Growing food crops
- Buying food
- Fishing
- Hunting from forests and bushes
- Gathering from forests and bushes.

A balanced diet

A balanced diet is a meal having all food values needed by the body in their right amounts.

Components of a balanced diet / food values / classes of food

- Carbohydrates
- Proteins
- Vitamins
- Mineral salts
- Fats and oils
- Water
- Roughage

CARBOHYDRATES : Carbohydrates are food that provide the body with energy

Uses of carbohydrates

- They provide energy to the bodies

Sources of carbohydrates

- Honey
- Bread
- Sweet potatoes
- Cassava
- Maize
- Rice

Note :

Carbohydrates are also called **Go food** because they provide energy to the body.

Fats and oils

- They are collectively known as lipids.
- Fats are solids while oils are liquids.

Uses of fats and oils

- They provide the body with energy.

Sources of fats and oils

- Simsim
- Milk
- Palm oil
- Egg yolk
- Meat

Note

- To much fats in the body lead to obesity.
- Fats and oils are also examples of Go foods.

Proteins: Proteins are foods that build the body.

Uses of proteins in the body

- Proteins build the body cells for growth
- Proteins replace worn out body cells

Sources of proteins

Beans	meat
Cow peas	Eggs
Soya beans	Milk
Ground nuts	Fish

Proteins got from plants are called plant proteins like beans,cow peas, soya, ground nuts.

Proteins got from eating animal products are called animal proteins. e.g. meat, eggs, milk , fish.

Proteins are also called **Grow food** because they build the body.

VITAMINS

Vitamins are foods that boost the immunity of the body i.e. they protect the body against diseases.

Types of vitamins

Vitamins are named using capital letters thus;

- Vitamin A
- Vitamin B
- Vitamin C
- Vitamin D
- Vitamin E
- Vitamin K

Vitamin A : For good eye sight

Sources of vitamin A

- Green leafy vegetables
- Carrots
- Raw mangoes
- Green pepper

VITAMIN B

- It is a water soluble vitamin
- It protects the body from skin diseases
- It promotes proper passing of messages in the body
- It is called a vitamin B complex

VITAMIN B_1

- Enables the body to turn food into energy

- It maintains appetite

Sources of Vitamin $B_1$and B_2

- Beans
- Unpolished cereals
- egg yolks
- Whole grain cereals
- Kidney

Vitamin B_2 :

- It maintains the good health of the skin
- It promotes growth
- It makes energy from carbohydrates
- It makes red blood cells

Note:

- It is a water soluble vitamin but not destroyed by heat.

Vitamin C

- It promotes healing of wounds
- It assists in the absorption of iron from food.
- It prevents infection of the gum

Note: It is also called ascorbic acid.

Sources of vitamin C

- Lemon
- Oranges
- Paw –paws

- Green pepper

Vitamin D

- It aids proper formation of strong bones and teeth
- It is a fat soluble vitamin

Note: It is also called calciferol.

Sources of Vitamin D

- Liver
- Milk
- Egg yolk
- Fish
- Butter
- Margarine

Note: It is also formed by the skin by the help of sun light.

VITAMIN E

- It boosts fertility levels
- It is a fat soluble vitamins
- It is also called tocopherol

Sources of Vitamin E

- Eggs yolk
- Green leafy vegetables
- Liver
- Butter
- Pumpkins
- Avocado

Vitamin K

- It aids blood clotting at a cut.
- It aids quick healing of wounds
- It is a fat soluble vitamin

Note

- It is also called phylloquinona

Sources of Vitamin K

- Liver
- Egg Yolk
- Green leafy vegetables
- Unpolished cereals
- Carrots
- Sweet potatoes
- Tomatoes

Note

- Vitamins are also called Glow foods because they boost the immunity of the body.

MINERAL SALTS

These are foods that protest the body from diseases.

Examples of mineral salts

- Calcium
- Iron
- Iodine

- Phosphorus
- Sodium
- Potassium

Calcium and phosphorus

These are mineral salts responsible for the formation of strong bones and teeth.

Sources of calcium and phosphorus

- Milk
- Whole grain cereals
- Beans
- Spinach
- Fish

Sodium and potassium

These are mineral salts needed for balancing water levels in the body.

IRON

- It helps to form blood / haemoglobin
- Haemoglobin is a red pigment in blood which transport oxygen to body cells.

Sources of iron

- Liver
- Egg Yolk
- Green leafy vegetables
- Meat
- Beans

Iodine

- It aids the proper working of the thyroid glands

Sources of Iodine

- Sea water
- Iodized salt
- Sea weeds
- Lobster
- Shrimbsl
- Cray fish

Note: Mineral salts are also called Glow foods because they protect the body against diseases.

ROUGHAGE

Roughage is an indigestible fibre found in plants.

Sources

- Vegetables (leafy vegetables)
- Fresh fruits
- Sweet potatoes
- Beans
- Cassava
- Cabbage

Uses of roughage

- It prevents constipation
- Ease digestion of food

WATER

Food sources of water

- Tea
- Soup
- Milk
- Fruit juices

Uses of water in the body

- Water cools the body through sweating
- Makes digestion of food easy
- Water maintains the shape of body cells
- Water reduces thirst.
- Water makes up plasma in blood
- Water reduces friction in joints.

Deficiency diseases

These are diseases caused due to lack of some food values in the body.

Examples of deficiency diseases

- Marasmus
- Kwashiorkor
- Night blindness
- Beri-beri
- Pellagra
- Scurvy
- Rickets
- Haemophilia
- Anaemia
- Goitre

Marasmus

- It is caused due to lack of carbohydrates in the body
- It is also called starvation

Signs of marasmus

- Bonny face
- Loss of body weight
- Very bright eyes
- Pot belly

Symptoms of marasmus

- Body weakness
- Feeling hungry every time

Control/ prevention of marasmus

- Eating food rich in carbohydrates

Kwashiorkor

- It is caused due to lack of proteins in the body.

Signs of kwashiorkor

- Swollen moon face
- Swollen hands and seet
- Little brownish hair
- Regarded growth
- Swollen stomach full of air

Symptoms of kwashiorkor

- Body weakness

Prevention / control of kwashiorkor

- Easting food rich in proteins

Night blindness

- It is caused due to lack of vitamin A in the body
- It is also called poor night vision

Signs of night blindness

- Sore eyes
- Dry skin
- Reduced sight at night

Symptoms of night blindness

- Loss of appetite

Prevention / control of night blindness

- Eating food rich in vitamin A.

Beri –beri

- It is caused by lack of vitamin B_1 in the body

Signes of beri – beri

- Retearded growth

Symptoms of beri-beri

- Loss of appetite
- Body weakness

Control / prevention of beriberi

- Eating food rich in vitamin B1 in the body

Pellagra

- It is caused due to lack of vitamin B_2 in the body.

Signs of pellagra

- Skin disorder
- Sore eyes and mouth

Symptoms of pellagra

- Body weakness

Prevention and control of pellagra

- Eating food rich in vitamin B_2.

Scurvy

- It is caused due to lack of vitamin C in the body

Signs of scurvy

- Bleeding gums
- Poor healing of wounds

Symptoms of scurvy

- Reduced body immunity

Prevention of scurvy

- Eating food rich in vitamin C.

Rickets

- It is caused due to lack of vitamin D in the body
- It leads to suffering / softening of bones in adults called signs of rickets.
- Osteomalacia

Signs of rickets

- Bow legs
- Knock knee legs
- Poor teeth formation

Symptoms of rickes

- Weak bone

Anaemia

- It is caused due to lack of iron in the body

Signs of anaemia

- Pale skin

Symptoms of anaemia

- Fatigue
- Poor appetite

Control and prevention of anaemia

- Eating food rich in iron
- Swallowing iron tablets

Goitre

- It is caused due to lack of iodine in the body

Signs of goitre

- Swelling in the neck

Prevention of goitre

- Eating food rich in Iodine.

Haemophilia

- It is caused due to lack of vitamin K in the body.

Signs of haemophilia

- Poor blood clotting

Note: Haemorrhage is severe loss of blood

Prevention of haemophilia

- Eating food rich in vitamin K

Constipation

- It is a condition caused due to lack of roughage in the body.
- It is a condition when a person finds it difficult to pass out stool.

Signs of constipation

- Difficulty in passing out stool

Symptoms of constipation

- Pain when passing out stool

Prevention of constipation

- Eating food rich in roughage

MALNUTRITION

This is a condition when the body does not get enough food values

It is also called poor feeding

Signs of malnutrition

- Retarded growth

- Body weakness
- Obesity
- Chronic tiredness
- Low body immunity

OBESITY

Obesity is a condition of being very fat or over weight

Conditions / factors that lead to obesity

- Over feeding
- Eating a lot of animal fats
- Lack of physical exercises

Dangers of being obese

- It leads to heart diseases
- It leads to diabetes

Signs of good health

- Mentally alert
- Good eye sight
- Strong bones and teeth
- Having energy

Food security

- The way of having enough food for use at home

Ways of ensuring food security

- Growing drought resistant crops
- Storing excess food
- Growing more food crops
- Controlling both garden and storage pests
- Preserving surplus food
- Using good farming methods

FOOD CONTAMINATION

Food contamination is the way food gets into contact with germs

Food insecurity is lack of enough food for use at home.

Causes of food insecurity

- Drought
- Pests and diseases
- Poor methods of farming
- Floods

Importance of food security

- Prevents deficiency diseases
- Prevent famine

Food hygiene

- The keeping of food free from germs

Ways of maintaining food hygiene

- Washing hands before handling food
- Covering cooked food
- Putting food in clean containers
- Keeping food in clean places

Food preparation

- The way of making food ready for consumption.

Ways food gets contaminated

- Putting food on dirty containers
- Handling food with dirty hands
- When houseflies sit on food
- Serving food in a dirty place

How to prevent food contamination

- Re-heating leftover food
- Serving food in clean dry plates
- Covering cooked food
- Washing hands before eating food

Ways of preparing food

- Mingling e.g. posho, millet bread
- Boiling e.g. water, potaoes and cassava
- By frying e.g. meat, rice
- Roasting e.g. meat, fish, ground nuts, cassava, maize
- Banking e.g. cakes, bread

Reasons for preparing food

- To make it soft
- To kill germs
- To make it tasty

Preparing a local dish (Practical)

Food preservation

This is the keeping of food for a long time without going bad.

Modern methods

- Refrigeration
- Pasteurization

Local / traditional

- Smoking
- Salting
- Sun drying

Ways of preserving food

- Smoking e.g. fish, meat
- Sun drying e.g. cassava, millet, sorghum, ground nuts
- Salting e.g. fish, meat
- Refrigeration e.g. fruits, fish, meal, milk
- Pasteurization

Importance of preserving food

- To keep food for future
- To ensure food security

HUMAN BODY ORGANS

The human body is formed from smallest units called cells.

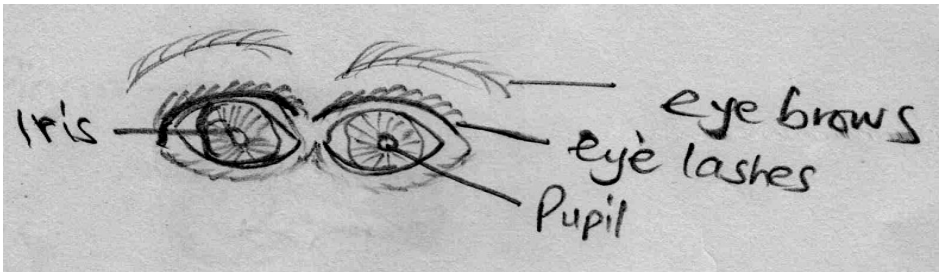
Cells form tissues, tissues form organs, organs form systems and systems form an organism.

Body organs

Eyes
Ear
Brain
Liver
Urinary bladder
Stomach
Kidney
Lungs
Heart

Eyes

- They are used for seeing or sight
- They use light to fun ction



Eye diseases

- Trachoma
- River blindness
- Night blindness (deficiency disease)
- Conjuctivities
- Stye

Ways of caring for eyes

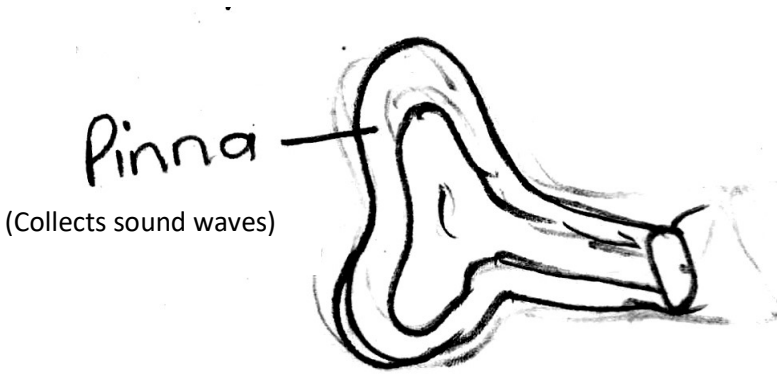
- Washing eyes with clean water
- Avoid looking at the sun directly
- Visiting opticians for check up
- Eating food rich in vitamin A.

Questions

1. How important is the nose in humans?
2. Which vector spreads
    a. Trachoma
    b. River blindness
3. State the major cause of night blindness in humans.
4. Why is it dangerous to look at the sun directly

EARS

- They are used for hearing
- They also balance the body
- They are two in number



Care for ears

- Removing wax using ear pads
- Washing them with clean water
- Avoid cleaning ears with sharp objects

The nose

- It is used for smelling

Note

- The small hair in the nose is cilia
- Cilia traps germs and dirst
- Air in the nose is warmed, filtered and moistened.

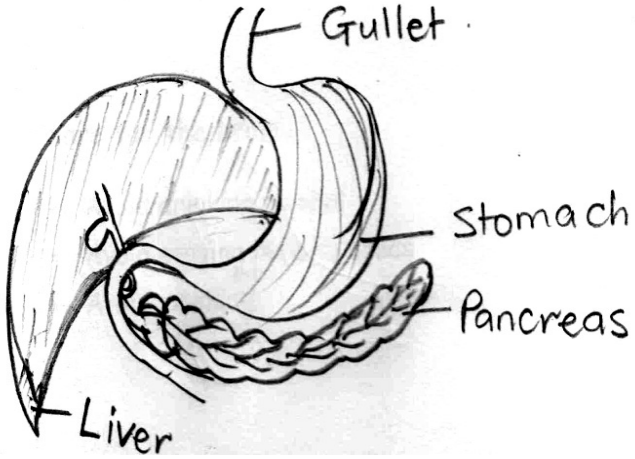
Care for the nose

- Avoid pushing objects in the nose
- Avoid staying in dusty places
- Removing mucus regularly

Note: The tongue is used for tasting food

THE STOMACH

It stores food for a short time



Care for the stomach

- Drinking enough water
- Having physical exercises
- Avoid eating fatty foods

THE LIVER

- Controls the amount of sugar in blood
- It produces bile
- It makes poisonous substances from the food harmless

Diseases of the liver

- Liver cancer
- Liver cirrhosis
- Liver abscess (boils)

Care for the liver

- Avoid taking alcohol
- Avoid eating poisonous food

THE BRAIN

Note: It is protected by a hard bone called skull

- It stores information
- It is used for thinking
- It controls all body activities
- For memory

Diseases of the brain

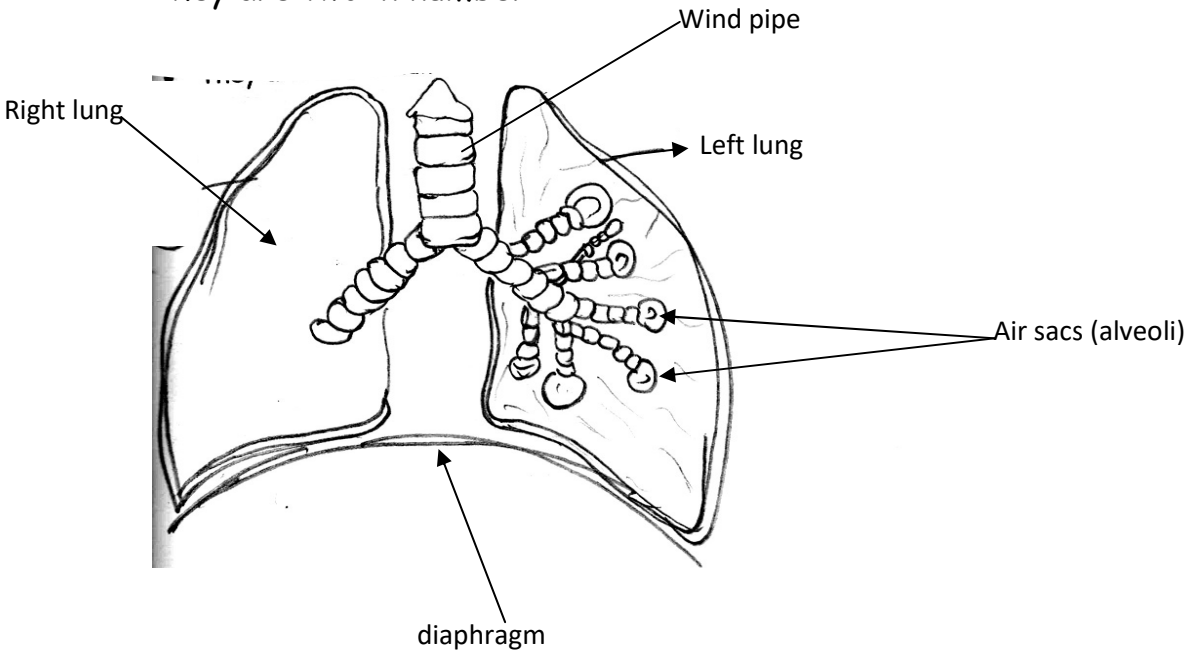
- Cerebral malaria
- Meningitis
- Stroke
- Epilepsy
- Brain cancer

Care for the brain

- Avoid drinking alcohol
- Avoid staying in noisy areas
- Avoid smoking

LUNGS

- They are used for breathing
- They are two in number

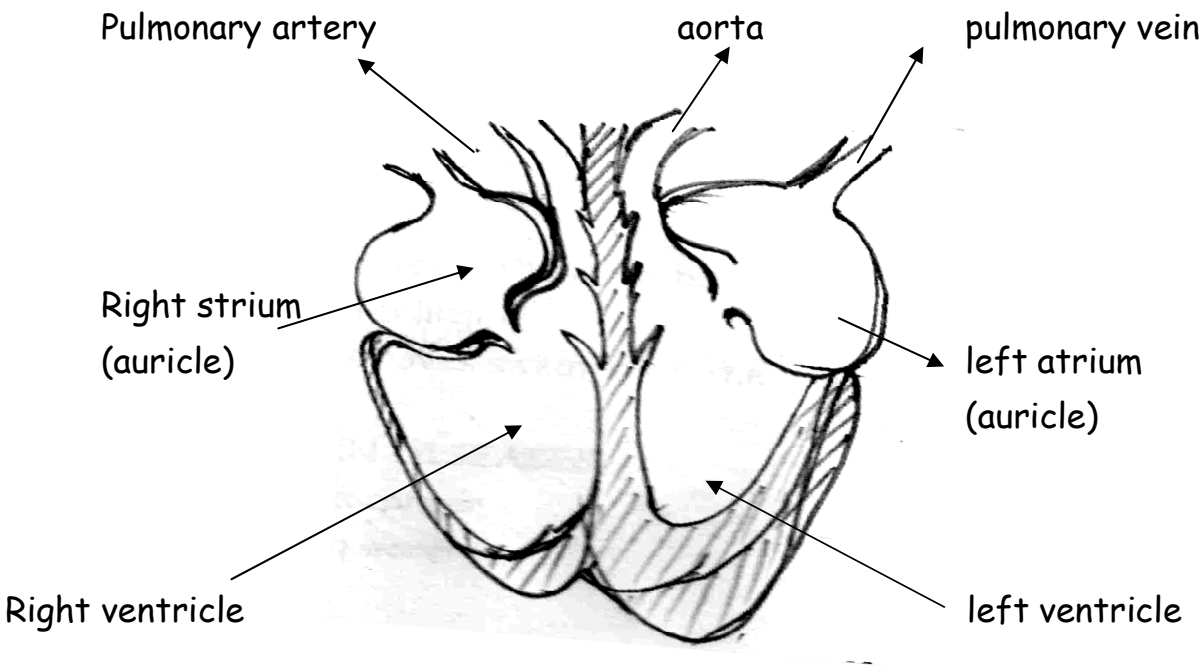


Ways of caring for lungs

- Avoid smoking
- Immunizing all children
- Having regular physical exercises
- Eating a balanced diet
- Keeping away from dusty places

THE HEART

It pumps blood to all body parts



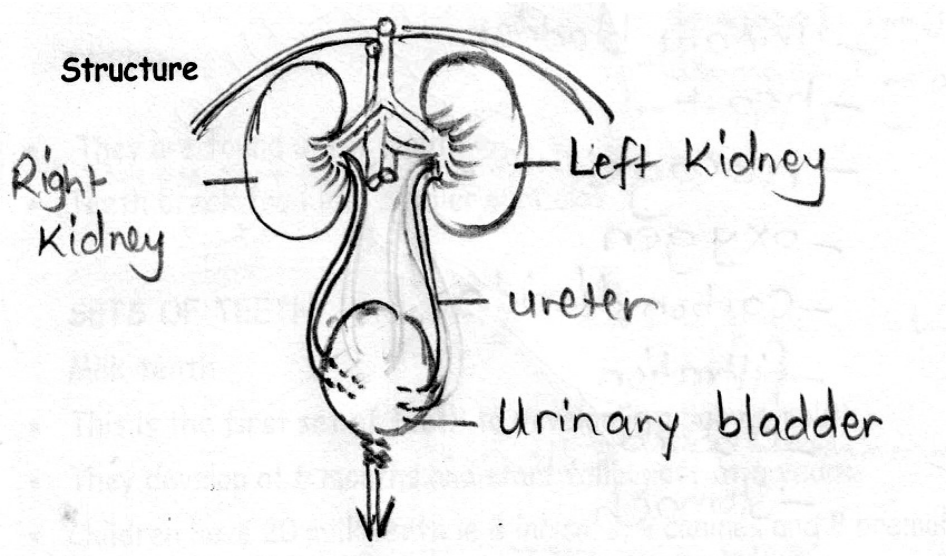
Ways of caring for the heart

- Having regular physical exercises
- Reduce on fat consumption
- Eating a balanced diet
- Having enough rest

THE KIDNEY

- To filter blood

Structure



Functions of the above parts

- Ureter – takes urine from the kidney to the urinary bladder.
- Urinary bladder – stores urine for a short time.
- Urethra – takes out urine from the body

Diseases of the kidney

- Kidney cancer
- Nephritis
- Citisis

Caring for the kidney

- Having regular physical exercises
- Reduce on sugary foods
- Eating a balanced diet
- Drinking a lot of water

THE SKIN

Note: It protects the inner body parts

- For feeling
- It removes sweat from the body
- Controls body temperature
- Makes vitamin D using the sunlight

SKIN DISEASES

- Skin cancer
- Ring worm
- Scurvy
- Pellagram
- Measles
- Scabies
- Dobhi itch

- Impetigo
- Candidiasis

How the human body works

- The body takes in food and oxygen
- The body uses food and oxygen to produce energy
- The body removes waste products from the body.
- Carries food and oxygen to different parts of the body.

Word bank

- skull
- brain
- organism
- pancreas
- liver
- faeces
- urinary bladder
- heart
- ribcage
- oxygen
- carbondioxide
- filtration
- absorb
- stomach
- ureter
- regularly

TOPIC III

Spellings

- temporal
- permanent
- temporary

- jaw bone
- digestion

TEETH

- They are found in the mouth
- Teeth break food into smaller particles

SETS OF TEETH

A person gets two sets of teeth in his / her life time namely;

Milk teeth

- This is the first set of teeth to develop in a baby's mouth.
- They develop at 6 months and all of them are removed by the age of 13 years.
- Children have 20 milk teeth ie 8 incisors, 4 canines and 8 premolars.

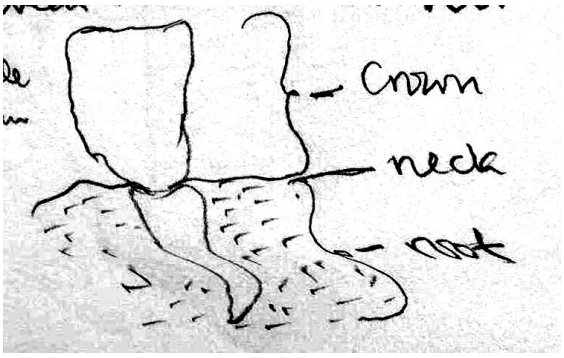
	Incisor	Canine	Premotor	Total
Lower	4	2	4	10
Upper	4	2	4	10
Total	8	2	8	20

Permanent teeth

- Permanent teeth develop to replace the milk teeth.
- They last for the rest of a person's life
- A normal adult has 32 teeth (permanent)

REGIONS OF A TOOTH

- Crown - above the gun covered by enamel
- Neck - between the crown air root
- Root – inside the gum

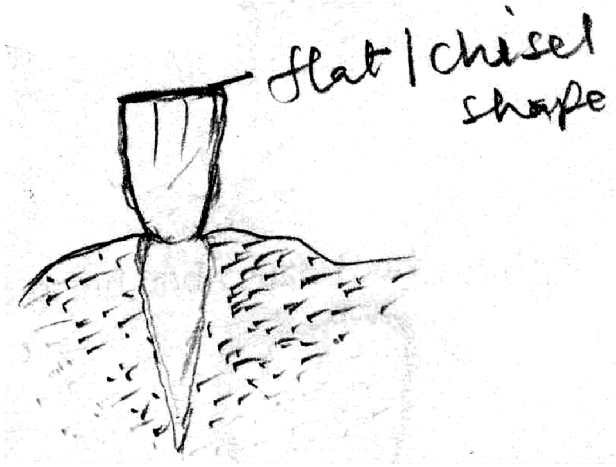


Types of teeth

- Incisor teeth
- Premolars
- Canine teeth
- Molar

Incisors - The teeth in the front part of the mouth

- They are used for cutting food
- They are 8 in number

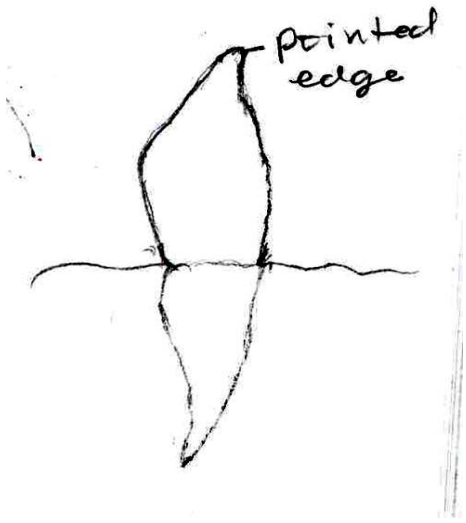


Adaptation

- It is sharp and flat for cutting food or
- It is chisel shaped for cutting food

Canine teeth - The pointed teeth next to the incisors.

- They are used for tearing food
- They are 4 in number i.e. 2 up and 2 down.

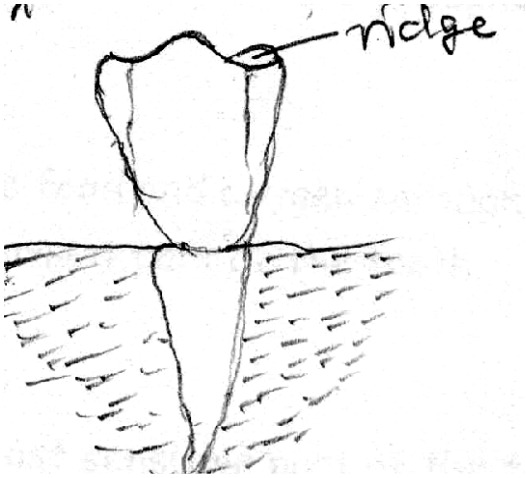


Adaption

It is sharp and pointed for tearing food

Premolar

- They grind, chew and crush food

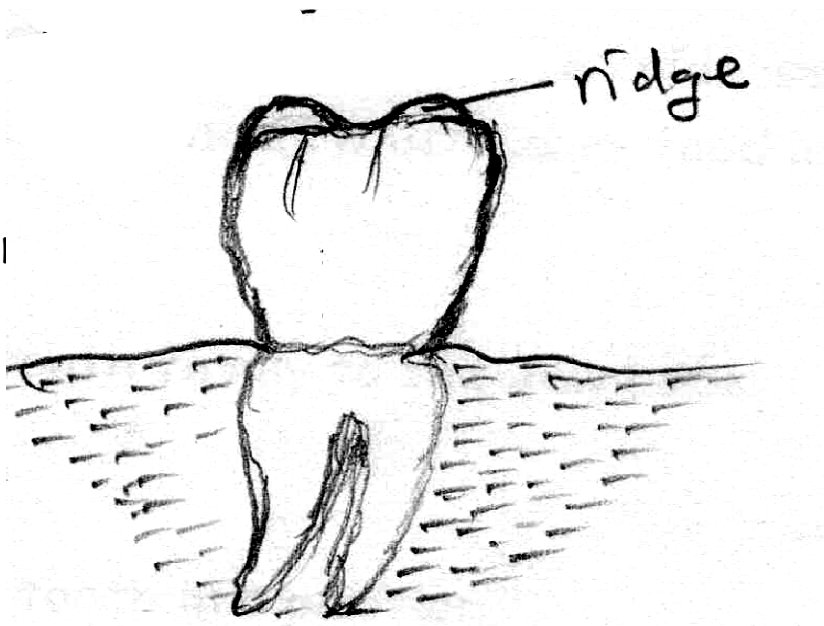


Adaption

They have rough edges / cusps for chewing, grinding and crushing food

Molars

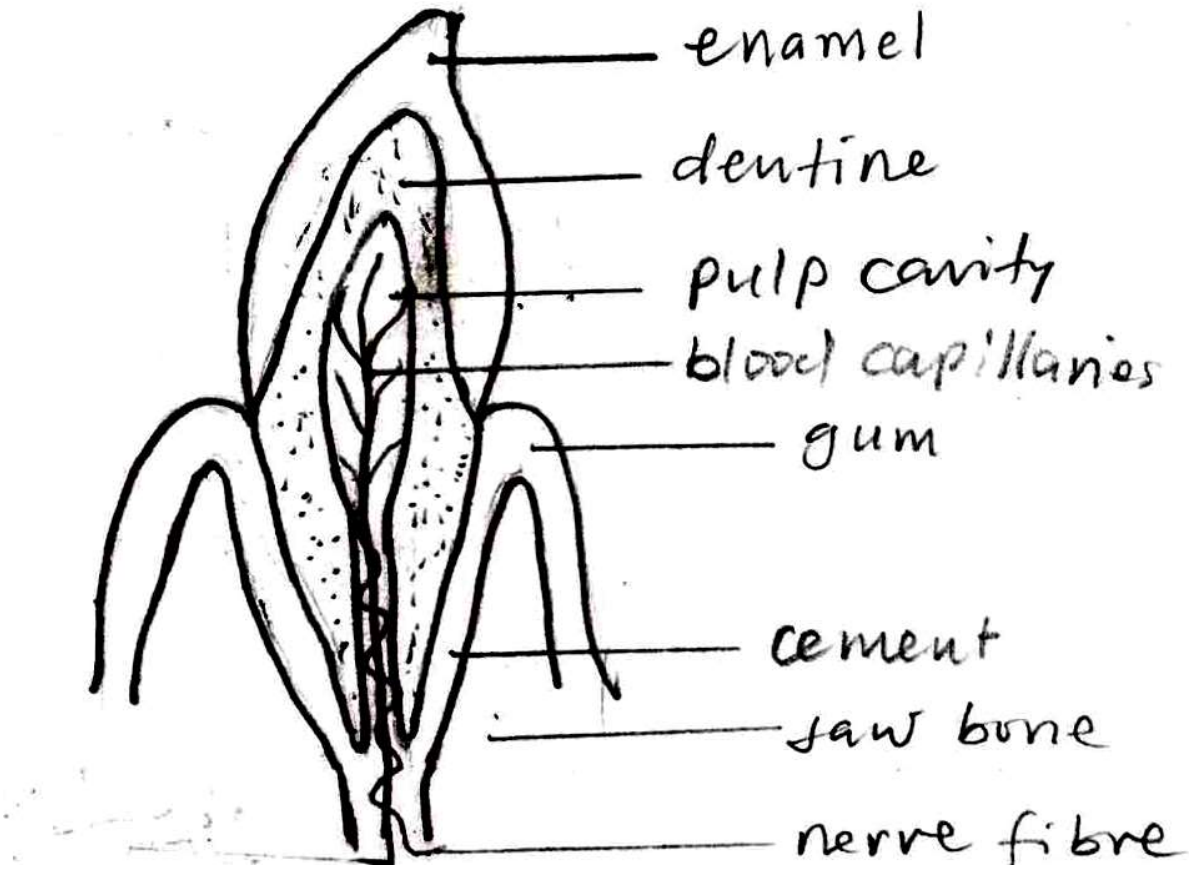
- They also grind, chew and crush food



Adaptation

- They have ridges for crushing food

Parts of a canine tooth



FUNCTIONS OF THE PARTS

Enamel

- To protect the inner parts of a tooth

Note

- It is the hardest part of the tooth
- It is made up of calcium and phosphorus

Dentine

- It protects the pulp
- It has living cells which make it sensitive

Note

- It is the largest part of the tooth.

Pulp cavity – hole

Note – nerves and blood capillaries

Nerves are the most sensitive part of tooth

Nerves – they sense pain, heat and cold

Blood capillary – supply oxygen and food to the tooth.

Cement

- To fix the tooth firmly to the Jaw bone

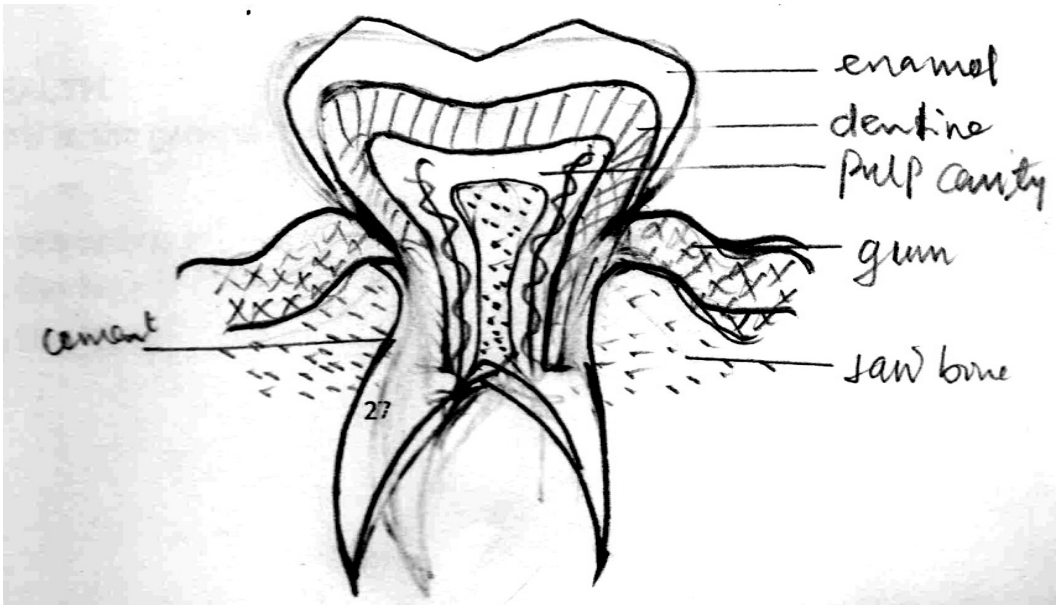
Jaw bone

- To hold the tooth in a position

Gum:

- To give the tooth extra support to a tooth in the socket.

PARTS OF A TOOTH (MOLAR)



Disease of teeth

- Tooth decay
- Periodontal diseases

DISEASES OF TEETH

Periodontal tooth diseases

Note

- It is the infection on the gum and tooth socket.
- It is caused by plaque which accumulates on the teeth
- Plaque is the coating on teeth caused by bacteria and saliva having mucus
- Plaque leads to giving vityic (effects)
- Givingivitis is the swelling of the gum
- Gingivitis is the major cause of bad breath.

Signs of gin of gingivitis

- Bad breath
- breeding from the gum
- gum moves away from the crown

Tooth decay / dental carries.

- It is caused by bacteria which is attracted by the food remains in the teeth.

DISORDERS OF TEETH

- Broken teeth
- Improper growth of teeth
- False teeth
- Poor alignment of teeth

Activities that can destroy teeth

- Opening bottles using teeth
- Biting hard objects

- Easting a lot of sweet things (sugary thing)
- Failure to brush teeth

CARE FOR TEETH

- Brushing the teeth daily
- Avoid eating much sweets (remains of sweets attract bacteria which cause tooth decay)
- Avoid opening bottles using teeth
- Flossing the teeth
- Having a dental check up after every 6 months.

Note: Dental floss – a strong

ORAL HEALTH

- Oral health is the general cleanliness of the mouth

Materials used for cleaning teeth

- Water
- Dental floss
- Tooth paste
- Tooth brush
- Ash
- Salt

Ways of promoting oral health

- Brushing the tongue
- Brushing the teeth
- Rinsing the mouth with warm salty water.
- Visiting the dentist for check up

Activity

1. Why do we brush our teeth?
2. Name any two diseases of teeth

3. In which way is the canine tooth adapted to its function?
4. What is oral health?
5. Give two ways of caring for teeth.
6. Why do we brush teeth?

Word bank

1. Milk teeth
2. permanent
3. enamel
4. incisors
5. canines
6. premolars
7. molars
8. crushing
9. cwewing
10. food particles
11. plague
12. crown
13. breath
14. dental flossing
15. cracked teeth
16. gingivitis
17. periodontitis
18. periodontal
19. tartar
20. dental brace
21. biting
22. oral hygiene
23. calcium

Topic V

SANITATION

- Sanitation is the general cleanliness of an area where we stay / live

Importance of proper sanitation

- Controls diarrhoeal diseases
- Controls bad smell
- Controls disease vectors

Things used to clean our environment

- Hoes
- Brooms
- Water
- Slasher
- Scrubbing brush
- Liquid soap

Ways of promoting sanitation

- Collecting rubbish
- Sweeping the compound
- Mopping the floor
- Smoking pit latrines
- Proper disposal of rubbish
- Proper disposal of human wastes

Dangers of poor sanitation

- Leads to diarrhea disease
- Leads to bad smell
- Increases vector

Indicators of poor sanitation

- Bad smell
- Human waster
- Presence of house rubbish

Diseases spread due to poor sanitation

- Diarrhea
- Dysentery
- Typhoid
- Cholera
- Malaria
- Trachoma
- Polio
- Bilharziasis

Elements of a clean home

- Latrine: for proper disposal of human wastes
- Rubbish pit: for proper disposal of rubbish.
- Kitchen: It is where we cook and store food
- Plate stand: It is where we put plates to dry
- Bath room: it is where we bathe from.

GERMS / PATHOGENS

- Germs are tiny organisms which cause diseases.
- Germs are so small that they can't be seen with our naked eys.
- We use a microscope to see germs
- Microscopes enlarge germs

Types / groups of germs

- Bactria
- Fungi
- Viruses
- Protozoa

Examples of bacteria

- Bacilli which caused tuberculosis
- Vibrio cholera which cause cholera
- Salmonella typhi which causes typhoid
- Chlamydia which cause trachoma
- Cocci -

Examples of viruses

- Human Immune Deficiency Virus – AIDs
- Polio Virus – Polio
- Pneumococcal virus – Pneumonia
- Yellow fever virus

Examples of protozoa

- Plasmodia – malaria
- Trypanosomes – sleeping sickness and nagana
- Amoeba – amoebic dysentery

Fungal diseases

- Candida
- Trychomona

Examples of fungal diseases

- Ring worm
- Anthletes foot
- Candidiasis

Places where germs are found

- In water
- Air
- In blood
- In the soil
- Rubbish pit

- Latrine
- Our bodies
- Rotting matter

Ways in which germs spread

- Through breathing in contaminated air
- Through body contacts
- Through animal bites
- Through cuts on the body
- Through sharing clothes with an infected person.
- Through eating contaminated food
- Drinking contaminated water

Ways of controlling the spread of germs

- Covering cooked food
- Washing hands after visiting the latrine
- Proper disposal of human wastes
- Collecting and burning rubbish

THE FOUR Fs

- Faeces – Flies – Food – Fingers

DISEASES SPREAD THROUGH THE 4FS

- Cholera
- Typhoid
- Dysentery
- Diarrhea

How to prevent diseases spread through 4Fs

- Proper disposal of aeces
- Covering cooked food
- Washing hands after visiting the latrine
- Washing hands before eating

Causes of sickness at home

- Poor feeding
- Poor sanitation
- Lack of physical exercises
- Lack of enough rest

Prevention of diseases without use of drugs

- Eating food having a balanced diet
- Promoting proper sanitation
- Doing regular physical exercises
- Have enough sleep

Work bank

- germs
- organisms
- diseases
- microscope
- tine
- bacteria
- diarhoea
- rotting
- sanitation
- cleanliness
- general
- stagnant
- mosquitoes
- defecation
- dysentery
- typhoid
- rehydration
- dehydration