SCIENCE CLASS 7 REVISION MATERIAL

HUMAN BODY

THE BLOOD CIRCULATORY SYSTEM

Parts of the circulatory system

- The heart-The pumping organ
- The blood-The transport fluid.
- The blood vessel-They are pipes through which the blood flows.

Blood components and their functions

- Plasma-The liquid part of the blood which transport digested food materials, salts and other dissolved substances.
- Red blood cells-They contain red colouring matter called **haemoglobin**, which gives blood the red colour, red blood cells helps in transporting oxygen.
- White blood cells-They have a nucleurs, they help in fighting and killing disease-causing germs.
- Platelets-They help in blood clotting ie further loss of blood through wound.

Types of Blood Vessels and their functions.

Arteries:

- They carry blood away from the heart .

- They have thick walls
- They have a narrow lumen.
- They have no valves since they carry blood at a high pressure from the heart.
- They carry oxgyeneted blood except pulmonary artery which carry deoxgeneted blood from the heart to the lungs.
- Main artery is Aorta.

Veins:

- They carry blood from other body parts to the heart.
- They have thin walls.
- They have a wide lumen.

- They carry blood at a low pressure.
- They carry deoxygenated blood except pulmonary vein which carry oxygenated blood from lungs to the heart.
- Main vein is Venacava.

Capillaries:

- They are small blood vessels that help to take blood to all parts of the body.
- They are found all over the body.
- They cover a wide surface of the body.

THE HEART

- It has four chambers, two chambers are on the upper parts(Auricles) and two chambers on the lower parts(Ventricles)
- The heart is also divide into left and right side which is vertically lateral to how it faced(Your left hand side becomes

the right when in paper and vice versa).

- The parts include: Right auricle, Left auricle, Right ventricle and Left ventricle.
- The heart also have valves ie semi lunar valve, tricuspid valve and bicuspid valve.

The Circulation of Blood.

- Blood from all parts of the body flows into the right auricle of the heart through venacava, then its pumped through pulmonary artery to the lungs for oxidation.
- In the lungs, oxygen is added to the blood and carbon dioxide is removed.
- Oxygeneted blood then flows to the left auricle of the heart through the pulmonary vein.
- The muscular left ventricle then pumps the blood to all parts of the body through the aorta. This process repeats back and forth making another cycle.

NB: When one inhales carbon monoxide the chamber of the heart that receives it first will be left auricle, but when one is bitten by a snake the poison will first reach the right auricle through venacava.

The importance of blood circulation.

- It transports food from the small intestine to all parts of the body.
- Transports oxygen from the lungs to all cells of the body.
- Transports carbondioxide from the body tissues to the lungs.
- Wastes materials like urea to the kidney.
- Transports heat to all parts of the body.

Activity: Draw a well labelled diagram of the heart.

HEALTH EDUCATION

Drug is any substances other than food that, alters the functioning of the body.

Drug misuse-This is the usage of any drug for any other purpose other than the recommended one.

Drug abuse-This is using of drug to a way that the body cannot work without it.

Commonly Abused Drugs

- Tobacco
- Miraa (khat)
- Mandrax
- Heroin/opium-from poppy plant
- Coffee
- Tea
- Alcohol
- Bhang/dope/marijuana/hashish.
- Cocaine-from coca plant
- Inhalants eg petrol and glue.

Ways of taking drugs.

- Sniffing eg heroine,cocaine
- Chewing eg miraa
- Injection eg cocaine
- Smoking eg cocaine,bhang,tobacco,heroin
- Drinking eg alcohol.

Narcotic Drugs/illegal drugs

- Cocaine
- Bhang
- Heroin
- Mandrax

Effects of drugs

- Causes lung cancer eg tobacco
- Causes liver cirrhosis eg alcohol
- Causes breathimg difficulties eg heroin.
- Causes mouth cancer eg miraa

Health effects	Social effects
• Addiction • Fits • Headache • Confusion • General weakness • Shivering • Violence • Stress • Irritability	• Truancy • Accident • Rape • Fighting • HIV/AIDS

Myths and misconceptions of HIV/AIDS.

A myth is a false idea or a false story that many people believe is true.

A conception is a wrong or untrue idea which people believe because they do not have the facts or do not understand it at all.

Care and support for people infected with HIV and AIDS

- Love and care
- Adequate diet.
- Hygiene.
- Medical care

ENVIRONMENT

Environment is what surrounds an organism

Components of Environment .

Major components of the environment.

- Water-Occupies the largest percentage
- Soil
- Air-Found in all other components of the environment
- Animal
- Plants

Minor Components of the environment .

- Heat
- Sound

PLANTS

Interdependence:

This is the dependence of one person on another;or one living thing upon another.

Plants depends on animals in the following ways:

- Carbon dioxide
- Pollination
- Animal waste
- Nutrients

Animals depends on plants in the following ways:

- Food
- Shelter
- Medicine
- Oxygen

Plants depends on other plants for the following ways:

- Support
- Shade
- Habitat

Animals depends on other animals in the following ways:

- Transport
- Food

Examples of Insectivorous plants

-Venus flytrap

-Cobra lily

-Sundew

-Bladderwort

-Butterwort

-Picher plant.

Food chain.

A food chain is a relationship in which living things depends a feed on one another directly.

Examples of a food chain:

i. Grass----> Grasshopper----> Chicken---->Hawk
(Producer). (Primary cosumer). (Secondary consumer). (Tertiary consumer)

ii. Algae---->Small fish----->Big fish---->King fish

NB:Learners are always asked what happen if one group is exempted:

Example:

What will happen if all chicken died because of a disease kin the first example;

- Grasshopper will increase since what feeds on them are dead
- Grass will reduce since grasshoppers are more in number
- Hawk will decrease since their food is not there.

Crop Pest.

A pest is a troublesome or harmful thing,animal or insect.

They damage crops

Types of pest

Pests are classified into two ie

i. Field Pests
   -cutworms
   -Aphids
   -Stalk borer
   -Weaver birds

ii. Storage pests

   -Weevils

   -Termites

   -Rat

   -Mole

Crop pest and their effects on plant

Pest	Crop attacked	Type of damage caused
Stalk borer	maize,sorghum,sugar cane	• bore holes on the stalk • makes large holes on leaves.
Aphids	cabbage,beans,oranges,maize	• Suck plant sap
Cutworm	cabbage,tomatoes,beans,irish potatoes	• Cut the stems of young seedlings

		especially at the base of the plant.
Weevils	maize,beans,cowpeas,bananas,cashew nuts,sweetpotatoes,sisals	• Bore holes on cereals. • Bore hole in the growing point eg banana. • Make holes on stem just below the bark eg cashew nuts
Termites	cassava,sugarcane,maize,sunflower	• They eat plan materials after planting.
Birds eg weaver bird	maize,rice,millet,sorghum.	• Eat grains before grains mature and therefore they dry up.

Pest Control Measures

- Scaring .
- Trapping .
- Hand picking.
- Weeding.
- Spraying.
- Prunning.

ANIMALS

Parasites.

-This is an organism that fully depends on another organism for its survival.

-They either live on the body of the animal(External parasites) or inside the bodies on the animals(Internal parasites).

Examples of External Parasites(Ecto-parasites).

- Tick- Cattle, Sheep, Goats
- Mites- Oigs, Goats, Sheep, Poulty, Camel, Horses, Cattle, Rabbits.
- Flea- Pigs, Poulty, Rabbits.
- Louse-Poulty, Pigs, Sheep, Cattle, Horses
- Tsetse fly- All domestic animals

Examples of internal parasites(Endo parasites).

- Liverfluke- Attacks liver and lungs of cattle, sheep, goats and pigs.
- Tapeworms- Attacks liver and small intestines of cattle, sheep, goats and pigs.
- Roundworms- Attacks small intestines,liver and lungs of cattle, sheep, goat, poultry and fish.
- Hookworms-Attacks the small intestine ofsheep and oats.
- Lungworms- Attacks the lungs,brain and stomach of cattle, sheep, goats and pigs

Effects of parasites on animals.

i. Leads to poor health of the animal .

ii. Causes anemia as they sucks a lot of blood from the animal's body.

iii. Causes irritation on the body of thee animal.

iv. Leads to poor quality of the products.

Methods of controlling livestock parasites.

- Rotational grazing-Both
- Dipping- External parasites.
- Spraying-External parasites.
- Deworming- Internal parasites;Involves drenching and dosing.
- Hand picking - External parasite.

Methods of controlling Human Intestinal Worms.

- Proper sanitation.
- Proper washing of food that are eaten raw.
- Proper cooking.
- Regular deworming.

WATER

Water pollution.

This involves making water impure or contaminating it.

Causes of water pollution

- Floods
- Human and animals waste
- Oil spillage
- Waste from industries.
- Uncontrolled use of farm chemicals.
- Acid rain

Effects of water pollution.

- Blocking the root hair.
- Acidic rain causes harm to plants since they cannot grow well in acidic rain.
- Dissolved chemicals substances and fertilizer may cause harm to animals.
- Oil spillage prevents entry of oxygen in water leading to suffocation and death.

Controlling Water Pollution.

- Practising proper hygiene.
- Practising farming methods.
- Drawing water for animals instead of taking them to water sources.
- Controlling the dumping of industrial waste into water sources.
- Clearing accidental oil spills as soon as they happen.
- Controlling the use of farm chemicals.

Conservation of water

Conservation means proper care and use of water sources.

It ensures water isused sparingly and conserved for future use.

Ways of conserving water.

- Harvesting rain water.
- Recycling water.
- Re-using water.
- Using water sparingly.
- Mulching and shading.
- Construction of dams

SOIL

Soil fertility.

This is the ability of the soil to produce high yields for a long time.

Fertilizer: These are organic or inorganic substances that are added to soil that have lost their fertility.

They are grouped into natural fertilizers and artificial fertilizers.

Green Manure: They are made from green plants,these plants should be:

- Leafy.
- Able to grow fast.
- Able to decay quickly
- Contain a high amount of nitrogen.

Farmyard manure: They are made from animals wastes such as

urine,dung, poultry droppings and animal bedding.

Compost manure: This is a mixture of decayed plants,animal waste,leaves and vegetable peelings

How to encourage fast decomposition of compost heap:

- Keeping the heap moist.
- Adding a layer of decayed materials rich in bacteria.
- Adding a layer of topsoil to introduce decomposers.
- Covering the heap duriing the wet season.
- Turning the heap occasionally,at leastafter 3-4weeks to allow circulation of air.

NB:Farmyard manure introduces bacteria.

Mulches: These are plant materials such as plant leaves and dry grass which are used as soil cover.

Types of fertilizers (Inorganic manure)

They are classified into two:

- Straight fertilizer
- Compound fertilizer.

Straight fertilizers: They contain only **one macronutrient.**

Examples of nitrogenous fertilizer.

- Calcium Ammonium Nitrate.
- Ammonium Sulphate Nitrate.
- Urea

Examples of Phosphatic fertilizers.

- Single super phosphate.
- Double super phosphate

Examples of potassic fertilizers.

- Muriate of potash.
- Sulphate of potash.

Compound fertilizers: They provide two or more of the macronutrients to a plant.

Examples of compound fertilizers.

- Diammonium Phosphate(DAP)
- Nitrogen, Phosphorus,Potassium(NPK)

Advantages of using Manures and fertilizers.

- Results in high growth rate of crops.
- Leads to high crop yields which are of high quality.
- Leads to growth of crops that are deep green in colour.
- Encourage the vegetative growth.
- Leads to quick ripening of fruits.
- Provides the necessary nutrients for growth and development of crops.
- Increase the size of seeds,grain and fruits.
- Strengths the plantstems that support the plant.
- Improves soil fertility.

Disadvantages of Using Manures and Fertilizers.

- Some are expensive to prepare eg Green manure.
- Some pollutes the environment if not use by plants immediately eg Inorganic manure.
- Some fertilizers are corrosive.
- Some manures and fertilizers scorch the plant if applied in great quantities.

Activity 2: State other advantages and disadvantages of using manures.and fertilizers

ELECTRICITY

This is a form of energy.

Sources of Electricity.

There are two forms of electricity. ie Static and current electricity.

Static electricity is produced by rubbing two surfaces against each other.

Current electricity is produced from:

- Hydroelectric dams
- Diesel generators Car batteries.
- Geothermal wells.
- Torch cells.
- Solar batteries

Good and Bad conductors of electricity

Good Conductors- These are materials that allow electricity to pass through them.

Bad conductors-These are materials that do not allow electricity to pass through them.

Electrical Appliances

- An electric iron-used for pressing clothes.
- An electric cooker- used for cooking.
- An electric kettle-Used for boiling water or making tea.
- Radio-Used to receive information transmitted from stations.

Safety when dealing with electricity

- Don't work near mains.
- Don't have cables running under a carpet.
- Don't overload sockets by plugging in many electrical appliances.
- Never throw objects at a wire carrying electricity.
- Don't touch sockets and swiches with wet hands.
- Don't try to repair electrical appliances unless you have the knowledge of what you are doing.

Lightning and safety measures.

Lightning is a strong form of static electricity that is caused by the charges brought about by clouds .

Lightning arrestors are always fitted on tall buildings so that it when lighting strikes,the charges reach the ground

Precautions against lighting during thunderstorm.

- Use shoes with rubber soles while walking in the open on a rainy day.
- Don't stand on a pool of water when its raining.
- Avoiding leaning against the wall when its raining.
- Avoid carrying metallic and sharp-pointed objects when it is raining.
- When lightning strikes,it often hits tall objects before spreading to other objects in the area.
- Avoiding walking in open fields.

PROPERTIES OF MATTER

Matter is anything that occupies space and has mass.

A solute-This is the solid which dissolves in a liquid.

A solvent-Thus is the liquid in which the solid dissolves in.

A solution-This is what is formed when solute and solvent are mixed completely.

Soluble solids:-This are solids that dissolves completely in liquids.

Insoluble solids:-These are solids that do not dissolve in liquids when they are mixed.

Miscible liquids:-This are liquids that mix to form a uniform solution

eg water and milk,water and spirit, cooking oil and paraffin etc.

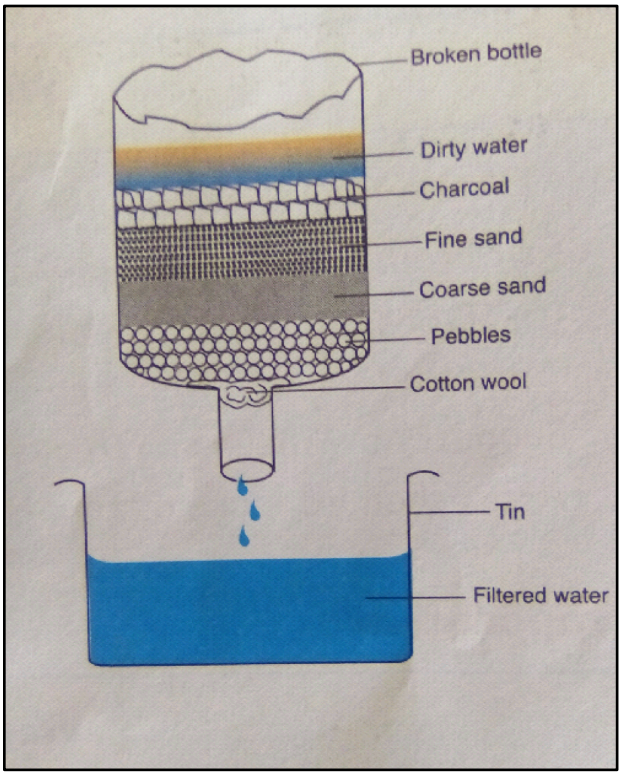
Immiscible liquids:-This are liquids that when put together and shaken still forms layers eg water and paraffin.

Methods of separating mixtures.

1. **Picking:-**Involves use of hands to pick big solid particles from a mixture eg mixture of maize and beans, mixture of Stones from rice etc.
2. **Winnowing:-** Used i separation of light solid particles from the heavy ones using the wind eg a mixture of rice and husk, a mixture of sorghum from the chaffs etc.
3. **Sieving:-** Used in separating mixture of small and large solid particles where the small particles passes through the sieve leaving behind the big ones eg mixture of maize and millet.
4. **Use of magnet:-** Used in separating magnetic materials from non magnetic materials eg Flour and iron fillings
5. **Decanting:-**Used to separate an insoluble solid from a liquid by gently pouring out the liquids eg mixture water and cooked beans.
6. **Filtering:-** This involves using a filter paper or a cloth to separate a mixture eg a mixture of soil and water
   NB:-The water obtained from filtering is not safe for drinking as it may contain traces of the mixtures and also germs its therefore advisable to boil it again

Evaporation:-This is a method that is used to separate a mixture of soluble solid from a liquid but only the solidis recovered.

Home made water filter



Magnetic materials

TINSCCA

- Tin
- Iron
- Nickel
- Steel
- Chromium.
- Cobalt
- Alnico

MAKING WORK EASIER

Friction.

This is a type of force that occurs between two objects that are in contact.

Advantages of friction.

- It helps in walking.
- Mskes it possible to produce fire using a match stick.
- Helps in writing in both boards and books.
- Helps in rubbing or erasing.
- Helps in braking of vehicles and bicycles.

Disadvantages of friction.

- Causes wearing out of objects eg bicycle tyres,soles, shirts etc
- It makes work difficult eg its difficult to pull or puss an object on a rough surface.
- Production of unwanted heat.

Ways of teducing friction.

i. Using rollers.

ii. Smoothing/Polishing surfaces.

iii. Using lubricants

iv. Streamlining.

Ways of increasing friction.

i. Spreading of some course materials on the slippery grounds eg murram.
ii. Using tyres with treads
iii. Replacing worn out parts of tools
iv. Replacing of shoe soles.
v. Applying of glue on the surfaces.

Levers

These are simple machines that makes work easier.

They have **Load**, **Effort** and **Fulcrum.**

Load:- This is the work to be done

Effort:- This is the part which is held in the tool.

Fulcrum:- This is the turning point of the tool or of the tool and the part which is held.

First class lever

Here the fulcrum is in between the load and the effort as in.

- Crowbar
- Claw hammer.
- A pair of scissor
- Pliers etc

Second class lever

Here the load is in betwee the fulcrum and effort

- Wheelbarrow
- Door hing
- Lid opener

- Bottle opener etc

Third class lever.

Here the effort is in between the load and the fulcrum

Spade

Spoon

Fishing line etc