GRADE 6 and 7 ENVIRONMENTAL SCIENCE NOTES.

THE THREE STATES OF WATER.

- Water exists as solid, liquid and gas.
- Solid water is called ice.
- Water boils at 100 degrees Celsius.
- Water freezes at 0 degrees Celsius.
- Other names for gas are vapour and steam.

PROPERTIES OF WATER.

- Water is colourless.
- Water is shapeless, it takes the shape of the container.
- Water does not smell.
- Water flows.
- Water is tasteless.

CHANGING STATES OF WATER.

STATES OF WATER	PROCESS
Liquid to gas	Evaporation
Solid to liquid	Melting
Gas to liquid	Condensation
Liquid to solid	Freezing

- Water particles are never lost, they cycle through things (plants and animals).
- Water cycles from air to land and underground and back to air again.
- Water may collect in large water bodies like lakes and seas.
- Water also collects underground.
- Water passes up and down through soil.
- Some uses of water are watering crops and animals, drinking, washing clothes, bathing, putting out fires, driving turbines for generation of electricity, cooling machines in industries, washing things in manufacturing industries.

SAFE SOURCES OF WATER.

- Spring
- Borehole
- Tap
- Covered well

UNSAFE SOURCES OF WATER.

- Dam
- River
- Unprotected well

WATER POLLUTANTS.

Water pollutants are substances that pollutes water. To pollute is to make something dirty.

These are:

- Industrial waste
- Sewage
- Agrochemicals
- Cow dung
- Fertilisers
- Dead leaves

PURIFICATION OF WATER.

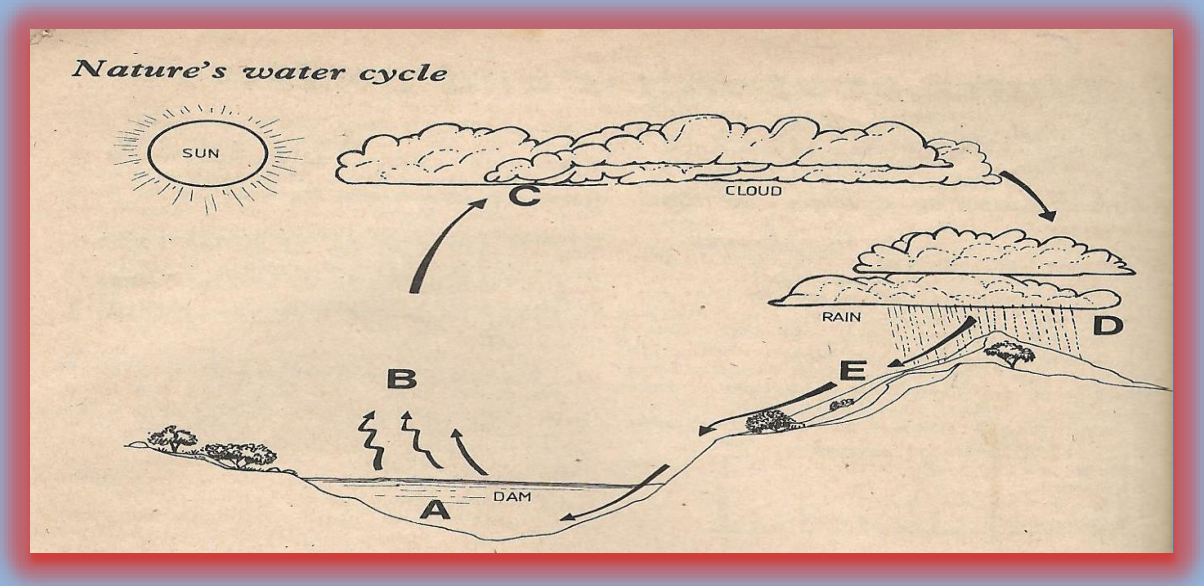
- Adding chemicals to water.
- Boiling.
- Sand filtration.

THE WATER CYCLE.

Make children draw the water cycle.

IMPORTANT TERMS.

- Evaporation is the process whereby water change from liquid to gas.
- Condensation is changing from gas to liquid.
- Runoff is water that flows on the surface of the ground.
- Seepage or percolation is water which sinks into the ground.
- Precipitation is falling rain or rainfall.
- Transpiration is loss of water from plants into air through leaves.
- The sun is the source of energy in the water cycle.



SOIL, GRASS AND GRAZING.

Soil is a mixture small rock particles and organic matter.

WEATHERING.

Weathering is the breakdown of rocks into small particles to form soil.

AGENTS OF WEATHERING.

- Rain
- Wind
- Rolling stones in a river bed
- Temperature changes
- Moving animals

SOIL TYPES.

- Sand
- Loam
- Clay

PROPERTIES OF SOIL.

SOIL TYPE	CHARACTERISTICS
Sand	Fairly large particles, allows water to quickly pass through, not fertile, can not be rolled into a sausage, is gritty.
Clay	Can be rolled into a sausage, is sticky when wet, does not allow water to quickly pass

	through, is fertile, has small grains, forms crumbs.
Loam	A mixture of sand and clay, is fertile.

HUMUS- Is a mixture of plant and animal remains.

SOIL MIXTURES.

When a soil sample is put in a jar and water is added, after stirring the results are as follows:

LEVEL	MATERIAL
1	Floating dead bits of vegetation
2	Level of soil
3	Clay particles hanging in water
4	Clay settling here
5	Fine sand
6	Sand

The results of the experiment shows that:

- Humus is heavy
- Clay particles are light
- Sand particles are the heaviest of all.

TREES AND FORESTRY.

Trees breath and give off water vapour.

- During respiration trees take in oxygen and breathe out carbon dioxide all the times.
- During photosynthesis, trees take in carbon dioxide and breathe out oxygen.
- Photosynthesis is the food making process in plants in the presents of carbon dioxide, water and sunlight. It takes place during the day.
- To respire is to breath.
- Trees respire through pores found on their leaves.

WATER FROM TREES.

Transpiration is the loss of water by evaporation in plants. It takes place through small holes on leaves(pores)

USES OF TREES.

- Wood for firewood
- Building poles
- Fencing poles
- Roots for medicine
- Animals eat tree leaves
- Fruits
- Honey
- Used as windbreaks
- Trees are shelter for birds and other animals.
- Making paper

REASONS WHY TREES ARE DISAPPEARING FAST.

- Need for land
- Poles for building in rural areas
- Need for firewood
- Too many animals
- Grass fires

EFFECTS OF DEFORESTATION.

Deforestation is the process of destroying a forest and replacing it with something else.

- Loss of habitats
- Increase in soil erosion
- Poor soils
- Expanding desert

WOODLOTS.

A woodlot is a portion where trees like gum trees are planted.

Afforestation is the process of planting trees in a place which used to have no trees in the past.

Re-afforestation is replanting trees or planting of trees in a place which used to have trees before.

TREES SUITABLE FOR WOODLOTS.

- ❖ Pine
- ❖ Gum
- ❖ Leucaena
- ➢ Leucaena, gum and pine trees grow fast and have many uses.

TYPES OF TREES.

- EVERGREEN- These trees grow continually all year round. These are also called conifers. One example of a conifer is pine tree.
- DECIDUOUS- These trees shed leaves and stop growing during the dry season. One example of a deciduous tree is Musasa.

CONSERVING TREES.

THE FORESTRY COMMISSION.

- ❖ It looks at ways of protecting our trees.
- ❖ It encourages new plantations to replace felled trees.

NATIONAL TREE PLANTING DAY.

The National Tree Planting Day is the first Saturday of December.

CROP, PLANTS AND ANIMALS.

Zimbabwe grows many kinds of crops such as maize, wheat, sugar cane, groundnuts, cotton and many others.

Conditions that affect plant growth

- Rainfall- All crops require water. Some crops require high rainfall.
- Temperature- Crops like sugar cane, finger millet and bambarra round nuts require high temperatures. Potatoes and wheat require cool temperatures.
- Frost- Many plants can not stand frost. Wheat, apples, peach and plum grows well in very low temperatures.
- Soil- Some plants prefer sandy, well drained soil and others prefer heavy clay soils. Most plants grow best in loam soils.
- Quality seed- Use hybrid seed for good results.
- Soil fertility- Improved by adding both natural and artificial fertilisers.
- Preparation of soil – Hoeing and ploughing is necessary before planting, furrows and ridges must be made as to allow rain to soak easily into the soil and allow air into the soil as well.
- Weeding- Weeds must not be allowed to compete with crop plants. Weeds absorb fertiliser and water meant for crop plants and they are also hosts for diseases and pests.
- Diseases- Caused by fungi and bacteria. Are controlled by chemical spray.
- Pests- These are usually very small animals mostly insects that feed on crops. Pests eat leaves, suck juices out of stems and growing tips, eat flowers and stalks of crops.

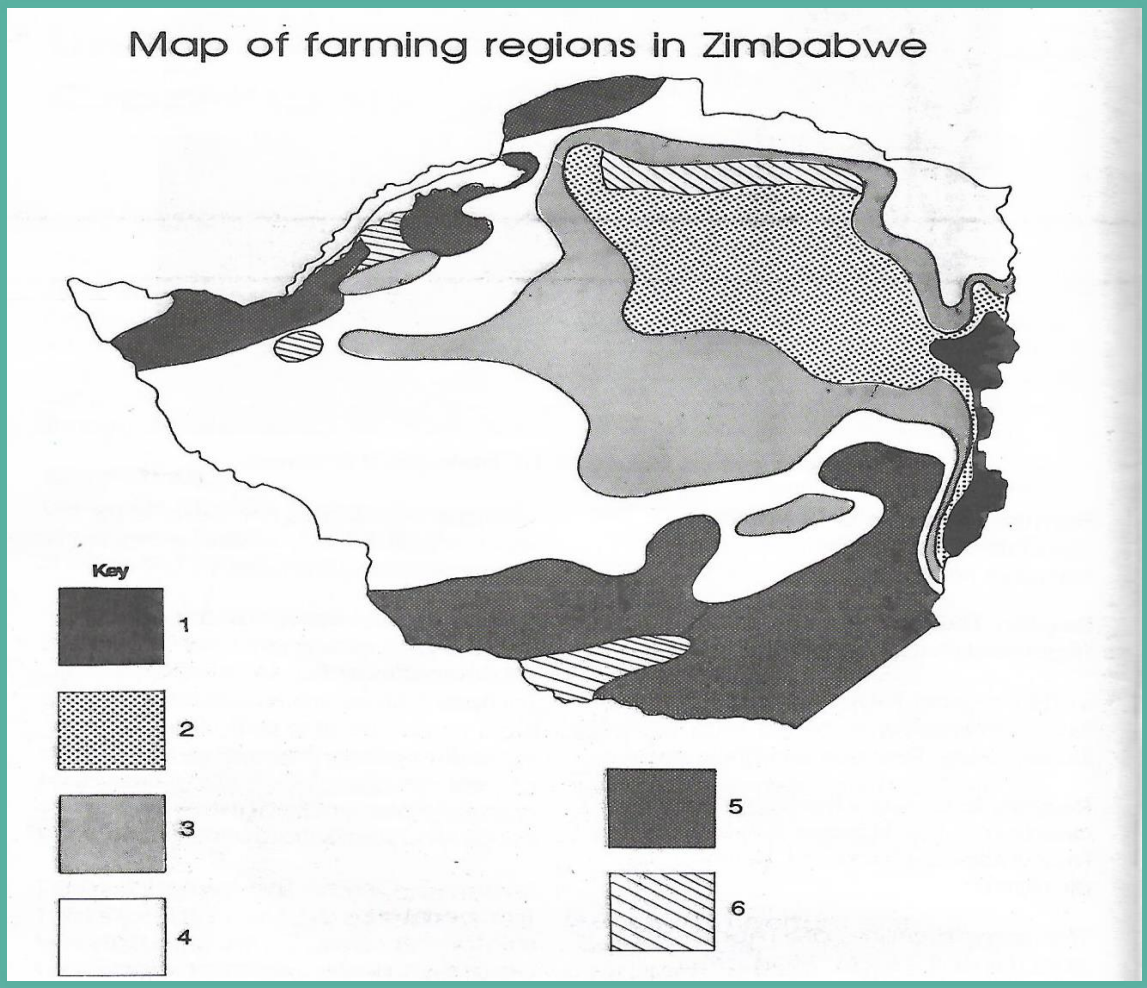
GREEN HOUSES- These are artificial shelters that are built so as to make crops mature in a shorter time by controlling temperature inside it.

SOME PESTS OF CROP PLANTS.

PEST	CROPS THEY ATTACK
Dove	Sorghum,sunflower
Snout beetle	Maize
Weaver bird	Sorghum,sunflower
Quela	Sorghum,mhunga,wheat
Semilooper	Soyabean,sunflower
Armyworm	Maize
Aphids	Wheat,sorghum,groundnuts
Cutworm	Soyabean,sunflower
Stalk borer	Sorghum,maize

FARMING REGIONS IN ZIMBABWE.

REGION	CHARACTERISTICS
1	Covers the Eastern Highlands, not including Mutare. High rainfall, over 1 000mm a year. Temperatures may be higher than 30degrees celcius in summer and cooler than elsewhere in winter. Humidity(moisture in air) is high. Crops grown: forestry, fruit, tea and coffee.
2A	Rainfall between 700mm and 1 000mm. Summer temperatures range between 25-30degrees Celsius. Crop production inludes maize, cotton, tobacco, soya beans and winter wheat with irrigation.
2B	Rainfall and temperature similar to Region 2A. Rain season is shorter than for 2A.
3	Moderate rainfall: 550mm to 700mm. Rain fall less reliant. Suitable for drought resistant crops such as sorghum, cotton, finger millet, barley, tobacco and fodder for livestock.
4	Fairly low rainfall; 450mm-600mm with seasonal drought and harsh dry spells during the rainy seasons. Summer temperatures are 30 degrees celcius or above. Drought resistant fodder crops for livestock. Can grow crops if irrigation is available.
5	Rainfall less than 500mmnot reliable even for drought resistant fodder crops. Summer temperatures often reach 32,5 degrees celcius or above. Can grow crops if irrigation is available e.g. sugar cane and wheat in winter. Suitable for cattle ranching provided stocking rate is very low. Suitable for game ranching.



COTTON AND TOBACCO.

Cotton.

- Cotton stainer beetle attacks and feeds inside the cotton boll. Fibres became stained.
- Tip wilters suck juices from leaves and growing tips of plants.
- Cotton ball worm feeds on cotton balls.
- The flower beetle eats flowers.

Tobacco.

- Is attacked by pests called nematodes.
- Nematodes live inside the roots and form bumps and nodules on the roots.
- To prevent nematodes, farmers must fumigate their seed beds.
- Tobacco favours high temperature and rainfall.
- Tobacco grows on sandy or clay soils.
- Burley and Virginia are types of tobacco grown in Zimbabwe.

- ❖ After tobacco leaves are picked, they must hung up in barns and carefully dried (cured) and then graded.
- ❖ Tobacco earns Zimbabwe a lot of foreign currency.
- ❖ Viruses and aphids attack leaves of tobacco.
- ❖ Hail cause damage to leaves and much loss to farmers.

HABITATS AND TERRITORIES.

- A habitat is a place where plants and animals live.
- A territory is the area in which the animal hunts, feeds, hides, sleeps, and breeds.
- Habitats cater for more than one animal.

ESTABLISHING TERRITORIES

- Making warning sounds
- Marking boundaries with urine
- Marking boundaries with faeces

HABITATS PROVIDE:

- ❖ Shelter
- ❖ Protection
- ❖ A source of food
- ❖ Space for hunting and feeding
- ❖ Other animals of the same kind to mate with
- ❖ The absence of people who change natural environments
- ❖ Water

ANIMAL POPULATION GOING DOWN BECAUSE OF:

- ➢ Poaching
- ➢ Veld fires
- ➢ Droughts
- ➢ Demand for land
- ➢ Being shot by farmers
- ➢ Anthrax attacks

ENDANGERED SPECIES

- ❖ Black rhinoceros
- ❖ White rhino
- ❖ Fish eagle (Hungwe)
- ❖ Wild dogs
- ❖ The African Elephant
- ❖ The pangolin
- ❖ The cheetah
- ❖ The Roan Antelope

WAYS OF PROTECTING WILD ANIMALS.

- Setting up national parks
- Setting up intensive protection zones
- Setting up game reserves
- The department of national parks and wildlife management looks after places where animals are kept safely.
- Campfire projects allow communities near National Parks and Game Reserves to benefit from resources in these areas.
- Campfire projects:
    - Offers local people employment as guides and workers in the national parks
    - Allows local to help in stopping poaching
    - Local people help in making fire breaks
    - Local people help in mending game fences
    - Local people help in reporting game movements
    - Local people help with tourism, supply vegetables and creative craftwork

CULLING

- Culling is the killing of animals so as to reduce their population.

ANIMAL GROUPS.

- Mammals
- Insects
- Reptiles
- Birds
- Fish
- **Amphibians**

MAMMALS

- Human beings
- Elephants
- Monkeys
- Rats
- Bats

BIRDS

- Eagles
- Vultures
- Crows
- Ostrich
- Doves

REPTILES

- Snakes
- Crocodiles
- Lizards
- Chameleons

AMPHIBIANS

- Frogs

FISH

- Breams
- Tiger fish

INSECTS

- Butterfly
- Locust
- Beetle
- Dragon fly

***AMPHIBIANS** are animals that live partly in water and partly on land for example frogs.

WILD ANIMALS IN ZIMBABWE

1. **Grazers-** These are grass eaters.
2. **Browsers-** These are bush and tree leaf eaters.
3. **Carnivores-** These are meat eaters.
4. **Omnivores-** These eat both plants and insects.
5. **Scavengers-** These animals eat the remains of dead animal matter.
6. **Predators-** These animals prey on other animals.

ANIMAL GROUPS.

GRAZERS	BROWSERS	CARNIVORES	OMNIVORES	SCAVENGERS	PREDATORS
• Cattle • Bushpig • Hippo • Spring hare • Rhinoceros • Dassie • Zebra • Elephant • Impala • Wildebeest • Sable • buffalo	➢ Giraffe ➢ Impala ➢ Elephant ➢ Dassie ➢ Rhinoceros ➢ Duiker ➢ Eland ➢ Bush buck ➢ Kudu ➢ Steenbok	-lion -cheetah -crocodile	Baboon People Cats pig	• Hyena • Vulture • raven	Lion Cheetah Wild dogs crocodile

HEALTH AND POLLUTION

KC- Our bodies grow and change with age.

PUBERTY.

- Puberty is the stage of development in human beings.

From baby boy to adult man.

NEW BORN	1 YEAR	4 YEARS	7 YEARS	13 YEARS	20 YEARS
-large head. -small limbs.	-large head. -legs and arms stronger and longer.	-large head. -body still round.	-taller. -legs and arms stronger. -shoulders wider.	-taller and stronger. -hair begin to grow between legs and under arms.	-taller, stronger broad shoulders. -hair grows on legs and face too

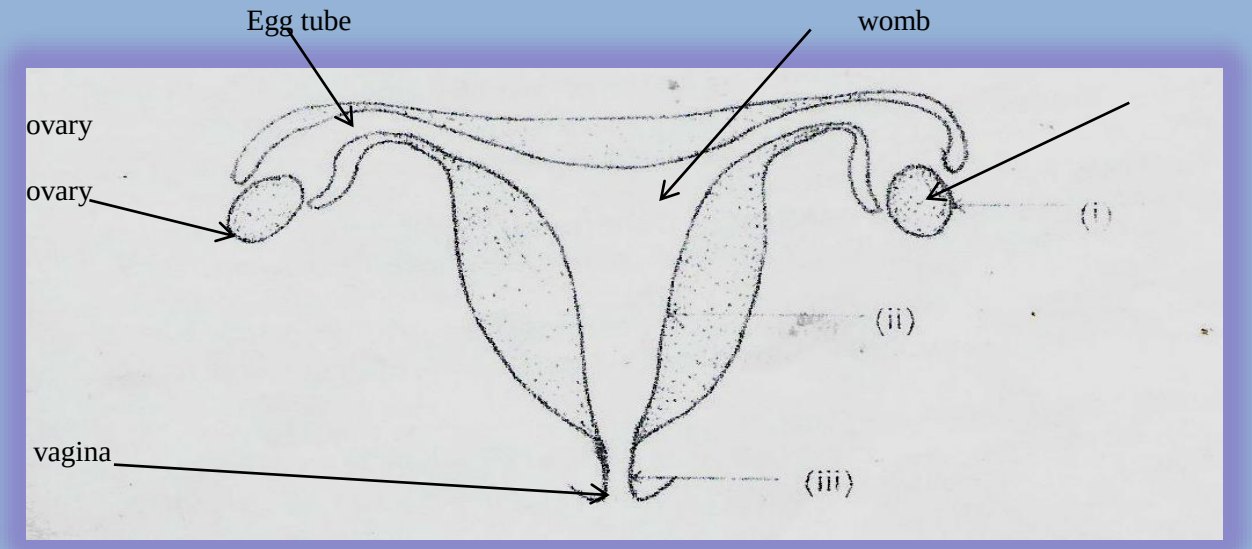
- **From baby girl to adult woman**

NEW BORN	1 YEAR	4 YEARS	7 YEARS	13 YEARS	20 YEARS
-Large head -small limbs	-large head -legs and arms stronger and longer	-large head -body still round -longer and stronger legs	-hips slightly wider	-breast begin to develop. -hips wider -hair starts growing under arms and between legs.	-Shoulders slope a little. -hips wider -definite waist

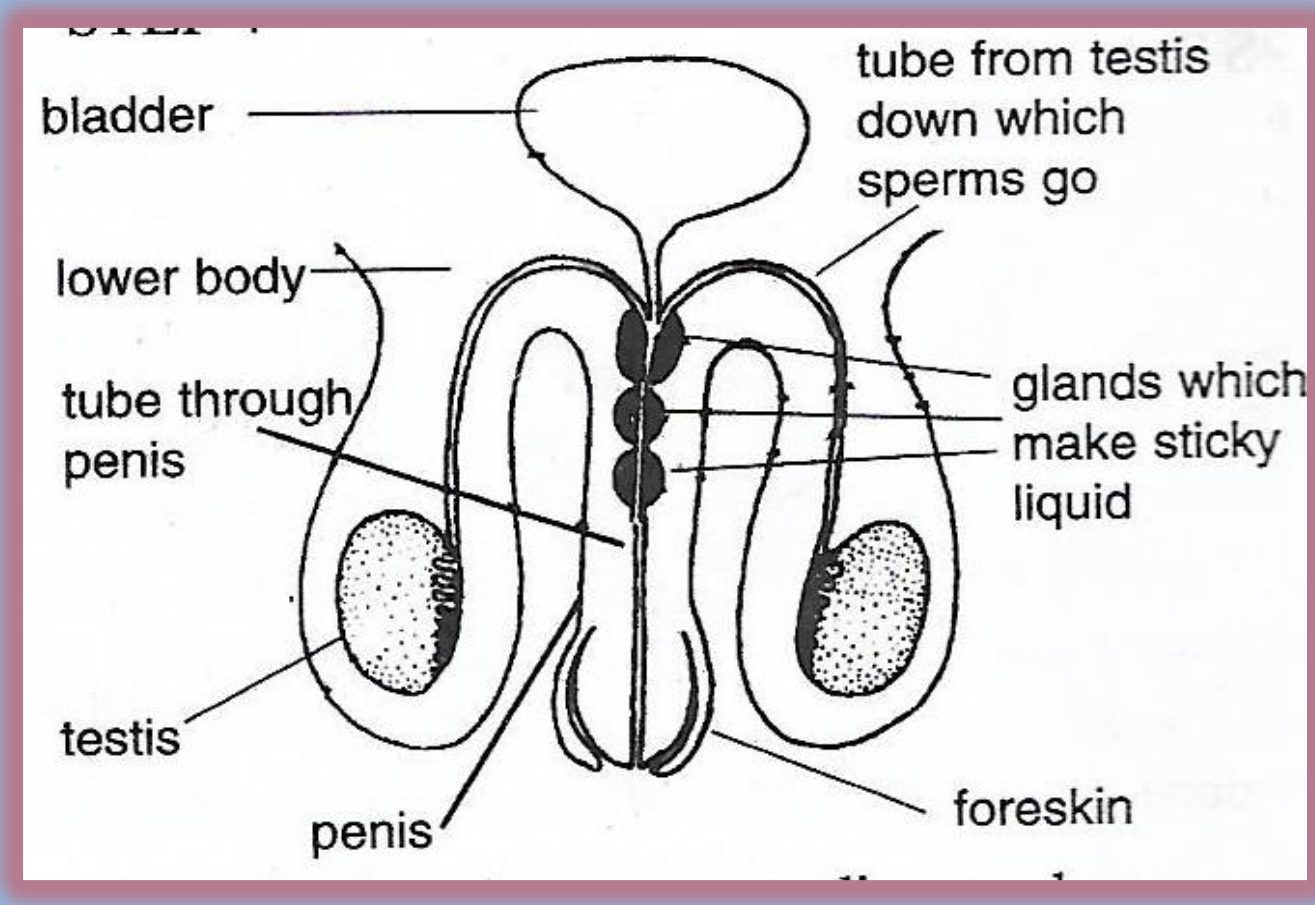
CHANGES THAT OCCUR AT PUBERTY.

BOYS	GIRLS
-skin becomes oily -skin may develop pimples or spots on the face. -voice becomes deeper -muscles on arms and chest grow larger -hairs start to grow on arms, legs, upper lip and later the chin and around male organs. -the penis becomes bigger. -testicles (testis) drop a little and starts to make sperms. -the boy develops a wish to be independent -the boy shows interest in girls	-skin becomes oily and develops pimples or spots on face -breast start to develop -hips become wider -pubic hair grow around the vagina opening and between the legs and under the arms. -her ovaries inside begin to release very eggs, once a month and this leads to menstruation(usually starts between twelve and thirteen years) -the girl develops a wish to be independent and shows more interest in boys.

THE FEMALE REPRODUCTIVE SYSTEM



THE MALE REPRODUCTIVE SYSTEM



WHAT IS FERTILISATION?

-Fertilisation is the joining of one sperm cell with the egg cell in the womb.

-The passing of sperms from a man to a woman is called sexual intercourse, in animals it is called mating.

-A developing baby in the womb is called a foetus or an embryo.

-The developing baby feeds through the umbilical cord. Blood with oxygen and dissolved food particles are carried by the umbilical cord. Carbon dioxide and waste products are carried away from the baby by the blood.

-By nine months (40 weeks) the baby is ready to be born.

-*DRAW DIAGRAMS OF MALE AND FEMALE SEX CELLS AS WELL AS A FERTILISED EGG.

WAYS OF PREVENTING FERTILISATION.

-Wearing a male condom

-Females take the pill (oral contraceptives)

-Fitting loops at the neck of the womb

-Using injections that prevent the woman from releasing the egg

-Abstaining (staying away) from having sexual intercourse. ****This is the safest way to prevent fertilisation.

-Using a female condom during sexual intercourse

NEWBORN BABIES

The best food for the new born baby is breast milk.

KEY CONCEPT: DANGEROUS DISEASES SPREAD SEXUAL CONTACT.

Definition of terms.

a) Sex organs- Those parts of the body in males and females which have to do with reproduction. They are also called genitals or reproductive organs.
b) Reproduction-Making a baby (in humans).
c) Sexual intercourse-Placing of male penis into the vagina of a female.

d) Sexual contact-Close touching of two people in which the sexual organs are felt and come close together.
e) Disease-Sickness, being unhealthy.
f) Urine-It is the waste liquid which passes out from the human body.
g) Pus-Thick yellowish liquid which is given out by sores on the body. Pus contains germs.
h) Itchy-Wanting to scratch, in need of being scratched or rubbed.
i) Fever-Sickness where the body feels hot, a rise in temperature above normal.
j) Menstruation-The passing of blood from the womb, usually for a few days once a month.
k) Condom-Thin elastic tube closed at end one end. It helps to prevent STDs and fertilisation.
l) Ejaculation-The passing out of sperms through the penis.
m) Sore-Usually a painful bump, cut, scratch, or opening on the skin.
n) Ulcer-A painful open sore.
o) Love play-The play between two people in which feelings and touching of sexual organs gives pleasure. Kissing in mouths of both male and female touch and press is part of love play.
p) Masturbation-Love play with oneself in which sensitive parts are touched.

SEXUALLY TRANSMITTED INFECTIONS (STIs) SEXUALLY TRANSMITTED DISEASES (STDs)

DISEASE	IN MEN	IN WOMEN	TREATMENT
Gonorrhoea	-pain when passing urine. -drops of puss from the penis. -difficulty in passing urine. -sometimes a fever	-a pregnant mother can give birth to a blind child. -pain in the lower belly area. -menstrual problems -sterile (unable to have babies)	-tetracycline -antibiotic
Syphillis	-painless ulcer forms at site of infection. -rash -flu -wounds -brain damage	****As in men.	-tetracycline -antibiotic
Chancroid	-an ulcer on the penis (it is painful) -the ulcer gets bigger. -more ulcers develop on the skin.	-the disease may be present in the vagina without the woman knowing. -ulcers may be present on the skin	

	-the sores are painful and soft.	near the vagina .These may spread.	
Herpes	-a rash of many small sores and cuts where the skin is appear to crack and split a little. -these are painful. -the rash goes away and then comes back again and again.	-a rash of small sores and skin cuts in the regions around the vagina. These sores are painful. -can affect the mouth of the womb resulting in a cancer.	*** no cure
Genital warts	-some growths often under the skin at the end of the penis.	-small growths around the vagina	*** no cure but can be controlled by burning with electricity.
Thrush	-pain when passing urine. -drops of puss from the penis	-itchy area around the vagina and inside it. -a white thick liquid may pass out of the vagina. -can cause pain when passing urine.	

WHAT CAN PEOPLE WITH STDs DO?

- Quickly visit the nearest clinic.
- Avoid sexual contact
- Take care with personal hygiene
- Make sure clothes that are coming into contact with sexual organs are clean and not too tight.
- Use a condom where sexual intercourse is practised.

HOW CAN PEOPLE AVOID GETTING STDs?

******Same as ways of preventing fertilisation.

CURABLE STDs.

- Gonorrhoea
- Syphilis
- Chancroid
- Thrush

INCURABLE STDs.

- Herpes
- Genital warts
- HIV/AIDS

IMMUNISATION.

##********Immunisation is the act of making someone immune to something for example by vaccination.

####^^^***Vaccination is medicine which can give immunity against a disease.

@@@@ Immunity is protection from something.

HOW DO OUR BODIES FIGHT AGAINST DISEASES.

- Our skin stops germs from coming in.
- Inside the nose there are hairs and a sticky substance called mucus. Mucus traps germs and dust particles that would enter the lungs. The air we breathe in becomes cleaner.
- Our blood contains the white blood cells, these act as soldiers against any invading germs.
- The blood contains chemicals which clot (close) wounds to prevent blood loss and germ invasion.

OTHER WAYS OF KEEPING AWAY GERMS FROM OUR BODIES.

- Wash hands after going to the toilet.
- Wash your hands before touching food.
- Keep your body clean.
- Keep your clothes clean.
- Keep kitchen things clean.
- Eat clean food.
- Use clean water.

ENERGY AND FUELS.

KC : Energy can be changed from one form to another.

ENERGY is the ability to do work.

TYPES OF ENERGY.

- ✓ Electrical energy.
- ✓ Kinetic energy (the energy of movement)
- ✓ Thermal energy (heat)
- ✓ Wind energy.
- ✓ Solar energy.

CHANGING FORMS OF ENERGY.

- ❖ Solar energy>>>>>>>>>>> heat + light energy.
- ❖ Electrical energy>>>>>>>>>>>heat + light energy + movement energy.
- ❖ Coal>>>>>>>>>>>>> heat + light energy.
- ❖ Petrol >>>>>>>>>> heat + movement energy + light energy.

ELECTRICITY FROM COAL.

(1)Coal heats water >>>>>>> (2) Boiling water makes steam >>>>>>>>>> (3)Steam under pressure turns turbines (4) When turbines turns , electrical energy is made or generated.

^^^***Electricity from coal is generated at Hwange Thermal Power Station in Zimbabwe.Thermal means heat.

ELECTRICITY FROM FALLING WATER.

(1)Falling water goes down a tunnel>>>>>>>>> (2) Force of falling water turns turbines inside magnets >>>>>>>>>(3) When turbines inside magnets turn, electricity is made or generated.

^^^***Electricity from falling water is made at Kariba Hydroelectric Power Station. Hydro means water.

USES OF ELECTRICITY.

- ❖ Heating
- ❖ Lighting
- ❖ Turning machines in industries
- ❖ Cooking
- ❖ Ironing clothes
- ❖ Welding
- ❖ Production of fertilisers (electrolysi

GOOD CONDUCTORS OF ELECTRICITY.

- ❖ Copper wire
- ❖ Aluminium wire

BAD CONDUCTORS OF ELECTRICITY.

- ❖ Sticks
- ❖ Plastic
- ❖ Stones
- ❖ Soil

TRANSMITTING ELECTRICITY.

- ❖ Transmitted through metal wires made from copper and aluminium.
- ❖ The system of transmission lines is called the grid.
- ❖ Pylons are tall structures that carry electricity cables.

THE THREE PIN PLUG.

(1) **LIVE**---------- brown or red in colour.
(2) **NEUTRAL**---------- blue or black in colour.
(3) **EARTH**---------- yellow and green or yellow in colour.

THE FUSE.

1. It is placed on the live wire.
2. The fuse blows if the current is too large and this saves electrical appliances from damage. When the fuse blows, electrical current will no longer flow, the circuit will be open.

USING ELECTRICITY WITH CARE.

- Never handle an electric appliance or switch with wet hands.
- Always switch off at the wall socket before removing the plug.
- Make sure plugs and appliances are wired correctly.
- Never have water with wet electrical wires trailing in it.
- Put on rubber soled shoes when operating an iron or lawn mower.
- Make sure that all bare wires are well insulated (covered with plastic covering or insulation tape)
- Never a radio or any other electrical appliances while you are in the bath tub.
- Never climb or touch a pole marked “HIGH VOTAGE”.
- Never stand under a tree or near a pole during a storm.

PUTTING OUT AN ELECTRIC FIRE.

- ❖ Switch of the main switch first.
- ❖ Use a fire extinguisher to put out the fire.
- ❖ Use sand or soil to put out the fire.
- ❖ If the fire is small , cover it with a blanket.
- ❖ Call the fire brigade for help in case the fire gets out of control.
- ❖ Do not use water to put out an electric fire.

CONSERVING ELECTRICITY.

- ➢ Switch off all switches whenever we are not using electricity.
- ➢ Use other sources of energy like gas , coal and firewood for cooking food that takes long to be ready.
- ➢ Turn off heaters when they are not needed.

- Heat water using other sources of energy other than the water geyser.

WEATHER.

- Air exerts forces.
- Air moves in special ways.
- Wind is moving air.
- Air can be compressed (put under pressure) and used to exert a force.
- Not air rises and cold air falls.
- Air pressure is lower in warm places.
- Air pressure is higher in cold places.
- High pressure>>>>>>>>low temperature.
- Low pressure>>>>>>>> high temperature.
- *****Air moves from a region of high pressure to a region of low pressure.
- High pressure area >>>>>>>>>>>>>>>> low pressure area
- Wind moves from cool places to warmer places.
- Scientists use knowledge of air pressure and air movement to help predict the weather.

WIND DIRECTION AND SPEED AND WINDS WHICH BRING RAIN

WEATHER INSTRUMENTS.

INSTRUMENT	PURPOSE	UNITS OF MEASURE
Wind sock/air sock	Used to find wind direction	
Wind vane	Used to find wind direction	
Thermometer	Used to measure temperature	Degrees celcius
Cup anemometer	Used to measure wind speed	Km/h
Hygrometer	Used to measure humidity	
Rain gauge	Used to measure rainfall	Millimetres

****The fastest wind is called a hurricane.

KC: There are winds that bring rain to Zimbabwe.

- Zaire Air (North West Monsoons). These winds bring the heaviest rains into Zimbabwe and the rest of Central Africa.
- South East Trade winds. These winds blow across the Indian Ocean. These winds blow throughout the year.
- The North East Trade winds (North East Monsoons) These winds blow during the hot season only. They cause rain in the northern parts of Zimbabwe.

AREAS OF TURBULENCE.

******Turbulence means disturbed air.

^^^^^The area of turbulence is known as ITCZ (Inter Tropical Convergence Zone)

-It is important for people to know the direction and speed of the wind for safe air travel.

-Wind and air pressure affect the weather in Zimbabwe.

MATERIALS AND TECHNOLOGY.

Friction is caused by rubbing.

Friction is when two materials rub against each other and cause heat.

PROBLEMS CAUSED BY FRICTION

- Wearing out of shoe soles.
- Wearing out of clothes through use.
- Wearing out of bicycle tyres.
- Wearing out of cutting parts of tools like knives, spades etc

MATERIALS WHICH INCREASE AND REDUCE FRICTION.

Materials that increase friction	Materials that reduce friction
School rubber	Soap
Brick	Vaseline
Sand soil	Floor polish
Sand paper	Oil
File	Grease
Rough stone	

PARTS WHERE FRICTION TAKES PLACE.

MACHINE	PARTS WHERE FRICTION TAKES PLACE
Bicycle	Tyres, axles,cogs,sadles,padals
wheelbarrow	Tyre,stand and handles
car	Tyres,gears,doors,seats
shovel	Handle,tip
knife	Handle,edge

PROTECTING THE GROUND FROM FRICTION.

- Avoid using sledges.
- Use wheelbarrows to carry things.
- Use scotch carts to carry things.
- Use of rollers on the ground.

USEFUL FRICTION.

- Treads on tyres.
- Treads on bicycle tyres.
- Treads on tap handles.
- Treads on container lids.
- Rubber handles for knife and other machine handles.
- Spikes under soccer shoes.
- Treads under shoe soles.
- Rough tarred roads.
- Brake blocks on a bicycle.
- Rough belly of a snake

REDUCING FRICTION.

- Oiling
- Greasing
- Use of bearings.
- Use of rollers.
- Use of wheels.

LANDFORMS AND MAPS.

**A map is a visual representation of an area whether real or imaginary.

<<<<>>> A map shows part of the Earth's surface drawn on a piece of paper.

**A landform is a physical feature like waterfall, mountain and river.

LANDFORMS WHICH OCCUR IN AFRICA.

- Mountain- Large land masses which have been pushed up by the Earth's crust. Little or no vegetation grows in high parts.
- Plateau- High table land which is mainly flat.
- Highland- Land which high above sea level.
- Lowlands- Land which is low and closer to the sea level. The large low area around the Congo River is called the Congo Basin.
- Valley- Land through which a river passes. It is always lower than the surrounding land and becomes lower and lower as it goes towards the coast.
- George- Part of the valley which is narrow with steep sides. Parts of the Zambezi River flows through rocky gorges.
- Desert- An area of very low rainfall, therefore little or no vegetation. Most deserts in Africa are hot by day and very cold at night. Some deserts are sandy places where few plants can grow. Some deserts are flat plains with few plants. Some deserts are hot all year round. Others are hot in the summer and cold in the winter. Others are great bare places on the shores of seas. Others are rocky, mountainous places. Hills of sand formed in deserts are called sand dunes.
- Lake/dam- A large body of water usually fed by a river and surrounded by land.
- River – A channel or place where water flows or used to flow slowly or quickly downhill.
- Delta- A low flat place where a river divides up into many fingers as it leads into the sea, they are triangular in shape. The Nile River leads into the sea as a delta.
- Rift valley- A deep valley caused by great pressure in the earth's crust, land masses have moved and shifted a little apart.

LAKES IN AFRICA'S RIFT VALLEY.

- ❖ Lake Albert.
- ❖ Lake Edward.
- ❖ Lake Kivu.
- ❖ Lake Tanganyika.
- ❖ Lake Malawi.
- ❖ Lake Victoria

VOLCANOES.

A volcano is a hill or mountain which erupts.

-A volcano is landform that still allow or used to allow very hot molten rock from deep inside the earth to come to the surface.

***Hot molten rock is called larva.

*****A volcanic mountain always has a crater or hollowed out basin at the top.

*****When hot molten rock cools, it become solid rock.