

Second Term Basic Science E-Lesson Note

SECOND TERM E - NOTES

CLASS: BASIC FIVE

SUBJECT: BASIC SCIENCE

WEEK ONE & TWO

TOPIC- DOMESTIC ANIMALS

Domestic animals are animals we keep in and around our homes. Animals we keep in our homes are called pets.

Different animals can be found in different homes because people differ in the choice of animals they want as pets. Many people like to keep dogs, cats and parrots as pets. These are common pet animals.

Pets are not the only animals found in the home. Some other animals such as goats, chickens, are kept around our homes. We keep such animals to eat them later. Many kinds of domestic animals are kept in an animal farm.

Examples of domestic animals are hens, goats, dogs, pigs, cattles etc

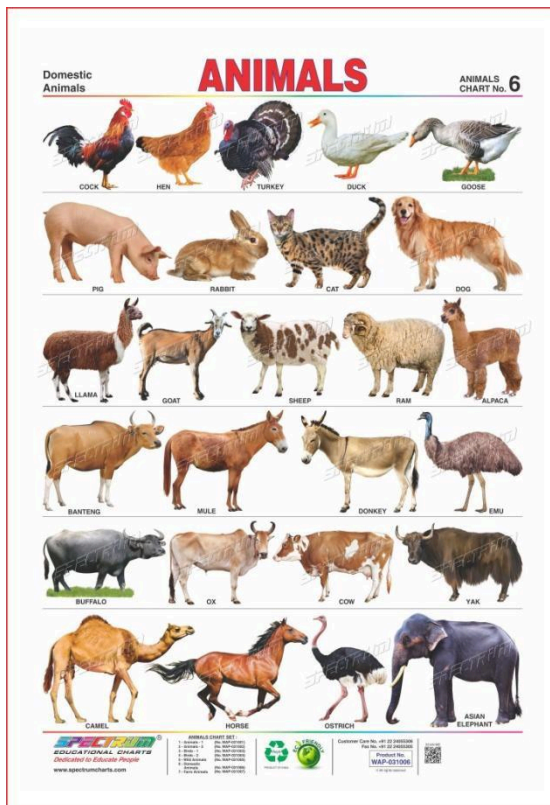
Domestic animals can be classified into

Per

Farm Animals

Some pets' animals can also be used as farm animals.

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PETS

Pets are animals we bring into our home for amusement or companionship. Human regards these animals as pets because they are friendly. Pets are

Examples of pet

Dog

Cats

Parrots

Canaries

horses

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FARM ANIMALS

Farm animals are animals kept for use or profit

Uses of farm Animals

Goat provides meats hides and skin.

Turkey provides meat, eggs and feathers

Rabbit provides meat

Cow provides beef meat, milk, hides and skin.

Horse is used for work.

Donkey is used to carry load.

Camel is used to carry load

Cattle is used to work

Chicken provides meats, eggs and feathers.

Pig provides pork meat.

Duck provides eggs, meat and feathers

Sheep provides meat and wool.

BENEFITS OF DOMESTIC ANIMALS

We make money when by selling them to people.

They are used as securities (dog)

They are source of food to human.

Rearing of domestic animals provides employment.

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WEEK 2

REPRODUCTION IN DOMESTIC ANIMALS

In animal's reproduction occurs as result of union of male and females. The male fertilized the female Ovule and zygote or egg is produced. The zygote then turns into a foetus or embryo.

Hen, female adult insects like mosquito and termite produce larva or nymphs from egg. Mammals like dogs, cats and human being gives birth to their young ones alive.

FEEDING AND HABIT OF DOMESTIC ANIMALS

Feeding means what they eat while HABITAT is where the animal live whether inside or outside the house.

HERBVOROUS ANIMALS are animals that feeds on plants e.g. goat while CARNIVOROUSANIMALS are animals that feeds on other animals e.g. cats eats rats.

The table below shows some domestic animals where they live and the food they eat.

Names of domestic Animals	Habitat	What they eat
Cat	inside	Feeds on rats, fish
Dog	Outside and inside	Bones
Chicken	Outside	Feeds on Grains
Goat	Outside	Feeds on grasses
Pigeon	Outside and inside	Millet

WAYS BY WHICH DOMESTIC ANIMALS CARE FOR THEIR YOUNG ONES

They feed their young ones with the milk from their breasts. E.g. cow, sheep, goat etc. Dog look after their puppies by barking at any danger that may come after them. Hen protect their chickens by shedding feathers on them.

LESSON EVALUATION

What are domestic animals and where do they live?

Mention three domestic animals in your compound.

Name three domestic animals that feed on grasses.

Name three domestic animals that feed on meat.

What makes some domestic animals pets?

Mention the differences between domestic animals and wild animals

List three benefits of domestic animals.

WEEK 3&4

TOPIC: THE HUMAN BODY (THE SKELETAL SYSTEM)

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PERFORMANCE OBJECTIVES

At the end of this lesson, Pupils should be able to:

Identify the major bones in the body.

Identify the major joints in the body.

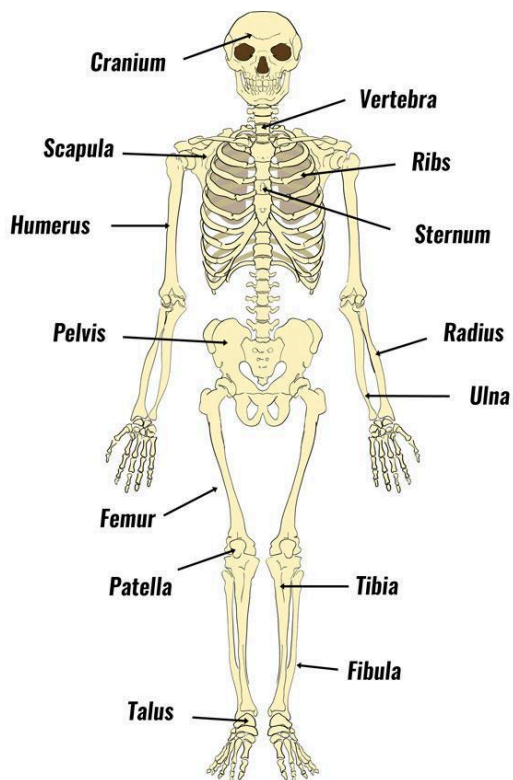
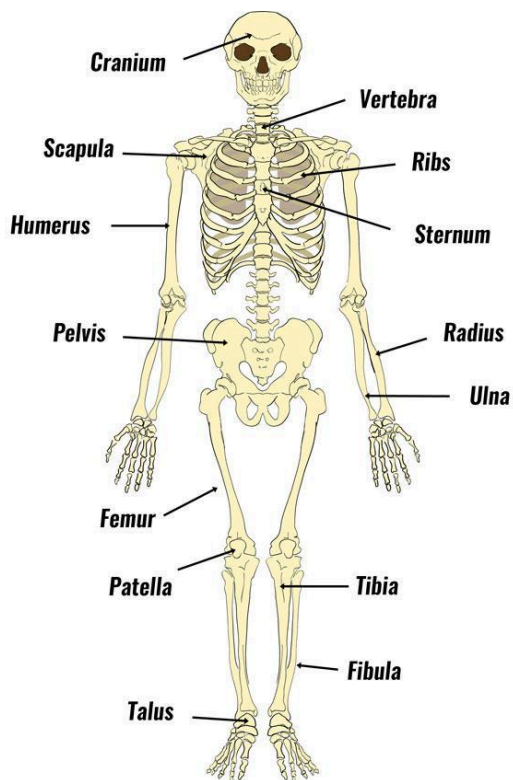
State the functions of bones and joints

LESSON CONTENT

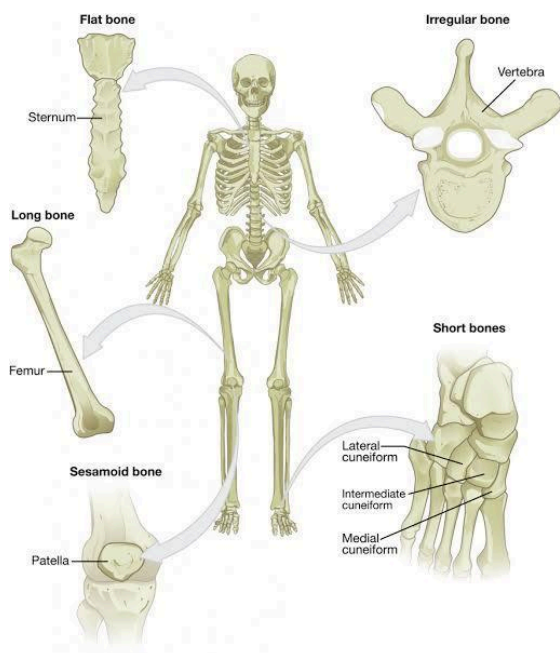
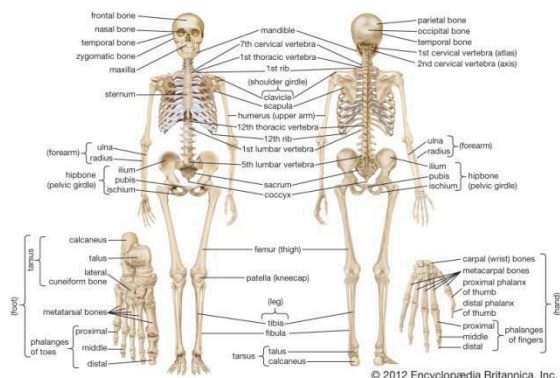
THE SKELETAL SYSTEM

The skeletal system can be called the skeleton. The skeleton is made up of all the bones in human body. Without the skeleton, we as human will not be able to work, walk, eat etc. the skeleton gives our body shapes, support, movement and protect some parts of our body. Any hard materials apart from finger nails, teeth and cartilage in human body are known as bones. A doctor who specializes in diagnosing and treating disorders and injuries related to the muscular skeletal system (especially in children) is called an ORTHOPEDIST.

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TYPES OF BONES

The skeleton is made up of three major types of bones the long Bones: these are the thigh bones called femur, the upper arm bones known as humerus and the lower arm bones known as ulna and radius and the leg bones called tibia and fibula. These are small pieces of bones that are arranged to form the back bones or vertebral column (protecting the spinal cord).The bones around the neck regions are called the CERVICAL VERTEBRAE while the backbones around the chest region are called the THORACIC VERTEBRAE.

Animals with back bones are called vertebrates.

Phalanges: these are bones of the fingers and toes. They are pieces of jointed short bones. Eight carpals arranged in two rows of four each are connected to the phalanges.

THE JOINT

The joint is the place in human body where two or more bones meet. Muscles are attached to the bones at the joints to make movement possible. Joints are found in the following places of our body: neck, shoulders, waist, fingers, toes, elbows, wrists, knees, toes, etc.

TYPES OF JOINTS

There are two types of joints in human body; these are

Movable joint

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Immovable joints or fixed joints

Movable joint

These are joint where bones meet together, it can slide on each other or move over each other.

Examples of movable joints

Ball and Socket Joints: these are found in the shoulder and hip. It allows movement in all directions.

Hinge Joints: these are found on toes, fingers, knees and elbow. It allows forward and backward movement like a book.

Pivot Joints: these are found on the neck. Used for nodding.

Gliding Joints (articulation planar): these are found on ankles and wrists.

IMMOVABLE JOINTS

These joint are two or more bones fixed together with little or no movement. They are fixed by ligament. These are skull, joints in the pelvic girdle.

FUNCTIONS OF BONES AND JOINTS

They provide support for the body.

They give shapes to our body

They muscles are attached to them for movement.

They protect delicate organs like lings, heart, the spinal cord and the brain (skull).

They help to store certain minerals like calcium and phosphate in the body.

They help to produce some of the body blood cells.

LESSON EVALUATION

Teacher ask the learners to:

Mention the major bones in the body.

Mention the major joints in the body.

State three functions of bones and joints.

CONCLUSION: the teacher summarizes the lesson.

WEEK 5&6

TOPIC: REPRODUCTION IN PLANTS

PERFORMANCE OBJECTIVES

At the end of this lesson, Pupils should be able to:

Identify part of a flower.

Explain type and agent of pollination

Identify parts of a flower that are concerned with pollination and fertilization.

Distinguish between pollination and fertilization.

Describe stages of development from flowers to fruit.

LESSON CONTENT

REPRODUCTION

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Reproduction is the ability of living things to reproduce young ones of their own kind. Reproduction is one of the characteristic of living things. Without living thing reproducing its young one, then there would be no living things on earth anymore.

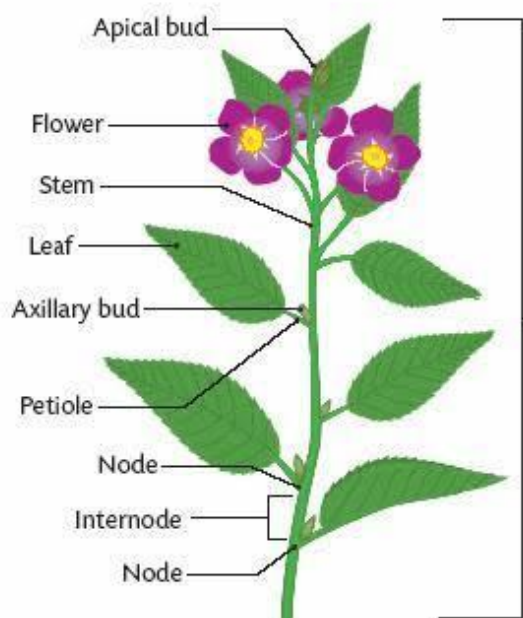
Way by which plant reproduce their young ones.

Sexual reproduction: flowering plants make use of seeds. In most plants, the seedlings are developed from their seeds, which are obtained from flower when the male and female parts of flower meet to form union, seeds are obtained from flower.

Asexual or Vegetative Reproduction: the use of vegetative parts of plants (leaves, stems, buds and roots). Some plants part can also reproduce young ones without seeds, plants like cassava can reproduce by planting of the stem and yam can reproduce by planting the tuber.

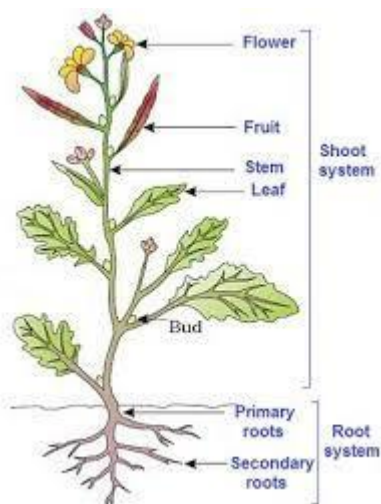
PARTS OF A FLOWER

Flower is the organ responsible for producing fruits in flowering plants. So, the male and the female reproductive parts of a plant are in the flower.



Morphology of flowering plants

1. Root
2. Stem
3. Leaf
4. Flower
5. Fruit
6. Seed



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The two (2) major parts of flower are:

The Stamen or the Male part: it consists of the anther and filament.

The pistil or the female part: it consists of the ovary, stigma and style.

FUNCTIONS OF EACH PART OF A FLOWER

Part of a flower	Function
Anthers	It produces pollen grains
Stigma	Receives pollen grains during pollination
Sepals	Protects the floral parts in the bud
Petals	Attracts insect because of the possession of sweet smell and bright colors.
Style	It is the pollen tubes that carries the male gamete into the female gamete (ovary)
Ovary	It houses the egg or the ovule
Filament	It holds the anther

POLLINATION

Pollination is the transfer of pollen grains (Yellow dust) from the anther into the stigma (sticky section) of a flowering plant during reproduction.

The pollen grains are the yellow dust which contains the male sex cell or sperm while the stigma is the sticky section. So when the pollen grains from the male flower drops on the stigma of the female part, the process is called pollination.

TYPES OF POLLINATION

We have two types of pollination. These are:

Self-Pollination: pollen grains from the flower are transferred from the anther into stigma of the same flowering plant.

Cross Pollination: the pollen grains from one flower is carried to the stigma of another flower of the same kind.

AGENT OF POLLINATION

The agent of pollination are man, wind, insect, birds, snail, etc

POLLINATION BY INSECT

Insects like butterfly, moths, bees are the most common agent of pollination because they visit flowers regularly to suck the sweet liquid called NECTAR. After sucking the nectar the pollen grains stick to their body and when they touch the stigma of the same plant or other plant of same kind, the pollen grains then drop into the stigma and pollination will occur without the insect knowing.

FERTILIZATION AND FRUIT DEVELOPMENT IN PLANT

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Fertilization in plant occurs after pollination, the male sex cell or sperm (male gamete) in the pollen grain unite with the female sex cell, or ovule in the ovary to form seeds (zygote and embryo), which develop to form the fruit.

Differences between pollination and fertilization

Pollination	Fertilization
It is the transfer of male part into the female part.	It is the union of the male gamete and female gamete.
It occurs outside the plant	It occurs inside the plant
Agents are needed for pollination to occur	Fertilization occur without any agent

LESSON EVALUATION

Draw and identify the part of a flower.

State the functions of parts of a flower.

What is pollination?

What is fertilization in plants?

Explain the type and agent of pollination

Identify parts of a flower that are concerned with pollination and fertilization.

Distinguish between pollination and fertilization.

Describe stages of development from flowers to fruit

CONCLUSION: the teacher summarize the lesson

WEEK 7

TOPIC: WATER CYCLE AND RAIN FORMATION

Units:

Water cycle

Rain formation

Relationship between water cycle and rain formation

PERFORMANCE OBJECTIVES

At the end of this lesson, Pupils should be able to:

Make a chart of water cycle.

State the relationship between the formation of rain and water cycle.

LESSON CONTENT

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Water is very essential to man, animals and plants to survive in their environment for growth and to cool its body.

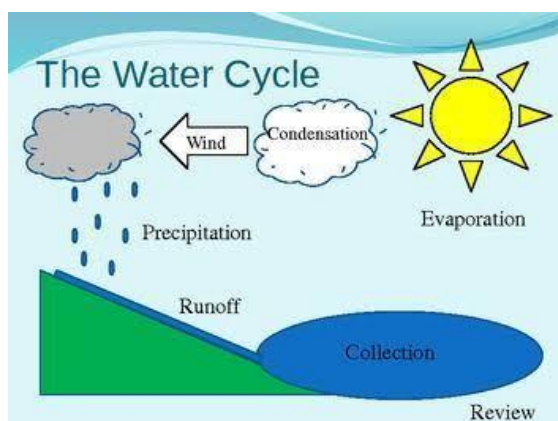
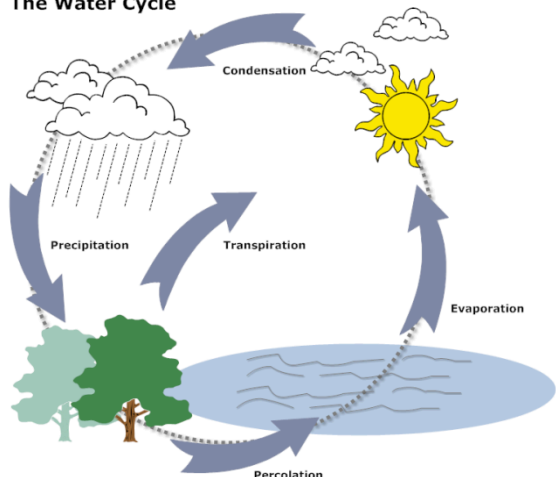
Human use water also for cooking, eating, source of electricity, processing of goods. Water cycle refers to the process whereby Water evaporates into the sky, condenses and falls back as rain. Water which evaporates usually disappears into the air around us. Evaporation takes place every day from the surface of water in the containers, in rivers, and in seas and oceans. If all these water never comes back somehow, we shall soon have no more water on earth. But it really comes back as rain.

THE WATER CYCLE

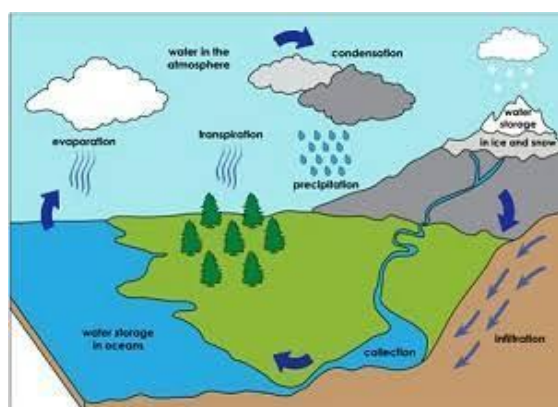
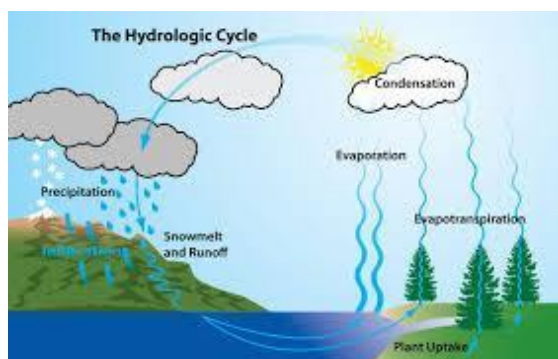
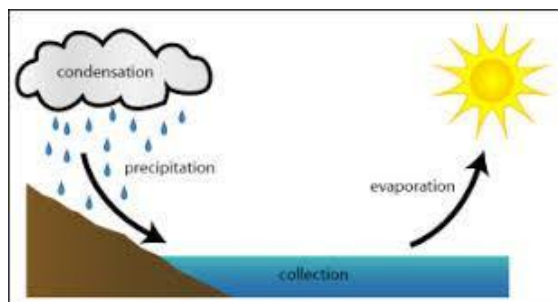
Water cycle is the movement of water in liquid or gaseous state from the earth surface to the atmosphere and back to the earth.

The Heat from the sun causes water to move as gas or vapour from the surface of the earth into the sky by evaporation. The water becomes cool and forms cloud by condensation, the cloud sends down the water back to the surface of the earth as rain.

The Water Cycle



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THE FORMATION OF RAIN

The major sources of water are lakes, River Sea, ocean etc.

The process of rain formation is as follows:

When rain falls, some of the water goes to the streams, rivers, lakes, ponds, and sea while some water will fall on leaves and holes in trees.

The heat from the sun changes some of the water to vapor or gas (Evaporation). This vapor is carried up into the atmosphere.

The rising vapor meet cooler air in the sky and then forms clouds (condensation).

When the cloud becomes too big and heavy for the air to carry, it falls back to earth as rain.

LESSON EVALUATION

What is Water cycle?

What is Rain formation?

What is the Relationship between water cycle and rain formation?

CONCLUSION: the teacher summarize the lesson

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WEEK: WEEK 8

CLASS: PRIMARY 5

TOPIC: ROCKS

PERFORMANCE OBJECTIVES

At the end of this lesson, Pupils should be able to:

Identify and classify rocks according to color, hardness, texture, etc.

List some important uses of rocks such as construction and beautification.

Name some major landmark rocks in Nigeria.

LESSON CONTENT

ROCKS

Rocks are solid matters, they are made up of minerals and some organic matters. They are found in different shapes and sizes. Rocks are breakdown into small stones and pebbles by the action of sun, rains and chemicals.

TYPES OF ROCK

Rocks are classified into three groups based on how they are formed. When you look at some hills, you can see very large masses of a hard material sticking out from their surfaces, this material is called ROCK. Rocks may be seen at the sides and bottom of rivers. To a scientist the word rock has a wide meaning. Rock is a naturally formed mass of one or more minerals.

The way the earth was formed is not exactly known. Most scientist now believe that first, the sun was formed by the condensation of particles of dust and gases whirling in space among the older stars. The sun was hot and is still so. The planets, including the earth were formed the condensation of the remaining gas and dust moving around newly formed sun.

When the earth was newly formed, it was very hot and its materials were molten (liquid). The inside of the earth is still very hot and contains molten materials.

IGNEOUS ROCK

Igneous rock is formed when hot molten materials inside the earth leaks to the surface and later cool. This hot molten material inside the earth surface is known as lava. When it escapes to the surface of the earth, the lava solidified to form igneous rocks. This usually occurs when there is a crack on top layer of the earth surface. The crack on the top layer of the earth is called volcano. Igneous rock is therefore called fire formed. They can be light or dark in color. Examples of igneous rocks are basalt and granite.

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CHARACTERISTICS OF IGNEOUS ROCKS

They are very hard

They are glassy in nature

They don't form in layers

SEDIMENTARY ROCK

This is the most common form of rock found in earth surface. They are formed when igneous rocks are broken down by the action of wind and water. Silt, sand and pebbles formed from breaking down of igneous rock are settle down in layers and formed sedimentary rocks. They also contain plant and animal dead body decay know as fossil. Examples of sedimentary rocks are shale, slate, coal, limestone, sand stone etc.



CHARACTERISTICS OF SEDIMENTARY ROCKS

They are stratified (they form in layers)

They contain both plants and animals

They formed from broken down of igneous rocks.

METAMORPHIC ROCK

These are kinds of rocks that formed by changes in sedimentary or igneous rock.

These changes are caused by heat, pressure or chemical action below the earth surface. Examples of metamorphic rocks are slate and marble.

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CHARACTERISTICS OF METAMORPHIC ROCKS

They are formed from changes in igneous or sedimentary rocks.

They are soft rocks used in construction of roads.

USES OF ROCK

Rocks also serve as source of tourism.

Minerals like gold, iron, and silver are obtained from rocks.

Airports are also build from rocks.

Rock is also used in cement manufacturing e.g. limestone's is used in making cement.

Rocks are used in bridge construction.

Sedimentary rock is as coal is useful as fuel.

Mable's from metamorphic rock is used in making tiles and also decorating materials.

They are used for building houses, schools, hotels, hospital etc.

CHARACTERISTICS AND CONSTITUENTS OF ROCKS

Rocks are non- living solid objects.

They are in vary size, color, shapes and texture.

Different rock s are formed under varying pressures and condition.

ROCKS IN NIGERIA

There are many rocks in Nigeria and their locations are:

Aso Rock found in Abuja. The seat of Nigeria Government is named after the rocks.

Olumo rock is found in Abeokuta, Ogun state.

Zuma rock in suleja, Niger state. it is a human- like face carved on its surface. It is a tourist attraction.

Shares hills rock founds in jos, plateau state. It serves as a leadership training site for young Nigerians.

Kufena rock found in Zaria, Kaduna state.

LESSON EVALUATION

Identify and classify rocks according to color, hardness, texture.

List some three important uses of rocks such as construction and beautification.

Name three major landmark rocks in Nigeria.

CONCLUSION: the teacher summarize the lesson

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WEEK: WEEK 9

CLASS: PRIMARY 5

TOPIC: ACIDS AND BASES

PERFORMANCE OBJECTIVES

At the end of this lesson, Pupils should be able to:

Give examples of acid and base.

List some physical properties of acid and base.

State types of acid and base

Distinguish between acid and base.

Name local materials used in making soap.

Identify the active ingredients in the local materials used in making soap.

Make soap from local materials.

State the uses of soap.

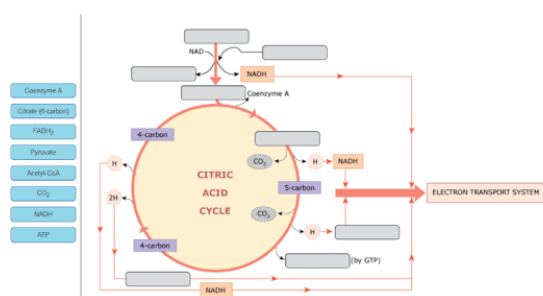
LESSON CONTENT

ACIDS AND BASES

An Acid is a chemical substance that can react with other materials. They are used in specific places like laboratory, industry and research centers. Unripe fruits contain acid that is why if you taste an unripe orange it will be sour. Etc. Many people believe acids are harmful. For instance, a car or lorry battery contains sulfuric acid, without which it will not work. This acid irritates or burns the skin if it touches the human body. While some acids are harmful, some are not. Some acids are in fact edible (can be eaten).

Some acids occur naturally in living things. For example in the human stomach, there is an acid called hydrochloric acid. It is formed by cells in the stomach wall, and it helps digestion to take place. Orange juice, lemon juice and grape fruit contain ascorbic acid, which is vitamin C.

We must take vitamin C and other vitamins in our diet to maintain good health. Vitamin C is also present in vegetables and some other fruits. Sour milk and yoghurt contain lactic acid, while grape contain tartaric acid.



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Types of acids

There are Natural acids and the Synthetics acids.

NATURAL ACIDS

NATURAL ACIDS are called organic acids: this acid occurs naturally, they are found in plants and animals.

EXAMPLES OF NATURAL ACIDS

Ascorbic acid or acetic acid in vinegar

Citric acid in lime.

Lactic acid in spoilt milk.

Tartaric Acid in grape.

SYNTHETICS ACIDS

Synthetic acids are produced by human – beings (scientists) in the laboratory.

EXAMPLES OF SYNTHETICS ACIDS

Hydrochloric acid

Acetic acid

Nitric acid

Sulphuric acid

Tetraoxosulphate (VI) acid.

PHYSICAL PROPERTIES OF ACIDS

They have sour taste.

Concentrated acids can be corrosive.

They turn blue litmus paper red.

The concentrated acid can react with plastic and metals and damage them.

They neutralize bases to form salt and water.

USES OF ACIDS

They are used in the manufacture of paint, fertilizers, drugs and other chemicals in industry.

They are used as solvent.

They are used in the production of gases like hydrogen, carbon dioxide.

They are used to produce chemicals in the laboratory.

BASE

Bases are chemical substances that react with acid to form salt and water only. They are found in natural objects like wood ash, burnt palm, bunch of waste etc.

Types of Bases

The two types of bases are:

Soluble bases or alkalis bases: these are bases that are soluble in water. Examples are sodium hydroxide (caustic soda), potassium hydroxide (caustic potash).

Insoluble bases: these are bases that are not soluble in water, e.g. copper (II) oxide and Zinc Oxide.

PHYSICAL PROPERTIES OF BASE

Base has bitter taste.

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Bases are slippery or soapy to touch.

They turn red litmus paper to blue.

Concentrated base are corrosive.

USES OF BASES

They are used in the production of soap.

They are used in the production of chemicals.

Some bases are used in the production of glass, drugs and detergents.

They are used in the production of salt when dissolved in acids.

Lime water (Calcium hydroxide), which is base is used in the production of plaster of Paris (POP).

LESSON EVALUATION

Identify and classify rocks according to colour, hardness, texture.

List some three important uses of rocks such as construction and beautification.

Name three major landmark rocks in Nigeria.

CONCLUSION: the teacher summarize the lesson

WEEK: WEEK 10

TOPIC: SOAP

BEHAVIOURAL OBJECTIVES: At the end of this lesson, Pupils should be able to:

Name local materials used in making soap..

Name the active ingredients in the local materials used in making soap.

Make soap from local materials.

State the uses of soap.

LESSON CONTENT

SOAP

Soap is a cleansing agent that usually form foam with water. Soap can be made locally or industrially.

Soap is a substance produced by the chemical reaction of caustic potash or caustic soda with vegetable oil or animal fat. It is the process of making soap.

There are basically two type of soap. These are:

Soft soap or potassium soap: it is the mixture of caustic potash and oil. Examples of soft soap are liquid, toilet and some antiseptic soap.

Hard soap or sodium soap: it is the mixture of caustic soda and oil results in hard soap. An example of hard soap is bar soap we use in washing our clothes.

Other substances like perfumes, color and preservatives can be added to soap.

MAKING OF SOAP S USING ACTIVE INGREDIENT – SODA SOAP

Active ingredients are the chemical used in soap making. They are classified into two (2).

Acids: examples are acetic acid and sometimes sulphuric acids.

Bases: soluble base (Alkalis) e.g. caustic soda, caustic potash etc.

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Materials needed for soap: stove (any source of heat), frying pan, clean container, open pot, stirrer.

The following are steps for producing soda soap.

Heating Palm oil in a frying pan until it changes color.

Remove the fried oil from the stove or burner.

Measure small amount of caustic soda into it.

Heat the mixture of caustic soda and palm oil.

Mix the mixture thoroughly using stirrer until the mixture is thicken.

Stop heating the mixture and pour the mixture into empty milk tin.

Allow the content in the milk tin to cool and become harden.

Allow the mixture to cool and set

Remove the soap from the tin and carry out the following test.

Your soap is formed.

MAKING OF SOAP FROM LOCAL MATERIALS

Take the husk (skin) of unripe plantain and dry it completely for some days.

Burn the dry husk until it turns into ashes.

Put the ashes in a frying pan and add a measure amount of palm oil

Boil the content

Stir the content (fried oil and ashes) continuously with a wooden stick.

A semi- solid black soap called native soap is formed.

USES OF SOAP

Soap is used for bathing

Used when moping and scrubbing of the floor.

For washing clothes, plates and other plastics materials.

Used to remove grease from machine parts in our industries.

Used as cleaning agent in industries to clean can, bottles.

LESSON EVALUATION

Name thee local materials used in making soap.

Mention the active ingredients in the local materials used in making soap.

Explain how to make soap from local materials.

State three uses of soap.

CONCLUSION: the teacher summarizes the lesson.