BASIC SCIENCE SECOND TERM E NOTE FOR BASIC FOUR

Week Topic

1. REVISION
2. SOIL
3. GROWING PLANT
4. GROWING PLANT CONT.
5. PLANTS (WEEDS)
6. PEST AND DISEASES
7. WATER
8. HUMAN BODY (FEEDING SYSTEM)
9. ADEQUATE DIET (BALANCES DIET)
10. HARMFUL FOODS

Class:- Basic 4

Subject:- Basis science

Week:- 2

Topic: Composition of soil

Behavioral objective:- By the end of the lesson, the pupils should have attained the following objectives (cognitive, affective and psychomotor) and should be able to –

1. Define soil

2. State the kind of soil

3. Explain the properties of soil

Instructional material/Reference material:- Learn Africa Basic Science UBE edition for primary school book 4, picture, chart.

Building Background /connection to prior knowledge : Students have learnt that soil is the top most layer of the earth on which they live .

CONTENT

.The composition of soil

Soil is made up of particles of different sizes. Besides soil particles, there are many other things in the soil. All plants grow in the soil, and their roots are inside the soil. Some animals live in the soil but, from time to time, they come to the surface. When plants and animals die, their dead bodies remain in the soil where they become rotten and later form part of the soil as humus. Let us find out more about things in the soil.

Things in the soil

Many living things can be found in the soil. Some animals like earthworms and termites can only live inside the soil. Living plants and animals are not the only things in the soil. The soil also contains parts of dead plants and animals.

Types of soil

There are three main types of soil and these are:-

1. Loamy soil
2. Sandy soil
3. Clayey soil

Air in the soil

Soil particles have spaces between them. As you probably know, what is in these spaces is air.

Properties of soils

We have found out that soil is made up of particles of different sizes. Some are large and some are small. We will now learn more about soil particles and how soils are different in the way they allow water to pass through them

Soil particles

We can find out about the different particles of soil if we shake up the mixture of soil in water and allow this soil and water mixture to settle down

Assessment & Evaluation:

1. **Define soil**
2. **State the kinds of soil**
3. **Explain soil properties**

WRAP UP (CONCLUSION) Teacher goes over the topic once again for better understanding.

Assignment:

Where can we find soil particles

Class:- Basic 4

Subject:- Basis science

Week:- 3 and 4

Topic: Growing of Plants

Behavioral objective:- By the end of the lesson, the pupils should have attained the following objectives (cognitive, affective and psychomotor) and should be able to –

1. List the gardening tools and explain their uses

2. List the things that plants needs to grow well

Instructional material/Reference material:- Learn Africa Basic Science UBE edition for primary school book 4, picture, chart showing gardening tools.

Building Background /connection to prior knowledge : Students are familiar with various garden flower.

CONTENT

GROWING OF PLANTS

Plants are important to human beings. We grow different kinds of plants such as food crops, cash crops, flowers, medicinal plants and timber plants. By learning how plants grow, and finding out what we can do to help them grow well, we place ourselves in a position to increase the benefits we obtain from plants.

Plants are important to human beings.

We grow different kinds of plants such as food crops, cash crops, flowers, medicinal plants and timber plants.

GARDENING TOOLS

Common gardening tools include:

WATERING CAN

It is made up of galvanized iron which prevents it from rusting. Some are also made of very synthetic rubber. The water watering can is made up of a tank, a handle and a spout. This spout is long with a perforated metal sheet over its mouth which is referred to as the ROSE, but in case of the rubber made watering can the mouth is covered by a rubber.

It is used to apply water to crops like seedlings in a nursery and vegetables. Sometimes it is used in applying liquid fertilizers to crops as well as the watering of cement blocks used for the constructions of structures and buildings.

CUTLASS

The cutlass is one of the commonest used farm tools in Nigeria. They come in various shapes and sizes. It is a flat long metal blade with a short wooden or plastic handle with one edge sharp while the other is blunt.

They perform many functions. It is used for the clearing of bushes around your homes, for the felling of big trees. It is used in harvesting crops like sugar cane, maize, cassava, yam and palm nut fruits. It is also used in the planting of melon during the planting season, cutlass can also be used for the transplanting of seedlings, weeding of crops, both in the digging of shallow holes and used in the trimming and pruning of flowers.

THE HOE

Hoe comes in different types, which are used in Nigeria today. There is the West African hoe and the Indian hoe. They both have metal blades with wooden or metal blades.

Hoes are used in tilling the soil, harvesting of crops like cassava, sweet potato and cocoyam, weeding between the rows of crops, digging of drains, making trenches and foundation of farm houses, and the making of ridges and mounds.

The hoes all over the world perform the same function but we are going to differentiate them the West African hoe is made of short curve handle while the Indian hoe has a long handle.

The West African hoe has a round metal blade while the Indian hoe has a rectangular metal blade. The blade (metal) is attached to the handle with a prong while that of the Indian hoe is attached to the handle with a hoop.

THE SPADE

The spade is made up of a long rectangular flat blade which is attached to a fairly long cylindrical handle that widens at the posterior end to form a triangular block with a D-shaped whole for hand when used.

Spade is used for different proposes. It can be used for digging of holes and trenches around us, for leveling the ground, for making seedbeds, ridges, mounds and heaps, transplanting of seedlings like palm oil seedlings, turning the soil and the mixing of manures, light weeding in the farm and at home, mixing of cement and concrete for farm and home structures and the digging of foundations when constructing farm and home buildings.

RAKE

The rake is a farm tool which consists of a very long wooden handle with a strong metal head attached to its base. The metal head has several prongs which are very important to enable the rake perform its functions.

Uses of the Rake

The rake is used by farmers in Nigeria to perform the following functions:

a. To spread the soil evenly after hoeing.

b. To remove stones and weeds from seed-beds.

c. It is used to cover vegetable seeds after broadcasting

d. The rake is used to break soil lumps into smaller particles

WHEELBARROW

The wheelbarrow is a common farm tool which is seen almost every day in major cities of Nigeria. It is a large metal container with a wheel at the front, two handles

at the rear and two legs under the base also at the rear. It is pushed by lifting the two handles slightly upward.

Uses of the Wheelbarrow

The major use of the wheelbarrow as a farm tool is to carry and transport farm inputs such as seeds, fertilizers and farm outputs such as harvested crops, slaughtered animals and other load from the farm to the market or other places. It is also used to transplant seedlings

.

Conditions for growing crops

The things needed for growing healthy plants are adequate water, air, sunlight and nutrients. Plants obtain water from rain that has fallen on the soil. However, a farmer may provide additional water to plants by watering them. When plants are given adequate spacing one from another in a farm, they can obtain adequate sunlight and air.

Fertile soils have enough nutrients for healthy growth of plants. If, however a soil is not fertile, fertilizers must be added to it to make plants grow well. Compost manure, animal dung and chemical fertilizers are forms of fertilizers.

Preparing land for growing crops

Before we grow crops, it is necessary to prepare the garden.
When plants are young, they grow better if the soil is soft.

Making garden beds and sowing seeds

Materials required
School garden, hoe, string, some sticks about 50 cm long, cutlass, rake, seeds of okra, maize, tomato, pepper, water.
Procedure
1. Go to the school garden. Select an area which has been used for growing any crop.
2. Remove all the weeds, grass and any other plants in the area you have selected. Rake all the cut plants and pile them in one corner of the area.
3. Use the hoe to dig up the soil into long beds. Tie the string to two sticks and use the string as a line to make sure that your beds are straight. Make at least four beds.
4. So the okra, maize, tomato and pepper seeds in each bed like this:
a) Use your cutlass to make a shallow hole in the bed.
b) Place about eight seeds in each hole and cover them with soil.

c) Place a small stick near the place where you have sown the seeds.

5. Water the seeds you have sown. Do not put too much water.
6. Write down the date.

Taking care of growing plants

Materials required

Your school garden, cutlass, hoe, watering can with water, dead and rotting plants, a stone.

Procedure

Visit your garden every morning. Look carefully at the plants growing. Look out for any grasshopper, caterpillar or beetle eating the leaves and stems of the plants. Shake off the insects from the plants and kill them with a stone.

Caution

1. Do not touch hairy caterpillars with your hands. They may sting you.
2. Put the dead and rotting plants all round the bottom of the growing plants. This is called mulching. It helps the plants to grow better.
3. Water your plants every day, especially during the hot dry season months of October, November, December and January.
4. Remove plants which are strange in the beds. These are plants which you did not sow and they are growing where they are not wanted. Such plants are called weeds.

Assessment & Evaluation:

1.list the gardening tools and explain their uses

2. list the things that plants needs to grow well

WRAP UP (CONCLUSION) Teacher goes over the topic once again for better understanding.

Assignment:

1. List six gardening tools and explain their uses

2. List three things that plants needs to grow well

(a) _____
(b) _____
(c) _____

Class:- Basic 4

Subject:- Basis science

Week:- 5

Topic: PlANTS: WEED

Behavioral objective:- By the end of the lesson, the pupils should have attained the following objectives (cognitive, affective and psychomotor) and should be able to –

1. State the meaning of weed

2. Name the common weeds in their area

3. List the ways in which weeds are harmful to crops

4. List the common methods of controlling weeds

Instructional material/Reference material:- Learn Africa Basic Science UBE edition for primary school book 4, picture, chart.

Building Background /connection to prior knowledge : Students have seen various plants around them

CONTENT

PLANT: WEEDS

Weeds may be defined as unwanted plants growing in an unwanted place. There are weeds in farms, school flower garden, football fields and even around homes. Some scientists also describe weeds as volunteer plants, which means that such plants chose to grow where they do by themselves.

IMPORTANCE OF WEEDS

Weeds are harmful to crops in the following ways:

1. Weeds occupy the space intended for crops.
2. Weeds absorb water meant for crops from the soil.
3. Weeds absorb fertilizers meant for crops from the soil
4. In addition to the harm that weeds do to crops, the farmer also spends money in removing them. This increases the cost of production.

CONTROL OF WEEDS

1. Biological control

   Living things such as grasshoppers or other animals eat up the weeds and reduce their effect. For example:

a) A farmer may weed the farm.
b) A farmer may plant crops at intervals that are just sufficient. Over-spacing crops creates room for weeds.
c) The farmer may select a variety of crop that has a big shade. This shade does not allow weeds to grow under the crop. An example is cassava. There are now improved varieties of cassava that spread their branches and leaves, and create a shade that controls weeds.

2. Cultural control

Cultural control of weeds includes all the things that a farmer does in normal farm practice to kill the weeds.

3. Chemical control

This is the use of chemicals to control (kill) weeds. Some of these chemicals are sprayed before planting the crops. Some chemicals are sprayed after planting the crops. Chemical control of weeds has some disadvantages which will now be discussed.

Side effects of chemical control of weeds

1. Weed killers may kill; useful living things in the farm such as earthworms.
2. Weed killers, as they are sprayed, get into the air and may pollute it.
3. Weed killers may be harmful to crops

Assessment & Evaluation:

1. State the meaning of weed?
2. Name the common weeds in your area
3. List the ways in which weeds are harmful to crops
4. List the common methods of controlling weeds

WRAP UP (CONCLUSION) Teacher goes over the topic once again for better understanding.

Assignment:

1. What is a weed?

2. Name five common weeds in your area

3. List three ways in which weeds are harmful to crops

4. List three common methods of controlling weeds

Class:- Basic 4

Subject:- Basis science

Week:- 6

Topic: Pests and diseases of crop plants

Behavioral objective:- By the end of the lesson, the pupils should have attained the following objectives (cognitive, affective and psychomotor) and should be able to –

1. Identify examples of pest and diseases

2. State some plants affected by pest and diseases and their effect

3. Explain how plant pests can be controlled by farmers

Instructional material/Reference material:- Learn Africa Basic Science UBE edition for primary school book 4, picture, chart.

Building Background /connection to prior knowledge : Students are familiar with the meaning of pests.

CONTENT

PESTS AND DISEASES OF CROP PLANTS

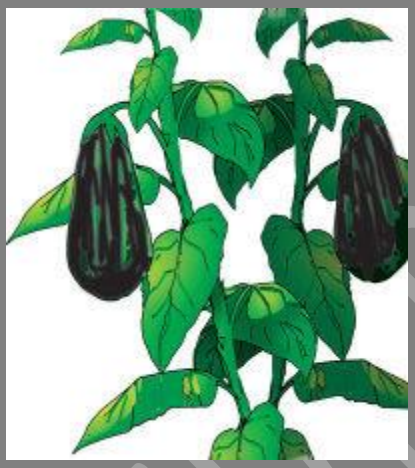
Pests and diseases are common in crop plants growing in garden and farms. Crop plants that area affected by pests and diseases do not grow well, their leaves may be rotten by pests, or their fruits may be rotten because they are diseased. Such crop plants do not produce good harvests.

Pests live on crop plants and eat the leaves, stems, fruits and even the roots of such crop plants. They do not allow them to grow well. Disease-causing organisms also live on crop plants and make them very sick.

Pest	**Example of plants**	**Effect on plants affected**
Caterpillar	All crops	Eats leaves of all crops
Beetle	Many crops	Eats leaves of all crops
Beetle	Okra	Eats leaves and fruits of okra
Grass cutter	Cassava	Eats cassava tuber
Monkey	Cocoa	Eats fruits of cocoa and other plants

Common diseases of crop plants

Crop	Disease	**Organism that causes disease**	**Effects of disease**
Maize	**Rust on leaves**	**Bacterium**	death of parts leaves, which turn into brown patches. Low yield
Tomato, spinach	**Wilt of vegetable seedlings**	Fungus	**Fungus grows on leaves and stems of vegetables.** The vegetables die and decay
Yam tuber	**Brown spots leading to decay**	**Fungus**	**Causes decay and wastage of yam**



To reduce the damages caused by pests to crop plants, farmer need to control the pests and diseases. They can do this in many ways

1. Farmer can hand-pick the large pests and kill them.
2. Farmers should use natural enemies to kill pests.
3. Farmers should keep the farm very clean, by removing weeds.

   When pests and diseases are too many, farmers can use chemicals to kill the pests, fungi and bacteria. This method is called chemical control. It is like when your parents spray insecticide in your home to kill mosquitoes and cockroaches. But farmers must be very careful when using chemicals to control pests for these reasons:

1. The chemicals can kill other animals such as the farmers' friends.
2. The chemicals can get into our surroundings to poison our waters.
3. The chemicals can remain on the fruits and vegetables from the crop plants and poison us when we eat such fruits and vegetables.

Evaluation:-

1. Give five examples of pests

2. Why are some animals are called farmers' friends? Name two farmers' friends

3. Name a simple way of controlling pests of crop plants.

Class:- Basic 4

Subject:- Basis science

Week:- 7

Topic: The Human Body (The Feeding System)

Behavioral objective:- By the end of the lesson, the pupils should have attained the following objectives (cognitive, affective and psychomotor) and should be able to –

1. Define feeding system

2. State the components of feeding system

3. Explain the function of each part of the feeding system

Instructional material/Reference material:- Learn Africa Basic Science UBE edition for primary school book 4, picture, chart.

Building Background /connection to prior knowledge : Students understand that it is through the feeding system in their body that enable their food to digest after eating.

CONTENT

THE HUMAN BODY (THE FEEDING SYSTEM)

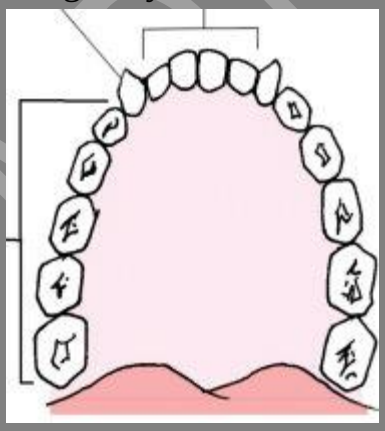
The human body is a living body that can feed and breathe. It produces waste materials as a result of its work. It sends out these waste materials. There are special parts of the body which perform these duties. Each one is called a system.

You say something is a system when there are several parts to it and all the parts work together to do one special job.
The human feeding system consists of the lips, tongue and teeth. An adult human being has 32 teeth in his mouth. But little children have less than 32 because of your age.

The food you eat goes through a route in the body, and undergoes many changes before the body can use it. Solid foods, such as cooked yam and meat, must be broken down into little bits and then changed further by chemicals in the body. The final form is that which the body can use. There are many parts of the feeding system, and these have various jobs to do. This feeding system is also called the digestive system.

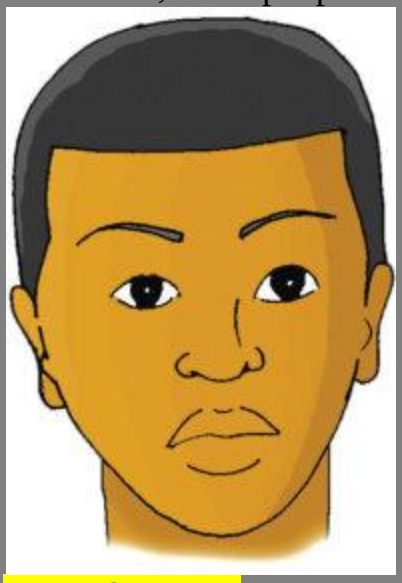
SPECIAL NAMES FOR THE TYPES OF TEETH IN YOUR JAW

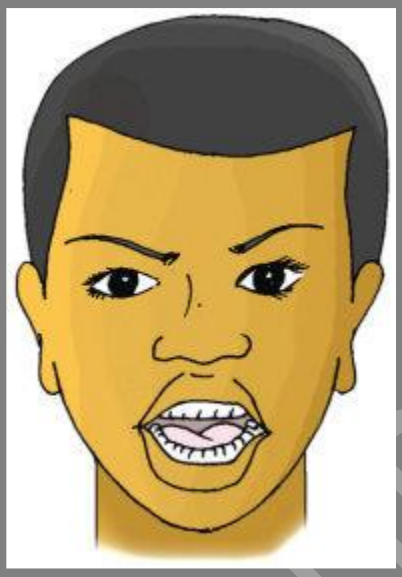
1. **The biting teeth are called incisors. There are four of them in each jaw**. They are in the center position.
2. The single tooth on each side of the incisors are called **canines.** Those in flesh eating animals are very large and sharper than your own. Give two examples of animals which eat only eat.
3. The next two teeth on each side of the canines are flat and little rounded. They are used for crushing and breaking down food. They are called **premolars**
4. The last three teeth on each side of the premolars are broader than the premolars. They have more ridges on them. They are also used for crushing grinding. they are the **molars**



The lips

Our lips form an important part of the feeding system. The lips are the two fleshy things (like envelopes) that cover our mouth. Once the lips are closed and touching each other, other people cannot see the inside of our mouth and our teeth.





Uses of the lips

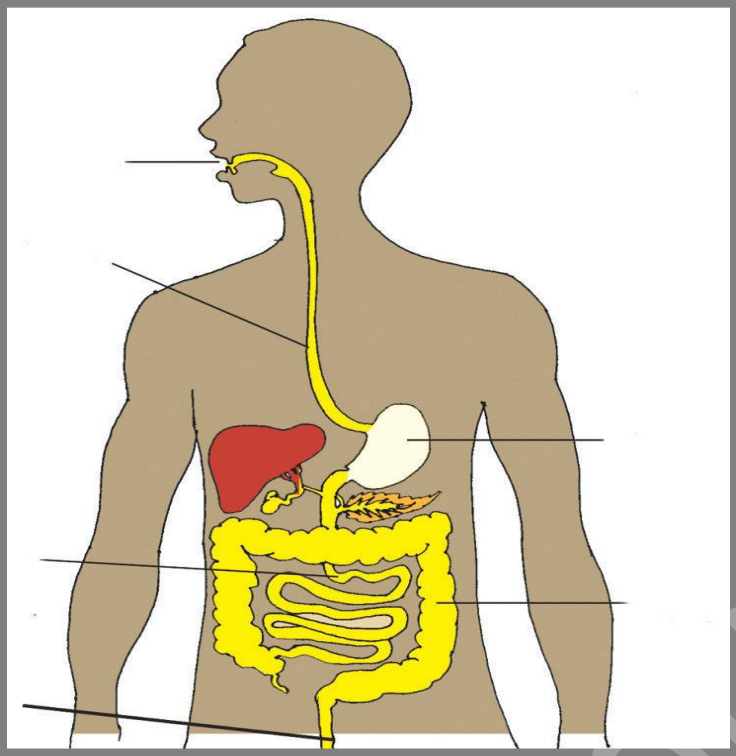
The lips are very useful when we eat. Our lips cover our mouths when we eat, so that the food does not fall out of our mouth while eating. The lips are also useful when sucking soft drinks with a straw,

Another important use of our lips is for talking. Stand in front of a mirror again. Start talking or singing and look at how your lips are moving. Can you talk well without moving your lips

The tongue

When we open our mouth, we can see the tongue inside the mouth. The tongue is a large red flesh on the bottom of the mouth. You can stretch out the tongue which

shows you that it is also long..



Evaluation :-

1. The human adult has _____ teeth?
2. How many types of teeth do you have? Name them
3. When you eat boiled yam, which teeth do you use most?
4. What is the **canine** used for?

Class:- Basic 4

Subject:- Basis science

Week:- 8

Topic: The composition of soil

Behavioral objective:- By the end of the lesson, the pupils should have attained the following objectives (cognitive, affective and psychomotor) and should be able to –

1. Define soil

2. State the kind of soil

3. Explain the properties of soil

Instructional material/Reference material:- Learn Africa Basic Science UBE edition for primary school book 4, picture, chart.

Building Background /connection to prior knowledge : Students have learnt that soil is the top most layer of the earth on which they live .

CONTENT

THE COMPOSITION OF SOIL

Soil is the top surface of the earth. Soil is made of particles of different sizes. Besides sizes there are many other things in the soil. All plants grow in the soil, and their roots are inside the soil. Some animals live in the soil but, but from time to time, they come to the surface.

When plants and animals die, their dead bodies remain in the soil where they become rotten and later form part of the soil as humus. Let us find out more about things in the soil.

TYPES OF SOIL

There are three types of soil namely:

1. Clay soil
2. Sandy soil
3. Loamy soil

1. Clay soil

   Clay soil is smooth when you touch it, you will feel as if you have just touched powder. When it is wet with water, it becomes sticky. When the solid wet clay sries up, it becomes very hard.

2. Sandy soil

   Sandy soil is made of tiny particles. The stone particles are not closely packed together. Sandy soil contains some quantities of clay and silt. Sandy soil does not have decayed plants and animals materials. It is not a good soil for growing crops.

3. Loamy soil

   Loamy soil is made up largely of decayed vegetable matter, some sand and a small amount of clay. Loamy soil is the best soil for growing crops.

Organism found in the soil are: grub, earthworm, ant, termite, rats etc.

Evaluation

1. What is soil?

2. Mention the three different types of soil you know
3. The best soil for growing crops is _____
4. Why is sandy soil not good for growing crops?

Class:- Basic 4

Subject:- Basis science

Week:- 9

Topic: Evaporation And Condensation Of Water

Behavioral objective:- By the end of the lesson, the pupils should have attained the following objectives (cognitive, affective and psychomotor) and should be able to –

1. Discuss the meaning of evaporation

2. Define condensation

3. Explain how evaporation and condensation take place in nature daily

Instructional material/Reference material:- Learn Africa Basic Science UBE edition for primary school book 4, picture, chart.

Building Background /connection to prior knowledge : Students are familiar with rain which is a form of water condensation

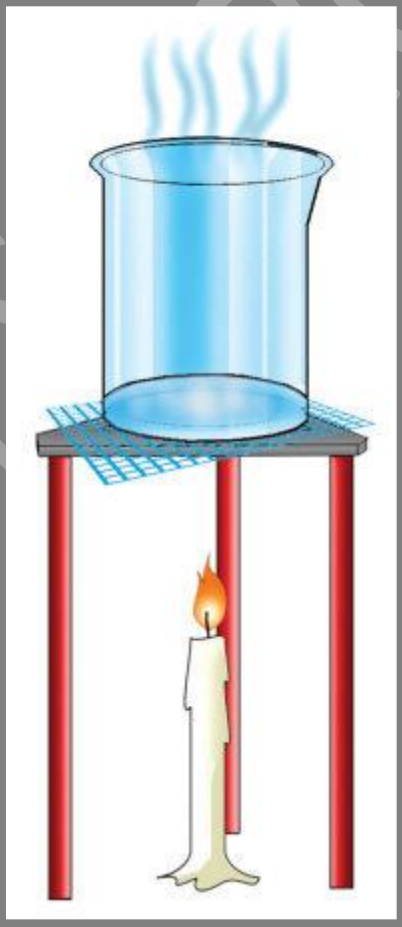
CONTENT

EVAPORATION AND CONDENSATION OF WATER

In your daily experience, there are many evens which seem water seems to disappear from a container or from your body. For example, when you sweat, you may wipe it off, or you may allow it to dry off. You must also have observed that a glass of ice water on a table, after a few minutes, the outer surface of the tumbler is covered with drops of water. How and why these things happen? Let's find out.

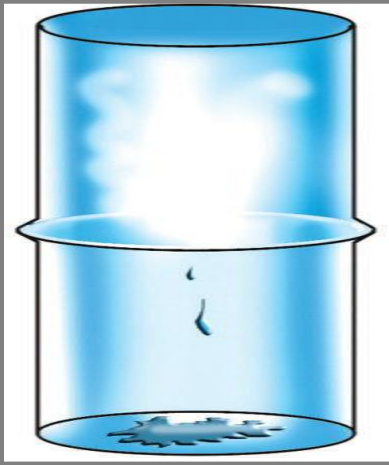
MEANING OF EVAPORATION

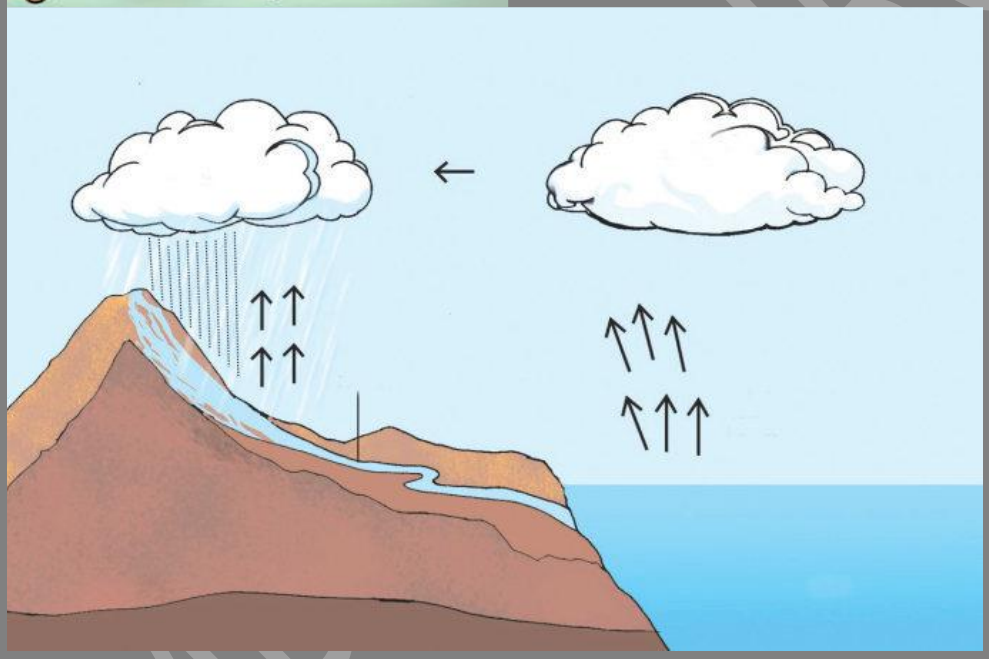
When water disappears into the air, we say it evaporate. So, instead of saying the water disappears, we shall not say I evaporates. Heat is the major factor affecting evaporation eg. Heat from the sun dry uo water on the earth surface and heat from the gas cooker boils water in a kettle.



MEANING OF CONDENSATION

Water that evaporates into the sky gathers together and form clouds. After some time the clouds become heated and fall down as rain. When water returns back to the earth as rain, we call say it condenses. This process is known as **evaporation.**





Evaluation:-

1. Explain the meaning of evaporation
2. What is the major factor affecting evaporation?
3. Explain the meaning of condensation
4. When we heat water it _____

Class:- Basic 4

Subject:- Basis science

Week:- 10

Topic: Composition of soil

Behavioral objective:- By the end of the lesson, the pupils should have attained the following objectives (cognitive, affective and psychomotor) and should be able to –

1. Discuss the meaning of food

2. State the classes of food and there examples each

3. Explain the importance of food

Instructional material/Reference material:- Learn Africa Basic Science UBE edition for primary school book 4, picture, chart showing food.

Building Background /connection to prior knowledge : Students are familiar with food and also eat food daily

CONTENT

FOOD

MEANING OF FOOD

Food may be defined as edible substance taken into the body through the mouth to nourish our body and give us energy to work. Common examples of food are rice, plantain, potato, mango, banana, yam, egg. There are seven characteristics which separate living things from non-living things. Can you remember them? Feeding, i.e. eating of food is one of them. Feeding is the taking in of food by living things. You take in food through the mouth. Most animals take in food through the mouth. It is not very easy to see plants feeding. Another word for feeding is nutrition. Nutrition is all about how living things take in food and use that food.

Food preparation: cooked and uncooked

You now know why you eat food. You also know where food comes from. Some foods must be cooked before we eat them. There are some foods which we do not need to cook. We eat them raw. We prepare our food in a number of different ways. In preparing some foods we add salt, pepper and onions. Why do you think we add these things? When food is cooked, some changes may be noticed. Think of the changes that you have noticed. Write them down in a list. Did you include color, taste, smell and feel in your list of things that change when food is cooked?

You will now find out why different food items are prepared in different ways before being eaten.

CLASSES OF FOOD

There are six classes of food namely:

1. Carbohydrates
2. Protein
3. Vitamin
4. Fats and oils
5. Mineral salt
6. Water

1. Carbohydrate

Carbohydrates are energy giving foods such as rice, yam, bread, sweet pototo, etc. energy foods contain a lot of starch. Our body uses the starch to make energy for itself.

2. Protein

Proteins are body building food. These foods come mainly from animals. Examples of proteins are: meat, beans, egg, milk, fish chicken.

3. Vitamins

Vitamins are also known as health foods. Health foods are mostly fruits and vegetables. They keep your body healthy and against illness. Examples are: carrot, lime, orange, lettuce, cabbage, and mango.

4. Fats and oils

Our body also gets energy from fats and oils. Examples are: palm oil, vegetable oi, peanut, coconut oil, butter and margarine.

5. Mineral salts

Mineral salts are food supplements. They are needed in only small quantities. Examples are table salt, soda, Pepsi etc.

HARMFUL FOODS

Foods become harmful when they contain disease-causing organisms, such as bacteria, fungi and viruses, or if they contain poisons

Harmful foods	Harmful things present	Harmful effects
Rotten vegetable, over	Bacteria	Stomach ache, vomiting

ripe fruits		
Foods contaminated by dirty water or faces	Bacteria	Cholera, diarrhea, typhoid fever
Foods exposed to flies	Bacteria	Dysentery, diarrhea
Expired canned foods or drinks	Poisons produced by bacteria or fungi	Food poisoning

Evaluation :-

1. Which food item do you eat most?
2. Explain the meaning of food
3. List the types of/ classes of food
4. Define harmful foods
5. Give five examples of harmful foods