**Second Term Basic Science E-Lesson Note**

**SUBJECT: BASIC – SCIENCE** **CLASS: PRIMARY 4**

**SCHEME OF WORK** **2ND TERM LESSON NOTE**

# WEEK ONE TO WEEK TWELVE

## SCHEME OF WORK

| WEEKS | TOPICS | LEARNING OBJECTIVES: At the end of the lesson the students should be able to: |
|---|---|---|
| 1 | Revision of last term's work | Welcome test |
| 2 | Soil | Meaning of soil, types and properties of soil - |
| 3 | Soil – growing of plants | Soil preparation, planting and condition for growing crops |
| 4 | Soil – growing of plants | Soil preparation Planting and conditions , importance of crops |
| 5 | Mixture | Meaning of mixture, examples of common mixtures |
| 6 | Technology | Definition of technology, importance of teachnology |
| 7 | **MID TERM BREAK** | **Midterm- Test** |
| 8 | Technology (II) | Definition ,products of technology and meaning |
| 9 | Measurement | Measuring in liquids |
| 10 | Measurement | Measuring of solids and time |
| 11 | Shape construction | Define shapes, identify materials, state items to construct shapes with paper and practical |
| 12 | Examination | Examination |

**WEEK ONE** **Date……**

**TOPIC: REVISION OF LAST TERM'S WORK**

## Second Term Basic Science E-Lesson Note

**WEEK: 2** **DAY:** **SUBJECT:**

**DATE:** **TOPIC:**

**SUBTOPIC:** **PERIODS:** **DURATIONS:**

**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: SOIL**

**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**

**WEEK: 3 & 4** **DAY:** **SUBJECT:**

**DATE:** **TOPIC:**

**SUBTOPIC:** **PERIODS:** **DURATIONS:**

**PREVIOUS LESSON –**

**TOPIC –**

**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. Li**st the gardening tools and explain their uses

2. List the things that plants needs to grow well

## Second Term Basic Science E-Lesson Note

**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: SOIL – GROWING OF PLANTS**

### 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

**WHEEL BARROW**
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

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**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**

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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.

**SOIL PREPARATION -** Soil preparation is the process getting the ready soil for cultivation of crops.

It is an important step in farming before planting of crops.

It involves loosening of soil, removing weeds from the soil and leveling of soil.

**SOIL PREPARATION FOR PLANTING OF CROPS**

Soil preparation is the first step before planting of crops.

The following steps are taken when preparing the soil –

1. Mark the area selected for the garden.
2. Cut and uproot the weeds inside the garden.
3. Collect all the weeds into compost pit.
4. Soil loosing/Cultivation/Make a straight bed.
    - It improves the circulation of air in soil.
    - It enhances the capacity of the soil to hold water.
5. Rake the top of the bed to remove weeds.

**LESSON 2 – PROCEDURES FOR PLANTING OF CROPS**

1. Dig small holes in the soil.
2. Put in a few seeds.
3. Water the soil, if dry.

**HOW TO NURTURE AND CARE FOR THE CROPS**

1. Water the crops regularly.
2. Apply manure to the farm.
3. Once in a week, remove weeds (weeds are unwanted plants).
4. Pick out grasshopper on the plants.
5. Support growing crops like yam with stick.

**LESSON EVALUATION : Teacher asks pupils to –**

1. Discuss the process of soil preparation.
2. Explain how to plant crops.
3. Describe how to nurture and care for the crops.

**WEEKLY ASSESSMENT ATTEMPT ALL THE QUESTIONS**

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1. _____ is the first step before planting of crops.

A. Soil preparation B. Planting of crops C. Removing the weeds from the soil.

2. _____ improving the circulation of air in the soil.

A. Soil cultivation B. Soil loosing B. Soil preparation

3. _____ is the best place for all the weeds removed. A. Waste bin B. Compost pit C. Waste bag

4. What is the important of compost pit? A. For preparing organic manure. B. For animals to eat.

C. For preserve the weed.

5. _____ enhance the capacity of the soil to hold water. A. Soil cultivation B. Soil loosing

C. Soil preparation

6. _____ involves digging small holes in the soil, put in a few seeds and water the soil, if dry.

A. Soil preparation B. Make a straight bed C. Planting of crops

7. _____ are unwanted plants. A. Plants B. Crops C. Weeds

8. What is unwanted plants? A. Crops grown in a particular place. B. Crops not grown in a particular place. C. Crops grown and transplant in a particular place.

9. Support growing crops like yam with _____. A. cutlass B. stick C. hand fork

10. Water the crops _____. A. regularly B. once C. occasionally

**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)** _____

## Second Term Basic Science E-Lesson Note

**WEEK: 5** **DAY:** **SUBJECT:**

**DATE:** **TOPIC:**

**SUBTOPIC:** **PERIODS:** **DURATIONS:**

**PREVIOUS LESSON –**

**TOPIC –**

**LEARNING OBJECTIVES**

By the end of the lesson, most pupils should have attained the following objectives –

1. Explain the meaning of mixture.
2. Enumerate examples of common mixtures.
3. Discuss other examples of mixtures.
4. Explain how mixtures form new things and materials.

**ENTRY BEHAVIOUR: The pupils can add sugar and milk to water to make tea.**

**INSTRUCTIONAL MATERIALS : The teacher will teach the lesson with the aid of cereal, milk, sugar, coffee, honey, etc.**

**CONTENT: MIXTURE**

**LESSON 1 – INTRODUCTION**

Mixture is the combination of two or more substances which have been stirred or shaken together.

Any time two or more items are combined, a mixture is formed.

**EXAMPLES OF COMMON MIXTURES**

1. Cereal and milk
2. Flour and butter
3. Cream and sugar
4. Coffee and cream
5. Honey and tea
6. Milk and chocolate
7. Sugar and water
8. Sugar and tea
9. Red and blue, etc.

**OTHER EXAMPLES OF MIXTURES**

1. Dirt and water
2. Sand, water and gravel

3. Smoke and fog –
4. Water and salt
5. Oxygen and water
6. Minerals, organic materials, air, water, and living organisms (Soil), etc.

**LESSON 2 – REASONS FOR MIXTURES**

1. Taste
2. Satisfaction
3. Feeding
4. Moulding
5. Building
6. Treatment
7. Farming, etc.

**FORMATION OF NEW THINGS AND MATERIALS**

Organizes the pupils in groups or pairs to form new things or materials with the following –

1. Dirt and water – mud
2. Sand, water and gravel – cement
3. Smoke and fog – smog
4. Water and salt – Sea water
5. Oxygen and water – Sea foam
6. Minerals, organic materials, air, water, and living organisms – Soil

**PRESENTATION**

To deliver the lesson, the teacher adopts the following steps – he/she,

1. Revises the previous lesson based on the pupil's related knowledge or experience.
Pupil's Activities – Participate actively in lesson review.
2. Makes tea by adding the following – milo, milk and sugar.
3. Asks pupils to describe the process to making tea.
Pupil's Activities – Explain how to make tea with milo, sugar and milk.
4. Listen to the pupils and use their responses to introduce the lesson – mixture.
5. Guides pupils to explain the meaning of mixture with appropriate examples.
Pupil's Activities – Pay attention to the lesson introduction to understand the concept of mixture.
6. Asks pupils to give examples of common mixtures.
Pupil's Activities – Give examples of common mixtures.
7. Uses the process of making blocks to guide pupils to give an examples of other mixtures.
Pupil's Activities – Give examples of other mixtures.
8. Leads a discussion on the reasons for mixtures.
Pupil's Activities – Participate actively in the class discussion.
9. Organizes the pupils in groups or pairs to form new things or materials.
Pupil's Activities – Take active part in the groups or pairs work.
10. Summarizes the lesson on the board.
Pupil's Activities – Participate actively in lesson summary and write as instructed.

## Second Term Basic Science E-Lesson Note

**CONCLUSION: To conclude the lesson for the week, the teacher revises the entire lesson and links it to the following week's lesson.**
**NEXT LESSON:**
**LESSON EVALUATION : Ask pupils to:**
1. Explain the meaning of mixture.
2. Enumerate 5 examples of common mixtures.
3. State 5 other examples of mixtures.
4. Mention 5 reasons for mixtures.
5. Explain how mixtures form new things and materials.

**WEEK: 6** **DAY:** **SUBJECT:**

**DATE:** **TOPIC:**

**SUBTOPIC:** **PERIODS:** **DURATIONS:**

**PREVIOUS LESSON –**

**TOPIC –**

**PERFORMANCE OBJECTIVES: By the end of the lesson, most of the pupils should have attained the following objectives –**
1. State the meaning of technology.

2. List the importance of technology.

**ENTRY BEHAVIOR: The pupils can identify simple technology and their uses.**

**INSTRUCTIONAL MATERIALS: The teacher will teach the lesson with the aid of:**
1. Charts and pictures showing technological products. 2. Video cassettes films etc.

**CONTENT: TECHNOLOGY**

**LESSON 1 – INTRODUCTION**
Technology means any invention, including tools, machines, materials, techniques, and sources of power that makes work and lives easier for the people.

Computers and mobiles are not the only technology.

Technology is whenever people used knowledge to create a new thing to solve existing problems.

Technology makes it easy to matches and lighter instead of stones to produce fire.

# Second Term Basic Science E-Lesson Note

## MEANING OF TECHNOLOGY

Technology, therefore, is the application of science for practical purposes, especially at home, in school, office and industry.

## IMPORTANCE OF TECHNOLOGY

1. Cooking – using firewood, kerosene stove, gas cooker, electric cooker.
2. Washing – washing clothes with machine.
3. Preserving – using salt, frying, drying in the sun, refrigerator and/or deep freezer.
4. Relaxation – listening to radio , watching movies on TV or in cinema, playing in the yard and indoor games.
5. Vacuum cleaner
7. Fan – ceiling and standard fans, etc.

## TAKE HOME ACTIVITIES

1. Observing the importance of technology in the home.
2. Observing the importance of technology on the streets.

## LESSON 2 – IMPORTANCE OF TECHNOLOGY ON THE STREETS

1. Transportation
2. Communication
3. Electricity
4. Solar power
6. Grinding machines
7. Cold room, etc.

## LESSON 3 – REVISION AND WEEKLY ASSESSMENT (TEST)

## PRESENTATION

To deliver the lesson, the teacher adopts the following steps:
1. To introduce the lesson, the teacher revises the previous lesson. Based on this, he/she asks the pupils some questions;
2. Displays sample of stone grinder and grinding machine like blender (if available) or chart showing both of them.
3. Lets pupils in groups or pairs examine and describe.
Pupil's Activities – Take active part in the group or pair work.
4. Listen to the pupils and use the chart or sample to introduce the lesson – technology.
Pupil's Activities – Pay attention to the lesson introduction to understand the concept of of the lesson.
5. Leads a discussion on the meaning and importance of technology at home with appropriate examples or illustrations.
Pupil's Activities – Identify and state the importance of technology at home.
6. Takes pupils for a walk with the school environment to identify and discuss importance of technology on the street.
Pupil's Activities – Identify the lesson on the street and state their importance.
7. Summarizes the lesson on the board.
Pupil's Activities – Participate actively in the lesson summary and write as instructed.

## Second Term Basic Science E-Lesson Note

**CONCLUSION**

- To conclude the lesson for the week, the teacher revises the entire lesson and links it to the following week's lesson.

**LESSON EVALUATION/ASSIGNMENT: Asks pupils to:**
State the meaning of technology.

1. _____

_____

_____

State three importance of technology.

2. _____

3. _____

4. _____

**WEEK: 7- MIDTERM BREAK MID-TERM TEST**

**WEEK: 8** **DAY:** **SUBJECT:**

**DATE:** **TOPIC:**

**SUBTOPIC:** **PERIODS:** **DURATIONS:**

**PREVIOUS LESSON –**

**TOPIC –**

**PERFORMANCE OBJECTIVES:** By the end of the lesson, most of the pupils should have attained the following objectives –

1. State the products of technology.

2. Make a simple technology.

## Second Term Basic Science E-Lesson Note

**ENTRY BEHAVIOR : The pupils can define and state the importance of technology at home and on the street.**
**INSTRUCTIONAL MATERIALS: The teacher will teach the lesson with the aid of:**
1. Charts and pictures showing technological products.

2. Video cassettes films etc.

**CONTENT: TECHNOLOGY – PRODUCTS OF TECHNOLOGY**

**LESSON 1 – INTRODUCTION**
Technology means any invention, including tools, machines, materials, techniques, and sources of power that makes work and lives easier for the people.

Computers and mobiles are not only technology.

Technology is whenever people used knowledge to create a new thing to solve existing problems.

Technology makes it easy to matches and lighter instead of stones to produce fire.

***Technology, therefore, is the application of science for practical purposes, especially at home, in school, office and industry.***

**PRODUCTS OF TECHNOLOGY**
Technology is everywhere and used by many people, businesses, banks, etc. Technology served different purposes, for examples –

1. Transportation – Moving from one place to another by bicycle, motorcycle, bus, car, etc.

2. Communication – Speaking to one another by microphone, listening to transistor radio, land telephone, mobile phones, etc.

3. Traffic control – Traffic officers at work, Drivers making hand signals, using of traffic lights

4. Banking – ATM machine, counting machine, computer, cctv camera, etc.

5. Farming – Harvester, planting machines, irrigation equipment, insecticide and pesticides

6. Business – Computer, photocopy machine, printer, scanner, thumb print, fax, etc.

7. Home – TV, radio, fan, DVD player, refrigerator, kerosene and gas cooker, water heater, cabinet, etc.

**LESSON 2 – MAKING SIMPLE TECHNOLOGY**
**PRESENTATION**
To deliver the lesson, the teacher adopts the following steps:

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1. To introduce the lesson, the teacher revises the previous lesson. Based on this, he/she asks the pupils some questions;
2. Asks pupils to state the technology at home and on the street.
Pupil's Activities – State the technology used at home and on the street.
3. Uses pupil's responses to introduce the lesson – products of technology.
Pupil's Activities – Pay attention to the lesson introduction.
4. Guides pupils to identify and state technology used at home, on the street, in traffic control, banks, etc. with appropriate examples or illustrations.
Pupil's Activities – Identify and describe the uses of technology used by different people for different purposes.
5. Organizes the pupils in groups or pairs to make simple technology.
Pupil's Activities – Take active part in the group's work.
6. Summarizes the lesson on the board.
Pupil's Activities – Participate actively in the lesson summary and write as instructed.

**CONCLUSION: To conclude the lesson for the week, the teacher revises the entire lesson and links it to the following week's lesson.**

**LESSON EVALUATION/ASSIGNMENT**

Asks pupils to:

State the meaning of technology.

1. _____

_____

_____

List three (3) important of technology.

2. _____

3. _____

4. _____

State 5 technology –

5. At home _____, _____, _____, _____, and _____.

6. On the street _____, _____, _____, _____, and _____.

7. In the banks _____, _____, _____, _____, and _____.

8. For transportation _____, _____, _____, _____, and _____.

9. On the farm _____, _____, _____, _____, and _____.

10. By businesses _____, _____, _____, _____, and _____.

**WEEK: 9** **DAY:** **SUBJECT:**

**DATE:** **TOPIC:**

**SUBTOPIC:** **PERIODS:** **DURATIONS:**

**PREVIOUS LESSON –**

**TOPIC –**

**PERFORMANCE OBJECTIVES**

By the end of the lesson, most of the pupils should have attained the following objectives –

1. Identify materials used for measuring liquid.

2. State the metric unit of volume.

3. Measure amounts of liquids accurately using graduated measuring cylinders, cups or jars.

4. Improvise a measuring cylinder with estimated scales for volumes in metric system.

**ENTRY BEHAVIOR : The pupils can identify some of the materials used for measuring liquid like palm oil, groundnut oil,, etc.**

**INSTRUCTIONAL MATERIALS : The teacher will teach the lesson with the aid of measuring cylinders of different sizes, water, other liquids e.g. kerosene, oil, etc., empty jam jars, rulers, strips of paper, pens, notebooks, coke bottles, juice drink packs.**

**CONTENT: MEASUREMENT – MEASURING IN LIQUIDS , VOLUME**

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## LESSON 1 – INTRODUCTION

There are many instruments that's used to measure the volume of liquid in our community.

The common instruments used for measuring liquids are as follows:

1. Cylinder

2. Cups

3. Jug, etc.

## VOLUME OF A LIQUID

The volume of liquid is the amount of liquid in a container.

The volume of liquid is usually measured by using a graduated cylinder, cups or jug.

## THE METRIC UNITS OF VOLUME

The standard metric units of volume are as follows:

1. liter (L)

2. Centilitre (CL)

3. Millilitre (ML)

The liter (L) is the basic metric unit for measuring liquid volume.

Centilitre and milliliter (mL) are the metric units to measure liquid in very small containers.

## LESSON 3 – MEASURING OF LIQUID (PRACTICAL)

Teacher guides pupils to measure volume of liquids using:

1. graduated cylinder, cup and jug.

2. non graduated cylinder, cup and jug.

3. compare the results of 1 and 2.

## IMPROVISING METRIC UNITS FOR MEASURING CYLINDER, CUP AND JUG

Materials Needed –

- White transparent cylinder, cup and jug

- Ruler
- Strip of paper
- Pen
- Pencil
- Gum or white transparent sellotape
- Water (recommended)

**STEPS FOR IMPROVISING MATRIC UNITS**

STEPS

1. Graduate the strip of paper.

2. Cover the strip of paper with sellotape both back and front to protect the strip of paper.

3. Fasten the strip of paper on the empty cylinder, cup and jug.

**MEASURING THE VOLUME OF LIQUID (WATER) USING IMPROVISED INSTRUMENT FOR MEASURING LIQUID**

1. Pour some water inside the cylinder, cup or jug.

2. Read and record the volume of water.

3. Compare the the results with the graduated cylinder and jug.

**LESSON 3 – THE RELATIONSHIP BETWEEN METRIC UNIT OF VOLUME**

The volume of liquid is measured in cl, ml and liter.

Liter is greater than centilitre and millilitre while centilitre is greater than millilitre as shown below:

100cl = 1 liter

1000ml = 1 liter

10ml = 1cl

Change the following to their equivalent units:

1. 50cL

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50cL= 500mL = 0.5L

2. 100cL

100cL = 1000mL = 100L

3. 150cL

150cL = 1500mL = 1.5L

4. 1L

1L = 100mL = 1000mL

5. 2.5L

2.5L = 250cL = 2500m

**PRESENTATION**

To deliver the lesson, the teacher adopts the following steps:
1. To introduce the lesson, the teacher revises the previous lesson. Based on this, he/she asks the pupils some questions;
2. Teacher organizes pupils in groups or pairs.
3. Teacher provides each group or pair with different measuring cylinders, cups and jugs graduated jars and cups.
4. Teacher asks to compare similar cylinder, cup and jug with one another and also against others. For example, cylinder to cylinder, cylinder to cup and jug.
Pupil's Activities – Compare different cylinder, cup, jug, etc. with one another.
5. Teacher provides bucket of water for the ascertain their comparison and describe.
Pupil's Activities – Use water to support and describe the activity 4.
6. Teacher uses the pupil's responses to introduce the lesson measuring the volume of liquids.
Pupil's Activities – Participate actively in lesson introduction to understand the concept of measuring the volume of liquid.
7. Teacher uses appropriate charts to guide pupils in groups or pairs to measure the volume of water using graduated cylinder, cup or jug using their appropriate metric unit.
8. Teacher also guides pupils to measure liquid non graduated cylinder, cup and jug.
Pupil's Activities – Measure the volume of liquids using graduated and non graduated cylinder, cup or jug compare and describe the accuracy.
9. Teacher leads pupils in groups or pair to improvise different measuring cylinders, cups or jugs with estimated scales.
10. Teacher allows pupils to measure the volume of liquid using improvised measuring cylinder, cup or jug, record and compare with graduated ones.
Pupil's Activities – Improvise and calibrate measuring cylinders with scales estimated in metrics units. Find equivalent volumes of market measures using standard calibrated instruments.
11. Teacher uses the measurement with appropriate metric units to discuss the relationship between the metric units.

13. Teacher guides pupils in groups or pairs to convert metric unit to one another.
14. Teacher displays written volume of content in common soft drinks and juice drink packs (e.g. coke 35cl).
Pupil's Activities – Finds out volumes of soft drinks and juice drinks on their packs.
15. Summarizes the lesson on the board.
Pupil's Activities – Participate actively in the lesson summary and write as instructed.

**CONCLUSION**

- To conclude the lesson for the week, the teacher revises the entire lesson and links it to the following week's lesson.

**LESSON EVALUATION: Teacher asks pupils to –**

1. Measure amounts of liquids accurately using graduated measuring cylinders.

2. State 3 instruments used to measure liquids.

3. Identify and state the metric units of the instruments mentioned in question 2.

4. Mention the metric units of volume.

5. List 4 other liquids apart from water.

6. State 2 conditions that can affect the accuracy of the measurement of liquid.

7. Describe how to make an improvised measuring cylinder,cup or jug.

8. Improvise a measuring cylinder with estimated scales in metric system.

9. Change the following to its equivalent metric unit:

- 35cL = _____ L
- 5L = _____ mL
- 100mL = _____ cL
- 1L = _____ mL

**WEEK: 10** **DAY:** **SUBJECT:**

**DATE:** **TOPIC:**

**SUBTOPIC:** **PERIODS:** **DURATIONS:**

## Second Term Basic Science E-Lesson Note

**PREVIOUS LESSON –**

**TOPIC –**

**PERFORMANCE OBJECTIVES**
By the end of the lesson, most of the pupils should have attained the following objectives –

1. Identity the materials for measuring solids.

2. State metric units of weight.

3. Measure the volume of regular and irregular solids accurately.

4. Attempt the weekly assessment correctly.

**ENTRY BEHAVIOR: The pupils can different between regular and irregular solid.**
**INSTRUCTIONAL MATERIALS**
The teacher will teach the lesson with the aid of:

1. Objects in the classroom e.g. cupboard, school box, books, etc.

2. Stone

3. Water

4. Metre rule

5. Tape

7. Rule

8. Beakers

9. Measuring cylinders.

**CONTENT: MEASUREMENT – MEASURING SOLIDS**

**LESSON 1 – INTRODUCTION**
Objects are material things that can be seen and touched.

There are various types of objects found in our environment.

These have different shape and sizes.

## Second Term Basic Science E-Lesson Note

We have objects with regular and irregular shapes.

Examples of regular objects are chairs, tables, books, pencils, chalk boxes, etc. While examples of irregular objects are the pieces of broken glass, a piece of stone, a broken piece of brick, leaf, etc.

Objects occupied space.

The space occupied by any object is known as volume.

***The volume of an object is the amount of space occupied by the object or shape.***

The metric units of a solid volume is cube metre ($m^3$) and cube centimetre ($cm^3$).

**MEASURING THE VOLUME OF REGULAR SOLIDS**

A regular solid shape has a length (L), breadth (B) and height (H).

***The volume of a regular solid objects = Length x Breadth X Height ($m^3$).***

To measure the volume of a regular solid correctly, we need a ruler or measuring tape to measure and multiply the length, breadth and height together.

**GROUP OR PAIRS ACTIVITY 1**

Teacher provides common regular solid shapes (such as dictionary, empty packet of indomine, etc.) to each of the groups/pairs and guides them –

1. identify the length, breadth and height of the shape and name them L, B and H.

2. measure and record the length, breadth and height as:

- L= ____ cm
- B = ____ cm
- H = ____ cm

3. multiply all the lengths together.

4. write your result as ____ $cm^3$.

**LESSON 2 – MEASURING THE VOLUME OF IRREGULAR SOLID SHAPES**
***The volume of an irregular solid objects***

***= volume of object + water – volume of water ($m^3$)***

To measure the volume of a small irregular solid, follow the steps below:

1. Put some water in a measuring graduated cup or cylinder.

2. Take the reading of the volume and record it.

3. Gently drop the object (i.e. irregular solid) into the liquid in the cylinder or cup.

4. Take the reading of the new volume and record it.

5. Substrate the first volume from the second volume.

**LESSON 3 – REVISION AND WEEKLY ASSESSMENT (TEST)**
**PRESENTATION**
To deliver the lesson, the teacher adopts the following steps:

1. To introduce the lesson, the teacher revises the previous lesson. Based on this, he/she asks the pupils some questions;

2. Teacher organizes pupils in groups or pairs depending on the size of the class.

3. Teacher provides each group or pairs with different regular and irregular solid shapes.

4. Teacher guides the groups or pairs to identify unique different among the solid shapes.

Pupil's Activities – Examine the shapes, compare state and describe the shapes.

5. Teacher listens to the groups or pairs and uses their similar and reasonable responses to introduce the lesson – measuring the volume of solid shape.

Pupil's Activities – Pay attention to the lesson introduction to understand the concept of the lesson.

6. Teacher asks pupils to give examples of regular and irregular solid solid shapes in the classroom.

Pupil's Activities – Differentiate between regular and irregular solid objects with appropriate examples.

7. Teacher guides the groups or pairs to identify the length, breadth and height of the regular solid shapes.

8. Teacher provide the groups or pairs with rule and measuring tape, guide them to measure the length, breadth and height correctly.

Pupil's Activities – Identify the lengths of regular shapes and measure. them correctly.

9. Teacher asks pupils to multiply the lengths together.

10. Teacher tells pupils that, the result is known as volume of regular solid shape with accurate metric unit(s).

Pupil's Activities – Multiply the lengths together with appropriate metric unit.

11. Teacher lets pupils to know that, the measurement of irregular solid shape is different from regular solid shape.

12. Teacher provides each group or pair with a stone, writing materials and graduated cup or cylinder containing water.

13. Teacher guides the groups or pairs through the process of measuring irregular solid shape.

Pupil's Activities – Get the necessary materials and follow the teacher's instructions to measure the volume of irregular solid objects.

14. Teacher celebrates the pupils for their active participation.

Pupil's Activities – Celebrate one another.

16. Summarizes the lesson on the board.

Pupil's Activities – Participate actively in the summary of the lesson and write as instructed.

**CONCLUSION**

To conclude the lesson for the week, the teacher revises the entire lesson and links it to the following week's lesson.

**LESSON EVALUATION**

Teacher asks pupils to:

1. measure the volume of regular solids such as small book, big book, matchbox, empty box of square, etc.

2. measure the volume of irregular solids stone, sand, etc.

3. Find the volume of the solid whose

- L = 5 cm, B = 2 cm and H = 5 cm
- L = 10 m, B = 2 m and H = 5 m
- L = 8 cm, B = 4 cm and H = 12 cm

4. Find the length of a shape whose breadth is 4 cm, height is 2 cm and volume is 24 $cm^3$.

# Second Term Basic Science E-Lesson Note

PERIOD II

**PERFORMANCE OBJECTIVES**
By the end of the lesson, most of the pupils should have attained the following objectives –

1. devise ways to measure time;

2. state the standard unit for measuring time;

3. name the instrument for measuring time;

4. use standard instruments to measure time;

5. construct and use simple time devices.

**ENTRY BEHAVIOURS**
The pupils can say the time for breakfast, lunch and dinner, school assembly, short and long break, closing time for junior and senior pupils, time for religion activities, etc.

**INSTRUCTIONAL MATERIALS**
The teacher will teach the lesson with the aid of:

1. A chart showing some time measuring devices.

2. A chart on the standard units for measuring time.

3. Stop watches

4. Empty bottles

5. Water

6. Shoes with laces,

7. Plastic funnels and dry sieved sand

**LESSON 1 – INTRODUCTION**
There are many events around.

We use clock to measure events around.

For examples, the time for

## Second Term Basic Science E-Lesson Note

- Breakfast, lunch and dinner
- School assembly
- Short and long break
- Closing
- Church service on Sunday
- Jumaat service on Friday, etc.

A clock is one of the instruments for measuring time.

***Time is the ongoing sequence of events taken place. It is also the past, present and future.***

The time of day is built around a 24 hour clock and there are 2 ways to tell the time based on the hour and minute of the day – AM/Pm or 24 hour clock.

**DIFFERENT PARTS OF A CLOCK**

The clock has different parts.

Each part is normal called hand.

That's,

1. Second hand

2. Minute hand

3. Hour hand

The second hand is the smallest hand.

**SECOND**

Second is used for measuring a short length of time.

Digital stopwatch or clock is the best and easiest equipment used for measuring seconds.

It is very important to able to read analog

**MINUTES**

Minute is used for measuring time that is likely to be longer than 60 seconds.

## Second Term Basic Science E-Lesson Note

The best equipment for measuring minutes is stop clock or watch.

Ordinary watches/clocks can be used but your measurements may not be accurate.

**HOUR**

Hour is used for measuring a longer period of time usually a day or week.

The best equipment for measuring hours is clock or watch.

**INSTRUMENTS/MATERIALS FOR MEASURING TIME**

Throughout history, there are various instruments or materials that have been used to measure time such as –

1. Table clock

2. Wall clock

3. Wrist watch

4. Hourglass

5. Candle sticks

6. Pendulum clock

7. Sundial

8. Chronometer

9. Sunlight

**LESSON 2 – METRIC UNITS OF TIME**

The basic unit of time is the second.

There are also minutes, hours, days, weeks, months and years.

Other are decade, centuries and millennia.

For examples,

60 seconds = 1 minute

60 minutes = 1 hour

24 hours = 1 day

## Second Term Basic Science E-Lesson Note

7 days = 1 Week

52 weeks = 1 year

365 days = 1 year

**QUESTIONS ABOUT TIME**

1. What are the days of the week?

Monday, Tuesday, Wednesday, Tuesday, Thursday, Friday, Saturday and Sunday.

2. What are the months of the year?

January, February, March, April, May, June, July, August, September, October, November and December.

3. What are the months of the year?

Each calendar year is exactly 365 days, 5 hours, 48 minutes, and 46 seconds.

4. Sing the song about the months.

30 days hath September,

April, June, and November

All the rest have 31,

Excepting February alone,

And that has 28 days clear

And 29 in each leap year.

5. What do AM and PM stand for?

AM stands AM for ante meridian, which means before noon.

PM stands for post meridian, which means afternoon.

6. What is the difference between a millennium and a century?

A millennium is 1,000 years.

A century is 100 consecutive calendar years.

7. Complete the following:

- 7 days = _____ week.
- 3 months = _____ year.
- 6 months = _____ semester.
- 12 months = _____ year.
- 10 years = _____ decade.
- 100 years = _____ century.
- 1000 years = _____ millennium.

**ANSWER KEY**

- 1 week
- Quarter year
- 1 semester
- 1 year
- 1 decade
- 1 century
- 1 millennium

**INDIVIDUAL ACTIVITY**
Drawing a wall clock, table clock and wrist watch.

**LESSON 3 – FIELD ACTIVITY/SPORT**
**Teacher's Activity**

- Teacher organizes pupils in groups or pairs depending on the size of the class.
- Teacher lets each groups or pair to choose 2 or more representative.
- Teacher gets support from colleagues to measure the time taken.

**GROUP/PAIR ACTIVITY 1 –** Filling an empty bottle of water.

## Second Term Basic Science E-Lesson Note

**GROUP/ACTIVITY 2 –** Fastening and loosening shoe laces.

**Group/ACTIVITY 3 –** Run from one end of the football field to the other, etc.

**PROJECT**
Construct and use simple measuring device such wall clock or Pendulum clock

**PRESENTATION**
To deliver the lesson, the teacher adopts the following steps:
1. Teacher revises the previous lesson.
2. Teacher organizes the pupils in groups or pairs depending on the size of the class.
Pupil's Activities – Identify the groups or pairs he/she belongs.
3. Teacher displays wall clock, clock table or wrist watch.
4. Teacher lets pupils identify each object, differentiate and state their uses.
Pupil's Activities – Identify the wall clock, clock table or wrist watch and state their uses.
5. Teacher leads pupils to state some of the events time is used for.
Pupil's Activities – Participate actively on the important uses of time.
6. Teacher uses pupil's responses to introduce the lesson – Measuring the time.
Pupil's Activities – Pay attention to the lesson introduction to understand the concept of measuring time.
7. Teacher leads a analyze the importance of time in our daily activities with appropriate illustrations.
Pupil's Activities – State the usefulness of home.
8. Teacher helps pupils to identify and state the metric units of time using the function of each clock's hands.
Pupil's Activities – Identify metric units using clock at home
9. Teacher displays chart showing different instruments for measuring time.
10. Teacher explain each of the instruments.
Pupil's Activities – Identify and describe as explained by the teacher.
11. Teacher leads a discussion on questions about time.
Pupil's Activities – Answer most of the questions about time.
12. Teacher uses the existing groups or pairs for field activities as stated in lesson 3.
Pupil's Activities – Identify their group members or pairs.
13. Teacher summarizes the lesson on the board.
Pupil's Activities – Participate actively in the summary of the lesson and write as instructed.

**CONCLUSION: To conclude the lesson for the week, the teacher revises the entire lesson and links it to the following week's lesson.**

**LESSON EVALUATION: Teacher asks pupils to:**
1. Devise ways to measure time.
2. State the standard units for measuring time.
3. Name three instruments for measuring time
4. Use standard instruments to measure time
5. Construct and use simple time devices.
6. State 5 instruments used for measuring time.

## Second Term Basic Science E-Lesson Note

7. Complete the following:
   - 7 days = _____ week.
   - 3 months = _____ year.
   - 6 months = _____ semester.
   - 12 months = _____ year.
   - 10 years = _____ decade.
   - 100 years = _____ century.
   - 1000 years = _____ millennium.

**WEEK: 11** **DAY:** **SUBJECT:**

**DATE:** **TOPIC:**

**SUBTOPIC:** **PERIODS:** **DURATIONS:**

**PREVIOUS LESSON –**

**TOPIC –**

**PERFORMANCE OBJECTIVES**
By the end of the lesson, most of the pupils should have attained the following objectives –

1. State the meaning of shape construction.

2. List materials used for shape construction.

3. Identify and state tools used in shape constructions.

4. Fold and bend cardboard to form an object.

**ENTRY BEHAVIOUR : The pupils can construct fan, Kite, cube, cuboid, house, car, aeroplane, etc. with papers.**
**INSTRUCTIONAL MATERIALS : The teacher will teach the lesson with the aid of:**
1. Chisel

2. Snips

3. Scissors

4. Pliers

5. Hammer

6. Mallets

7. Cardboard

8. Sheet of metal

**CONTENT: SHAPE CONSTRUCTION WITH PAPER**

**LESSON ONE – INTRODUCTION**

Shapes can be flat and 2-dimensional, like a rectangle or a triangle.

However, ***shape construction is the making of different 3-dimensional shapes such as cylinder, cone, funnel, box, etc. using paper.***

Materials can be reshaped by bending, folding, cutting or joining.

**MATERIALS USED FOR SHAPE CONSTRUCTION**

Materials used for shape construction are as follows:

1. Paper

2. Wood

3. Metal

Other materials in shape construction are cutting tools are scissors, cardboard, glue or gum, brush, plier, sellotape, clip and nails or pins.

**SHAPES THAT CAN BE CONSTRUCTED WITH PAPER**

Examples of shapes that could be constructed with paper are as follows:

1. A box

2. A cuboid

3. A cylinder

4. A cone

5. A funnel

6. A pyramid

## Second Term Basic Science E-Lesson Note

### LESSON 2 – CUTTING TOOLS USED IN SHAPE CONSTRUCTION

The cutting tools used in shape construction are as follows:

1. Scissors
2. Plier
3. Chisel
4. Saw
5. Knife
6. Snips

### SHAPE CONSTRUCTION METHODS

There are different methods used in shape construction such as:

1. Folding
2. Bending
3. Cutting
4. Joining

***The various materials used in shape construction will determine the type of method that will be used.***

### LESSON 3 – SHAPES CONSTRUCTION WITH PAPER

### TEACHER ACTIVITY

- Teacher organizes pupils in groups or pairs depending on the size of the class.
- Teacher guides and asks pupils in groups or pairs to construct any of the solid shapes using cardboard paper, sellotape and scissors – box, cylinder and pyramid.

### PRESENTATION

To deliver the lesson, the teacher adopts the following steps:

1. To introduce the lesson, the teacher revises the previous lesson.
2. Teacher displays sample of shapes constructed with paper. For example – box and cylinder.

3. Teacher lets pupils identify each of the shape and state other shapes that can be constructed with paper.

Pupil's Activities – Identify and name each of the shape displayed.

4. Teacher asks pupils in groups or pairs to describe the process of making each shape displayed.

Pupil's Activities – Describe the process of constructing shapes with paper.

5. Teacher uses the pupils responses to introduction the lesson – shape construction with paper and discuss shape construction methods.

Pupil's Activities – Pay attention to the lesson introduction to understand the concept of shape construction with paper and their methods.

6. Teacher helps and asks pupils to state the materials used for shape construction with paper.

Pupil's Activities – State materials used for shape construction with paper.

7. Teacher displays materials used for cutting in shape construction.

Pupil's Activities – Observe the cutting tools displayed and describe.

8. Teacher demonstrates and guides pupils in groups or pairs to construct shapes such as cone, cylinder, box, cuboid with paper.

Pupil's Activities – Watch the demonstration of how to construct shapes and construct shapes using cardboard.

9. Teacher summarizes the lesson on the board.

Pupil's Activities – Participate actively in the summary of the lesson and writes as instructed.

**CONCLUSION**

- To conclude the lesson for the week, the teacher revises the entire lesson and links it to the following week's lesson.

**LESSON EVALUATION**

Teacher asks pupils to:

1. Explain the meaning of shape construction.

2. List 5 materials used for shape construction.

3. Give 5 examples of shapes construct with paper.

4. State 5 tools used in shape constructions.

5. Describe the following:

- folding
- bending
- cutting
- joining

6. Differentiate between folding and bending with appropriate examples.

**WEEK: 12- EXAMINATION**