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P.4 SCIENCE SELF- STUDY LESSONS SET 2

LESSON 1

TOPIC : CROP GROWING

SUBTOPIC: CARING FOR CROPS IN THE GARDEN.

By the end of this lesson, the learner should be able to:

- Identify and define different crop growing practices done to care for crops.
- Identify different garden tools used to carry out the different practices done to care for the crops.

Introduction:

- When crops are planted in the garden, it doesn't end there for the farmer. A number of activities are done to care for the crops in order for them to grow well and yield highly.

These practices include:

- Weeding
- Manuring
- Pruning
- Thinning
- Watering
- Mulching
- Training
- Spraying

WEEDING:

- Weeding is the removal of unwanted plants from the garden.
- The unwanted plants in the garden are known as **weeds.**

Advantages of weeds

i. Increase soil fertility
ii. Sources of food
iii. Control soil erosion
iv. Thatching houses

Disadvantages of weeds

i. Weeds hide pest
ii. Compete with plants for water and nutrients.
iii. Some weeds are poisonous when eaten

Examples of weeds

i. Star grass
ii. Nut grass
iii. Elephant grass (Bisagazi)
iv. Couch grass
v. Finger millet grass
vi. Wondering grass (ennanda)
vii. Black jack

Ways of controlling weeds

i. Uprooting and burning them
ii. Cutting and burying them
iii. Spraying herbicides
iv. Mulching(planting cover crops

MANURING

This is the addition of fertilizers to the soil

i. Manure can be got from **animal dung** or **rotting plants**
ii. Manure got from animal dung is called Farm Yard Manure (FYM)
iii. Manure is got from rotting plants called **Green manure**.
iv. Manure got from house hold refuse is compost manure.

MULCHING

- Is the covering of top soil with dry plant **materials**
- Mulches:- are dry plant materials used to cover top soil ***e.g.***

i. dry grass
ii. saw dust
iii. coffee husks
iv. banana leaves
v. wood shavings
vi. dry leaves
vii. banana fibres

Importance of mulching

i. Mulching keeps water in the soil for a long time
ii. Mulching control soil erosion
iii. Mulching keeps the soil fertility
iv. Controls the growth of weeds in the garden

Disadvantages of mulching

i. Mulches can hide pests
ii. Mulches can catch fire and burn crops
iii. Mulches can grow into weeds

Exercise

1. Define the following

a) Mulching
b) Mulches
c) Weeding
d) Weeds

2. Give two values of mulching crops
3. Identify three ways of controlling weeds
4. Write FYM in full?
5. What is manuring?
6. How is manuring of soil important?
7. Write down four examples of weeds
8. Why is mulching carried out in the dry season?

LESSON 2

TOPIC : CROP GROWING

SUBTOPIC: CARING FOR CROPS IN THE GARDEN

By the end of this lesson, you should be able to:

- Identify and define different crop growing practices done to care for crops (thinning, pruning, spraying.).
- Identify different garden tools used to carry out different practices done to care for the crops.

Introduction

- As a child, you have experienced an incident when you were asked to plant 3 seeds per hole and you end up planting more than 3 in a hole at once.
- All the seeds planted will all grow and this isn't good thing in planting.
- The excess seedlings are not needed in the garden and hence need to be removed.

THINNING:

- Thinning is the removal of excess crops in a garden or seedlings in a nursery bed.

Why we thin crops / importance of thinning

i. It is done to avoid over crowding
ii. To give space to the good growing plants or seedlings

iii. It controls pests by destroying hiding places for pests.

Crops that are thinned

- Banana plants
- Tomatoes
- Maize
- Sorghum.
- Rice
- Finger millet
- Cassava
- Soya beans

PRUNING

- Pruning is the removal of excess branches from a growing plant.

Advantages of pruning

i. To reduce the weight of the plant
ii. Remove hiding places for pests
iii. Pruning controls the rate of transpiration.
iv. Allows a plant to receive enough sun light
v. Enables a plant to give high yields

Plants which are pruned include:-

i. Oranges
ii. Bananas
iii. Coffee
iv. Maize
v. avocado
vi. Mangoes
vii. Sugar cane

- The garden tool used for pruning is called **secateurs**. But also **shears** and **pruning sew** can be used.

SPRAYING CROPS

- This is when chemicals are sprayed on crops in order to control pests and diseases.
- A knap sack sprayer is used during this farming practice.

WATERING

- This farming practice is carried out to support plant growth during the dry season.

Exercise

1. What do you understand by the following
   a) Thinning
   b) Pruning
2. Name the garden tool used for pruning
3. Name any three crops that can be thinned
4. Why do we thin crops?
5. Give two reasons why crops are pruned
6. Name the garden the garden tool used by farmers to spray their crops with chemicals to control pests and diseases.

LESSON 3
TOPIC : CROP GROWING
SUBTOPIC: HARVESTING CROPS

By the end of this lesson, the learner should be able to

- Identify and define different crop growing practices done to care for crops.
- Identify different ways crops are harvested.
- State ways in which different crops are harvested.
- Give reasons for harvesting ready crops.
- Explain the reason why only ready crops should be harvested

Introduction;

- When plants are ready or ripe, they need to be removed from the garden.
- A farmer who has cared for his crops expects to have a big harvest which will feed his family and also sells some food to get money.

Read and spell the words below:

- Uprooting
- Cutting

- Knap sack sprayer
- Pruning.
- Thinning
- Harvesting

Harvesting:

- Harvesting is the removal of ready crops from the garden.
- Harvesting is mostly done during the dry season for proper drying of seeds/ crops.

Methods of harvesting

i. By picking
ii. By uprooting
iii. By cutting
iv. Digging

Tool used to harvest

i. Knives
ii. Hoes
iii. Sickle
iv. Panga

Crops harvested by picking

Fruits like:-

i. Mangoes
ii. Pawpaw
iii. Tomatoes
iv. Coffee
v. Cotton
vi. Tomato

Crops harvested by digging using hoes

i. Cassava
ii. Potatoes
iii. Yams
iv. Carrots
v. Irish potatoes

Crops harvested by cutting using knives (cereals)

i. bananas
ii. sugar cane
iii. maize
iv. millet
v. rice
vi. sorghum

vii. barley
viii. oats

Crops harvested by picking using hands

i. coffee
ii. cocoa
iii. pawpaw
iv. mangoes
v. oranges

Crops harvested by uprooting using hands

Note that all legumes are uprooted using hands these include:

i. Ground nuts
ii. Beans
iii. Soya beans

Advantages of harvesting

i. To prevent plants from rotting in the garden.
ii. To prevent pests from eating ripe (ready) crops.

Disadvantages of early harvesting

i. Seeds can easily be affected by pests
ii. Young crops can easily rot
iii. Poor quality seeds are harvested
iv. Seeds may not be good for planting

Exercise

1. What is harvesting?
2. Give any two methods of harvesting.
3. Write down three ways of controlling pests.
4. State any two disadvantages of early harvesting.
5. Name any two crops harvested by uprooting.
6. Why should farmers only harvest ready crops?
7. Why are some crops harvested by using hands?

LESSON 4

TOPIC : CROP GROWING

SUBTOPIC: PESTS AND DISEASES

By the end of this lesson, you should be able to:

- Define pests and disease
- Identify different pests and diseases that attack different crops
- Give the various ways of controlling pests and diseases
- Identify signs on crops that were affected by pests.
- State the effects of pests and diseases on crops.

Introduction

- Many times you have been served with beans and you happen to see small insects which were cooked within beans.
- Those insects feed on the beans when stored but then destroy the farmer's crops.
- These living organisms can attack crops both in the garden before harvesting or after harvesting during storage.
- These organisms are called pests.

Pests and pest control

- Pests are living organisms that destroy or damage crops

STORAGE PESTS

These are pests that destroy harvested crops that are in store. They include

i. Rats
ii. Weevils -bean / maize
iii. Termites

Garden pests are pests that destroy or damage crops while in the garden. They include;

i. Termites
ii. Monkey
iii. Squirrel
iv. Mole rat

Pest control: These are the ways or method used to stop pests from destroying crops.

Ways of controlling pests

i. Spraying crops using pesticides
ii. Use of scare crows
iii. Guarding crops
iv. By crop rotation
v. By uprooting crops with pests
vi. By trapping using traps

vii. By planting materials free from pests and diseases

Study the table below

PESTS	CROP DAMAGED	DISEASE
Birds, rats, maize, stalk borer	Maize	• White leaf bright • Maize streak • Virus, maize rust
• Bean fly • American ball worm • Beanaphid • Bean bruchids cut worm	Beans	• Bean rust • Halo blight • Angular leaf spot and mosaic
• Thrips • Millipedes, ants, termites • Weevils • Aphids • G/nut hoppers • Squirrels • Rats • Molerates	Ground nuts	• G/nut rosette • leaf spot disease • Bacteria with ground nut blight
• Pod borer • Blossom beetles • Thrips and pod • Sucking insects	Cow peas	Zonate leaf spot Cow peas mosaic virus
• White scales	Cassava	Cassava mosaic brown streak virus (these attack the leaf)
• Potato weevil • Caterpillars • Rats	Sweet potatoes	Sweet potato virus.

Other diseases

i) Panama disease
ii) Cigar end rot
iii) Banana bacterial wilt
iv) Tomato blight
v) Cassava mosaic
vi) Rust
vii) Brown streak
viii) Potato blight

Exercise

1. What are crop pests?
2. Why are bean weevils regarded as storage pests?
3. Identify one sign on crops affected by pests.
4. Suggest two ways of controlling crop pests in:
    a) The garden.
    b) The store.
5. How does crop rotation control pests and diseases?
6. Identify one disease that attacks cassava.
7. Suggest one effect of pests and diseases on the farmer's crops.
8. Mention any one biological method of controlling pests in the garden.

LESSSON 5
TOPIC : CROP GROWING
SUBTOPIC: STORAGE OF HARVESTED CROPS

By the end of this lesson, the learner should be able to

- Suggest reasons why it is important to store crops.
- State the pests that attack crops during storage.
- Identify storage facilities for harvested crops.
- Explain conditions for proper food storage.

INTRODUCTION:

- In the previous lesson, we discussed that when crops are ripe, the farmer has to harvest them.
- Since the farmer can not consume/ eat all the harvested crops at once, he/she has to store some harvested crops for future consumption or for planting in the next season.

Read and spell these words

- Silos
- Granaries
- Rat guards
- Sacks

STORAGE OF HARVESTED CROPS

- Storage is the keeping of surplus food safely after harvesting.

Places where harvested crops are stored

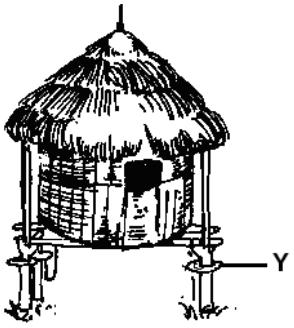
i. Granaries
ii. Sacks
iii. Boxes
iv. Silos

- Harvested crops are first put in the sacks then stored in the granaries or stores
- Seeds and cereals are stored in the **granaries.**

Conditions for proper storage of food

i. Seeds or grains should be kept when they are dry. Drying of seeds/grains prevents seeds from rotting.
ii. Stores should have good ventilation for free exchange of gases
iii. The roof of the store should not leak or they should be water proof
iv. Rat guards should be fixed on the granary to prevent rats from entering into the granary.
v. The seeds should be dusted with pesticides to control storage pests.

Structure of a granary



Y- rat guards.

Examples of storage pests

- Bean weevils
- Rats
- Harvest mites
- Storage beetle.
- Maize weevils Etc.

Importance of storing food

i. To prevent wastage of food
ii. To sell when the market is good
iii. To get what to eat in the dry season
iv. To get what to plant in the next season
v. To have constant supply of food to eat and sell
vi. be dusted with pesticides in case of pests

Exercise

1. State one importance of storing food.
2. Why are rat guards put on granaries?
3. Give one reason why it is important to dry seeds/cereals before being stored?
4. Mention any on pest that attacks stored crops.
5. State one condition of a good storage house for harvested crops
6. State the importance of the rat guards on a granary.
7. Which storage pest is known for affecting the bean seeds?
8. How can a farmer protect his stored beans from the above pest?

Topical test (Crop growing)

1. Give any one reason why people grow crops
2. State one crop that provides flour to people.
3. What are perennial crops?
4. How does painting prevent garden tools from rusting?
5. Name the garden tool for transplanting.
6. Why is a rat a pest?
7. State one characteristic of perennial crops.
8. Draw the garden tool used for watering.
9. Mention one sign of cassava mosaic.
10. How does spraying help to prevent pests?
11. Mention one way mulching keeps soil fertile.
12. Give any one reason for preparing land.
13. What are pesticides?
14. Write two types of food path.
15. Why do farmers harvest crops in the dry season?
16. Mention one method of planting crops.
17. State one activity that can help to remove weeds from the garden.
18. How are rats prevented in granaries?
19. What is pruning?
20. How is pruning helpful to the growing plant?
21. Name one crop planted in a nursery bed.
22. Give one reason why the above plant is grown in a nursery bed first?
23. When are the above stated crops transplanted to the main garden?

LESSON 6

TOPIC : WEATHER CHANGES AROUND US

SUBTOPIC: WEATHER

By the end of this lesson, you should be able to:

- Define weather
- Identify different elements of weather
- State the conditions/types of weather.
- Identify activities that can be done in different weather conditions.

INTRODUCTION;

- In P.1, P.2 and P.3, we learnt about weather changes in our environment, the different types of weather and the elements of weather.
- In this topic we shall explore more about weather since it affects our day to day activities including farming which we have just covered.
- Focus should also be put on the new vocabularies and spellings.

Read, spell and look up the meaning of these words:

- Atmosphere
- Evaporation
- Condensation
- Hydrometer
- Hygrometer
- Weather
- Atmospheric
- Condition
- Recorded
- Evaporation
- Condensation
- Transpiration

Weather changes around us

- What is weather?
  - Whether is the state of the atmosphere at a given time in a particular place .

Elements of weather and their instruments

- Elements of whether are the factors that make up weather. These include:

a) Temperature
b) Sunshine
c) Humidity
d) Rainfall
e) Wind

Conditions / types of weather

- Windy weather
- Cloudy weather
- Rainy weather
- sunny weather

Illustration of the above weather conditions

<table>
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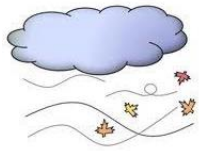
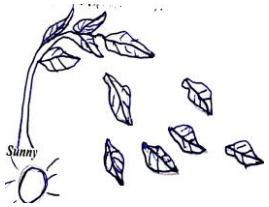
<td>Windy
 
  </td>
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 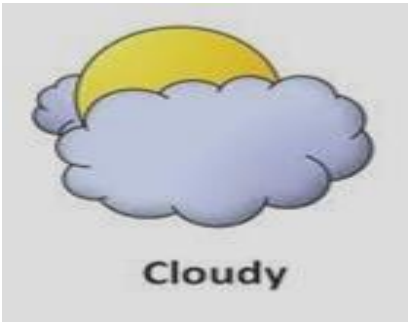 </td>
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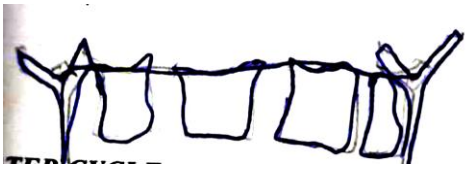
<tr>
<td>Sunny
 
  </td>
<td>Rainy
  </td>
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Exercise

1. What is weather?
2. Mention any two elements of weather.
3. Which element of weather helps to dry harvested crops?
4. Suggest one way a P4 child can manage the rainy weather.

5. How is windy weather useful to a farmer?
6. Mention one activity that can be done in the weather conditions below:
   a) Rainy weather
   b) Windy weather

LESSON 7
TOPIC : WEATHER CHANGES AROUND US
SUBTOPIC: WATER CYCLE
CONTENT: WATER CYCLE
By the end of this lesson, you should be able to:

- Explain a rain cycle
- Identify the different processes that take place in the rain cycle
- Give the importance of each component in the rain cycle.

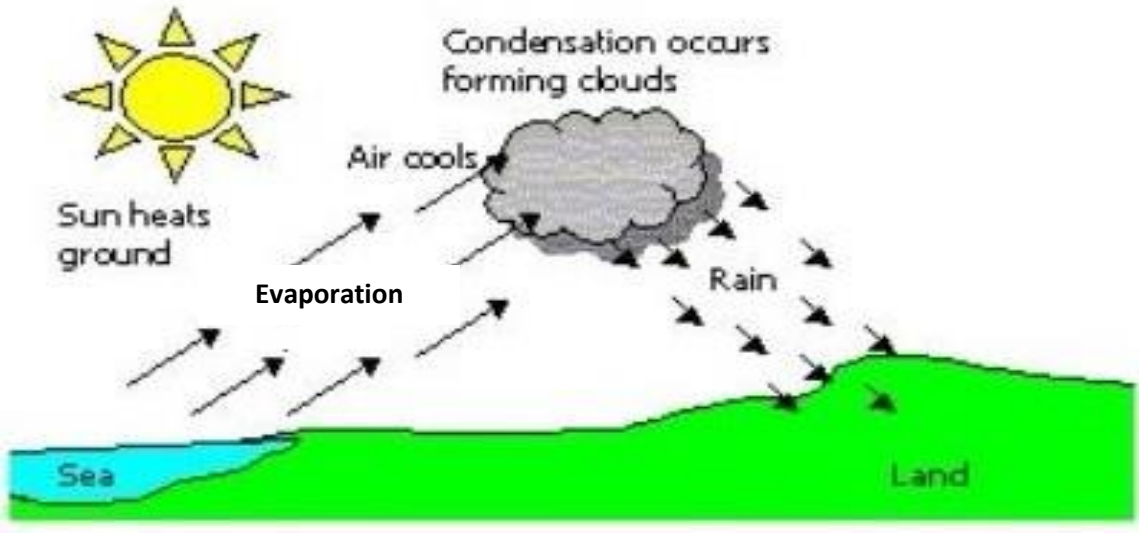
Introduction

- We are going to study the process through which rain is formed and how water bodies are able to retain water all the time.
- The natural environment in which we are has a great contribution towards the formation of rain fall and this includes; plants, water bodies and mountains/hills.
- This is the reason why all of us need to preserve the environment since it helps in the formation of rain fall.

The rain/water cycle

- The water cycle means the process in which water is recycled and transformed from one state to another.
- The water cycle also shows the continuous process through which water is preserved.

Study the illustration of the water cycle below carefully



Note:

- When the sun heats the water bodies and plants, evaporation and Transpiration occur in which water changes to vapour and move into the sky.
- **Evaporation** is the process by which water turns to vapour. (Liquid to gasses)
- **Transpiration** is the process by which plants lose excess water to the atmosphere through their leaves
- At the condensation level in the sky, the water vapour condenses to form nimbus clouds which later fall as rain.
- **Condensation** is the process by which vapour changes to water. (Gases to liquids)

Importance of each component in the rain cycle

- Sun –provides heat for evaporation and transpiration to take place on water bodies and plants respectively.
- Plants –carry out transpiration
- Water bodies – undergo evaporation.

Exercise

1. State importance of the following in the water cycle.
   a) The sun
   b) Water bodies
   c) plants
2. Define the term transpiration.
3. How is the sun important in the water cycle?
4. What happens to the water body when it receives the heat from the sun?
5. Through what process does water vapour change to liquids.
6. What do you understand by the following terms:
   i. Condensation'
   ii. Transpiration

LESSON 8

TOPIC : WEATHER CHANGES AROUND US

SUBTOPIC: SOURCES OF WATER

By the end of this lesson, you should be able to:

- State the different sources of water.
- Mention different ways of protecting water sources
- Explain the different activities that lead to the contamination of water sources.
- Identify the dangers of contaminating water sources.
- State the practices that are done to make water safe for drinking.

Read and spell these words

- Oceans
- Boreholes
- Polio
- Dysentery
- Wells
- Spring

SOURCES OF WATER

These are things/ places where we get water.

NB: The main natural source of water is rain.

Other natural sources of water include:

i. Rivers
ii. Lakes
iii. Rain
iv. Oceans
v. Seas
vi. Springs

Sources of safe water for drinking

i. Bore holes
ii. Springs

Note

- Safe water is water which is free from germs.
- Water can only be made safe by boiling.
- Bore hole and spring water is safe for drinking because the water is obtained from the underground parent rocks. This water is filtered naturally through different soil layers thereby making it pure and safe.

Artificial sources of water

i. Well
ii. Borehole

RAIN FALL

- Rain is the condensed moisture falling from the atmosphere in separate drops.
- The process of rain formation has been explained above in the rain cycle.

Ways in which water sources are contaminated

i. Urinating
ii. Avoid defecating in water sources

Ways of protecting water sources

- Fencing water sources
- Avoid grazing animals in and near water sources
- Avoid bathing in water sources
- Avoid dumping wastes in water sources

Diseases spread through drinking water

- Diarrhea
- Polio
- Typhoid
- Dysentery
- Cholera
-

Importance of water sources

- Provide water
- Some are fishing grounds
- Some are habitat for some animals

Activity

1. Name the main source of water in the environment.
2. Identify one way of protecting water sources.
3. How can water be made safe for drinking?
4. Identify one disease spread through drinking contaminated water.
5. Suggest one importance of water sources in the environment.
6. Why is bore hole water safe for drinking even without boiling?

LESSSON 9.

SUBTOPIC: **Elements of weather**

By the end of this lesson, the learner should be able to

- Explain the different elements of weather.
- Identify the instruments used to measure the different weather elements and how they operate.

Introduction

- In the previous lesson, we learnt the different sources of water in our environment of which we identified rainfall as the main natural source of water.
- In this lesson, we shall learn how rainfall is measured and the conditions considered when using its instrument and all its components/parts.

Vocabulary

- Funnel
- Rain gauge
- Evaporation
- condensation

Life skill

- Problem solving

A RAIN GAUGE

- **A rain gauge**: Is an instrument used to measure the amount of rain fall received in an area.
- It has a funnel, metallic can and a measuring cylinder.
- The measuring cylinder is marked with units in millimeters.
- Rain is measured in millimeters to know how deep rain has sunk into the soil.

- **Metallic can**: is a container in which the funnel and measuring cylinder are put.;

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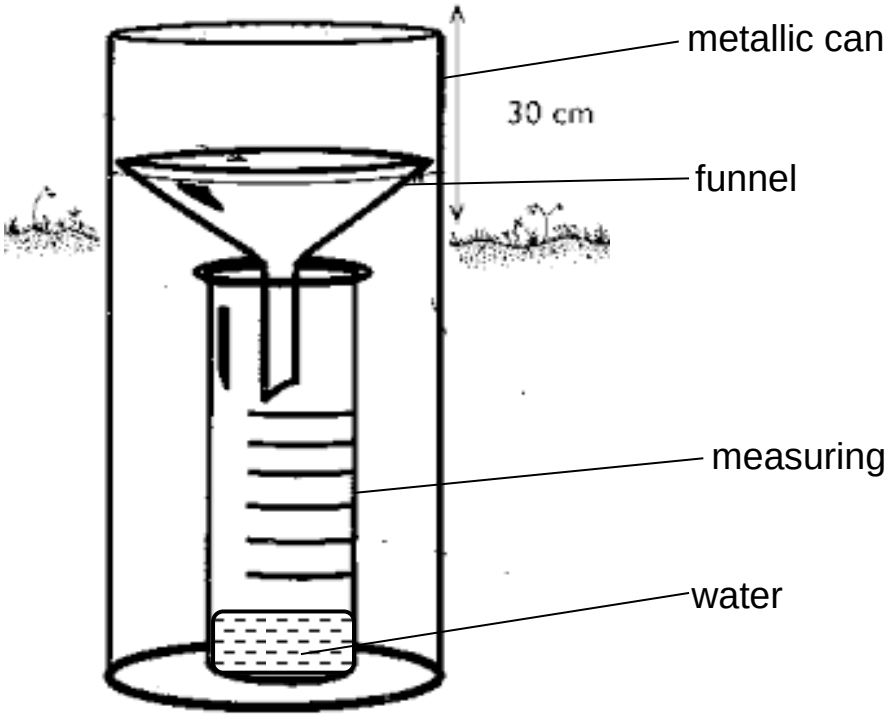
<u>Illustration</u>



A rain gauge should be placed at least 15cm below the ground.

- It should be placed in an open place to prevent obstruction of rain water .
- It is placed 30cm above the ground to prevent flowing and flashing water from entering.

Importance of rainfall records

i. Helps farmers to know the time for planting harvesting crops.
ii. For building constructors to make plans.
iii. Helps farmers to know which crop will be planted at that time.

Importance of rainfall

i. It cools temperature and humidity
ii. It is a source of water to people
iii. It provides water for crop growth
iv. Softens the soil for seeds to germinate
v. Helps farmers crops to grow quickly and have good yields.

Disadvantages of rain fall

i. A lot of rainfall spoils crops
ii. A lot of rain fall causes soil erosion.
iii. A lot of rainfall destroy roads.
iv. A lot of rainfall causes floods

Activity

1. Write down two importance of rainfall
2. Name the instrument used to measure the amount of rain fall
3. What is the function of the metallic can on a rain gauge
4. Why is rainfall measured in millimeters?
5. State one reason why a rain gauge placed 30cm above the ground?
6. How can rainfall be dangerous in the environment?

LESSON 10

SUBTOPIC: **Elements of weather(wind, humidity and sunshine)**

By the end of this lesson, the learner should be able to

- Explain the importance of sunshine and wind in the environment.
- Identify the instrument used to measure the intensity of sunshine and wind.

- State the dangers of too much sunshine and wind in the environment.

Vocabulary

- Sunshine
- Prolonged
- Minimum
- Humidity
- Anemometer
- Wind sock
- Wind vane

Life skill

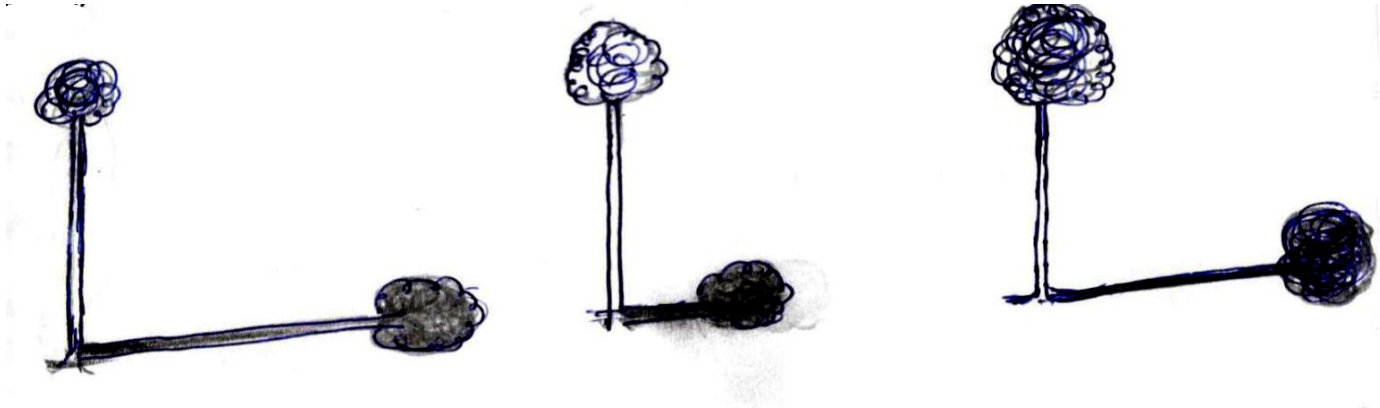
- Creative thinking

SUNSHINE

- This is the element of weather which raises the temperature of the environment.
- It is the main source of heat and light in the environment.
- The position of the sun during the day determines the position shadows of different objects.
- A shadow is formed when light falls on an opaque object.
- An opaque object is an object that doesn't allow light to pass through it.

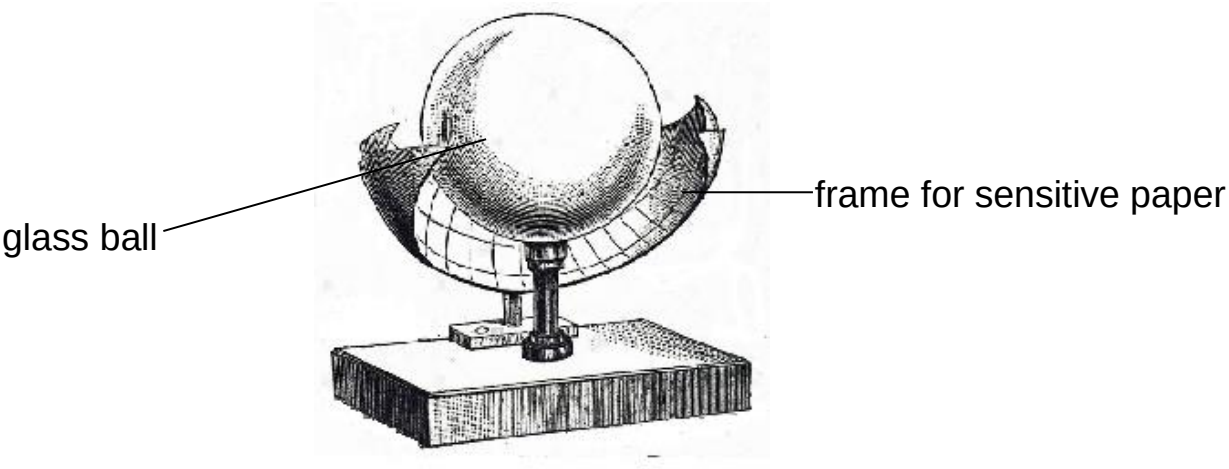
Illustrations

Morning **mid day** **evening**



- Shadows appear longest in the evening, and shortest at , midday/noon.
- The length of time the sun has shone on a particular day in a particular place is measured by an instrument called **<u>camp bell</u>/ sunshine recorder**.

<u>Illustration</u>



<u>Advantages of sunshine</u>

- It helps plants to make own food
- It dries harvested crops
- Helps in formation of rain fall
- It's a source of vitamin D
- It kills bedbugs and fleas when we put our beds in sunshine

<u>Disadvantages of sunshine</u>

- A lot of sunshine makes the day very hot.
- Prolonged sunshine can dry up rivers, streams and ponds.

<u>WIND</u>

- Wind is moving air.
- Air is the mixture of gases.

<u>Wind instruments</u>

a) Wind vane
b) Anemometer
c) Wind sock

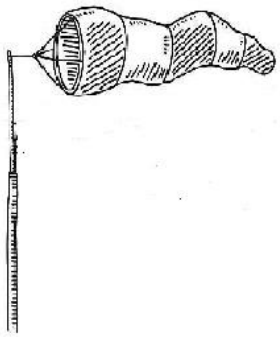
Functions of the wind instruments

A wind vane: Shows the direction of wind
A wind sock: Shows the strength of wind
A**nemometer:** Measures the speed of wind.

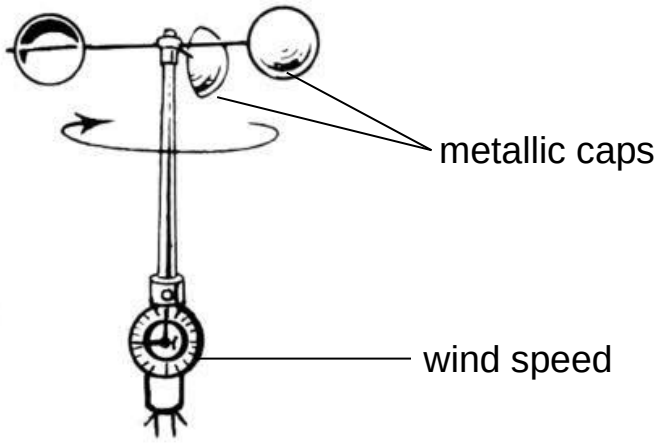
Illustration

Wind vane

Wind sock



Anemometer



Uses of wind

- Brings cold air in hot places
- It pollinates farmer crops
- Helps farmers in winnowing
- Dries wet things e.g. Decorated cakes, clothes etc

Disadvantages of wind

- It spreads air borne diseases
- Causes soil erosion
- Strong wind breaks down houses
- Causes storm on lakes and rivers
-

HUMIDITY

- Humidity is the amount of water vapour in the atmosphere.
- Humidity is measured using an instrument called **wet and dry bulb hygrometer**
- It is the most common type of hygrometer

Illustration

Note: The reading from the wet bulb measures the temperature of water vapour while the reading from the dry bulb measures the temperature in the air.

Activity

1. Define the following terms.
   a) Wind
   b) Air
   c) Humidity
2. Name the instrument used to measure the following elements of weather.
   a) Speed of wind
   b) Strength of wind
   c) Direction of wind
   d) Humidity.
   e) Sunshine.
3. Suggest one way in which the following weather elements are important in our environment.
   a) Wind
   b) Sunshine
4. How are the following weather elements dangerous in the environment?
   a) Wind
   b) Rainfall
   c) Sunshine.

Lesson 11

SUBTOPIC: **Elements of weather (atmospheric pressure, temperature)**

By the end of this lesson, the learner should be able to

- Explain how atmospheric pressure and temperature affect weather
- Identify the instruments used to measure temperature and atmospheric pressure.
- Identify the components of the thermometers and their function.

Introduction

- in this lesson, we are still learning about the different elements of weather.
- Today's focus is on temperature and atmospheric pressure in our environment.
- In terms of temperature, put the back of your palm and feel your neck. What do you feel? Transfer the back of your palm and feel your book. Compare what you have felt
- You will discover that your neck was warm yet your book is a bit cold. That difference that you have felt is what is referred to as temperature.

Vocabulary

- Air pressure
- Barometer
- Winnowing
- Clinical thermometer
- Celsius
- Fahrenheit

Life skill

- Problem solving

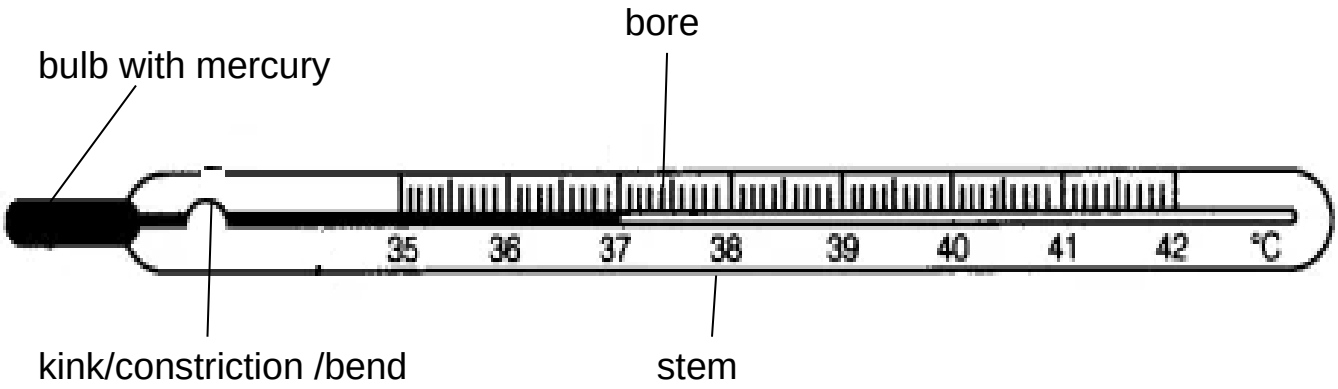
TEMPERATURE;

- Temperature is the degree of hotness or coldness of an object
- Temperature is measured using an instrument called a **thermometer.**
- The units in which temperature is measured is **degrees**

Types of thermometers

- Thermometers are in four types namely;
  a) Clinical thermometer used to measure temperature of a person
  b) Six's thermometer used to measure the maximum and minimum temperatures of a place.
  c) Wall thermometer used to measure temperature of a room.
  d) Scientific thermometer used to measure temperature in laboratories.

Clinical thermometer



<u>Functions of each part of a clinical thermometer</u>.

a) Bulb;
   - It stores mercury.

b) Kink/ bend/ constriction
   - It prevents the back flow of mercury before temperature is read.

c) Stem/glass envelope
   - It acts as a magnifying glass.

d) Bore;
   - It is a very narrow tube to have an accurate scale.
   - The scale runs from 34˚C to 42˚C because temperature of a person can not go beyond those limits.

Note

- The clinical thermometer must be shaken before another use to enable mercury move back to the bulb.
- **Mercury** is a liquid used in clinical thermometers.
- There are two scales from which temperature is read ie, the centigrade/ Celsius scale and the Fahrenheit scale.
- The normal body temperature of a person is 37^0C or 97.3^0F

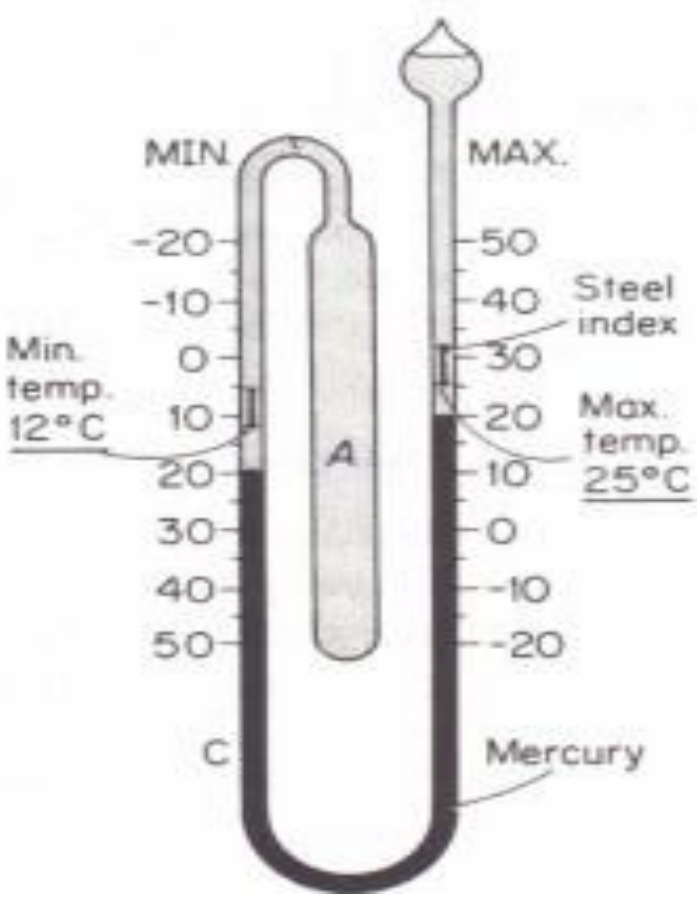
Why is mercury commonly used in thermometers?

- It is easily seen.
- It expands uniformly
- It is sensitive to heat.
- It doesn't wet glass.

Six's thermometer

- This is the thermometer used to measure temperature of a place.
- It is also known as the maximum and minimum thermometer which measures the lowest and highest temperature of the day.
- The minimum thermometer measures the lowest temperature of the day and it contains alcohol while the maximum a thermometer measures the highest temperature of the day and it contains alcohol.
- It was named six's thermometer after a great scientist who invented it called **JAMES SIXS**

Illustration.

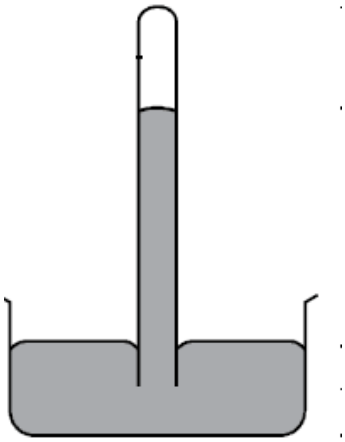


Atmospheric pressure

- Atmospheric pressure is the force exerted by air on to the atmosphere.
- Atmospheric pressure is measured by an instrument called barometer.

Illustration

A barometer



Activity

1. What is temperature?
2. Why do doctors shake the clinical thermometer before use?
3. State one reason why mercury is commonly used in thermometers.
4. In which units is temperature measured?
5. Which weather instrument is used to measure the temperature the day?
6. Write down the body temperature of a normal person.
7. Name the instrument used to measure atmospheric pressure.
8. State the importance of the following parts on a clinical thermometer.
   a) The bulb
   b) The constriction.

Lesson 12

SUBTOPIC: **Elements of weather (cloud cover)**

By the end of this lesson, the learner should be able to

- Explain the different types of clouds in the atmosphere.
- Identify different uses of clouds in the environment.

Vocabulary

e) Cirruss
f) Cumulus
g) Stratus
h) Nimbus

Life skill

i) Creative thinking

TYPES OF CLOUDS

- Cirrus clouds
- Nimbus clouds
- Cumulus clouds
- Stratus clouds

Nimbus clouds

- These are clouds that bring rain.
- They are the nearest clouds to the earth and have no special shape.
- They are dark grey in colour.

The diagram of nimbus clouds

Cumulus clouds

- They are white in colour and resemble cotton pieces with flat bottom.
- They develop into thunder clouds and may indicate rain.

Stratus:

- They are nearer the earth than cumulus clouds.
- They spread in the sky widely in calm flat layers
- They are a sign of fair weather.

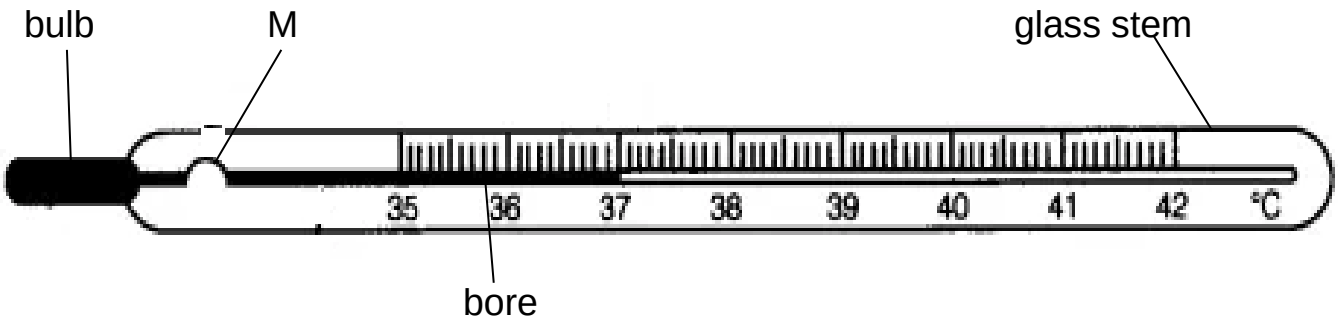
Uses of clouds in our environment.

- Nimbus clouds bring us rain.
- Clouds provide us with shade from direct heat.

Topical test on weather changes.

1. What is weather?
2. Which element of weather increases the temperature of the environment?

3. Why do farmers plant their crops during the rainy season?
4. Name the clouds that bring us rain.
5. State the importance of the kink on a clinical thermometer.
6. How is a wind vane and a wind sock different in function at a weather station?
7. State two reasons why mercury is commonly used in thermometers than alcohol.
8. How is wind useful as a resource in the environment.
9. Name the instrument used to measure the following elements of weather.
    a) Speed of wind
    b) Strength of wind
    c) Direction of wind
    d) Humidity
    e) Sunshine
10. Identify any one element of weather
11. W
12. St
    ca
13. Id
14. M
15. W
16. At what time of the day is the shadow of the tree shortest?
17. The diagram below shows one of the weather instruments. Study it carefully and answer the questions that follow



a) Name the weather instrument drawn above.
b) How important is the above instrument to a nurse?
c) Write the importance of part marked M on the weather instrument above.

d) What liquid method is commonly used in the above weather instrument?

18. Copy and complete the table below

Element of weather	**Weather instrument**
Temperature	_____
_____	Hygrometer
_____	sunshine recorder
Speed of wind	_____

19. a) Identify two physical process involved in rain formation.
b) How do trees help in rain formation?
c) What role does the sun play in the process

Lesson 13

TOPIC : **PERSONAL HYGIENE**
SUBTOPIC: **Personal hygiene**

By the end of this lesson, the learner should be able To;

- Define person hygiene
- Identify ways promoting personal hygiene.
- Identify dangers of poor personal hygiene.
- Mention diseases associated with poor personal hygiene.
- Suggest importance of different personal hygiene activities.

Vocabulary

- Hygiene
- Dirt
- Cleanliness
- Razorblade
- Scrubbing
- Regularly

Life skill

Problem solving

PERSONAL HYGIENE

- Personal hygiene is the general cleanliness of our bodies.

Importance of keeping our bodies clean

- To prevent bad smell of the body
- To remove breeding places for germs.
- To remove dirt

Ways of keeping our bodies clean

- By bathing regularly - to control bad body smell
- By washing our clothes
- Brushing our teeth
- Cutting the finger nails short (remove breeding space for germs prevent eating germs
- Ironing our clothes - to kill vectors and germs
- Brushing out teeth – to remove remaining food remains.
- Combing our hair
- Washing the face in the morning

Things used to clean our bodies

- Soap
- Water
- Basin
- Bathing sponge
- Scrubbing brush
- Towel
- Tooth brush
- Iron box
- Razor blades
- Pair of scissors
- Tooth paste, etc.

How to keep the beddings and clothes clean

- Washing them
- Drying
- Ironing them

Dangers of not keeping our bodies clean

- Easy spread of diseases such as ringworm, scabies, tooth decay etc
- It leads to a bad smell

Indicators of poor personal hygiene

- Bad body smell
- Bad breath
- Dirty clothes
- Dirty hair
- Long finger nails

Activity

1. What is personal hygiene?
2. State any two ways in which aP4 child can promote personal hygiene.
3. Identify thee indicators of poor personal hygiene.
4. Mention any two diseases spread through poor personal hygiene.
5. Why is it important to keep our figure nails short?