BUDO JUNIOR SCHOOL

REMEDIAL WORK 2020 - SET THREE

PRIMARY FIVE

SCIENCE:

THEME: THE ENVIRONMENT

TOPIC: SOIL

SUB: TOPIC A: soil composition

Soil is the top layer of the earth in which plants grow.

It is also the loose natural material that covers the surface of the earth.

The following are components of soil

-Humus	-Air	-Dissolved minerals
-Water	-Living organisms	-Rock particles

Importance of soil

-It provides nutrients which support plant growth.

-It acts as a habitat for some animals like termites

-Its hold water needed by plants

-It is also used in construction, pottery and mining

Importance of different components of soil/

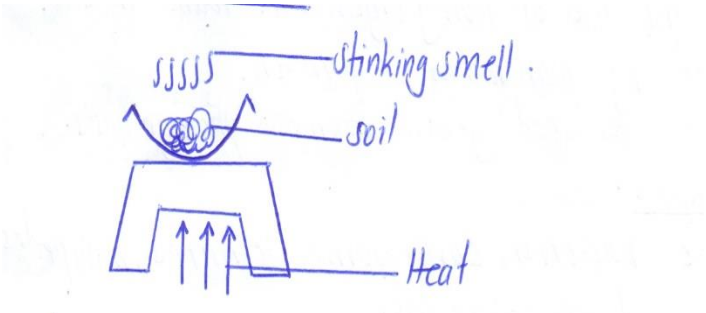
Components of soil

Humus

It's a component of soil which provides nutrients to plants.

Humus is formed from decaying organic matter.

Experiment on Humus



The stinking smell got when soil is burnt proves that soil contains humus.

Importance of humus

-It holds soil particles together

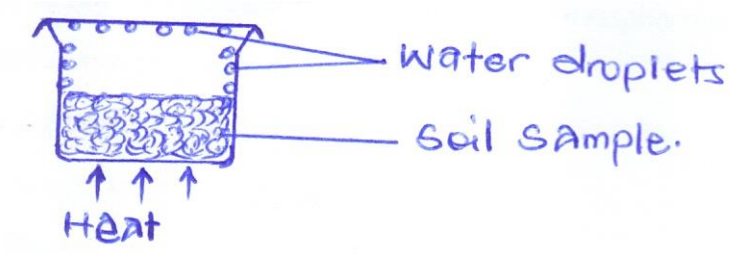
-It provides plants with nutrients

-It gives dark colour to soil hence absorbing heat from the sun.

-It acts food and shelter for some living organisms in soil

Water

Experiment on water



Importance of water

-It dissolves mineral salts for roots to absorb.

-It cools the soil

-It helps in seed germination

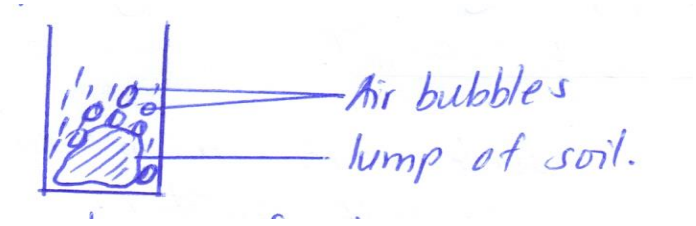
-It softens soil for roots to grow through.

NB: Water can be kept in soil through mulching and growing cover crops.

It acts as a raw material for photosynthesis.

Air

Experiment



Importance of air

-It supports the life of living organisms found in soil

-It is needed by plant roots for respiration

-it is needed for seed germination and photosynthesis

Living organisms

They include bacteria, earth worm, termites, millipedes, rats.

Importance of living organisms.

-They help in soil aeration

-They help to decompose organic matter

-They create holes in soil which enable water enter it.

Dissolved mineral salts

Example of salts needed by plants

-Magnesium -potassium -Iron -Phospharous -calcium -Nitrates

Importance of mineral salts

They support plant growth

They provide nutrients to plants

NB: Mineral salts dissolve in soil and are absorbed by plant roots through Osmosis

Formation of organic matter

-Decomposition of organic matter

-Weathering of rocks

Soil profile

It is the verticle arrangement of soil layers

Soil layers are also called Horizons

The structure of soil profile

Importance of knowledge of soil profile

-It helps to determine the best crop for a certain place.

-It helps to determine the best soil for crop growing.

Activity

1. Give the meaning of the term soil.

2. Which component of soil provides plants with nutrients?

3. How is soil important in the environment?

4. State the functions of each of the components of soil given below.

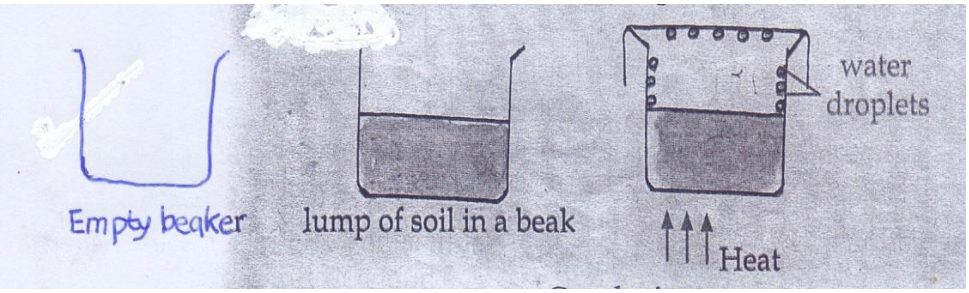
a) Humus

b) Water

c) Air

D) Dissolved mineral salts

5. **A primary five class conducted an experiment about soil. Study it and answer questions**.



a) Why did the pupils conduct the above experiment?

b) What did the water droplets seen on the cover prove about soil?

c) State 2 ways of conserving the above components in soil.

6. Give 2 animals which live in soil

7. How are fungi and bacteria useful in soil formation?

8. By what process do plants absorb water from soil?

9. What is soil profile?

10. Which layer of soil is the most suitable for plant growth?

11. Why should crop farmers have knowledge on soil profile?

SUB-TOPIC B: Types of soil

There are three types of soil namely; sand soil, clay soil and loam soil

Soil is classified according to size of the particles, soil composition and properties of soil.

Definition of terms

Soil texture

It refers to how rough or how smooth soil particles are.

Soil structure

It is the way in which soil particles are arranged

Soil sampling

It is the taking of soil samples from a field in order to anylse it in the laboratory.

Composition of different types of soil.

Sand soil

-It is made up of large soil particles

-It is made of large air spaces

- It is highly aerated

-It is easy to cultivate since it drains quickly.

Uses of sand soil.

-It is used in construction and building

-It is used to stop fire

-It is used to clean sauce pans

-It is used for making glasses

Loam soil

-It has a lot of humus

-It has medium sized particles

-It contains soil components in balanced amounts.

Uses of loam soil

-It is good for crop growing

-It can be used for making bricks.

Clay soil

It is made of small fine sticky particles

-It retains a lot of water

-It has closely packed particles

-It has a high rate of capacity

Uses of clay soil

-It is used for pottery and modeling

-It is used for brick making

Experiment on drainage

<u>Soil exhaustion.</u>

It is the loss of soil fertility

It can also be defined as a process by which soil loses its nutrients.

Causes of soil exhaustion.

-Poor farming methods -Soil erosion

-Soil leaching

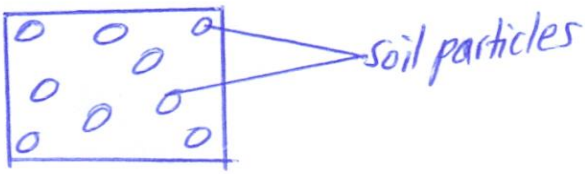
Control of soil exhaustion.

-By employing good methods like crop rotation.

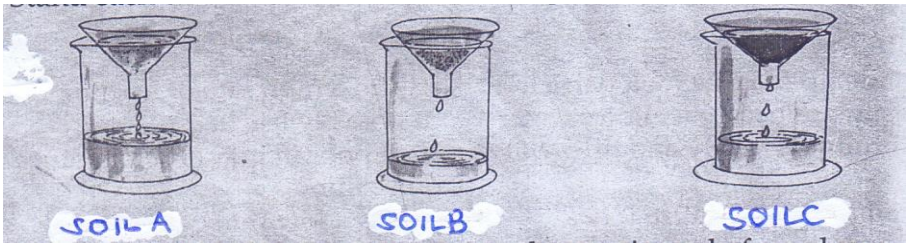
-By digging terraces in gardens

<u>Activity</u>

1. Write down 3 types of soil.
2. Which type of soil is referred to as "heavy soil"?
3. Explain the meaning of soil leaching.
4. Which type of soil is good for making glasses?
5. Why is clay soil good for pottery?
6. Identify the type of soil shown below.



7. Given the types of soil below, answer questions about them.



a) Which type of soil is marked B?

b) What is the experiment about?

c) Which of the soils shown above is good for crop growing?

d) Give a reason to support your answer in C above.

8. Give the meaning of the term soil exhaustion.

9. Write 2 ways soil gets exhausted.

10. State one danger of soil exhaustion to crop farmers.

SUB TOPIC C: <u>soil erosion</u>

Soil erosion is the washing away of top soil by its agent.

Agent s of soil erosion

These are materials which carry soil from one place to another.

Examples of agents of soil erosion

Strong wind	moving animals (man)	
Fast flowing water	Garden tools	Moving vehicles

Causes of soil erosion

Deforestation	Devegetation	Overstocking
Over cultivation	Overgrazing	Bush burning

How different activities cause soil erosion

Deforestation

It is the large scale cutting of trees in an area

<u>NOTE:</u> It is done to get timber, firewood, charcoal and open land for agriculture.

It leaves the soil bare for strong wind and flowing water to carry away soil.

Overstocking

It is the keeping of many animals on a relatively small piece of land

Many animals eat up the grass as well as stepping on it to leave the soil bare.

Overgrazing

It is the grazing of animals in same piece of land for a long time.

The animals step on the grass and stop new grass to grow.

Bush burning

It is the setting of fire on bushes.

It leaves the soil bare to agents of soil erosion.

Dangers of soil erosion

-It makes the soil infertile

-It makes the soil hard for cultivation

-It leads to poor crop yields.

Preservation and control of soil erosion

-By digging terraces on slopes -By afforestation and re-afforestation

-By contour ploughing - By mulching

-By strip cropping - By bush fallowing

-By growing cover crops -By crop rotation

Importance of methods of controlling soil erosion

Terracing

Terraces reduce the speed of running water

Terraces enable water to enter into soil.

Afforestation and re-afforestation

-Trees act as wind breaks

-Roots hold soil particles together

Mulching

Mulches reduce the speed of flowing water (run-off water)

Cover crops eg pumpkins, sweet potatoes, cabbages, beans

Cover crops control slpash erosion.

Contour ploughing

Contours check on the speed of run- off water.

Bush fallowing

It enables soil regain its structure hence controlling soil erosion.

Crop rotation

It enables soil maintain its structure hence stopping soil erosion

Devegetation

It is the clearing of vegetation in an area

It leaves the soil bare to agents of soil erosion.

Over cultivation

It is the growing of crops season after season without soil erosion.

It makes soil exhaustion and loose for agents of soil erosion.

Types of soil erosion

-Splash or Rain drop erosion -Rill erosion

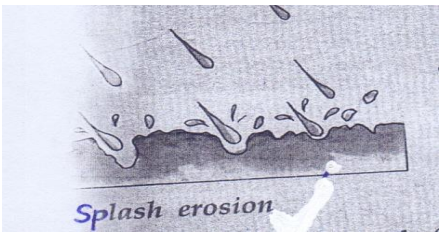
-Gully erosion -wind erosion

-Sheet erosion

Definition of types of soil erosion

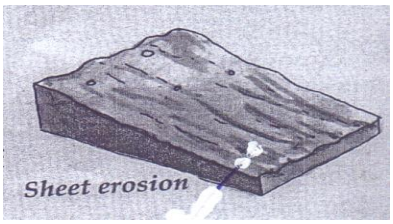
Splash erosion

It is the kind of erosion in which rain drops fall on bare land.



Sheet erosion

It is the uniform removal of top soil from the ground.

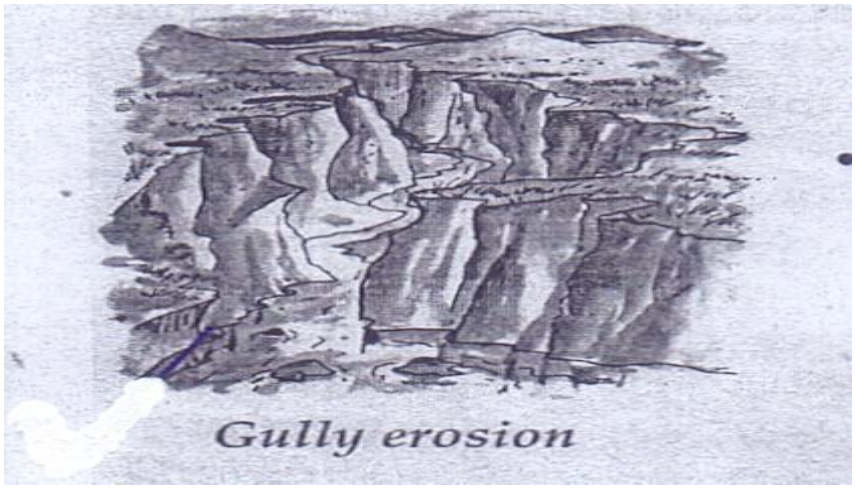


Rill erosion

It is the removal of top soil by flowing water leading to small clearly cut channels called rills.

Gully erosion

It is the formation of big channels or trenches by fast flowing water.



Wind erosion

It is the removal of loose, duty and light soil particles in an area by strong wind.

Factors that influence soil erosion.

-Topography of an area

-Intensity of rainfall

-Type of soil

-Type of vegetation

-Farming practices

Activity

1. What are agents of soil erosion?

2. State 3 ways how animals are agents soil erosion.

3. Write 2 causes of soil erosion.

4. Explain briefly how the following lead to soil erosion.

a) Deforestation

b) Bush burning

c) overgrazing

5 Which type fuel is got from trees?

6. How is overgrazing different from overstocking?

7. Give 4 reasons why bush burning must be discouraged.

8. Identify 3 reasons people give for burning bushes.

9. Write down 2 types of soil erosion.

10. What is soil erosion?

11. Identify 3 factors that influence soil erosion in an area.

12. How do the following control soil erosion?

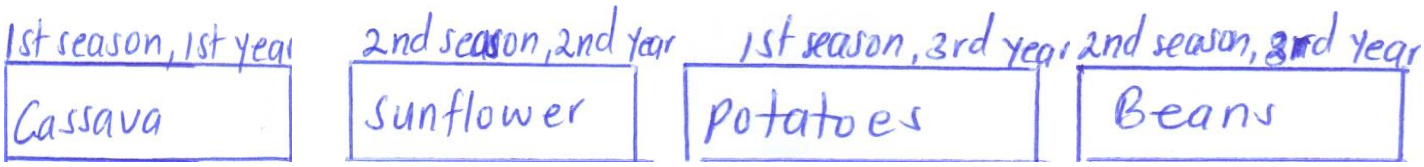
a) Terracing

b) Afforestation

13. Define the term mulching.

14. How is mulching a good farming practice?

15. **Study the structure below and answer questions about it.**



i) Which farming practice is shown above?

ii) Why should crops like beans be included in the above practice?

iii) Write one crop that can be planted with cassava in the same season in the same garden.

iv) Give 2 advantages of the above farm practice