PRIMARY #CREATIVE PRINTERS

WORK BOOK

SCIENCE

FOR NOTES, SCHEMES, EXAMS. ETC

SOIL

Soil is the top the top layer that covers the earth's surface.

OR

Soil is a non living component of the environment.

WAYS THROUGH WHICH SOIL IS FORMED

Weathering; Is the breakdown of rocks to form soil.

Decomposition; Is the rotting of organic matter to form soil ie plants and animal droppings.

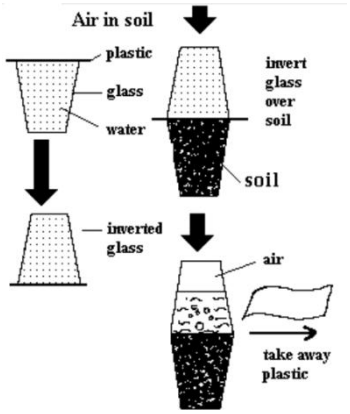
COMPONENTS OF SOIL

- ❖ Humus
- ❖ Air
- ❖ Rock
- ❖ Living organisms
- ❖ Water

AN EXPERIMENT TO SHOW THAT SOIL CONTAINS AIR

- Fill a glass with half dry soil.
- Fill the remaining part with water
- Put the glass on the table and watch what happens.

ILLUSTRATION



OBSERVATION

- Bubbles are seen coming out of the soil.

CONCLUSION

- Bubbles show air escaping through the soil.

USES OF AIR IN THE SOIL

- Helps living things in the soil to breathe.
- Helps seeds to germinate.

Note; When plants and animals die they rot and form humus.

IMPORTANCE OF HUMUS

- Humus improves soil fertility.
- Humus promotes proper growth of plants.
- Improves good aeration of the soil.
- Humus is dark and soft easy for plants to penetrate.

TYPES OF SOIL

SOIL TEXTURE; Is the smoothness or roughness of soil.

CHARACTERISTICS OF LOAM SOIL.

- It has medium particles.
- Contains a lot of humus.
- Properly aerated.
- Has good drainage.

CHARACTERISTICS OF SAND SOIL.

- Has the biggest soil particles.
- Contains a lot of air.
- Has less humus.
- It is loose, light, and easy to dig.
- Has the highest rate of drainage.

CHARACTERISTICS OF CLAY.

- Has the finest particles.
- Best soil for pottery.
- Doesn't allow passage of water through it easily.
- It is poorly aerated.

USES OF DIFFERENT TYPES OF SOIL.

Sand soil	Loam soil	Clay soil
For building. For making blocks. For making sand paper. For making glasses.	For growing crops. For making bricks.	Used for; Making pots/pottery. For making bricks. For making tiles.

SOIL PROFILE:

- Is the arrangement of soil from top to bottom layers.

OR

- Soil profile is the vertical arrangement of soil layers

ANIMALS THAT LIVE IN SOIL.

Moles Worms Termites

Squirrels Bacteria

SOIL EROSOIN

Is the washing away of top soil by its agents.

AGENTS OF SOIL EROSION

Animals Wind Fast running water

CAUSES OF SOIL EROSION

Over grazing Mono cropping

Drought Over cultivation

Over stocking Bush burning

Deforestation

CONTROL OF SOIL EROSION

By mulching Terracing

Crop rotation Reforestation

Aforestation Contour ploughing

MULCHING

Is the covering top soil with dry plant materials.

EXAMPLES OF MULCHES

Dry grass Banana leaves Coffee husks

IMPORTANCE OF MULCHING/ADVANTAGES.

- Keeps the water in soil.
- Rots to form manure.
- Controls soil erosion.

DISADVANTAGES OF MULCHING GARDENS.

- ❖ Mulches are fire hazards.
- ❖ Habitats for pests.
- ❖ Time consuming to lay mulches.
- ❖ Makes weeding difficult.

EFFECTS OF SOIL EROSION

- ➢ Leads to famine.
- ➢ Leads to soil exhaustion.
- ➢ Causes desertification.
- ➢ Washes away top soil.

SOIL EXHUASION

Is the loss of soil fertility.

CAUSES OF SOIL EXHUASION

- Over grazing
- Over ploughing
- Bush burning
- Soil erosion

Causes of soil erosion	How to control soil erosion
Over cultivation. Over grazing. Bush burning. Leaching.	Use crop rotation. By mulching. Addition of manure. Use of fertilizers.

TOPICAL QUESTIONS

1a. Give the three types of soil.

(i)_____ (ii) _____ (iii)_____

b. Write three components of soil.

(i) _____ (ii) _____ (iii) _____

2a. Define the following wards.

(i) Soil.

_____

(ii) Soil texture.

_____

(iii) Soil profile.

_____

b. Which soil has got the biggest particles?

_____

c. Write the best soil used to carry out the following activities.

(i) Farming _____ (ii) Pottery _____

(iii) Building _____

3a. Name the components of loam soil.

(i) _____ (ii) _____

(iii) _____

b. Why is loam soil the best for farming?

_____

c. Name three things at home made from clay.

(i) _____ (ii) _____

(ii) _____

4a. Name three layers of soil.

(i) _____ (ii) _____

(iii)_____

b. Which layer of the soil supports plant growth?

_____

c. Why is sub soil not good for plant growth (farming)?

_____

d. Name two animals which live in soil.

(i) _____ (ii) _____

e. In which layer of soil are living things found?

_____

5. What is weathering?

_____

b. Give two ways through which soil is formed.

(i)_____ (ii) _____

c. What is soil erosion?

_____

d. List all the agents of soil erosion.

(i) _____ (ii) _____

(iii) _____ (iv) _____

e. Give four causes of soil erosion.

(i)_____

(ii)_____

(iii)_____

(iv)_____

6a. Mention three ways of controlling soil erosion.

(i) _____

(ii) _____

(iii) _____

b. How are farmers in mountainous areas able to control soil erosion.

_____

c. What is reforestation?

_____

7a. Give two effects of soil erosion.

(i) _____

(ii) _____

b. What is soil exhaustion?

_____

c. State two causes of soil exhaustion.

(i)_____

(ii) _____

d. Mention three ways of controlling soil exhaustion.

(i) _____

(ii) _____

(iii) _____

8a. What is crop rotation?

_____

b. Carry out an experiment to show that soil contains air molecules.

CHANGES IN OUR ENVIRONMENT.

Natural changes.

Are changes brought about by nature and non living things.

Examples of natural changes in the environment

Floods	storms
Drought	Lightening
Landslides	Earthquakes
Thunder	

Effects of natural changes in our environment

Soil erosion.	Causes famine (hunger).
Displacement of people (migration).	Diseases.
Destruction of homes and property.	Death.

Man made changes

These changes are brought by mans activities in the environment.

- Planting trees (Aforestation)
- Cutting down trees (Deforestation)
- Draining swamps (Swamp reclamation)
- Burning bricks
- Building houses
- Building roads

Effects of people/man made changes

- ❖ Drought
- ❖ Soil erosion
- ❖ Accidents
- ❖ Easy transport
- ❖ Soil exhaustion
- ❖ Death of animals
- ❖ Desertification

Ways of managing changes.

Floods.

- ❖ Avoid clearing swamps.
- ❖ Dig big trenches to avoid floods.
- ❖ Settlings on areas with good drainage patterns.

Drought

- ➢ Plant trees.
- ➢ Avoid clearing.
- ➢ Use of irrigation schemes.
- ➢ Avoid bush burning
- ➢ Proper farming
- ➢ Educate people about changes.
- ➢ Dig valley dams.

Rusting

Rust is a reddish coating that appears on metals.

Conditions for rusting

- Oxygen
- Moisture

Methods of preventing rusting

- By oiling.
- By painting. By greasing.
- Keeps tools in dry places

Accidents

Are sudden happenings which cause pain, harm and eventually death.

Causes of accidents

- Over loading
- Over speeding.
- Poor roads.
- Drunken drivers.
- Over talking at wrong places.
- Careless drivers and pedestrians.
- Crossing busy roads on zebra crossing.

Environment and weather

Air: Is the mixture of gases.

Wind: Is moving air.

Wind can also be defined as air in motion.

Components of air

✓ Nitrogen	78
✓ Oxygen	21
✓ Rare gases	0.97 (1)
✓ Carbon dioxide	0.3 (0.04)

Properties of air

- ❖ Air has weight.
- ❖ Air occupies.
- ❖ Air experts pressure.
- ❖ Air can be compressed.
- ❖ Air can move things.

Importance of air/uses of air

- ➢ Supports burning e.g. oxygen.
- ➢ Used for transport e.g. plains, parachutes.
- ➢ For germinating seeds e.g. oxygen.
- ➢ Carbon dioxide is used to preserve drinks.
- ➢ Air is used in winnowing.
- ➢ Animals breathe in air e.g. oxygen.
- ➢ Wind is used for flying kites.
- ➢ Carbon dioxide is used in time extinguishers.
- ➢ Moving air helps to cool our bodies.

Dangers of strong winds

- Strong winds carry away top soil.
- Destroy property.
- Strong winds blow off peoples houses.
- Strong winds more floating vegetation which makes transport difficult.
- They break down crops.

The sun

- ✓ It is the highest and hottest start.
- ✓ The sun rises from the east and sets from the west.

Uses of the sun/importance of the sun

- Provides heat
- Provides light
- Source of solar energy
- Sunlight is used during photosynthesis.
- Sun helps living things to grow.
- Sun helps mans skin to make vitamin c.

- Dries peoples clothes

Changes of the sun.

- Too much sunshine dries crops in the garden.
- Too much sunshine dries water bodies.
- Too much sunshine leads to drought.
- Sunny weather makes animals thirsty.
- The sun spoils our eyes when you look directly to it.
- Too much sunshine causes transpiration in plants.

Shadows

- ✓ A shadow is a dark region formed when a light is blocked by an opaque object.

Importance of shadows

- Tell time
- Gives direction

Topical questions

1a. what is air?

_____

b. Which part of air supports burning?

_____

c. Why is carbon dioxide used to put out fire.

_____

d. Name two things that can be moved by air.

(i)_____ (ii)_____

e. Give four dangers of strong winds.

(i) _____

(ii) _____

(iii) _____

(iv) _____

2a. Write three use of sun to

a). People

(i) _____

(ii) _____

(iii) _____

b. Where does the sun rise from?

_____

c. What causes day and night?

_____

d. Name three types of clouds.

(i) _____

(ii) _____

(iii) _____

3a. What are natural changes?

_____

b. Mention four examples of natural changes in the environment

(i) _____ (ii) _____

(iii) _____ (iv) _____

c. At what time of the day does the moon appear on the sky?

_____

d. Give three ways of maintaining floods in an environment.

(i) _____

(ii) _____

(iii) _____

e. Give two proper farming methods.

(i) _____ (ii) _____

4a. Define rusting.

_____

b. State the two conditions necessary for rusting.

(i) _____ (ii) _____

c. Mention four methods of preventing metals from rusting.

(i) _____ (ii) _____

(iii) _____ (iv) _____

5. What is an accident?

_____

b. Outline four causes of accidents.

(i) _____ (ii) _____

(iii) _____ (iv) _____

c. Give two ways of controlling accidents on roads.

(i) _____

(ii) _____

6a. State three properties of air.

(i) _____ (ii) _____

(iii) _____

b. Which property of air helps us to drink soda from bottles using straws?

_____

c. Which property of air is shown in the diagram below.

d. Which property of air is used to inflate car tyres.

_____

e. Name the type of air used in preserving food.

_____

f. Give three uses of air.

(i) _____ (ii) _____

(iii) _____

g. Name the gas used in fire extinguishers.

_____

7a. Mention the two diseases spread by air.

(i) _____ (ii) _____

b. Give three dangers of wind to people.

(i)_____

(ii)_____

(iii) _____

c. Name the source of energy got from the sun.

_____

d. Define the following words.

(i) shadow

_____

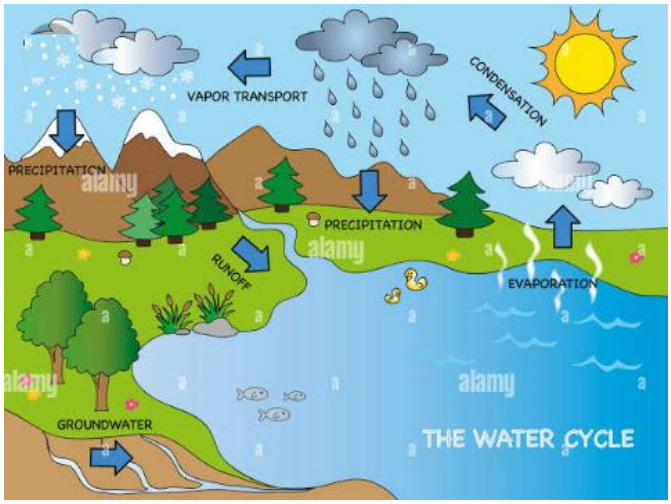
(ii) opaque objects

_____

Water

Water is a colourless liquid with good taste.

Water cycle/rain



Evaporation

Is the process by which water changes to vapour.

Condensation

This is the process by which water vapour changes to water droplets to form clouds.

Rain

Is the water falling in separate droplets from the sky.

Transpiration

This is the process by which plants lose water to the atmosphere inform of water vapour.

NB: Water cycle is the natural process by which rain is formed.

Steps through which rain is formed

- ✓ The sun heats the water body.
- ✓ Water evaporates to form vapour.
- ✓ Water vapour rises and condense to form nimbus clouds.
- ✓ Clouds become heavy and eventually fall as rain.

Rain

Rain is the main natural source of water.

Rain is formed from clouds.

Importance of rain

- ➢ Rain provides water for drinking.
- ➢ For washing.
- ➢ For watering plants.
- ➢ For softening the soil to ease planting.
- ➢ Rain washes away dust from air.
- ➢ Cools down temperature.
- ➢ Reduces dust on murram roads.

Dangers of heavy/too much rainfall.

- ❖ Leads to soil erosion.
- ❖ Leads to floods.
- ❖ Makes murram roads mudy.
- ❖ Breaks down houses and crops.

Solutions to the above problems

- Practice good farming methods.
- Tarmaking roads.
- Avoid swamp drainage.
- Practice afforestation.
- Using lightening conductors.

Clouds.

There are four types of clouds i.e.

1. Nimbus clouds ⇒ brings steady rainfall.
2. Cirrus clouds ⇒ are the highest clouds.
3. Stratus clouds ⇒ they are dark grey.
4. Cumulus clouds ⇒ Bring a clear day; are commonly white in colour

How clouds affect the environment.

Nimbus clouds bring steady rainfall.

A cloudy weather brings low temperature.

Cummulus clouds bring a clear day.

Dangers of clouds

Clouds cause accidents in air transport.

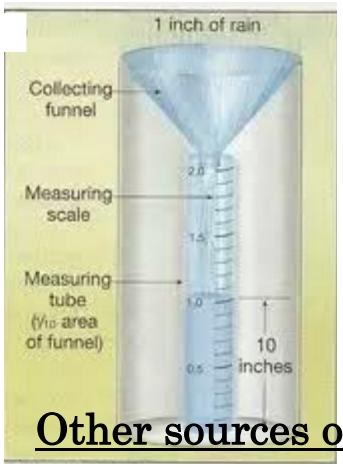
They cause lightening.

Bring heavy rains which cause flooding.

How rain is measured

A rain gauge is the weather instrument for measuring rain.

A drawing of rain gauge.



Other sources of water.

- Lakes
- Streams
- Oceans
- Rivers

Artificial sources of water.

- ❖ Bore holes.
- ❖ Spring well
- ❖ Valley dams
- ❖ Ponds

Importance of water in our community to;

(i) **People**

- ➢ For cooking.
- ➢ For washing clothes.
- ➢ For drinking.
- ➢ For bathing.
- ➢ For washing utensils.

(ii) **Plants**

- ✓ Helps plants to make their own food.
- ✓ Helps the seeds to germinate.
- ✓ Cools the plants during hot days.
- ✓ Helps plants to absorb nutrients from the soil.

Water harvesting.

Water can be harvested using;

- Tanks
- Buckets
- Basins
- Jerry cans
- Digging valley dams.

Maintenance of water sources.

- ❖ Fencing water sources.
- ❖ Cleaning water sources.
- ❖ Avoid dumping wastes on water sources.
- ❖ Repairing damaged sources.

Topical questions

1a. Name the three types of clouds.

(i) _____

(ii) _____

(iii) _____

b. Identify the main natural source of water.

_____

c. Name two ways in which people can control floods.

(i) _____

(ii) _____

d. Give three uses of water to plants.

(i) _____

(ii) _____

(iii) _____

2a. Name the instrument used to measure rainfall.

_____

b. Mention three ways of maintaining water sources.

(i) _____

(ii) _____

(iii) _____

c. How important is water at home? (Give four)

(i) _____

(ii) _____

(iii) _____

(iv) _____

e. Identify three other natural sources of water.

(i) _____

(ii) _____

(iii) _____

f. Mention two artificial sources of water.

(i) _____

(ii) _____

g. Identify two ways of harvesting water.

(i) _____

(ii) _____

3a. Mention two effects of clouds to the environment.

(i) _____

(ii) _____

b. State two dangers of clouds to people.

(i) _____

(ii) _____

c. Why is a rain gauge important to farmers?

_____

4a. Which cloud brings steady rainfall?

_____

b. Name the clouds which causes drizzling.

_____

c. Mention the highest clouds.

_____

5a. Why should a rain gauge be put in an open space when measuring rainfall?

_____

b. Name the units for measuring rainfall.

_____

c. State any three importance of clouds.

(i) _____

(ii) _____

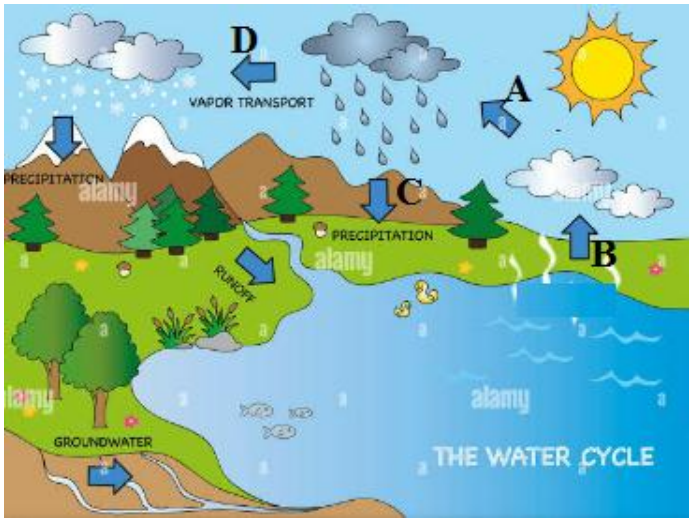
(iii) _____

d. Give any two dangers of clouds in the environment.

(i) _____

(ii) _____

6. Study the water cycle below and answer the questions about it.



a. Name parts marked with letters A, B, C, D.

A _____

B _____

C _____

D _____

b. Name the processes which take place at c and f.

C _____

F _____

7a. What do we call?

(i) The turning of water into vapour?

_____

(ii) The turning of water vapour into water?

_____

(iii)The lose of excess water by plants through their leaves to atmosphere.

_____

b. Define the following terms as used in the water cycle.

(i) Evaporation

_____

(ii) Transpiration

_____

(iii) Condensation.

_____