

REPUBLIC OF SOUTH SUDAN

PASTORAL LIVELIHOODS AND EDUCATION FIELD SCHOOLS

SCIENCE



Pupil's Book 3

MINISTRY OF GENERAL EDUCATION AND INSTRUCTION

2016

UNIT 1: HEALTH AND HYGIENE

Cleanliness

Keeping hair clean

We should keep our hair clean. We look smart when our hair is clean. Dirty hair looks bad. Lice live in dirty hair. Lice suck our blood. We cannot sleep at night if we get lice.

A person washing the head



1. Tell your friend how many time you wash your head.
2. Tell your friend how you wash your head.
3. Tell your friend how you make your hair tidy.

Washing the legs

We should keep our legs clean. Clean legs look nice. Dirty legs look bad. If our legs are dirty, we can become sick. We should wash our legs daily daily with soap and water. Cut your toe nails if they are long.

ACTIVITY

Draw a picture of yourself washing your legs.

Show a picture of your toe nails

Hygiene

Group discussion

1. Where do you put your milk when you are milking?
2. Do you wash your hands before you start to milk?
3. What else do you wash before you start milking?
4. What do you do with the milk before you drink it?
5. Draw a picture of you doing each of what you have said in this activity.

TOPIC 2: WATER

Dissolving substances in water

Certain things can dissolve in water. They are called soluble.

Certain things cannot dissolve in water. They are called insoluble.

Do these experiments in groups. Each group to take one of the following. Mix it with water and stir with a stick.

Group 1: Salt

Group 2: Sugar

Group 3: ash

Group 4: sand

Each group will present their findings in class. You will:

1. Draw a glass container with your mixture. Label what was there before and what you can see after the experiment.
For example, is the sugar at the bottom.
2. Tell the class if you can see what you put in the water?
3. How is it?
4. Taste the water and say how it is.

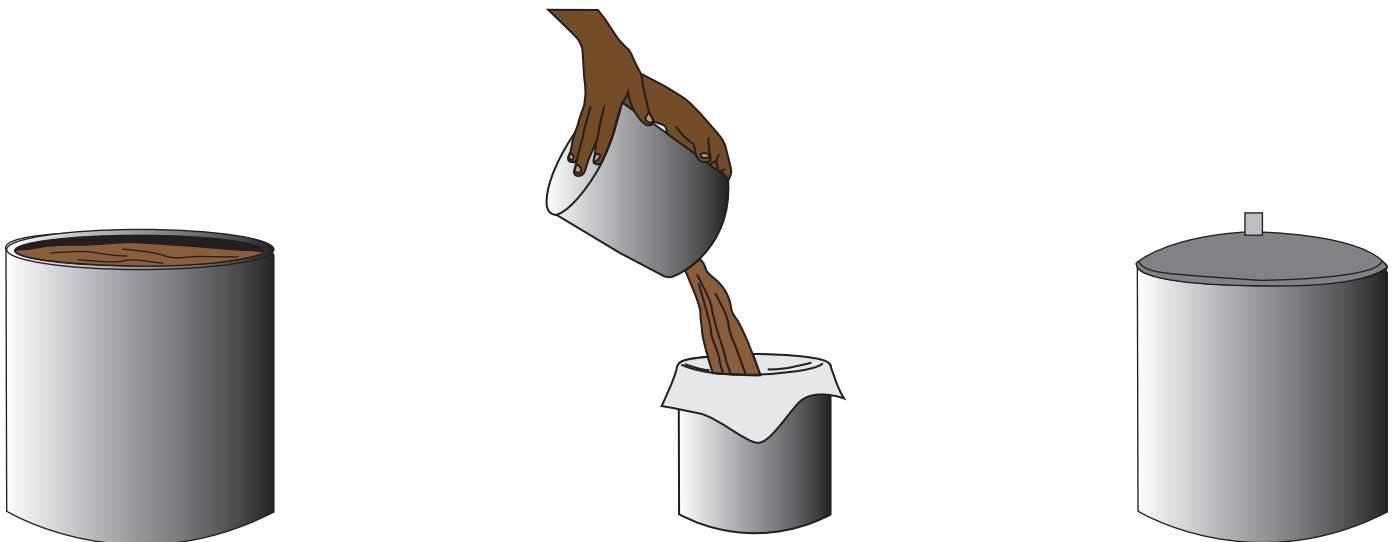
Water is very important in our lives. There can be no life without water. All living beings need water for life. It is needed inside our bodies to help digestion. Plants prepare their food with the help of water. Water helps crops to grow. When there is no water us pastoralist move long distances because there is no food for our animals. We use water for:

1. Washing
2. Cooking
3. Drinking
4. Fishing
5. Transport

What makes water dirty?

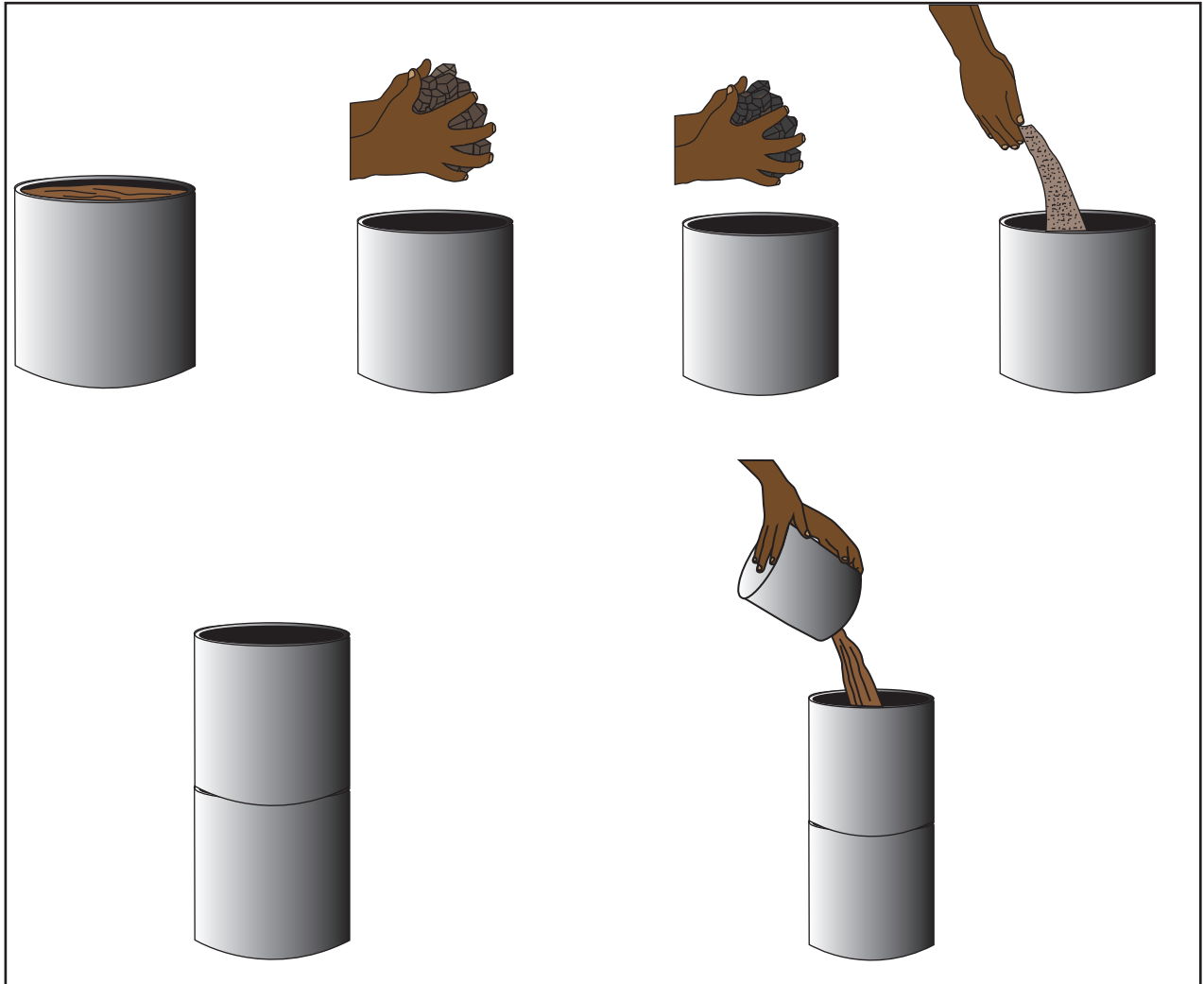
Rain water is usually safe for drinking. When it comes on earth, it flows down and carries many dirty things. It carries along minerals, mud and sand. It also carries human and animal waste. All these make the water not pure. When the water is not pure we say it is impure. Impure water is not safe for drinking. It carries germs of many diseases.

1. Draw muddy water.
2. Muddy water being poured into another container which is covered with a cloth.
3. A container with clean water. It is covered with a lid.



Group 2. Follow the pictures.

1. Draw muddy water.
2. Get a container with small holes at the bottom.
3. Put clean stones at the bottom of this container, then clean sand above the stones, then clean charcoal.
4. Place this container on the mouth of another clean container .
5. Pour your muddy water.



Present your findings to the class

Please note: The water will be clean but if you taste it will be salty. This means we cannot remove dissolved things by filtering. We need to boil the water to make it safe for drinking.

Exercise

1. _____ water is not safe for drinking.
2. Give 3 uses of water.
3. The process of making water clean for drinking is called _____.

Discuss in a group

Where do you get water come from when you are:

1. Moving along with animals?
2. Herding in the bush?
3. Staying in the cattle camp

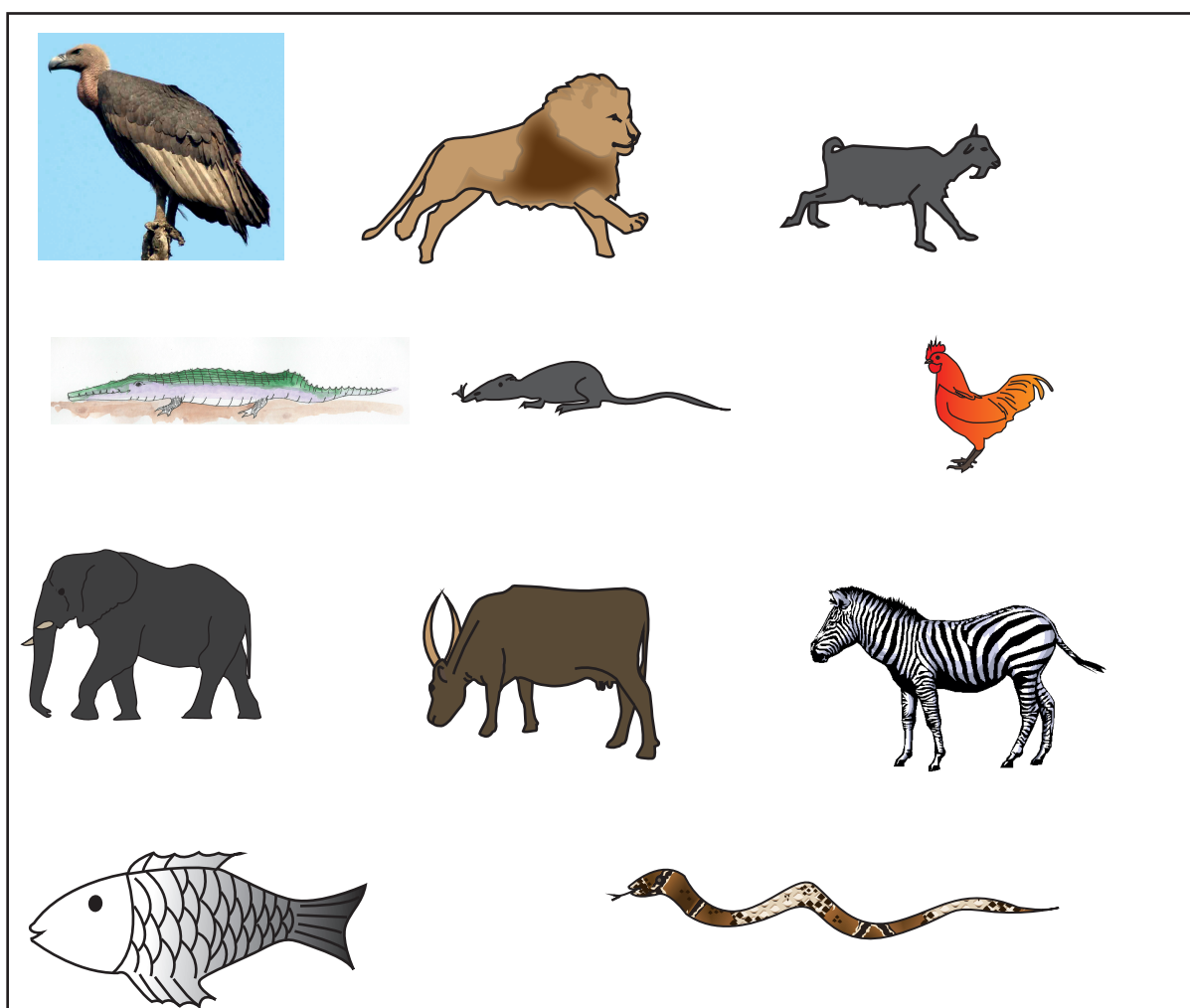
Exercise

1. List five things that you do with water?
2. Draw the containers that you use with your water.
3. Tell the class how you will start keeping your water safe for drinking

TOPIC 3: ANIMALS

Look at these animals

A vulture, lion chasing a goat, a crocodile, mice, frog, hen, elephant, Cow, zebra, fish, snake.



Do you know their names?

Tell your friend the ones you know.

Which of these animals have you ever seen?

Do you know where each of them lives?

ACTIVITY

Do this activity in 4 groups.

Take a nature walk with your friends in PLEFS. Look for 4 different animals.

Observe where they live. Collect some of them and put them in a bottle.

Bring them in class. Put them in the learning corner. You can now call it your nature corner. Each group should then tell the rest of the class about the animals they have collected. Say:

1. Where you found the animal
2. What was it doing?
3. Is it harmful and in what ways?
4. Is it useful and in what ways.

Exercise

Give the correct names of the following animals by arranging the jumbled words.

Draw all in red. Remove the names and leave only what is in black

Picture of a frog

fish

Grfr

hsfi

Housefly on food

butterfly

spider

Lyf

tubtylfer

resdip

Ant

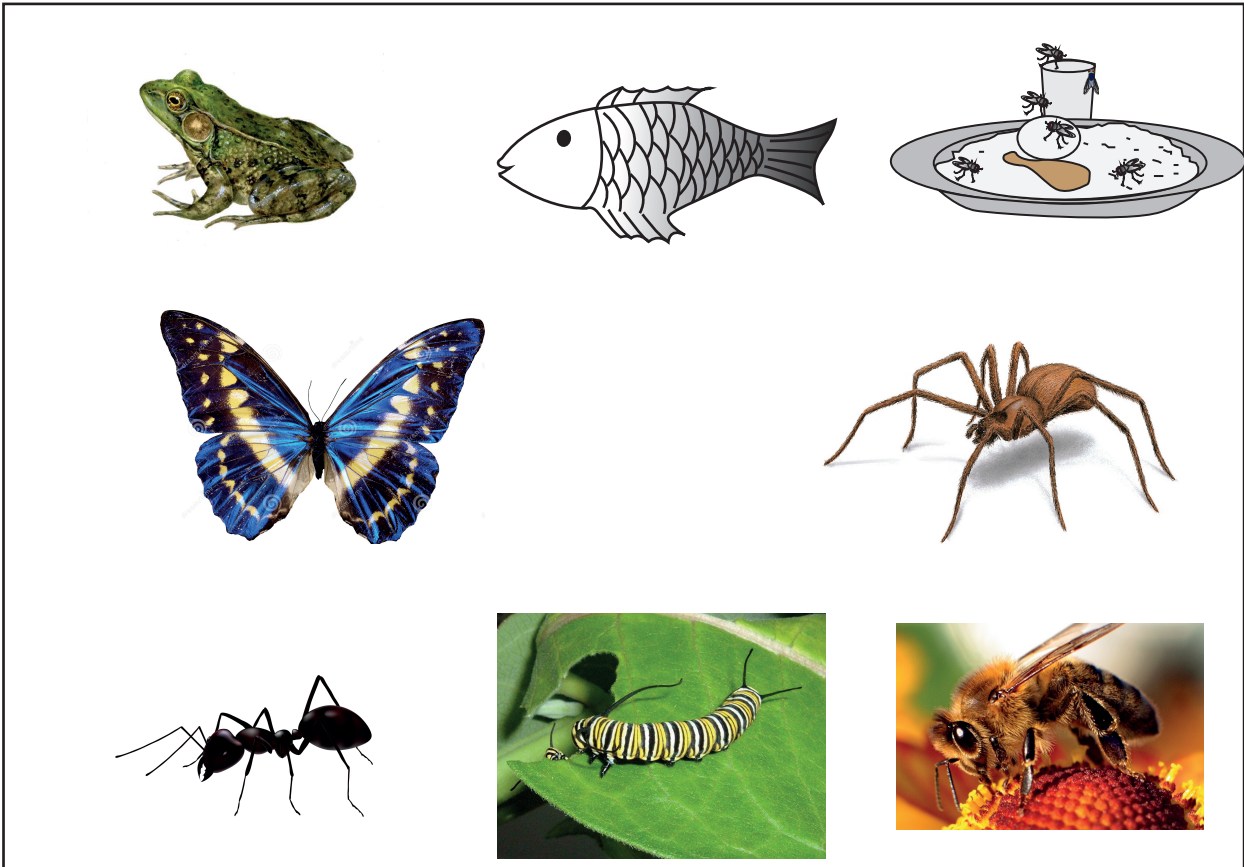
caterpillar on a leaf

bee

Nta

aracplertil

ebe



Put them where they live in the table below. You have been given two examples.

Animals that are harmful	Animals that are useful	Animals that live in water

When you went for nature walk, you saw where the animals live. Where the animal lives, it is called the animal's habitat.

Match the following animals with their habitats.

- | | |
|----------------|---------|
| 1. A bee | water |
| 2. Ant | nest |
| 3. Caterpillar | beehive |
| 4. Birds | anthill |
| 5. Fish | web |

Match the following with what they do.

Ant	eats our plants
Mosquitoes	destroys our wood
Housefly	gives us honey
Locusts	deposits disease germs onto our foods
Bees	spreads malaria

Animals that live at home are called farm animals. They are also called domestic animals.

Animals that stay in the forest are called wild animals.

Animals that live in water are called water animals.

ACTIVITIES

Activity

Draw 1 small animal which you like very much.

Say why you like it.

Activity 2

Draw 1 small animal which you do not like at all.

Say why you don't like it.

Activity

Draw 1 water animal which you **do not** like.

Discuss in groups

Tell your friends which animals you have drawn.

Tell your friends why you like those animals.

Tell your friends why you do not like that animal.

Each one of you will answer tell the others.

See if there is anybody else with animals like the ones you have.

TOPIC 4: PLANTS

Look around your cattle camp. How are the plants there. There are different types of plants.

- Grass
- Vegetables
- Shrubs
- Trees

Like animals, plants are living things. They need air, water, mineral salts, sunshine and good care to grow well.

GROUP ACTIVITY

1. Say 5 different things you have seen in plants.
2. Say 5 things that are the same in plants.

PAIR GROUP ACTIVITY

Collect leaves of different plants.

Stick them in your books.

Study their shapes.

Trace the leaf.

Colour it.

Let the rest of the class say what plant the leaf belongs to.

Fruits and seeds

Plants bear flowers. Flowers grow into fruits. Fruits contain seeds. When we eat fruits, e.g a mango, we throw away the seeds. When the seeds get into contact with soil, water, air and warmth, they germinate. Germinating seeds grow into new plants.

Experiment

Look for 2 tins. Get some seeds, e.g beans, ground nuts

Put soil in both tins. Put some seeds and cover with the soil.

In tin 1, start watering. Make sure the tin has some holes to let out extra water.

Keep watering for about 1 week.

Do not water tin 2.

After one week you will see a plant growing out of tin 1.

The seeds will have germinated. The seeds in tin 2 will not have germinated.

Care of plants

We get many things from plants. Plants give us:

- a) Food
- b) Drink
- c) Shade
- d) Medicine
- e) Timber

Draw the plants that give you eat of the things we have listed.

Write their names in mother tongue.

The roots take minerals and water from the soil. Leaves take carbon dioxide from the air and make food in the presence of sunlight. The starch, sugar, proteins and fats are the food they make. The non green plants depend on other living or dead things for their food. They take ready made food from green plants. The stem of plant grow towards light.

All animals depend on plants.

Exercise

Write a short story on how you can take care of plants because they give you very many things.

Draw some of the plants you have talked about in your story.

Take a nature walk and see the different types of plants.

Seeds

Most plants have flowers. A flower changes into a fruit. Fruits have seeds inside them. Fruits protect the seeds. They also help to spread seeds. Seeds can be stored dry for long periods. When sown on the earth, seeds grow into new plants. When seeds start developing into new plant, we say it has germinated.

Plant cannot grow without

- | | |
|----------|----------|
| a) Water | b) light |
| c) Air | d) food |

We should water the plants regularly. Plants get their food from the soil. Manures contain plants foods. We should always add manure to the soil.

We should put fence around the plants so that our animals do not eat the plants.

If our animals eat our neighbours plants, it can cause conflict and fighting.

We need to live at peace with our neighbours, even those who are far away.

When there is peace, we can be able to take good care of our plants and animals.

These will give us good money to take good care of our bodies by eating healthy foods, buying cloths, soap for washing, medicine and taking us to school.

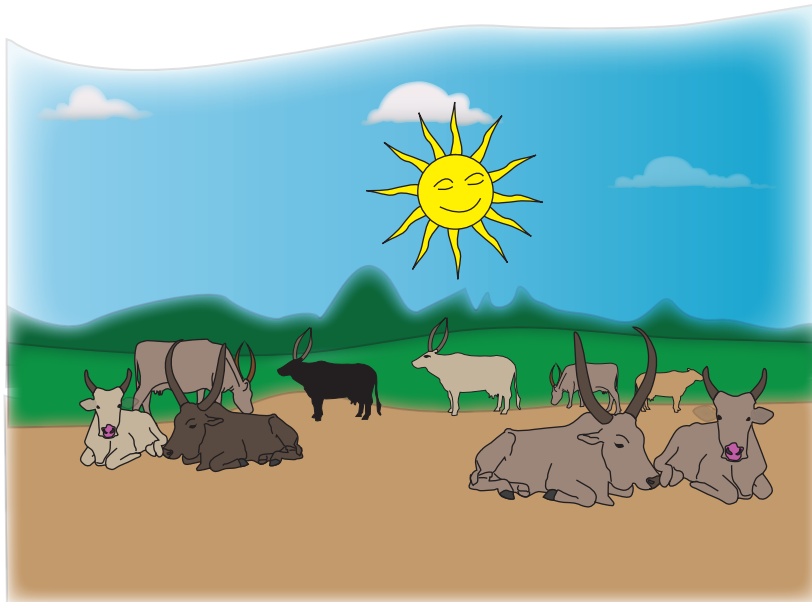
When we water our plants, they have healthy leaves. When they do not get water, the leaves fall down and soon the plant dies.

TOPIC 5: WEATHER

All days are not the same. Some are:

Sunny

picture of a sunny day



In a sunny day the sky is clear. We can see the sun. We also feel the heat from the sun.

Cloudy

cloudy day

The cloudy day has dark clouds in the sky. It is not clear. We cannot see the sun.



List 3 other weather conditions. Say how the sky is.

ACTIVITY

Work in groups .

Draw pictures of people doing different activities in different weather conditions.

DAY	SUNNY Picture of sun	CLOUDY picture	RAINY picture	WINDY picture	CALM picture
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					
Sunday					

Effects of weather Changes to pastoralists in cattle camps

ACTIVITY

Work in groups

List 3 ways each of the weathers affect your days

List 3 ways each of the weather affects you when it comes when you are not expecting it. For example, when it rains suddenly yet you expect it to be dry.

Recording rainfall

The amount of rain in an area is a very important factor. Crops cannot grow without rainfall. It is important to know when the rain falls. To know the amount of rainfall, it is measured with an instrument called rain gauge.

Discussion

Tell your friends why it is important for pastoralists to know about climate change.

Tell your friends how each type of weather affects you.

For example, how do you feel when you are moving with animals and it is very hot.
How can you benefit from weather if you are able to read the signs?

TOPIC 6: AIR

Look at these pictures.

A fire. A boy covering the fire with a metal box. The fire goes off.



Why do you think the fire has stopped burning?

Now close your nose with your fingers.

A girl closing her nose with her fingers.

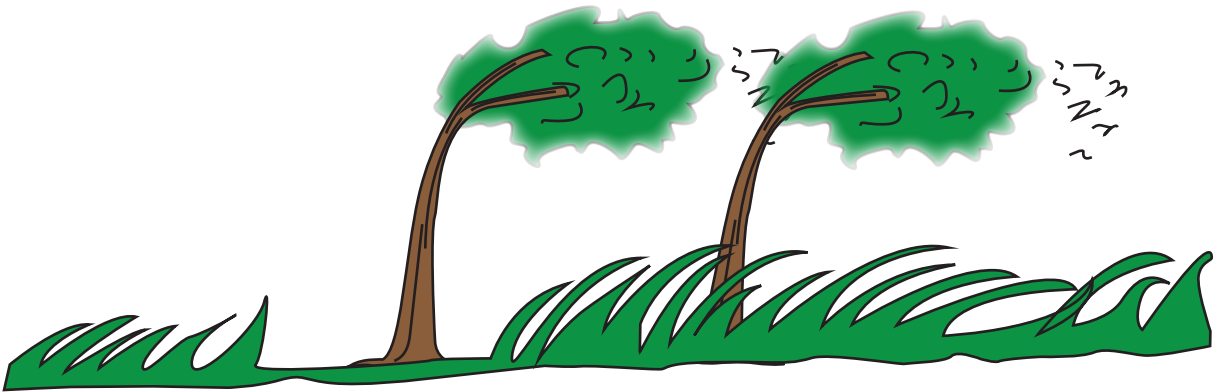


How long did you stay?

How did you feel?

We cannot see air but we can feel it moving. The moving air is called wind.

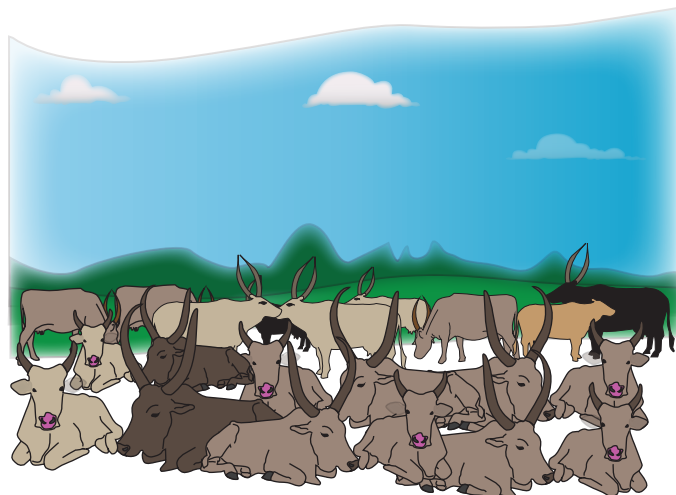
Trees bending because of wind



All living things need air. Air is everything around us. There is air in water, in the soil and in the atmosphere. It is very useful to us.

Look at these animals.

Cows very squeezed to each other. They look uncomfortable and tired.



Work in groups.

Tell one another how air is important to you.

Tell one another how air is important to your animals.

Tell one another how air is important for growing crops.

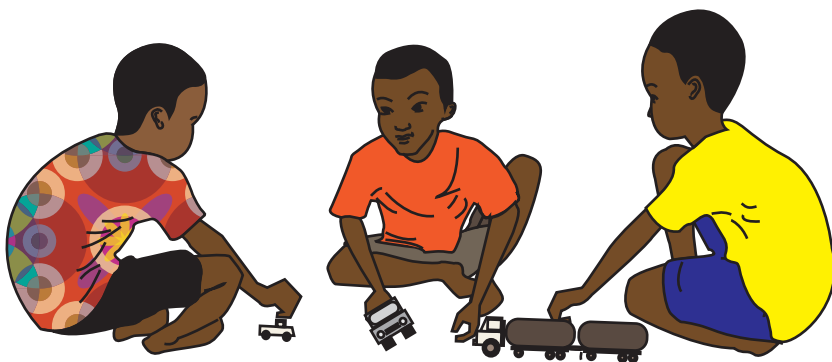
Tell one another why you need air in the cattle camp.

TOPIC 7: SOIL

Look at these pictures.

Picture of children playing in a dusty ground.

Picture of a man in the farm, in gumboots full of mud



What are these people doing?

Look at the soil where the people are. Each has a different colour.

Now go to the PLEFS garden. Look at the soil there. Touch it.

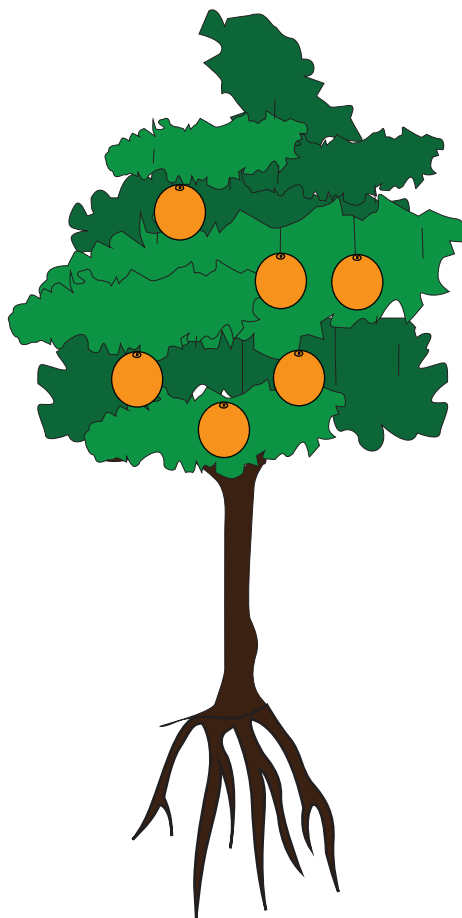
What is the colour of the soil?

When we dig the soil we find:

Some pieces of plants.

There could be sticks which are getting rotten, You may find leaves or even roots.

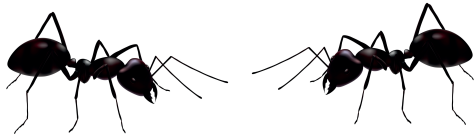
A plant. Show The stem, fruits, roots, leaves



There are small animals

Illustration of a beetle, millipedes, earthworms, ants

Stones



All these are the ones that make up the soil

USES OF SOIL

You have seen soil in the PLEFS garden. Maybe there are crops planted. If you remove the crops from the soil what do you think will happen to the crops? When you remove soil from crops, it is like removing food from a person. How many days do you think you can live without eating food?

What will happen if you cannot get food to eat?

You will grow thin. Your body will become weak. Then you will die.

This is what happens to crops. The soil and those things in it are its food. Those worms eat the leaves and the sticks. They break down. They become rotten. They mix with the leaves and other things thrown into the soil. If you throw cow dung into the soil it will become part of the soil. All these things make the soil fertile. It is good soil for growing crops.

Look at these pictures. Match the pictures with the sentences

Children are moulding animals

These are cooking pots

Men making bricks

This is a mud house

Water Pots
good for building houses

These bricks are

Mud houses

These are water pots

Cooking pots
making animals using clay

The children are



ACTIVITY

1. Look for different types of soil. Bring it to the nature corner.
2. Make patterns using a stick on the soil. See who makes most patterns you or your friends.
Tell your friends how soil has helped you and your family.
3. Put cow dung in the soil in your PLEFS garden.

Exercise

Pick the correct ones

1. These things make the soil to be good for farming.
(roots and dead leaves, plastic papers and bottles, dead leaves and bottles)
2. There are _____(many types, two types, three types) of soil.
3. Soil _____(has no colour, is always brown, has different colours).

Pick the ones that are not true

1. You can make _____using soil. (true pots, good bricks, a true cow, mud house)
2. Soil is _____(not good, good, important) to us as pastoralists.

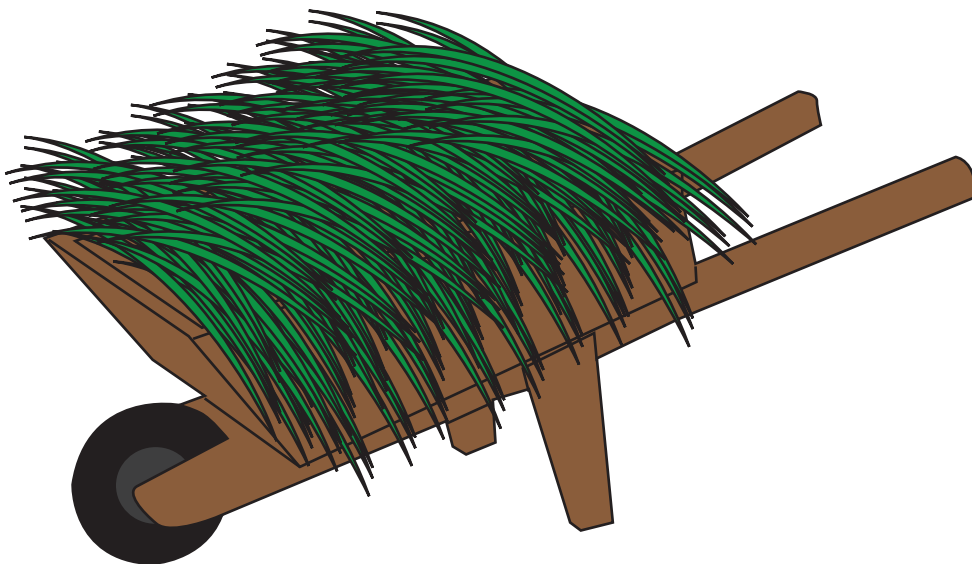
TOPIC 8: MAKING WORK EASIER

Wheels make our work easier. We can make wheels from many things including the many trees we have in our surroundings. We can also make wheels from clay.

We can use wheels to make carts and wheelbarrows to make our work easier.

Look at the following pictures. Discuss how each can make work easier for pastoralists.

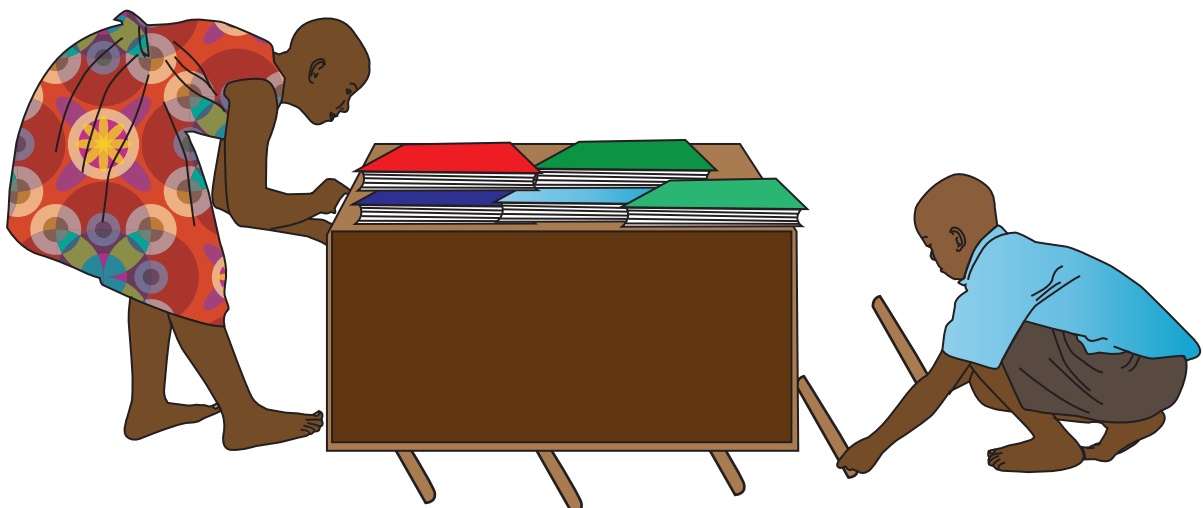
A wheelbarrow with wooden wheels carrying animal fodder



A wooden cart pulled by a donkey carrying jerrycans. A man sitted on it to direct the donkey



A boy and a girl pushing a box full of books. A boy in front of them is placing sticks. The box is rolling on the sticks. Using speech bubbles one is saying "rollers make work easier"



Deng and his friends looked for bamboo stems from the forest. They cut each of them into one and a half metres. They arranged the rollers on the ground. They then rolled the heavy box on the rollers. It was very easy.

Group work

List some of the difficult things you do in the cattle camp or when you are moving.

Discuss what you can do to make your work easier.

