Water is Life

2020 Vision for Water and Sanitation Education Programme

water & sanitation

Department:
Water and Sanitation
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2030 NDP

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Water is Life

Name.....

Surname.....

Grade.....

Grade 4

Grade

4

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Water is Life

Activity

At the end of this activity you will be able to:

- Explore the properties of water.
- Make models of water molecules.
- Investigate the importance of water.

Every drop counts: Of all the water in the world, only 1% is fresh.

Background information

Water is an important substance or resource on Earth. Therefore without water there is no life, thus water is life.

For this activity you will need:

- Ice cubes
- Liquid water
- Kettle
- Saucer
- Stove / hotplate

Activity 1a: Properties of water

WORK IN PAIRS

Your teacher will give you some glasses.

1. Brainstorm with your partners the three phases of water. List them in your workbooks.
2. Pour water into the container and investigate the following:

- How does it taste?
- How does it smell?
- What is the colour of water?

1 Phases of water

List the three phases of water

1. .....

2. .....

3. .....

Activity 1b: Forms of water

In this activity you will demonstrate how water changes from one state to the other.

What to do:

1 . Pour some water into a glass. What shape is the water in the glass?

.....

2 . Now pour the same water into a plastic lunch box.
What is the shape of the water now?

.....

3 . Put a block of ice into the glass. What shape is the ice?

.....

4 . Put a block of ice in a plastic lunch box. What shape is the ice?

.....

5 . Leave the ice to stand for a while in the box. What happens?

1 Phases of water

.....

6 . Boil some water in a kettle or in a pot on a hotplate. What happens when you boil water for a long time? Where does the water go?

.....

7 . Hold a cold spoon or saucer near the spout of the kettle or over the saucepan. What happens and why?

.....

Take Care!

Steam from boiling water can burn you. Be careful and use a cloth to cover your hands and wrists when you put them near steam.

Assessment

State or form	Can you see it?	Does it stay the same shape?	What does it feel like?	Can it flow by itself?
Liquid water				
Ice				
Water vapour				

1 Phases of water

Language:
Reading for meaning

Fill in the missing words

liquid; gas; properties; melts; evaporates; three; solid; vapour; freezes

There are ..... forms of water.

Each phase has different .....

Ice is the ..... phase of water. When water evaporates and

becomes water vapour in the air, it is in its .....phase.

Water can change from one phase to another. Ice .....

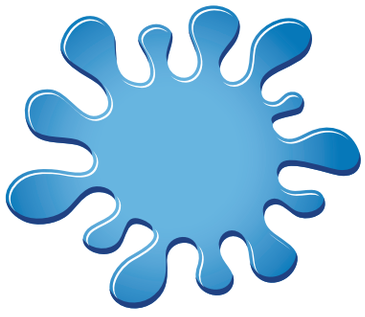
to become water. Water..... when it changes to ice,

or ..... when it changes water vapour.

Water vapour condenses when it changes to a ..... as it cools.

What have you learnt?

Water is an important resource that is never finished or used up. It comes in three different forms i.e. solid, liquid and gas, liquid being the main state that in which water mainly. As water is used or exposed to other conditions it changes it state from one phase to the next. It can change from liquid to solid, liquid to gas, or gas to liquid or solid to gas or solid to liquid.



2 Every drop of water counts

Natural science and technology:
Term 2: Materials around us
Topics:
Water cycle

Water is Life

Background information

Water is an important natural resource that never finishes or gets used up. Water always changes its form from liquid to solid or gas. These forms of water move from earth to the sky and back to earth. This process is called the water cycle. Water falls from the sky to the earth as rain or snow. Some of the water soaks into the ground and is stored as groundwater.

Activity

In this activity you will:

- Describe the water cycle

Activity 2a: The water cycle

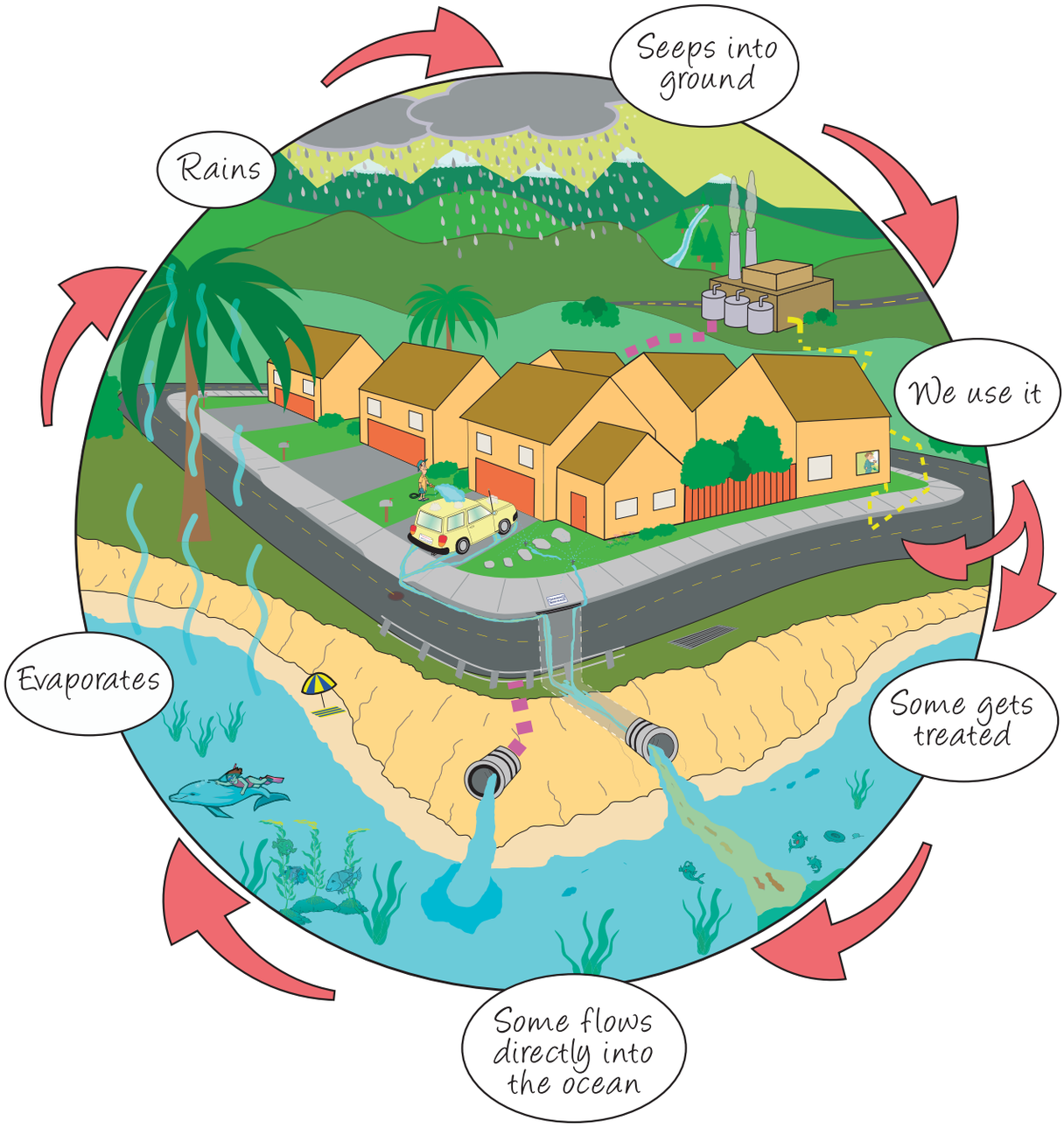
WORK IN PAIRS

Using the picture on the next page, arrange the following sentences in the correct order.

1. The sun heats the Earth's surface and water changes to vapour.
2. The rest of the water falls into streams, dams, rivers and / or oceans.
3. Water falls on Earth as raindrops or snow.
4. This is called the water cycle.
5. Some of the water soaks into the ground and is stored as groundwater.
6. Plants give off water vapour too.
7. Water vapour in the sky condenses, it falls back to Earth as rain or snow.
8. The heated vapour rises into the sky and forms clouds.

	8						

2 Every drop of water counts



Did you know?

The total amount of water on earth stays the same. The water that exists now has always existed.

2 Every drop of water counts

Assessment

Questions	Yes	No
1 . Were you able to find all the steps in the picture?		
2 . Were you able to describe what happens in each step?		
3 . Were there any words you did not know?		
4 . If yes, list those words in the space provided below.		
5 . Did you look for them in the dictionary?		
6 . If yes, provide their meanings.		

New words

.....

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.....

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Activity 2b: Learn new words

Using the following descriptions, complete the puzzle.

1. The process of changing water into a vapour.
2. The change of water from gas into a vapour.
3. A very important resource.
4. The cycle of water on earth.
5. The gaseous state of water.
6. When water droplets or ice particles drop down.

Clues

- Evaporate – dry
- Condense – becomes harder
- Precipitate – rain
- Vapour – gas
- Cycle – round and round.

1											
2											
3											
4											
5											
6											

Water is Life

Activity

In this lesson we will:

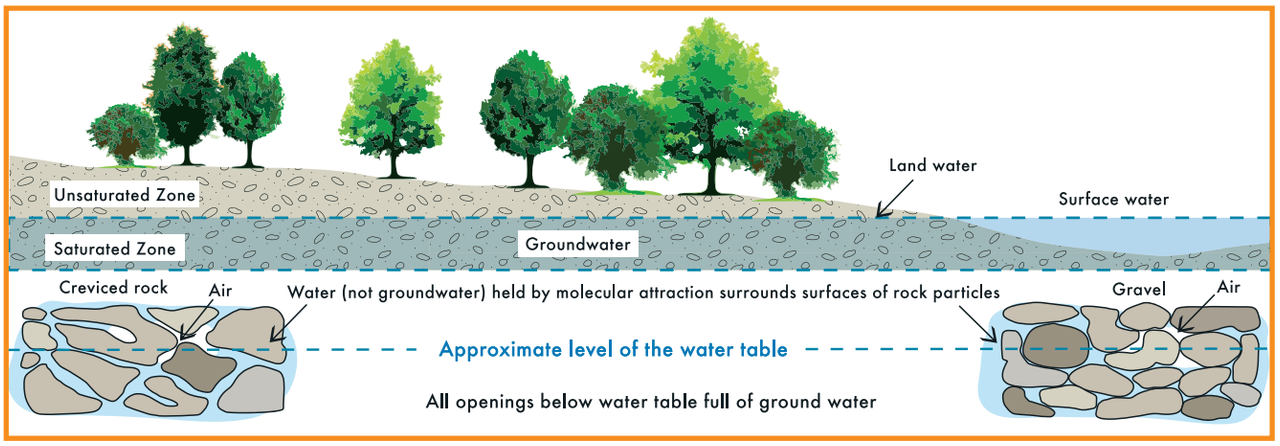
- Define what groundwater is
- Explain where groundwater is found
- Make a groundwater model
- Identify sources of groundwater pollution and possible solutions

Did you know?

Only 3% of the Earth's water supply is fresh water;and almost 2% of that is groundwater?

Background information

Groundwater is water that collects below the earth's surface in bedrock, spaces between soil and rock particles.



3 How to access groundwater

Groundwater quality is better than that of surface water because it is not exposed to pollution. However substances that seep into the ground can pollute groundwater.

What is groundwater?

Groundwater is water located beneath the ground surface in soil pore spaces and in the fractures of rock formations.

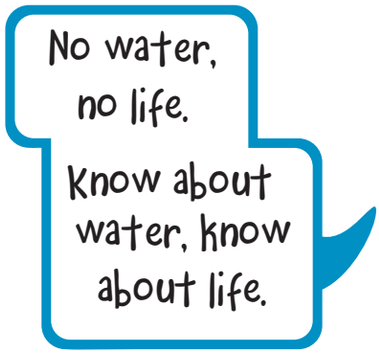
Do you know where the water you drink comes from?

In some areas of South Africa people get their water from under the ground. In these areas small amounts of rainwater soak into the ground and collect in the cracks and spaces in the rock deep under the ground. We call this groundwater.

People often think that groundwater occurs in large underground dams or lakes or in streams under the ground. Groundwater is, however, only water that fills the natural openings that are in rocks or sand under the ground. These openings can take many forms, for instance, the cracks or joints between rocks, the openings between small sand or mineral particles in the soil, or the openings between sand particles in dunes or river sand-filled riverbeds. Groundwater comes from rain. A small percentage of rain that falls as part of the water cycle soaks into the ground and fills the openings in the rocks and into the sand below the surface of the ground.

How do we access groundwater?

We can drill down to the water underground and pump it up so we can use it. Water can be pumped to the surface with a pump. There are many different kinds of pumps. We can reach groundwater by drilling a borehole and pumping the water to the surface. It takes a long time for water to collect under the ground so we need to be careful to keep it safe and not waste it.



Activity 3a: Making our own groundwater

WORK IN PAIRS

In this activity we shall demonstrate where groundwater is found and how it is obtained.

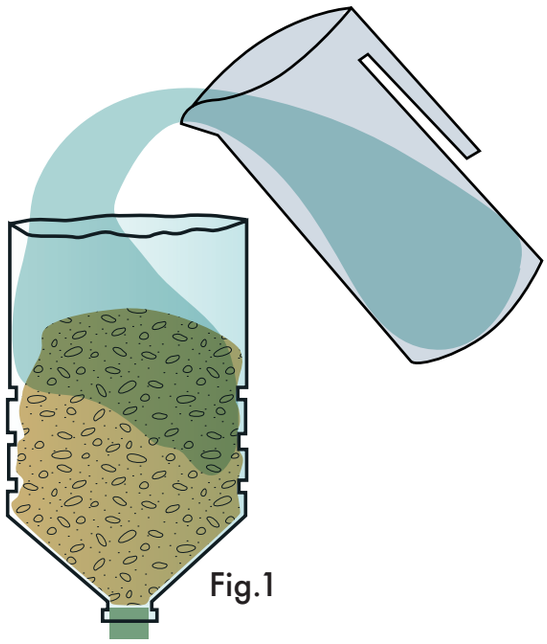


Fig.1

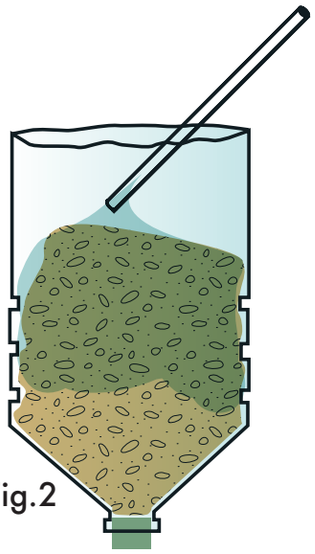


Fig.2

1 . Take a glass or clear plastic container and fill it with dry gravel, sand and small stones at the bottom. (Fig.1)

2 . Slowly pour some water into the sand and observe what happens.This shows how water collects under the ground. (Fig.1)

3 . Pour some more water into the sand. Make sure that you do not fill the container to capacity. What happens to the level of water? We call this top level of water the water table. (Fig.1)

.....

.....

4 . Wait a few minutes and record what you see. (Fig.1)

.....

.....

5 . Take a drinking straw and put it into the base of the container. The straw is like a borehole. Suck up some water. What happens to the water table now? (Fig.2)

.....

.....

6 . Record your findings and share them with others.

.....

.....

Explanation

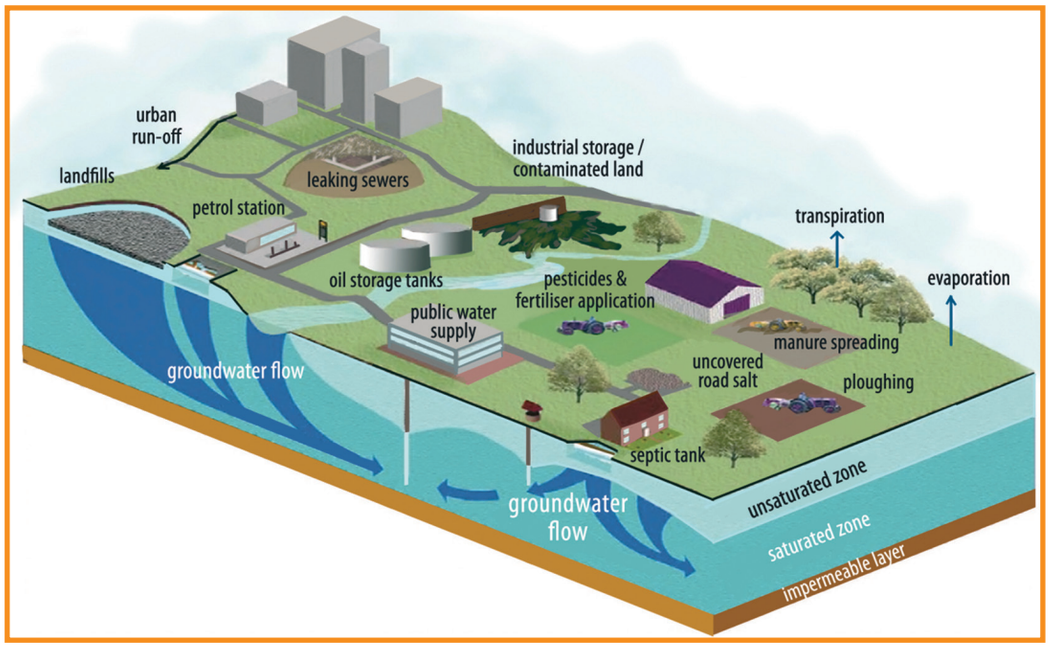
This is the method which is used by most communities that do not have taps or access to surface water.

Activity 3b: Groundwater pollution

WORK IN PAIRS

In this activity we will:

- Identify potential sources of water pollution
- Suggest different solutions to the potential problem



3 How to access groundwater

What to do

1 . Study the picture on the previous page and identify the potential pollution source.

2 . List them in the following table and brainstorm the possible solution to the problem.

Potential Pollution Source	Solution
1 . Over application of fertiliser.	Apply fertilisers sparingly.

Maths Activity
Working with data and graphs.
Natural science and technology:
Term 1: Life and Living
Term 2: Materials around us
Social Sciences: Geography
Term 3: Ways of farming
Term 4: Uses of water

Water use Efficiency

Activity

At the end of this activity you will be able to:

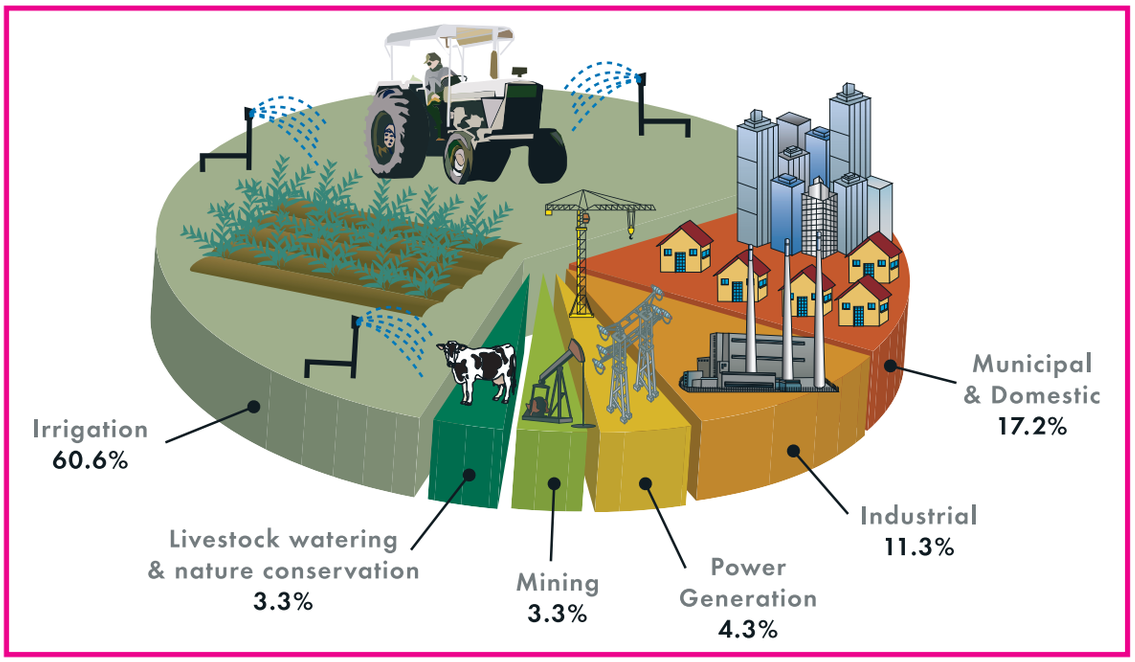
- List all the water users from the pie chart

Background information

South Africa is a water-stressed country. Water is our most precious natural resource. We have to conserve it in every way we can. Remember that conserving a resource means looking after it and using it wisely so that there will be enough of it in the future.

How do we use water in South Africa?

Look at the pie chart that shows the different ways in which we use water in South Africa.



Activity 4a: How do we use water in South Africa?

WORK IN PAIRS

Let's start conserving water

1. Work in pairs and answer the questions below using the information on the pie chart.

   a. Which is the biggest user of water in South Africa?

.....

   b. List all the users of water from the biggest user of water to the smallest user of water.

.....

.....

.....

2. Write down some ways in which you think we use water in the 'municipal and domestic' slice of the pie.

.....

.....

.....

.....

Water use Efficiency

You will need:

- Pencil
- Exercise books

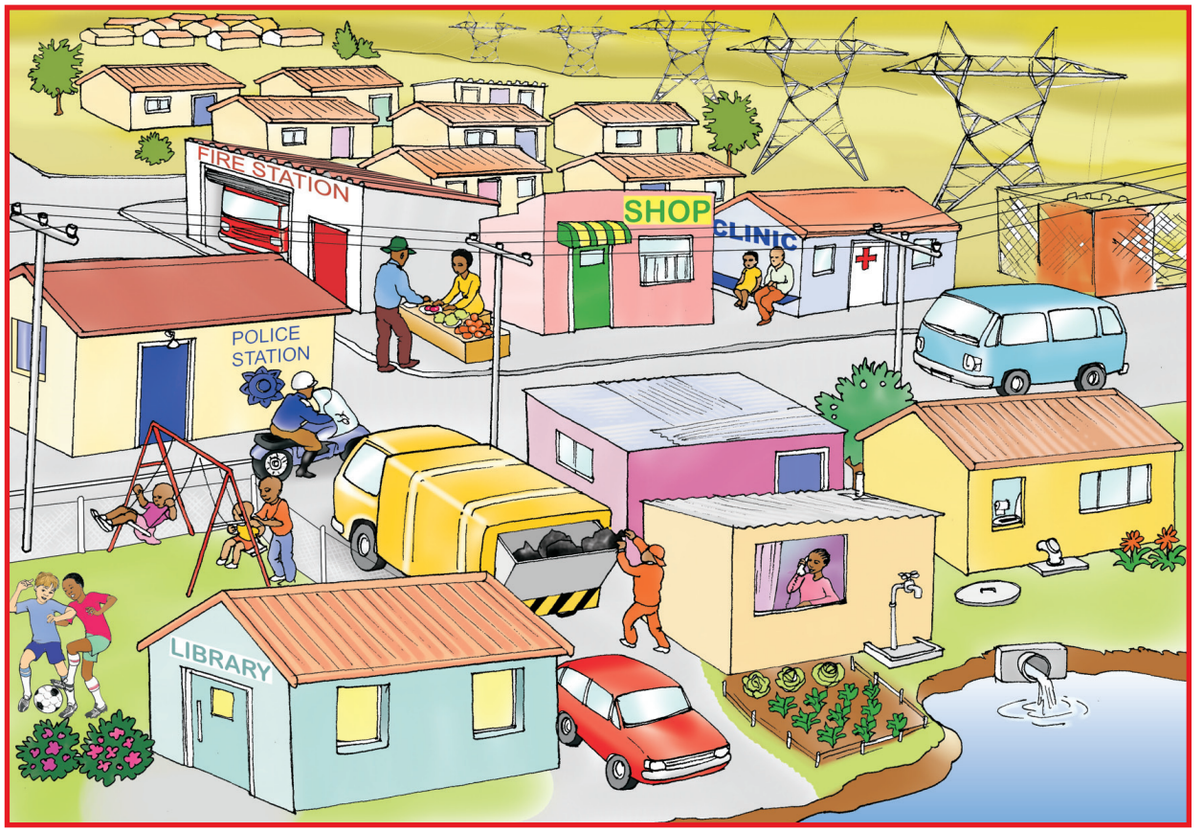
Activity 5a: Resource and service

WORK IN PAIRS

Choose a partner with whom you will work in this activity.

- In pairs, study the following pictures and answer the questions that follow in your own workbooks.

Picture A



5 Use water wisely

- Next to each letter in the table provided, write either a resource or service that you can identify in the picture.
- In the second column state whether it is a resource or a service.
- In the third column indicate with a tick (√) if they have that resources / service in their community, or a cross (X) if they do not.

Picture of	resources / service	(√) / (x)
a.		
b.		
c.		
d.		
e.		
f.		
g.		
h.		
i.		

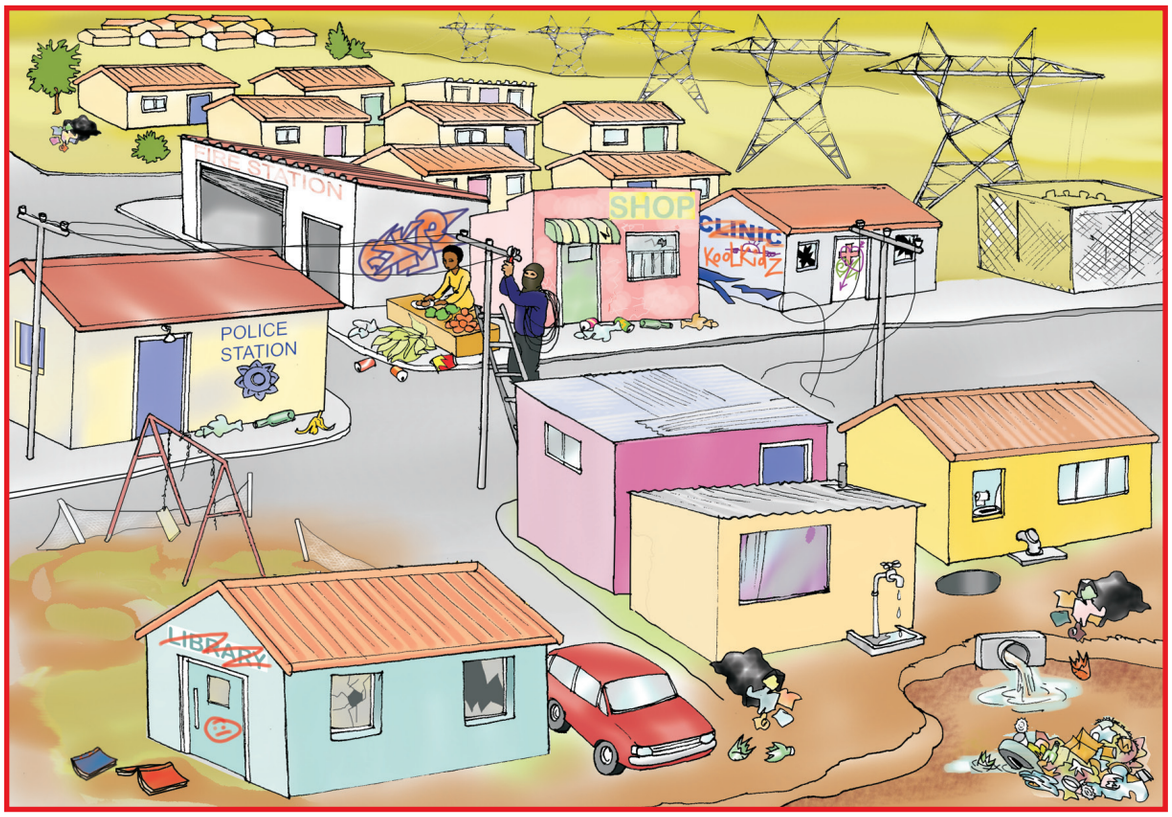
Activity 5b: Responsible and irresponsible use of resources

WORK IN PAIRS

Choose a partner with whom you will work in this activity.

- In pairs, study the following pictures and answer the questions that follow in your own workbooks.

Picture B



a . List ways in which people in this community are wasting resources.

.....

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.....

.....

.....

.....

b . List ways in which people in this community are acting irresponsibly by not using services properly.

.....

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.....

.....

c . What will have to be done to restore the damage done to resources and services in this community?

.....

.....

.....

.....

Adapted from: Oxford Successful Economic and Management Sciences: Clitheroe, F. Pg 8 – 9.

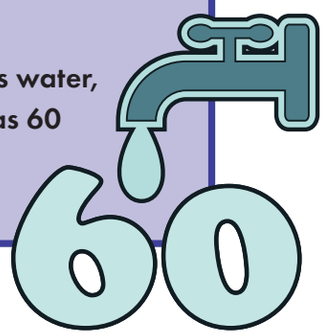
Activity 5c: How to fix a leaking tap

WORK IN PAIRS

- A leaking tap was identified as one of the water wasting activities in this community

Did you know?

If you have a tap that drips water, you could waste as much as 60 litres of water a day?



- What do you do in your home when you see a leaking tap?

.....

.....

.....

Red alert: Water saving tips

We are responsible for leaks and water losses in our own homes. Here are the three R's of saving water, the environment and money.

- Reduce daily usage of water.
- Re-use water whenever possible.
- Repair leaks.

5 Use water wisely

What to do

- Carefully observe as your educator shows you the method of fixing a leaking tap in a bid to cut water losses and save money.
- Each group will be asked to dismantle the tap and try out the method of fixing a leaking tap

Glossary

Washer: A thin, flat ring of metal or rubber, which is placed over a bolt before the nut is screwed on.

6 Do not pollute water

Life Skills:
Term 3: Health and environmental responsibility

Water Quality

Activity

In this activity you will be able to:

- Discuss how different events in the environment cause pollution of water.

Background information

Water pollution

Water pollution happens when the waste we produce as part of our everyday lives gets into water.
This can make the water:

- Less suitable for the purposes we usually use it for.
- Harmful or potentially harmful to our welfare, health or safety.
- Harmful or potentially harmful to the animal and plant life that depends on it.

Water pollution in densely populated areas can be caused by many things. In order for communities to solve water pollution problems in their settlements, we need to find out what is causing these problems. The causes of these problems may be:

- **Social (people's behaviour):** Social problems are the ones we get because of our behaviour. Water and toilet facilities may be misused because of lack of awareness and education. Many people don't know that misusing facilities can cause health problems and affect our long-term survival, and others believe it's the government's job to keep our surroundings clean.

6 Do not pollute water

- **Physical (things we can see):** Physical problems, are the things we can normally see such as when there are no bins or toilets, or when they don't work properly, or when the facilities used to take waste away from our communities are broken. These facilities could be storm water drains, sewerage pipes, or rubbish collection trucks.

- **Institutional (what the local authority is doing):** Institutional problems are the problems caused by the local authority. Local authorities are responsible for providing communities with water and sanitation services. But often they are not able to give us services, or to maintain them properly. So if the local authority hasn't got enough money to take rubbish away as often as it should, or to give us enough black plastic bags to put rubbish in, or when it hasn't got staff that can put in services, or it doesn't know what services we need, there are institutional problems.

Most pollution is caused by all three of these problems together. Keeping our natural resources clean and pollution free is a huge challenge to all of us. Polluted water can make us sick and kill animals and plants.

6 Do not pollute water

Activity 6a: Water pollution

WORK ALONE

Look at the picture below, discuss how different events in the environment cause pollution of water and answer the following questions. This picture should be studied in conjunction with the information supplied above.

1 . Name three causes of water pollution in densely populated areas.

.....

.....

2 . Name two other problems that are linked to physical problems.

.....

.....

6 Do not pollute water

3 . What kind of water pollution-related problems do we come across because of our behaviour?

.....

.....

4 . Who is causing the problem?

.....

.....

5 . How can the problem be solved?

.....

.....

.....

True or False

Read the following sentence in relation to water pollution and place a tick if the statement is true or a cross if the statement is not true.

Statement	True	False
1 . Institutional problems are caused when facilities are not maintained by the municipality.		
2 . Local authorities provide us with water and sanitation services.		
3 . Facilities used to take away waste are storm water drains, sewerage pipes etc.		
4 . Physical problems are things that we cannot see.		
5 . It is the government's job to keep our surroundings clean.		

NATURAL SCIENCE AND TECHNOLOGY
Language - carrying out written instructions
Maths - measurement

Water Quality

Activity

You will be able to:

- Work out the solution to assist the family to purify water by using a filtering device

You will need:

- Water
- A large clean container
- Toilet paper
- Cotton wool
- Cloth
- Sand
- Stone
- 2 litre cool drink plastic bottle.

Activity 7a: Purify water before you drink it

WORK IN PAIRS

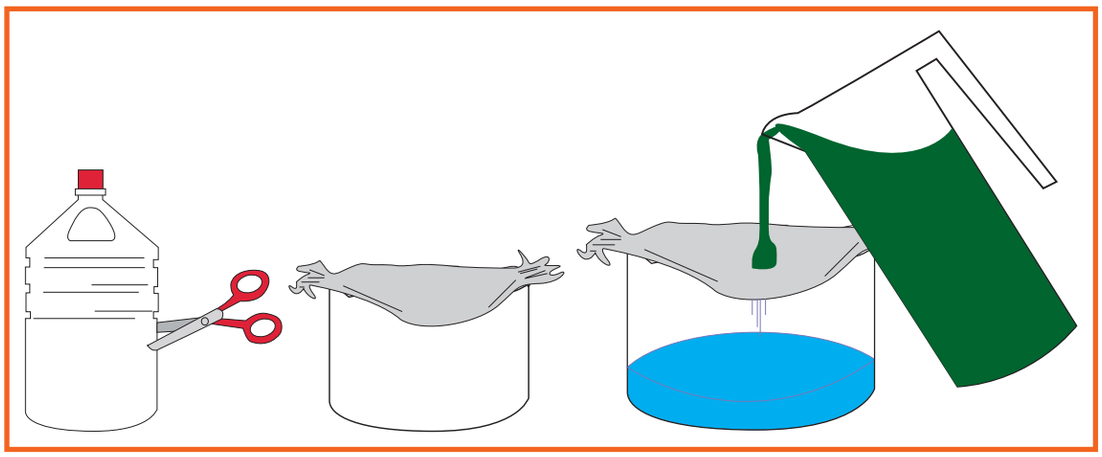
Problem: The Wasser family lives close to a river and uses water for drinking and other household purposes. Sometimes the water is very muddy and polluted. How can we help them to get clean water for drinking?

7 Water filtration

NATURAL SCIENCE AND TECHNOLOGY
Maths - Measurement; volume.

What to do

- Following the steps, construct a water filtering device from the materials provided for the Wasser family.



1. Make dirty water.
2. Cut the 2 litre plastic bottle in half and use the base of the bottle.
3. Take the cloth and fold it in a way that it makes a container.
4. You may use the newspaper for this.
5. Hold the cloth on top of the water bottle.
6. Pour your dirty water onto the cloth.

7 Water filtration

Questions

1 . What happened when you poured the water through the cloth?

.....

.....

.....

.....

2 . Is the water you have just filtered now safe to drink?

.....

3 . If not, explain other purification methods that could be used to make water safe to drink. (You may use the picture on the next page as a guide)

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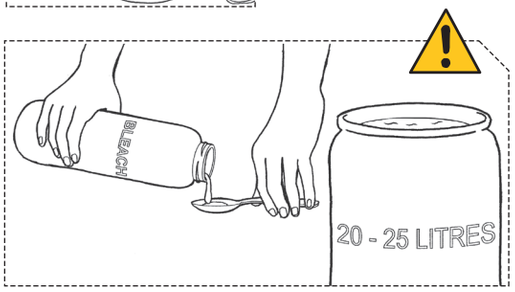
.....

7 Water filtration

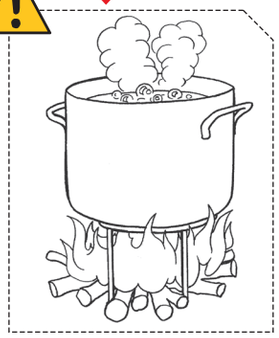
How to purify water

Collect fresh water every day.

Pour (filter) the water through a clean cloth



Pour 1 teaspoon (5ml) of bleach into 20 -25 litres of water, mix well and wait for at least 30 minutes (half an hour), before drinking.



Boil the water. Let the water bubble for one minute, before it is clean and safe to drink.

Safe water can easily get dirty. Store safe water in a clean, closed container.

Use a clean cup each time to scoop water out of the container.

Pour water from the container when you need to use it.

7 Water filtration

Language - Letter writing

Activity 7b: Educate others

WORK IN PAIRS

Write a letter to the Wasser family advising them on what they should do to purify their water. Brainstorm with your partner for this activity.

Dear Wasser family,

Glossary of terms

Pollute: To make something dirty and dangerous to use or live in.

Filtration: A process of passing a substance through a device that is designed to remove certain particles contained in it.

Purification: To make substance pure by removing any harmful, dirty or inferior substances from it.

Life Skills:
Term 4: Health and environmental responsibility
Topic: Personal and household hygiene

Sanitation, Health & Hygiene

Activity

In this lesson you will:

- Conduct research to find out the way people lived in the past and present.
- Compare the lifestyles of people in the past and present.

Activity 8a: How our needs were met in the past

What to do

- Interview a parent or grandparent about personal health and hygiene with a view to finding out what the problems were in the past and how they were solved.
- Conduct the same interview with your peer / friend using the following questions:
  1. Where did you get your water when you were younger?
  2. How did you dispose of rubbish / litter?
  3. What kind of toilets did you have? (If there were any)
  4. What health problems arose as a result of the toilets, water source and rubbish disposal methods? (Use the following table to record your information.)
- Use the table supplied when they record the information from the interview.

8 Keep away from germs

Village / Town			
Service	Obtaining water	Kind of toilets used	The way the rubbish removed
Past			
Present			

Problems			
Service	Obtaining water	Kind of toilets used	The way the rubbish removed
Past			
Present			

Questions

a . In your analysis of information how would you describe the way people in the past lived?

.....

.....

.....

.....

.....

b . Which lifestyle would you prefer (the past or the present) and why?

.....

.....

.....

.....

c . Focusing on the link between the type of facilities used today versus the olden days, and their effects on personal health, report your findings back to the whole class

Life skills:
Term 3: Health and environmental responsibility

Sanitation, Health & Hygiene

Activity 9a: Is our environment healthy?

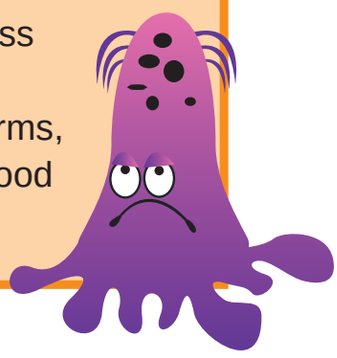
WORK ALONE

Read the following fact file:

A healthy environment means a healthy life. Is the environment in which you live healthy? Is the air clean? Is the water clean? If the environment in which we live in is not healthy, we can get sick; we need a healthy environment to stay healthy. In communities without toilets, without safe drinking water, and without safe refuse disposal, it is very difficult for families to prevent the spread of germs.

Did you know?

More than half of all illness and death among young children is caused by germs, which are consumed in food and water.



What to do

- Look at the following pictures and do the following in each one:
  - a . Identify unhealthy conditions.
  - b . Explain the effects that these unhealthy conditions have on the people in the picture.

Explain what they could change to make sure that the people will not be exposed to diseases.

Story 1. Flies feed on uncovered faeces.

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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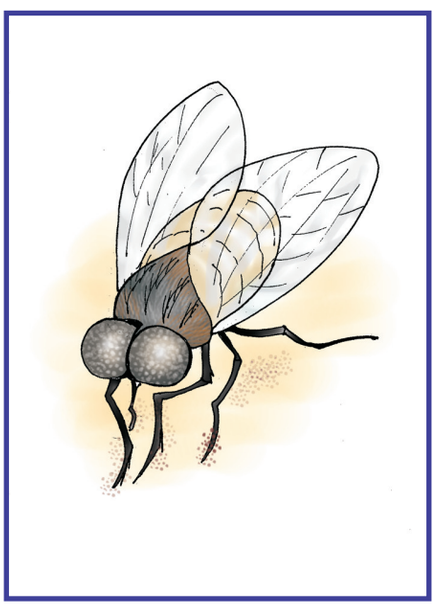
Flies carry disease.



PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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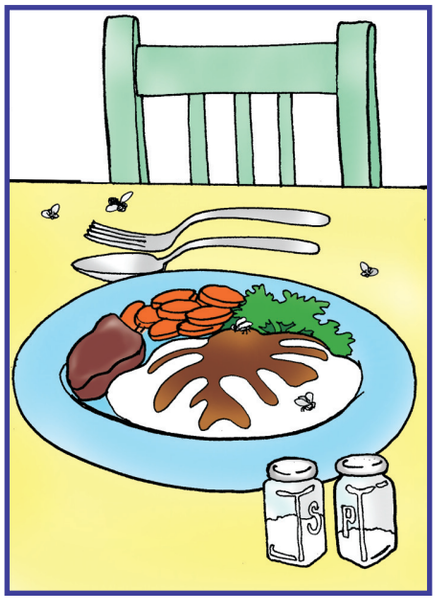
The flies sit on uncovered food and contaminate it.



PROBLEM.....

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EFFECTS .....

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SOLUTION.....

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The family eat their meal unaware that it's covered with germs.

PROBLEM.....

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EFFECTS .....

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SOLUTION.....

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Soon they begin to have cramps and stomach aches.

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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They are all suffering from diarrhoea

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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Story 2. After going to the toilet...

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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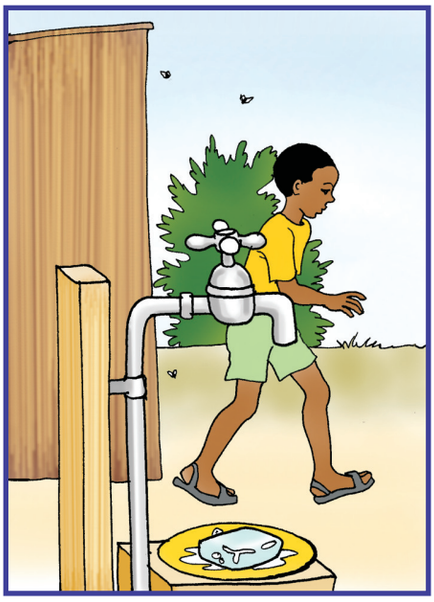
Nathi does not wash his hands.



PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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He plays with his friend.

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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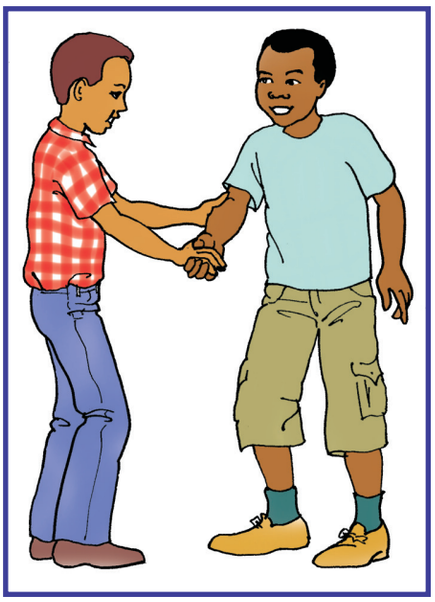
Then Nathi's friend shakes another friend's hand.



PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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They meet many people and pass on the germs to all of them.

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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Soon everyone is suffering from diarrhoea.

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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Story 3. A man suffering from diarrhoea goes to the toilet behind his house. (Diarrhoea has many germs in it.)

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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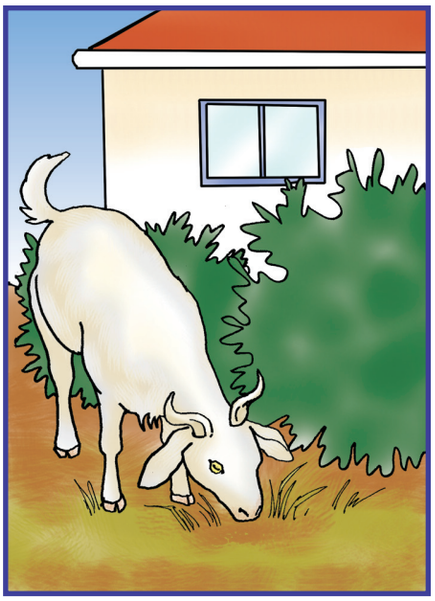
A goat eats the diarrhoea and gets its nose and hooves dirty.



PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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The goat stands near the playing baby and germs get on the baby's skin.

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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The mother then picks up the baby and gets the germs on her hands.

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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The mother does not wash her hands before preparing food for her family.

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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The whole family then suffers from diarrhoea.

PROBLEM. .....

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EFFECTS .....

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SOLUTION .....

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Facts about a healthy environment

Every house should have a toilet

Germs can easily be spread when people do not have proper toilets. An important way to keep yourself and your family healthy is to have a safe toilet. There are many different types of toilets and the one you use depends on where you live and what you can afford.

A cheap safe toilet is a VIP toilet. VIP stands for Ventilated Improved Pit. A VIP stops flies and smells. Contact your nearest Department of Water and Environmental Affairs office to see whether someone can help you build one. Build your toilet downhill and at least 50 metres away from any borehole to prevent the waste from the toilet from polluting the groundwater.

Small children are often afraid to use a pit toilet. Keep your toilet clean and attractive so that no-one in your family is afraid to use it. Always wash your hands.

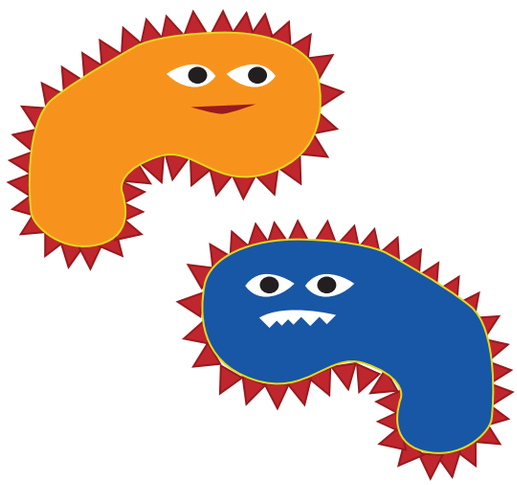
Germs are also spread on our hands. Stop disease spreading. Make sure you wash your hands after going to the toilet.

Collecting and storing water

Always make sure your water container is clean before you collect water. Store the water in a covered bucket. Don't put your hands in the water, use a dipper (like a jug or a cup).

Flies

Flies can also spread germs. You must always cover food and water. If possible, do not let anyone go to the toilet in the open as this attracts flies.



Activity 9b: Summative assessment

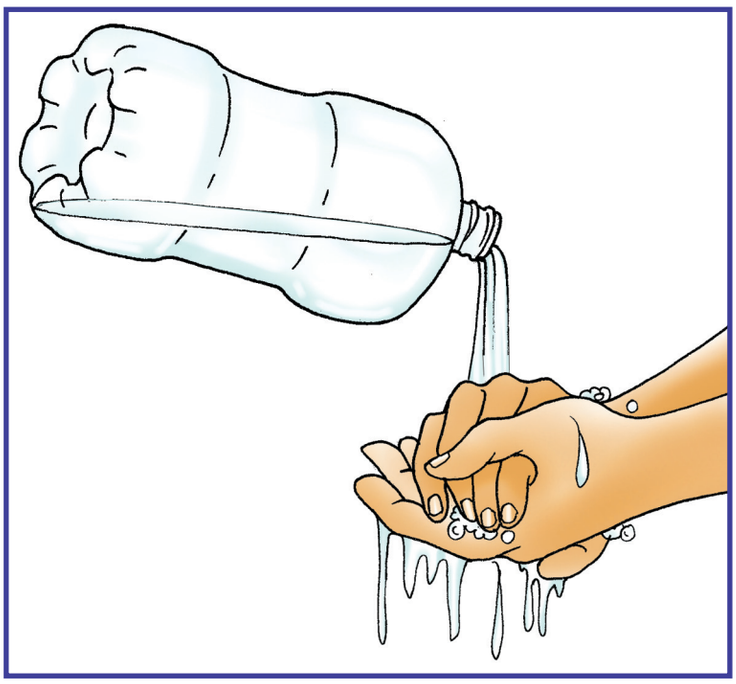
WORK ALONE

State whether the following statements are true or false.

Statement	True	False
1 . The faeces of children and babies are harmful and cause diseases just like everyone else's.		
2 . You can catch diarrhoea from a dirty toilet seat.		
3 . Flies are annoying pests, but they are harmless.		
4 . You should always wash your hands with water and soap or wash after using the toilet.		
5 . Boys need hygienic toilets more than girls do.		
6 . It is not important to keep toilets clean because they just get dirty again.		
7 . I don't need to wash my hands after urinating because I don't wee on my hands.		
8 . People in urban areas have a right to better sanitation.		
9 . I should always wash my hands before I eat.		
1 0. It is better to save water by not flushing the toilet.		

Glossary of terms

Germs:	Very small organisms that cause disease.
Borehole:	A deep round hole, made by a special tool or machine, that's made through the ground to access water.
Defecating:	Getting faeces or stools out of your body.
Refuse disposal:	Getting rid or throwing away rubbish and all the things that are no longer wanted.
Diarrhoea:	It is a sickness which causes one's body to lose a lot of liquid in the form of liquid faeces and vomiting.
Sanitation:	A process of keeping places clean and healthy, especially by providing a sewerage system and a clean water supply.
Faeces:	Is waste matter that is expelled from the bodies of humans and animals.
Urban area:	Area that is considered a town or city.



Life skills:
Term 2: Social responsibility
Topic: Children's rights and responsibilities

Sanitation, Health & Hygiene

Activity

In this activity we will learn:

- About rights and responsibilities
- Match the rights and responsibilities that children have to know and apply

Activity 10a: Rights and responsibilities

WORK ALONE

What to do

- Read the children's health rights and responsibilities on the following page.

10 Children's health rights

Did you know?

1. **All children have a right to a healthy diet.**
2. **All children have a right to clean water.**
3. **All children have a right to sanitation.**
4. **All children have a right to a clean living environment.**
5. **All children have a right to protection from domestic violence.**
6. **All children have a right to health care.**
7. **But if children have these rights, they must also be responsible themselves. For example:**
   - **Children must help to keep the toilet area at home and at school clean.**
   - **Children must not waste food and must also help to prepare the food.**
   - **Children must help to keep the home clean and must not litter surroundings.**
   - **Children must not waste water and must not pollute water.**
   - **Children must look after their health as best they can.**
   - **Children must help their parents whenever they can.**

Adapted from: Oxford Successful: Life Orientation, Grade 4 Learners book; Clitheroe, F et al, pg 16 - 17.

Activity 10b: Know your rights

WORK IN GROUPS

What to do

- Match up the health rights (1-6) with the health responsibility (a-f).
- Exchange your books and mark each other's exercise.

Right	Responsibility
1. All children have a right to a healthy diet.	a . Children must help to keep the home clean and must not litter surroundings.
2. All children have a right to clean water.	b . Children must not waste food and must also help to prepare the food.
3. All children have a right to sanitation.	c . Children must not waste water and must not pollute water.
4. All children have a right to a clean living environment.	d . Children must help their parents whenever they can.
5. All children have a right to protection from domestic violence.	e . Children must help to keep the toilet area at home and at school clean.
6. All children have a right to health care	f . Children must look after their health as best they can.

Answers

eg.	1	b
	2	
	3	
	4	
	5	
	6	

Activity 10c: Identify children's rights

WORK ALONE

What to do

Study the pictures below and answer the following questions.

Questions

1. Which rights are not being protected?
2. Discuss how you would change things in each picture to make sure that the children's rights are being protected.

PROBLEM.....

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SOLUTION .....

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Children's health rights

PROBLEM. .....

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SOLUTION .....

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Know your rights!

10 Children's health rights

PROBLEM. .....

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SOLUTION .....

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PROBLEM.....

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SOLUTION.....

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10 Children's health rights

PROBLEM.....

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SOLUTION.....

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Glossary of terms

Rights: Something that you are morally or legally entitled to do or to have.

Responsibility: Something which you should do because it is morally required.

Social Sciences:
Geography Term 4 : Water as a resource
Languages:
Topic: Read and discuss

Sanitation, Health & Hygiene

You will need:

- Pencils
- Exercise books

Activity 11a: Accessing better resources

WORK IN PAIRS

What to do

Read the following background information with your educator.

Background information

Everyone should have access to resources such as a place to live and a safe water supply. In settlements such as towns and cities, where a lot of people live, there are many services that people should have. For example, there should be a service that removes rubbish, and a sewerage system. People who live in a settlement must pay their local municipality for these services.

- Your educator will read and explain the following case study to you
- Check the meaning of resource and service in the dictionary
- Answer the questions that follow

11 Resources and services

A. Village life	B. Urban life
Sipho and Lebo live in a village in the Free State. They live with their grandmother in a house on a small plot of land. There is a tap about 100 metres from their house that all people in the village use for water. Sometimes the tap does not work, so they help their grandmother to get water from the stream where the cattle drink. They have a 'VIP' toilet at the bottom of the plot. This toilet has a seat over a deep hole in the ground. They wish they had a flush toilet like the ones they have seen in town. Their grandmother cooks their food in a pot over their fire.	Lifa and Busi live in a small town in Limpopo. Lifa and Busi and their parents moved into a municipal house last year. The house has electricity (which the family never had before). They have a small electric stove for cooking. With the new electric lights, Lifa and Busi can read and do homework at night, and watch some television. The electricity costs R50 per month. The house has taps inside the house, but the flush toilet is outside. The family pays the municipality about R15 per month for water. Lifa and Busi's mother is glad that she does not have to walk to the community tap as she did in the past. She is also pleased that the municipality now collects the rubbish once a week. It costs R30 per month for this service, but the streets are cleaner because rubbish is collected. The town has a police station and a community hall next to the clinic.

Questions

1 . Explain from where each family gets their water.

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2 . Compare the reliability of the water supplies.

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3 . What does each family have to do to make their water safe to drink?

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4 . For which services does each family pay every month that makes their lives better?

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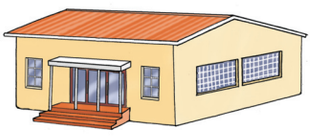
Activity 11b: Understanding different services

WORK IN PAIRS

The following pictures show different services needed in a settlement.

A. You may work in partners for this activity. Together with your partner, look at each picture, discuss what service is being provided and explain the service being provided.

Picture	Service provided
	
	
	
	
	
	

11 Resources and services

Picture	Service provided
	
	
	

B. Answer the following questions about each of the pictures:

a . Does your village, town or city offer these services?

b . Does your family make use of the services? If not, why?

c . If you do not have these services in your area, can you think of reasons why you do not have these services?

d . Do you think it is fair for you not to have these services?

e . For those services that you do not have, where do you have to go to get them?

Adapted from: Monteith, M et al.: Oxford Successful: Social Science Grade 4 Learner's Book, pgs 18 – 20.

Glossary of terms

Resources: They are things that a country has and can be used by its people or can be used to increase the country's wealth, such as coal, oil, land etc. Sometimes these can exist naturally, e.g. water, land, minerals etc.

Services: A service is something that the public needs, such as transport, communications services, hospitals, energy supplies etc. which is provided in a planned or organized way by the government or an official body.

Sanitation, Health & Hygiene

Activity

In this activity you will be able to:

- Take an active role in community projects to fight poverty and help people have better lives.

Activity 12a: Let's wake up and fight poverty

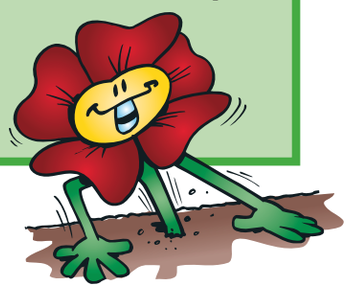
WORK IN GROUPS

Read the following story to the learners and let them answer the following questions:

Mr. Collie, a grade 4 teacher, attended a community garden workshop. When he came back from the workshop he informed his class about the Sofasonke Garden Project in their community in Mpumalanga. The project works to develop disadvantaged communities in the local area. The vegetable gardens provide food for families in the community. The fresh vegetables keep the children healthy. The vegetable gardens provide an income for the women who sell the vegetables to hawkers, schools and the public. The Sofasonke Garden Project is looking for volunteers to help in their garden project and he had taken the initiative of informing the project leader that his class will be part of the garden project. Learners wanted to start immediately.

The learners divided themselves into groups and each group prepared a bit of the soil for their own vegetables. They planted the following seedlings: cabbage, onion, beetroot and spinach in rows, and took turns to water the seedlings every day, even in the holidays.

The learners were very proud to be involved in the community project and wanted to share what they had learned with their families. They invited their parents to see the garden.



12 Community efforts in fighting poverty

Questions

1 . Why was it important for the learners to be involved in the community garden project?

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2 . What is the name of the project?

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3 . What skills did you learn in the project?

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4 . Name two ways in which the project helped people in the different communities?

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5 . Which seeds were planted?

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6 . In what ways did the project in Limpopo help people to fight poverty?

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Activity 12b: Your community

Having read the story, research in your community the following:

a . What problems of poverty are there in your community? List them.

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b . What is being done about those problems? e.g. garden, sewing etc.

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c . Choose one project and draw up a plan on how the project will be carried out.

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d . Mention all members that will participate in the project

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Life Skills:
Term 3: Health and Environmental responsibility
Topic: Dangers in and around water

Water Safety

Activity

You will be able to:

- Identify dangers and responsible safety measures in and around water

Background information

What are the water safety rules? It is a good idea to learn to swim as soon as you can, especially if you live near a swimming pool, river or dam. But even good swimmers can drown or have accidents. To prevent accidents, always obey these important safety rules:

Activity 13a: Safety rules

WORK IN PAIRS

What to do

- Look at the pictures below and:
  - a . Match up each picture with one of the water safety rules
  - b . Write a short paragraph about water safety

Water safety rules

Do not...

- Swim alone.
- Swim where nobody can see you.
- Swim near surfers or people in boats.
- Leave small children alone in or near water.
- Dive or jump in where people are swimming.
- Play wildly in or near water.
- Push or scare anyone.
- Use blow up toys or arm bands which are leaking.
- Have too many people in a boat.
- Swim where there could be sharp objects under the water.
- Swim when you are cold.
- Swim after you have eaten – wait for about an hour.
- Swim when you are tired.
- Swim when you are sick.
- Swim in fast flowing rivers.
- Swim during a thunderstorm.
- Push a friend into or under water
- Dive into murky water.

13 Water safety rules

Picture	Water safety rule
	
	
	

13 Water safety rules

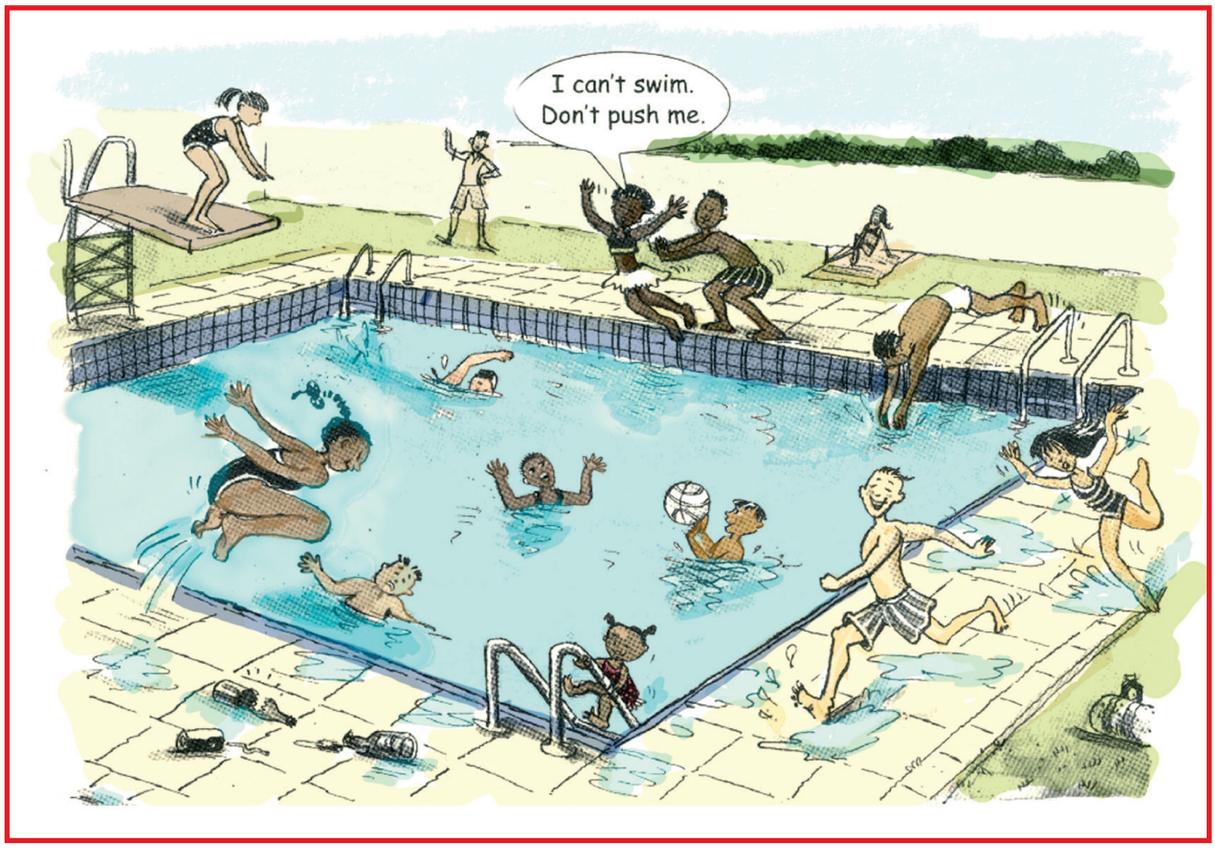
Picture	Water safety rule
	
	
	

Activity 13b: Dangers at the pool

WORK IN GROUPS

How to behave around swimming pools

Accidents can happen very easily in and around swimming pools. Look at the picture below illustrating some dangerous situations.



What to do

In groups study the picture above, identify six dangers and suggest a safety rule that will prevent that danger. (Use the space provided on the following page).

13 Water safety rules

Activity 13c: Know your water safety rules

What to do

Your educator will help you decide which of the rules particularly apply to your group and where you live. You should then each write a paragraph in you workbook about water safety.

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Assessment

You will be assessed whether you were able to:

- Identify the dangers in safety measures around water
- Write a short paragraph about water safety
- Identify dangers and responsible safety measures in and around water

14 Why trees are important

Natural Science and Technology:
Term 1: Life and living
Topics: Structures of plants and animals and what plants need to grow.
Languages:
Topic: Read and carry out instructions

Forestry

Activity

In this activity you will:

- List the importance of trees after they are chopped down
- Discuss the value of trees in our lives

Activity 14a: Let's discover more about plants

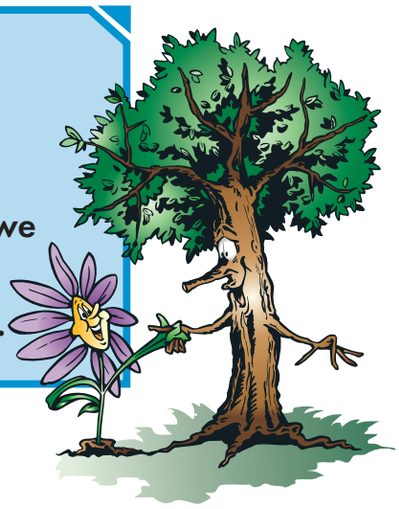
WORK IN PAIRS

In this activity we shall:

- Discover more about the trees.
- List the importance of trees.

Did you know?

Some trees seem to be magical homes for spirits and legends. Plants "breathe in" waste air (CO_2) we breathe out and breathe out oxygen (O_2).
Many South African plants are used as medicines.



14 Why trees are important

What to do

Read the following passage and answer the questions that follow.

Where would we be without trees? Trees truly are our friends, generously giving us many things that we take for granted. In our school grounds, parks, gardens and along our streets, trees give us shade from the sun and shelter from wind and rain. Many bear fruit that people and animals can eat. Every day trees and other plants give us clean air to breathe. It is one of the miracles of Mother Earth that plants "breathe in" the waste air we breathe out, and "breathe out" oxygen that we breathe in!

Look closely at a tree and you will find a whole community of animals and other plants living in it. Birds nest in the branches, insects and birds feed on the leaves, flowers and fruit and lizards scurry up and down the mossy trunk searching for food.

Trees inspire us with their beauty, their size and their great age; some seem tobe magical homes of spirits and legends and others are a friendly jungle gymwhere we can climb, swing and build a tree house. Even after they are choppeddown, trees continue to give. The wood to make our school benches and pencils, the paper this book is written on and even some fabrics that we wear are all gifts from the tree. No wonder every year we set aside a special day to celebrateand give thanks to trees!

Questions

1 . List all the things a live tree can do?

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Why trees are important

2 . List all the benefits provided by trees after they are chopped down.

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3 . What is the relationship between trees and humans in breathing?

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14 Why trees are important

True or False

Read the following sentence in relation to trees and place a tick if the statement is true or a cross if the statement is not true.

Statement	True	False
a . Trees do not inspire us with their beauty.		
b . Trees and other plants give us clean air to breathe.		
c . Some fabrics that we wear are all gifts from the tree.		
d . A tree cannot bear fruit.		
e . Every year we set aside a special day to celebrate and give thanks to trees.		

Activity 14b: Word puzzle

Try to complete the following word puzzle about the value of trees.

Clues

Down

1 . Our school desks, benches and tables are made of this material.

2 . Our clothes are made of this material.

3 . In our parks, gardens and along streets, trees give us a type of protection.

Across

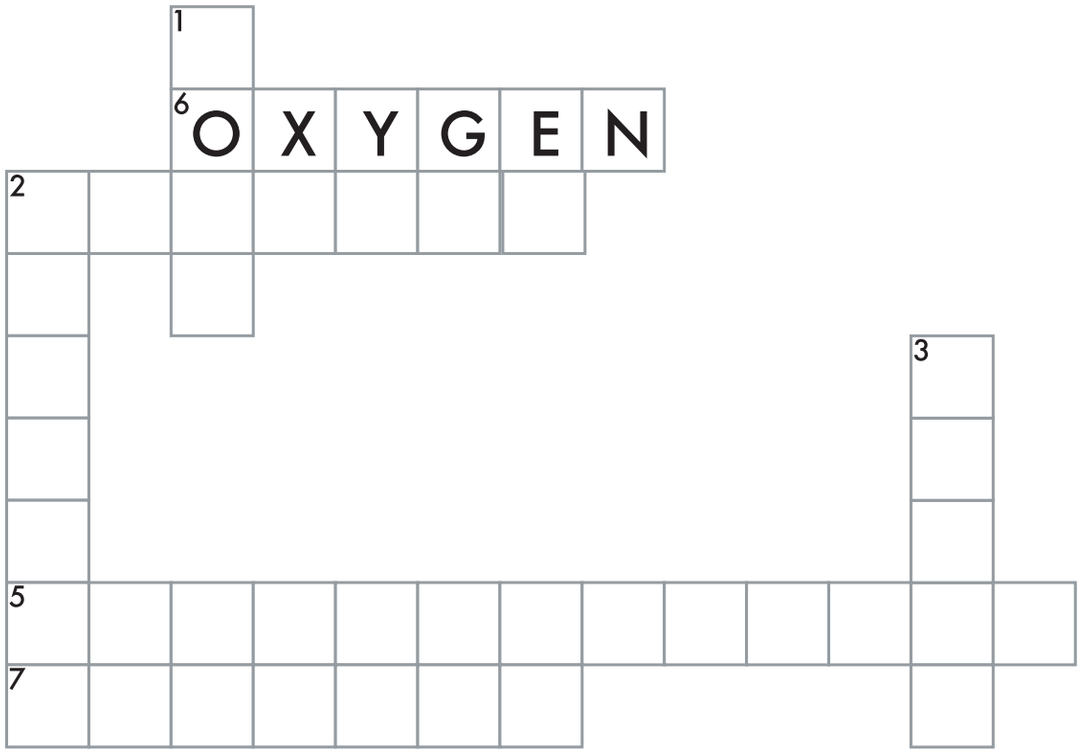
2. Trees bloom and beautify nature with these colourful blossoms.

5. Trees "breathe" in this gas.

6. Trees "breathe" out this gas.

7. Trees protect our houses and crops from wind.
What is another word for protect?

14 Why trees are important



Invasive Alien Plants (IAP'S)

Activity

At the end of the activity you will be able to:

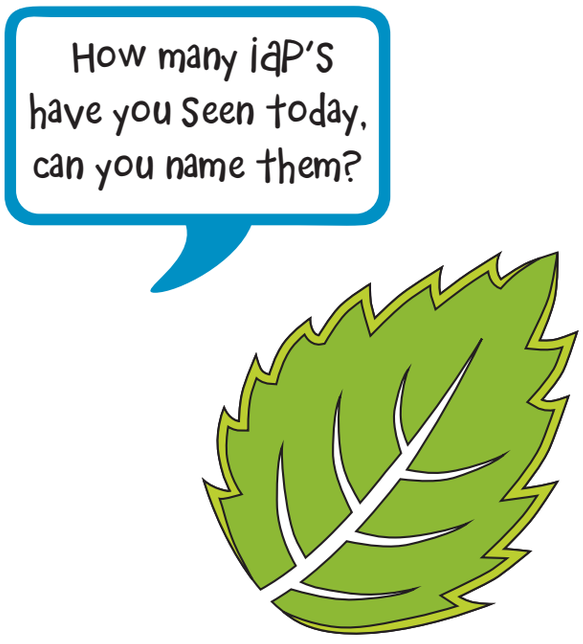
- Identify invasive alien plants.

Activity 15a: Know invasive alien plants

WORK ALONE

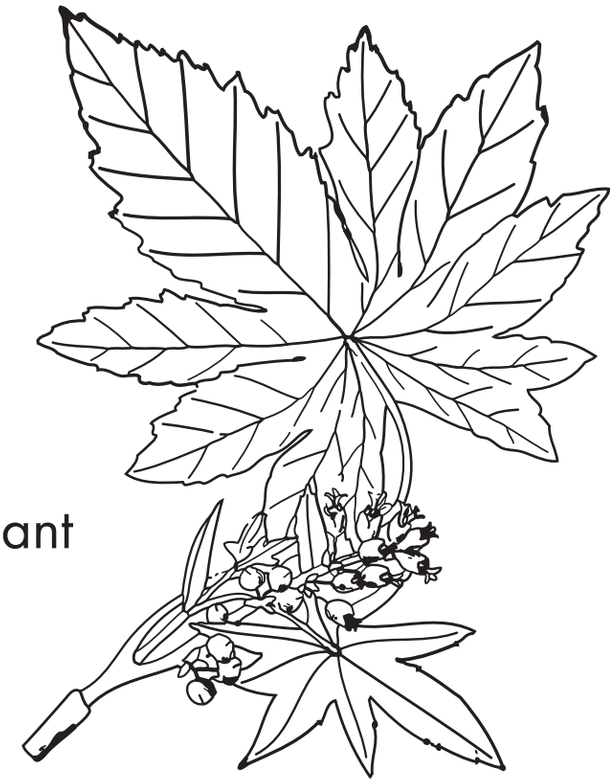
Poster Activity

- Look at the posters showing the leaves of different invasive alien plants.
- Colour in the posters.
- Are there any plants that you know on the poster?
- If so, then share your knowledge with the rest of the class.



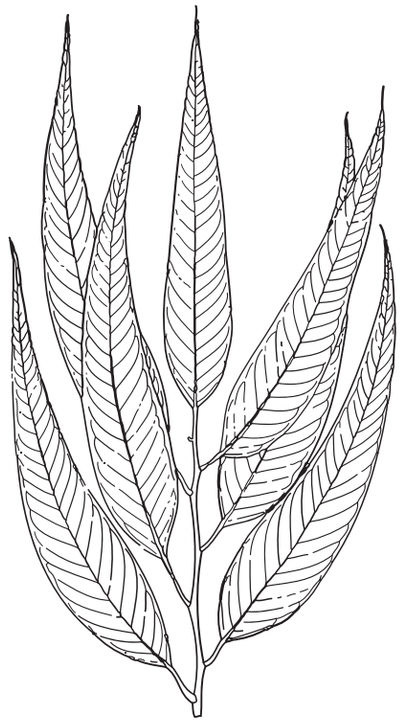
Identification of invasive alien plants

Triffid Weed



Castor Oil Plant

Identification of invasive alien plants



Eucalyptus

Matchwood Poplar

Blackwood

15 Identification of invasive alien plants

Group Work

- Take a walk around the school grounds and see if you can identify any invasive alien plants that you have seen on the poster.
- Bring a few samples of the plants to the classroom.
- Look at the features or characteristics of the plants and describe them.
- In your groups develop an alien invasive plants poster.

Assessment

Rubric - Poster Design

Your group will be assessed on the following:

Criteria	The topic is clear	The purpose of the poster is accomplished	The picture enhance the purpose	Design, colour is appropriate and neat
4. Exceeds requirements of the learning outcome 70%- 100%				
3. Satisfied requirements of the learning outcome 40% - 69%				
2. Partially satisfied requirements of learning outcomes 36% - 39%				
1. Not satisfied requirements of the learning outcome 0% - 35%				

Natural Sciences and Technology:
Term 4: Planet earth - Links to global warming and the need for preserving Earth's delicate balance
Social Sciences: Geography
Term 1: People and places
Topics: Roads and footpaths, links to soil erosion

Climate Change

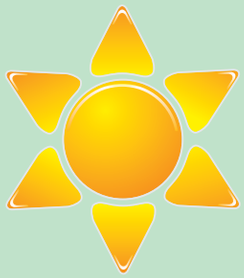
Activity

At the end of the activity you will:

- Have learnt about droughts and how they occur
- Have identified countries in Africa that have experienced droughts
- Have identified parts of South Africa that have experienced droughts

Background Info

A drought occurs when there is not enough rain to support people or crops. In temperate regions, a drought is classified as 15 consecutive days with less than 0.01 inches (0.25 millimetres) of rain. During a drought, it still rains once in a while. However, storms or cloudbursts are brief and any precipitation that falls dries up quickly afterwards. Small droughts occur every now and then, and these are not particularly harmful. Most happen in the summer, when hot and dry weather is normal. However, sometimes droughts can occur for months, years, or even decades. When an area appears to suffer from dryness for thousands of years, the region is said to have a dry climate.

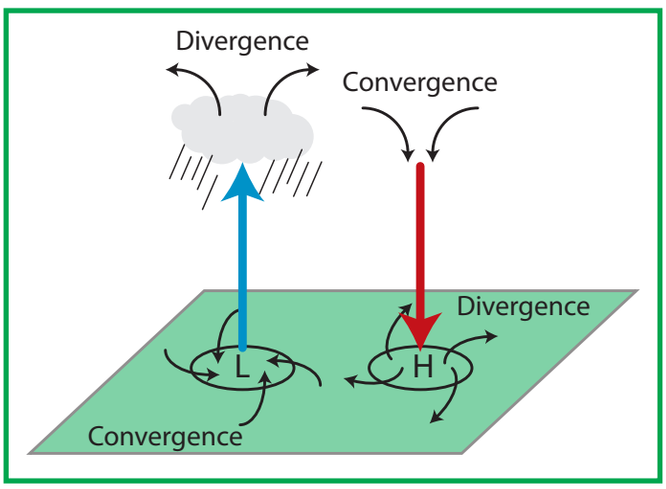


When there is a dry spell, grass begins to turn brown. Flowers need to be watered more frequently. Dirt patches dry up. Cracks form across the surface of the ground. After many weeks of such weather, plants die. The roots of the plants, which previously anchored soil down, can no longer keep the soil from eroding. The dirt is then blown up by the wind, causing huge clouds known as dust storms. Because they can turn the sky dark, they are sometimes known as black blizzards.

Artist impression of a black blizzard.

Causes of droughts

We already know that a drought happens when not enough rain falls to the ground. However, water vapour condenses only if air rises into the colder regions of the atmosphere. If the air doesn't rise, then no rain will form. When there is high air pressure, air falls instead of rising. With the air pressing down in a high pressure zone, no currents of water vapour are carried in the air. As a result, no condensation occurs, and little rain falls to earth. In addition, high-pressure areas push clouds and air currents downward and away, resulting in sunny, cloudless weather. Low-pressure systems see cloudier, stormy weather.



Usually, however, we experience both high- and low-pressure systems. It is normal for a high-pressure system to pass over an area and move on, being replaced by a low-pressure system. However, when a high-pressure system is stalled, the sunny weather can drag on for days. If it keeps on going, the result is a drought.

High-pressure systems can be stalled by jet streams, wide bands of fast-moving air in the upper atmosphere. Masses of air that usually move from place to place can be locked in one area by jet streams.

Landscape showing a jet stream.

Unusual currents of cold and warm water in the ocean can also stall a high-pressure system. In the Pacific, a warm water current known as El Niño brings low-pressure systems that cause hurricanes and other violent storms to North America, while a cold water current known as La Niña brings drought. In Asia, the opposite occurs, with El Niño bringing drought and La Niña stormy weather.

Droughts can also occur because water vapour is not brought by air currents to the right areas at the right times. Water that evaporates from the oceans is brought inland by wind to regions where it is needed. However, sometimes those winds are not strong enough. In the eastern United States, moisture is carried up from the Gulf of Mexico by northward blowing winds. This moisture is then pushed by other winds until it reaches the Midwest. This water then falls to the ground, supporting the farms in that region.

However, if the winds don't blow at the right time, in the right direction, or with enough force, the moisture falls in other areas and that Midwest region suffers from drought. A similar phenomenon occurs in Southeast Asia. Usually, summer winds known as

monsoons carry water vapour north from the Indian Ocean inland, providing desperately needed rain. Sometimes, however, instead of blowing from north to south, they blow east to west. When that happens, the vapour doesn't leave the Indian Ocean and many people suffer from the resulting droughts.

Monsoon clouds.

Mountains can prevent wind from blowing moisture to needed regions. As air is moving past a mountain range, it is forced to rise in order to pass over the peaks. However, as the air rises, it becomes colder and the vapour condenses into rain or snow. The rain then falls on that side of the mountain, known as the windward side (the side that is turned toward the wind). When the air mass finally makes it over the mountain, it has lost much of its vapour. This is another reason why many deserts are found on the side of a mountain facing away from the ocean. This phenomenon is known as the rain shadow effect.

Africa

Recently, no place on earth has been more devastated by drought and famine than Africa, especially the Sahel region, a narrow stretch of land in the north. Because it is a semi-dry area on the border of the Saharan desert, it is sensitive to weather changes and is susceptible to drought. Indeed, a more-severe-than-normal drought occurred there in the late 1960's.

The dry Sahel region on the border of the Saharan desert.

It lasted for most of the decade, ending in the mid -1970's and taking 200,000 lives. More than 30 million farm animals also died during this time. Several other areas of Africa were also struck by drought in the 1980's, causing a mass famine that lasted much of the decade and took thousands more lives.

South Africa

Parts of South Africa's Eastern Cape and Southern Cape (George area) have been classified as local disaster areas in 2010 due to severe drought which showed no sign of lifting. George is located in the Cape Wildflower Floral Kingdom next to the coast at the Eastern end of the Western Cape Province and has a low rainfall Mediterranean type climate. Eastern Cape towns' dams which have run dry in the face of the worst drought in the last 50 years, while throughout the region water rationing is fast becoming a way of life. Rainfall to date at 2009 is +- 40% of the annual average. In this area the water situation remains extremely serious.

Droughts have had far-reaching effects on Georgian people, causing the failure of crops, decreasing natural vegetation, and depleting water supplies. Livestock and wildlife, as well as farmers are suffering for want of water. In Eastern Cape, the drought destroyed almost every farm. Fruit farmers borrowed millions of rands through the years. Some farmers already started selling their livestock, while others are selling their farms and have gone on to look for other employment.

In 2015 and 2016 many regions of South Africa suffered from the lack of rain. The city of Cape Town Municipality brought out regulations in order to save water. Other areas of South Africa experienced severe drought and water was delivered to people in these areas.

16 Climate change and people

- Listen to your educator read to you about how drought has effected other African countries.

Activity 16b: Know your continent

What to do

1. Look at your map of Africa on the previous page
2. Learn the names of all the countries on the map of Africa
3. Write the names into your map

Activity 16b: African droughts

What to do

Having read the background information regarding African droughts to learners:

1. Identify where on the map of Africa droughts have happened.
2. Colour in the countries on the map that are experiencing droughts in the country at the moment.

Activity 16c: Colour in the continents

What to do

1. Now colour in all the other continents

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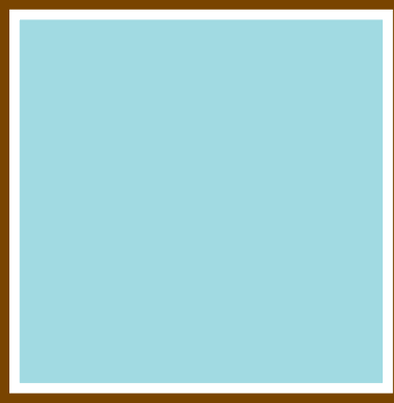
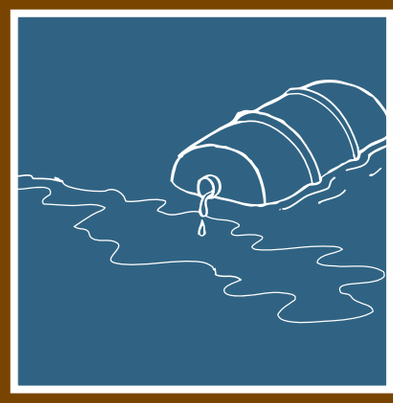
2020 Vision for Water and Sanitation Education Programme

Programme Resource Material



SAVE WATER



STOP WATER POLLUTION

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WASH YOUR HANDS & CARE FOR YOUR SANITATION FACILITIES FOR A HEALTHY LIFE

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