Nelson International Science

Student Book 1

Anthony Russell

OXFORD

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Contents

Key to symbols

 Observe

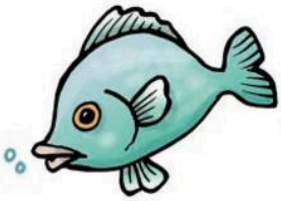
 Discuss

 Write

Living things

(a) grains

(b) tree



(c) fish

(d) bird

(e) leaf

(f) maize

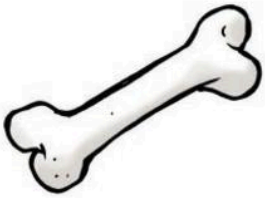
(g) tooth

(h) fruit

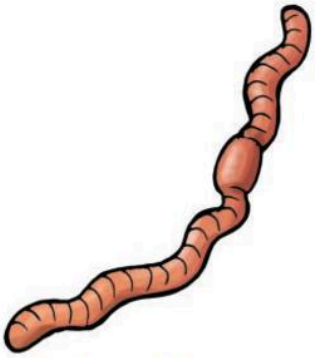
(i) shell

(j) insect

(k) animal breaking out of shell



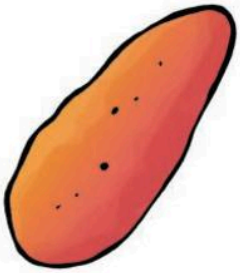
(l) bone



(m) earthworm

(n) dog

(o) flower



(p) sweet potato

(q) bird's egg

Activity 1

You will need: drawing paper (or Workbook) and a pen or pencil.

1 Look at the pictures.

2 **Sort** the things into two **groups** – a **plant** group and an **animal** group.

> **Remember**, in science, a set of things that have something in common is called a 'group'.

3 Write down the letters of five of the things in each group (**record** your answers).

4 Share your answers with the class (**communicate** your answers).

Plants and animals are the same in some ways – they have **similarities**.

They all had **parents**.

They all grow.

They all need food.

They will all die.

They are all living things.

But animals and plants are also different in some ways. That is why we sort them into two groups.

Activity 2

You will need: drawing paper (or Workbook) and a pen or pencil.

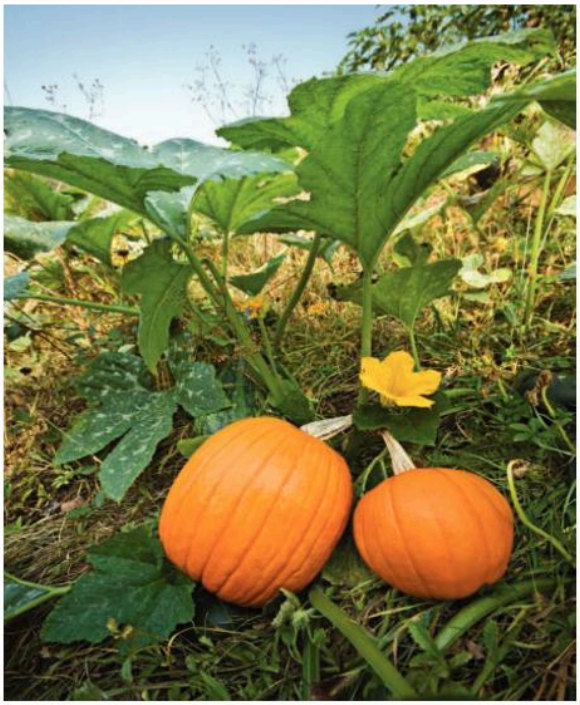
1. Look at the pictures of the animal and the plant.

2. How are they different? How are they the same?

> **Remember**, when we say things are the same or different, we **compare** them.

3. Talk about your ideas with your group.

4. Tell the class what **differences** your group has found.



Plants do not move about from place to place.

Most animals do move about, looking for food, **shelter** and **mates**.

Plants are green and need light to grow.

Some animals live underground or deep in the sea where it is dark.

Animals do not need light to grow.

Can you name some animals that live underground?

Do you know any animals that live deep in the sea?

What is it like underground or under the sea? Talk about your ideas with your group.

Plants make **flowers**, **fruits** and **seeds**. This is how they make new plants.

Animals lay eggs or give birth to babies.

Animals have **senses**. These senses help them to touch, see, smell, hear and taste.

Plants do not have senses.

Plants take water from the soil to help them grow.

Animals eat plants or other animals as food.

Things that have never lived

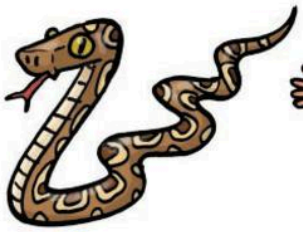

(a)


(b)


(c)


(d)

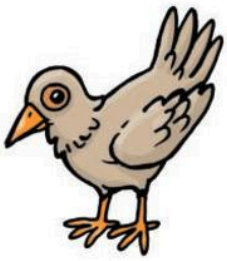

(e)


(f)


(g)


(h)


(i)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(k)

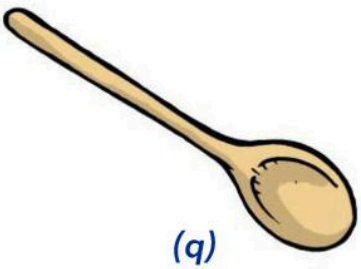

(l)


(m)

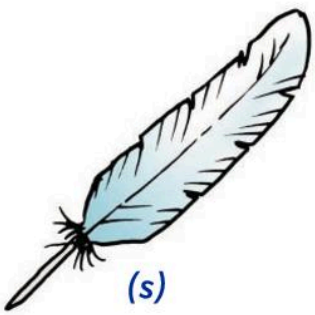

(n)


(o)


(p)


(q)


(r)


(s)

Activity 3

You will need: an area outside where you can explore things, drawing paper (or Workbook) and a pen or pencil.

1 Look at the pictures on page 8 with some of your classmates. Sort the things into three groups:

Living things
Things that were once alive
Things that have never lived

2 Draw three circles – one for each group. Write down the letters of the things in each circle.

3 Go outside. Can you find one living thing and one non-living thing?

4 Back in class, put the things you have found in their groups. Let the class see what you have done.

5 Look at the groups made by others in the class.

The world has many different things in it.

Only some things are living.

Most things are not living.

The sea, the rivers, the air, and the rocks – these are not living and have never lived.

Some things were alive once, such as hair, wood, coal, meat, bones and leather.

We can make use of these things after they have died.

Other things that come from plants or animals are not alive. We can make use of some of these things too.

Can you think of any?

Tell the class what you think.

Plants and animals in their environments

There are many different **environments** on Earth.

Plants and animals can be found in most places on Earth.

Penguins in Antarctica

Each environment has heat, water and light.

Some places have more of these things. Some have less.

Most animals and plants need warmth, water and light where they live.

Each place has its own special plants and animals in it that 'fit' these conditions.

What animal or plant shares your environment?

Most plants and animals need warmth, water and light

Activity 4

You will need: an area outside where you can explore, drawing paper (or Workbook) and a pen or pencil.

In this activity you will explore a local environment in a small group.

1 Choose where the environment will be.

- It can be in a field.
- It can be on the sunny side of the school, or on the shady side of the school.
- It can be in a pond or on a beach.

These are just some examples.

2 Choose what you will observe. Will it be:

the plants **animals** **the soil**
the water **the sunlight?**

3 Make a plan with your group to explore a local environment.

Like this:

First we _____

Then we _____

Next we _____

4 Show your group's plan to your teacher.

5 If you need to collect plants and animals, you must choose what to use. It could be:

a bag

a cardboard box

a jug

a bucket

a glass jar

your hands

Continue over the page

6 **Think of how to use all your senses.**

a What can you smell?

b What can you feel?

c What can you hear?

7 **Choose how you will record what you observe and collect.**

When you go out to explore, follow your teacher's **instructions** to keep safe. Listen carefully.

8 **Work as a group. Share out the tasks.**

a Collect all the **evidence** you can about the plants and animals in the environment you have chosen.

Remember, evidence is what we have found out about something.

b Decide how to show (**display**) what you have found out.

c Add the name of the environment that you explored to your display.

9 **What will you see when you look at what the other groups found?**

Tell your teacher what you think (predict) that you will see.

Continue over the page

10 **Move around the class. What has everyone else found? Is it what you predicted?**

Each environment is different in some way.

This means that some environments will be a good place for some kinds of plants and animals, but a bad place for others.

The groups did not find the *same* plants and animals in all the environments.

The *number* of plants and animals in each place was also different.

Some environments were crowded and others had very few living things.

Some had mostly the same few types of plants and animals.

Others had many different plants and animals.

Look at the three environments shown in the pictures above.

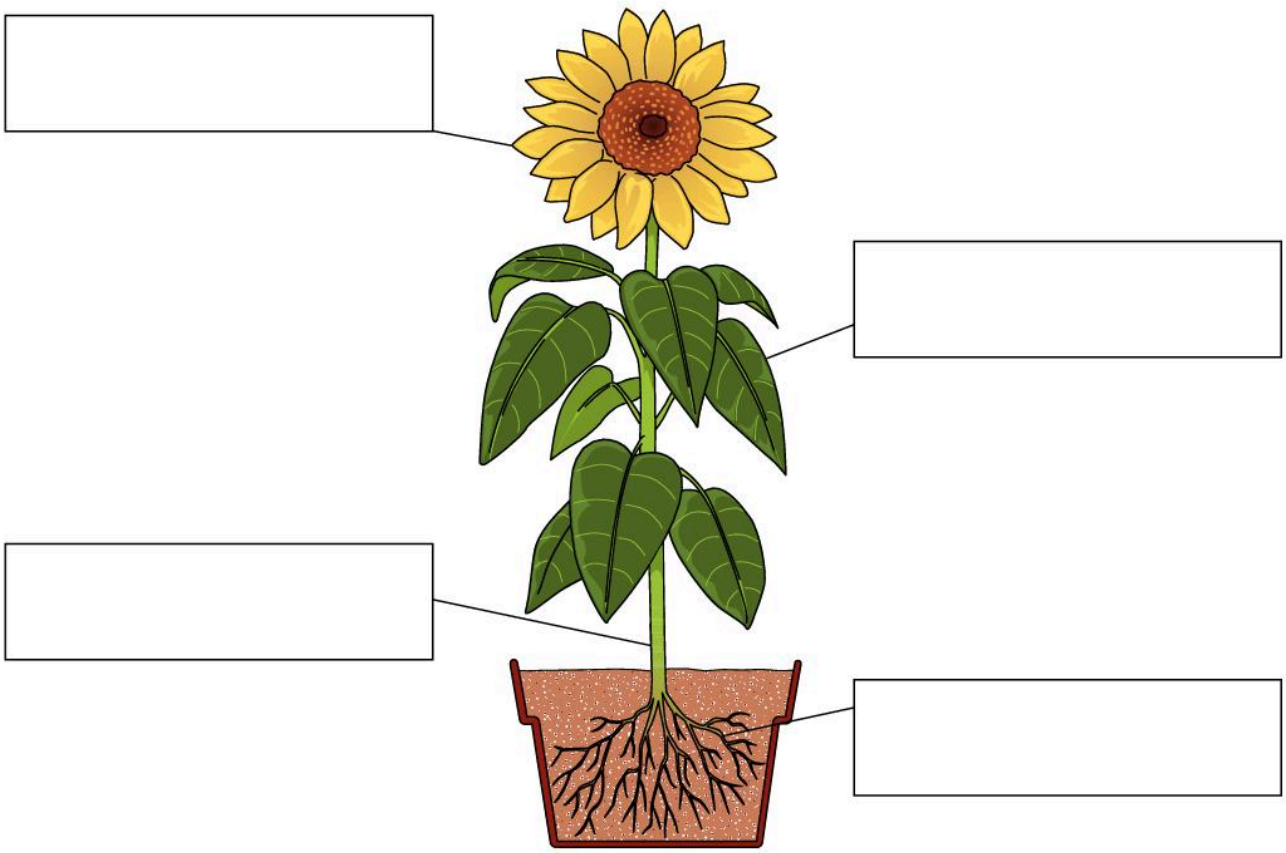
What can you see that is different in each environment?

Tell the class. Try to **explain** why some things are different.

What can you see that is the same in each environment?

Tell the class. Try to explain the similarities.

The parts of a plant



Here is a picture of a plant. Copy the picture.

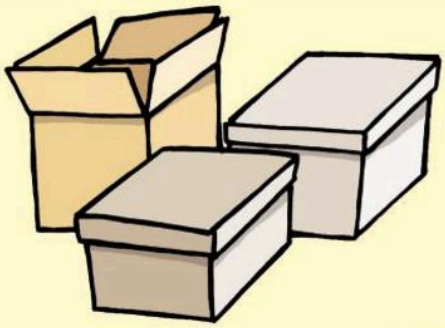
Write the name of each part in the right box. Choose from the list of words.

stem **root** **flower** **leaf**

Share your answers with the class.

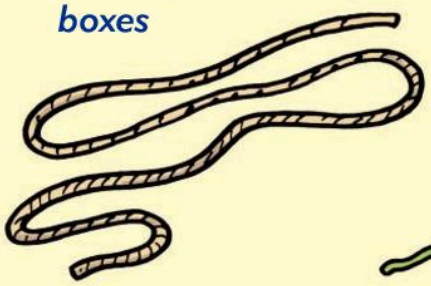
Activity 5

You will need: some things to make models with, drawing paper (or Workbook) and a pen or pencil.

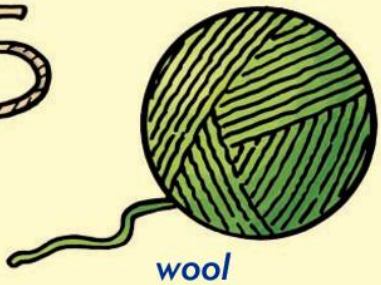


boxes

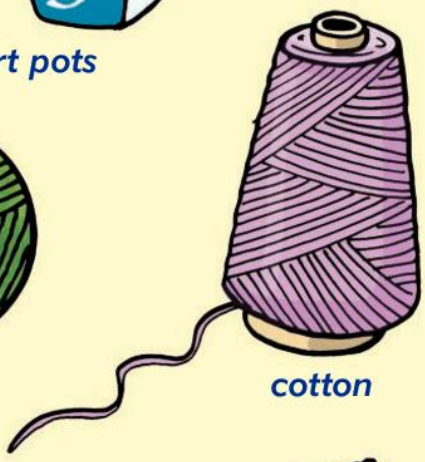
yoghurt pots



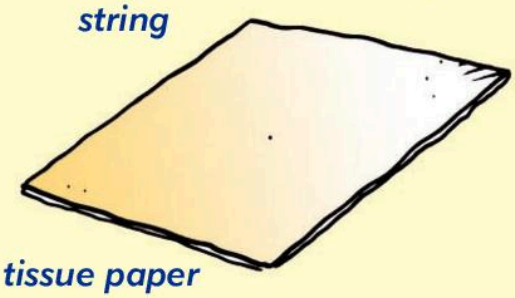
string



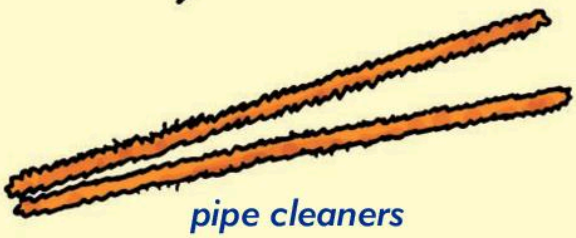
wool



cotton



tissue paper



pipe cleaners

1 Go outside and find a small plant. Try to find one with flowers.

Be careful when picking flowers as some can be poisonous. Your teacher will suggest good ones to choose.

2 Dig it up with care and take it to class.

Continue over the page

3 Draw a picture of the plant. Name each of the parts you can see.

Write the names on the drawing.

4 Observe the plant closely.

a Look at how the parts are fitted together.

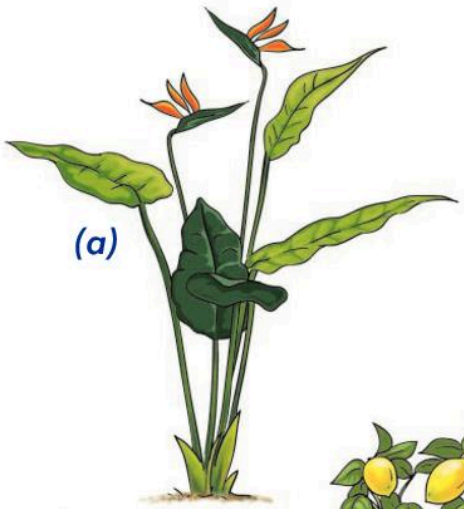
b Tell the class what you have observed.

5 Make a model of a plant. Choose what you will use to make the **stem**, the **roots**, the leaves, and the flowers.

6 Display your model. Now look at those made by others.

Here are some pictures of plants from all around the world.

Do you know the names of any of these plants?



(a)

(b)

(f)

(c)

(d)

(e)

(g)

(h)

(i)

All flowering plants have the same parts.

Plants differ in size.

The leaves can be different sizes.

The leaves and flowers can be many different colours and shapes.

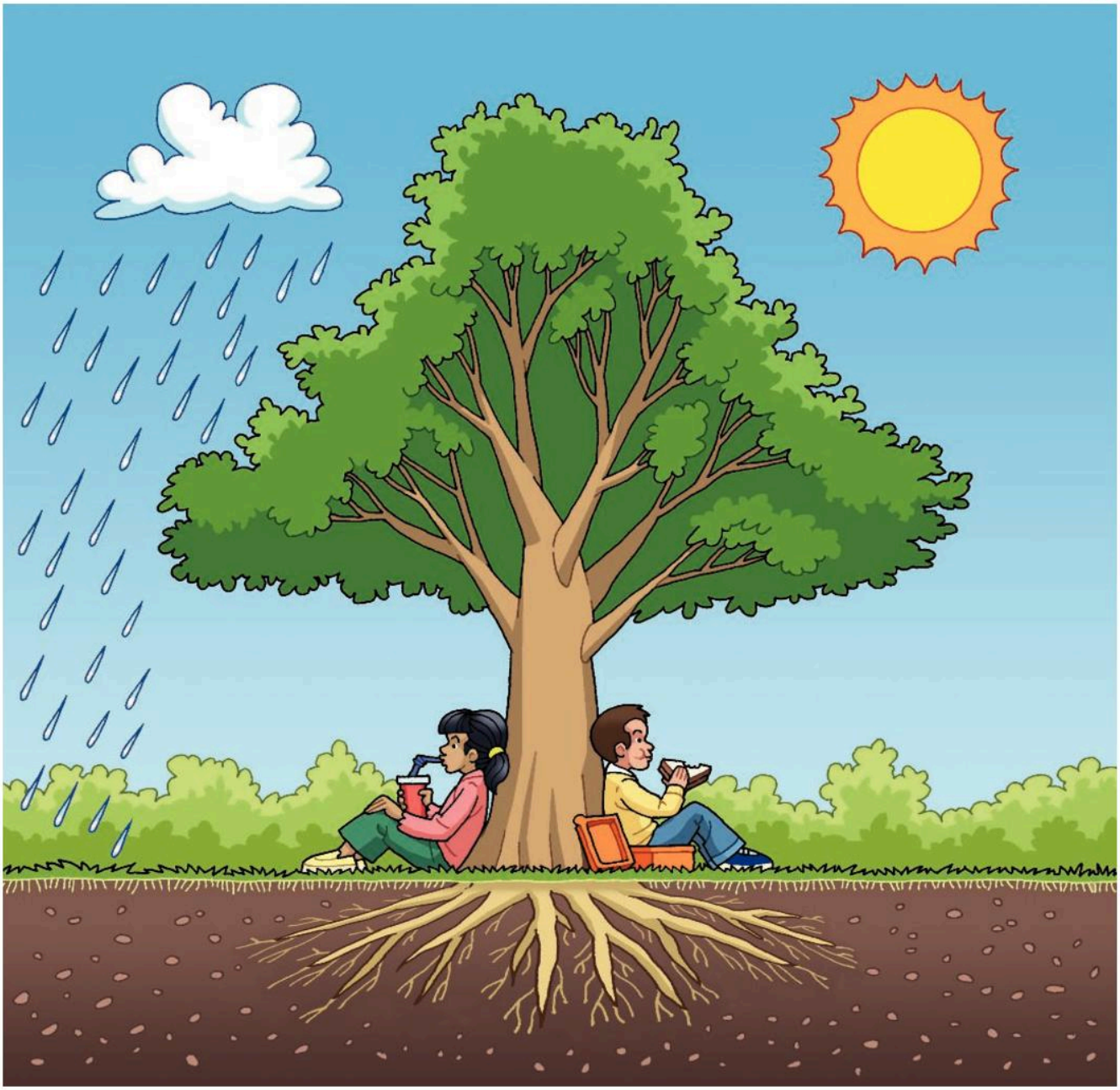
The fruits and seeds can be many different sizes, shapes and colours.

Stems can be thin and very long, or very thick and short.

Compare the plant parts in the pictures on page 21. Look for some of the differences and similarities.

Tell the class what you have observed.

What plants need to grow



You are like a plant.

You can grow, but only if you have the things you need.

Plants also need some things for their growth.

Activity 6

You will need: drawing paper (or Workbook) and a pen or pencil.

The class will do an investigation to find out:

'What are two of the things plants need to grow?'

1 **Talk to your group about how you can find an answer to this question.**

2 **Share your ideas with the class.**

3 **Plan the part of the investigation that your group will do.**

- **a** Plan how you will collect the evidence.
- **b** Plan how to record what happens.
- **c** What do you think will happen? Tell your prediction to your teacher.

4 **Choose the things you need for the investigation and collect them.**

5 Share your group's plan with the teacher.

Continue over the page

6 Do your investigation and record what happens.

a Are the results the same as your prediction? Was it right or wrong?

b Share the results with the class.

c Listen and look as other groups report their results.

7 What is the answer to the question you investigated?

a Tell the class what you think.

b Try to explain why you think that.

Plants need light to grow, so very dark environments are not good for most plants.

Plants need water to grow, so very dry environments are not good for most plants.

Plants need other things to grow well, but they need light and water most of all.

Look at the picture. Tell the class what you think it shows.

Activity 7

You will need: a pot, some seeds, some soil or compost, water, drawing paper (or Workbook) and a pen or pencil.

1 What will the seeds need to make them grow? Talk about it.

Continue over the page

2 **Share out the tasks in the group:**

a Collect the things you need to explore how seeds grow into plants.

b Plant the seeds in pots.

c Put a group name or number on the pot.

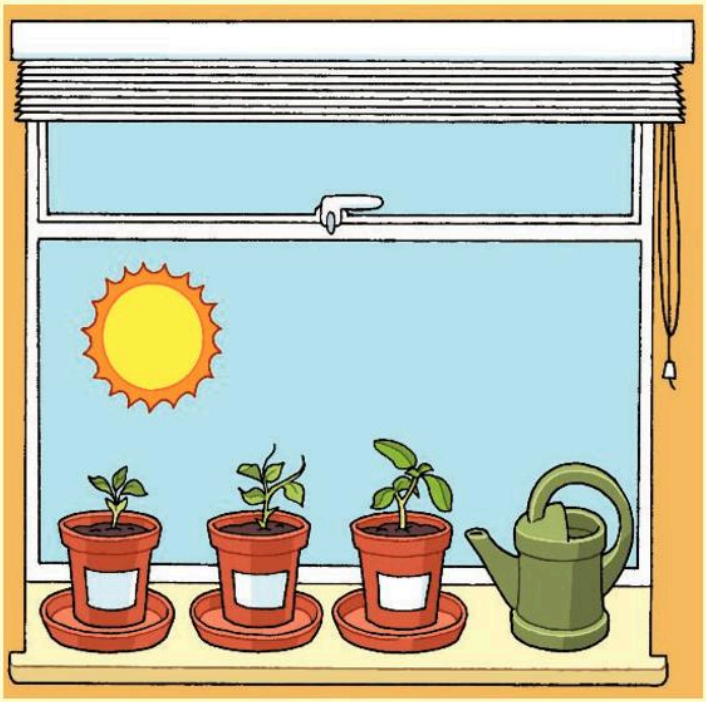
3 **When the seeds have been planted and have what they need, put the pot in a good place.**

a Look at the pot each day.

b Draw pictures of it. Record any changes you see.

c Put the day's date on each drawing.

4 Take care of the seedlings.



a How can you stop them from falling over as they get bigger?

b Try to keep your plants alive until the flowers open.

c Draw the plant with flowers. Put the day's date on your drawing.

5 Display your plants and your drawings.

Continue over the page

6 **Look at the plants and drawings from other groups. Compare them with yours.**

a Are they different?

b How are they different?

7 **Draw a plant that is different from yours.**

a Show it to the class.

b Tell the class what you can see.

8 **Now you have finished, what have you found out about growing plants from seeds? Tell the class what you think.**

Seeds need water and warmth to grow. They do not need light. They do not need soil.

When the new leaves come out of the seed it becomes a plant. Plants must have light and water to grow.

Without light, the new plant will die.

Without water, the new plant will die.

Flowers grow later. The plant must grow more leaves first.

Its stem must get bigger.

Its roots must also grow longer and spread out.

We are all different – and the same

Look at this picture of children playing.

What can you see? Talk to your class about them.

Compare them. Find as many differences as you can.

Tell the class what you think.

Now look again at the picture.

Find as many things as you can that are the same.

How many did you find?

Tell the class what you think.

Activity 1

You will need: drawing paper (or Workbook) and colouring pencils.

1 Draw a picture of yourself.

2 Now draw a picture of another child in your class.

3 Display the two drawings side by side.

a Let the class look at them.

b How do you both look?
What is different about you?
What is the same about you?

Continue over the page

4 **Now do the same with drawings by another child in the class.**

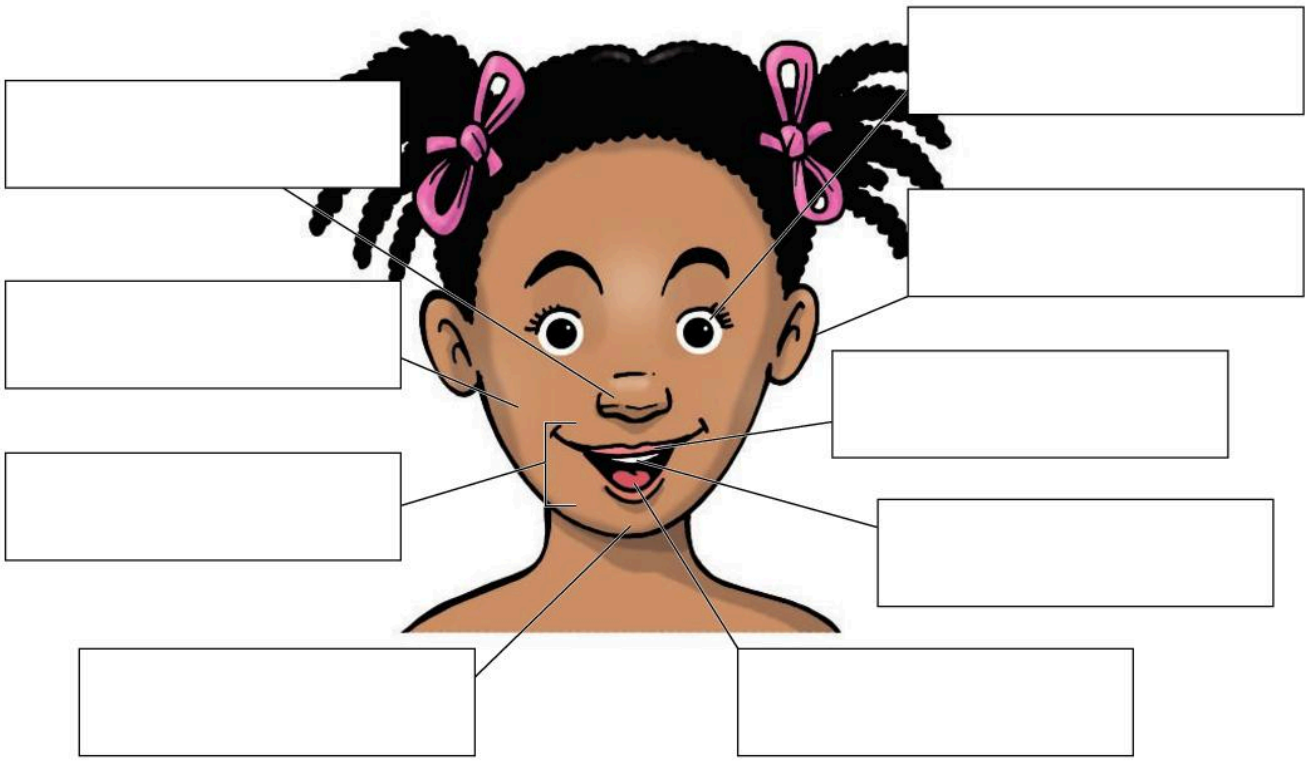
Talk about it with the class. Tell the class your ideas about the differences and similarities.

Boys and girls, and mums and dads are all people. We call them humans. They are all people.

The differences are small, compared with all the things that are the same.

We all have more things in common than things that are different.

Body parts



nose	**ear**	**lip**	**teeth**	**eye**
chin	**cheek**	**mouth**	**tongue**	

Look at the picture.

Name all the parts on the head that you can see.

Touch each part on your head and name it.

Draw your face.

Write the names of the parts of your head on your drawing.

Activity 2

You will need: drawing paper (or Workbook) and a pen or pencil.

Copy these sentences.

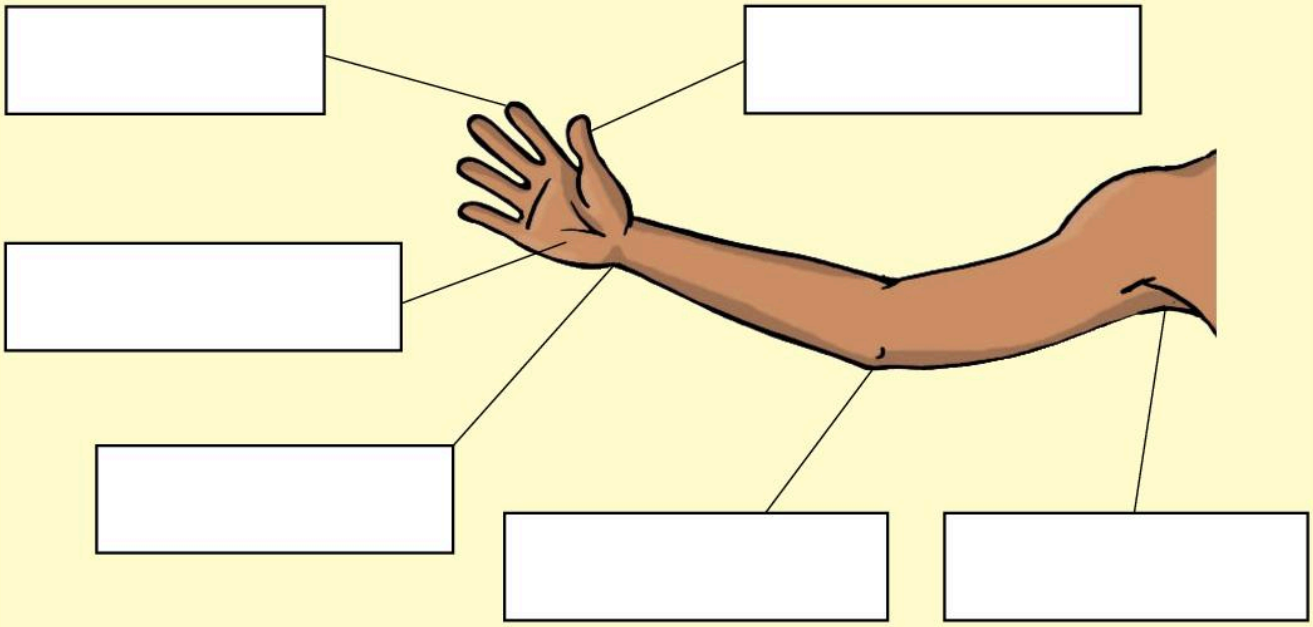
Use these words to fill in the gaps:

food	**ears**	**speak**	**teeth**
	eat	**eyes**	

1. We use our _ _ _ _ to hear sounds.
2. We use our mouth to _ _ _ and to _ _ _ _ _ and to breathe.
3. We use our _ _ _ _ to see.
4. We use our _ _ _ _ _ to bite and chew our _ _ _ _.

Activity 3

You will need: drawing paper (or Workbook) and a pen or pencil.



1 **Look at this picture of an arm.**

a Can you name all the parts of the arm?

b Touch each part on your body as you name it.

2 **Copy the picture.**

a Write the name of each part on your drawing. Choose from this list.

hand **finger** **thumb** **elbow**
armpit **wrist**

b Draw a line from each name to the right place on your picture.

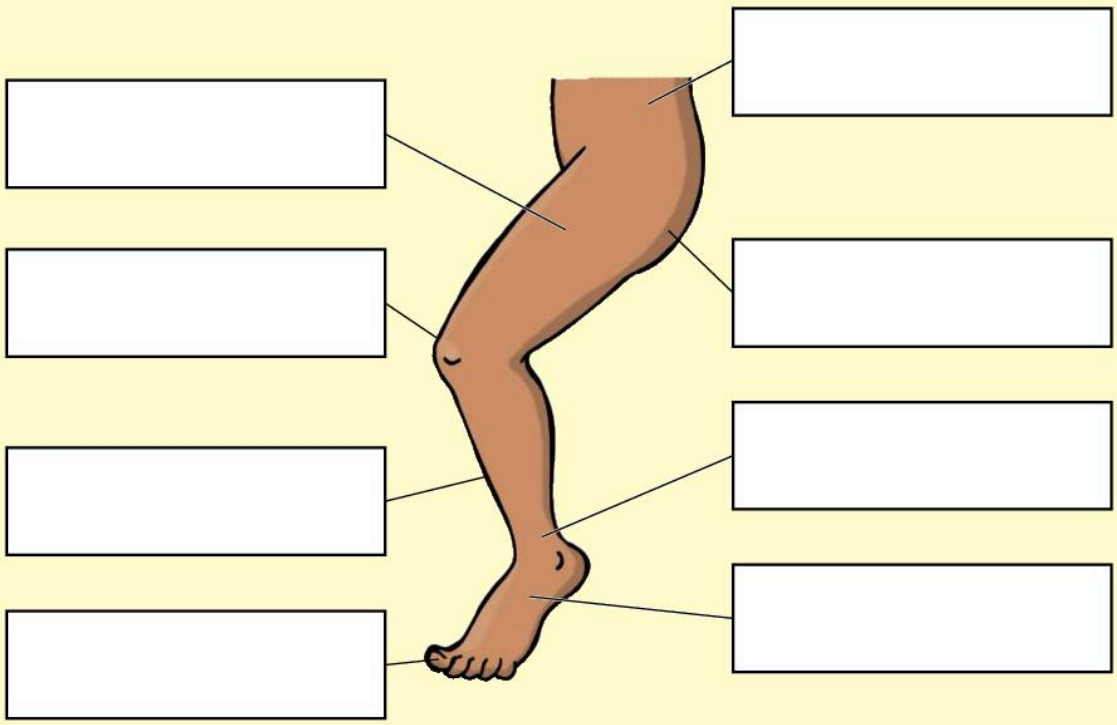
Continue over the page

3 Look at this picture of a leg.

a Can you name all the parts of the leg?

b Touch each part on your body as you name it.

4 Copy the picture.



a Write the name of each part on your drawing. Choose from this list.

ankle **foot** **toe** **knee** **hip** **thigh** **shin** **buttock**

b Draw a line from the name to the right place on your picture.

5 Do you know a song that can help us to remember the names of our body parts?

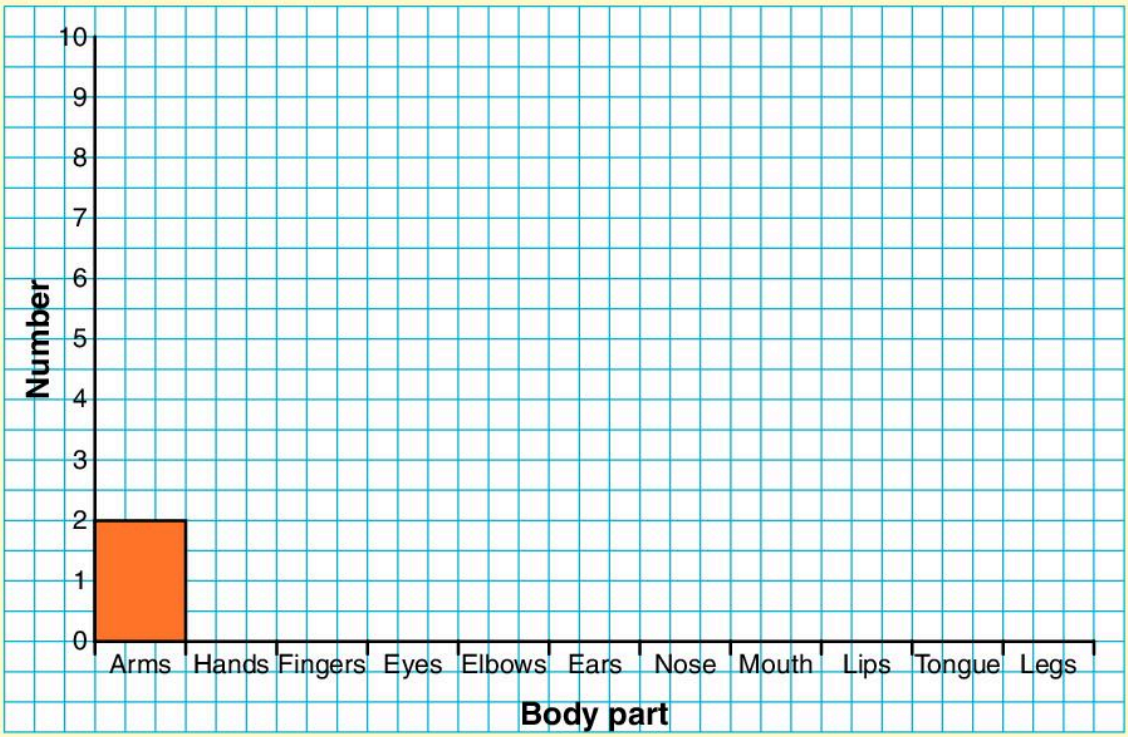
Activity 4

You will need: drawing paper (or Workbook) and colouring pencils.

1 Copy and complete this table. Count how many of each body part you have. Write the numbers in the table.

The first row has been done for you. We have two arms.

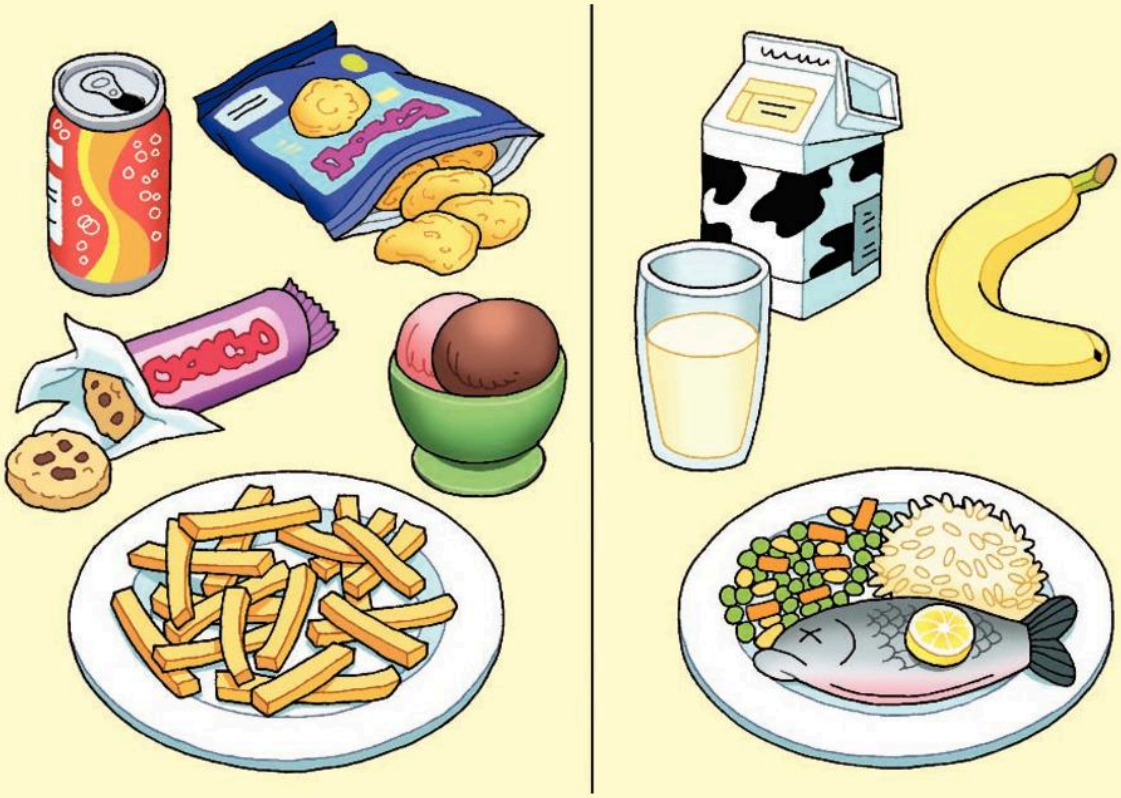
Body part	Number
arms	2
hands	
fingers	
eyes	
elbows	
ears	
nose	
mouth	
lips	
tongue	
legs	



2 Copy and complete this bar **chart**. Use your table to help you fill in the blocks for each body part correctly.

3 Show your chart to the class and say what it shows.

Activity 5



1 **Look at these two pictures.**

One meal is healthy.
One meal is unhealthy.

2 **Talk to your group about the meals.**

a Which is the healthy meal?

b Tell the class what you think.

3 **Explain why you think this is the healthy meal.**

Our bodies need food.

We need many different foods.

We need some foods more than others

Some meals are healthy and some are not.

We call all of the food we eat our **diet**.

Our diet should be healthy.

We should eat small amounts of different foods for a healthy diet.

Sometimes we eat too much of some sorts of food. That is bad for our health.

Food that is sweet, salty or has a lot of fat in it is not healthy for us.

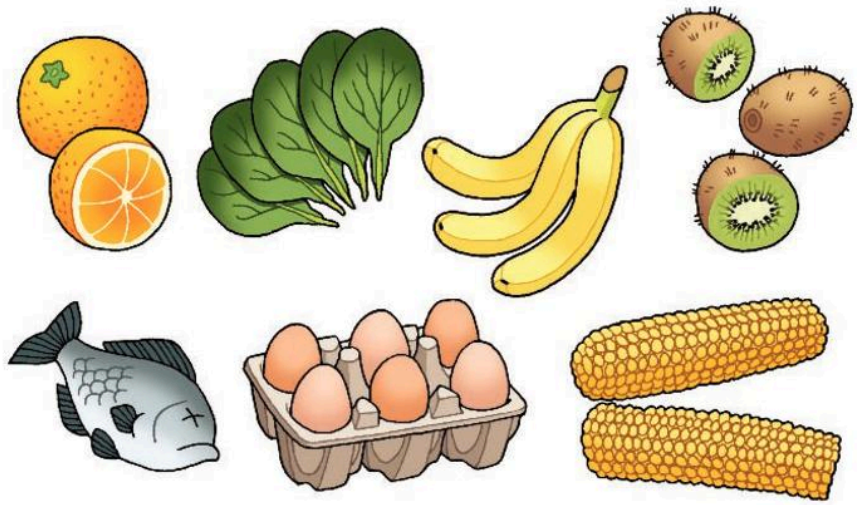
If each meal we eat is healthy, then we will have a healthy diet.

We must not eat only a small number of foods.

They might not give our bodies all the things we need to be healthy.

A good way to have a healthy diet is to eat many different foods.

If we have a mixed diet, then we will have all the different foods we need.



Fruits and vegetables are healthy.

Cereals, such as rice, wheat, maize, millet and sorghum are healthy.

Fish, eggs and milk are healthy.

Small amounts of meat are healthy.

Oils from plants are healthier then fats from animals.

Our bodies must have water to stay alive.

Water can be found in many things – not just in drinks.

Some fruits have a lot of water in them. So do some vegetables.

Bad drinks are the very sweet ones. They have water, but also a lot of sugar.

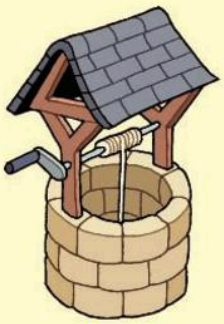
This can damage our teeth *and* make us fat and unhealthy.

Activity 6

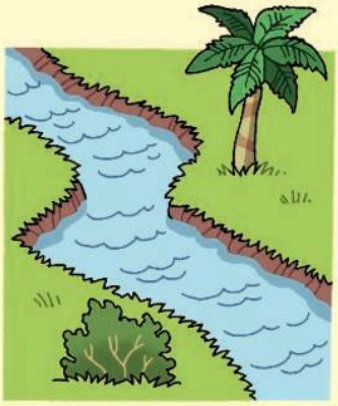
tap water

bottled water

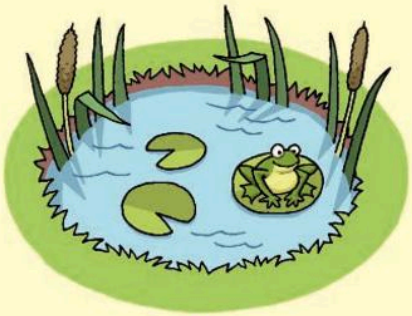
pump water



well water



river water



pond water

stream water

1 Look at these pictures of water from different places or **sources**.

2 Talk about them in your group.

a Choose a healthy water source.

b Choose an unhealthy water source.

3 Tell the class which you chose. Explain why you chose them.

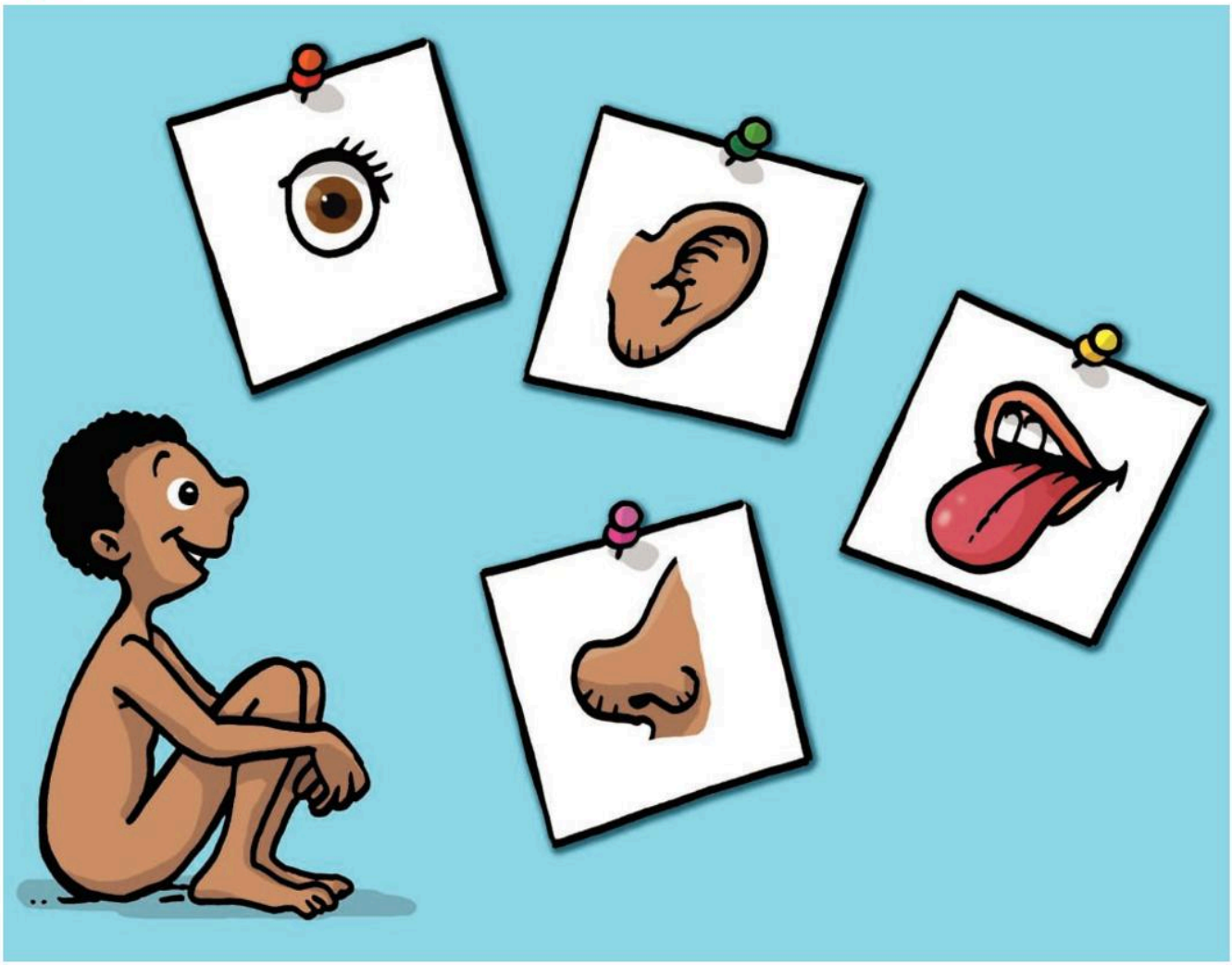
Water from rivers and ponds can be unhealthy.

It might have germs in it. The germs can make us sick.

Water from springs, wells and pumps will be more healthy.

Water from the tap and in bottles has been cleaned. It is the most healthy.

Senses



Name the parts in the pictures.

Our bodies are covered in _ _ _ _.

Our eyes, ears, nose, tongue and skin
all do special work.

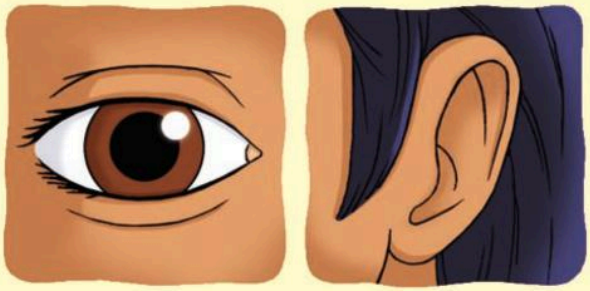
They are called the **sense organs**.

They tell us about the world around us.

Each one has a **sense**.

Activity 7

You will need: drawing paper (or Workbook) and colouring pencils.



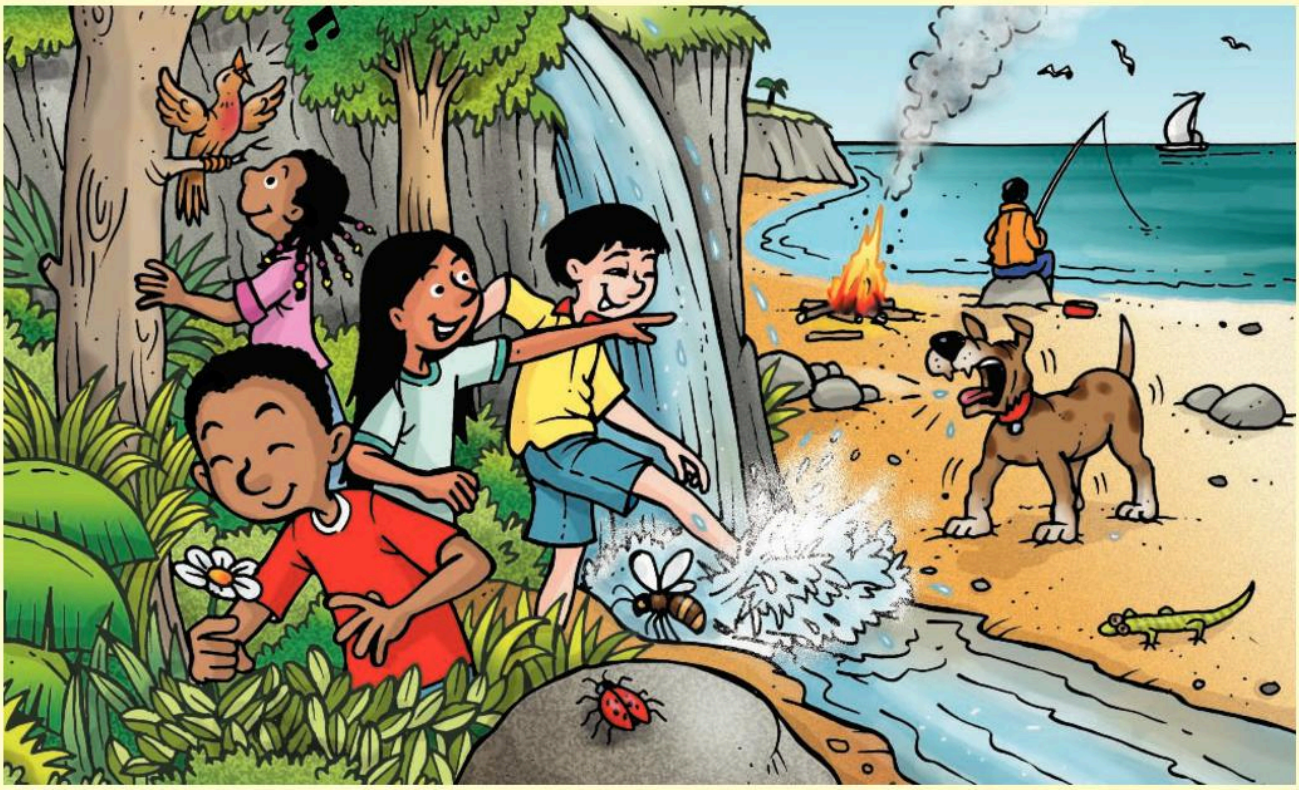
Sense organ	Sense
eyes	touch
ears	smell
nose	sight
tongue	hearing
skin	taste

Copy the words shown in the table. Draw lines to match each sense to its sense organ.

The first one has been done for you.

Activity 8

You will need: an outdoor area where you can walk.



1. Look at the children in the picture. Which senses are they using?
2. Go out on a nature walk.
3. Try to use all your senses.

> ⚠ **WARNING:** do not put things in your mouth.

4. Back in class, tell others what your senses told you.

Our sense organs pick up the sounds, the sights, the smells, the tastes and the 'feel' of things.

Activity 9

You will need: a scarf or piece of cloth, drawing paper (or Workbook) and a pen or pencil.

1. In your group, you will explore the way your senses help you.

   Collect five different things. Choose things of different sizes, **materials**, feel, colour and smell. Some must make a sound.

2. Put the things under a cloth on a tray or table.

   You will swap with another group so that you don't know what the objects are.

   Then you will take it in turns to feel the objects under the cloth.

   You will use your senses to tell the sound, the smell, the shape, the feel, the size and the material of each object. Work out what each object is, then name it.

3. Plan how you will record the results. Show your group's plan to your teacher.

Continue over the page

4 Record your answers. Write down the results for each turn.

5 Compare the results.

What do each of your senses help you to do? Discuss each sense in turn.

6 Share your results with the class. Try to explain them.

Our senses work together to tell us many things about the world.

It is more difficult if we do not have all five senses, or if one of our senses does not work as well as the others.

Humans are like animals. We all have sense organs and senses.

Animals use their senses in many ways.

They use them to find food.

They use them to stay safe.

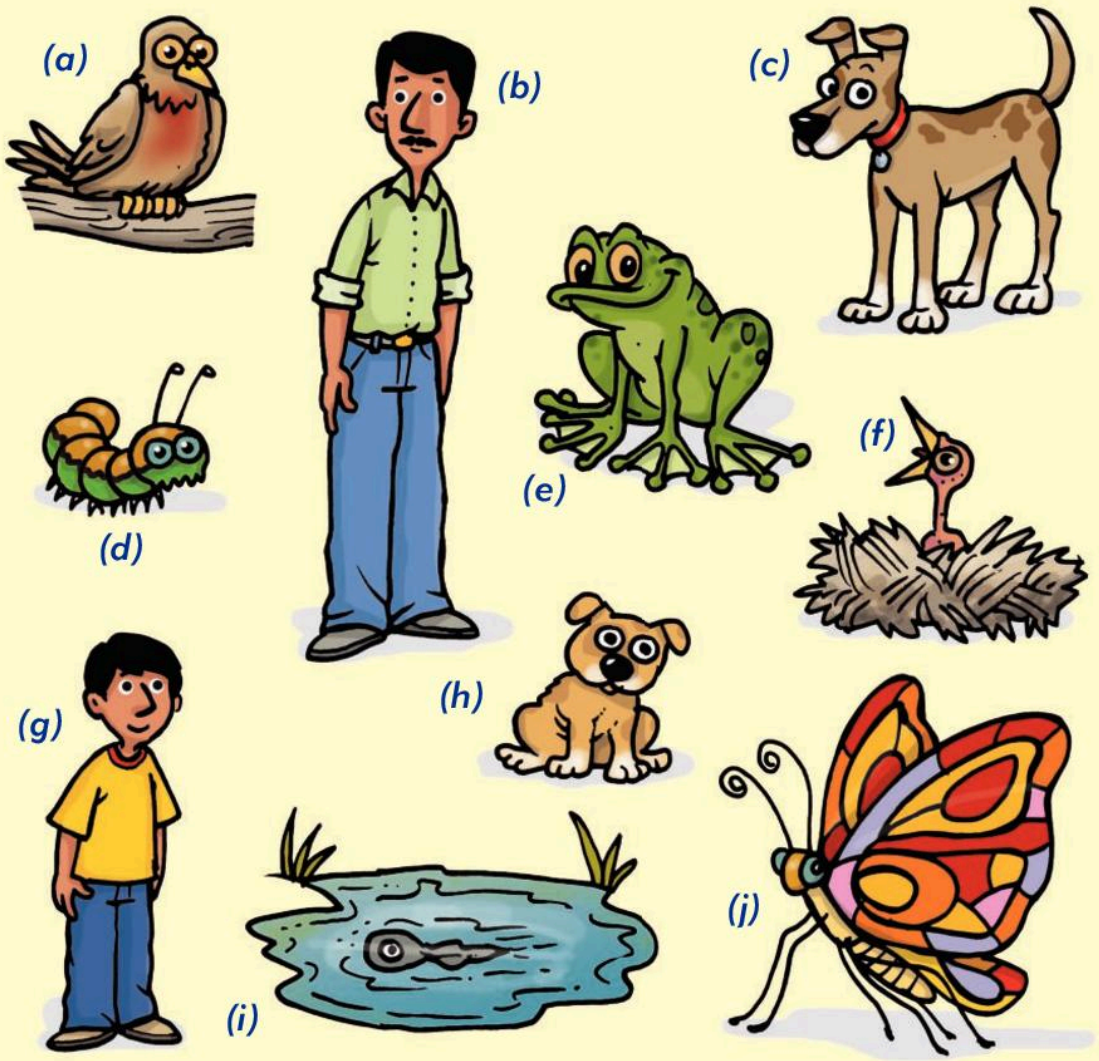
They use them to find a mate.

Look at these pictures.

Tell the class how each animal uses its sense organ to help it.

Activity 10

You will need: drawing paper (or Workbook) and a pen or pencil.



1 Look at the pictures of **adults** and their young.

2 Match the parents and their children.

3 **Write a list of the letters for each pair.**

4 **Share your answers with the class.**

All animals can make new animals.

The adult animals make the young animals.

These are their **offspring**.

The young animal grows up and turns into an adult.

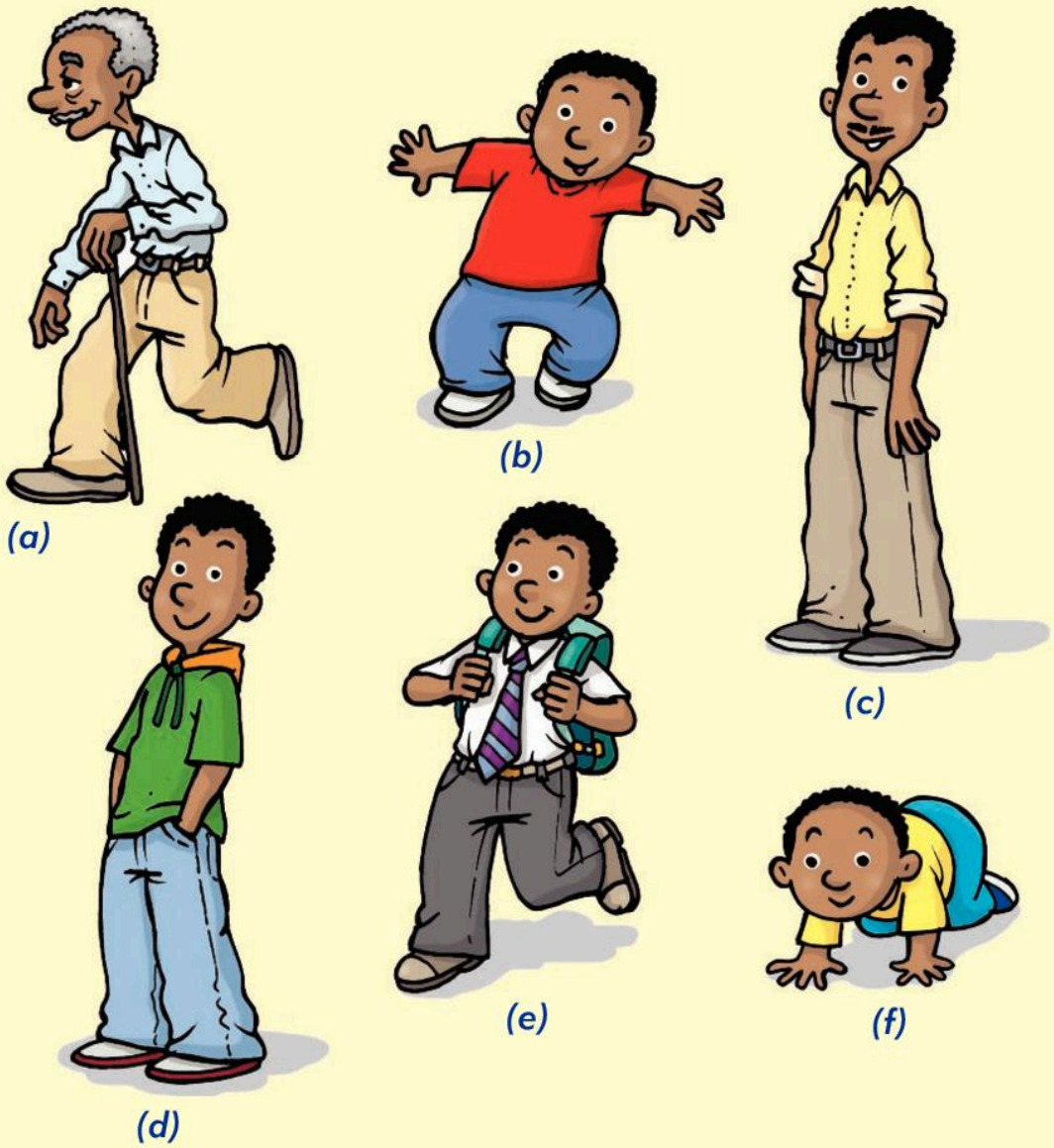
This may take days, weeks, months or years.

When a human baby grows up, we call it a grown-up or an adult.

This takes many years.

Activity 11

You will need: drawing paper (or Workbook) and a pen or pencil.



1 Look at these pictures of people of different ages.

2 Sort them into the right order – from the youngest to the oldest.

3 **Write a list of the letters in the right order, from the youngest to the oldest.**

4 **Share your answers with the class.**

Human parents (our mothers and fathers) are adults.

Together they can make baby humans.

These babies slowly change into adults.

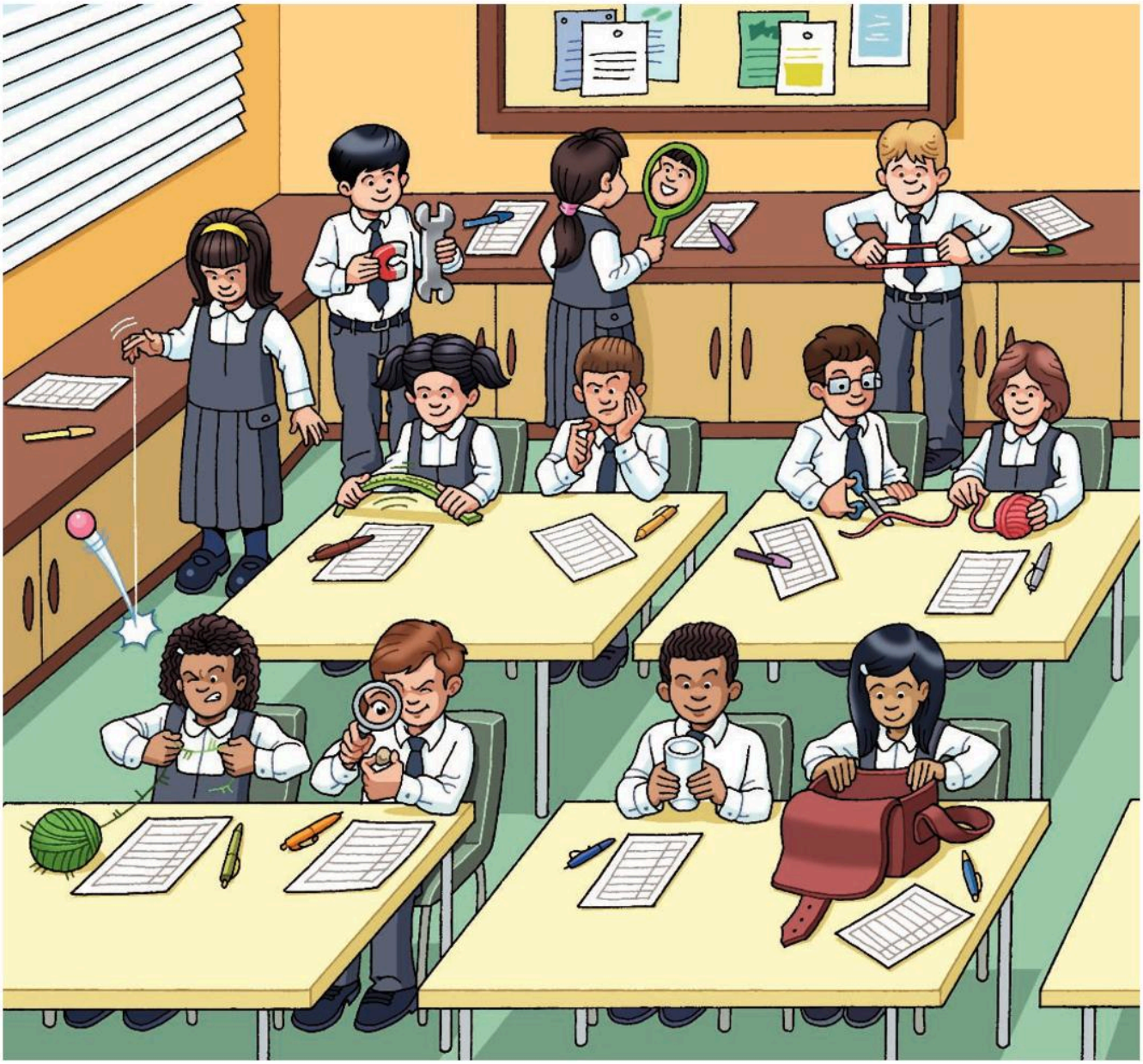
To grow from a baby into an adult, we need to learn to do lots of new things, such as:
stand, walk, talk, swim, ride a bike, read and write.

Our bodies grow and change.

We learn to do many things with our hands.

When we are adults, we will be able to make our own children.

What are things made of?



Everything in the world is made of some type of material.

Each material has its own **properties**.

We use different materials in many different ways.

Activity 1

You will need: drawing paper (or Workbook) and a pen or pencil.

1 **Move around the classroom and find two different materials.**

2 **Compare the materials you have found.**

a What is different about each one?

b What is the same about them?

3 **Tell the class what you observed.**

a Show them what you collected.

b Tell them which senses you used to compare each material.

4 **Go outside and to find two other materials.**

Continue over the page

5 Compare the materials you have found.

a What is different about each one?

b What is the same about them?

6 Tell the class what you observed.

a Show them what you collected.

b Tell them which senses you used to compare each material.

Activity 2

You will need: drawing paper (or Workbook) and a pen or pencil.

Continue over the page

1 Look at the four things you collected in Activity 1. Touch them.

red	hard	green
soft	yellow	smooth
wet	rough	sticky
shiny	black	round
sharp	blue	

The words above are all **properties** (characteristics) of materials.

2 Choose the words that describe your four materials.

If the words you need are not in the list, then add your own words.

3 Draw your four materials and copy the words that describe them.

4 Show the class what you have done.

5 Tell them which senses you used to identify the properties of your materials.

6 **Play a game with your class.**

Either:
Choose an object from the pictures on page 61 and name one property that it has.

Or:
Choose a property, and choose an object that has that property.

Now get into your group and play the game again.

Materials have many properties. We use our eyes to look at them, and our skin to touch them.

We can describe them by colour and shape.

We can describe how they feel. What is their **texture**?

We can feel if they are hard or soft.

These are all properties.

Light can go through some materials. You can see through them. They are **transparent**.

Some materials are shiny.

Some materials can be stretched and they can go back to their original size. They are **elastic**.

Naming materials

milk

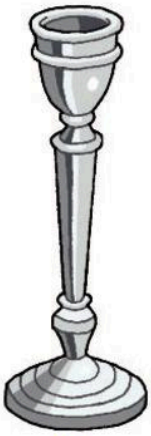
orange juice

jug of water

gold ring

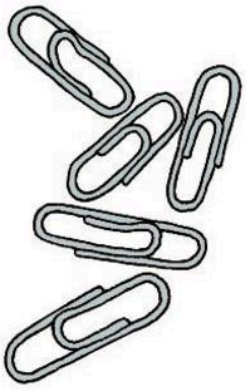
gold bracelet

silver cutlery

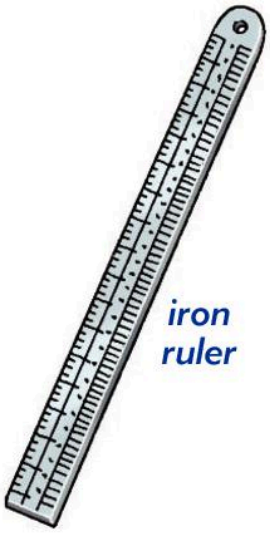


silver candlestick

iron nut and bolt



iron paperclips



iron ruler

Everything is made of a material.

Each material has a name.

Some materials can be put together in a group.

What group do water, milk and orange juice belong to?

What group do gold, iron and silver belong to?

Tell the class what you think.

Activity 3

You will need: drawing paper (or Workbook) and a pen or pencil.

1 **Look at the objects in the picture on page 65.**

2 **Talk to your group about what each one is made of.**

a Identify the materials.

b Tell the class what your group thinks.

3 **Now choose four of these materials: wood, metal, plastic, glass, fabric, rubber.**

4 **Move around the room.**

a Find two examples of each material.

b Collect them or make a drawing of each one.

5 **Show the class what you have found.**

6 **Tell them the names of the materials each object is made of.**

Look at this picture.

What can you see? Talk to your group about what the picture shows.

Why have some things been put together?

Tell the group what you think.

We can sort things into groups in many ways.

We can use the properties of the materials, such as colour and shape.

If we do this, we can put *different* materials into the *same* group.

A green **leaf**, a green bottle and a green pencil all belong in the same group.

Why?

Activity 4

You will need: drawing paper (or Workbook) and a pen or pencil.

1 **Collect three things that have at least one property that is the same.**

2 **Add them to your collection.**

3 **Mix up all the items.**

- **a** Sort them into three groups. Take it in turns to do this.
- **b** Each time, choose a property for each group.
- **c** Don't tell the others which property you chose.

4 **Look at the groups.**

What is the property each group has?

5 **Tell the people you are working with what you think.**

6 **Look at the other groups collected by your classmates. Try to work out what property each of their groups has.**

Each material has a few properties.

This means that we can sort any material in a few different ways.

For instance:

Glass is shiny. It is hard. It is smooth. It is transparent.

Each property can be used to form a group.

Movement

Look at these pictures of things moving.

Talk in your groups about what you can see moving.

Can you think of any really good words to describe how the things are moving?

Activity 1

You will need: drawing paper (or Workbook) and a pen or pencil.

1. Plan with your group how you will explore the movement of *three* different things.

   Like this:

   First we _____

   Then we _____

   Next we _____

2. How can you describe the movement of your objects?

3. Think about how you will record what you see.

4. What will the movements be like? Predict them.

5. Show your plan to the teacher.

Continue over the page

6 Carry out your plan for each thing. Record it.

7 Talk about the movements with your group. Compare them.

- **a** What was the same?
- **b** What was different?

8 Compare what you saw happen with what you predicted. Were you right?

9 Share your results with the class.

Things move in different ways.

We can move in different ways – we can walk, run, roll, slide and swim.

Balls can roll and bounce.

Birds can fly, hop and walk, and some can swim.

Some toys can move.

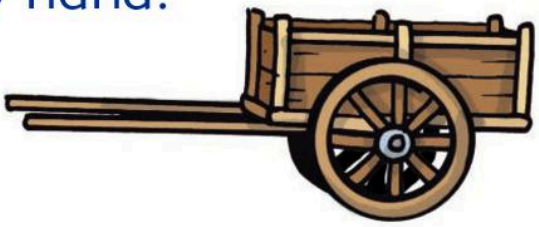
Some have a motor to make them move.

Some can be wound up.

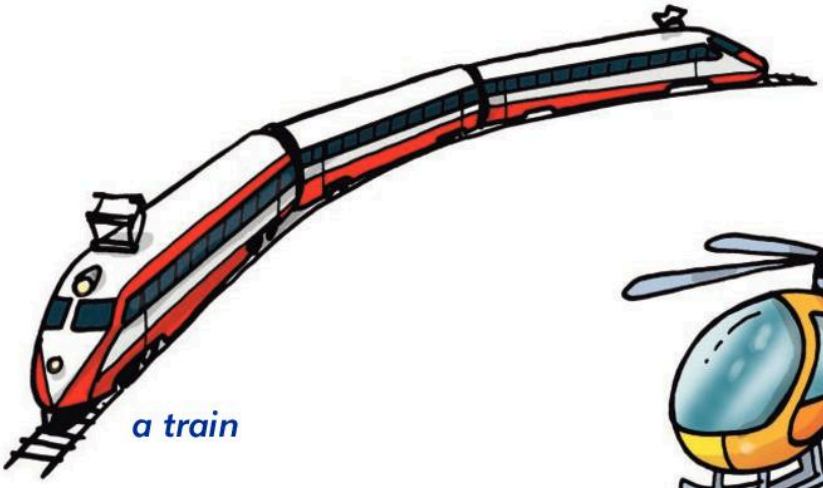
We can move some of them by hand.

We can push or pull them.

a wind-up toy



an ox-cart

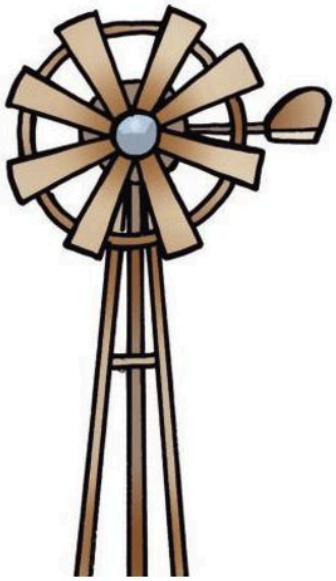


a train

a helicopter

a toy car

a food mixer



a wind pump

Copy and complete these sentences.

These are the words you need:

wheels	**wind**	**wings**	**kites**
	cars	**machines**	

1 Movements can be made by _ _ _ _ _ _ _ _ _.

2 Bicycles, buses and _ _ _ _ move better because they have _ _ _ _ _ _.

3 Planes have engines and _ _ _ _ _.

4 Things can be moved by the _ _ _ _.

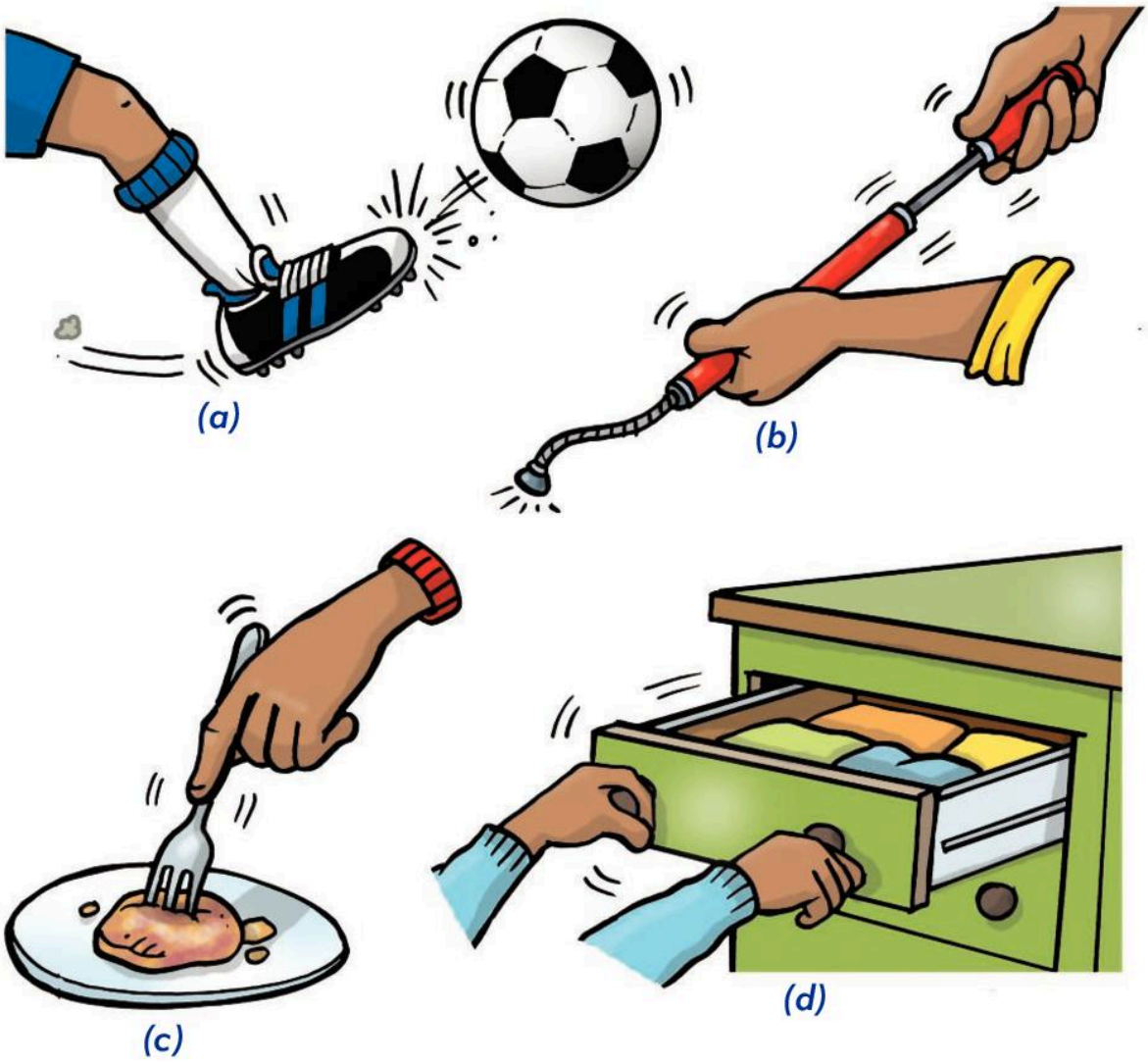
5 The wind can move sails, flags and _ _ _ _ _.

Pushes and pulls

Things move when they are pushed or pulled.

A **push** is a **force**.

A **pull** is a force.



(a)

(b)

(c)

(d)

Look at these pictures. They show forces making things move.

Talk with your class about them. What can you see?

Work out which are pulls and which are pushes.

Write down your answers, using the letters (a) to (d).

Share your answers with the class.

Explain your answers.

Activity 2

You will need: drawing paper (or Workbook) and a pen or pencil.

1 Use your hands to move four things in the room.

2 Identify the force each time. Is it a push or a pull that you use?

3 Record what you push or pull in words or drawings. Use a table like this:

Action	Pull	Push
1 Open door	✓	
2		
3		
4		

4 Share your results with the class.

We use pushes and pulls every day.

We use our hands and feet.

We use our tongue and lips.

All these body parts can pull or push.

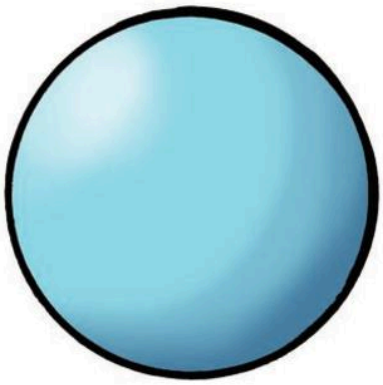
Even our whole body can move things.

Engines and motors can also push and pull.

The wind can push.

Water in rivers can push.

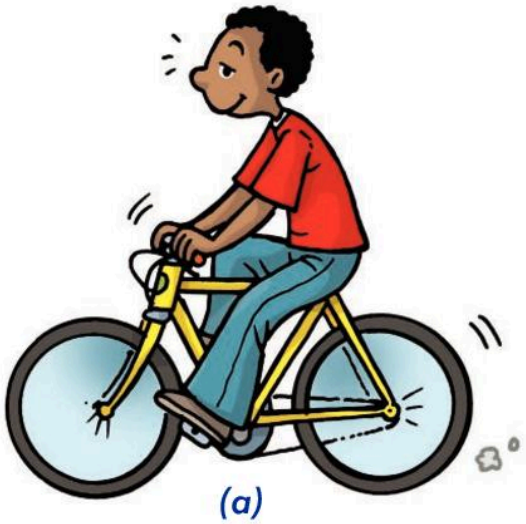
Magnets – do they pull or push? What do you think?



Activity 3

You will need: a ball or toy car.

1. Put a ball or toy car on the floor.
2. Make it speed up.
3. How did you do it? Tell the class.
4. Make the ball or toy move.
   Slow it down.
5. How did you do it? Tell the class.
6. Make the ball or toy move.
   Change its direction.
7. How did you do it? Tell the class.



(a)

(b)

(c)

(d)

Look at these pictures.

Talk to your class about what they show.

Which one shows a bicycle slowing down?

Why does it slow down? What is the **cause**? What makes it happen?

Look again at the pictures on page 79.

Which one shows a bicycle changing direction?

Why does it change direction? What is the cause?

Which one shows a bicycle speeding up?

Why does it speed up? What is the cause?

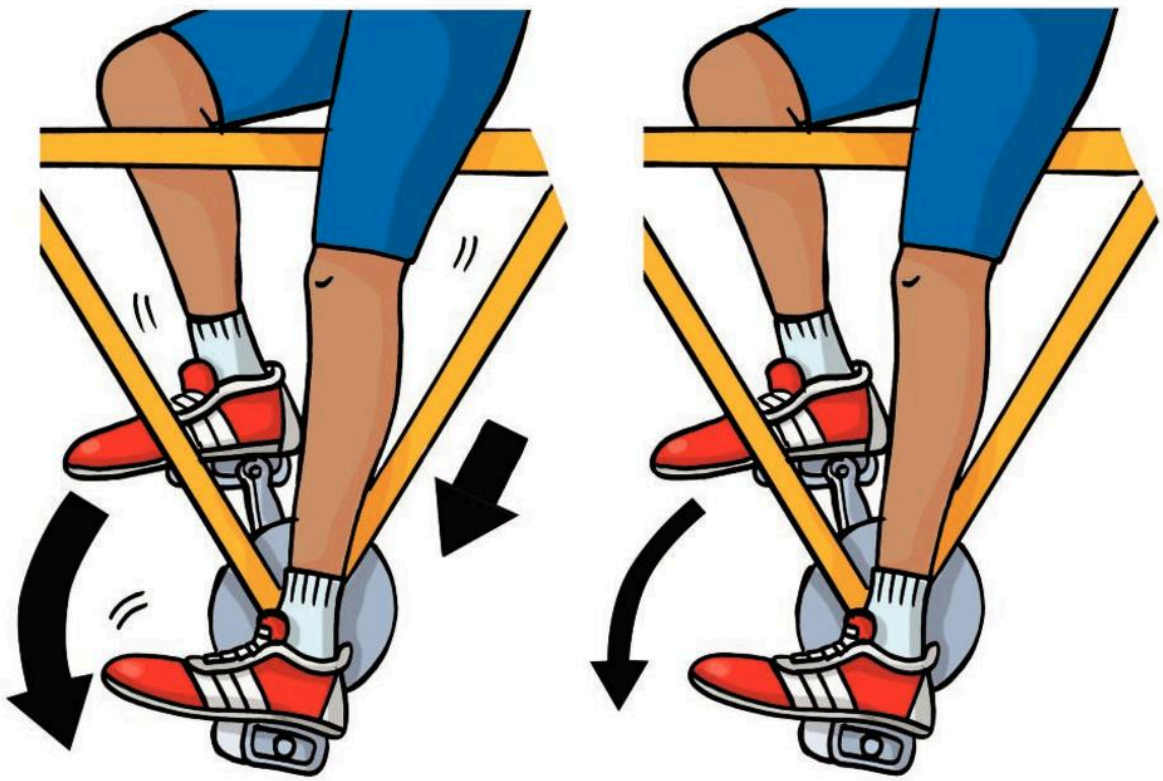
Which one shows a bicycle not speeding up and not slowing down?

Why is there no change? What is the cause?

The movement of the bicycle can be changed by the rider.

When the rider pushes harder, the bicycle can speed up.

More force makes it go faster!

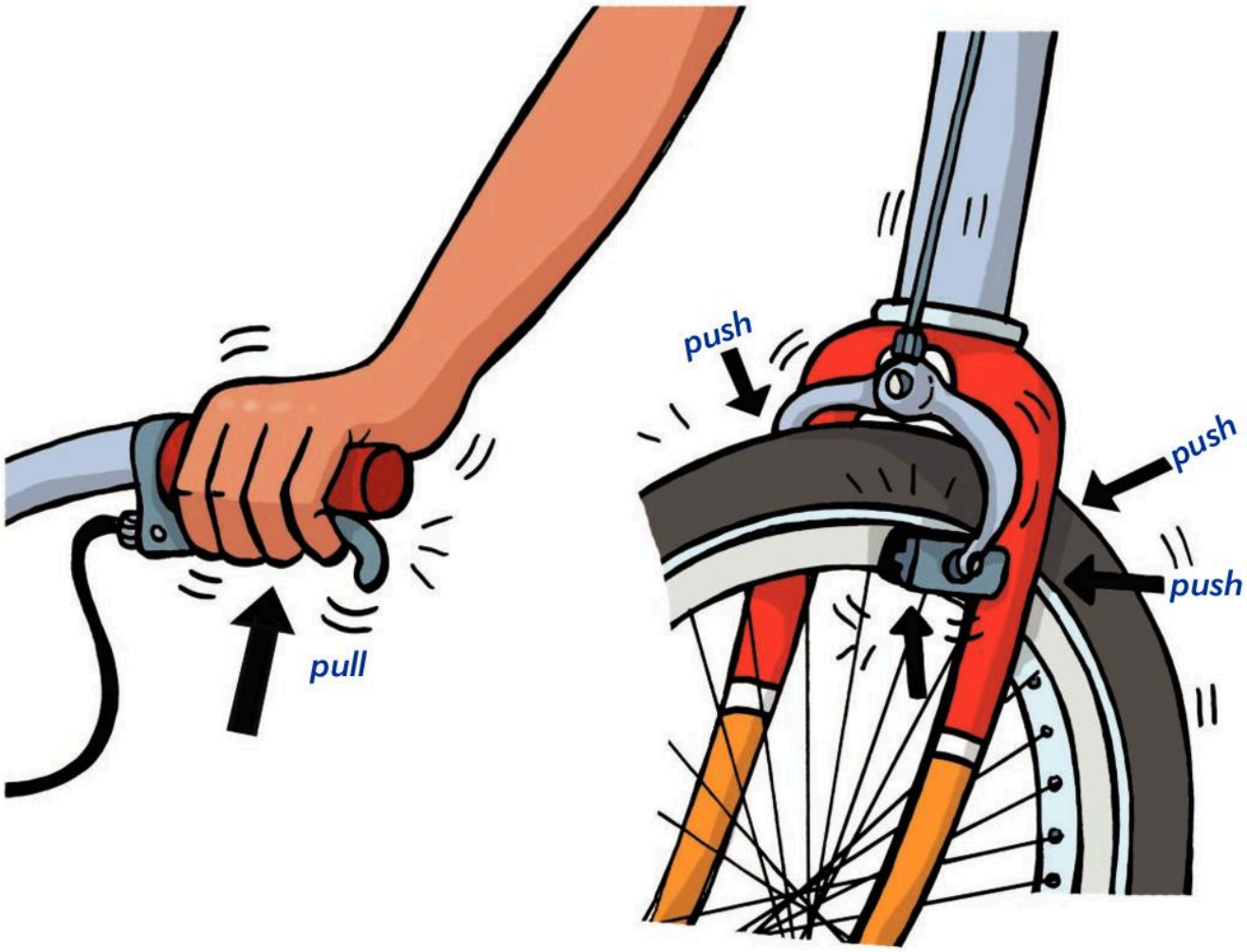


When the rider stops pedalling, the bicycle can slow down.

Less force makes the bike go slower.

The same happens when the brakes are used.

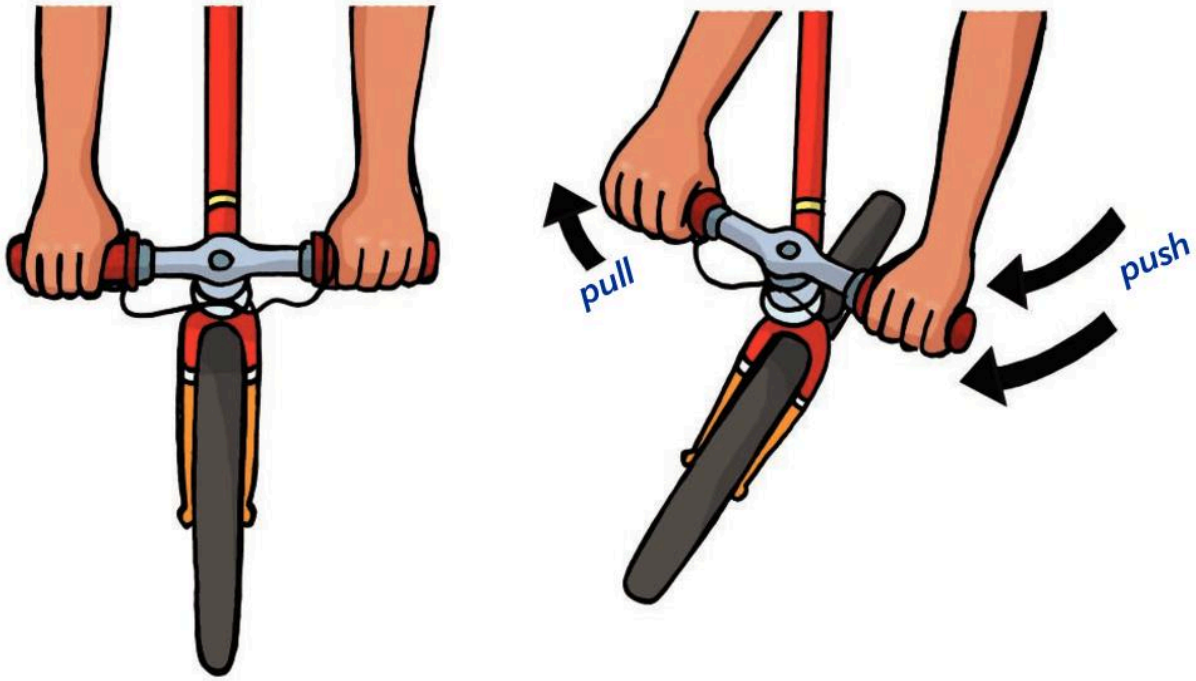
When the rider pulls on the brakes, the brake blocks push on the rims.



This slows down the bicycle.

The rider can push and pull the handlebars.

This can change the direction of the movement.



What makes all these changes in movement happen?

A force – a pull or a push – causes the changes in movement.

A force can slow things down.

A force can speed things up.

A force can make things change direction.

Sources of sound

Activity 1

You will need: an area outside and a pen or pencil.

1. Go outside. Find a good place to sit still and be as quiet as you can.
2. Be very still. What can you hear?
3. Do you know what is making each sound?
4. When you have heard four different sounds, tell your teacher.
5. Back in class, identify the sounds you heard.

The world is a very **noisy** place.

It is very hard to find a place that is **silent**.

Complete the sentences below.

Here are the words you need:

thunder	**wind**	**crying**	**sea**
frogs	**clapping**	**dogs**	**talking**
	birds	**singing**	

a Some sounds are natural, like the s _ _, the w _ _ d and t _ u _ d _ r.

b Some sounds are made by animals, like b _ r _ s, f _ o _ s and d _ g _.

c We can make sounds, like s _ n _ i _ g, c _ a _ p _ n _, t _ l _ i _ g and c _ y _ n _.

Each sound has a **source**. A source is the place or thing that the sounds come from.

Look at the pictures on page 85.

What are the sources of the sounds?

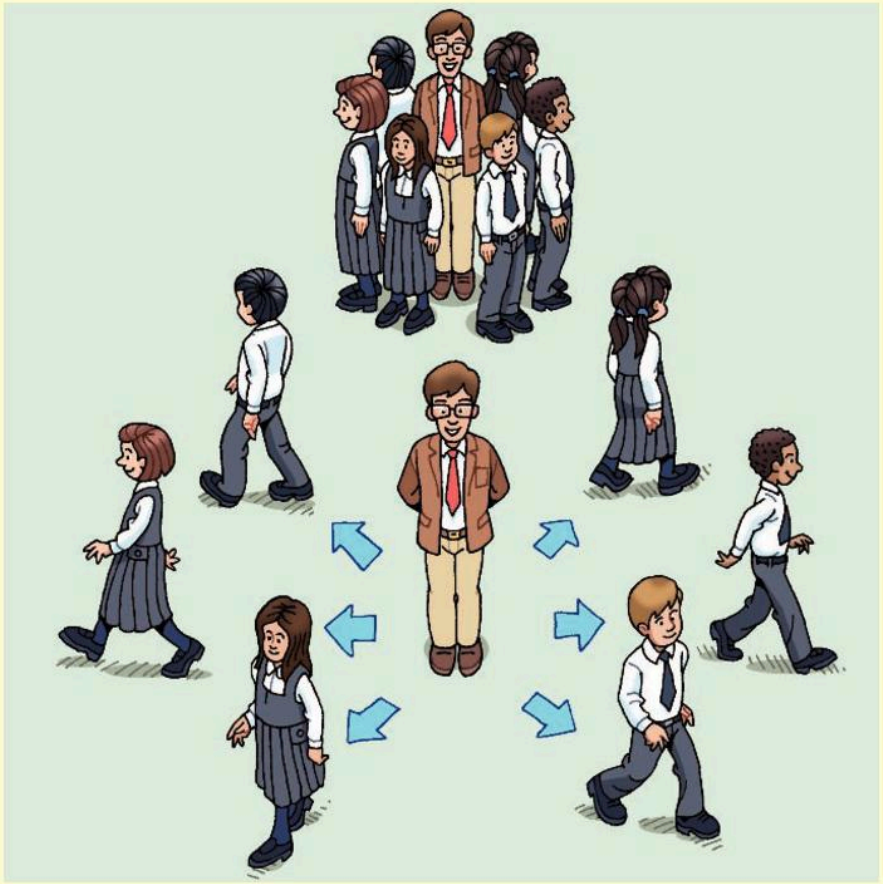
Activity 2

You will need: an area outside and a pen or pencil.

1. Go outside and stand in a circle. Face outwards.

2. Listen to the sound made by the teacher.

3. Slowly move away from the teacher. Listen for the sound.



Continue over the page

4 Stop and listen. What do you notice?

Try to explain it.

5 Predict what will happen if you go further away from the source of the sound. Tell the class.

6 Slowly move further away. Listen for the sound.

7 Was your prediction correct?

8 Try to explain what you have observed.

Sound travels from its source. It travels in all directions.

As the sound travels, it becomes **fainter**.

This means that it is not so easy to hear.

If we are too far away from the source, we cannot hear the sound.

Hearing sounds

Think of your senses. Name them.

Think of your sense organs.
Name them.

Which sense organ collects sounds?

Activity 3

You will need: drawing paper (or Workbook) and a pen or pencil.

1. Plan with your group to explore how you hear sounds.

2. Choose the things you need. Collect them.

3. Plan what you will do and how you will do it.

   Like this:

   First we _____

   Then we _____

   Next we _____

4 Tell your teacher what you plan to do.

Predict it. Tell you teacher what you think will happen.

5 Do your **exploration**.

a Make observations.

b What did you find out? Record the results.

Continue over the page

6 **Compare your results with your prediction. Is this what you thought would happen?**

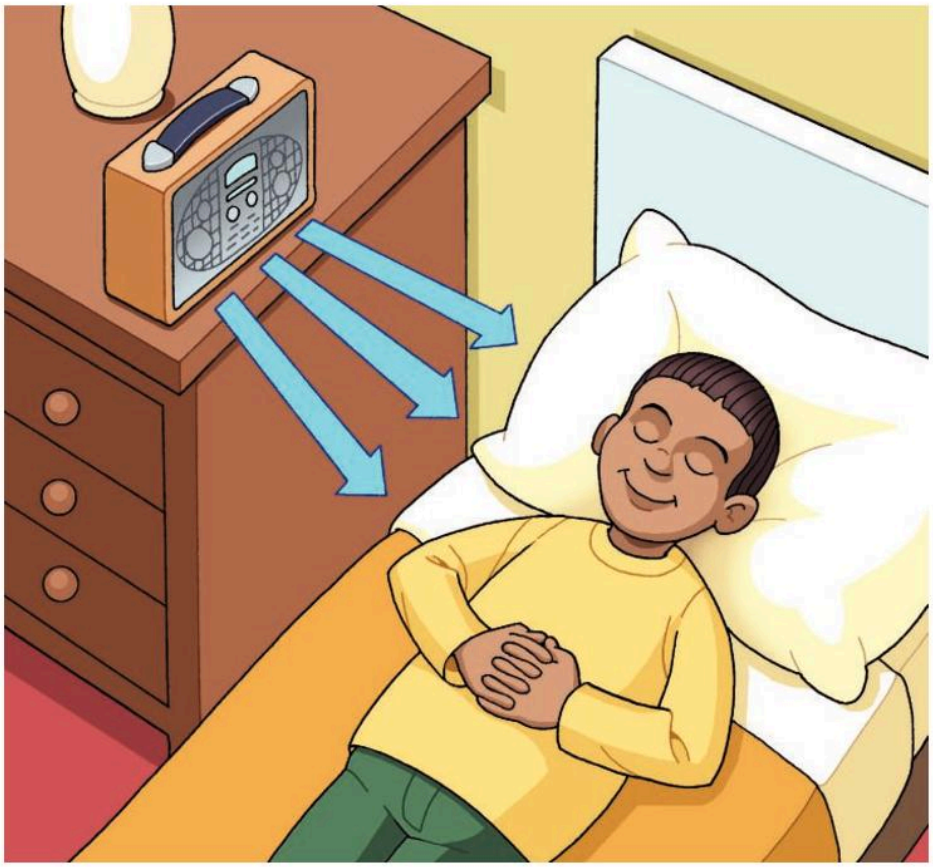
7 **Tell the class what you think about what you found out.**

Our ears collect sounds.

Sound can enter our ears.

It goes into the holes inside our ears.

When sound enters our ears we can hear it.



Glossary

A

adults – grown-up people, fully grown animals, able to reproduce (have babies).

animals – living things that must eat plants or other animals as food.

C

cause – what makes something happen.

characteristics – things that are special to something (for example, colour or texture).

chart – a way of showing information in a kind of 'picture'.

communicate – tell, share or show ideas in some way.

compare – find things that are the same and things that are different in two or more things or events.

D

diet – all the things we eat and drink.

differences – things that are not the same when two things are compared.

display – put things on show for others to look at (for example, collected things or drawings).

E

elastic – can be stretched then shrinks back to normal size.

environment – the surroundings in which things live, including the weather, the soil, or competition with other living things.

evidence – facts, information, proof, clues or data that help us to work something out.

Glossary

explain – to give a reason for something; to tell why something is like it is.

exploration – a careful search, study or examination of something.

explore – to study carefully; to search; to examine.

F

fainter – less strong, or weaker.

flower – the part of the plant that can produce a fruit.

forces – pushes and pulls.

fruit – the part of the plant that has seeds inside it.

G

group – a set of things with something in common.

I

identify – to name or recognise something.

instructions – orders, rules or steps to follow when doing something.

investigation – a search for evidence to answer a question.

L

leaf – the green parts of plants, where they make their food.

M

magnet – a metal bar that attracts certain other metals.

materials – what things are made of.

mates – partners for making babies.

N

noisy – loud; many sounds all made at the same time.

Glossary

O

observe – notice when paying careful attention, using the senses (sight, smell, hearing, touch or taste).

offspring – babies or children.

P

parent – the mother or father; an adult animal or human.

plants – green living things that make food using sunlight, water and a gas from the air.

predict – to tell what will happen before doing something.

properties – features, or characteristics, of what something is like (for example, hardness, size or mass).

pull – a force that moves an object towards the source of the force.

push – a force that moves an object away from the source of the force.

R

record – writing or drawings of what was done or what was observed.

root – the part of the plant that takes water from the soil.

S

seedling – the new plant that grows out of the seed.

seeds – the parts of a plant made in fruits and which can grow into new plants.

Glossary

sense organs – the body parts that have the senses: eyes, ears, nose, tongue and skin.

senses – sight, hearing, smell, taste, touch.

shelter – a place where an animal is safe and protected from weather and other animals.

silent – no sounds can be heard.

similarities – things that are the same when two or more things are compared.

sort – put into groups.

source – where something comes from.

stem – the part of the plant that joins the roots to the leaves.

T

texture – the feel of something (for example, rough or smooth).

transparent – a property of materials – light passes through and we can see through them.

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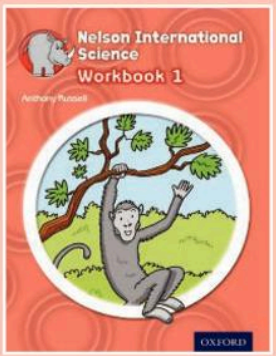

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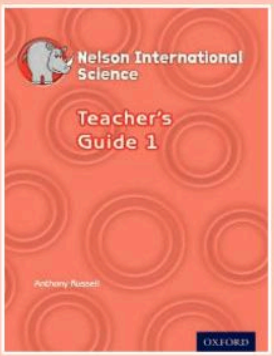

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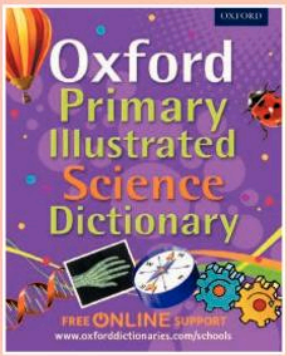

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