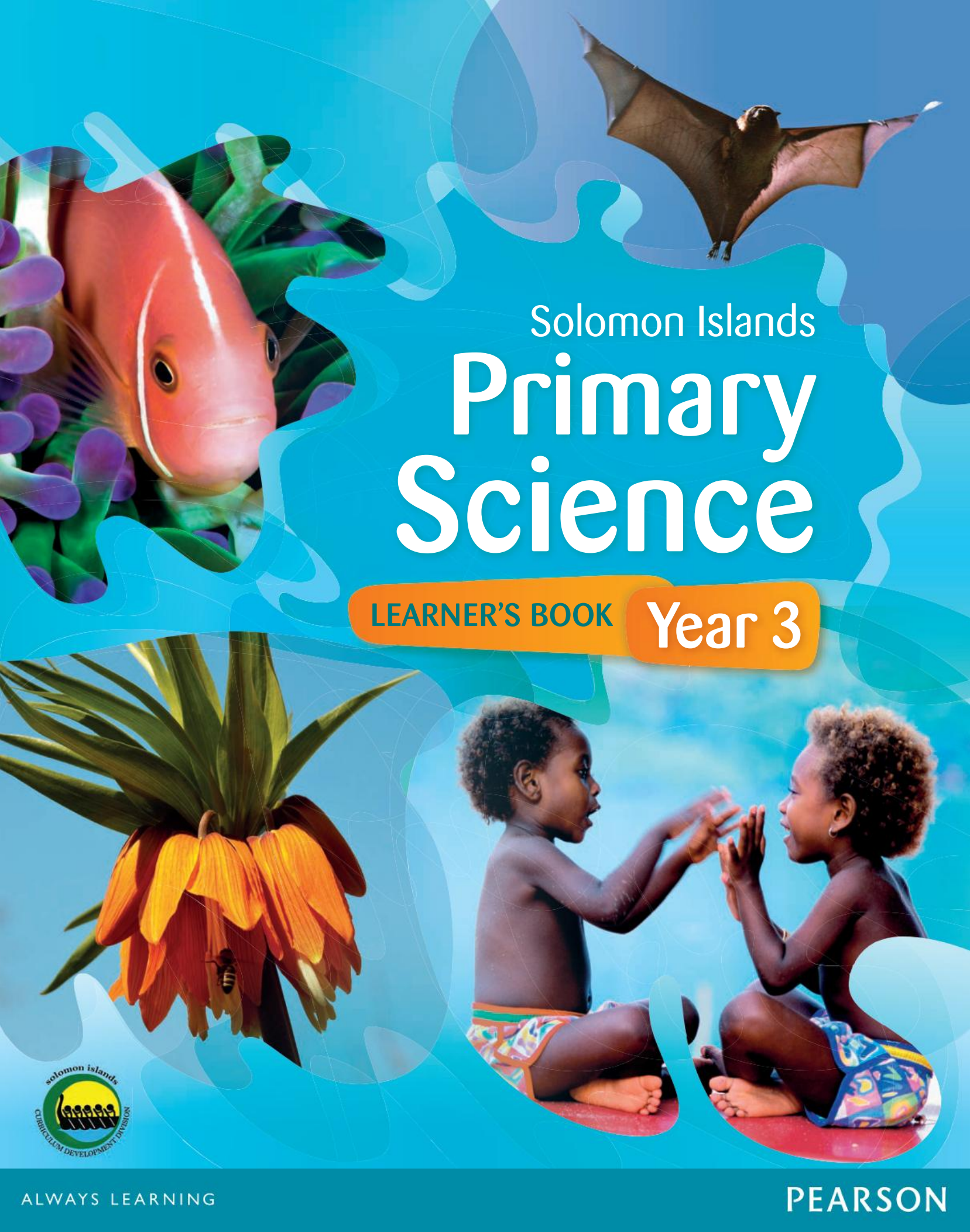

Solomon Islands

Primary Science

LEARNER'S BOOK Year 3

solomon islands
CURRICULUM DEVELOPMENT DIVISION

ALWAYS LEARNING

PEARSON

Solomon Islands

Primary Science

LEARNER'S BOOK Year 3

Solomon Islands Curriculum Development Division
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Contents

Chapter 1

Life and living

In this chapter, you will:

- describe the similarities and differences between living things found in the school grounds
- classify animals and plants according to simple sorting rules
- list animals and plants identified in the environment and the group to which they belong
- use simple classification keys to identify animals and plants.

Plants and animals

There are millions of different **plants** and **animals** in the world. In Solomon Islands there are many thousands of different plants and animals. The forests and rivers, the coast and the sea around the islands are full of living things. Here are some examples.

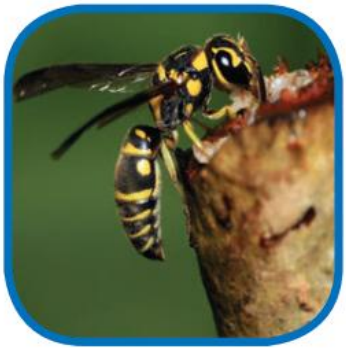

crocodile


bat


frog


heron


beetle


wasp


coconut palm

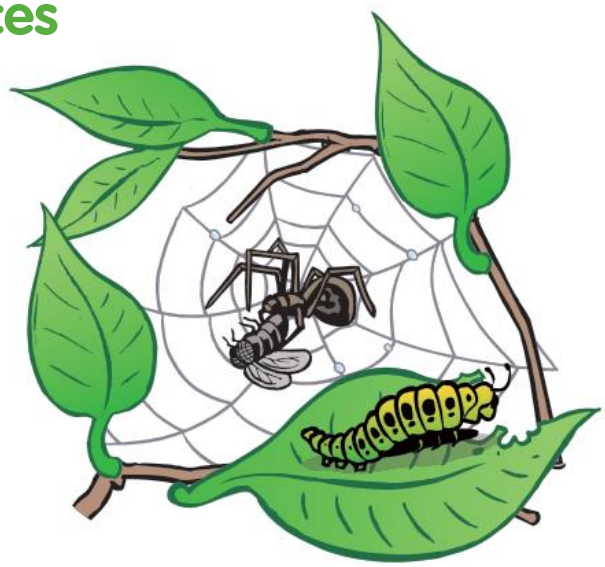

raintree

Even in the school compound there are lots of different plants and animals. In this chapter we are going to look at some of them.

Observing similarities and differences

All plants and animals have some **similarities** and some **differences**.

Animals all move and they feed on plants or other animals. For example, caterpillars and spiders both move, both live among leaves, but caterpillars eat leaves and spiders eat insects. Caterpillars and spiders have some similarities and some differences.



Activity 1

Think and Write

Your teacher will split the class into groups of four or five.

1 Walk around your school compound and make a list in your exercise book of the different plants and animals you see. Carefully look under leaves and in flowers, as some small animals hide in these places.

2 Draw some of the animals and plants you see.

3 Write a simple description of each of the things you've drawn. The table below will help you, so copy it into your exercise book.

Name of living thing	Drawing	Plant or animal	Features and colour	Size

4 When you return to the classroom look at the drawings and descriptions from the different groups of your classmates. Identify similarities and differences between the living things.

5 Present your findings to the rest of the class.

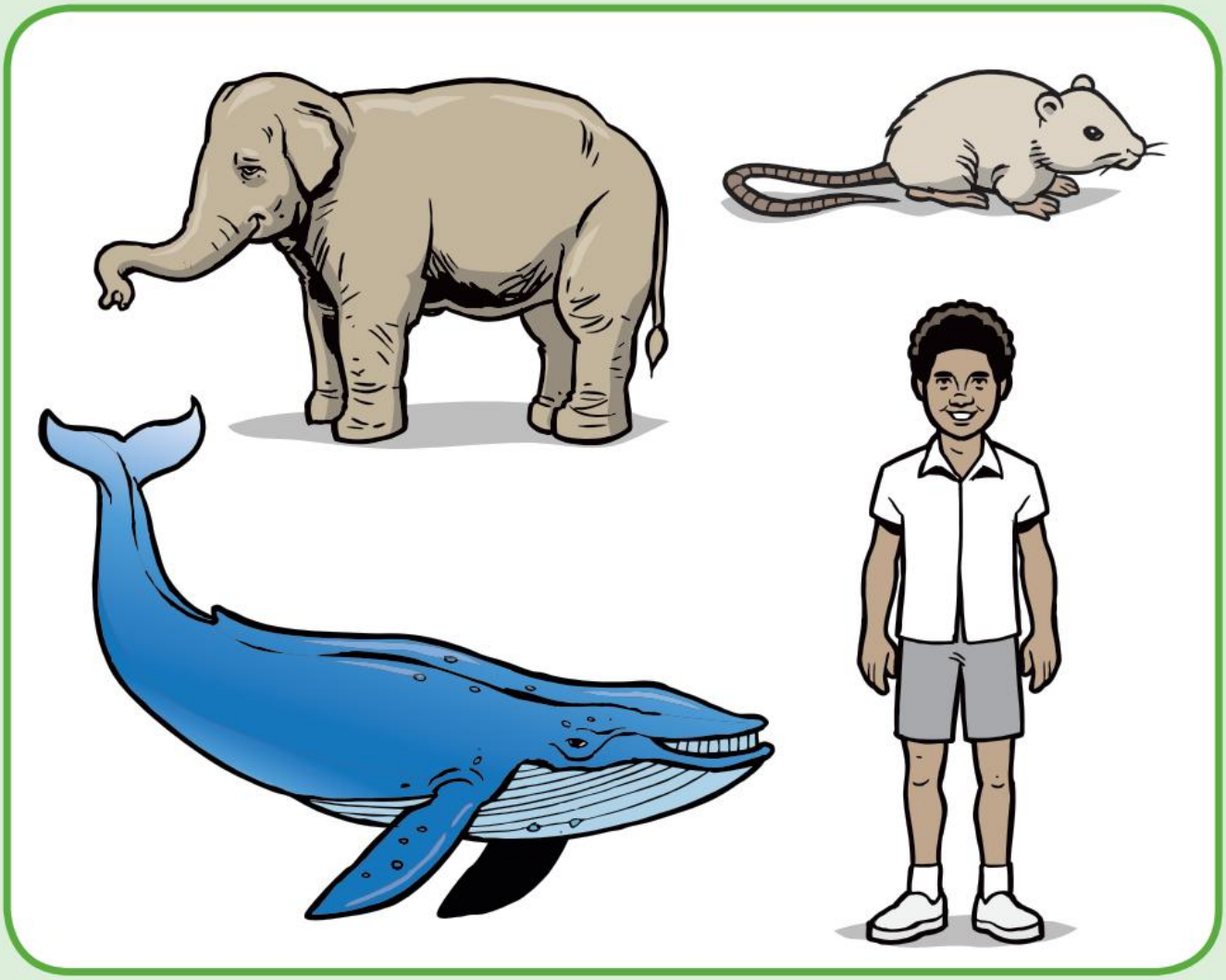
You will notice that plants are often green, they have leaves and cannot move on their own. These are similarities. But they may also have different flower types and different shape and size of leaves. These are differences.

In doing this activity you have been using an important **skill**. This skill is called **observation**. When you observe something you look at it very carefully. You notice what it looks like and what it does. That is what you have been doing with the plants and animals in the school compound. You have been observing them.

Activity 2

Think and Write

Look at the pictures below. Then answer these questions in your exercise book.



1 Can you name these different animals?

2 What is the main difference between these animals?

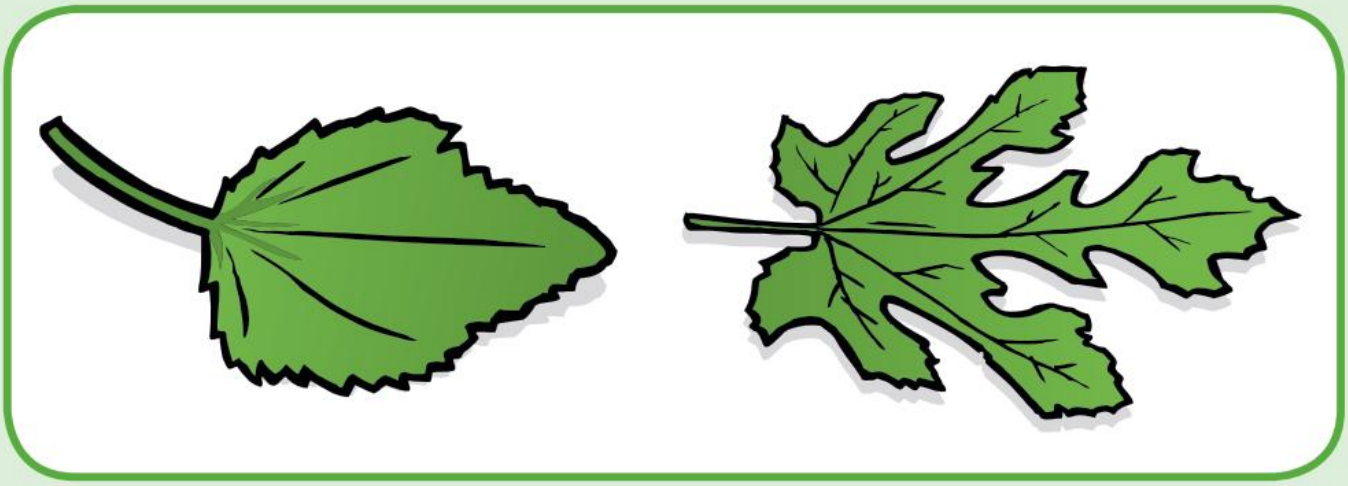
3 Are there any ways in which they are the same? Write your ideas down in your exercise book. Then look at the section below.

The main difference between the animals is their size and shape. But they do have some things in common. If you look closely at each picture you will see that they all have eyes and a mouth. So although these animals are very different in their size and shape, they do have some things in common.

Think and Write

Activity 3

Your teacher will give you lots of leaves. Some of the leaves will be the same and some will be different.



Work in pairs.

1. Sort the leaves into piles or groups. Put all the leaves that are the same into the same pile.
2. Draw a picture of one of the leaves in each group in your exercise book.
3. Explain what **features** you observed that helped you sort the leaves. For example, you might have noticed the colour, shape or size of the leaves.

This activity involves observing because you have to look carefully at each leaf.

Activity 4

Hands-on Activity

Work in groups of four. Your teacher will give you a small live animal. It might be a beetle, a woodlouse, a worm or a moth. Handle it carefully.

Observe your animal closely and answer these questions in your exercise book.

1 What size is the animal? Use a ruler to measure.

2 How does it move?

3 Draw your animal and write a few sentences to describe it.

When you have finished the activity your teacher will let the animals go.

Activity 5

Fieldwork Activity

Work in pairs.

1 Go into the school grounds and find a plant.

2 Examine the plant carefully and write a brief description of it in your exercise book.

   a What colour are the leaves?

   b How tall is the plant?

   c Does it have flowers or fruits? What colour and shape are these?

3 When you have finished, compare your description with other students who have been observing different plants. Read your descriptions to each other. You have all been looking at different plants but you will see that these plants have many things in common.

   • They are usually green.

   • They have leaves.

   • They have a stem.

Grouping living things

We can use the similarities and differences between living things to put them into groups. The easiest way to group living things is to divide them into plants and animals.

Activity 6

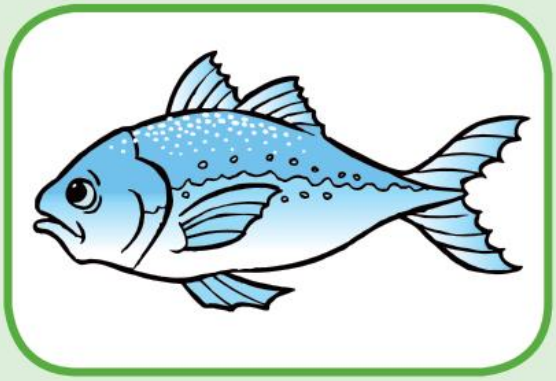
Think and Write

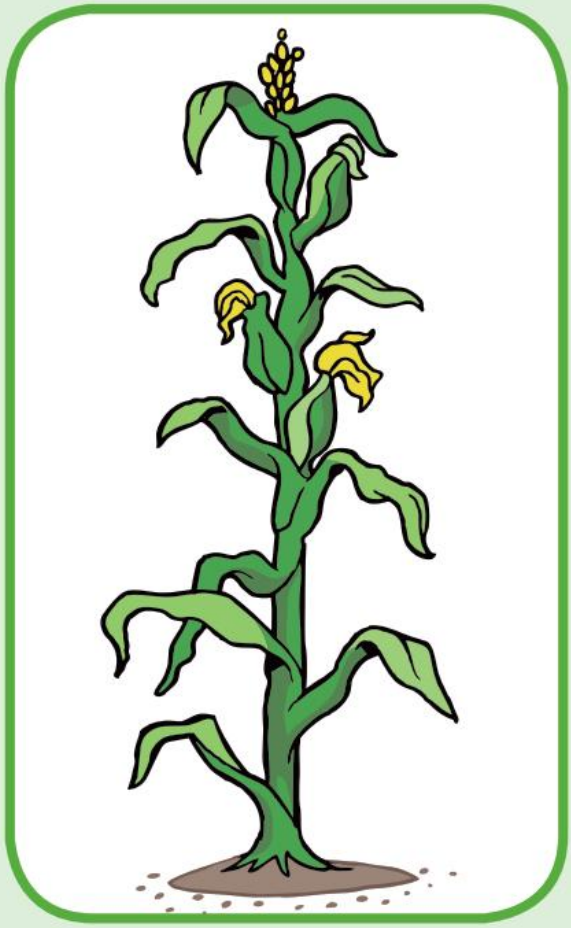
1 Copy this table into your exercise book.

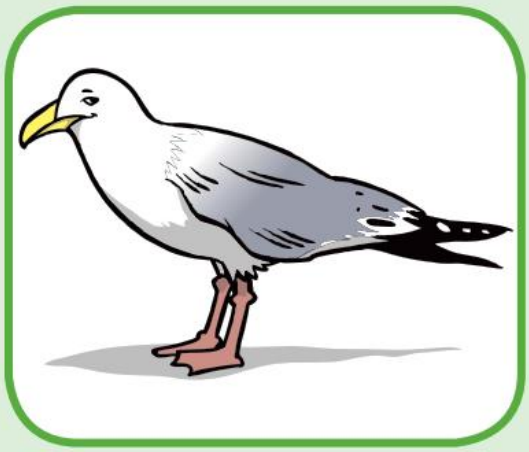
Plants	Animals

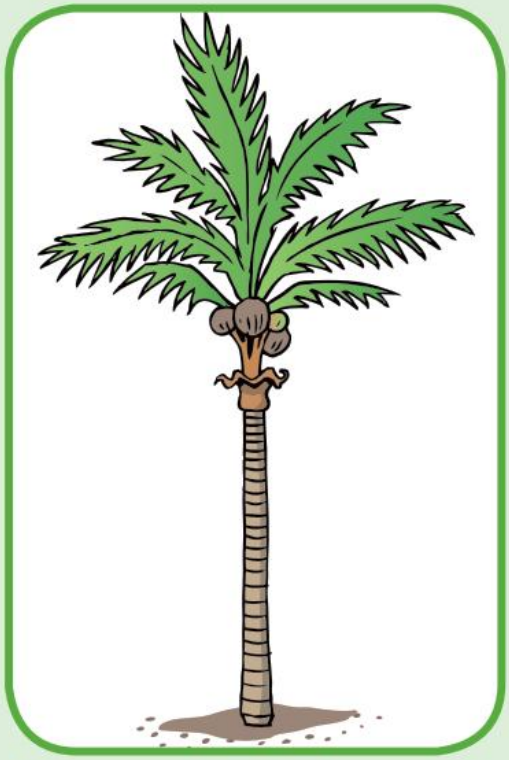
2 Look at these pictures of living things.

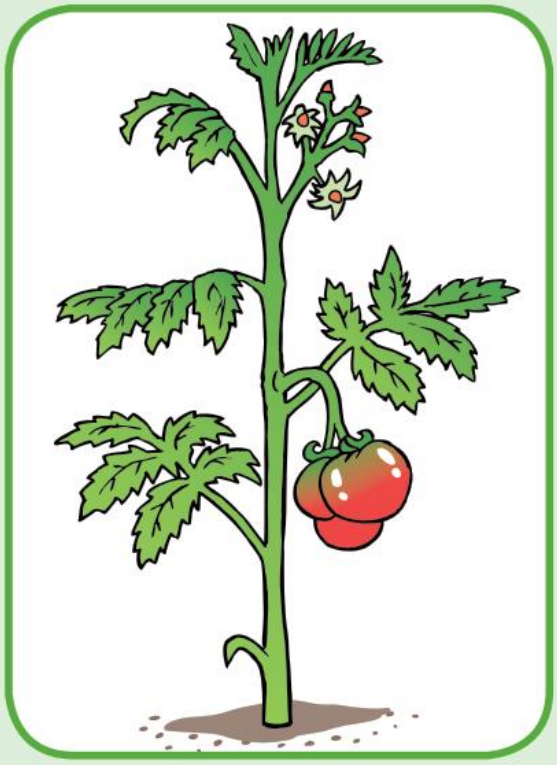
3 Write the name of each one in the table under the heading Plants or Animals.





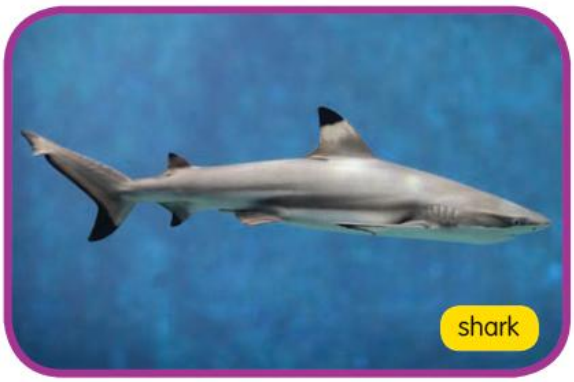






When we sort living things into groups like this we say that we are **classifying** them. So you have been classifying these living things into plants and animals.

We can group or classify living things further. We can divide animals into different groups, such as fish, birds or insects. Fish can be divided into further groups, such as sharks, tuna, barracuda, mackerel and sardines.



These are all types of fish.

These are all types of insects.

Activity 7

Think and Write

1 Copy this table into your exercise book.

Birds	Fish	Reptiles

2 Look at these pictures of different animals.

3 Write the name of each one in the table under the heading Birds, Fish or Reptiles. If you are not sure, your teacher will help you.

Scientists have worked out that certain features can help them classify groups of animals. For example:

- All animals with *feathers* are birds.
- Most animals with six *legs* are insects.
- Animals with *hair* on their bodies belong to a group called mammals. This group includes cats, dogs, horses and humans because we have hair. Can you think of any other types of mammals?

Rats, goats and cows have hair so they are mammals.

There are also groups of plants but these are more difficult to describe, and you will learn about them in a few years.

Fieldwork Activity

Activity 8

Work in pairs.

1 Go out into the school compound and look for animals that belong to the same group.

2 In your exercise book write down how many different animals you find and what group they belong to.

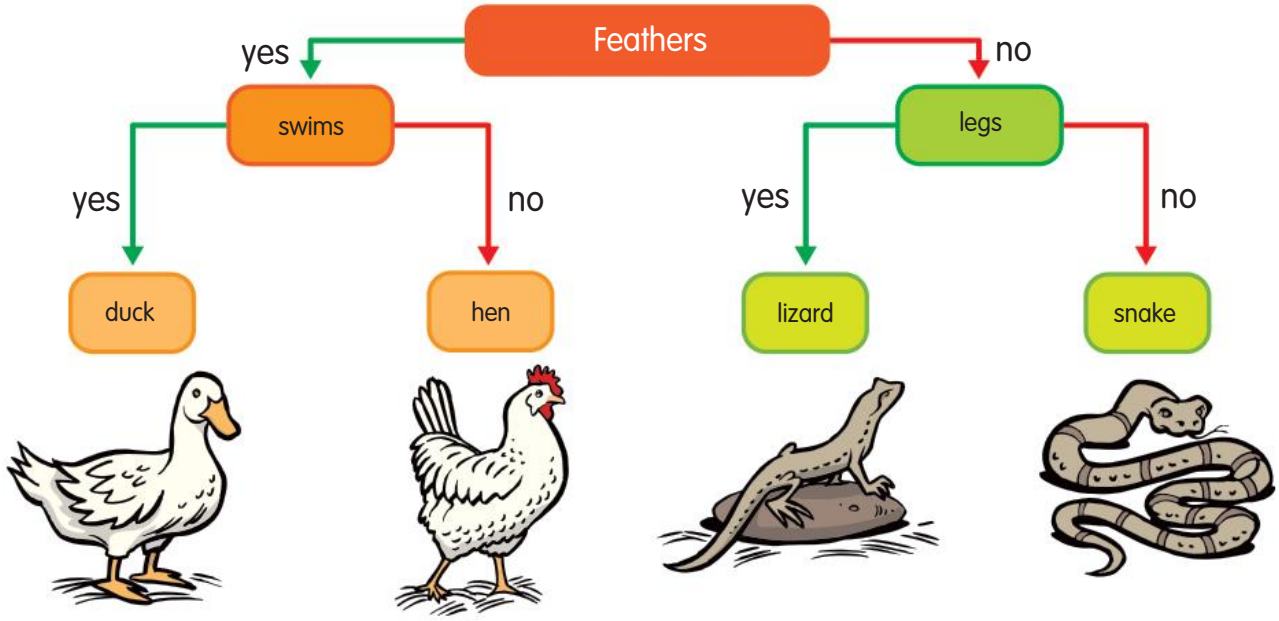
TIP: Insects are the easiest group of animal to find. Look near plants and under rocks.

Identifying living things

Scientists have ways of helping them to identify living things. These are called **keys**.

An identification key looks at the special features of an animal. For example, to identify a snake we need to look at its important features like where it lives and what it looks like. Is it in a tree or on the ground? How big is it? What colour is it?

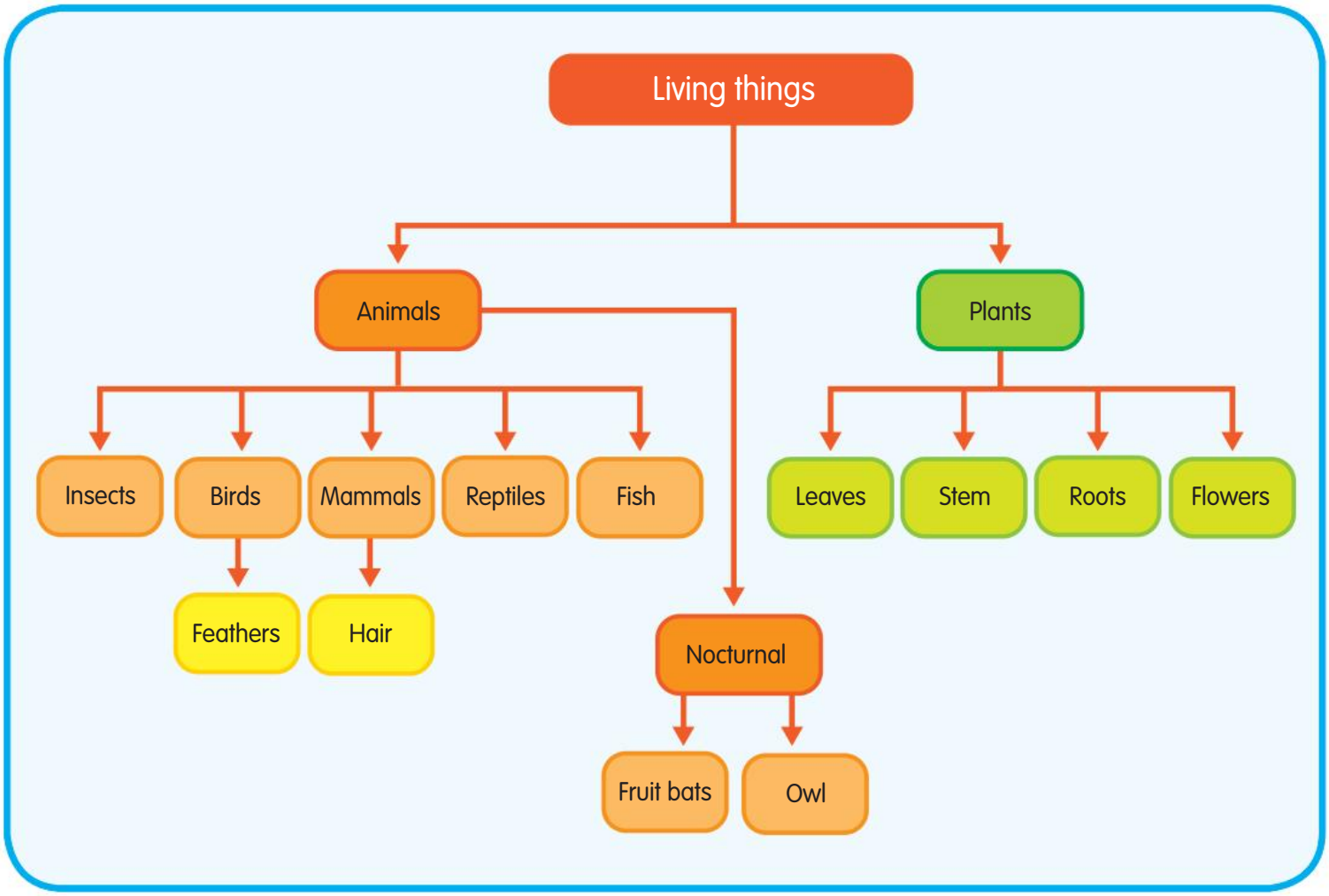
Below is an example of a very simple key to help you identify birds like ducks and hens.



Chapter Review

1. Living things can be divided into plants and animals.
2. Different types of plants have some features that are the same and some that are different.
3. Different types of animals have some features that are the same and some that are different.
4. We can use the different features of plants and animals to put them into groups.
5. All animals with feathers belong to the group called birds.
6. All animals with hair belong to the group called mammals.
7. Humans have hair and belong to the group called mammals.
8. We can use a key to help us identify living things.

Concept map



Revision

Answer the following questions in your exercise book.

1 **Name three ways plants and animals are different.**

2 **Which of the animals below belong to the same group?**

shark cat fly wasp snake butterfly mosquito

3 **What is the special feature that all birds have?**

Chapter 2

Energy sources

In this chapter, you will:

- list energy sources used every day, at home or school
- identify the source of energy used in a range of machines
- demonstrate how energy is stored and released
- explain why energy is essential for animal and plant survival
- identify types of fuel that are sources of energy.

Energy

Energy is all around us. Humans use energy to help us move and keep our bodies warm. It is the same for other animals like dogs, cats and horses. Cars use energy to move. Energy lights our houses and schools.

In this chapter we will find out about the different types of energy around us, and how each type of energy helps us in our lives. We will also learn how energy can be changed from one type to another.

The main types of energy we will explore in this chapter are:

- heat
- light
- sound
- movement
- **stored energy** (food and fuel)
- electrical energy.

They are the main types of energy we come across in our daily lives.








Activity 1

Think and Write

1 Look at the pictures on page 17. While you are looking at each picture think about the types of energy listed there.

2 Copy the table below into your exercise book.

3 Write in the type of energy involved for each activity. For some of the pictures you might be able to think of two types of energy.

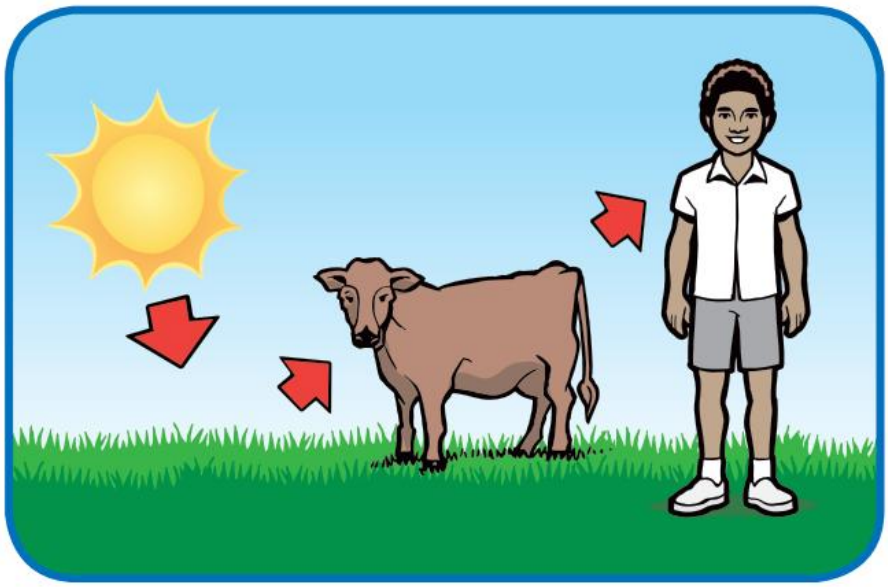
The first one is done for you. The racing car is moving (movement energy) and it is using fuel (petrol) which is stored energy.

Activity	Type of energy
Car driving	Movement energy and stored energy
Playing soccer	
Playing volleyball	
Lighting a bulb	
Eating some salad	
Sun shining	
Radio playing	
Playing pan pipes	

Energy from the Sun

Most of our energy comes from the Sun. If you are outside on a sunny day you can feel the heat energy from the Sun on your skin. The bright light from the Sun also makes it easy to see.

The Sun also provides us with energy in another very important way. Green plants use the light from the Sun to make food or stored energy. Humans and other animals eat plants and get this energy. When other animals like cows eat plants they get the stored energy, but then humans eat the cows and get that stored energy from them. So energy from the Sun is passed to plants, then from plants to cows, and finally to humans.

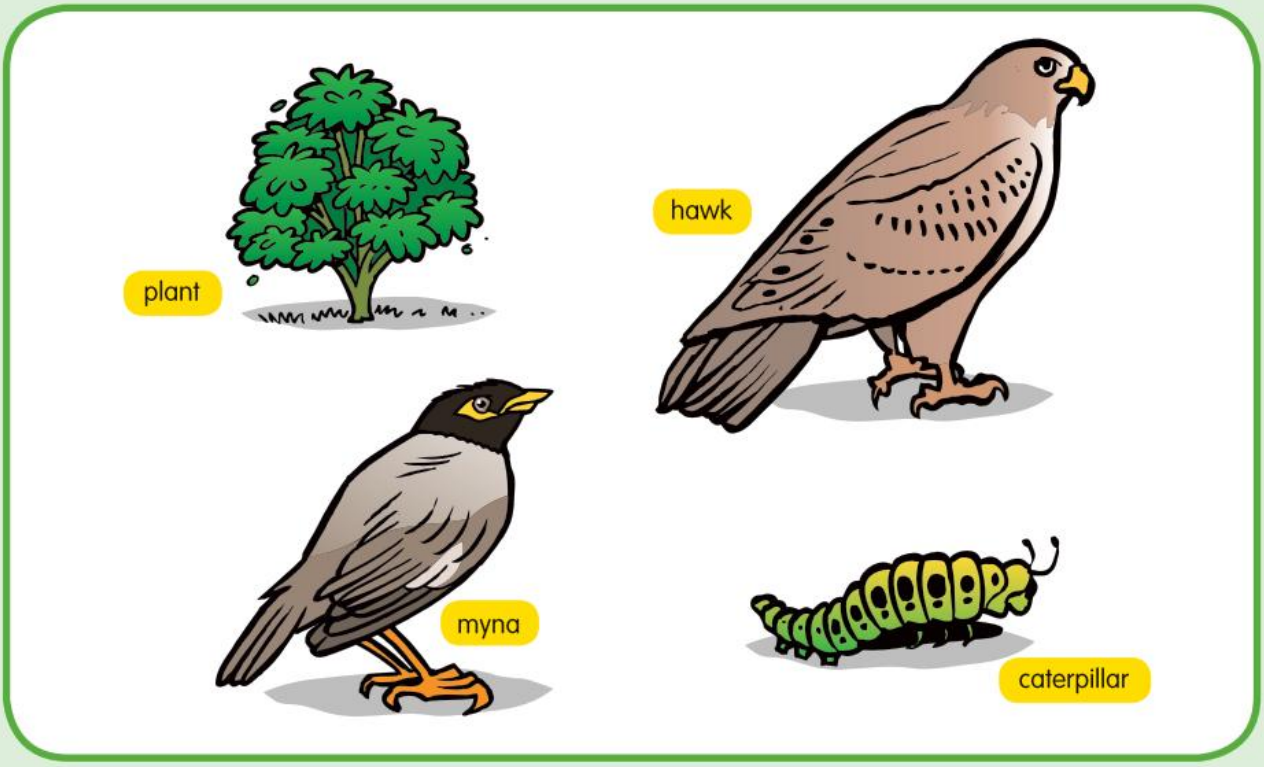


When stored energy in food moves from one living thing to another we call this a **food chain**. There are lots of different food chains but they all pass energy along them.

Think and Write

Activity 2

Look at these pictures of living things.



1 Can you put them in the right order to make a food chain similar to the one shown at the top of the page? Discuss in pairs then check with your teacher.

2 Draw the food chain in your exercise book.

Energy can change

You have seen that there are lots of different types of energy. Energy can change from one type into another. We have already learnt that light energy from the Sun can be changed into stored energy or food by plants.

Activity 3

Hands-on Activity

Work in pairs. Write down your findings in your exercise book.

1 Put your hands together and start to rub them. Press hard and rub them quickly.
2 What do you feel? You should notice that they heat up.
3 What energy did you change into heat?

In Activity 3 you have used movement energy—by rubbing your hands—to create heat energy. The faster you rub your hands the hotter they get.

Activity 4

Think and Write

Your teacher will do this activity while you watch and think about energy changes.

Your teacher will light a candle and a small amount of **kerosene** in a metal bottle top.

1 Think about what type of energy we start with and what type of energy we get in the end.

Here is a clue: we start with one and end up with two types of energy.

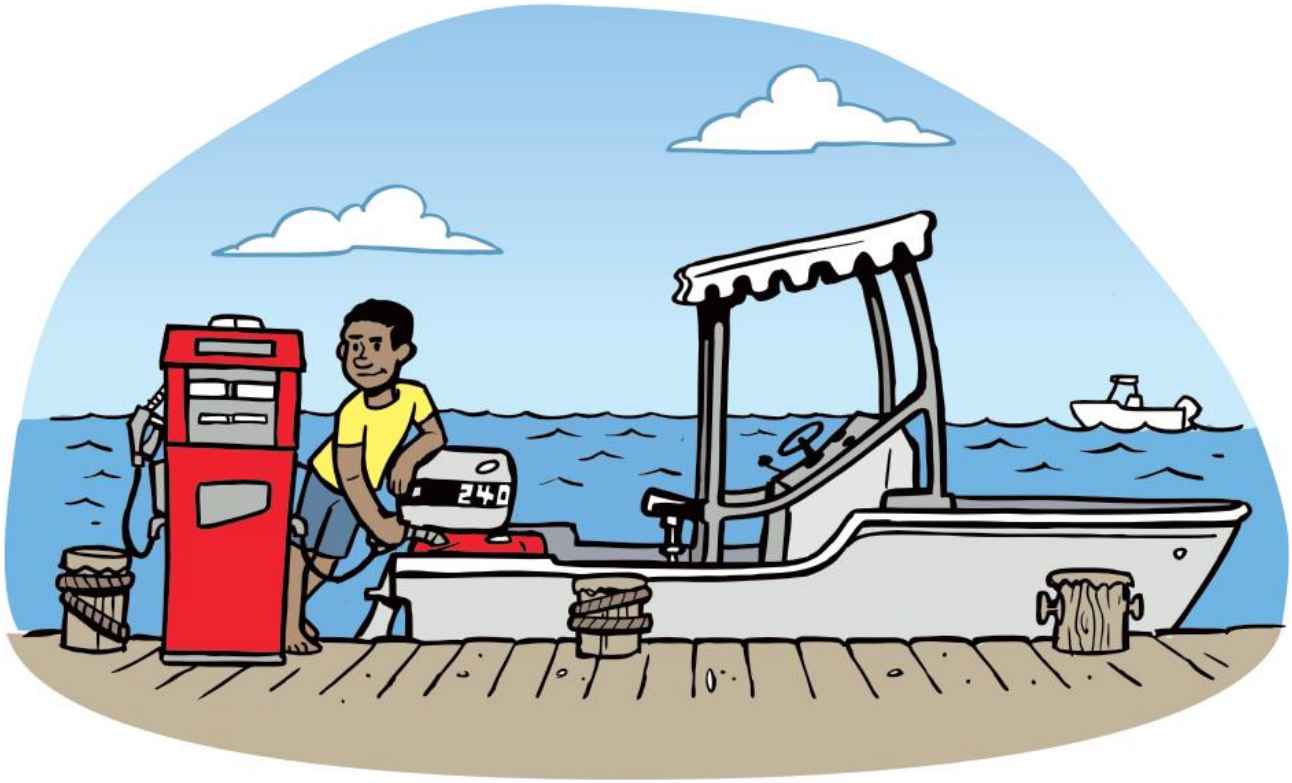
2 Write your ideas in your exercise book.

In Activity 4 the energy change was the same for both materials. The change was from stored energy in **fuel** (the candle **wax** and the kerosene) to heat and light energy in the flames.

Energy and machines

There are lots of **machines** around us. The ones we see most often are car and motor boat engines. These machines or engines are able to change one type of energy into another type.

In both machines, stored energy in petrol is burned to give movement energy. The movement energy powers the car or boat along. Once all of the stored energy has been used up the machine will stop until it is filled up with more petrol.



Storing and releasing energy

Hands-on Activity

Activity 5

Your teacher will demonstrate one more energy change. Watch the demonstration and think about the energy change that occurs.

Your teacher will show you how an elastic band can be used to change energy by flicking a paper pellet against the wall of your classroom.

When the elastic band is stretched it has **stored energy**. When your teacher lets the band go, what type of energy does the stored energy change to?

This type of stored energy is used in fishing guns or spear guns. The rubber bands are stretched back to give them stored energy. When the trigger is pulled, the stored energy from the rubber bands goes into the gun and makes it shoot through the water very quickly.

Energy in our bodies

Our bodies are like machines. We move around a lot each day. Like machines we need stored energy. But our stored energy comes from the food we eat. If we don't get enough food we find it hard to do things because we are tired. When we eat food, our bodies are able to use the food to help us move and to heat our bodies from the inside. We need to eat good food several times a day for energy.

Electrical energy

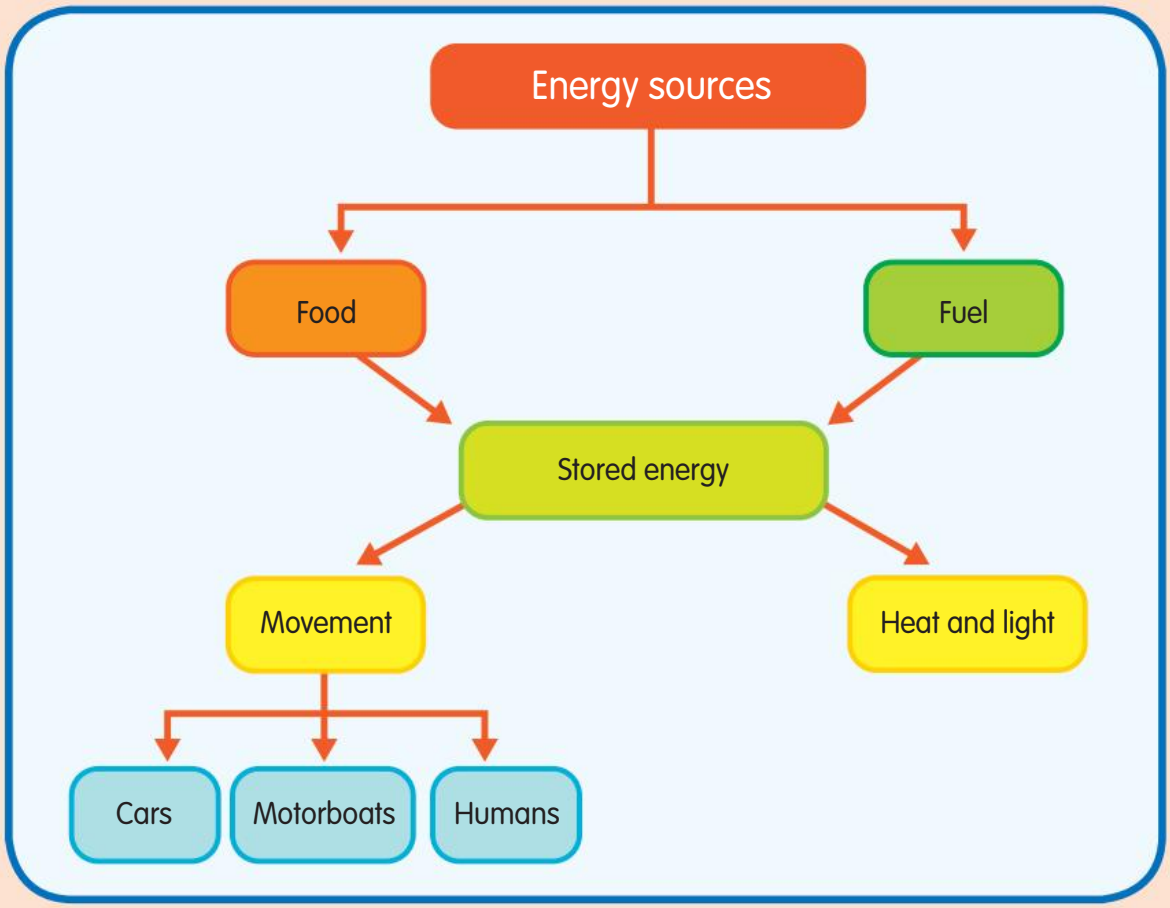
In Chapter 4 you will learn about electricity. This is another type of energy that can be changed to give us light, heat and movement. Think about these energy changes and where you have seen electrical energy changed into other types of energy. The pictures below will help you.

Chapter Review

1. Energy is all around us.
2. There are many types of energy, such as heat, light, sound, movement, stored energy (food and fuel) and electrical energy.
3. Energy can change from one type to another.
4. Machines change stored energy in fuel, such as petrol, into movement energy to make machines work.
5. Humans are a bit like machines: we need stored energy in food to keep us moving.
6. Electrical energy can be changed into light, heat and movement.

Chapter Review

Concept map



Revision

Answer the following questions in your exercise book.

1 What type of energy do green plants use to make their food?

2 Draw a simple food chain showing these living things:

snake grass grasshopper bird

Make sure you put them in the correct order.

3 When we light a candle what energy changes take place?

4 How do humans get their energy?

Chapter 3

Changing materials

In this chapter, you will:

- identify solids, liquids and gases and explain how they differ
- group common household materials as solids, liquids or gases
- explain that heat can change the state of matter from solid to liquid to gas.

Materials

This chapter looks at **materials**. Materials are all around us and are all made from **matter.** There are three forms of matter: solid, liquid and gas.

Solid

If you look around, you will see materials that are **solid**. Wood and stone are examples of materials or matter that are solid.

Liquid

Matter can also occur as a liquid. Can you name some liquids that you find in or near your home? The most common one is water from the tap or that you find in streams and rivers. There are other types of liquids, like milk, but most of the liquids we know contain some water. The sea is water but with salt in it.

Gas

The third type of matter is **gas**. It is not so easy to think about gases as we cannot see them. But we are surrounded by air, a gas we feel when the wind blows. When you blow up a balloon you are filling it with gas. When you see bubbles in a liquid, they are full of gas.

Activity 1

Think and Write

Look at each picture carefully.

1 Copy the table below into your exercise book.

2 Identify if each picture shows a solid, liquid or gas.

3 Tick the correct column in the table for each object or material. The first one is done for you.











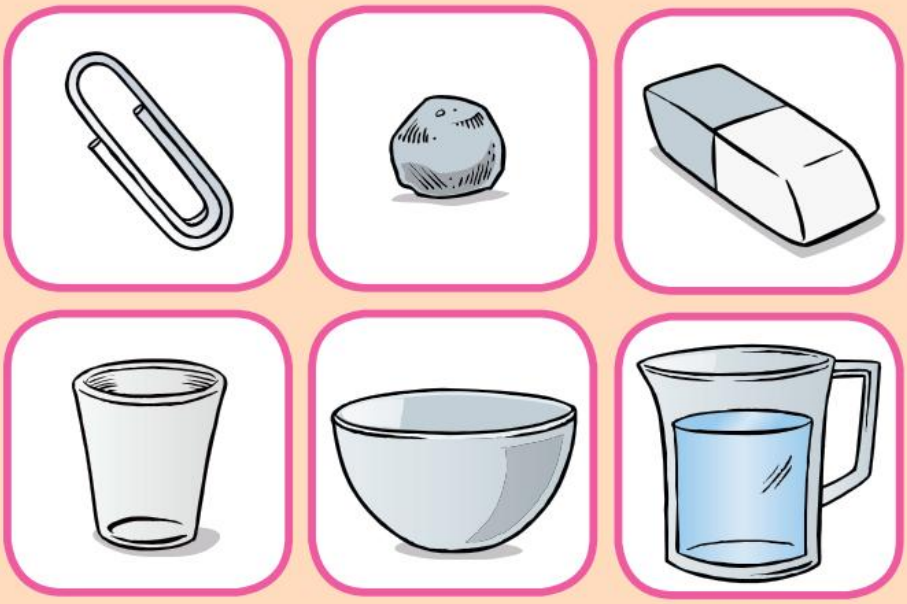
Object	Solid	Liquid	Gas
flame on stove			✓
air inside a balloon			
beans			
cooking oil			
bubbles			
crayons			
water			
shampoo			
butter			
wood			
books			
kerosene			

Hands-on Activity

Activity 2

You will need:

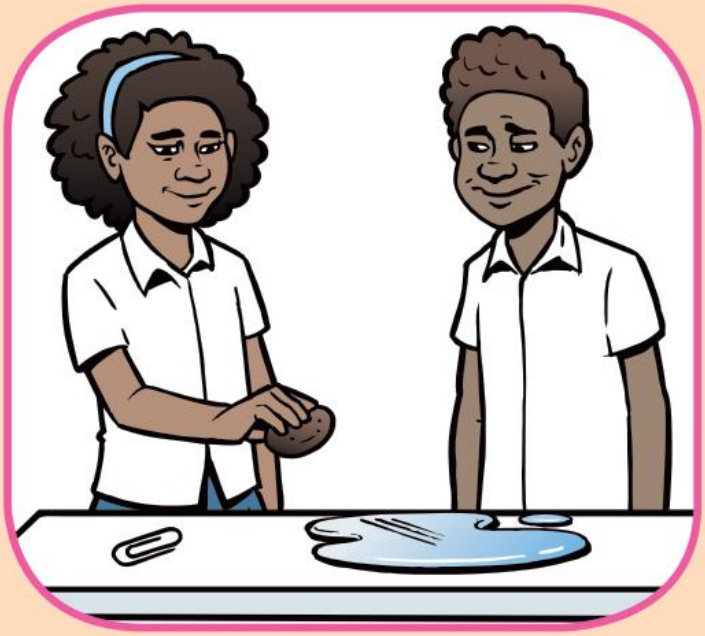
- a paper clip
- a small stone
- an eraser
- a plastic cup
- a plastic basin
- some water



Which of the materials above are solids and which are liquids? Think about these different materials while you carry out these tests.

Work in pairs and discuss your findings.

1. Place the stone and the paper clip on a table. Now pour a small amount of water onto the table. Then try to pick up each of the three materials. What do you find?
2. Drop the paper clip and stone into the plastic cup, then tip them into the basin. Do they change their shape? Try with the eraser.
3. Pour some water into the plastic cup, then into the basin. Does the water change its shape?
4. Can you explain one way in which solids and liquids are different?



Solids and liquids are different

There are several ways in which solids and liquids are different.

Liquids change their shape easily and solids do not.

Solids are generally easy to pick up and liquids are not. Because liquids change their shape easily we say that they **flow** and we can **pour** them. We cannot pour a solid.

Hands-on Activity

Activity 3

You will need different containers such as ice-cream cartons, plastic bags, cups, jugs or a jar.

1 Fill the jar with cold water then pour the water from one container to the next.

2 In your exercise book write a sentence or two about what happens to the shape of the water as you move it from one container to the next. You should see that the water takes the shape of whatever container it goes into.

Gases

It is easy for us to find solids and liquids because they are all around us. We can see them and touch them. We cannot usually see gases, but one gas is all around us. Can you think what that gas is?

It is **air** and we need it to help us to stay alive. Without air we could not breathe. We can also feel air when the wind blows against our bodies. We can see what it is doing when it moves leaves and branches. Sometimes during a **cyclone** the air is moving so quickly that it causes great damage.

Cyclone damage

Can you think of other ways we experience air? Make a list in your exercise book.

We experience other gases like the **exhaust** from vehicles. We can smell the exhaust gases or **fumes** and they can be very dangerous as they are poisonous.

Exhaust fumes

Air

In the next three activities we will look at some important features of air:

- air takes up space
- air has weight
- air can hold things up.

Activity 4

Hands-on Activity

You will need:

- a bowl of water
- a cork or small piece of wood
- a glass
- paper

1 Fill a bowl with water and float the cork or wood on the surface.

2 Turn a glass upside down and bring it over the cork. Gently push the glass into the water down over the cork. Write a sentence in your exercise book about what you see. What happened to the cork?

3 Now let the glass dry and push a piece of paper into the bottom. In a minute you will turn the glass upside down again and gently push it into the water. But before you do, write down if you think the paper will get wet or stay dry.

4 Try the activity and see if you were right.

5 Try it again but this time tilt the glass under the water and see what happens.

The paper does not get wet the first time because the air stops the water getting into the glass. This is because air takes up space.

When you tilt the glass the air comes out and lets the water come in. Bubbles of air will float up to the surface of the water. Water will rush into the glass and make the paper wet.

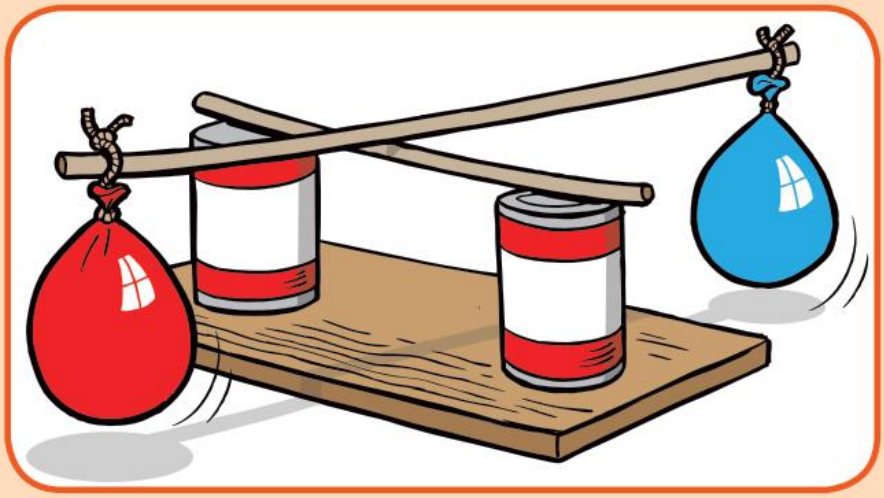
Activity 5

Hands-on Activity

Work in pairs and write your findings in your exercise book.

You will need:

- 2 balloons
- 2 tins with soil in them
- string or fishing line
- scissors
- 2 thin sticks
- a pin



1 Blow up the balloons to the same size and tie them off with string or fishing line.

2 Tie a balloon to each end of one stick and set up a balance like the one in the picture. The balloons should be level with each other.

3 Push the pin into one of the balloons. What happens to the balloon and to the balance?

4 Copy these sentences into your exercise book. Choose a word from the list below to complete them.

air	heavier	bang	weight

When the balloon is pricked, it goes _____ and loses its _____.

The other balloon still has its air so it is now _____.

So air must have _____.

Activity 6

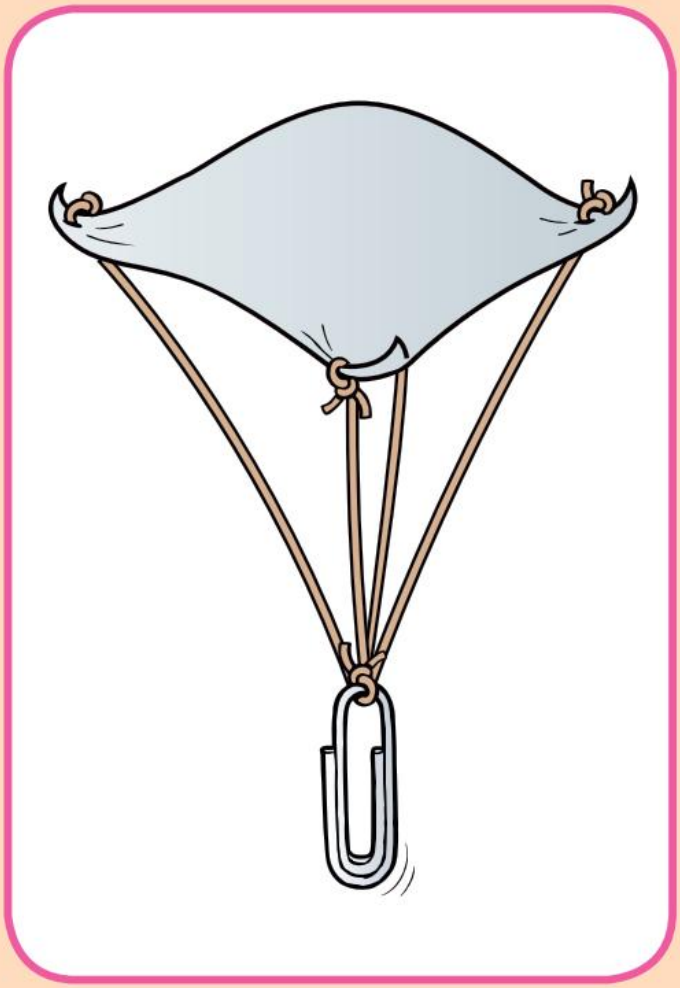
Hands-on Activity

Work in small groups and discuss your findings.

You will need:

- a feather
- a paper clip
- a square piece of plastic sheet from a plastic bag
- cotton thread or fishing line

1. Hold the feather up high and then let it go. Does it fall quickly or slowly?
2. Hold the paper clip up high and drop it. Does it fall quicker or slower than the feather? Can you think why there is a difference?
3. Tie four pieces of thread or fishing line to the corners of the plastic sheet. Tie the other ends to the paper clip as shown in the picture.
4. Hold the plastic parachute up high and let it go. Does it fall faster or slower than the paper clip by itself? Can you explain why this happens?



Changing solid to liquid

So now we know some of the main differences between solids, liquids and gases. But did you know that it is possible to change a solid into a liquid and a liquid into a gas? Let's look at two solids: ice which is solid water, and butter.

Hands-on Activity

Activity 7

Work in pairs.

Your teacher will give you two ice cubes and two dishes. You will have to work quickly otherwise the ice will melt.

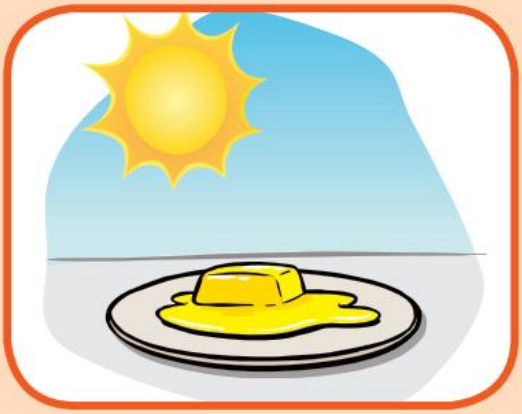
1. Put one ice cube on a dish in the sun and one on a dish in the shade. Which ice cube do you think will melt first and why? Try to use ice cubes that are the same size.
2. Check your two ice cubes every 2–3 minutes.
3. Write a few sentences in your exercise book about what you did and what you found.

In Activity 7 you should find the ice cube in the sun **melts** faster. This is because it is hotter in the sun. Now we know that to melt ice we need heat and the hotter it is the faster the ice will melt.

Hands-on Activity

Activity 8

Repeat the same experiment as Activity 7 but using two pieces of butter straight from the fridge. What do you think will happen? In your exercise book write down what you expect to happen. Were you right? Write a few sentences about your findings.



Activity 8 shows us that just like ice, butter melts faster in the sun. Heat melts ice and butter and changes them from solid to liquid.

Think and Write

Activity 9

Your teacher will light a candle. Keep watching as the wax melts.

Now your teacher will pour some wax onto paper. What will happen to the wax?

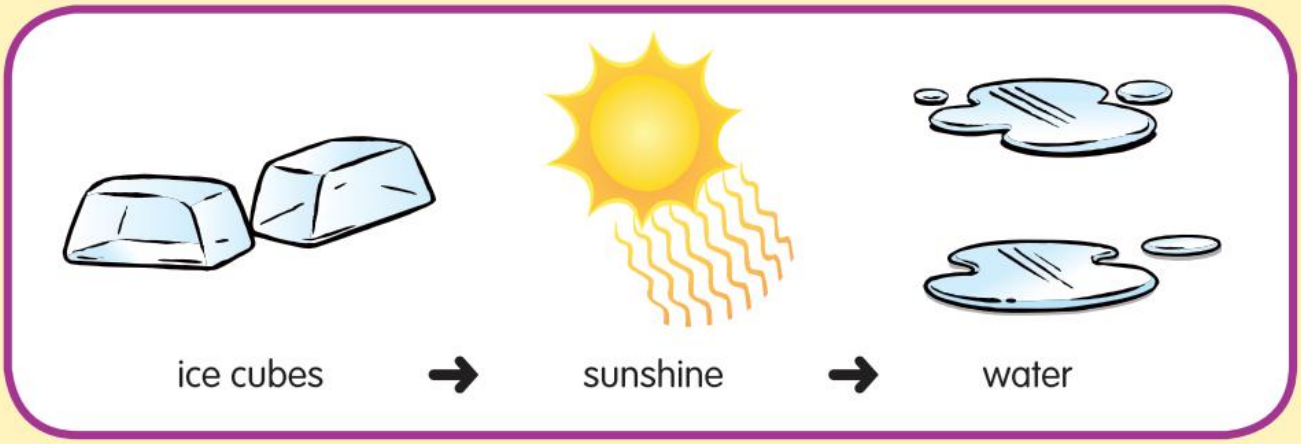
1 Write a sentence in your exercise book about what will happen to the liquid wax when it is poured onto the paper. Were you correct?

2 Write another sentence explaining why the wax became solid again.

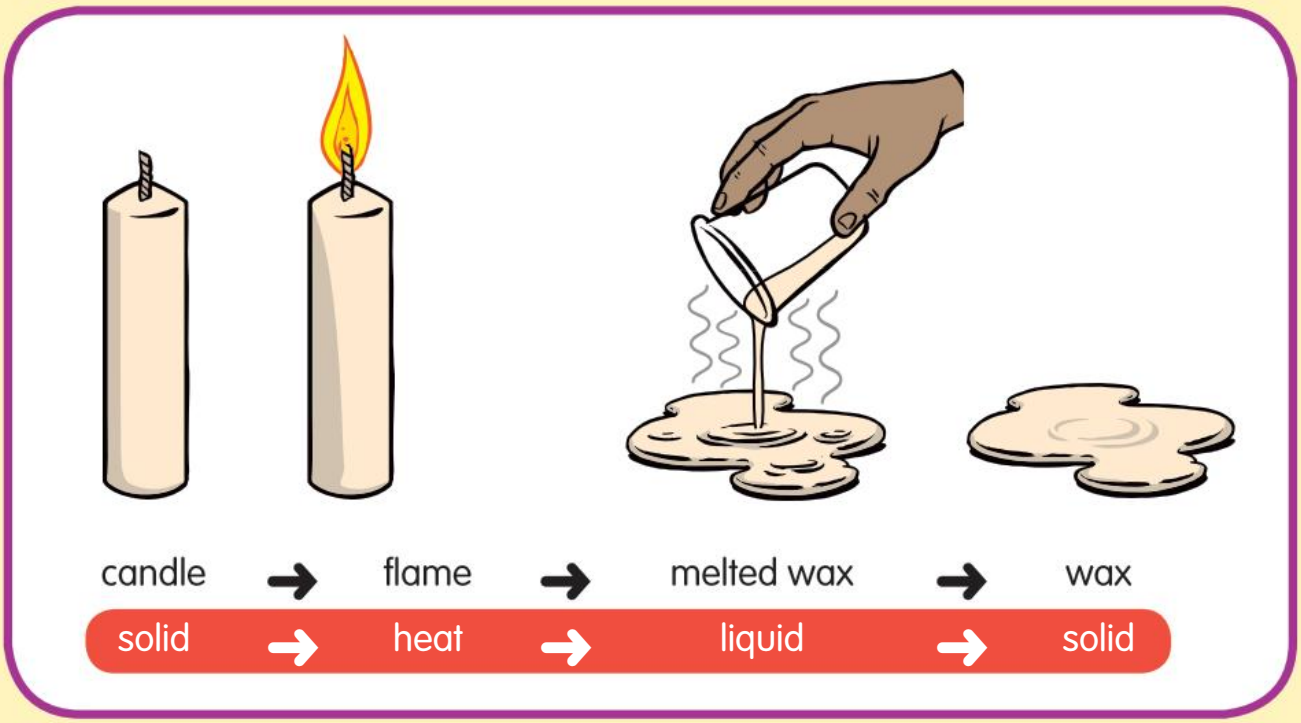
A candle is another solid that can turn into a liquid. The wax is solid when it is cool and the candle stands upright. But when we light the candle the heat from the flame melts the wax. The candle changes from solid to liquid.

Liquid wax, as in Activity 9, becomes solid again because when the heat is removed the wax cools. The wax cools and becomes hard again. This process is called **solidifying**.

Melting



Melting and solidifying



Changing liquid to gas

We now know that when we heat a solid we can turn it into a liquid. This is called melting. We also know that if we cool a liquid enough it can be turned back into a solid. This is called solidifying.

We can also change a liquid into a gas.

Hands-on Activity

Activity 10

Your teacher will instruct the whole class on the following experiment. Find an area near your school with concrete paving.

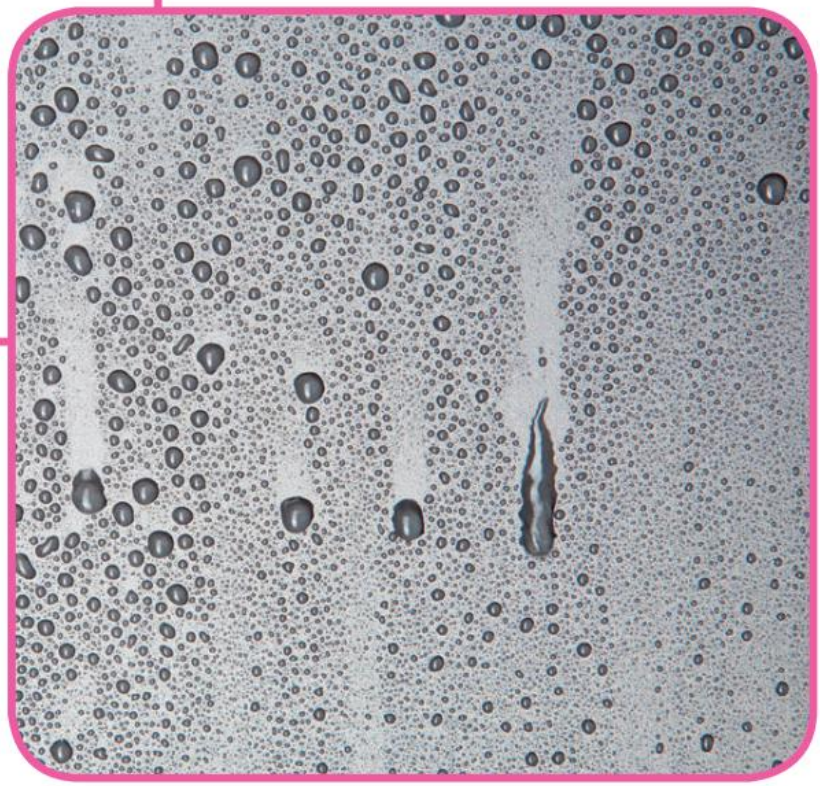
1. Your teacher will pour some water onto the ground to make a large puddle.
2. They will use a piece of chalk to draw a line around the puddle.
3. Check on the puddle after 30 minutes. Your teacher will draw another line around the remaining puddle and keep doing this until the puddle disappears.
4. Write a few sentences in your exercise book about what happened throughout the day and why you think the water disappeared.
5. Do a sketch of the lines that were drawn around the puddle throughout the day.

The water disappeared from the puddle in Activity 10 because the heat from the Sun turned it into a gas. This process is called **evaporation** and the gas is called **water vapour**. We cannot see water vapour but it is all around us.

Changing gas to liquid

We can also turn water vapour gas back to a liquid. If we cool water vapour it will turn back into liquid water. This happens when we take a bottle of water out of the fridge. Water vapour in the air touches the cool surface of the bottle and turns into water. This process is called **condensation**.

Next time you take a bottle of drink from the fridge, watch what happens on the surface of the bottle. You will see lots of small drops of water appearing on the surface. If you run your finger over the surface of the bottle you will see the water dripping off your fingertip.



Activity 11

Think and Write

1 Watch your teacher heat some water in a kettle or on a stove.

When the water gets hot you will see steam beginning to appear. Steam is water vapour.

2 When your teacher holds a dish over the steam, watch what happens. In your exercise book write down what you see.

If your teacher holds the dish over the steam long enough, drops of water form and drip off the bottom of the dish like rain.

Remember, this process is called condensation and it is turning gas (the steam) into a liquid.

The water cycle

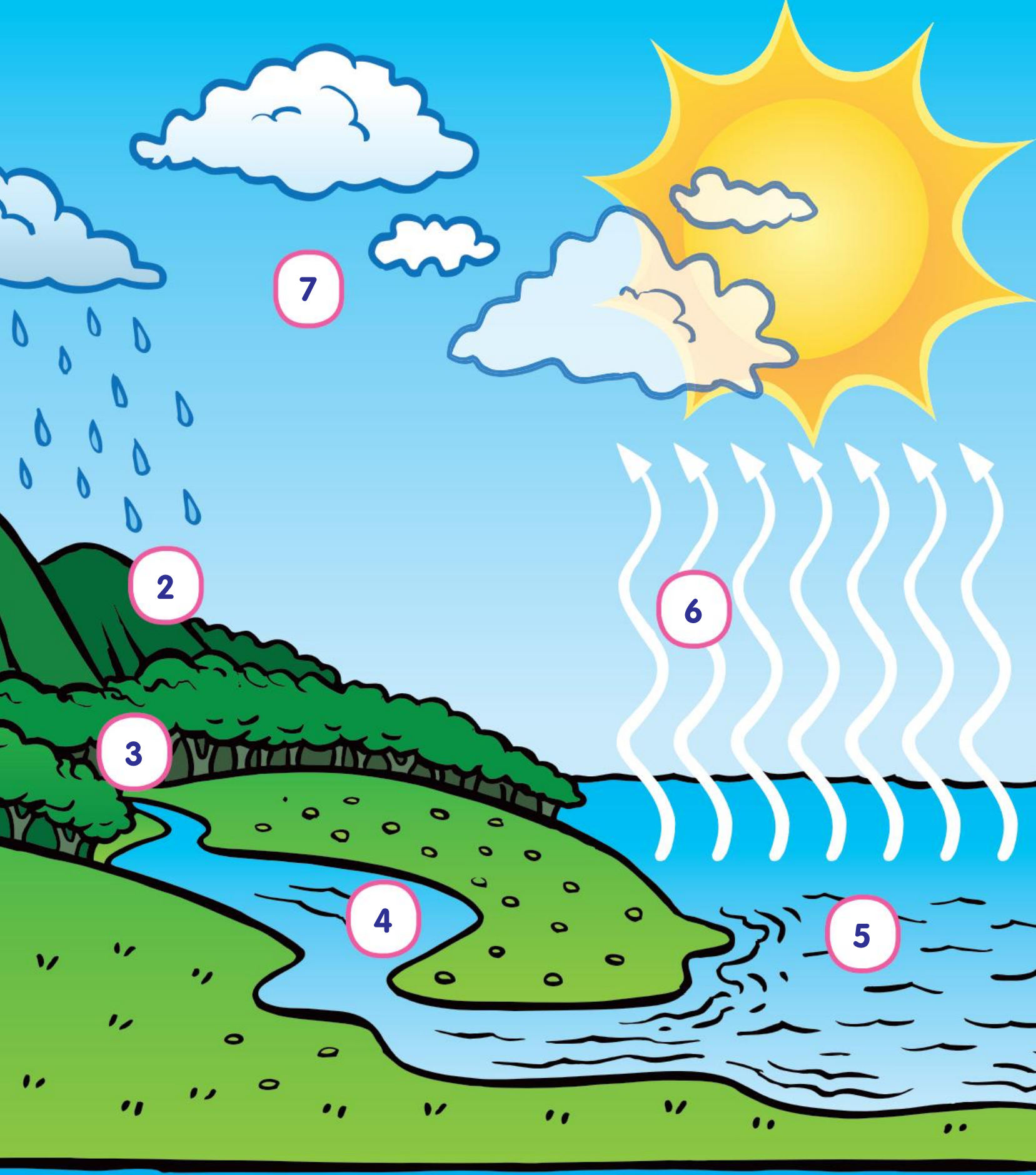
The **water cycle** is a process that is very important for Solomon Islands and all of the Earth. Like in Activity 11, it includes the process of heating water and turning it into water vapour, which then condenses into water again.

In the water cycle, water in the sea is heated by the Sun. Some of the water turns into water vapour through evaporation. This gas then rises up into the sky. As it rises it cools down and condenses back into water droplets. These tiny droplets come together to make clouds. When the clouds become big enough they drop their water as rain. Rain fills rainwater tanks and rivers and provides the fresh water we need to drink and wash. See how the water cycle works in the diagram here.

Key

Water goes around and around.

1. Water falls from the sky.
2. Some rain soaks into the soil.
3. Some rain flows into streams and rivers.
4. These rivers flow into bigger rivers and the sea.
5. Water is heated by the Sun.
6. This water changes into water vapour and rises up.
7. Water vapour turns into clouds. Rain falls from the clouds.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2
6
3
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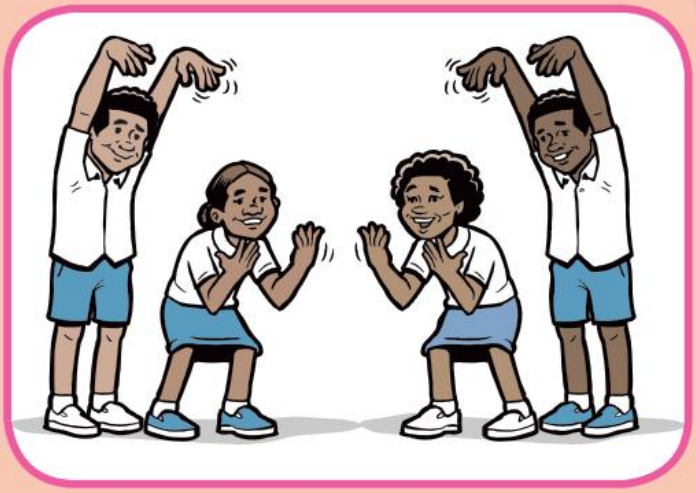
Creative Activity

Activity 12

In groups write a song or poem about the water cycle then perform it to the class.

Some of you could pretend to be water droplets and act out the water cycle as the rest of your group sings.



Looking after water

Water is very precious. We all need clean fresh water to live. Although there is a lot of rain in Solomon Islands it is still important that we do not waste water or make it dirty. Sometimes in the capital Honiara they can run low on water. This is because so many people are using so much water. The government has to shut down the water supply system.

It is also important to keep our streams and rivers clean. Do not throw rubbish into streams and rivers. This makes them dirty or pollutes them and the water cannot be used.

This shower does not use much water.

A polluted river

Activity 13

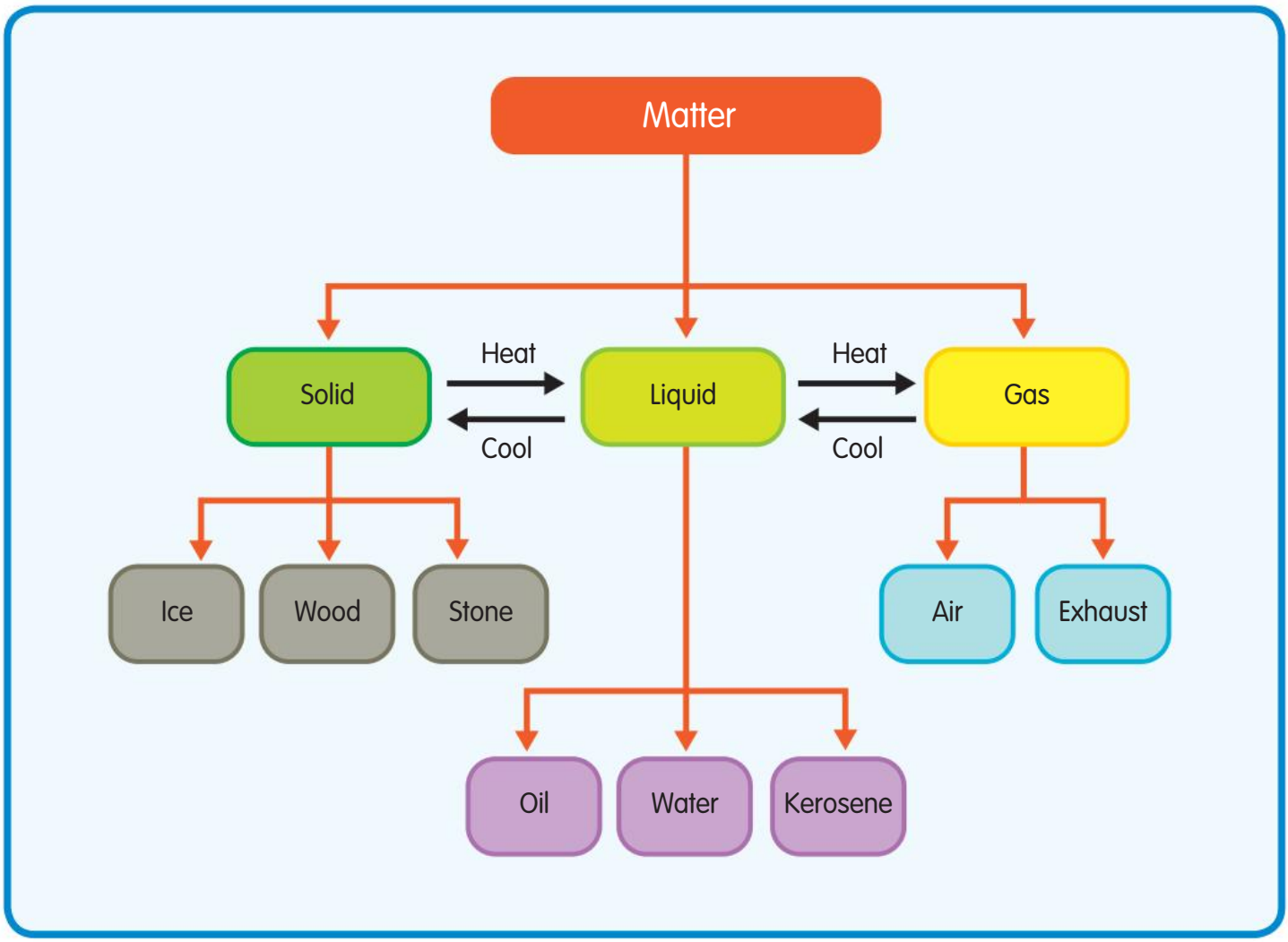
Creative Activity

Working in groups, make a poster about saving water or not polluting it. Hang the finished posters on the wall and explain your poster to the class.

Chapter Review

1. Materials are made up of matter. Matter is either solid, liquid or gas.
2. Solids are easy to pick up and liquids are not. Liquids can flow.
3. Gas is usually invisible. Air and exhaust fumes are types of gas.
4. A solid can become liquid through the use of heat. Think of a candle melting.
5. Evaporation occurs when a liquid changes into a gas. Water is heated by the Sun and turns into a gas called water vapour.
6. When water vapour rises it becomes very cool and changes from a gas into liquid water. This is called condensation.
7. The water cycle is a natural cycle important to all life. Water evaporates from Earth because of the Sun's heat, the droplets make clouds and the water falls back to Earth from the clouds as rain. Water goes around and around.

Concept map


Matter
Solid
Heat
Cool
Liquid
Heat
Cool
Gas
Ice
Wood
Stone
Air
Exhaust
Oil
Water
Kerosene

Revision

Answer the following questions in your exercise book.

1 Copy the table in your exercise book. Identify each object as a solid, liquid or gas. Write the name of each object in the correct column.

paint water stones sticks kerosene milk
pencil water vapour shampoo oil air in a balloon
books steam ice cubes car exhaust

Solid	Liquid	Gas

2 Copy each sentence into your exercise book. Fill in the blanks with a word from the box.

melting freezing boiling condensation evaporation

a _____ is when liquid water turns into ice.

b _____ is when ice turns into liquid water.

c _____ is when water vapour turns into liquid water.

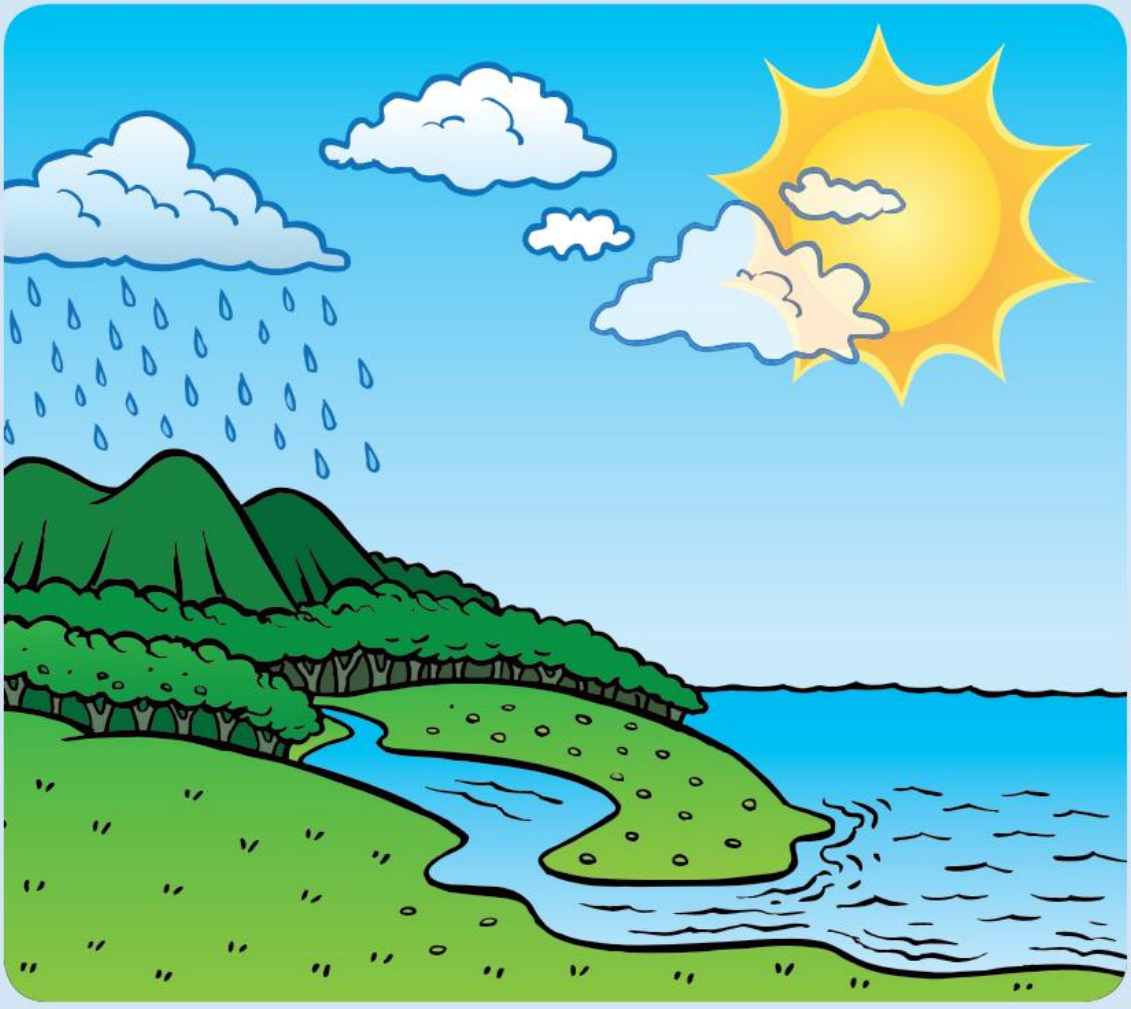
d _____ is when a puddle slowly dries up and turns into water vapour.

e _____ is when liquid water is heated to a high temperature and bubbles give off steam.

3 **a** Copy the diagram of the water cycle into your exercise book and label it using the words below.

clouds	river	sea	Sun

b Draw arrows to show how the water goes around and around.



Chapter 4

Electricity

In this chapter, you will:

- list some of the uses of electricity at home and school
- explain how electricity can be dangerous
- construct a simple electrical circuit
- identify materials that conduct electricity and those that do not.

Electricity

We use electricity every day in our lives. We use electricity at home and at school. Even small villages use electricity from solar power, **generators** or **batteries**.

Things that use electricity are called **appliances**. There are many different types of appliances that need electricity to work.

Fieldwork Activity

Activity 1

Work in pairs.

1. Walk around your school and make a list of all the things you see that electricity is used for. Write the list in your exercise book.
2. At home, make a list of all of the things electricity is used for there.
3. Compare the two lists. How many uses are the same for your school and your home?

Think and Write

Activity 2

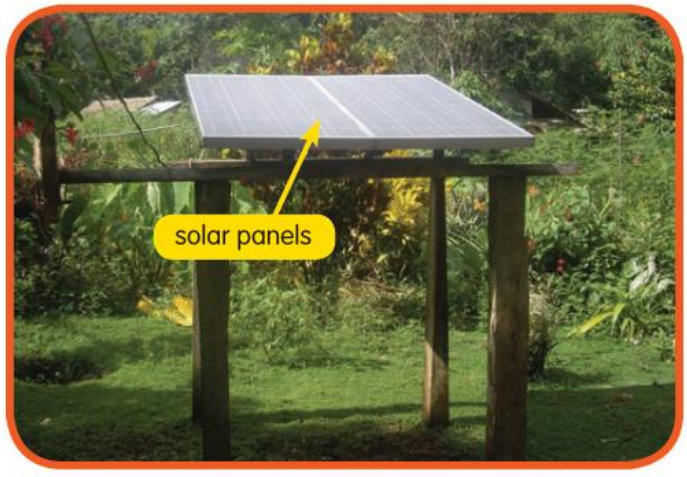
Look at the objects below. They all use electricity to make them work. Draw each appliance in your exercise book and write the name of the appliance and what it is used for beside it.

Where does electricity come from?

In large towns in Solomon Islands like Honiara and Auki, electricity is made by large generators that burn oil. In villages there are small generators that burn **diesel** to produce electricity. If you live in a village you might hear the diesel generator working at night.

A generator

Some villages are now using **solar panels** to make electricity. These capture light from the Sun to make electricity.



Hydroelectric power

Electricity can also be made from fast flowing water. The water is used to turn large blades that produce electricity. This is called **hydroelectric power**. A common way to make hydroelectric power is to build a **dam** in a river. Large amounts of water are stored, then let out of the dam quickly to turn the blades. The government of Solomon Islands is planning to build a hydroelectric dam on Guadalcanal to supply electricity to Honiara.

Hydroelectric dam

Transporting electricity

Once electricity has been made or generated, it is transported through strong **wires** held above the ground. The wires are usually held up high by large **pylons**. This is to make sure that no one can touch the wires, as they are extremely dangerous. If you touch them you will get an **electric shock** that can kill you.

A sign warning people about the dangers of electricity

Electricity pylons

Saving electricity

No matter how the electricity is made, it is important not to waste it. This means that you should always turn off lights when you leave a room. You should also switch off fans and televisions when you are not using them.

Sometimes when too many people are using electricity at the same time in a town, the generator can break down. Then we get a **blackout** when there is no electricity. This is another reason to turn off your appliances when you are not using them.

Creative Activity

Activity 3

In groups draw a poster to explain why it is important to switch off lights and other appliances when we leave a room.

50

Lightning

We cannot usually see electricity, but during storms you will sometimes see flashes of **lightning**. After the lightning you will sometimes hear the sound of thunder. This type of electricity is very dangerous if you are close to it. We will learn more about lightning in Year 6.

Creative Activity

Activity 4

Think about a time when you were in a storm with thunder and lightning. How did you feel? Write a story or poem and draw some pictures about your experience in your exercise book.

Batteries

We usually get electricity in two ways. The first is from a **dry cell** or battery that we put into appliances like radios or torches. Dry cell batteries are very safe to use, as they cannot give you an electric shock. If you use the radio or torch for a long time, the battery will run out and you will have to put in a new one. It is important not to throw old batteries into the bush or river, as they can be poisonous to plants and animals.

Mains electricity

The other way we can get electricity is by pushing a **plug** into a **socket**. The electricity we get from the plug and socket is called **mains electricity** and flows through wires to appliances like fans and televisions.

Safety with mains electricity

Mains electricity is very dangerous. It can give you a shock that may kill you. You must always be careful with mains electricity that comes from a socket. Never put your fingers or push a **metal** object like a knife into a socket.

It is also important not to touch switches or plugs with wet hands, or use electrical appliances too close to water. Water and electricity together can be very dangerous.

Remember that you must never touch the wires coming into a building or climb any poles that carry electric wires.

Creative Activity

Activity 5

Draw a poster that will teach your friends about the dangers of mains electricity. Include some examples of how to stay safe and what they should never do.

Making a bulb light up

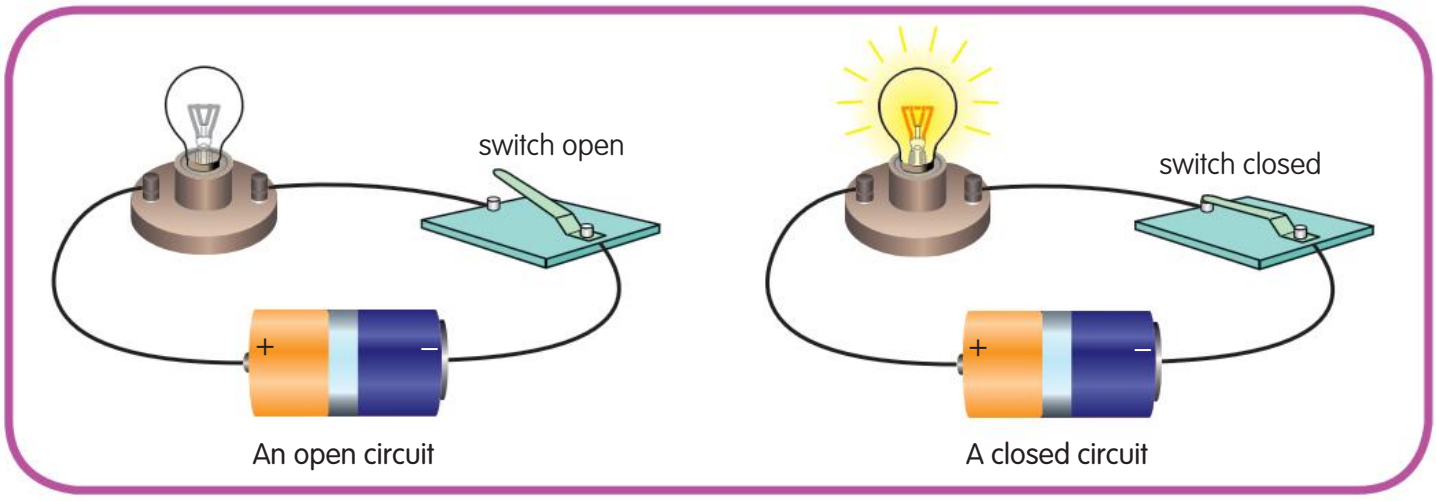
Using a battery, some wires and a small **bulb** we can make a bulb light up. This is an electric **circuit**.

Hands-on Activity

Activity 6

Work in groups. Your teacher will give you a bulb, some wires and a battery. Try to work out how to use these parts to make the bulb light up. You can ask your teacher to help you.

TIP: The wires have to be touching the battery and the bulb for the bulb to light up. This makes a circuit like the one shown below.



An open circuit

A closed circuit

What happens if you break the circuit by making a gap in it? The bulb stops shining because the electricity stops moving or flowing. So for electricity to move or flow around a circuit all parts of the circuit have to be touching. Once there is a break or gap in the circuit, the electricity stops flowing and the bulb goes out.

Conductors and insulators

Some materials let electricity move or flow through them and other materials do not. Materials that let electricity move or flow are called **conductors.** Materials that do not let electricity follow are called **insulators.** We are going to test different things to find out if they are conductors or insulators.

Before we begin our test, look at the objects below. Which ones do you think are conductors and which ones are insulators?

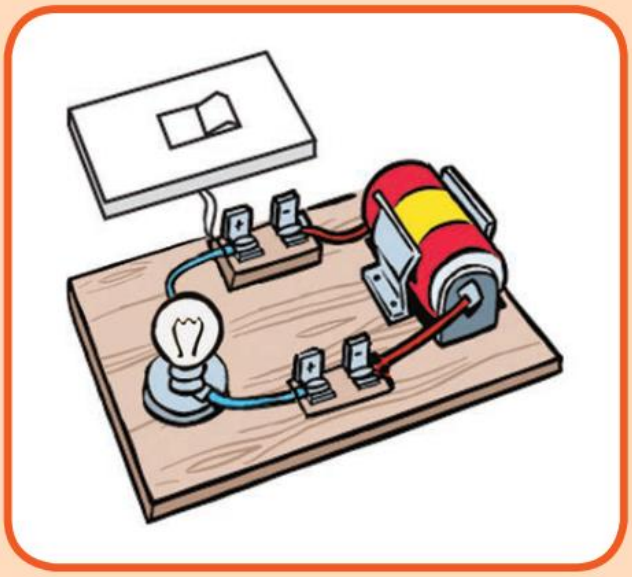
Activity 7

Hands-on Activity

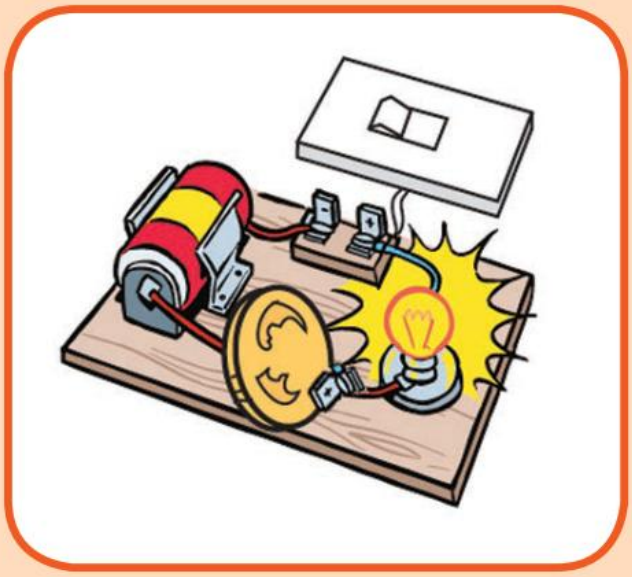
You will need a number of small objects such as coins, an eraser, chalk, a nail, a screw, paper, aluminium foil, a paper clip, wood and a plastic pen.

Your teacher will help you to make a test circuit like the one shown below.

1 Put each object into the circuit like shown in the diagram and see if the bulb lights.



Test circuit



Test circuit with coin

2 Copy the table into your exercise book and fill it in as you test each object. The first two objects have been done for you.

Object	Bulb lights (conductor)	Bulb does not light (insulator)
coin	✓	
eraser		✓

3 When you have tested all of the objects think about those that are conductors. Do they have anything in common? Write your response in your exercise book.

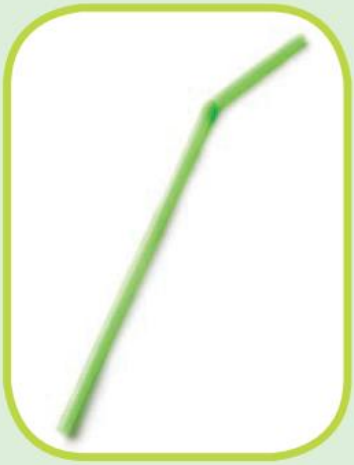
Activity 8

Think and Write

1 Copy this table into your exercise book.

Conductors	Insulators

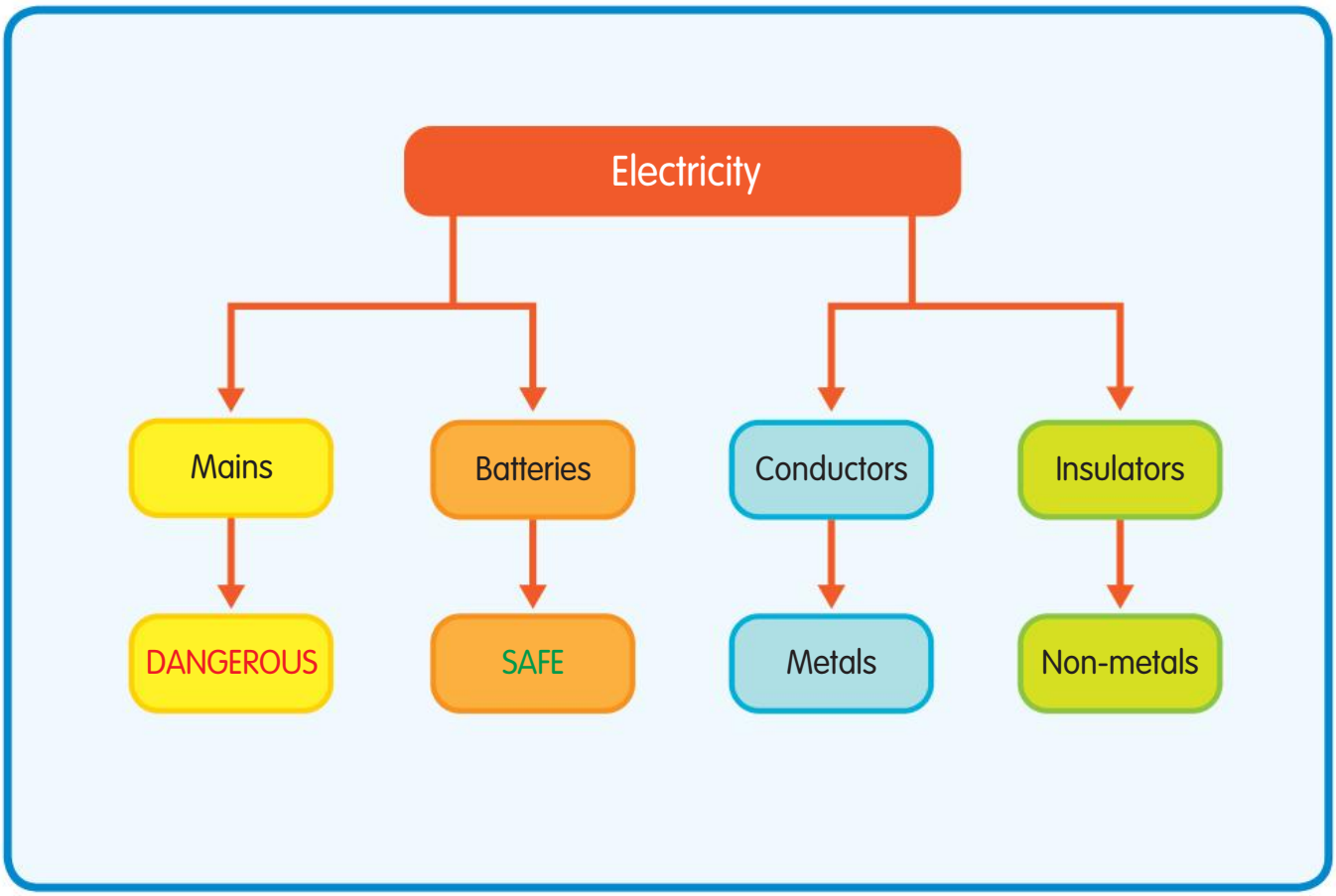
2 Look at the objects shown below and group them in your table as conductors or insulators.



Chapter Review

1. Hydroelectricity is electricity generated from fast flowing water in dams and rivers.
2. Electricity from batteries is safe.
3. Electricity from plugs or power sockets is called mains electricity and it is very dangerous.
4. Electricity can only move or flow if there is a complete circuit with no gaps.
5. Conductors allow electricity to move or flow.
6. Metals are good conductors.
7. Insulators do not allow electricity to move or flow.
8. Plastic, wood and glass are good insulators.

Concept map



Revision

Answer the following questions in your exercise book.

1 Name two ways in which we can get electricity.

2 Which is the most dangerous—electricity from the mains or from a battery?

3 Will a bulb light up with a break in the circuit?

4 Name two materials that are conductors of electricity.

5 Name two materials that are insulators of electricity.

Chapter 5

Growing plants in a nursery

In this chapter, you will:

- explain the terms nursery, germination and transplanting
- explain why the nursery is an important part of growing some vegetables
- construct a simple nursery box and germinate seeds
- learn how keeping records can help in the nursery garden.

Sowing and germinating seeds

Many plants grow from seeds. Two important steps in the life of a seed are sowing and germination. **Sowing** is when you put the seeds into the soil or earth. When the seed begins to grow into a plant it is called **germination**. Germination may take place days or weeks after sowing.

We are going to start this chapter by growing our own bean **seedling** from a bean seed. First we have to sow the seed and then wait for it to germinate.

Sowing bean seeds

A germinated bean seed

Activity 1

Hands-on Activity

Work in groups. You will need:

- a bean seed
- a plastic cup with holes punched in the bottom
- some good soil
- water

This activity works best if you soak the seed in water overnight before planting.

1 Put some soil into the plastic cup and push a single bean seed into it.

2 Cover the seed with soil.

3 Put your cup on a window ledge in the sun.

4 Water your seed. Give it some water every day, but not too much as that can kill the seed. You should add just enough water to keep the soil **moist**.

TIP: Make sure the soil does not dry out or this might also kill the seed. You should also make sure the soil is not too wet. You should check this each day.

5 After a few days you should see a small **shoot** appear from the soil. Keep watering the plant daily.

6 Carefully measure the shoot with a ruler. Copy this table into your exercise book and keep a record of the height of the seedling as it grows.

Day	Height of shoot in centimetres

7 When the bean plant becomes too big for the plastic cup, plant it in the school garden and watch it grow there.

A seed germinates below the soil

A shoot emerges

The shoot grows into a seedling

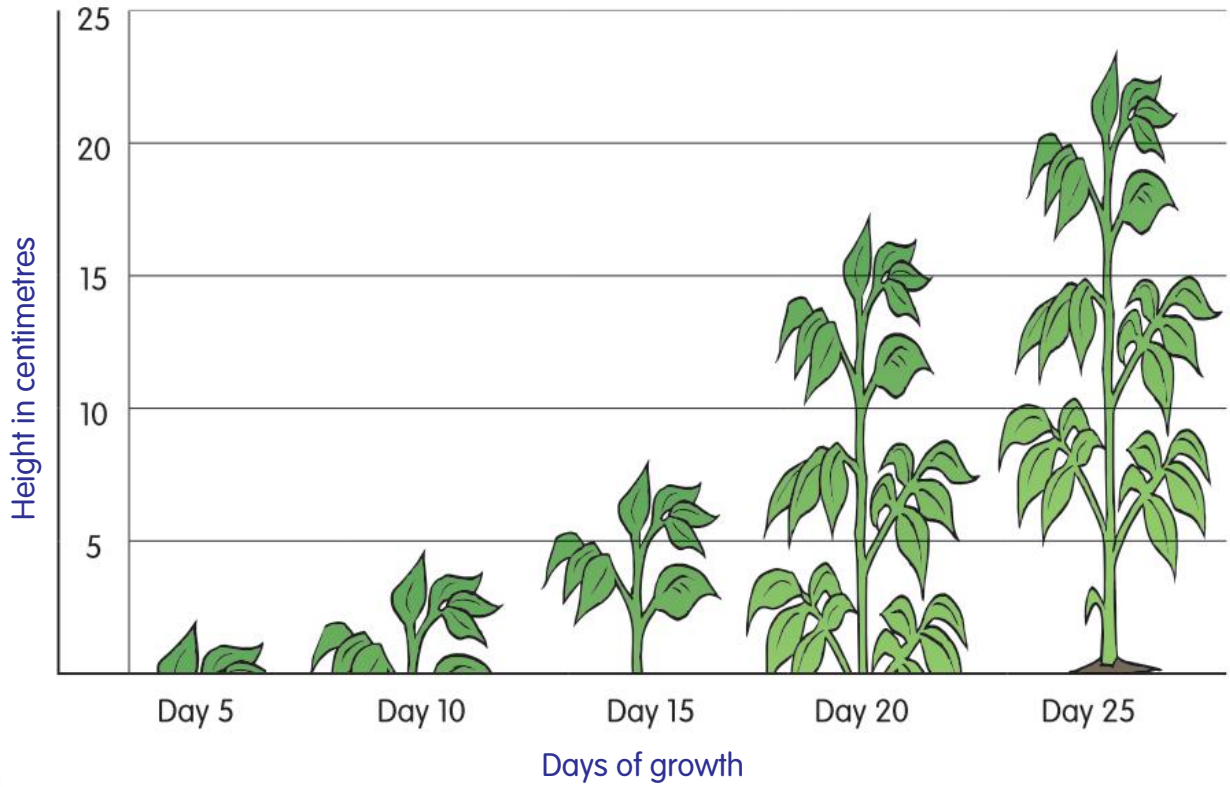
Activity 2

Think and Write

Use the results from your table in Activity 1 to draw a **pictograph** of your bean seedling.

Look at the example of a pictograph below.

Put the days on the bottom line of the graph and the height of the plant on the side. Then draw your seedling to the right height for each day.



Hands-on Activity

Activity 3

In this activity you are going to carry out a simple experiment to see if seeds need water to germinate. Work in groups.

You will need:

- two plastic cups with holes punched in the bottom
- two soaked bean seeds
- good soil
- water

1 Set up the cups in the same way you did for Activity 1.

2 Put both cups on a window ledge in the sun.

3 Water just one of the cups each day, making sure you do not use too much water. It is important to make sure that you water the same cup each day and do not water the other cup.

TIP: Identify the cup you are watering by using a label or stick.

4 What do you notice after a few days? Make a drawing of the two cups in your exercise book and write a sentence about why you think one seed grew and the other did not.

In Activity 3 we saw that the seed which got no water did not germinate or grow. So we now know that seeds need water to germinate.

Hands-on Activity

Activity 4

In this activity you are going to carry out a simple experiment to see if seeds need light to germinate. Work in groups.

You will need:

- two plastic cups with holes punched in the bottom
- two soaked bean seeds
- good soil
- water

1. Set up the cups in the same way you did for Activity 1.
2. Put one of the cups on a window ledge in the sun and one cup in a dark cupboard.
3. Water both cups every day. The only difference for the two cups will be the light they receive.
4. Write a sentence in your exercise book describing what you expect to happen. What do you notice after a few days? Write another sentence or two about your findings.

In Activity 4 you should have found that both the seed in the dark and the seed in the light have germinated and started to grow. Was this a surprise?

Most people think that the seed in the dark will not grow because green plants need light to make their own food. It is true that plants need sunlight to live. But seeds have a store of food inside them that allows them to grow for a short time without light. That is how the seed in the dark germinated. However, once the seedling has used up its store of food it will need sunlight to help it keep growing.

Growing seedlings in nurseries

It is not always a good idea to sow seeds straight into the garden. When the plants are very young they are easily damaged and can need special attention or they might die. This is why some seeds are germinated in a **nursery** and allowed to grow as seedlings before they are **transplanted** into the garden when they are bigger.

A nursery

A nursery box ready for seeds

Seedlings emerge

What is a nursery?

A nursery is where seedlings and young plants are grown in pots, plastic bags or boxes. They are cared for until they are big enough and strong enough to be transplanted into the garden. Some plants are kept in a nursery house, or sometimes under **shade** trees or even in a **greenhouse**.

The roof and walls of the nursery house should be covered with leaves, plastic or cloth to prevent strong sunlight and hard raindrops damaging the plants. Plants will need regular watering here and will be protected while they grow.

A shaded nursery house

A greenhouse

Shade cloth protecting young seedlings

Caring for seedlings

In the next activity we will learn how to germinate some seeds in a nursery box.

Hands-on Activity

Activity 5

You will need:

- a nursery box or some pots
- soil
- seeds (see box below)
- water

1 Fill your nursery box with soil but make sure it does not overflow.

2 Use a stick to make some lines in the soil. These should not be too close together. Your teacher will show you how to do this.

3 Put seeds evenly spaced along each line. It is important not to have too many seeds in the line or too few.

4 Cover the seeds with a little more soil and gently water the nursery box.

5 Put the nursery box in a light place but with some shade. This should be out of the direct sun but not too dark.

TIP: Choose seeds from plants suitable for Solomon Islands. Different groups in the class can plant different types of seeds.


cucumber


beans


lettuce


corn


pac choi


tomatoes


peppers

Sometimes people set up nursery boxes with too many seeds. It is important to sow seeds lightly and with plenty of gaps. If there are too many seedlings they may not grow properly. When this happens it is important to pull some seedlings out of the nursery box. You may have to do this for your box. When you do this it is called **thinning**.

Transplanting

Once seedlings in the nursery are big and strong enough they can be transplanted to the main garden. Transplanting is the process of lifting the seedlings from the nursery box, seed beds or containers and transferring them to the field or garden bed where they will grow. During transplanting it is important not to damage seedlings in any way. Careful handling is needed. If transplanting is not carried out properly it can disturb the growth of the plant or cause it to die.

Young seedlings should be transplanted when they have at least four leaves. The plants should be planted some distance from each other so that they are not too crowded.

A seedling with four leaves

Tips for safe transplanting

- Water the nursery box or beds well an hour before transplanting the seedlings. This is so they can be taken out of the soil without breaking the roots.
- To remove a seedling from a container, gently push up from the underside.
- Try not to disturb the soil that is surrounding the roots. Leave the root ball intact.
- Always handle the plants by their individual leaves or by the root ball.
- Avoid holding seedlings by their stems.
- Place the seedling into a hole in the garden bed, and make sure that the top of the roots are level with the surrounding soil.
- Push the soil back in towards the plant. Soil should be firmed or compacted around the seedling.
- Water the transplanted seedlings.

Hold a seedling by the root ball when transplanting.

Newly transplanted seedlings that have just been watered

Lettuce plants a few weeks after being transplanted. The straw helps to keep water in the soil around them

Hands-on Activity

Activity 6

Once they are ready, transplant the seedlings you grew in Activity 5. Carefully move them from the nursery boxes into the school garden, following the tips shown. Your teacher will help you prepare the school garden and guide you in transplanting.

If you keep weeding and watering your transplanted seedlings you should end up with crops like the ones in the photographs below. You could sell these vegetables or eat them yourself!

cucumbers and chillies

corn

pumpkin

Keeping records

It is important to keep good records of what you plant in a nursery. Write down in a notebook what seeds you have sown and when. Also write down the date the seeds germinated, were thinned and transplanted.

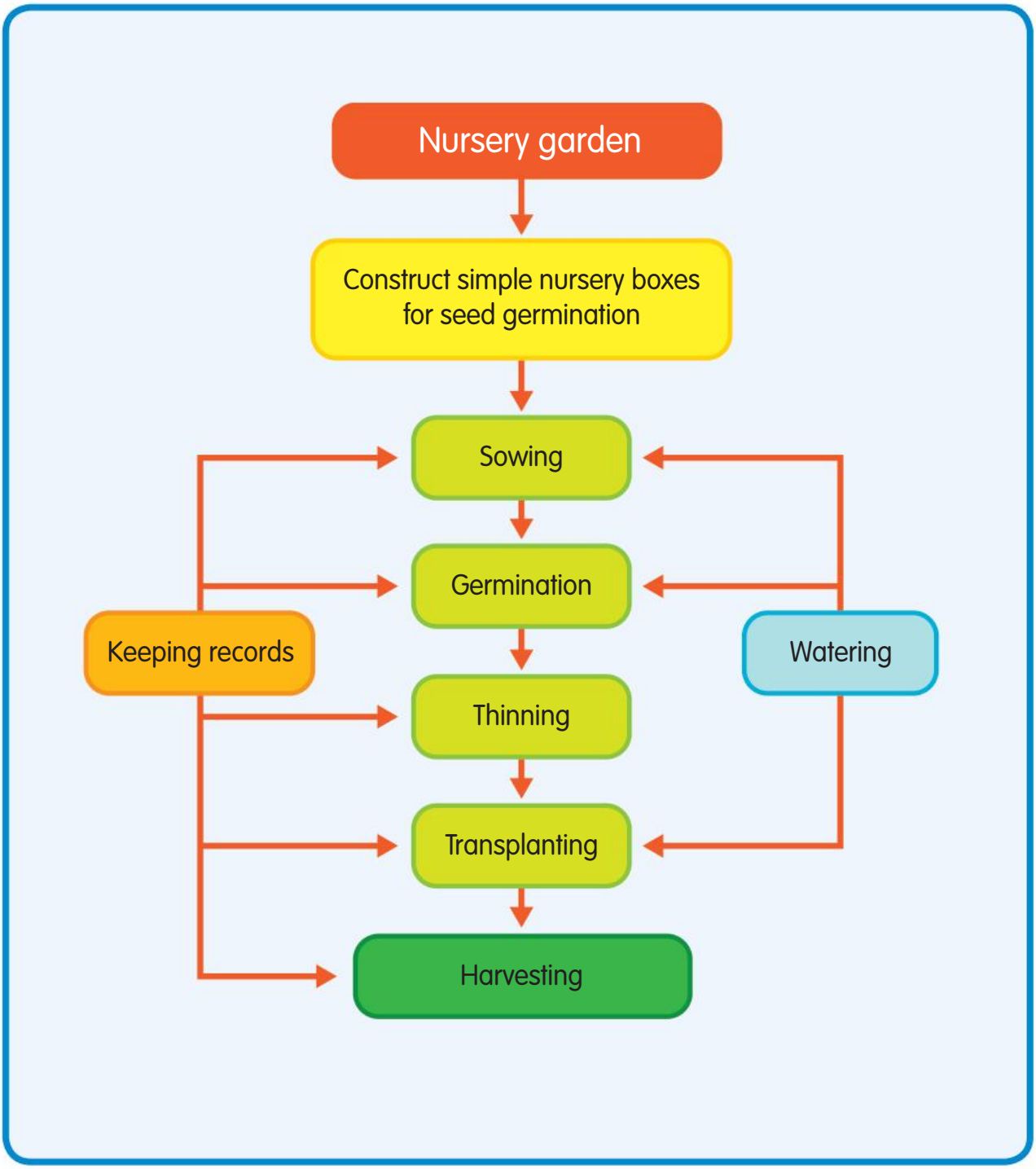
Keeping records is a good way to remember which seeds grew well and which ones did not. Make a note about the weather and other conditions. Maybe the plants were damaged by very hot weather or wind. Or you might have noticed a problem with caterpillars. Records can help you to work out why some plants did not grow well. This helps to get the most out of your nursery garden.

Seed name: PUMPKIN	
Date sown:	*2/4/2012*
Germinated:	*8/4/2012*
Thinned:	*12/4/2012*
Transplanted:	*24/4/2012*
Ready for harvest:	*mid-August*
Comments: It has been very dry.	

Chapter Review

1. Germination is when a seed begins to grow into a plant.
2. Seeds need water to germinate but they can germinate without light.
3. A nursery is where seedlings and young plants are grown in pots or boxes and are cared for until they are big and strong enough to be transplanted.
4. Transplanting is the process of lifting the seedlings from nursery boxes, and transferring them to the field or garden where they will become mature.
5. Nurseries are important because they:
   - provide protection for seeds and seedlings
   - let gardeners select the best growing seedlings for transplanting.
6. Keeping records helps gardeners remember what they've planted and when, and work out the harvesting time for their crops.

Concept map


Nursery garden
Construct simple nursery boxes for seed germination
Sowing
Germination
Keeping records
Watering
Thinning
Transplanting
Harvesting

Revision

Answer the following questions in your exercise book.

1 When a seed begins to grow into a plant it is called:

a thinning

b germination

c transplanting

2 Which of these statements are true? (Tip: choose two)

a Seeds need water to germinate.

b Seeds need light to germinate.

c Seedlings should be shaded from direct sunlight.

3 Why is it important to put nursery boxes in the shade?

4 Which of these statements is true?

a You do not need to water your seedlings.

b It is important to thin seedlings.

c You should hold seedlings by the stem.

Chapter 6

Day and night

In this chapter, you will:

- explain why night and day occurs
- model the spinning of the Earth to show how day and night occurs
- use a mirror to model how the Moon reflects light from the Sun
- understand behaviours of different plants and animals during the day and night.

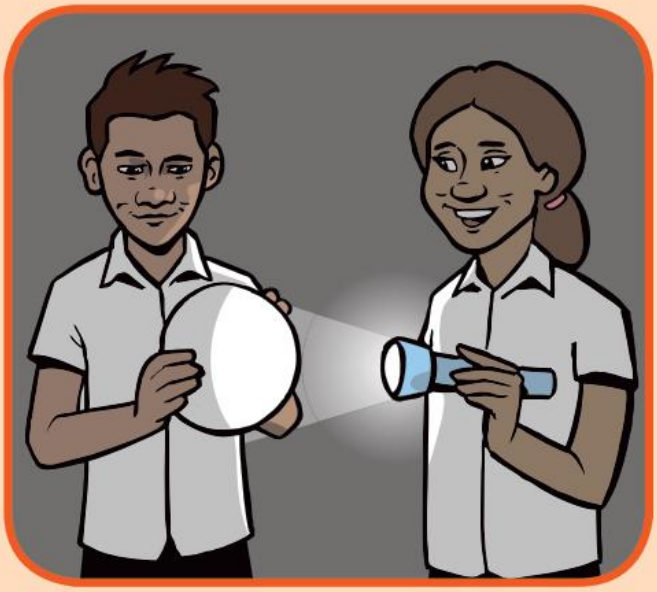
Hands-on Activity

Activity 1

You will need a ball and a torch.

Find a room that is dark. Work in pairs.

1 Hold the ball while your partner shines the torch on one side of it. Spin the ball slowly while standing in the one place.
2 Which part of the ball is in shadow and which part is in the light?
3 Draw a diagram of this activity in your exercise book.
4 Explain how this activity demonstrates day and night.



What are day and night?

The activity you have just done is a good way of demonstrating **day** and **night**. When the Sun or a light shines on an object it produces a **shadow**. The side facing the Sun or the torch is lit up but the other side is much darker because it is in shadow. This is how we get day and night.

When the Sun shines on one side of the Earth that side is in **daytime.** The other side of the Earth is in shadow and is in **night-time**. The Earth **spins** or **rotates** once every 24 hours. This means that all places on the Earth experience light and darkness during that time. We call the period of light the day and the period of darkness the night.

The Earth rotates once every 24 hours.

Why day and night occur

In the next few activities we will use different everyday objects to demonstrate the movement of the Earth and show how day and night occur.

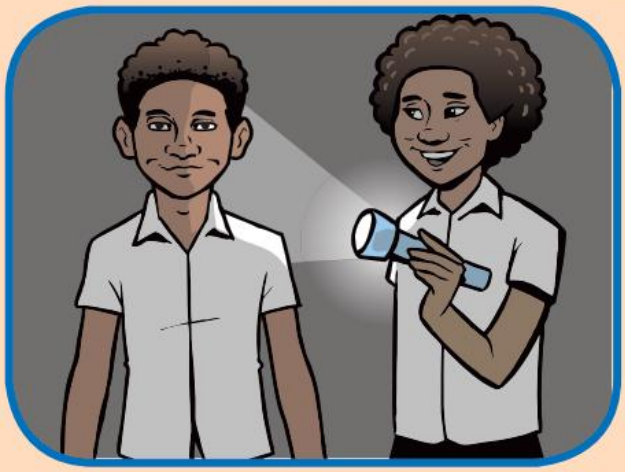
Hands-on Activity

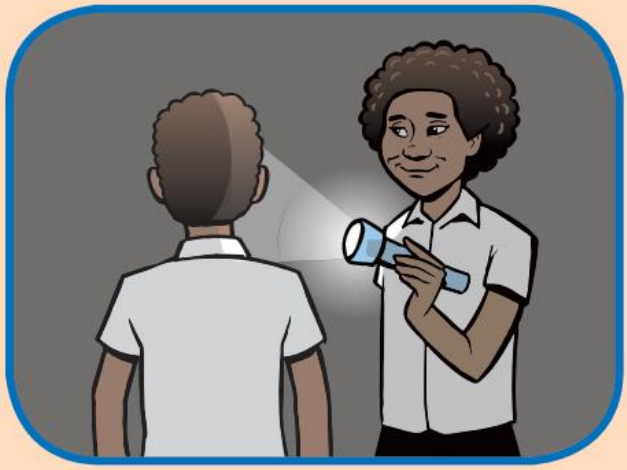
Activity 2

You will need a torch.

Find a room that is dark. Work in pairs.

1. Ask your partner to hold the torch so that it shines in your face. (If the torch is very bright you should close your eyes.)
2. Slowly turn completely around (but stay in the same place) while your partner keeps the torch shining on you.
3. When you have finished, change places with your partner and repeat the activity.
4. In your exercise book explain how this activity demonstrates daytime and night-time and what happens during the 24 hours of a day.





In this activity the torch represents the Sun and your head represents the Earth. When your face is in the light, this is the daytime. When you turn around and your face is in the shadow, this is the night-time. This is what happens with the Earth, except that it takes 24 hours to go through one turn or **rotation**.

Hands-on Activity

Activity 3

You need to start this activity early in the morning on a sunny day. Find a partner and go outside into the sun. The playground is a good place to go.

1. Use a piece of chalk to draw around the shadow of your partner on the ground as they stand still. Then return to class.
2. One hour later go back to the same place outside and draw another chalk line around your partner's shadow. Do this every hour until near the end of school.
3. In your exercise book make a drawing of how all of the shadows looked. Now answer these questions:
   - When was the shadow the longest?
   - When was the shadow the shortest?
   - What made the length of the shadow change?

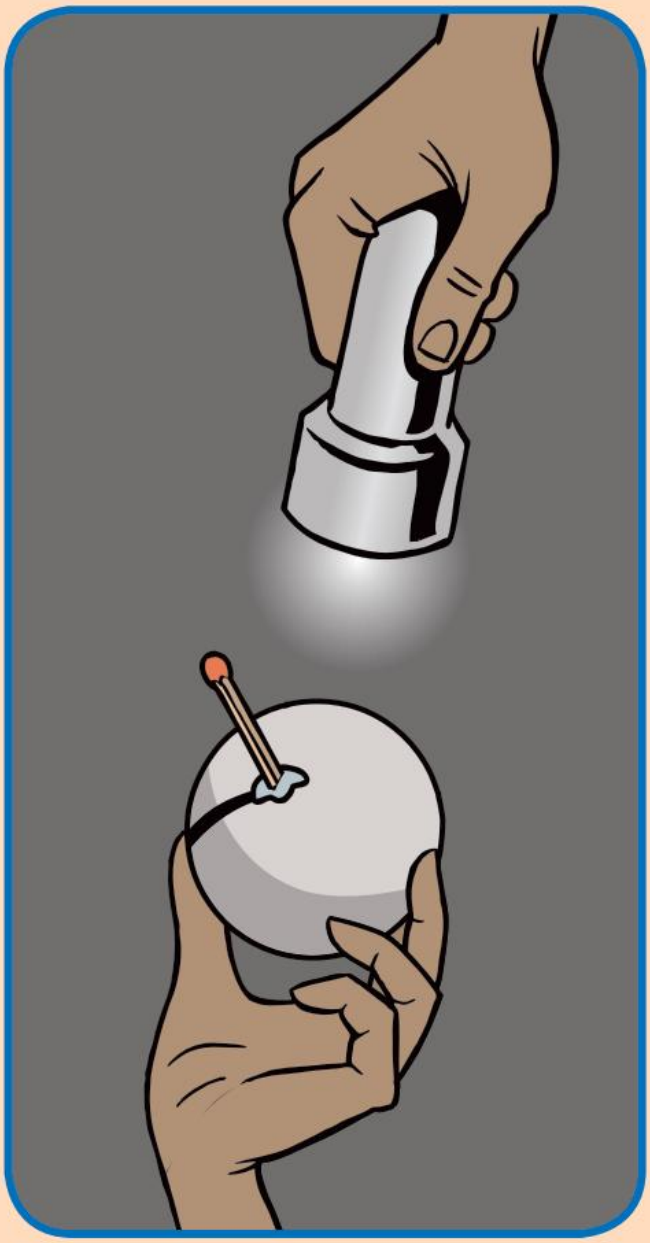
Activity 4

Hands-on Activity

Your teacher will demonstrate the following experiment.

They will need:

- a ball
- a torch
- a small piece of plasticine or BluTac
- a half a matchstick



1. Using the BluTac, stick the half match on the centre of the ball.
2. Shine the torch directly onto the match from above. What does the shadow look like? Is it long or short?
3. Slowly spin or rotate the ball clockwise but keep the torch in the same place. What happens to the length of the shadow? Spin the ball slowly round until the match comes back into the light and watch how the shadow of the match changes as it moves across the light from the torch. Does the shadow change in the same way as in Activity 3?

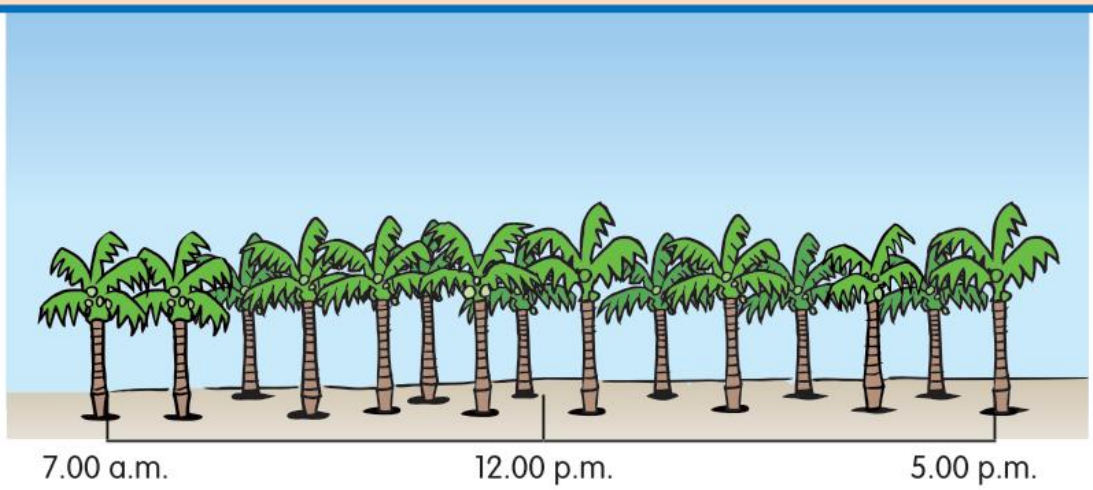
Activity 5

Hands-on Activity

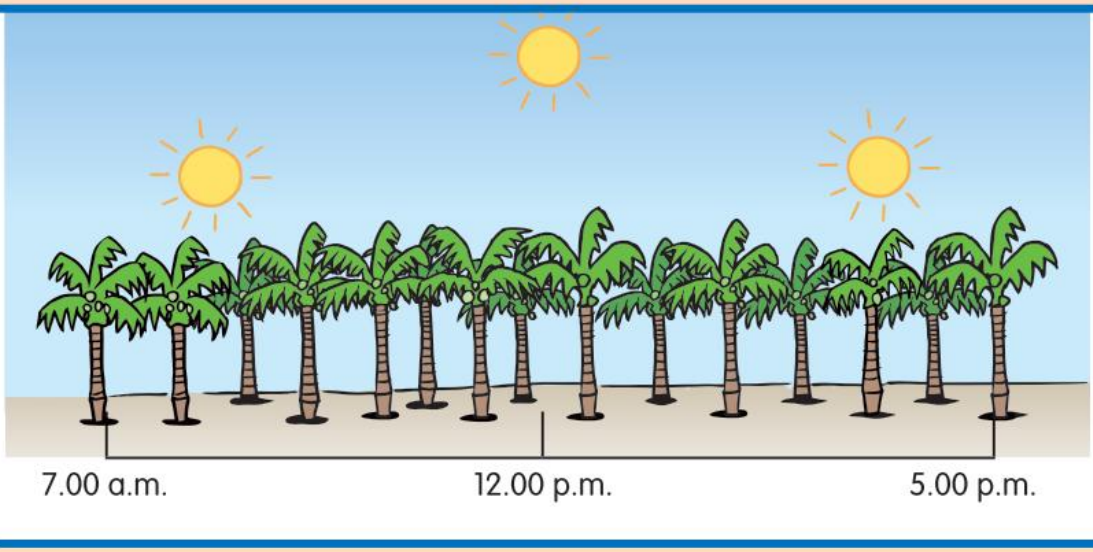
1 Copy the diagram below into your exercise book.

2 Mark the position of the Sun in the sky at the different times of the day with the help of your teacher. Discuss with your teacher safe ways you can make these observations.

NOTE: It is very important NOT to look at the Sun. This can damage your eyes and may even blind you!



When you have finished your diagram it should look something like the one below.



It is important to remember that the Sun stays in one place and it is the Earth that spins. This gives us day and night. It is easy to think that it is the Sun that moves, but it does not really move. Remind yourself about the activity we did with your face and the torch shining on it. It was you spinning (the Earth) while the Sun (the torch) stayed in place that showed one side in shadow (night) and one side in sun (day).

Sunrise and sunset

Each day, very early in the morning, the Sun seems to rise from below the ground and move up into the sky. In the evening it sets again and seems to disappear below the ground. However, we know now that it is not the Sun that is moving, but the Earth spinning that makes it look this way.

We have different names for these times of day. When you can first see the Sun in the morning it is called **sunrise**. When you can see the Sun at the end of the evening it is called **sunset**.

Activity 6

Look at the pictures below and think about the beautiful sunrises and sunsets you have seen in Solomon Islands.

Now write a poem or a song about sunrise and sunset and the wonderful colours we often see at those times.

Daytime and night-time activities

A day is the 24 hours that the Earth takes to spin right around. This includes a time of light when we are facing the Sun and a time of dark when we are away from the Sun. But we also know that for most people day means the period of light and night is the period of dark.

We do different things during the day and during the night.

Activity 7

Work in groups.

1 Make a list of things that you do in the day when it is light and things that you do at night when it is dark.

2 Copy the table into your exercise book and put your ideas into the two columns. Two activities have been done for you.

Daytime	Night-time
Eat lunch	Clean teeth

Activity 8

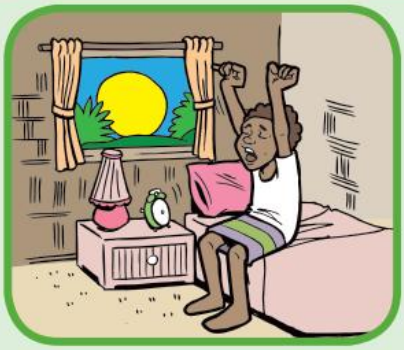
Think and Write

Work in pairs.

1 Look at the pictures of the different activities below. Discuss each of them with your partner.

2 Copy the table into you exercise book and put each activity into the correct column.

Daytime	Night-time



Waking up

Reading with a lamp

Feeding chickens

Working in the garden

Hanging out the washing

Driving with headlights on

Going to bed

Using a lamp

Light from the Sun, the Moon and the Earth

These pictures show the Sun, the Moon and the Earth. Look at the pictures and think about which one is which. Check with your teacher if you are right.

They all seem to be giving out light, but only one—the Sun—actually makes its own light. The Sun is a star and the closest one to Earth. You will see other stars at night and these are like our Sun but they are so far away they cannot give us any heat. The Sun is a huge ball of burning gas that gives us the heat and light we need to live.

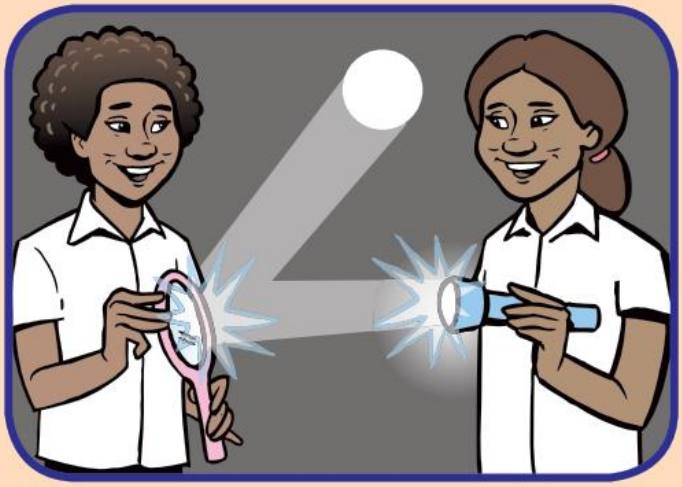
The Moon and the Earth do not produce their own light but they **reflect** the light from the Sun.

Hands-on Activity

Activity 9

Work in pairs. You will need a mirror and a torch.

1. Ask your partner to hold the mirror up opposite you and shine the torch so that the light hits the mirror. You will see that the light bounces off the mirror.
2. Ask your partner to move the mirror slightly. What happens to the light?
3. Write your findings in your exercise book.



This "bouncing off" of the light is called **reflection**. Mirrors are very good at reflecting light. You can use a mirror to reflect the light of the Sun and move the reflected light around. But other objects can also reflect light. The Moon reflects light very well as it is almost white. When you look up at the sky at night the Moon seems to shine white. This is because it is reflecting light from the Sun.

Animals and plants at night

Like humans, animals and plants do different things at night.

Some animals sleep during the day and come out at night. Can you think of any that only come out at night? These animals are called **nocturnal** animals. Usually nocturnal animals have very big eyes to help them see in the dark.

Activity 10

Look at the pictures of the animals below. Can you tell which are nocturnal? Make a list in your exercise book of the ones you think are nocturnal and explain why.


possum


duck


horse


owl


bat

Hands-on Activity

Activity 11

1. Get into pairs in the classroom and look at your partner's eyes. You will see a black part in the middle of each eye. This is called the **pupil** and it lets light in to the rest of the eye.
2. Go outside and into the sunshine and look at your partner's pupils. Do NOT look into the Sun.
3. Go into a darkened room and look at your partner's pupils now. What has happened to them?
4. Write your findings in your exercise book.

In Activity 11 you will see that pupils get much bigger in the dark. This is to let more light into the eye so that we can see better when there is less light.

A pupil in normal light

A pupil in the dark

We have learnt that nocturnal animals have big eyes and that our pupils change depending on the amount of light. In the next activity you will learn one way in which plants change between day and night.

Fieldwork Activity

Activity 12

You will need to do this activity after school. You will need a torch.

1 Go out into the garden near your house before it gets dark. Look at some of the plants with flowers.

2 After dark, ask an adult to go with you to see the same plants. You should take a torch. Look at the flowers now. What has happened to them?

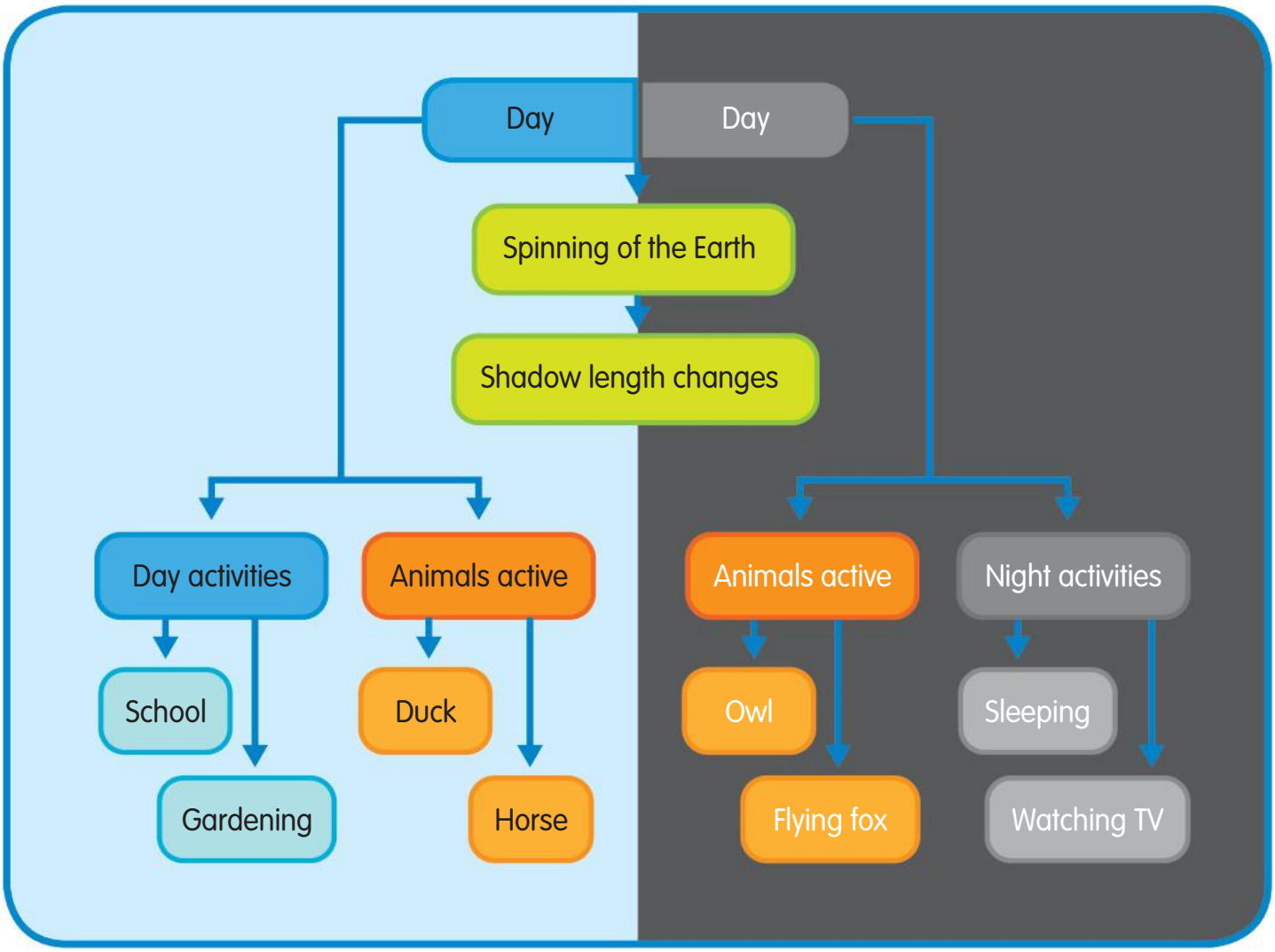
3 At home write a sentence in your exercise book describing the change in the flowers.

You should find that the flowers are open during the daytime, but closed up at night. Plants open their flowers during the day so that insects can visit them. There are very few insects out at night, so the flowers are closed up.

Chapter Review

1. The Earth spins once every 24 hours. This is one day. The spinning of the Earth in space gives us day and night.
2. The part of the Earth that is lit by the Sun experiences daytime, while the other part that is in shadow experiences night-time.
3. The Moon has no light of its own but reflects light from the Sun.
4. Shadows are long in the early morning, short in the middle of the day and long in the evening.
5. The spinning of the Earth makes the shadows change in length.
6. Most living things are active during the day and sleep at night.
7. Nocturnal animals sleep during the day and are active at night.
8. Nocturnal animals have special eyes to see in the dark.
9. Some plants close their flowers at night and open them during the day.

Concept map


Day
Day
Spinning of the Earth
Shadow length changes
Day activities
Animals active
School
Duck
Gardening
Horse
Animals active
Night activities
Owl
Sleeping
Flying fox
Watching TV

Revision

Answer these questions in your exercise book

1 Answer true or false for each of these statements.

a We have day and night because sometimes the Sun goes behind a cloud.

b We have day and night because the Earth spins or rotates.

c The Sun gives us light and heat.

d The Earth spins once every 24 hours.

e The Moon reflects light from the Sun.

f Flying foxes and owls are nocturnal animals.

2 Choose the correct words to complete the sentences.

Sun	day	sleep	Earth	night	light

a Nocturnal animals _____ during the day and are active at _____.

b The spinning of the _____ in space gives us _____ and _____.

c The Moon does not have _____ of its own. It reflects light from the _____.

3 Copy the diagram below into your exercise book.

Label it with these words.

Earth	Sun	Moon

Glossary

A

air an invisible mixture of gases surrounding the Earth

animal one of a large group of living things that can move around by themselves to find food

appliance a machine used for a particular purpose; fans and refrigerators are appliances used in the home

B

battery a device that makes electricity using chemicals

blackout the loss of light when the electricity in a town or village goes off

bulb a ball made of thin, clear glass that produces light when an electric current passes through it

C

circuit the closed path followed by an electric current

classify to put similar things together in groups

clockwise the direction in which a clock's hands turn

condensation what happens when a gas cools and changes into a liquid

conductor material that allows heat or electricity to pass through it, usually a metal

cyclone a storm with very strong winds

D

dam a wall built across a river or stream to keep the water from flowing

day the twenty-four hours included in one day and night

daytime the period between sunrise and sunset

diesel a type of liquid fuel

differences ways in which things are not the same

dry cell a type of electric battery

E

electric shock a sudden and powerful pain from touching part of an electric circuit

evaporation what happens when a liquid is heated and changes into a gas

exhaust the smoke or gas given off by an engine

F

features parts of a person's face such as the eyes, nose or chin

flow to move in a smooth, steady stream

food chain series of living beings in which each serves as food for the next

fuel anything such as wood or petrol or diesel that is burned as a source of energy

fumes gas or smoke that is not pleasant or healthy

G

gas state of matter that can change shape and volume; for example, air is a mixture of gases

generator a machine that produces electricity

germination what is happening when a plant starts to grow from a seed

greenhouse a building used to protect growing plants

H

hydroelectric power electricity that is produced by means of moving water

I

insulator material that does not allow electricity to pass through it, such as glass or plastic

K

kerosene a type of liquid fuel

key a way of classifying living things that is used to help us identify them

L

lightning electricity produced in thunderclouds; appears as a bright flash or streak in the sky

liquid state of matter that has a definite volume and flows to take the shape of the container it is in

M

machine device with a system of parts that work together to perform a task; for example, a pulley is a machine that is used to lift an object

mains electricity electricity that comes from sockets in buildings at home and at school

material anything used for building or making something else

matter something that materials are made from

melt to change from a solid to a liquid due to heating; for example, when ice turns to water

metal material that is usually shiny and easy to bend, and that conducts heat and electricity

moist a little bit wet

N

night-time the period between sunset and sunrise

nocturnal active at night

nursery a place where young plants or trees are grown

O

observation looking carefully at something

P

pictograph a graph that uses pictures to show measurement

plant one of a large group of living things that use sunlight to make their own food

plug something with two or three prongs on the end of an electrical cord that fits into a socket

pour to cause to flow

pupil the small, dark opening in the centre of the eye; light passes through the pupil into the eye

pylons tall towers for supporting electric cables

R

reflect to throw back light from a shiny surface

reflection an image that is thrown back from a shiny surface

rotate to turn around on an axis

rotation turning on or around an axis

S

seedling a young tree or plant grown from a seed

shade darker area out of the sunlight

shadow the dark shape made on a surface by a person or thing blocking the light of the sun

shoot new plant or part of a plant

similarities ways in which things are alike

skill ability to perform a task well

socket something into which you push an electrical plug

solar panels glass sheets that produce electricity from sunlight

solid something with a firm shape or form that can be measured in length, width and height; not like a liquid or a gas

solidifying when a liquid turns into a solid

sowing to plant or scatter seeds in or over the ground

spin to turn around

stored energy energy in food or fuel

sunrise the moment each day when the sun can first be seen above the eastern horizon

sunset the moment when the sun goes below the western horizon

T

thinning removing some seedlings from a seed box or garden where there are too many

transplanted pulled up and planted again in another place

W

water cycle a process in which water evaporates and rises, then condenses and falls back to earth as rain

water vapour water in the form of a gas

wax a white substance that burns and is used for making candles

wires thin threads of metal

Solomon Islands

Primary Science

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