



# Unit 1

## Teaching ideas

### Background knowledge

Different plants and animals live in different local environments. There are also differences in the number of species that live in different environments. You should be able to identify different local environments such as wet and dry areas.

In Stage 1, learners were taught that plants need light and water to grow, and that animals need the right type of food and water to live. This unit builds on this knowledge. It discusses how different environments provide food, water and shelter for the living things that live there. Plants and animals are adapted to make the most of the environments in which they live. Learners do not need to know about these adaptations. But they should be able to recognise that the presence (or lack of) water, food and shelter will have an effect on the living things that are found in an environment.

Animals and plants depend on water. Water is essential for life. It enables the seven life processes: respiration, sensitivity, nutrition, reproduction, movement, growth and excretion. Water is present in all animal and plant tissues. The human body is approximately 60% water.

This unit includes a local survey to identify places where people do not look after the environment. You should be able to help learners to identify examples of damage to the environment which are a result of human activity. Environmental damage is not just caused by industry in urban areas. In rural areas, fertilisers may run off fields into water courses – this causes an overgrowth of plant material which reduces the nutrients in the water for animals that live in it. Chemicals can pollute rural waterways as easily as they pollute urban ones. If humans build on flood plains, then not only are the buildings at risk from flooding, but the natural flow of the river is disturbed and habitats are destroyed. If wild flowers are picked, the population may be reduced as the life cycle of the plants is disturbed. Learners need to understand how they can care for the environment. You should be able to guide the learners as they consider ideas. You might direct them to organisations and resources which can offer ideas, information and suggestions. This is a good opportunity to develop the scientific enquiry skill of using simple information sources.

Weather consists of the temperature, the hours of sunshine, the precipitation (rain, sleet and snow) and the wind. Other atmospheric occurrences are a result of weather. For example, rainbows are a result of rain and sunshine. The Learner's Book does not include activities that involve measurements of, for example, rainfall or temperature. However, you can include these if you feel that it is appropriate for your learners. You should be familiar with the devices used for such measurements such as thermometers, rain gauges, and anemometers (these measure wind speed).

There are different types of clouds. Cirrus clouds are very high in the atmosphere and consist of ice particles. They are thin and wispy. Cumulus clouds look puffy and can be white or grey. They are usually lower in the sky and consist of water droplets. Stratus clouds look like a blanket in the sky. Nimbus clouds are dark and will have rain or snow falling from them. When ice or water particles grow, they become heavy and fall. They reach us as rain or, if it is cold, hail, sleet or snow.

When teaching about the weather, it is useful to be able to show children published and broadcast weather forecasts. (Again, this develops the skill of using simple information sources.) You need to be familiar with the symbols used on such forecasts. For example, the lines or isobars can tell you about wind speeds (isobars closer together indicate higher wind speeds). High and low pressure systems are massive systems of air, which influence the weather.

In this unit, the word 'climate', often confused with the word 'weather', is not used. Climate is an overall summary of the weather experienced in a region over a long period.

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Unit overview

Topic	Number of lessons	Outline of lesson content	Resources in Learner's Book	Resources in Activity Book	Resources in Teacher's Resource
1.1 Different places to live	2	Learners compare different environments.	Activity 1.1 Compare two different places SE L Ex Su	Exercise 1.1 SE Su	Worksheet 1.1a SE Su Worksheet 1.1b SE L Ex Worksheet 1.1c SE Su Worksheet 1.1d SE Ex Resource sheet 1.1a Resource sheet 1.1b L Su
1.2 Can we care for our environment?	2	Learners make observations in their local environment. They develop ideas to care for the environment.	Activity 1.2 Our environment SE L Su Ex	Exercise 1.2 Su	Worksheet 1.2a L Su Worksheet 1.2b SE L Ex
1.3 Our weather	2 Exercise 1.3 and Worksheets 1.3a, 1.3b and 1.3d need to be done over the course of a week. <b>Note:</b> plastic bottles for Worksheet 1.3a will need preparing in advance.	Learners find out about the weather. They record a day's weather and keep a weather diary.	Activity 1.3 Today's weather SE L Su	Exercise 1.3 SE Su	Worksheet 1.3a SE Ex Worksheet 1.3b SE Worksheet 1.3c SE Worksheet 1.3d SE Ex
1.4 Extreme weather	2	Learners find out about different forms of extreme weather. They learn about how weather forecasters use satellites to help them.	Activity 1.4 Keeping safe in extreme weather SE L	Exercise 1.4 SE Su	Worksheet 1.4 L Su
1.5 Check your progress			Questions 1 SE Su, 2 SE L Ex, 3 L Ex, 4 SE Ex		

Ex Extension   L Language   SE Enquiry   Su Support

## Resource list

- clipboards
- stopwatches
- rulers or tape measures
- rope to measure area with (non-standard units)
- cameras (optional)
- audio recorders (optional)
- large poster paper (a sheet per pair or group)
- transparent plastic drink bottles with the tops cut off
- plastic bricks
- marker pens
- sticks
- strips of paper
- glue
- access to the internet

## Topic 1.1 Different places to live

In Activity 1.1 in this topic, learners are asked to identify, and then observe, environments with different conditions. They observe the types of animals (minibeasts are suggested) and plants that live in them. If they compare a dry area with a damp or wet area, or a sunny area with a shady area, they should be able to see a difference or a pattern. A range of other environments are introduced in this topic to draw on other knowledge learners may have and to extend their learning by recognising that the same principles apply to a range of environments.

## Learning objectives

- Identify similarities and differences between local environments and know about some of the ways in which these affect the animals and plants that are found there.
- Collect evidence by making observations when trying to answer a science question.
- Use first-hand experience.
- Recognise that a test or comparison may be unfair.
- Make and record observations.
- Make comparisons.
- Make suggestions for collecting evidence.
- Take simple measurements.

## Curriculum links

- You should link back to Stage 1, where learners learnt that animals need water and food, and that plants need water and light.

- Links can be made to geography, because learners are studying different environments.

## Ideas for the lesson

- Begin by reminding learners that in Stage 1 they learnt about what animals and plants need to live. Learners should be able to say that plants need water and light, and animals need water and food. They also need shelter. Ask the learners to work with a partner to think of as many different types of environment as they can in a short period of time. Take feedback and list ideas on the board.
- Discuss similarities and differences between the environments that the learners identified.
- Use the pictures on page 6 of the Learner's Book to extend the discussion in the previous activity. Discuss the similarities and differences between these environments and talk about how these affect the animals and plants that live in each one. The mangrove swamps are home to many different species (see *Internet and ICT* section for more information about this habitat). Rivers in cooler places also support a wide variety of plants and animals (see *Internet and ICT* section for a description of the wildlife that can be found along one such river.) The savannah is home to large animals such as antelopes, and trees such as palm (see *Internet and ICT* section for more information.)
- Picture 1.1 on the CD-ROM can be used to focus the discussion on the effect of environments on one particular type of living thing: trees. A pine tree can live in cold climates because it is able to store any available water and sunlight. The small leaves keep water in the plant. This is because the leaves have a small surface area so not much water evaporates from the surface of the leaves. The leaves are very dark green. They contain a high concentration of the substance chlorophyll. This enables them to use the available sunlight to make a store of food (though the process of photosynthesis) very efficiently. In contrast, a tree in the wet, hot, humid rainforest has big leaves with large surface areas for evaporation to take place. A tree in the desert does not have many leaves. It is withered because it does not have sufficient water available to be transported through its trunk to its leaves.

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- In Activity 1.1, learners are asked to visit parts of the school site to identify contrasting areas, for example, wet and dry, or sunny and shady. They study and compare the animal and plant life in each environment. (See *Notes on practical activities* section.) Worksheets 1.1a and 1.1b support this activity.
- You might extend the activity above outside the school site to look for other local environments which are different. Learners will again be able discuss ideas when they compare the two areas. They could record their observations of the similarities and differences they find.
- Show the learners pictures of animals that can live in many environments, for example, humans, pigeons and mice. You could also show them other animals that can only live in particular environments, for example, sperm whale and snow leopard. Resource sheet 1.1a provides pictures that you could use. You could ask higher achieving learners to explain why some animals can only live in particular environments. Worksheets 1.1c and 1.1d support this part of the lesson. In Worksheet 1.1c learners compare and sort animals into those that can live in many environments and those that can only live in certain environments – it is more suitable for lower achieving learners. Worksheet 1.1d is more suitable for higher achieving learners. It also asks learners to research other animals that can live in many environments or only in certain environments. Allow learners access to the internet or other simple information sources in order to complete this. Encourage them to make suggestions about how they will gather information.
- Learners could model and communicate ideas by designing a new animal to live in a particular place, for example, a hot desert or a snowy mountain.
- Ask learners to help you make wall displays and/or 3D models of different environments and the plants and animals that live there. Learners could draw some of the plants they found in each of the environments in Activity 1.1. Ask groups to present their work to others.
- Resource sheet 1.1b gives the vocabulary needed for this unit. You could use this

to support lower achieving learners. Alternatively, you could use the words to make a wall display relating to this unit.

- Exercise 1.1 in the Activity Book consolidates the learning in this topic. Learners observe pictures of a waterfall and a dry desert environment and consider if they would be good places for animals and plants to live.

## Notes on practical activities

### Activity 1.1 Compare two different places

Each pair or group will need:

- a clipboard
- a stopwatch or watch
- something to measure size of areas with (could be non-standard units but the areas should be approximately the same size)
- a camera (optional)

Before starting this activity, ask learners what size of animals they think they will see. Guide them to realise that they are more likely to find minibeasts than large animals. Point out that minibeasts are an important part of any environment. Ask learners to suggest which two different places they want to investigate. To make it fair, the areas should be of roughly similar size. Explain this and ask learners how they will measure the areas (they could use rulers, tape measures or a piece of rope).

Prompt learners to think of a question to ask, before they do this activity. A suitable question might be, 'How does the environment affect the number and type of plants and animals that live there?' You could ask learners to predict what they will find before they do the activity.

Learners will collect evidence by making observations. You can discuss with learners how they will record and compare their observations. You could use Worksheet 1.1a (which is most suitable for lower achieving learners) or Worksheet 1.1b (which is most suitable for higher achieving learners) here.

You should encourage learners to observe leaves, minibeasts and so on carefully. But warn learners that plant and animal material can sometimes be harmful.





Check (as far as possible) that the areas that you visit are free from poisonous or stinging plants. Also check for any allergies to plant material, and for hayfever. Make sure that learners wash their hands after the activity. Make sure that learners are well supervised at all times, particularly in areas where there may be vehicles.

Talk about what learners found. Did they find different numbers or types of wildlife in each environment? Higher achieving learners can think about whether the comparison is fair. Did they observe the same size of area? Did they observe each area for the same amount of time? If they found lots of birds and butterflies in one area, did they look as hard as they did in an area where there were not so many birds and butterflies?

If this unit is taught early in the year, this investigation will allow you to assess learners' scientific enquiry skills. You may find that these vary quite markedly in the class.

### Internet and ICT

- Learners might take photographs to record their observations and investigations in this topic.
- Learners could make audio recordings to describe their work (for example in Activity 1.1).
- The website [www.inchinapinch.com/hab\\_pgs/marine/mangrove/mangrove.htm](http://www.inchinapinch.com/hab_pgs/marine/mangrove/mangrove.htm) has background information about mangrove swamps and the plants and animals that live in them.
- The website [www.weyriver.co.uk/theriver/wildlife\\_2\\_trees.htm](http://www.weyriver.co.uk/theriver/wildlife_2_trees.htm) has information about the wildlife around a particular river in the United Kingdom.
- There is information about the wildlife of the savannah here: [library.thinkquest.org/26634/grass/Savanna/animal.htm](http://library.thinkquest.org/26634/grass/Savanna/animal.htm).
- This website has a video of animals in hot, cold, wet and dry environments: [www.bbc.co.uk/learningzone/clips/how-have-different-animals-adapted-to-their-habitats/12665.html](http://www.bbc.co.uk/learningzone/clips/how-have-different-animals-adapted-to-their-habitats/12665.html).
- There is a video which compares woodland, ditch and pond environments here: [www.bbc.co.uk/learningzone/clips/woodland-pond-and-ditch-habitats-within-a-garden/2309.html](http://www.bbc.co.uk/learningzone/clips/woodland-pond-and-ditch-habitats-within-a-garden/2309.html).

### Assessment

- You could use the learning objectives for the topic and turn them into 'I can' statements. For example: 'I can identify similarities and differences between local environments,' 'I can talk about some of the ways in which similarities and differences between local environments affect the animals and plants that are found there,' 'I can predict what will happen when deciding what to do'. You could then show these statements to the learners and ask them to say how much they agree with them on a scale of 1 to 5 where, for example, 5 means 'strongly agree' and 1 means 'strongly disagree'.
- Learners can self-assess their work on Activity 1.1. They should say two things that they did well and one thing that they would like to do better next time.

### Differentiation

- Support lower achieving learners by pointing to examples of familiar animals and plants in familiar environments. For example, a snail and where it lives will be familiar to some learners. Assist them with vocabulary; you can use Resource sheet 1.1b for this. You could also give learners specific prompts for Activity 1.1; for example, 'Have you looked under that log?' Worksheets 1.1a and 1.1c are particularly suitable for this group of learners.
- Cater for higher achieving learners by giving them a wider range of examples of animals and plants in their environments. Expect them to make a range of suggestions, for example when you ask questions about environments and the animals and plants that live there, and to use science vocabulary accurately. Give them open questions to think about in Activity 1.1 such as 'Where might we find minibeasts?' Worksheets 1.1b and 1.1d are particularly suitable for this group of learners.

### Common misunderstandings and misconceptions

- Learners may forget that animals include minibeasts. So they may think that a particular environment does not have any animals in it when, in fact, there are many hiding under leaves and so on. Draw the attention of learners to minibeasts and the important part they play, for example, in

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breaking down the bodies of dead animals and plants. Can they say what the world would be like without minibeasts?

Homework ideas

- Ask learners to research how hot or cold environments affect the animals or plants which live in these habitats.
- Exercise 1.1 in the Activity Book is a suitable homework activity.

Answers to Activity Book exercise

Exercise 1.1

- 1 This would be a **good** place for animals and plants to live. There is **a lot of** water. It would be **easy** to find food. It would be **easy** to find shelter.
- 2 This would be a **hard** place for animals and plants to live. There is **not much** water. It would be **difficult** to find food. It would be **difficult** to find shelter.

Answers to Worksheets

Worksheet 1.1a

Learners draw the animals and plants they found in the two areas observed.

Worksheet 1.1b

Learners draw, count and describe the animals and plants they found in the two areas observed.

Worksheet 1.1c and 1.1d

Animals that can live in many environments	Animals that can only live in certain environments
mouse	sperm whale
human	snow leopard
pigeon	

Topic 1.2 Can we care for our environment?

This topic reminds learners that humans have a large impact on the environment. We can damage the environment and we can care for it. Learners look at the simple things they can do to care for the environment. They learn that humans can have a significant positive impact.

Learning objectives

- Understand ways to care for the environment. Secondary sources can be used.
- Use simple information sources.
- Make and record observations.
- Collect evidence by making observations when trying to answer a science question.
- Use first-hand experience.
- Predict what will happen before deciding what to do.
- Make suggestions for collecting evidence.

Curriculum links

- This topic links to geography because learners are studying the effects of people on the environment.

Ideas for the lesson

- Before teaching this topic, it would be worth enquiring about local or national groups that are concerned about the environment. It may be possible for a local expert or volunteer to visit the school and talk to the learners about local environmental issues. They may provide free materials for children. Alternatively, the learners could write to them, or use Skype. This would allow learners to ask questions, seek answers and develop ideas.
- Use the picture on page 8 of the Learner’s Book as a possible starting point for discussion and ideas about environmental issues. You can extend the discussion with Picture 1.2 on the CD-ROM which shows both threats to the environment and ways to care for it.
- In Worksheet 1.2a, learners can think of the ways in which we look after the environment and the ways we harm the environment. They can write or draw about them. Discuss their suggestions with them.
- The illustration in Exercise 1.2 will provide a further opportunity for discussion about ways that human beings harm the environment. Make it clear that we all have an effect. For example, we may not work in a quarry but we all want buildings and roads.
- In Activity 1.2, learners are asked to carry out a survey of the local area to find places where people do not look after the environment. (See *Notes on practical activities* section.) Worksheet 1.2a could also be used as a recording sheet here.

- Using simple information sources such as books, leaflets and the internet, learners could research and suggest ideas of ways to care for the local environment. Worksheet 1.2b supports this. Learners usually have lots of ideas, which you should encourage. Do not be too concerned about practicality. Allow the ideas to flow. Then ask the learners to talk about how some could be carried out and to predict what their effect might be. Ask them to identify things that they could do easily now. Ideas might include reducing litter by using litter bins: learners could suggest ideas for the design and siting of extra bins; they could make posters to persuade others to use the bins. Another idea would be to make simple habitats for minibeasts. There are websites that give help with making minibeast habitats – see the *Internet and ICT* section for details.
- Write a class letter to local, national (and even international) environmental groups to communicate ideas about the local environment. Involve all learners in contributing ideas to this letter. This enables lower achieving learners, who may not find writing easy, to express their ideas verbally. Their ideas are then valued as part of a group writing task.
- Ask the class to meet the headteacher, school council, governors or other school staff. They could ask about this person's or group's opinion on litter or energy issues. At this meeting, learners could present the posters they made for Worksheet 1.2b.

## Notes on practical activities

### Activity 1.2 Our environment

Each pair or group will need:

- a clipboard
- camera (optional)

Learners will need the opportunity to observe a natural environment, if possible. If you are in an urban area, you may need to organise a trip to the countryside. Or, at least find a space in the town where learners can observe plants and animals (including minibeasts) and how they might be harmed or cared for. A park or riverbank would be suitable (but if you visit a riverbank, you must observe safety rules; do not allow learners to go too close to the water).

Learners could suggest ideas about what they are going to look for before they leave the classroom. Once outside, learners should identify any damage to the local environment. You might point to examples that are not so obvious, for example, dirty water such as pond water, drain water and so on. They should gather evidence in order to answer the question, 'In what ways do humans harm the environment?' They can record their observations in the form of different recordings; for example, video, drawing, audio, writing. Worksheet 1.2a could be used as a recording sheet for this activity.

Discuss with learners how people could take better care of the environment. How could we stop the harm? How could we put things right? What could learners do to help? For example, they could pick up litter, or they could plant trees where trees have been damaged.

### Internet and ICT

- Learners might take photographs to record observations in Activity 1.2.
- Learners could make audio recordings to describe their observations and discussions.
- The website [www.makingyourown.co.uk/make-your-own-wildlife-habitats.html](http://www.makingyourown.co.uk/make-your-own-wildlife-habitats.html) gives ideas on how to make a habitat for minibeasts.
- The website [gowild.wwf.org.uk/about](http://gowild.wwf.org.uk/about) tells learners about the World Wide Fund for Nature (WWF) 'Go wild' club, WWF environmental campaigns, and ways that they can take action to help care for our environment.

### Assessment

- Can learners describe ways to care for the environment? You could tell them about an event when the environment was damaged by human activity, for example, a fire or an oil spill. Can learners say how the damage could have been avoided?
- Can learners explain why their actions have a positive effect? For example, putting litter in bins means it is not on the streets. Learners might list the ways that littering has a bad effect on the environment. They might then explain how they will not drop litter and the effect that will have.

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- Learners can assess each other's work in Activity 1.2. Did all learners notice the same things? How well did they record their observations? Did they put their use of simple information sources in this topic to good use?

## Differentiation

- Support lower achieving learners by asking them to find just two examples of harm to the environment in Activity 1.2. Guide them with questions such as 'Is litter helpful to wildlife?' Then prompt them to explain their answers. Pair this group of learners with higher achieving learners to do research in this topic. This group can be asked to draw their observations.
- Cater for higher achieving learners by expecting them to find other examples of harm to the environment in Activity 1.2 and to suggest ways in which these examples could be turned around. Challenge them to explain why these actions will have a positive effect.

## Common misunderstandings and misconceptions

- Learners may feel that they cannot have much effect on the environment on their own. Ask learners to discuss and to consider that small actions made by many people have a big effect.
- Learners may not value the natural world. They may see humans as more valuable than other living things. You could explain, as learners may not realise, that damage to the environment will eventually have a negative impact on humans.

## Homework ideas

- Exercise 1.2 in the Activity Book is a suitable homework activity.

## Answers to Activity Book exercise

### Exercise 1.2

## Answers to Worksheets

### Worksheet 1.2a

Learners draw and write about the harm they saw in their local environment.

Learners draw and write about how people could look after their local environment better.

### Worksheet 1.2b

Learners draw and write about things that could be done to help care for the local environment and how the environment might improve.

Learners make a poster showing ways to improve the environment.



## Topic 1.3 Our weather

This topic introduces weather. Learners are encouraged to observe and record the weather.

## Learning objectives

- Observe and talk about their observation of the weather, recording reports of weather data.
- Collect evidence by making observations when trying to answer a science question.
- Use first-hand experience.
- Make suggestions for collecting evidence.
- Make and record observations.
- Use a variety of ways to tell others what happened.

## Curriculum links

- The study of weather links to geography.
- If you ask learners to take measurements, for example, of temperature and rainfall, you can link to mathematics. You can also link to mathematics if you ask learners to make a pictogram of the weather data.
- You can link this topic to literacy by considering opposites such as dry and wet, hot and cold, sunny and cloudy, and so on.

## Ideas for the lesson

- Use the pictures on page 10 of the Learner's Book to start a discussion about the weather. Picture 1.3 on the CD-ROM provides a few more examples that you might use.



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- In Activity 1.3, learners are asked to use first-hand experience to take observations of, and record, today's weather. Encourage them to talk on what they observe about the weather and about yesterday's weather. You might challenge them by asking them to predict what the weather will be like later in the day. The answer to this question will depend on where you are in the world. In some areas, weather such as rainfall is very predictable, but in others it can be very unpredictable and even sophisticated monitoring equipment cannot guarantee accurate short-term forecasts.
- Ask learners to suggest ways to record the weather with symbols. Exercise 1.3 in the Activity Book asks learners to observe the weather for 5 days and to make a weather diary using symbols. They can start this in the lesson with the weather today, and then continue it for the rest of the week, either in school or at home.
- Learners can make additional suggestions for collecting evidence about the weather (which may include taking simple measurements of rainfall or temperature). You could introduce learners to the thermometer as a device used to measure temperature. Perhaps they might make simple measurements using a wall thermometer.
- If you wish learners to take simple measurements of rainfall, they can use Worksheet 1.3a. This worksheet gives instructions on how to make a simple rain gauge and includes a table for recording measurements. (See *Notes on practical activities* section.) You can use non-standard units such as plastic bricks to create the scale.
- Learners could use Worksheet 1.3b to tell others what the weather was like for a week. This worksheet gives a grid for pictograms. Ask learners to use it to record the information that they collect about the weather.
- In Worksheet 1.3c, learners interpret and answer questions about weather data in a pictogram. It could be used to reinforce learning at this point.
- Ask the learners to listen to an audio recording, or watch a video recording, of a weather forecast as a simple information source. You could follow this up by asking them to listen to today's weather forecast and see whether the forecast was correct. You could do this over a period of several days to try and answer the question, 'How reliable is the weather forecast?'
- Ask learners to predict the weather and give a weather forecast. You could set up a role play area where learners can present their weather forecasts. You could record these weather forecasts on video.
- Establish a weather vocabulary poster or dictionary. Resource sheet 1.1b could be useful as a starting point for this. This would allow learners to consider the words and think about what they mean. Weather vocabulary posters could be added to the wall display for this unit.
- Learners can make a simple wind meter by holding up a handkerchief or tissue. Its movement will indicate the strength and direction of the wind. Worksheet 1.3d gives instructions for making a slightly different wind meter and includes a table for learners to describe what the wind they observed was like. (See *Notes on practical activities* section.)
- You might link ideas about the weather to the different environments learners studied in Topic 1.1. Different environments around the world have different weather patterns. (This is not true for different environments in the local area, where the differences are related to factors other than weather, as in the micro-climates created by a bend in a river, a large building and a woodland.) Higher achieving learners could research the weather patterns found in the environments that they met in Topic 1.1.
- Talk about the weather patterns in your own country. If you have learners who have lived in different countries, they could talk about the weather patterns in those countries. Then the class can discuss the differences.

## Notes on practical activities

## Activity 1.3 Today's weather

Each pair or group will need:

- large poster paper
- a camera (optional)

These simple first-hand observations of the weather are similar to those made by real scientists. This activity focuses on making observations to answer the question, 'What is the weather like today?' Learners are asked to make a poster showing the weather that day. They can draw pictures to represent the weather or they can use or invent symbols. Learners can use the poster to tell others what they found out.

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(Additionally, learners can build up and record a useful set of observations over a series of days using Exercise 1.3 in the Activity Book.) Make sure that learners make a record of the type of cloud (if any) that is present in the sky. These observations will be useful in the next topic.

If you decide to ask learners to make measurements, you will also need a rain gauge, a thermometer, and a wind strength meter. (Worksheet 1.3a gives instructions for making a rain gauge; Worksheet 1.3d gives instructions for making a wind meter.)

### Worksheet 1.3a Making a rainfall gauge

Each pair or group will need:

- a transparent plastic drink bottle with the top cut off
- some plastic bricks
- a marker pen

You should prepare the plastic bottles in advance. It is not difficult to cut the tops off plastic bottles, but an adult should do it. The cut edge may be sharp. You should cover it with tape so that learners cannot injure themselves on it.

Ask learners to follow the instructions on the worksheet. They should build a tower of plastic bricks the same height as the cut plastic bottle. They should use the tower of bricks as a guide for making the scale for the rain gauge. Ask them to place the bottle next to the tower and then mark on the bottle at the top edge of each brick. Learners could use a ruler instead of a tower of bricks and make a mark on the bottle at every centimetre.

When placing the rain gauges outside, make sure that they are stable and not likely to fall over. You could secure them, for example, with large stones around their base. Once the rain gauge is outside, learners can take readings at intervals and answer the question, 'How much rain has fallen today?' They can record results in a table like the one on the worksheet.

### Worksheet 1.3d Making a wind meter

Each pair or group will need:

- a stick
- strips of paper
- glue

Ask learners to follow the instructions on the worksheet. When their stick is ready, encourage learners to observe first-hand and to describe how the paper moves in different conditions (you can simulate this with a fan). For example, in light air movement the paper might move a little, in a light breeze the papers might all move to one side and begin to flutter, and so on. The strips will blow in the opposite direction to that from which the wind is coming.



Learners must make sure that no one else is close by when they hold their stick.

Learners can record their observations about what the wind was like in the table on the worksheet. Learners can use their descriptions to tell others what happened.

## Internet and ICT

- Learners could take photographs to record the weather each day.
- Learners could make audio recordings to describe their observations and forecasts.
- The website [www.ehow.com/how\\_2086258\\_make-simple-rain-gauge.html](http://www.ehow.com/how_2086258_make-simple-rain-gauge.html) gives instructions on an alternative method for making a rain gauge.
- The website [www.ehow.com/how\\_4897104\\_make-anemometer-kids.html](http://www.ehow.com/how_4897104_make-anemometer-kids.html) gives instructions on how to make a wind gauge that you could set up in the school grounds. It will need to be constructed by an adult.

## Assessment

- A series of photographs or video that learners have taken of different weather types might help them to communicate their ideas about weather. Make an 'I can' statement such as 'I can observe the weather and talk about my observations.' Ask learners then to assess themselves. Can they observe the weather? Can they talk about their observations?
- Can learners record and give reports of weather observations? Are they able to write, draw or say what the weather is like? If learners perform the weather forecast role-play, then you could assess their use of the vocabulary associated with this topic.
- Learners can assess each other's posters