

Climate and the environment

- **Topics** The weather; global warming and extreme weather; a zero-carbon city
- **Use of English** Present simple active and passive

Lessons 1–2 What's the weather like?

- What do you think the weather will be like in your country tomorrow?

Vocabulary

- 1 Look at the map of Spain. What do you think the symbols mean?

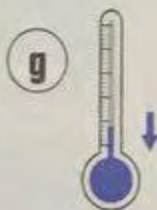
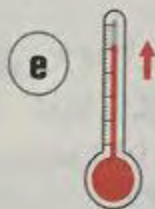
palm tree = wind / windy
 sun = sunshine / sunny
 cloud and sun = cloudy with some sunshine
 cloud and raindrops = rain / rainy
 cloud and snowflakes = snow / snowy



Vocabulary

4 Match the weather forecast extracts to these symbols.

- c1 It'll be wet tomorrow. There'll be thunderstorms and heavy rain.
- f2 It will be windy all day but with strong winds in the late afternoon.
- g3 Temperatures will fall rapidly this evening.
- e4 Temperatures will rise to 40°C during the course of the day.
- a5 There will be icy conditions on the roads in the morning.
- b6 There may be one or two light showers towards the end of the afternoon.
- d7 With clear skies and a good chance of snow tomorrow over high ground, it's good news for skiers.



Language tip

rain
heavy / light snow storm(s)
shower(s)

but:

strong / light wind(s)

5 Answer these questions.

- 1 Put the seasons in order starting with winter.

1 winter 3 summer 2 spring 4 autumn

- 2 What do you wear when it is hot and sunny? a T-shirt and shorts

Lessons 3–4 Wild weather

Reading

- 1 Read the text on the right and answer the questions.

1 What is the weather usually like in the UAE?

very hot

2 How hot is it usually in the summer?

average temperature can reach above 45°C

3 What is the average temperature in the winter?

average highest temperature are around 20°C

4 Does it rain in the UAE? yes, but not a lot

5 Does it snow in the UAE? Not usually, but there

was snow for the first time in 2004.

2 Using the Internet, YouTube, newspapers or other media, research the different ways that the weather is forecast. Try to find the following:

- A clip of a presenter forecasting the weather that you can listen to or watch.
- A written weather forecast where you should examine:
 - the symbols that are used to represent the weather

The weather in the UAE is normally very hot. It usually has very hot summers and mild winters.

It is hottest in July and August when the average temperatures can reach above a very hot 45°C! However, it is a lot cooler in the winter months of January and February when average temperatures are around 20°C in the day, which is much nicer.

There isn't much rain in the UAE. In the coastal areas (the land next to the sea) there is less than 120 mm in a year, but in the mountain areas it can be as much as 350 mm per year. The UAE is so dry that there are sometimes sandstorms, which can be a problem.

Believe it or not, there was snow for the first time in the UAE in 2004.

Language tip

It will be ... rainy, windy, wet, cloudy, sunny, snowy.

There will be ... rain, wind, snow.

Reading

- 5 Read the article below. When you have finished, can you think of a title?
What do you think the diagram shows?

WHAT IS EXTREME WEATHER?

What's the weather like today where you live? When I walked out of my house this morning, it was warm and sunny, which is quite normal weather for my area in spring.

But sometimes in some places, weather can become unusual, for example too hot or too cold, or even too windy or too rainy. This weather is called 'extreme'.

Heatwaves, floods, hurricanes and sandstorms are all types of extreme weather and they are happening more often.



Extreme weather in Mumbai

WHAT IS 'GLOBAL WARMING'?

Did you know that in the past 50 years the Earth has become warmer by 0.5°C ? That might not sound very much but it is! This rise in the Earth's temperature is called 'global warming'. Most scientists believe it is the reason why extreme weather is happening more often.

This is what global warming does:

oceans become warmer

more moisture evaporates turning into gas

=

hurricanes, floods, etc.



Typhoon Haima hits Shenzhen

How does global warming happen?

Energy from the Sun enters the atmosphere

The right amount of energy leaves the atmosphere

=

Earth has the right temperature (16°C)

Sun

Energy enters

Some energy leaves

Atmosphere

Activity 1

Lessons 5-6

Reading

1 Work with a partner

- 1 Write down four types of extreme weather. *hurricane, sandstorm, flood, heatwave*
- 2 Why is extreme weather dangerous?
- 3 What are the effects of global warming?
- 4 What are the effects of global warming on the Earth's temperature?
- 5 Why are greenhouse gases dangerous?

Speaking

- 2 One exciting type of extreme weather is big thunder and lightning storms. What do you know about thunder and lightning? Share your ideas with other students.

Think about:

- Have you ever seen or heard thunder and lightning? *Yes.*
- Do you know why it happens?

1- hurricane, heat wave,
flood, sandstorm

2- Because of too much pollution and
global warming.

3- More moisture evaporates which causes
heavier rains, storms and floods.

4- It causes the Earth's temperature
to rise.

5- Greenhouse gases are dangerous because
they don't let heat leave the planet and
therefore the Earth's temperature rises.

Reading

- 4 Have you ever heard of storm chasers? Storm chasers are people who, instead of trying to avoid extreme weather, try to follow it to take pictures, videos and write about it. Read this report by a storm chaser and then answer the questions that follow.

- 1 What is the name of the storm and where and when did it take place?
- 2 Where was the reporter travelling to and why?
- 3 Why does the reporter say the storm is getting close?
- 4 What is set on fire?

My name is Sarah Kennedy and this is my report on Storm Kelly, which happened in Nebraska, USA on 14th June 2015.

08:00 hours. Travelling towards Nebraska for a meteorology conference, we know that a storm is forecast for this area. Everyone is leaving and we are told the storm is going to be dangerous.

08:17 hours. The first lightning is seen. Wow! The sky is dark like it is night and the lightning is so bright! The sky shines with a very bright light that makes it difficult to see. Crash! The thunder is heard 30 seconds later. The storm is getting close! Time to move.

08:18 hours. The storm is over our heads.

Activity b

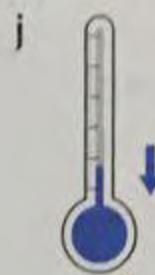
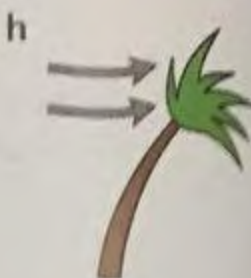
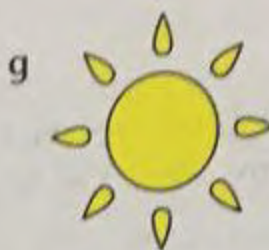
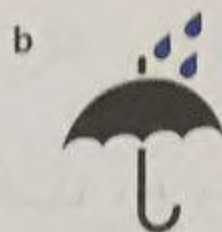
At 08:22 hours, heavy rain is caused by the storm. A farmer's field is hit by lightning and is set on fire. All the crops are burnt by the fire. Poor



Vocabulary

1 Match the weather symbols to the descriptions.

- e 1 cloudy with some sunshine
- h 2 light winds
- a 3 icy conditions
- j 4 temperature falling
- f 5 temperature rising
- g 6 sunshine
- b 7 showers
- d 8 snow
- i 9 strong winds
- c 10 thunder and heavy rain



2 Match the adjective to the noun to make the correct collocation.

- | | |
|-----------------|-----------------------|
| 1 heavy / light | skies |
| 2 extreme | gases |
| 3 average | wind |
| 4 clear | rain / snow / showers |



Lessons 8–9 Energy from different sources

Reading

- 1 Read the article about renewable energy. What is renewable energy? How is it friendly to the environment? Where does it come from?

What is renewable energy?

A lot of the energy we use comes from the Earth. We make electricity from the Earth's **resources**, like **coal**, oil or natural gas. These are called 'fossil fuels' and they are found deep in the earth – they are as old as dinosaurs!

But there won't be **fossil fuels** forever. If we use too much, they'll **run out**. Another problem is that fossil fuels cause pollution; for example, we burn coal to get electricity and this pollutes the atmosphere.

The good news is that there are some resources in nature which never run out, in other words they become new all the time. We call these resources '**renewable**' and we call the energy we get from them 'renewable energy'.

Renewable energy is also called 'clean

A wind turbine

Wind: a wind turbine changes the energy from the wind into electricity. This energy is called 'wind power'.



Solar panels

Sun: **solar** panels are flat pieces of glass and silicon. They collect light from the Sun and change it into electricity. This energy is called 'solar power'. We can have solar panels on the tops of our roofs!



A water dam

Vocabulary

2 Look at the highlighted words in the article on page 209 and match them to their definitions below.

- 1 Something that can be used again and again. *renewable*
- 2 They are underground and we can use them to make electricity. *fossil fuels*
- 3 Power that comes from the sun. *solar*
- 4 Things that are useful for people and life on earth. *resources*
- 5 Another way to say 'finished'. *run out*
- 6 It's black and hard and you can find it inside the earth. *coal*

Reading

3 Decide if these statements about renewable energy are true or false.

- T1 Fossil fuels existed on Earth millions of years ago.
F2 Coal and natural gas are renewable and we'll always be able to use them.
F3 Renewable is the energy that people can make.
T4 'Green power' is power that is friendly to the environment.
F5 To make electricity from the Sun you need a wind turbine.
F6 Solar panels are usually underground.
T7 When water moves from one place to another we can use it again.



Lessons 10–11 **Eco-buildings**

- What do you think an eco-house is? How is it different to a normal house?
- Reading** *It is better for the environment. An eco-house is an environmentally low-impact home designed and built using materials and technology that reduces its carbon footprint and lowers its energy needs.*
- 1 Read the text and check your answers to the questions above.

Beth and Maggie are twins who live in the south of England. They do what any 13-year-old does; they go to school, they do homework, they go out with friends and so on. They also live in a nice, modern house like most teenagers they know. But, wait a minute. There's something different about it.

Beth and Maggie's parents used recycled material to build their house. They also made sure it would need as little energy as possible. 'We use natural ways to heat or cool down our house,' explains Beth. 'And the water,' Maggie adds.



Reading

- 3 Read this article about an eco-school in England.
Complete the missing headings.

How Howe Dell is eco-friendly
A green curriculum
A new heating technology
A different school

Vocabulary

drainpipe: a long round thing that carries water out of buildings

biodiversity: the number of plants and animals that live in one place

1 A different school

Welcome to Howe Dell Primary School, the most eco-friendly building in England. It took eight years and £10.4 million to plan and build it ... But it was worth it!

2 How Howe Dell is eco-friendly

Howe Dell saves energy in amazing ways! Solar heating panels warm up water for kitchens and produce some electricity. The ceilings are made of glass so classrooms and halls get lots of sunshine. This cuts down lighting bills. Super-thick walls and thick window glass don't let heat escape. Desks are made from reused **drainpipes** and the plants on the roof protect the school from heat and cold. It's also the home for many insects and students can study **biodiversity** there! Rainwater is collected and used for the toilets. And the carpets are made from lots of small pieces – when one gets dirty, they don't have to change the whole carpet!

3 A new heating technology

Lessons 12–13 Eco-cities

Reading

- 1 Read the article about Hammarby Sjöstad below. Why is it good news for the environment? *It's environmentally friendly.*

Hammarby Sjöstad is an eco-town near Stockholm, in Sweden. It's designed to use as little energy as possible and has a special traffic system everyone there is happy to use. Many architects and engineers worked together as a team to turn the industrial area of Hammarby Sjöstad into a beautiful, environmentally-friendly home for about 30,000 people.

The buildings are a mix of modern architecture and natural materials such as wood and stone. Every building has an open area around it, so that sunlight can come through. There's natural light in the apartments for at least 4–5 hours every day in spring and autumn. There are also many beautiful parks and green public spaces with amazing cycle paths. There's some cool public transport such as light rail and boats. People don't own their own cars – there are cars that people can drive when they need to go



Everyone recycles in Hammarby Sjöstad! Newspapers, food waste, old furniture, batteries, glass and plastic ... almost everything can be reused! In this eco-town, paper, soil, heating and electricity can be made from waste. There's even a thermal factory outside the town which produces heating, electricity and cooling power from waste and dirty water. And of course, all the buildings get energy from solar panels. In Hammarby Sjöstad, a building needs half of the energy that normal buildings do!

Finally, storm water and rainwater are carried through special canals to Lake Hammarby Sjö

Reading

4 Decide whether these statements about Hammarby Sjöstad are true or false.

- F 1 Hammarby Sjöstad was a national park. *False*
- F 2 There are no places to have a picnic or walk the dog.
- F 3 People get from one place to another only by car.
- F 4 Oil is needed to produce energy there.
- T 5 Hammarby Sjöstad is powered by renewable energy.
- T 6 People can drive in the town in a car that doesn't belong to them.
- T 7 People don't need to throw anything away.
- F 8 Dirty water is taken to Lake Hammarby Sjö.

5 From the article about Hammarby Sjöstad on page 213, find the evidence that supports whether you think the statements about Hammarby Sjöstad are true or false.

Did you know?

Hammarby Sjöstad is an example that many cities around the world are trying to follow.

Writing

We don't do presentations in this school.

6 Imagine you are an architect or engineer working on a plan to build an eco-city in your country. Prepare a presentation about your eco-city.

Think about:

- what makes your city an eco-city
- why it will be good for people to live there
- what the benefits are for the environment.

Speaking

7 Present the plans of your eco-city to the rest of the class. Members of your class can ask you questions at the end.

Speaking tip

Make sure you use short sentences so your presentation is easy to understand.

You need to sound sure about your idea. If you don't know the answer to a question, you can say politely:

We are still working on this.

Lesson 14 Practise and prepare

12 Climate and the environment



Writing

- 1 Complete the sentences by using a verb from the box in the present passive. Use **by** when necessary.

call heat ~~make~~ recycle use

- 1 Wind power is the power that *is made* by strong winds.
 - 2 Nearly all the waste Hammarby Sjöstad produces *is recycled*.
 - 3 Usually, an eco-house *is heated by* solar panels.
 - 4 The energy we get from hot water and hot rocks in the earth *is called* 'geothermal power'.
 - 5 Only natural materials *are used by* architects and engineers when planning an eco-city.
- 2 Read each headline and write a summary of what the article may be about.

10 wind turbines
to light up roads

New eco-city in the UAE

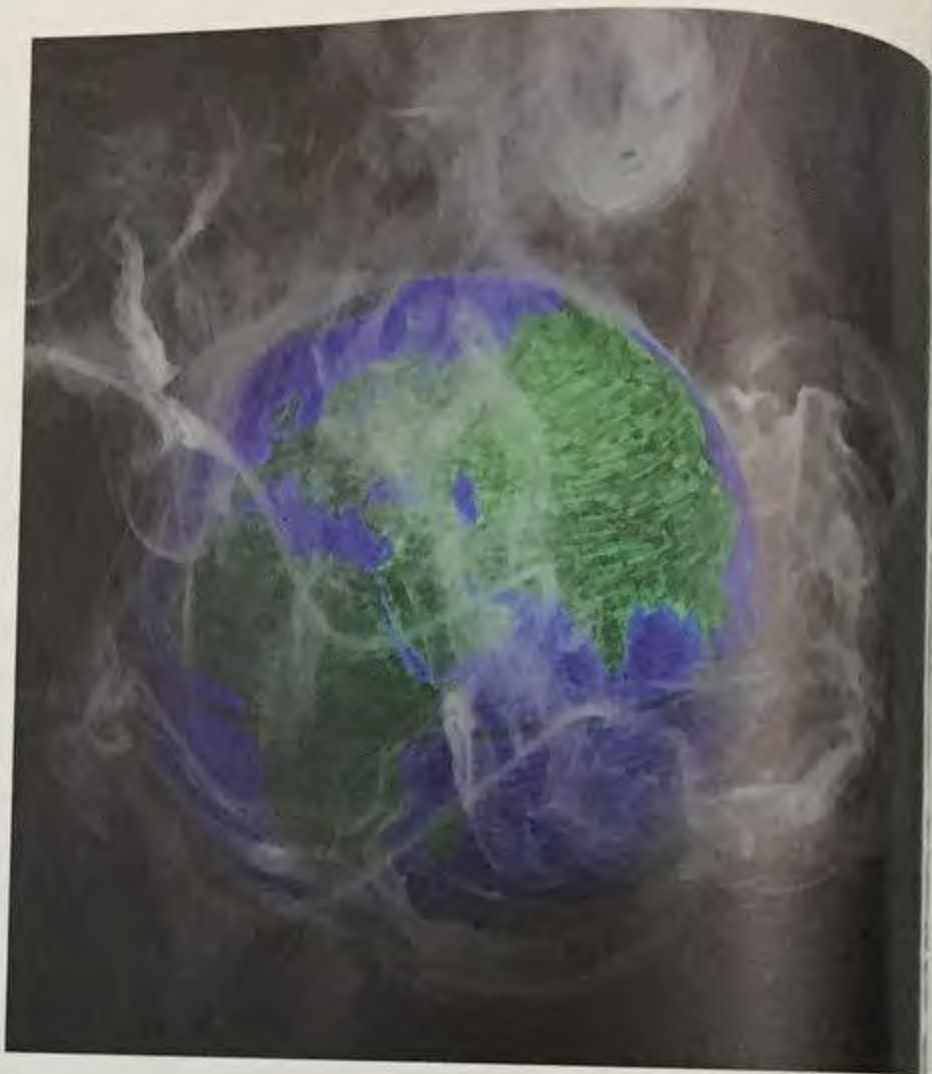
Clothes and shoes for recycling!

Why use

Lesson 15 **Go green!**

Reading

- 1 Read the following statements about global warming. Place the statements in order of how dangerous you think they are.
 - 21 The world will become warmer.
 - 32 There may be more extreme weather.
 - 3 Some animals may stop existing.
 - 4 In dry areas, there may be even less water.
 - 45 Winters may become much colder.
- 2 Read the statements below and decide if they are true or false.
 - T1 The Earth is slowly getting hotter.
 - T2 Building eco-houses and eco-cities is cheap.
 - F3 Global warming is good for the environment.
 - F4 Global warming is caused by smoking.
 - T5 Using less fossil fuels will stop global warming.



Lesson 16 Review

Listening 52

- 1 Listen carefully to the following weather forecast about Spain and then complete the notes below.

	6 am	3 pm
central and west	¹ low temperatures strong, cold ² <u>wind</u>	mostly ³ <u>sunny</u> a few clouds temperature: 10 degrees
north-west	wet and ⁴ <u>windy</u>	wet and windy some ⁵ <u>sunshine</u>
north	⁶ <u>rain</u> , ⁷ <u>snow</u> and icy conditions over high ground temperature: minus 5 degrees to 6 degrees	
east	sunny	⁸ <u>cloud</u> with some sun temperature: 12 to ⁹ <u>16</u> degrees
south	¹⁰ <u>clear</u> skies, lots of sunshine, a ¹¹ <u>light</u> wind in coastal areas temperature: 19 degrees	

Vocabulary

Our school doesn't do 218 or 219.