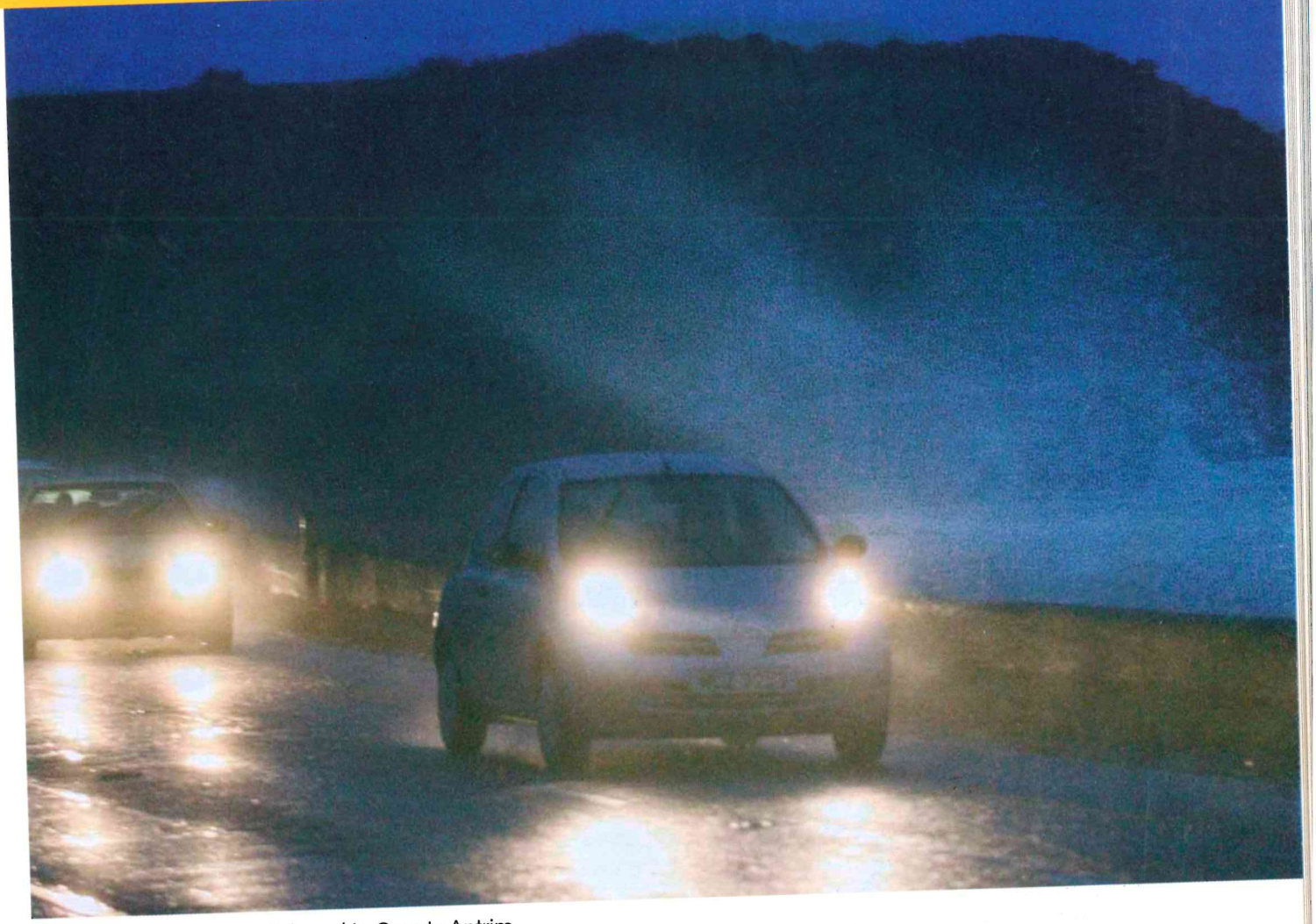
5 Rain, rain, go to Spain



A rainy, windswept coastal road in County Antrim

Learning intentions

In this chapter, I am learning:

- the difference between weather and climate
- to produce and interpret climate graphs
- to describe local weather and how weather varies
- how weather affects the lives of people
- to read and interpret weather maps and charts as well as satellite images
- how to conduct an investigation to observe, measure and record local weather conditions.

Is our weather really so bad?

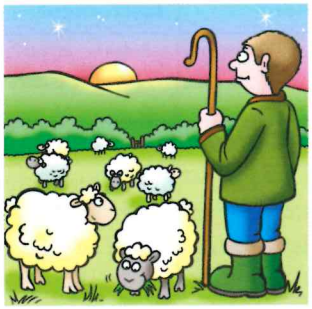
The **weather** is a favourite topic of conversation for people. It is never far from our minds. What will it be like tomorrow? Will it be warm enough to go to the beach next time we are at the seaside? What will I wear tomorrow? Will we have a white Christmas? It is rarely out of the news.

What is weather?

Weather relates to the state of the bottom 10 kilometres of the atmosphere. Weather describes the condition of the atmosphere at one place at one time. It refers to the day-to-day conditions: the temperature, the cloud cover, whether it will be wet or dry, the strength and direction of the wind, and so on. Weather conditions can vary, even over small areas. For example, the weather in Belfast could be very different from that in Derry, which in turn, may also be different from that in Newry.

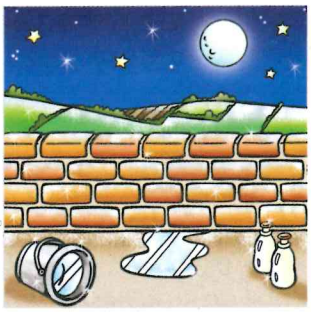
Describing our weather

Much has been written about Northern Ireland's weather. In primary school, you may have come across different sayings about the weather:



Red sky at night, shepherd's delight; red sky in the morning, shepherd's warning.

Rain before seven, fine by eleven.



Clear moon, frost soon.

When smoke descends, good weather ends.

You can find more interesting sayings about the weather at www.metoffice.com/education/primary/students/sayings.html.

Get Active 5.1

a) Why do you think people made up such sayings about the weather?
b) From your experience, would you say there is any truth in such sayings about the weather?
c) All of us have experienced many different weather conditions in our lives, when living here in Northern Ireland or while abroad on holidays.
   - List all the words you can to describe the weather.
   - From the list, highlight those words that particularly describe Northern Ireland's weather.
d) Write a short poem or rap to describe the weather associated with any of our four seasons.

Our changeable weather: four seasons in one day!

Unlike some places in the world, our weather is not very predictable. The best word to describe Northern Ireland's weather is **changeable**. It can change quickly and often dramatically. In summer, a warm, dry day may be followed by a cool and wet day. You have probably heard it said that 'we can experience the four seasons in one day!'

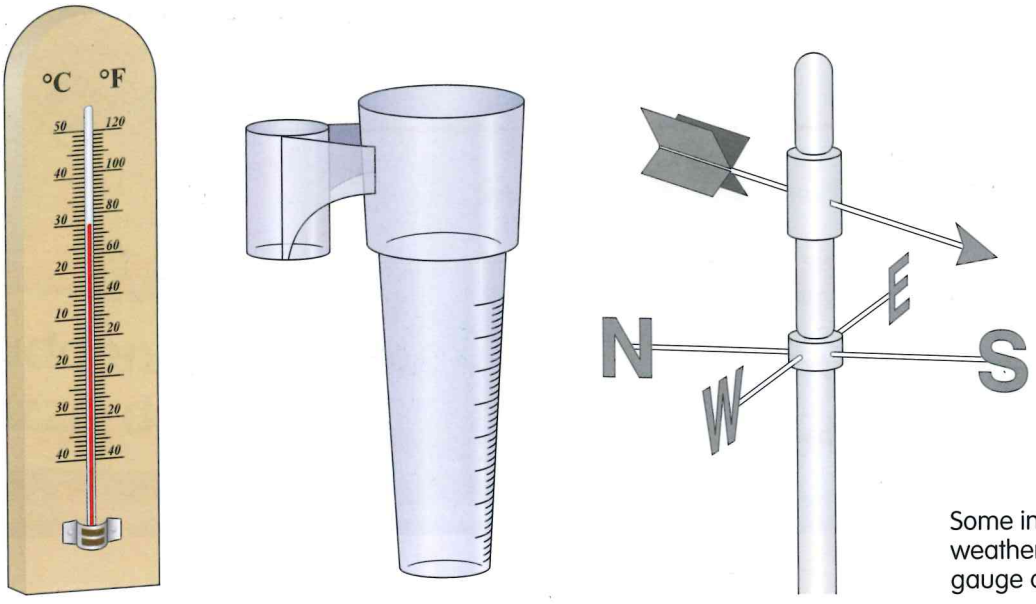
Get Active 5.2

a) For each element of the weather listed in the table below, give the units of measurement and the name of the instrument used to measure it.

b) Draw a simple sketch of each of the measuring instruments you listed in the chart. Find out how each piece of equipment works. To find out more about this use this weblink to help you: www.bbc.co.uk/schools/gcsebitesize/geography/weather/mappingmeasuringrev6.shtml

c) Observe and measure the weather conditions in your school grounds to build up a picture of the general weather conditions. Your school may have a data logger connected to a PC which takes and records a number of weather readings at pre-determined intervals on a continuous basis. Alternatively, you may use more traditional measuring equipment.

Weather element	Units of measurement	Measuring instrument
Temperature		
Rainfall		
Wind speed		
Wind direction		
Cloud cover		
Pressure		



Some instruments to measure weather: a thermometer, rain gauge and wind vane

What is climate?

Climate is the average weather experienced by a particular area. It is a measure of what the weather in any area is normally like, based on measurements taken over a period of at least 30 years.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp (°C)	8	7	8	13	13	18	19	19	18	14	9	7
Rainfall (mm)	81	64	46	91	94	23	46	78	19	84	93	54

The climate (average monthly temperature and rainfall) of Loughgall in County Armagh

Get Active 5.3

a) Use the data in the table to produce a **climate graph** for Loughgall. Look at the example of how to draw a climate graph on the right to help you.

b) Use your completed graph to answer the following questions about Loughgall's climate.

- Which was the wettest month? How much rain fell in this month? May 94 mm
- Which was the driest month? How much rain fell in this month? Sept 19 mm
- What was the total annual rainfall for Loughgall? 773 mm
- Which was the hottest month? What was its temperature? July - Aug 19°C
- Which was the coldest month? What was its temperature? Feb + Dec 7°C
- What was the temperature **range** for Loughgall? 19 - 7 = 12°C
- Describe the annual temperature variations.
- Describe the annual rainfall pattern.

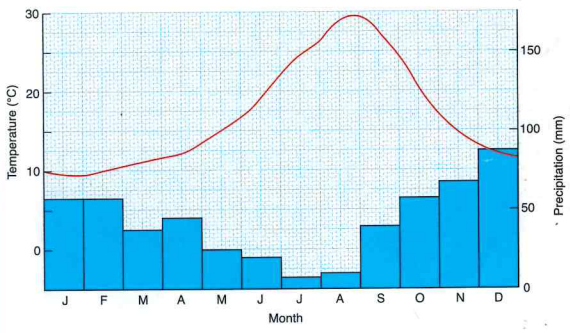
c) The climate of Northern Ireland is described as being **temperate**. What kind of weather conditions across the year characterise a temperate climate?

How to ... draw a climate graph

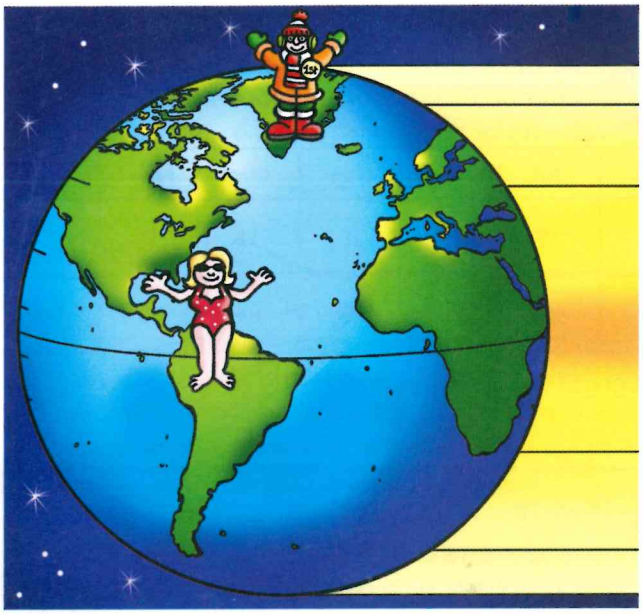
a) Temperature and rainfall can be shown on the same graph. Temperature is shown on a line graph as a red line, and rainfall is shown by the blue columns on a bar graph.

b) The temperature scale is marked on the left-hand side in °C. Temperatures are plotted in the centre of the column for each month and the points are joined with a continuous red line.

c) The rainfall scale is marked on the right-hand side in mm (rain is called **precipitation**). The rain is marked for each month by a line – the columns touch each other and are shaded in blue.



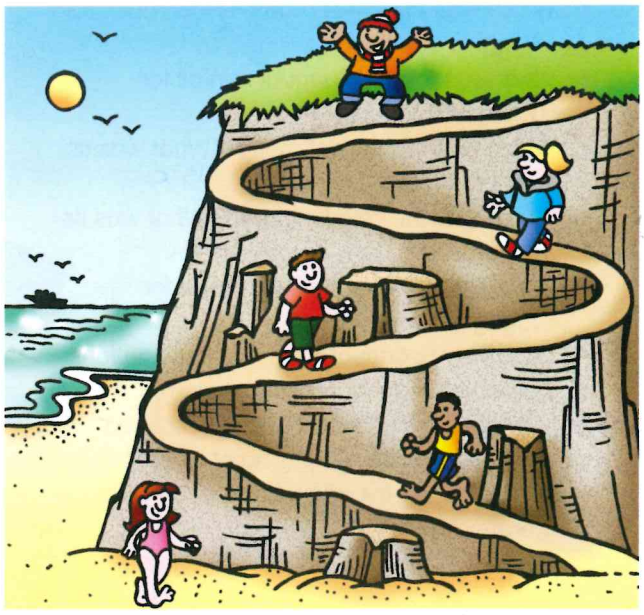
Some factors that affect our climate



Latitude: The further one moves from the Equator the colder it gets. This is to do with the curvature of the Earth and the angle at which the sun's rays hit it.

Distance from the sea: The sea warms up and cools down at a slower rate than the land. As a result, a sea breeze keeps coastal areas cool in summer, but warm in winter. The further inland you go the warmer it gets in summer, but the colder it gets in winter.

Prevailing wind direction: This refers to the most commonly experienced wind direction in a place. In Northern Ireland, the prevailing wind is from the southwest. This brings us a lot of rain from the Atlantic Ocean.



Altitude: Temperature drops as height above sea level increases. It decreases by 1.5 degrees Celsius for every 100 metres that you rise above sea level.

Get Active 5.4

a) Look at the climate data below for the Silent Valley in County Down. The Silent Valley is located in the Mourne Mountains.

b) Produce a climate graph for the Silent Valley to represent the data shown in the table. You can have a go at doing this using Microsoft Excel® (your teacher can give you guidelines for this).

c) Describe how the climate for the Silent Valley differs from that of Loughgall that you looked at earlier. Your answer should include reference to similarities, differences, maximum, minimum, range, average, seasons, and should include actual figures.

d) Look at the **physical map** showing the physical geography of Northern Ireland.

- Why is it always colder in Portrush in summer than in Malaga (southern Spain)? *Clue: look at a map of Europe in your atlas.*
- If Northern Ireland was to have a southeasterly prevailing wind, how would this affect our climate? *Clue: how do the geographical features to the southwest and southeast of Northern Ireland differ?*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp (°C)	7	7	6	10	11	16	17	17	16	13	8	6
Rainfall (mm)	213	111	105	195	147	62	86	96	57	187	165	100

A physical map of Northern Ireland

How does the weather affect you and other people?

The weather can affect our lives in many ways, such as the clothes we wear, our leisure activities, the activities we do on holiday and so on. It may affect the jobs of other people and even make everyday life very difficult.

Get Active 5.5

a) Explain how the weather affects people in the eight photographs below and opposite.
b) Work in pairs. Using the 'five Ws' (What? Where? Who? When? Why?), write questions that will confirm whether what you think is going on in the photograph is actually the case.
c) Each pair shares their questions with the rest of the class.
d) The class agrees which are the most useful questions to use for the activity.
e) Each pair is given a copy of one of the photographs and an A3 sheet of paper.
f) The photograph is stuck in the middle of the page and the headings: 'What? Where? Who? When? Why?' are written around it.
g) Each pair discusses the questions and records their answers under the appropriate heading on the A3 sheet.
h) Each pair feeds back to the class what they have learned about how weather may affect the lives of people.

Flooding in the city

Flooding in the countryside

Feeding livestock

Getting about in the countryside

Making essential deliveries

Coastal storm

Trees block roads

Getting about in town

Is our weather here in Northern Ireland really as bad as we think it is?
It's time to dig a bit deeper to get a better picture for ourselves!

Get Active 5.6

a) Check out the following websites. Record the weather extremes in a table (similar to the one below) for Northern Ireland, the United Kingdom and the world.
   - www.meto.gov.uk (weather and climate > past weather > United Kingdom > Northern Ireland)
   - www.meto.gov.uk/climate/uk/ (extreme weather)
   - www.dandantheweatherman.com/Pikanto/Worldrec.htm

b) What have you learned in this activity?

c) What surprised you most/least?

d) How does the climate of Northern Ireland compare to the United Kingdom and the world?

e) Is our weather really so bad?

	Northern Ireland	United Kingdom	World
Highest temperature			
Lowest temperature			
Highest rainfall in 24 hours			
Highest monthly sunshine			
Lowest monthly sunshine			

The weather forecast

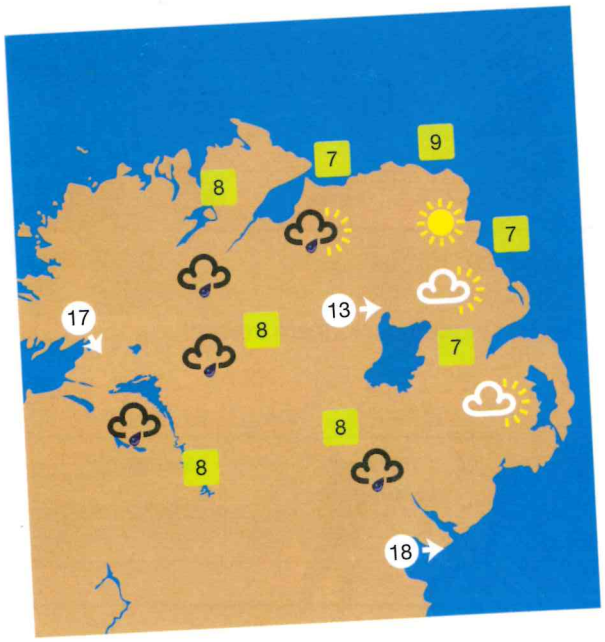
You can get a weather **forecast** for Northern Ireland from many sources: television, radio, newspaper and the internet. Below are various different weather forecasts for the same day in Belfast.

Today 2nd January 2007

7°		High 7°	Humidity:	87%
11:50 GMT Tue	Light Rain Shower	Low 6°	Wind:	W/26 km/h
			Visibility:	9.99 km
			Dewpoint:	5°
			Barometer:	Unknown
			Sunrise:	8:46
			Sunset	16:09

Source: www.yahoo.com

The weather for Northern Ireland on 2 January 2007



Source: BBC

Headline:
Showers at first, then mainly dry and bright. Cold. Windy.

Today:
Still some showers at first with snow on high ground. Showers soon dying out then dry and bright with sunny spells developing. It'll feel cold in the strong north westerly wind. Maximum temperature 7 °C.

Tonight:
Cloudy and becoming much milder overnight with outbreaks of rain. The rain will become heavy at times in north west but light and patchy elsewhere. Strong to gale force south westerly winds. Minimum temperature 5 °C.

Source: BBC

Northern Ireland Weather 02 January 2007

Latest observations: UK – 1100 on 2 Jan 07

Location	Weather	Temp	Wind		Vis	Pressure/trend
			Dir	Speed		
Belfast (Aldergrove)		7.4 °C	WNW	14 mph	11 km	1022/Rising

Source: www.metoffice.gov.uk

Get Active 5.7

a) Look at the weather forecasts above and opposite. In what ways are the various weather forecasts similar and different?
b) Which elements of the weather are mentioned in all of the weather forecasts?
c) What symbols are used to represent the different weather conditions being predicted?
d) Which weather forecast do you like best? Why is this?
e) Which weather forecast is the most difficult to understand and of least interest to you? Why is this?

How accurate is the weather forecast?

Lots of people depend on the daily weather forecast and many need to be confident that the weather forecast is accurate. Can you think who these people might be?

Get Active 5.8

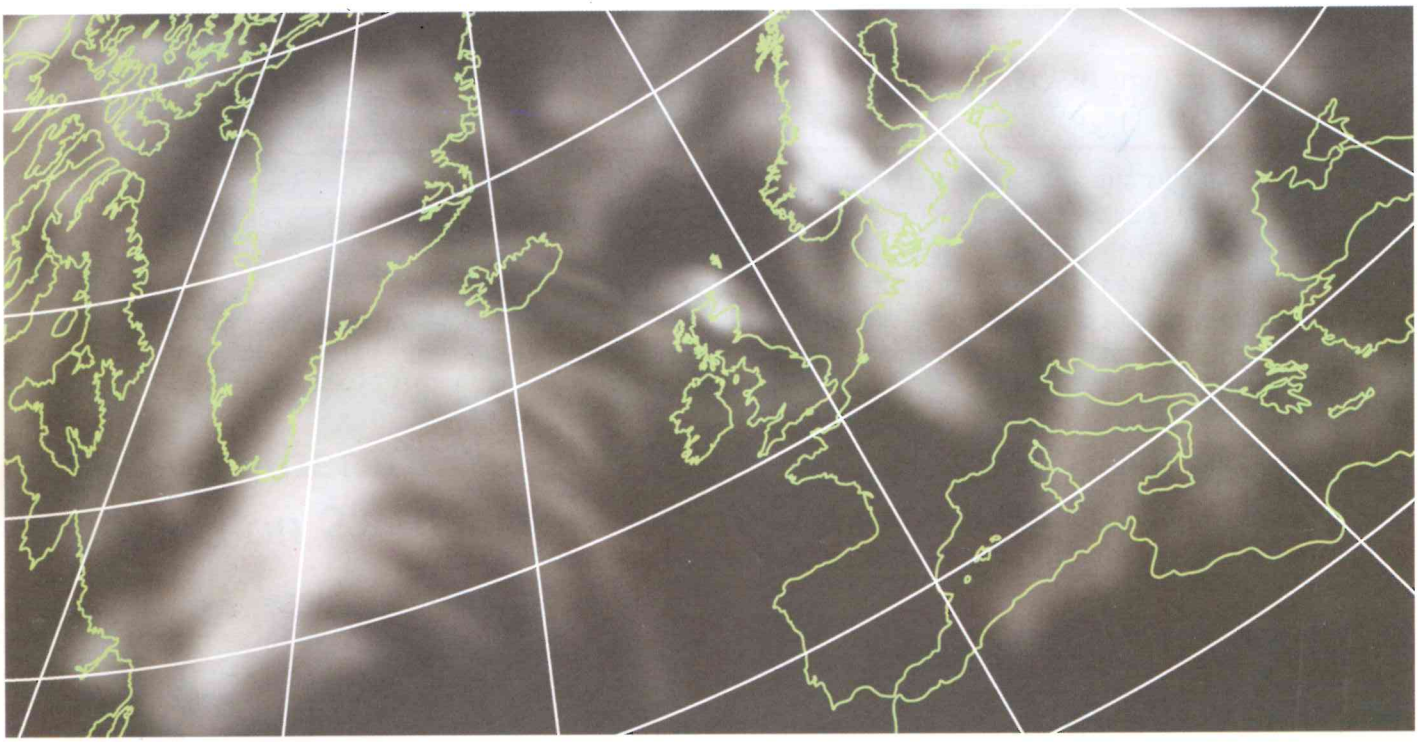
a) Make a list of three people who depend on the weather forecast and say why it is so important to them.
b) Look at the weather forecast for Northern Ireland. (You may choose to use television, radio, newspaper or the internet.) Create a simple table to record what the weather forecast predicts. Include:
   - the date and details of temperature (maximum and minimum)
   - precipitation (rain, hail, sleet or snow)
   - wind speed and direction
   - amount of cloud cover and any other relevant details.

   This can be completed as a homework activity beforehand.
c) Describe the actual weather observed at your school on the day in question.
d) As a class, discuss how the weather forecast compared to reality:
   - Which parts, if any, of the forecast were correct?
   - Was the weather forecast completely wrong about anything that it predicted?
   - Are some weather forecasts more accurate than others?
   - What does this tell you about the nature of weather forecasts?
e) What might be some of the consequences of not having accurate weather forecasts? (What happens when the weather forecaster gets the forecast wrong?)

The Met Office and new technologies

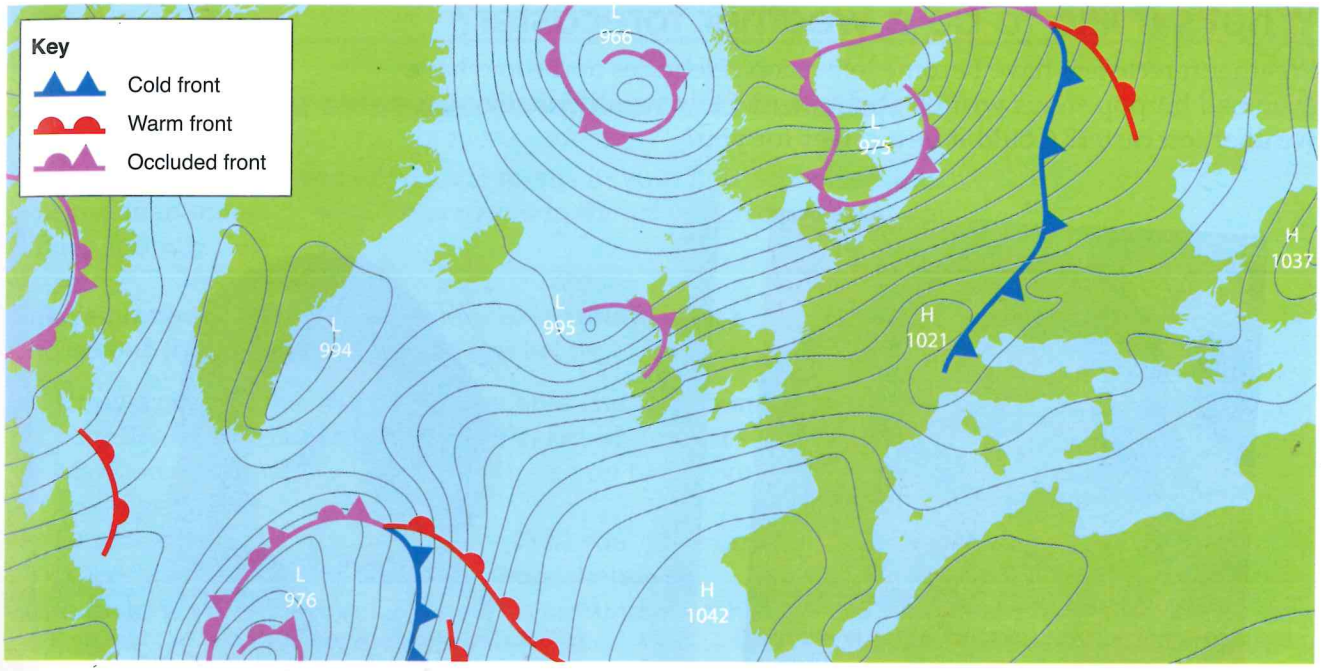
Today our weather forecasts are fairly accurate. Weather forecasters in the **Meteorological Office** examine **satellite images** like the one below (pictures taken from satellites that continually orbit the Earth), to track the movement of **air masses** and **fronts**.

This was the satellite image for Europe at midnight on 2 January 2007



Source: The Met Office

These satellite images are used with weather recordings taken at numerous weather stations on land, and also by very sensitive equipment carried on aeroplanes, weather balloons and ships. The information is used to draw **synoptic charts** (like the one on page 73), which show the weather conditions at a given time. Increasingly, computers are doing most of this work.



A synoptic chart for Europe, recording the weather timed at midnight on 2 January 2007

Get Active 5.9

a) On a copy of the satellite image on page 72 write the following labels:
   1. A line of cloud stretching from the tip of North Africa, through Eastern Europe to Scandinavian countries.
   2. A large band of cloud in the Atlantic Ocean.
   3. Thick cloud over the Alps.
   4. Clearer skies over Spain and Portugal.

   Use an atlas to help you if necessary.

b) Study the satellite image and the synoptic chart above and state whether these statements are **true** or **false**.
   1. Much of the British Isles and Ireland is covered with thick cloud.
   2. It is likely to be raining in northern Scotland.
   3. There is no cloud over the Atlantic Ocean.
   4. Where there are no clouds – it must be warm and sunny.
   5. To the west of Ireland is a ridge of high pressure.
   6. This ridge of high pressure will bring a period of drier weather.
   7. Further to the west is the next depression.

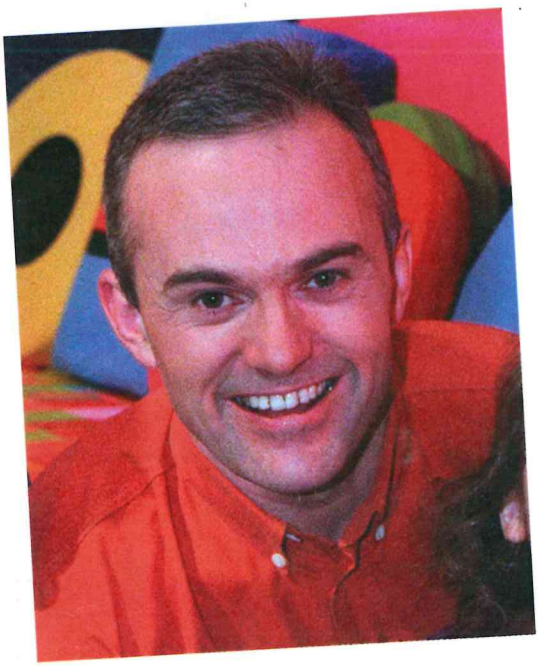
Extension

a) Find today's satellite image and synoptic chart for Europe:
   www.metoffice.gov.uk > weather > Europe weather > Latest > satellite.
   www.metoffice.gov.uk > weather > Europe weather > Forecast > pressure charts.

b) Print out a copy of both. Describe any similarities or differences between today's weather and that shown in the satellite image and synoptic chart here.

What's it like to be a weather forecaster?

Weather forecasters have become television celebrities and some have even had hit pop songs written about them. How would you like to be a weather forecaster? Could it be a career for you?



Frank Mitchell, ITV weather reporter

Angie Philipps, BBC weather reporter

Get Active 5.10

Work in groups.

a) You will have to produce a 30-second television weather forecast for Northern Ireland. To do this you will need to:

- watch and listen to television weather forecasts
- discuss how the weather forecaster goes about presenting the weather forecast (using maps, places, symbols, language)
- research what the weather is going to be like in Northern Ireland in the coming few days
- make a **storyboard** for your presentation
- write a simple script for the weather forecast
- include a suitable map with place names and weather symbols
- agree the criteria that makes a good weather forecast.

b) Present your weather forecast to the rest of the class. Record your weather forecast on video.

c) Judge the presentation using the agreed criteria.