

YEAR 6 GEOGRAPHY NOTES

These notes are to be viewed and used as back up to your lesson work. They contain the major areas we have studied – your own lesson notes have the finer details and the specific case studies, such as the Boscastle flood....etc.

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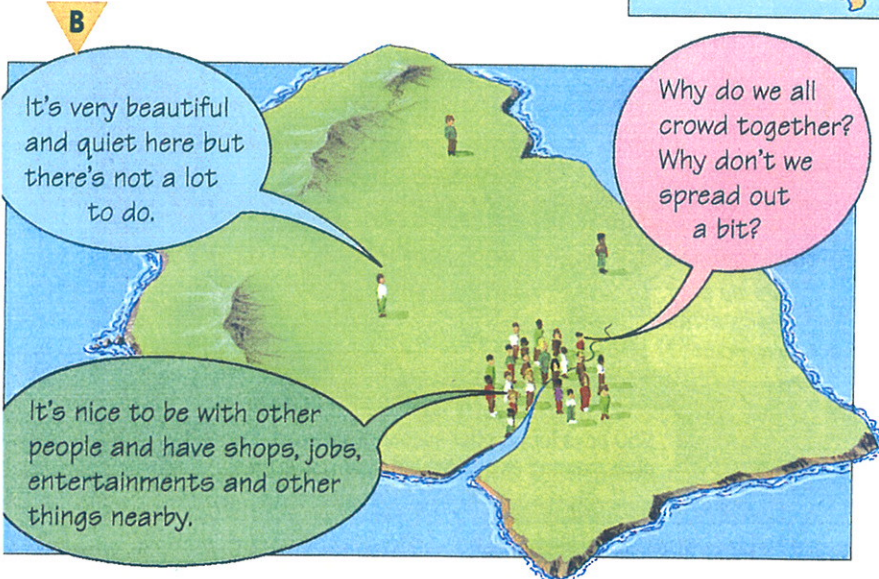
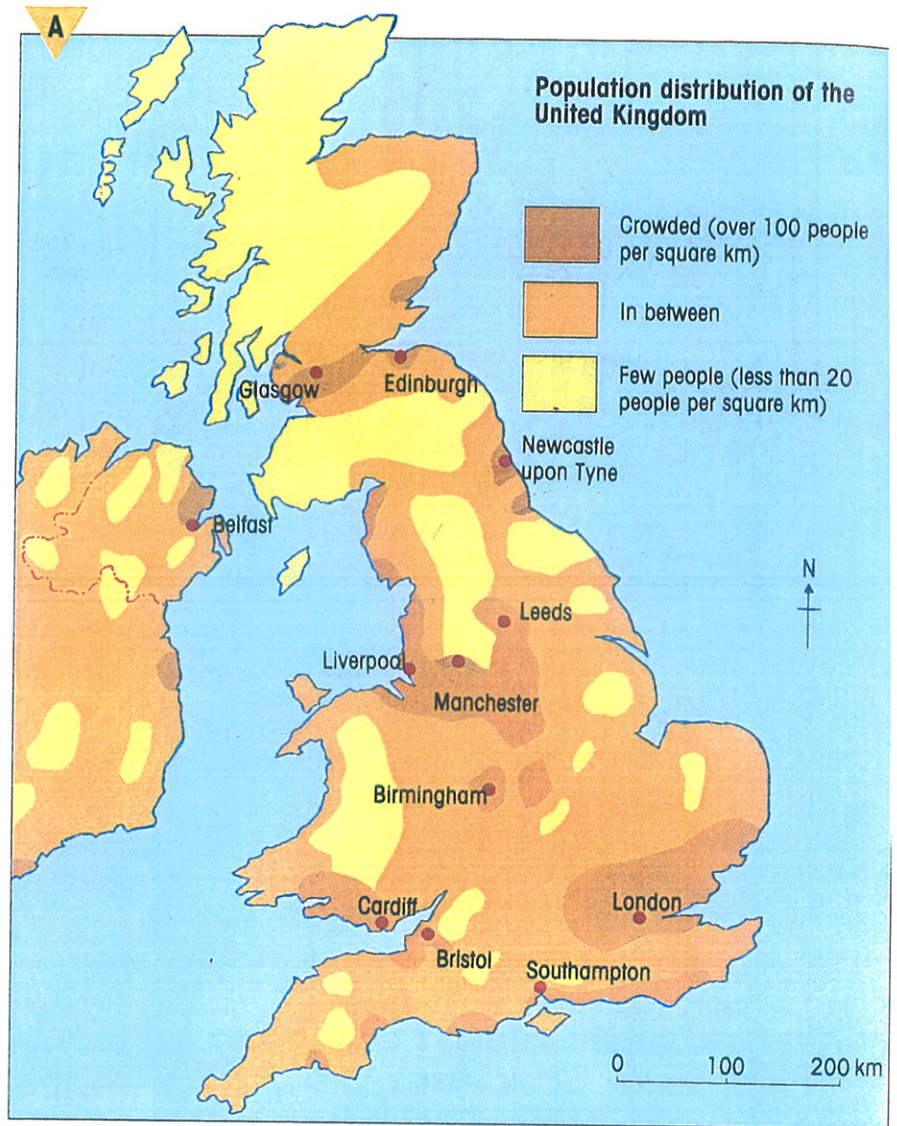
5 Population

Are we evenly spread?

There are about 57 million people in the United Kingdom but where do they all live? Map A shows this. It is a **population distribution** map and shows how people are spread out across the country. You can easily see that the population is not evenly spread out. There are some areas with a lot of people and some with very few. The south and east seem to be most crowded, and the north and west the least crowded.

The map uses **density** to show how crowded places are. Density is the number of people in an area. It is worked out by dividing the total population by the total area and is usually given as the number of people per square kilometre. Places that are crowded are said to be **densely populated** and to have a high population density. Places with few people are said to be **sparsely populated** and to have a low population density.

The most crowded places of all are towns and cities. In Britain today almost 9 out of 10 people live in a town or city. Some towns and cities are shown on map A and in table C. London is by far the largest and most densely populated city in the United Kingdom. Almost 7 million people live there, and in the most crowded inner city areas there are up to 10,000 people in a square kilometre.



C

Population of some cities in Britain
(figures are in thousands)

Belfast	297	Leeds	724
Birmingham	1,008	Liverpool	474
Bristol	399	London	6,967
Cardiff	414	Manchester	431
Edinburgh	444	Newcastle	284
Glasgow	680	Southampton	212

Note: Some of these cities are part of larger urban areas with populations greater than those given in the table. Figures are for 1994 (estimated).

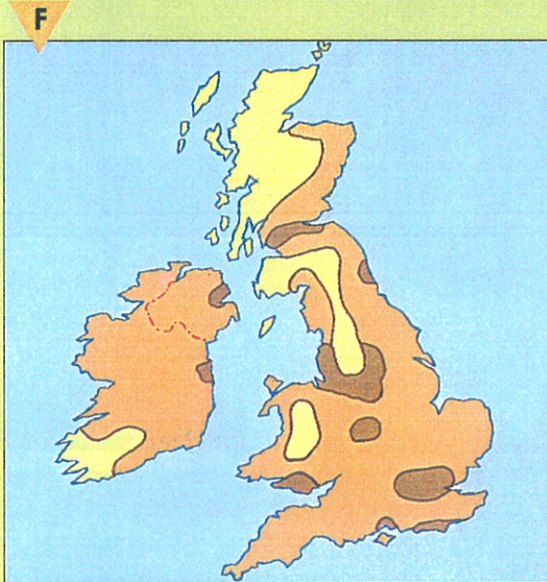
Photos **D** and **E** show places with very different population densities. Photo **D** is a typical city scene with many buildings, plenty of activity and a lot of people. Photo **E** was taken in Scotland. It shows part of the Highlands, a beautiful but sparsely populated area in the north.

Can you think why one place is crowded whilst the other has very few people? What is the area like where you live – is it crowded or is it sparsely populated? Can you suggest why it has that population density?



Activities

- Copy and complete these sentences.
 - A **population distribution** map shows . . .
 - Population density** tells us . . .
 - Densely populated** means that . . .
 - Sparsely populated** means that . . .
- Map F shows the spread of population in Britain.
 - Make a copy of the map and complete the key.
 - Write a paragraph to describe the distribution of population. Include the following words in your description: *spread • unevenly • south and east • densely • north and west • sparsely*
- List the cities from table C in order of size. Give the biggest first.
 - Give three advantages of living in cities.
- Look at sketch B and think carefully about what people need to live their everyday lives.
 - Study photo D and make a list of the things that would help people to live there.
 - Study photo E and suggest why very few people live in that area.



EXTRA

Draw a bar graph to show the number of people in each of the cities in table C.

- Arrange the bars in order of size with the biggest on the left.
- Use different colours for the cities in England, Scotland, Wales and Northern Ireland.
- Give your graph a title.

Summary

People are not spread evenly over Britain. Some areas are very crowded whilst others are almost empty. Population density is a measure of how crowded an area is.

What affects where we live?



Not only is the distribution of population uneven in Britain, but it is uneven throughout the world. There are now over 5,000 million people in the world yet most of them live on only a third of the land surface. Like Britain, some areas are very crowded and others are almost empty.

There are many reasons for this. People do not like to live in places which are too wet or too dry, too hot or too cold. Nor do they like places that are mountainous, lack vegetation, are densely forested or liable to flood. People prefer pleasant places in which to live. They want to be able to earn money by working and have food available

through farming or from shops. They like to be near to other people and have things to do and places to go.

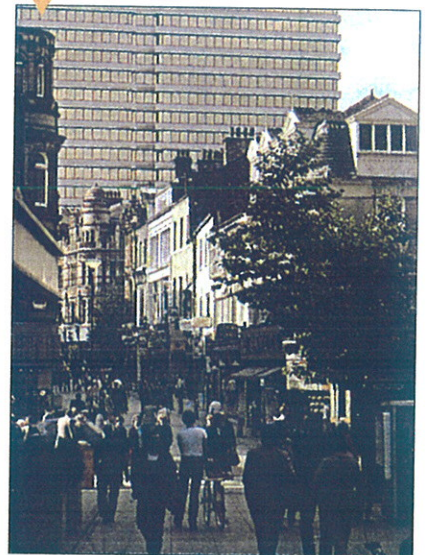
Factors that discourage people from settling in an area are called **negative factors**. Factors that encourage people to live in an area are called **positive factors**. Some of these are shown in the photos below and in diagram **G** on the next page.

Look carefully at the photos and for each one in turn try to work out why it is likely to be either a densely populated area or a sparsely populated area.

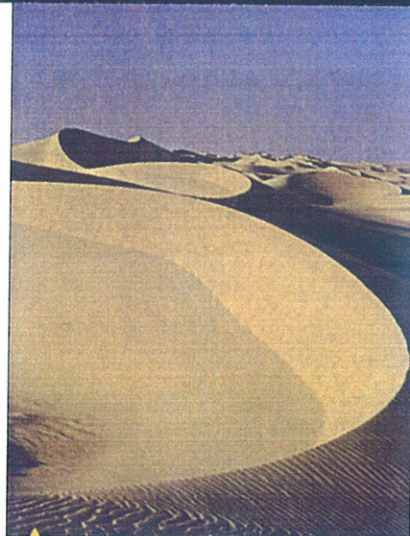
B Amazon Forest



C Western Europe



A Himalayan Mountains



D Sahara Desert



E Polar regions – Antarctica

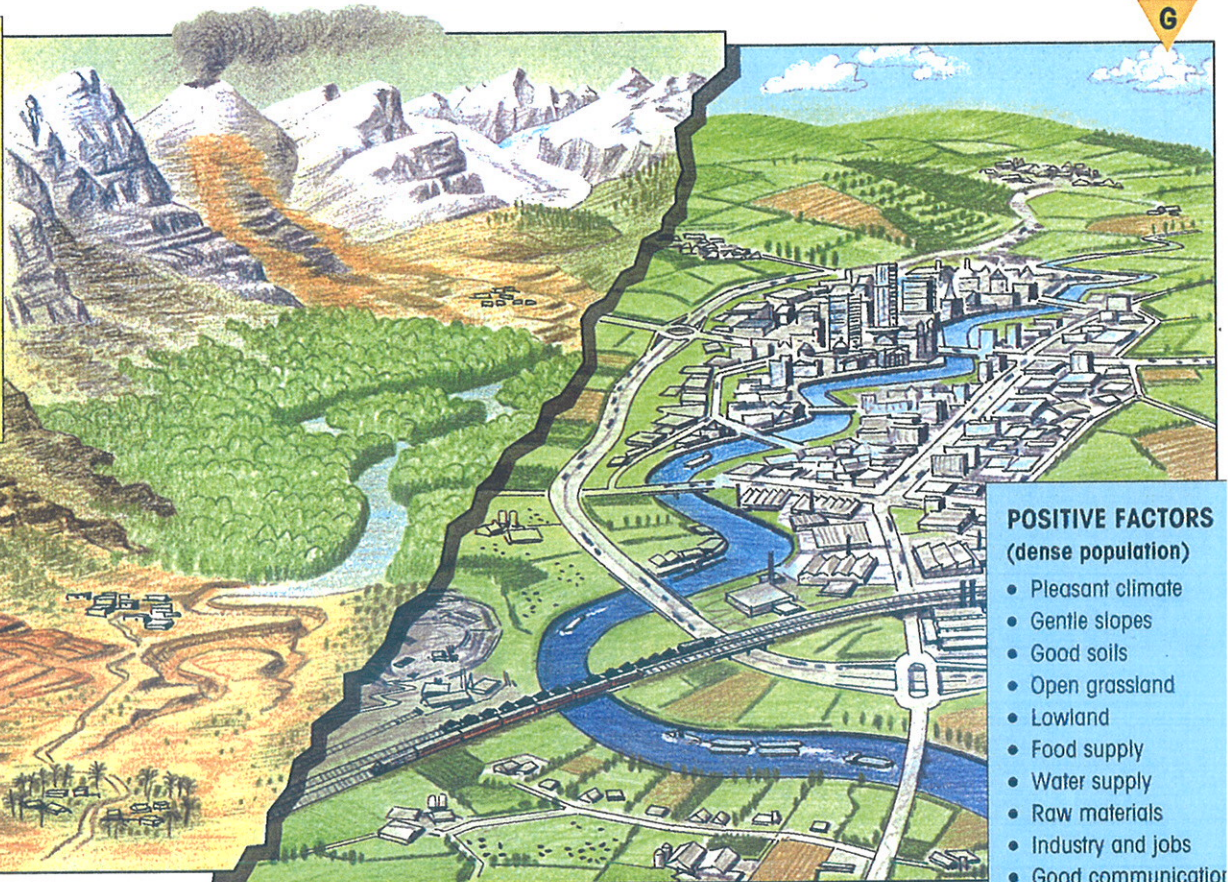


F Bangladesh

G

NEGATIVE FACTORS
(sparse population)

- Very cold
- Steep slopes
- Poor soils
- Dense forest
- Very hot
- Very dry
- Poor water supply
- Few raw materials
- Little industry
- Not many jobs



POSITIVE FACTORS
(dense population)

- Pleasant climate
- Gentle slopes
- Good soils
- Open grassland
- Lowland
- Food supply
- Water supply
- Raw materials
- Industry and jobs
- Good communication

Activities

- Which one of the photos A to F does this list of words and phrases best describe:
steep slopes • snowy • icy • very cold • mountainous • no soil • no industry • very few people?
 - Which of these could be used to describe photo F:
hot • cold • wet • dry • steep • level • poor soils • good farming • factory work • many people • sparse population?
 - Imagine that you are passing through the desert in photo D. Make a list of words and phrases to describe what it would be like. Try to give at least **eight** different things.

2 Draw table H and put the following into the correct columns:

flat land	mountains	dense forest	lowland	deserts
open grassland	good farming	deep, rich soils	thin, poor soils	unreliable water supply
				poor farming
				job opportunities

Sparsely populated (negative factors)	Densely populated (positive factors)

- Give **two** reasons why few people live in
 - mountain areas
 - desert areas.

E X T R A

Is the place where you live crowded or sparsely populated? What are the reasons for this? List the factors from diagram G which affect your area. Add any others that you think are important.

Summary

The way people are spread across the world is affected by many different things. These include relief, climate, vegetation, water supply, raw materials and employment opportunities.

Where do we live?

The photo-map below is quite remarkable. It is made up from more than 37 million satellite images carefully put together to give a picture of the world. The red dots have been added to show the distribution of population. Look carefully and you can see many of the world's major features. The cold **polar regions** show up as white. The densely forested parts of South America and Africa are a lush green. The areas that are dry and lacking vegetation are shades of brown. Can you see the great mountain ranges? They show up as patches or streaks of white.

The map also confirms how unevenly people are spread over the world. Vast areas have hardly any people living in them whilst other areas seem to be very crowded. Try to name some of the emptiest places. Places with a lot of people include parts of Western Europe, India, China and Japan. Where else in the world does the photo-map show that there are a lot of people?

Photos of the six areas described below are shown on page 86.

A

Amazon Forest
 Too hot and wet for people.
 Dense forest makes communications and settlement difficult.
 Sparsely populated.

Western Europe
 Low-lying and gently sloping.
 Pleasant climate.
 Good water supply and soil for farming.
 Easy communications and many resources for industry.
 Densely populated.

Himalayan Mountains
 Too cold for people.
 Steep slopes are bad for communications and settlement.
 Poor, thin soil unsuitable for crops.
 Sparsely populated.

Polar regions – Antarctica
 Too cold for people.
 No soil for crops.
 Snow and ice make communications and settlement very difficult.
 Sparsely populated.

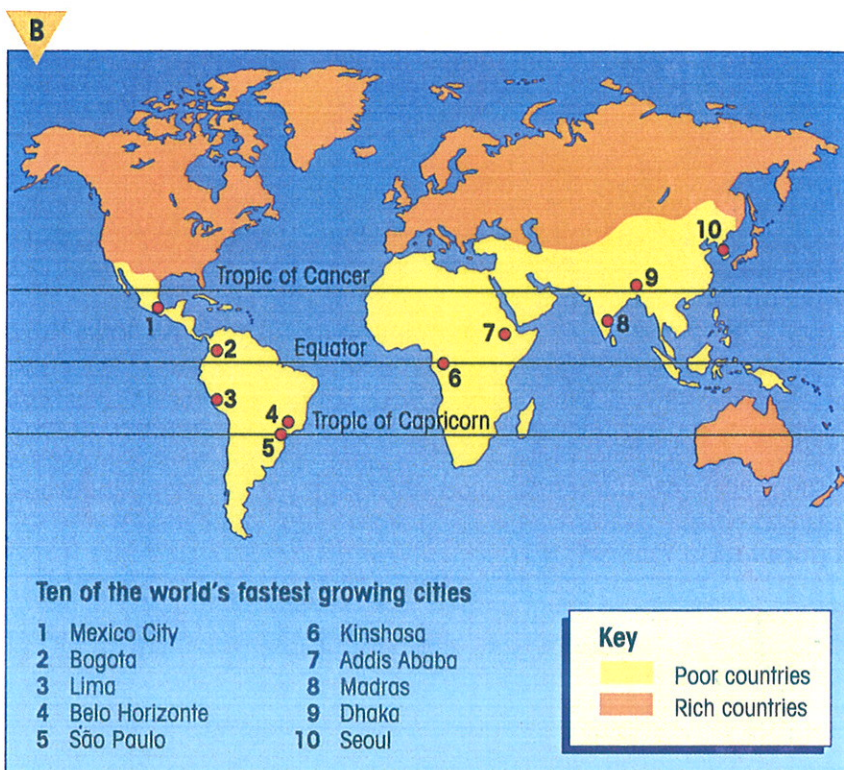
Sahara Desert
 Too hot and dry for people.
 Too dry and too little soil for crops to grow.
 Sand makes communications difficult.
 Sparsely populated.

Bangladesh
 Low-lying and flat.
 Rich, fertile soil. Hot and wet.
 Ideal farming conditions.
 Densely populated.

Cities are very popular places in which to live. They can provide housing, jobs, education, medical care and a better chance of getting on and enjoying life. More than half the world's population now live in cities and the number is increasing all the time.

The fastest growing cities tend to be in the poorer countries. Here, the urban population is expected to double in the next ten years. This will produce some very large cities.

One of these, Mexico City, is expected to overtake Tokyo, and become the largest city in the world by the year 2005. By then it will have a population of more than 33 million. At present its size is increasing by over half a million people a year. That is the same as all the inhabitants of Liverpool or Edinburgh suddenly arriving in Mexico City in a single year. Think of the problems that such a rapid increase must cause.



Activities

1 Copy and complete the sentences below using the following words:

densely uneven sparsely
deserts polar regions

- The distribution of population over the world is _____.
 - The areas with the fewest people are the dense forests, _____ and _____.
 - Mountainous areas are _____ populated.
 - Areas with good resources and industry are _____ populated.
- 2 Give named examples of:
- four densely populated areas
 - six sparsely populated areas.

3 Which of the fastest growing cities are in:

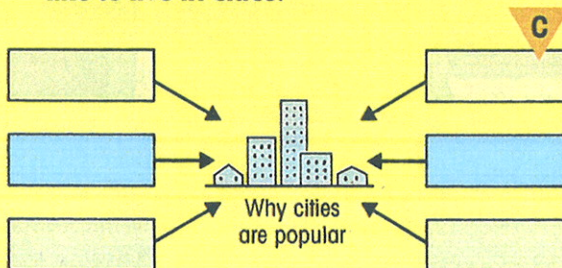
- South America
- Africa
- Asia?

- 4 Of the eight statements given below, three are correct. Write out the correct ones. The ten fastest growing cities are
- in poor countries.
 - in rich countries.
 - mainly in polar regions.
 - mainly between the tropics.
 - on the coast.
 - spread all over the world.
 - in one continent.
 - in South America, Africa and Asia.

5 Copy star diagram C and complete your diagram to show six reasons why people like to live in cities.

EXTRAS

- Use an atlas to name a country for each of the fastest growing cities in map B.
- With help from an atlas, try to find out why central Australia is sparsely populated and east and south-west USA are densely populated.



Summary

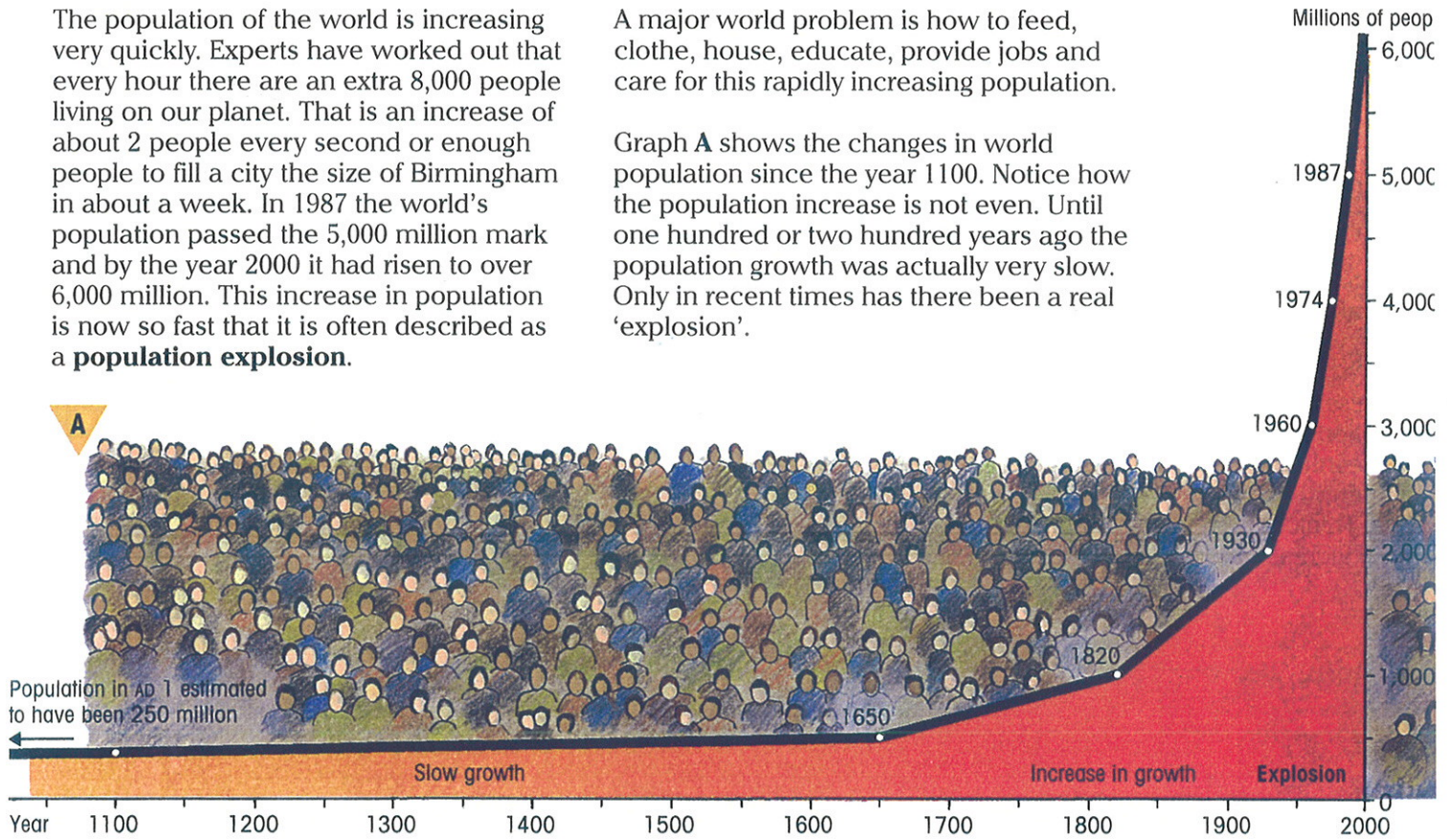
People are not spread evenly over the world. Some of the most crowded places are in China, India, parts of Western Europe, and some areas of Africa and the USA. More and more people in the world are living in cities.

How does population change?

The population of the world is increasing very quickly. Experts have worked out that every hour there are an extra 8,000 people living on our planet. That is an increase of about 2 people every second or enough people to fill a city the size of Birmingham in about a week. In 1987 the world's population passed the 5,000 million mark and by the year 2000 it had risen to over 6,000 million. This increase in population is now so fast that it is often described as a **population explosion**.

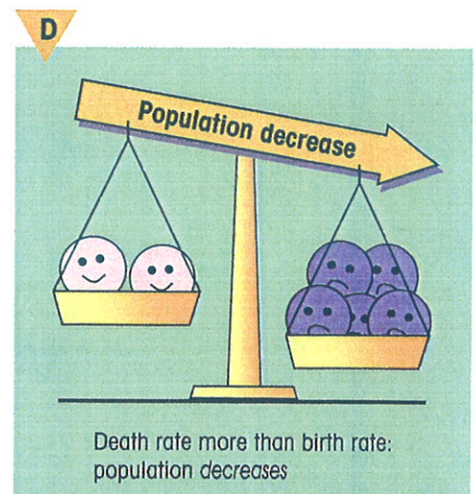
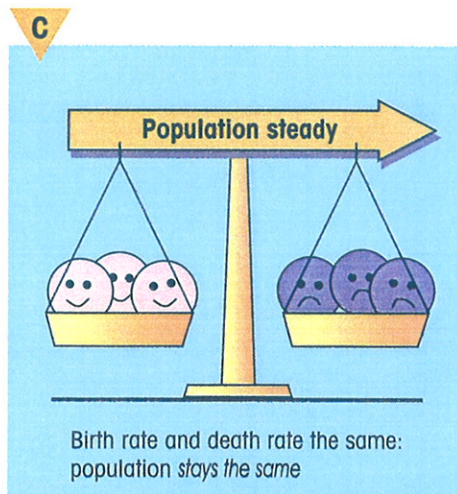
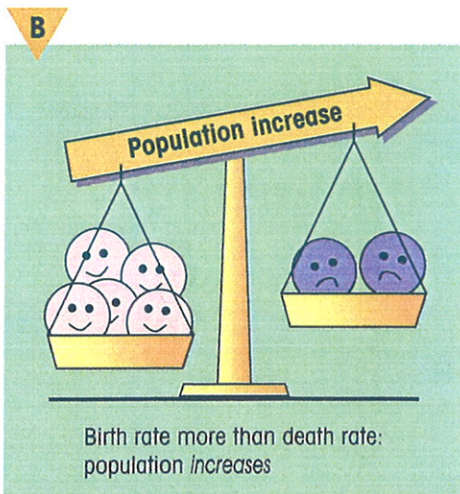
A major world problem is how to feed, clothe, house, educate, provide jobs and care for this rapidly increasing population.

Graph A shows the changes in world population since the year 1100. Notice how the population increase is not even. Until one hundred or two hundred years ago the population growth was actually very slow. Only in recent times has there been a real 'explosion'.



Population increases when the number of babies being born is greater than the number of people dying. The number of babies being born each year is called the **birth rate**. The number of people who die each year is called the **death rate**. Birth rates and death rates are measured as the

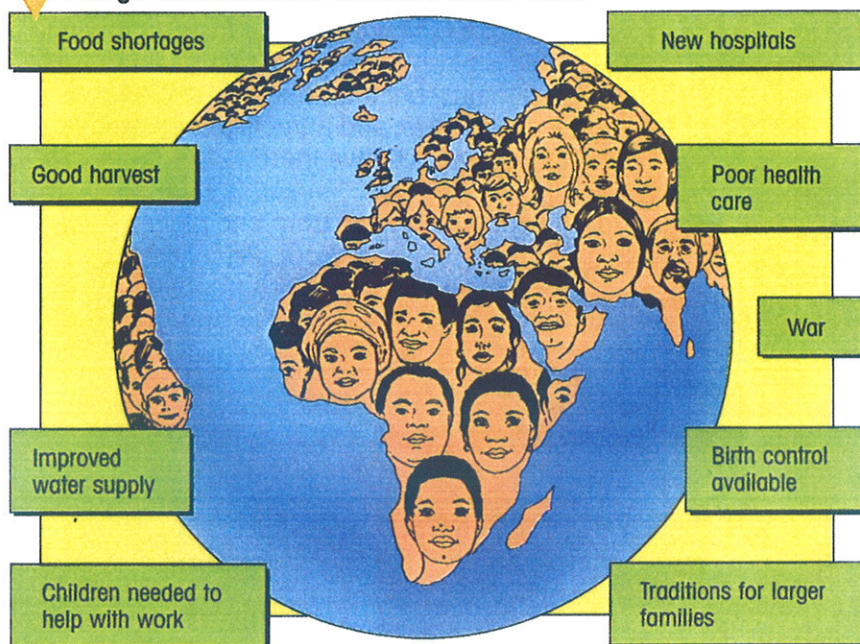
number of births and deaths for each 1,000 of the population. The speed at which the population increases is called the **population growth rate**. Diagrams B, C and D show how the balance between births and deaths affects the population growth.



The population growth rate is not the same for all countries. In some, like Britain, the difference between birth and death rates is small so the population is changing only very slowly. In other countries, like Bangladesh, there are big differences between birth and death rates so the population is increasing rapidly.

Table E shows birth and death rates for some countries. Remember, the greater the difference between births and deaths, the larger the population change will be.

F Things that can affect birth and death rates



E

Country	Birth rate	Death rate	Natural increase
Bangladesh	41	14	27
Brazil	26	8	18
China	21	7	14
France	13	10	3
India	31	10	21
Italy	11	10	1
Japan	12	8	4
Mexico	27	5	22
UK	14	12	2
USA	14	9	5

(1994)
 • Figures given per 1,000 people.
 • Poorer countries are shaded yellow.
 • **Natural increase** is the difference between birth and death rates.

Activities

- 1 a) When did the world's population reach 1,000 million?
- b) How long did it take to double to 2,000 million?
- c) How long did it take to double again to 4,000 million?

- 2 Describe the increase in world population shown in graph A.
- 3 a) Write a sentence to explain what each of the following terms means.
 - Birth rate
 - Death rate
 - Population growth rate
- b) Why is 'explosion' a good description of population changes since 1950?
- 4 Copy and complete table G below by writing **increase**, **same** or **decrease** in the last column.

G

Births	Deaths	Population change
→	→	
→	→	
→	→	
→	→	

EXTRAS

- 1 Draw table H below and from diagram F sort the things that affect birth rates and death rates into the correct columns.

H

Birth rate		Death rate	
High	Low	High	Low

- 2 Suggest **three** reasons why people in the UK may be more likely to live longer than people in poorer countries.

- 5 a) List the countries from table E by the size of their natural increase. Put the one with the greatest increase first.
- b) What do you notice about the richer and the poorer countries?

Summary

The world's population is increasing at a very rapid rate. Growth is very much faster in the poorer countries than in the richer ones. Population changes in a country depend mainly on the birth and death rates.

How does it rain?

The Atacama Desert in South America has had no rain for over 400 years yet parts of the Amazon rain forest, also in South America, have rain on more than 330 days each year. Seathwaite in the Lake District, the wettest place in England, has on average 3,340 mm of rain per year, whilst Newcastle, only 130 km away, may expect just 630 mm.

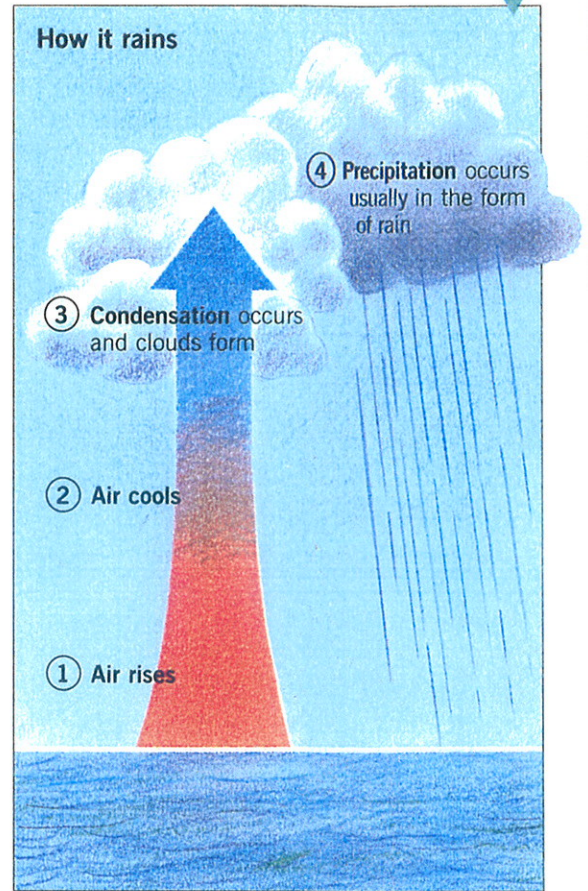
What are the reasons for this, what causes rain and why are some places wetter than others?

Clouds are made up of extremely tiny drops of moisture called **cloud droplets**. They are only visible because there are billions of them crowded together in a cloud.

Clouds form when moist air rises, cools and changes into cloud droplets. This is **condensation**. A cloud gives rain after these tiny cloud droplets grow thousands of times larger into raindrops which then fall to the ground.

Look at diagram A. It shows how rain is formed. The process is always the same: air rises, cools, condenses and precipitates.

Air can be forced to rise in three different ways. This gives the three main types of



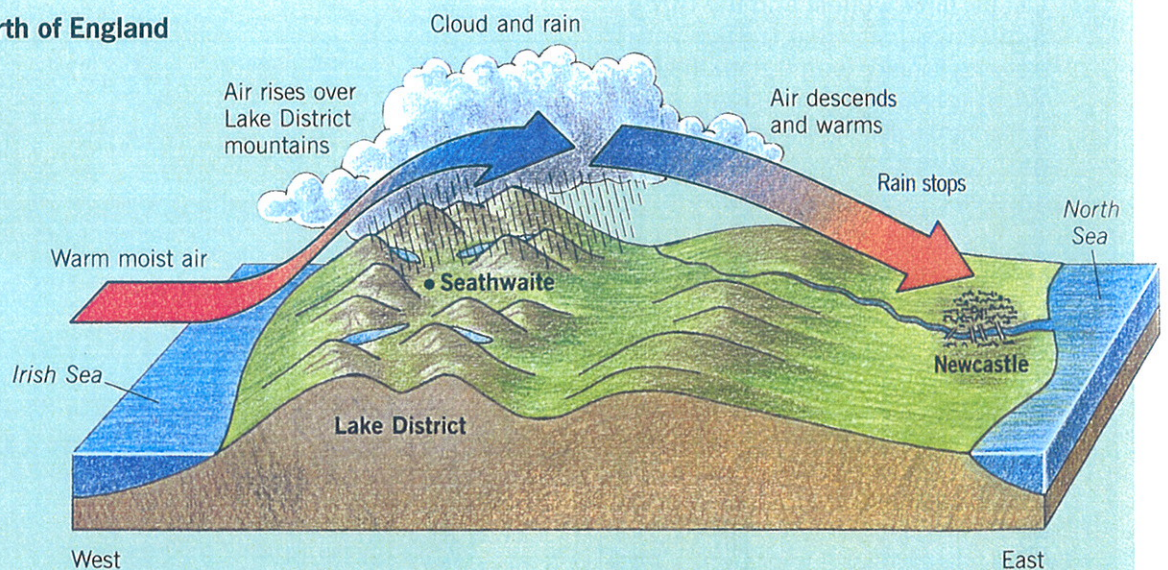
rainfall: **relief**, **convective**, and **frontal**. These are shown in diagrams B, C and D.

B

Relief rainfall in the north of England

Relief rainfall occurs when moist air is forced to rise over mountains. As it rises it cools and the rainmaking process shown in diagram A comes into operation.

Relief rainfall is quite common in Britain especially in the west where most of the high land is located.



C

Convictional rainfall

Labels in diagram: Sun, Clouds and rain, Rising air cools, Warm air rises, Ground warmed by sun.

When the ground surface is heated by the sun, the air above it is warmed up. This air rises and as it cools down clouds form and rain follows. The showery weather and thunderstorms of a British summer are this type of rainfall.

D

Frontal rainfall

Labels in diagram: Clouds and rain, Warmer, lighter air rises over heavier, colder air, Rising air cools, Warm air, Cold air.

When a mass of warm air meets air at a lower temperature, it rises up and over the colder, heavier air. Once it is made to rise, cloud and rain will follow due to the process shown in diagram **A**.

The place where warm air and cold air meet is called a **front**. Frontal rainfall is very common in Britain throughout the year and especially in winter.

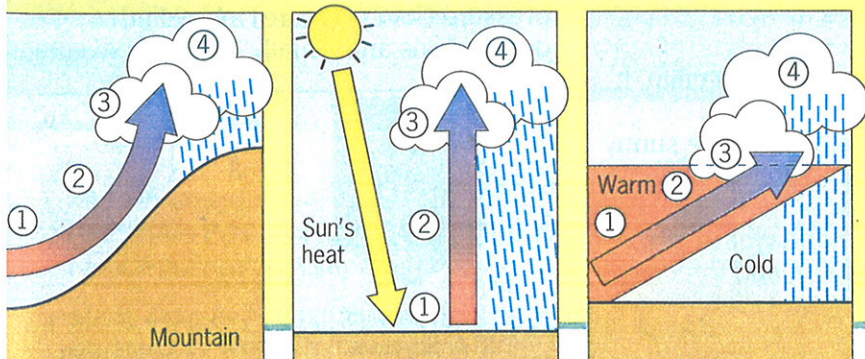
Activities

- 1 Match the beginnings of these labels to their correct endings.

Clouds are	rain, snow and other forms of moisture in the sky.
Precipitation is	when water vapour changes to water.
Condensation happens	made up of tiny drops of moisture called cloud droplets.
- 2 With the help of a labelled diagram, describe how it rains.
- 3
 - a) Make larger copies of the three diagrams below.
 - b) For each diagram explain how it rains by adding labels at points ①, ②, ③ and ④.
 - c) Add colour to make your diagrams clearer.
 - d) Underneath each of your diagrams give a brief reason for the air rising.
 - e) Give each diagram a title.
- 4 Explain why Seathwaite is wetter than Newcastle. Use diagram **B** to help you.

Summary

Rain is caused by moist air rising and cooling. The three types of rainfall produced in this way are relief, convectional and frontal.

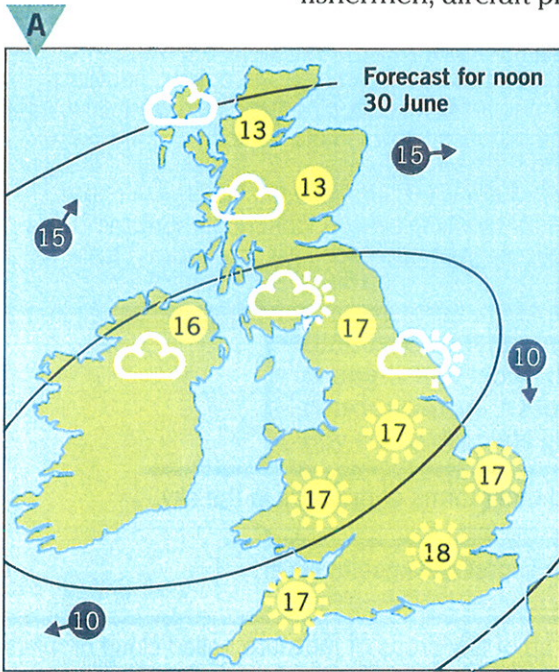


Forecasting the weather — anticyclones

Weather has an important effect on our lives. Every day in the newspapers and every evening after the television news there is a **weather forecast**. Forecasts can tell us in advance what the weather will be. For many of us they are of passing interest but for some people such as farmers, fishermen, aircraft pilots and builders the

forecasts are very important because the weather affects their work and even their safety.

Map A is a typical newspaper weather map. Notice how easy it is to read the weather using the picture symbols.



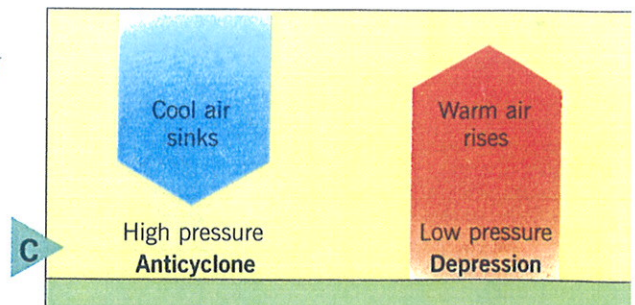
B Satellite photo of an anticyclone

How do weather forecasters know what the weather will be like tomorrow? How can they tell if it will be wet or dry, or hot or cold?

Forecasting is very complicated and lots of information and advanced computers are needed to make good forecasts. In recent times, satellites have become particularly useful because they can see weather systems many kilometres away.

Photo B has been taken from a satellite. It shows Britain with very little cloud overhead and clearly enjoying a fine sunny day. Photos like these are taken every few hours and by looking back over several of them, the movements of the weather systems can be worked out, and forecasts made.

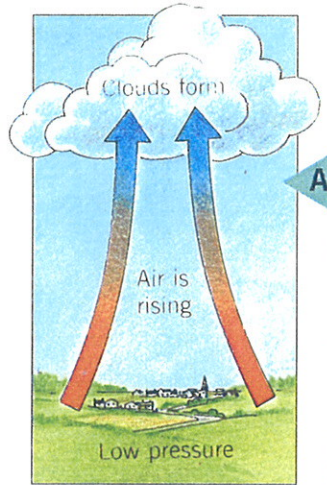
The weather system in photo B is an **anticyclone**. It occurs because of changes in the air pressure. The weight of air pressing down on us from above is called pressure. This pressure varies from place to place and results in the development of pressure systems. Areas with above average pressure (high pressure) are called anticyclones and usually give good weather. Areas with less than average pressure (low pressure) are called depressions and usually give poor weather.



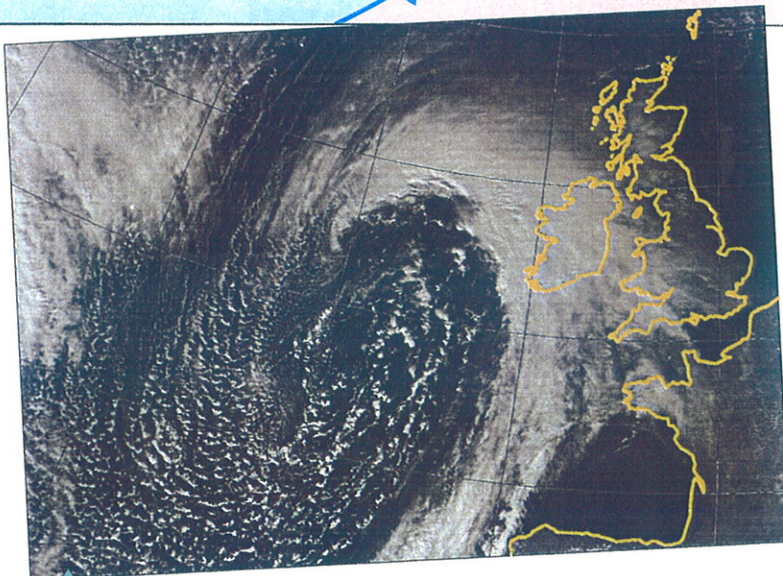
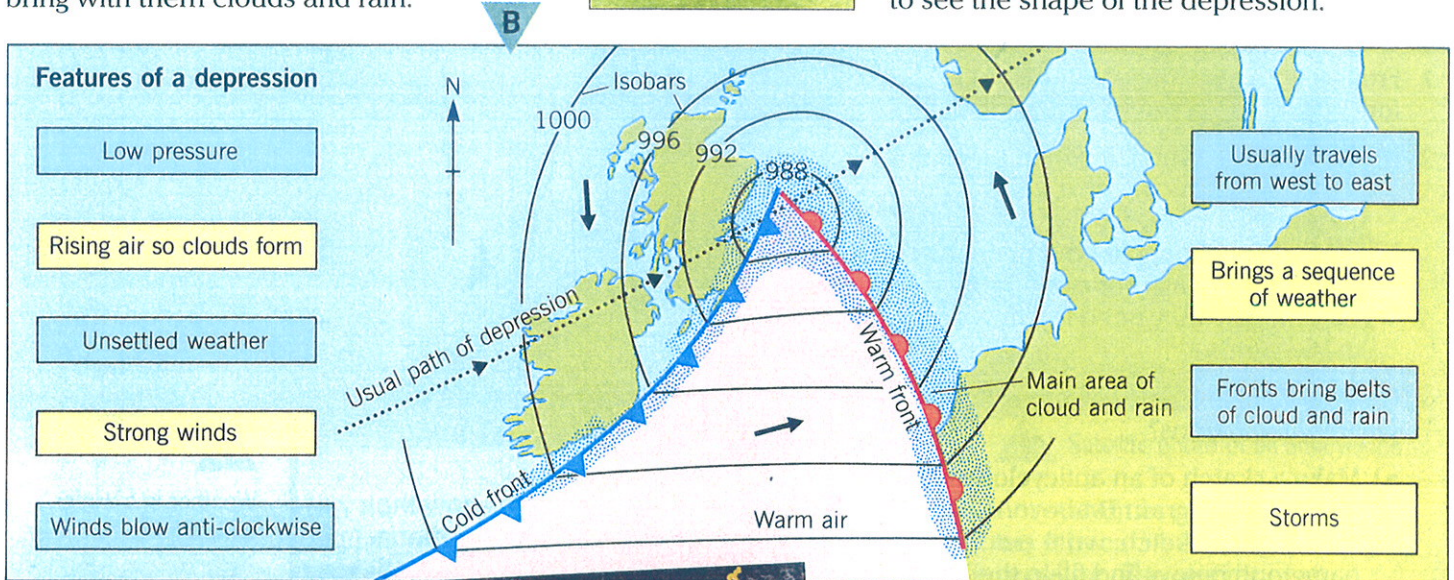
Forecasting the weather – depressions

All too often we seem to hear the weather forecast begin with ‘Today will be cloudy, and rain already in the west will spread eastwards to cover all areas by late afternoon . . .’. The reason for this is that for much of the year Britain is affected by low pressure.

As diagram A shows, at times of low pressure the air is usually rising. As it rises it cools, condenses and clouds form. Low pressure areas are called **depressions**. Depressions are the most important weather systems affecting Britain and they bring with them clouds and rain.



Depressions develop where warm air meets cold air. The boundary of the two different air types is called a **front**. Along a front there will be cloud and usually rain. Diagram B shows the features of a depression. The isobars are lines that join up areas of equal pressure and they help us to see the shape of the depression.



C Satellite photo of a depression

Depressions are huge areas of low pressure measuring many hundreds of kilometres across. They show up very clearly on satellite photographs as great swirls of cloud that look like gigantic catherine wheel fireworks. The fronts are easily recognised as areas of thick white cloud arranged in an upside down ‘V’ shape. The centre of the depression is normally just above or a little behind the point of the ‘V’.

Look at photo C which shows a depression approaching Britain. Can you work out which areas are the fronts and where the centre of the depression might be? With help from diagram B can you work out which is the area of warm air? What sort of weather does that area seem to have?

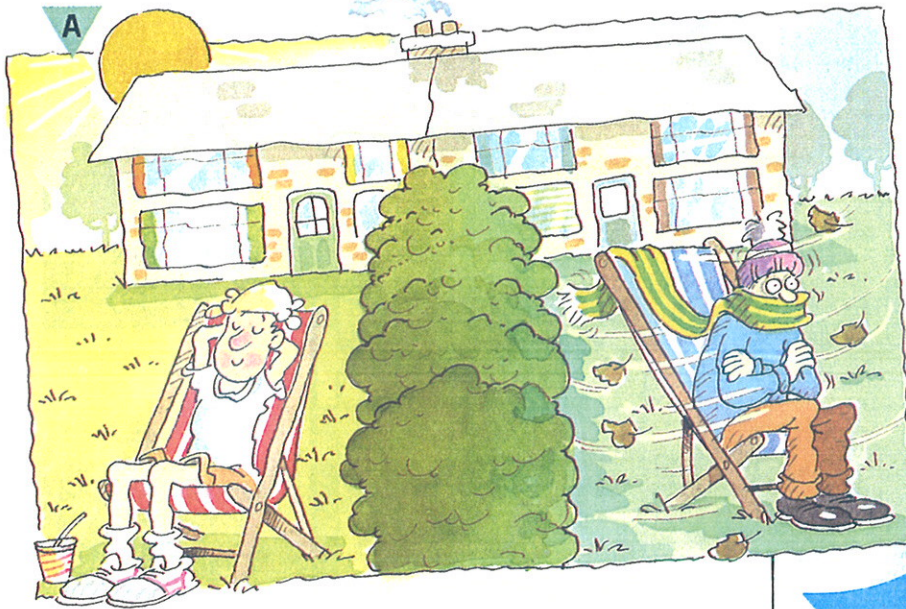
How can local features affect temperature and wind?

On a fine summer's day are some of the classrooms in your school hotter than others? When the sun shines or a cold wind blows, is one side of your classroom warmer or colder than the other? On a hot sunny day can you notice a difference in

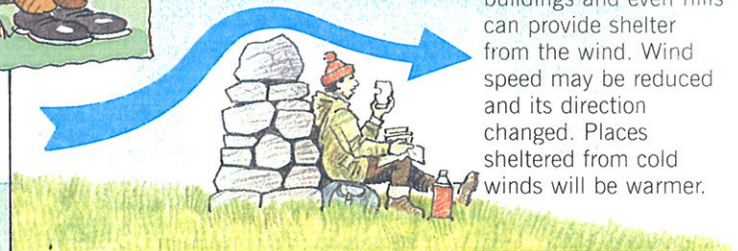
temperature between a dark, tarmac playground and a grassy area like the school field? Are there some sheltered places around your school where you can get out of the wind?

Look at cartoon A which shows how different the conditions can be on two sides of a hedge.

Each particular place or site tends to develop its own special climate conditions. When the climate in a small area is different to the general surroundings it is called a **microclimate**. Some of the causes of microclimates are given below.



B
Shelter



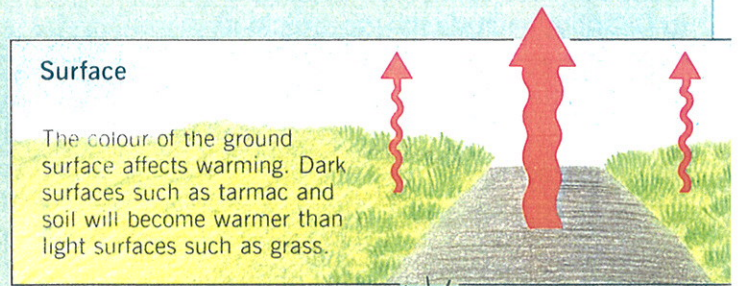
Physical features

Trees provide shade and shelter and are usually cooler than surrounding areas. Water areas such as lakes and seas have a cooling effect and may also produce light winds. Hill tops are usually cool and windy.



Surface

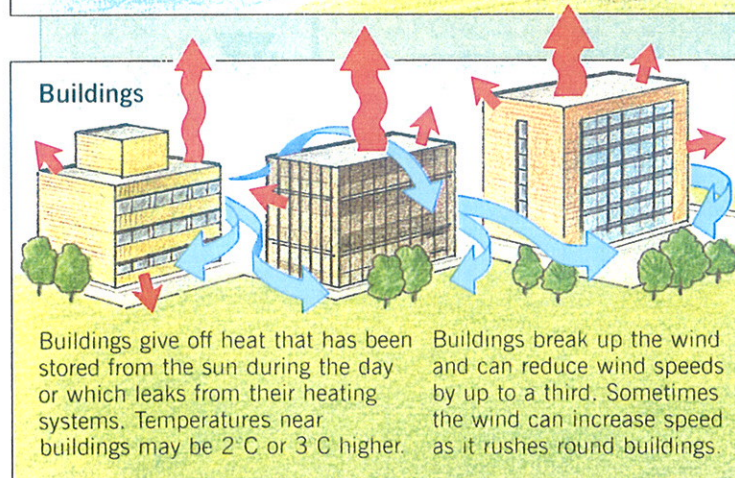
The colour of the ground surface affects warming. Dark surfaces such as tarmac and soil will become warmer than light surfaces such as grass.



Buildings

Buildings give off heat that has been stored from the sun during the day or which leaks from their heating systems. Temperatures near buildings may be 2°C or 3°C higher.

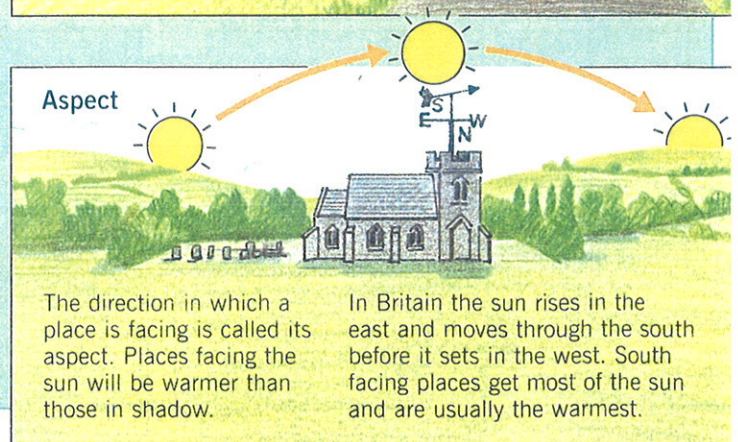
Buildings break up the wind and can reduce wind speeds by up to a third. Sometimes the wind can increase speed as it rushes round buildings.



Aspect

The direction in which a place is facing is called its aspect. Places facing the sun will be warmer than those in shadow.

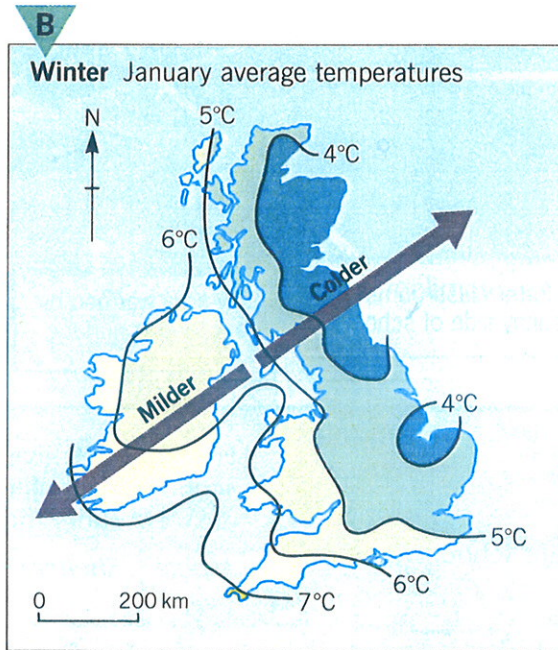
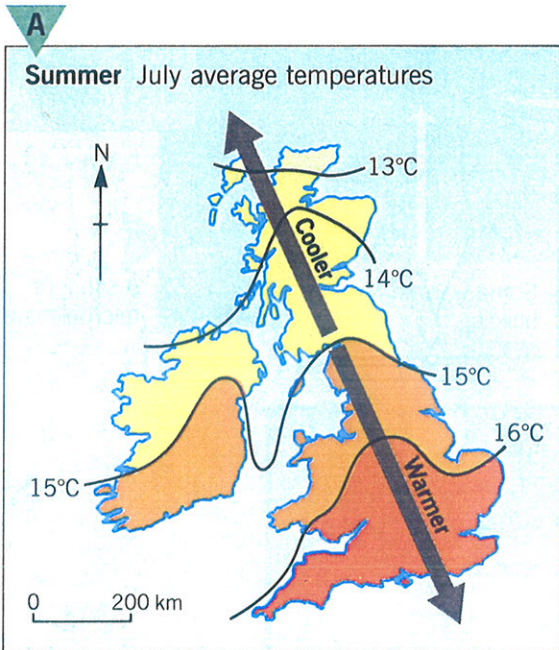
In Britain the sun rises in the east and moves through the south before it sets in the west. South facing places get most of the sun and are usually the warmest.



What is Britain's weather?

Weather is what happens in the atmosphere day by day but **climate** is different. It is the weather taken on average over many years. Climate is about warm dry summers, cool wet winters or, as at the North and South Poles, being cold all year. In Britain the

weather is always a popular topic of conversation, probably because it is always changing or it's never quite what we want it to be. Changes also occur in the climate. It can change from time to time (seasonal) or it may be different from place to place.



The average monthly temperatures for summer and winter are shown on maps A and B.

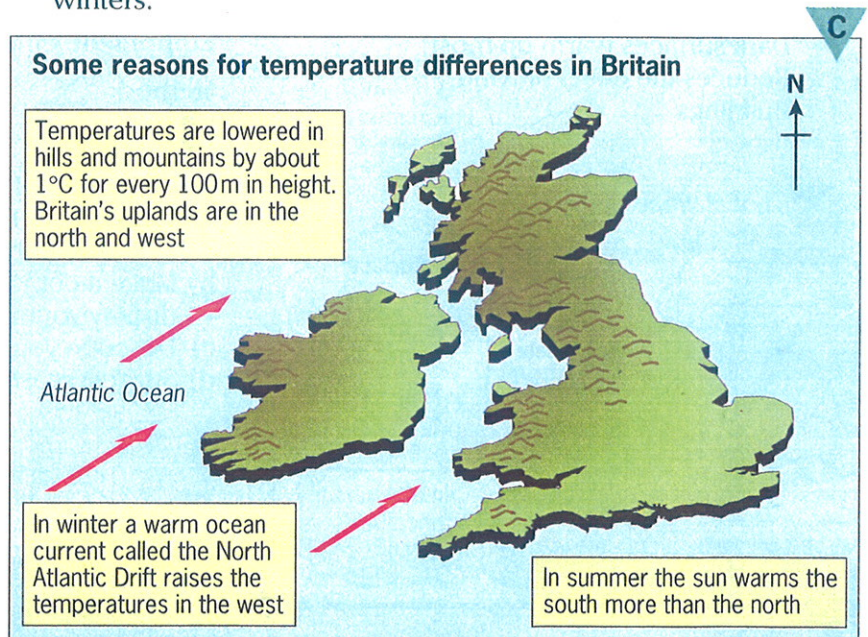
2 Distance from the sea – the sea keeps coastal places warm in winter but may cool them in summer. Places far inland will have warmer summers and cooler winters.

If you look closely you should see three main differences.

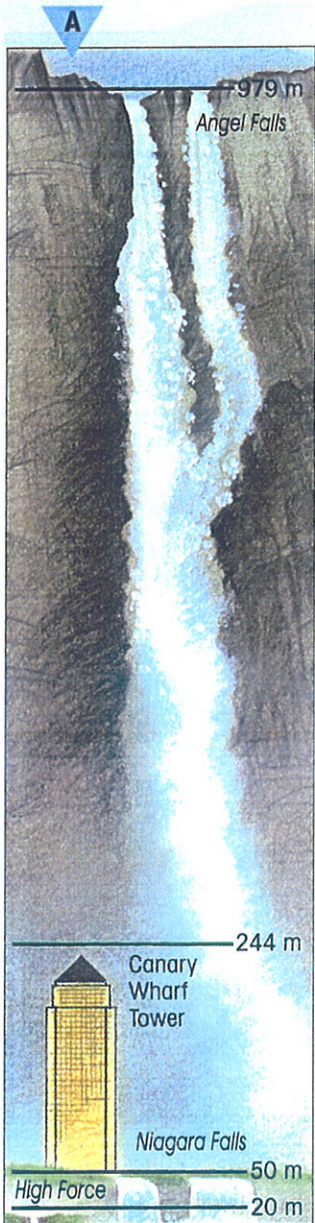
- 1 As expected, temperatures are higher in the summer than in winter.
- 2 Temperatures at any one time are not the same all over Britain.
- 3 The pattern of temperature is different in the two seasons.

Map C shows three important reasons for these variations in weather and climate. Another two are:

- 1 **Wind direction** – where the air has come from. A north wind will be cold, a west wind will be moist.



What causes waterfalls?

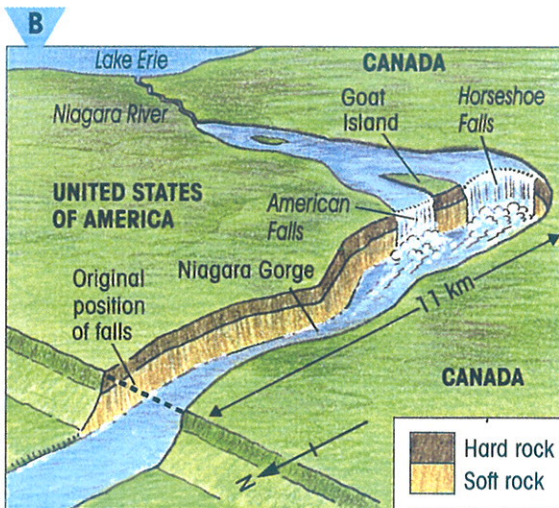


Waterfalls are an attractive and often spectacular feature of a river. The highest waterfall in the world is the Angel Falls in South America. Its total height is 979 metres. That is about four times the height of Britain's tallest building, the Canary Wharf Tower in London's Docklands. Waterfalls in Britain are much smaller than this (diagram A). One of the finest is High Force in the north of England. It has a height of just 20 metres. It is most impressive in times of flood.

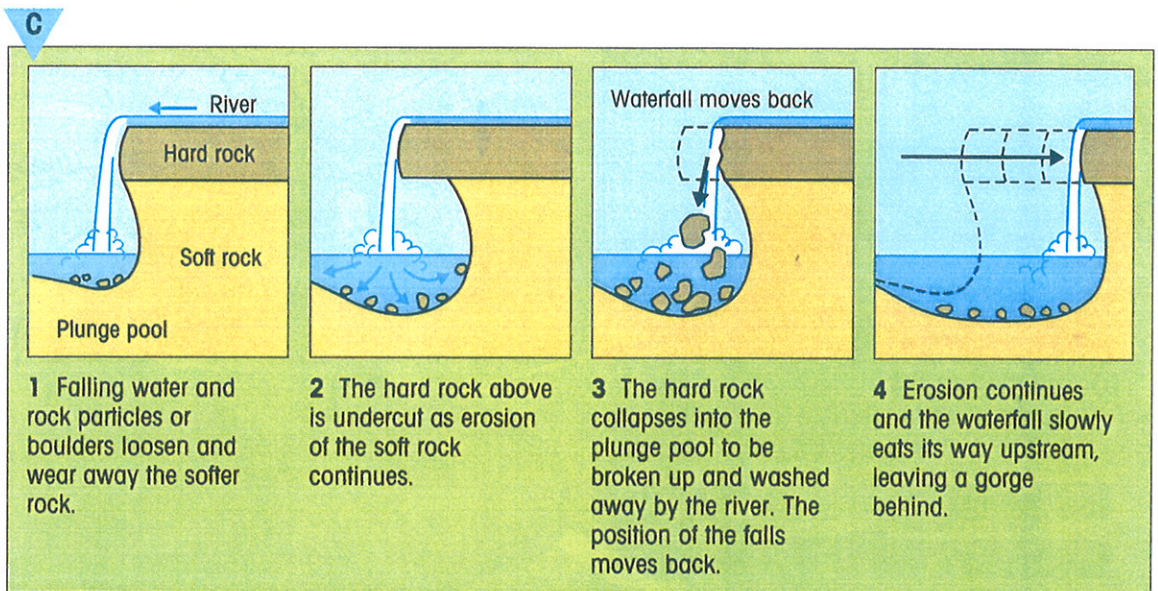
Probably the best known waterfall in the world is Niagara Falls. It lies on the Niagara River which forms part of the border

between Canada and the United States. In this area, a band of hard limestone rock lies on top of softer shales and sandstone. The river flows over the top of the hard rock then plunges down a 50 metre cliff. At the bottom of the cliff the water has worn away the softer rocks to form a pool over 50 metres deep. This is called a **plunge pool**. Down from the falls is the Niagara Gorge. A **gorge** is a valley with almost vertical sides that has been carved out by the river and the waterfall. Photo D shows the gorge and waterfall at Niagara.

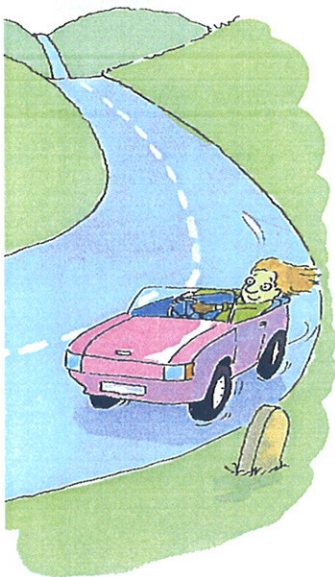
Sketch B shows the Niagara Falls area. The falls here are eating into the cliffs behind the waterfall at nearly one metre a year. The gorge that has been left behind is now 11 kilometres long.



Many waterfalls are formed in the same way as Niagara. They occur when rivers flow over different types of rock. The soft rock wears away faster than the hard rock. In time a step develops over which the river plunges as a waterfall. Water also cuts away rock behind the waterfall. This causes the falls to move back and leave a gorge as it goes. Diagram C shows how a waterfall may be worn away by a river.



What happens on a river bend?

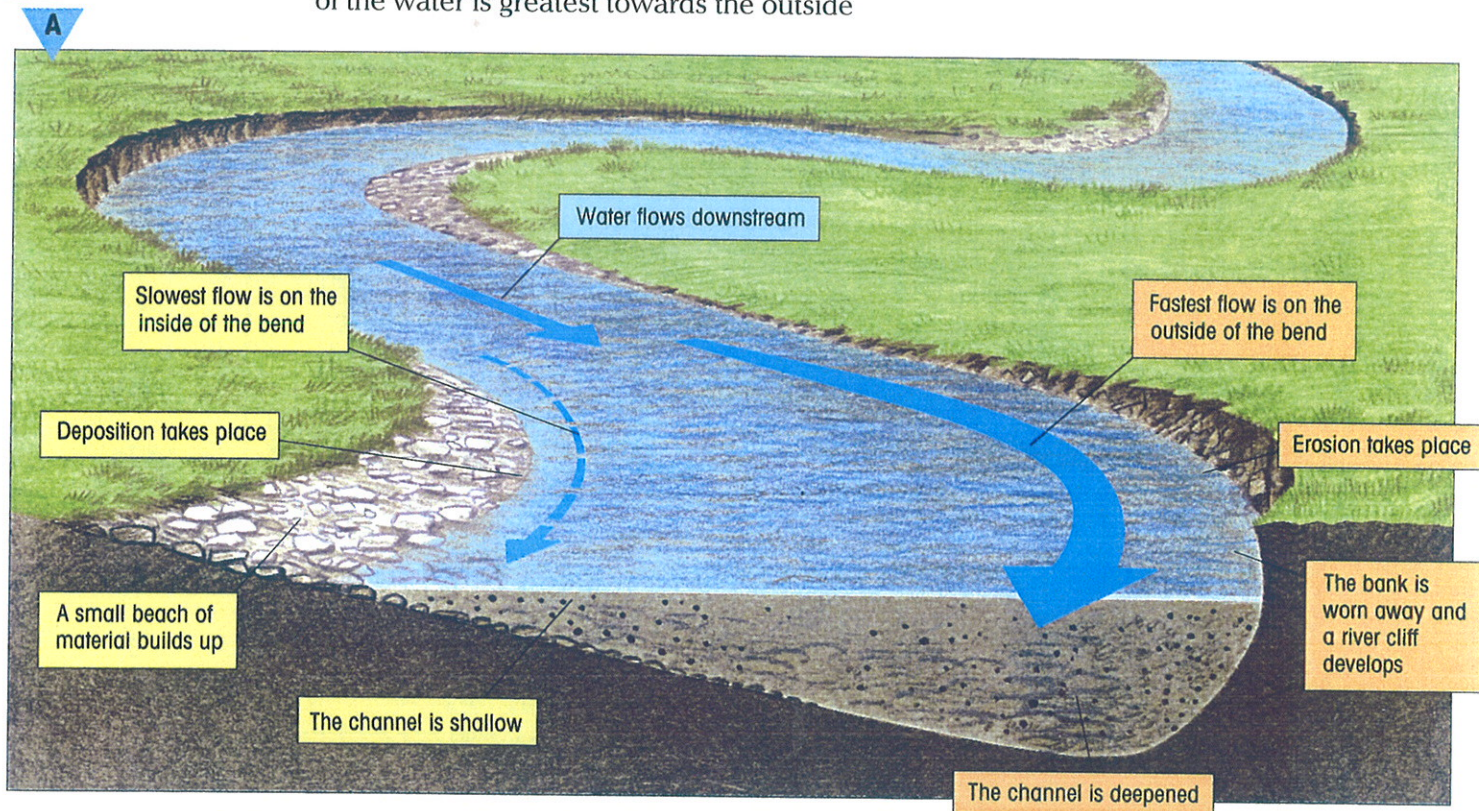


Have you noticed that rivers rarely flow in a straight line? Usually they twist and turn as they make their way down to the sea. The only time they are straight seems to be when people interfere with them by building banks or diverting their course.

Bends develop on a river mainly because of the water's eroding power. Think about when you are a passenger in a car and it goes around a corner. You are thrown towards the outside of the curve, often with quite a lot of force. The same happens when a river goes around a bend. The force of the water is greatest towards the outside

of the bend. When it hits the bank it causes erosion. This erosion deepens the channel at that point and wears away the bank to make a small **river cliff**. On the inside of the bend, water movement is slower. Material builds up here due to deposition. This makes the bank gently sloping and the river channel shallow.

Diagram A shows what happens on a river bend. At the bottom of the diagram is a **cross-section**. This shows what the river would look like if a slice was cut across it from one side to the other.



What causes a river to flood?

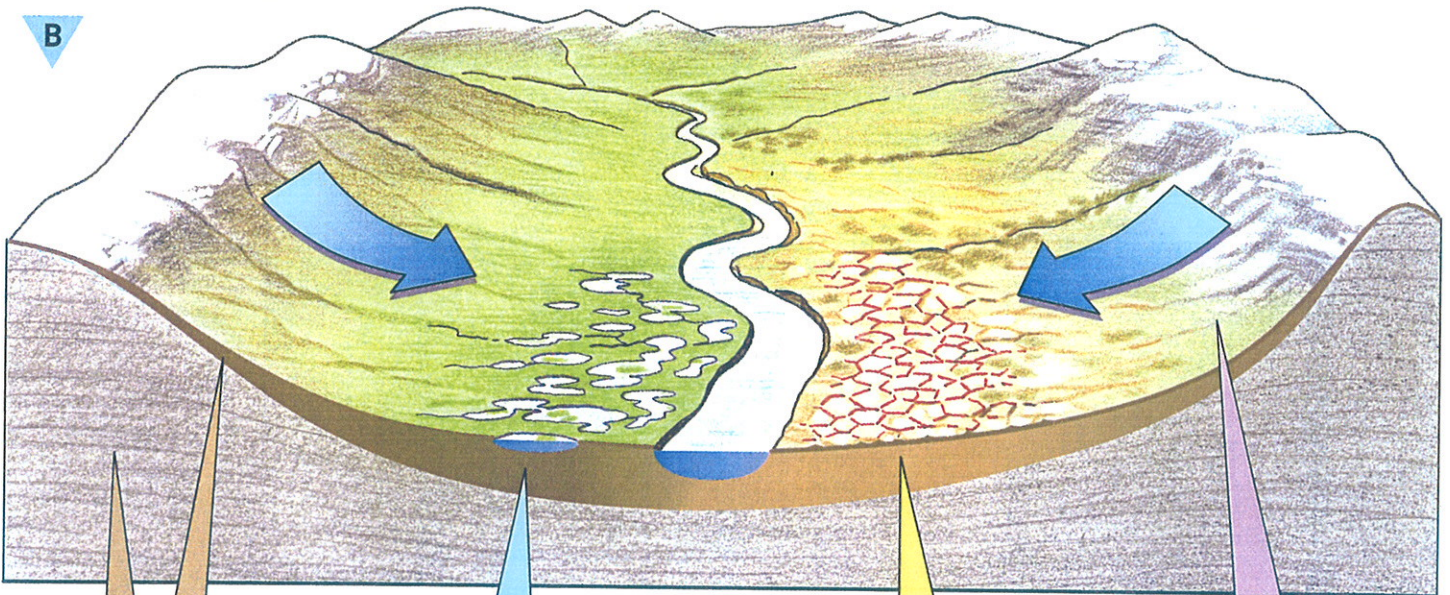
All of the water that flows down a river comes from rain or melting snow. Sometimes after heavy rain or a rapid snow melt, there may be too much water for the river to hold. The river will then overflow its banks and spread out across the land on either side of its channel. This is called a **river flood**.

Usually when it rains, most water simply soaks into the ground and there is little chance of a flood. If, however, the water is unable to soak into the ground, it will stay on the surface and flow quickly downhill and into the river. This is when floods are most common.

Some rivers are more at risk from flooding than others. Put simply, heavy rain and anything which stops that rain from soaking into the ground will increase the chances of flooding. Some of the factors that increase the risk of flooding are shown below.



A The rapid melting of snow can cause flooding



Rock and soil type
Impermeable rocks and soils do not allow rain to soak through them. Any rain that falls will stay near the surface.

Very wet soil
If rain has been falling for some time, the soil may become full of water. Any further rain is unable to soak into the ground and remains on the surface.

Very dry soil
Soil that is baked hard by the sun in dry weather builds up a crust. Rain is unable to soak through the crust and so remains on the surface.

Steep slopes
Rain falling on a steep slope runs quickly downhill towards a river. It has little time to soak into the ground, so most stays on the surface.

How can the risk of flooding be reduced?

There are many different ways of controlling rivers and reducing the risk of flooding. The methods shown below are called **flood prevention schemes** because they try to stop floods happening.

Many people now believe that complete river and flood control is impossible. They say that flooding should be allowed to happen as a natural event. Flood prevention schemes can, in the long term, save money. They also improve water quality and help support wildlife.



Activities

- 1 Draw a star diagram to show eight ways of reducing the risk of flooding. Write a short sentence to describe each one.
- 2 Look at the different approaches to flood prevention. Which approach do you think:
 - a) costs most
 - b) costs least
 - c) may drown farmland and houses
 - d) uses up most land
 - e) protects the natural environment?
 Give reasons for your answers.
- 3 One approach to flooding is simply to allow rivers to flood naturally. For each of the people below say if they would be **for** or **against** this method. Give reasons for your answer.



Local farmer



Flood protection manager



Bird watcher

B

Summary

A variety of methods can be used to reduce the risk of floods, but there is no way to stop flooding completely. A modern approach is to allow parts of a river to flood naturally.

Straight channels

The river course may be straightened. This will speed up the flow and take water away to a lake or the sea more quickly.

Wider and deeper channels

Material may be dredged out from the bed and banks. This will allow the river to hold more water and reduce flooding.

Overflow channels

When the water level rises, floodgates may be opened and the water channelled out to the sea or into temporary storage lakes

Allow flooding

Let flooding happen in a controlled way. Keep river bends to slow down movement. Allow excess water to collect in safe areas.

67 Development

In this section of the book you will investigate the following things:

- What is development?
- What are MEDCs?
- What are LEDCs?

All the countries in the world are trying to increase their wealth. As people earn more money they are able to afford more things, and their standard of living improves. This process of countries becoming richer is known as 'development'. Not all countries are developing at the same rate, and the gap between the rich and poor is growing. Some countries have become very rich, while other countries remain very poor. The richer countries have only 20% of the world's population, but own 80% of the world's wealth. This means that the world's wealth is distributed very unevenly.

One way of measuring the wealth of a country is its Gross Domestic Product (**GDP**). This is the total amount of money earned by a country, divided by its population. This gives the average amount of money per person. GDP is always written as US dollars, so that different countries can be compared.

Q1 What is development?



▲ Fig 1 Housing in the UK.

MEDCs

Richer countries are described as More Economically Developed Countries (**MEDCs**). MEDCs have well developed industries, often based on high-technology. Farming is for profit and uses machines and chemicals. MEDCs have many service industries, because people have spare money to spend on luxuries and entertainment. Children are entitled to free education and almost everyone can read and write. People have plenty to eat, in fact many are overweight. Clean water is supplied directly to people's homes. Healthcare is easily available and of high quality (Fig 1).



▲ Fig 2 Delhi slums.

LEDCs

Poorer countries are described as Less Economically Developed Countries (**LEDCs**). Industries in LEDCs tend to be primary, such as mining and farming. Manufacturing industry uses old machinery and has lots of workers. Many people are farmers who grow only enough food for themselves. Service industries are not well developed because people have little spare money. Not all children go to school, and fewer girls are educated. Education may not be free for all. People do not have enough to eat and are undernourished. Millions do not have access to a safe water supply. There are too few doctors and hospitals (Fig 2).

Q2 Why are these descriptions of MEDCs and LEDCs too general?



United Nations Development Programme <http://www.undp.org/indexalt.html>

The North-South divide

In 1980 a report on world development found that most MEDCs were found in the north, and most LEDCs in the south. A line was drawn on a world map dividing the richer and poorer countries (Fig 4).

In reality, it is very difficult to divide countries into either rich or poor. Many countries come somewhere in the middle. Of course, there are also huge differences within countries. In the UK some people are millionaires, while others live on the streets.

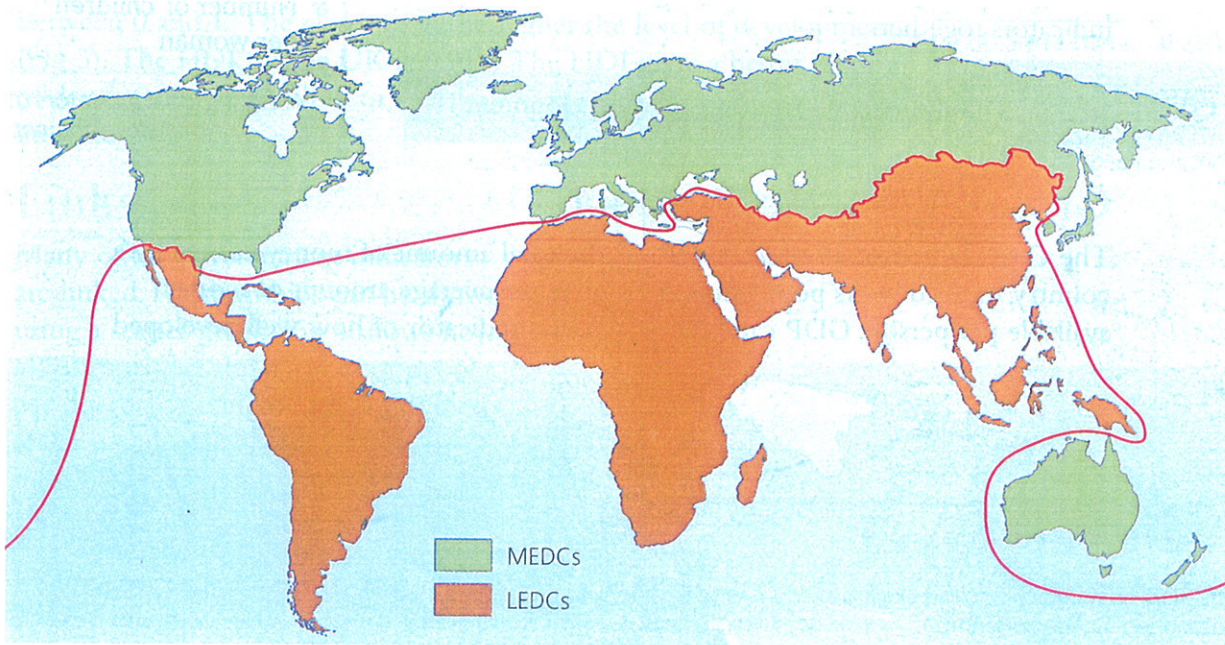
- 1.3 billion people live on less than \$1 (US) a day
- 1 billion people cannot read or write
- 840 million people do not have enough food
- 1.2 billion people do not have a safe water supply
- 500 000 women in poorer countries die each year giving birth

▲ Fig 3 World development facts.

Q3 Name four areas in the 'rich' North, and five areas in the 'poor' South.

Q4 Which 'rich' country does not fit the North-South pattern?

▼ Fig 4 North-South development divide.



Key words

GDP – Gross Domestic Product
LEDC – Less Economically Developed Country
MEDC – More Economically Developed Country

SUMMARY

- Development is the process of becoming richer.
- The world's wealth is shared out very unevenly.
- Most MEDCs are in the North.
- Most LEDCs are in the South.
- Differences in wealth also exist within countries.

SUMMARY activity

Use the data on pages 234–5 to draw a shaded map showing the GDP for a range of countries. How does your map compare with Fig 4?

68 Measuring development

In this section of the book you will investigate the following things:

- How can development be measured?
- What is the difference between social and economic development?
- What are the links between social and economic development?
- What are the problems with measuring development?

Development is very difficult to measure because it involves so many different things. A simple way of measuring development is to work out the **Gross Domestic Product (GDP)** for a country. This gives an idea of how wealthy the country is. It is an **economic** indicator of development. However, development is about much more than money. It is also about improving standards of living. Standards of living can be measured by looking at things like education, healthcare and life expectancy. These are indicators of **social** development (Fig 1). It is best to measure development by looking at economic and social indicators together.

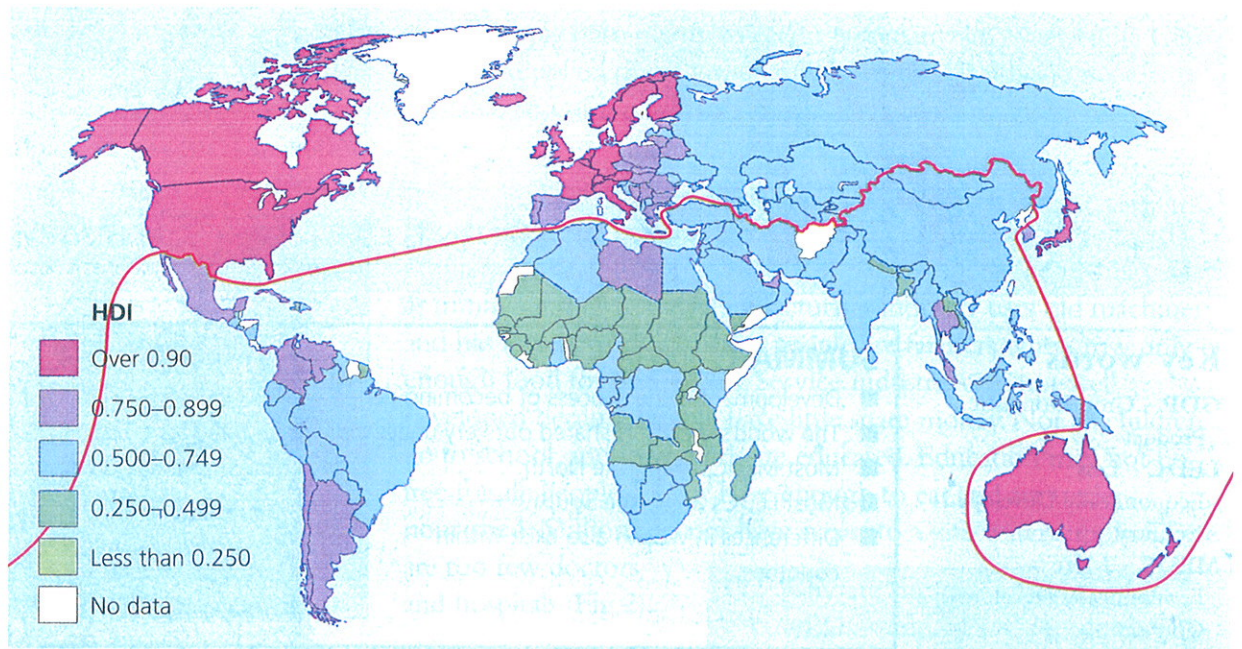
- Infant mortality rate
- Calorie intake
- Energy consumption
- Number of people per doctor
- Access to safe water
- Number of children per woman

Q1 Give three examples of social indicators of development.

▲ Fig 1 Social indicators of development.

Gross Domestic Product

The Gross Domestic Product (GDP) is the total amount of money earned by a country, divided by its population. This gives the average amount of money available per person. GDP can be a very useful indicator of how well developed



▲ Fig 2 Human development index (HDI).



Development

a country is. For example, the GDP of the UK is \$20 730 per year, and the GDP of India is \$1670 per year. This suggests that people in the UK are much richer than people in India. In reality, it is not that simple. The cost of living is much cheaper in India compared with the UK. The cost of a meal in a restaurant in India can be less than £1.00. GDP also ignores standards of living.

Human Development Index

The **Human Development Index (HDI)** was created by the United Nations Development Programme (UNDP) in 1990 (Fig 2). The HDI is a way of measuring development which includes economic and social indicators. The HDI measures three indicators:

- income per person – adjusted for the cost of living
- education – percentage of adults who can read and write, and average number of years in education
- life expectancy.

These three indicators are added together, and worked out as a score between 0 and 1. The closer to 1, the higher the level of development (Fig 3). The HDI for the UK is 0.918. The HDI gives a better picture of development than GDP or social indicators alone.

Top		HDI
1	Canada	0.932
2	Norway	0.927
3	USA	0.927
4	Japan	0.924
5	Belgium	0.923

170	Burundi	0.324
171	Burkina Faso	0.304
172	Ethiopia	0.298
172	Niger	0.298
174	Sierra Leone	0.254
Bottom		

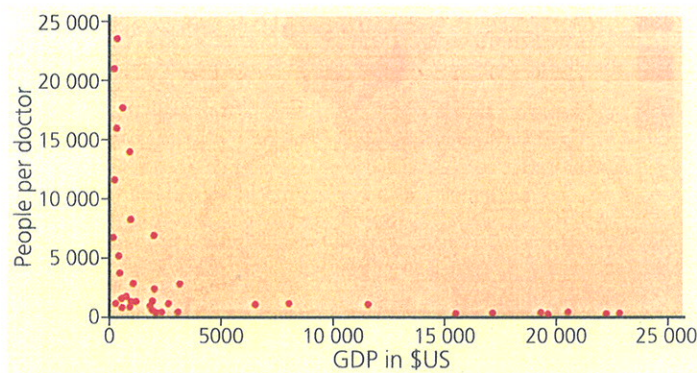
▲ Fig 3 The most and least developed countries.

Q2 What is the HDI?

Links

Many of the development indicators are linked. Relationships can be shown using a scatter graph. Fig 4 shows how GDP can affect the number of people per doctor. The higher the GDP, the fewer people per doctor.

Q3 Why do you think countries with a low GDP have a large number of people per doctor?



▲ Fig 4 Scattergraph to show relationship between GDP and number of people per doctor.

Key words

- economic** – to do with money
- GDP** – Gross Domestic Product
- HDI** – Human Development Index
- social** – to do with people

SUMMARY

- Development can be measured using economic and social indicators.
- It is more accurate to use a combination of both social and economic factors.
- Measurements of development hide variations within countries.
- Economic and social development are closely linked.

SUMMARY activity

Use the data on pages 234–5 to draw scatter graphs to investigate relationships between development indicators. Try to describe and explain your findings.

70 Development in the UK

In this section of the book you will investigate the following things:

- How developed is the UK?
- What differences in wealth and standards of living can be identified?
- Why are there differences in wealth and standards of living?

	* Average wages per week (£)	Average house prices (£)	Unemployment rates (%)
North-East	315	151 300	8.4
North-West	331	158 100	5.1
Yorkshire and Humberside	317	157 400	6.6
East Midlands	315	159 800	5.0
West Midlands	322	164 600	5.6
Eastern	348	174 300	4.7
London	464	194 700	6.7
South-East	367	188 300	3.7
South-West	329	168 400	4.4
Wales	317	155 400	6.4
Scotland	325	157 500	6.4
Northern Ireland	310	147 900	8.2

* £100. Add £100 to wages figure.
Wealth

The highest wages are paid in London and the South-East. In London the average wage is £464 per week, and in the South-East is £367 per week. In contrast the average wage in the North is £315 per week, and in Northern Ireland only £310 per week. These figures seem to show that there is a wealth divide between the north and south of the UK. In reality, there are rich and poor people in both areas. The poorest groups of people are likely to be unemployed single parents, and pensioners (Fig 2). The richest groups of people are likely to be working couples without children. Children are expensive!

The UK appears to be a very wealthy country. It is ranked as the tenth most developed country in the world by the United Nations. Of course, not everybody living in the UK is rich and has a high **standard of living**. In fact, 14 million people live below the official '**poverty line**', while the richest 10% of people own half of all the wealth. This means that wealth is shared out very unequally. Wealth and standards of living vary between different areas, and between different groups of people (Fig 1).

◀ Fig 1 Wealth and living standards in the UK.



▲ Fig 2 A homeless woman in Oxford.

Q1 Where are the wealthiest areas in the UK?

Q2 Where are the poorest areas in the UK?

Health and standard of living

The amount of money people have has a large impact on their health and standard of living. The poor are more likely to suffer from obesity and depression. They are also more likely to die in childhood, or to die early when they are adults. For example, the death rate of young boys is eight times higher in Manchester than Dorset. The poorest households are twice as likely to be burgled than average, and are likely to be more isolated because they do not have cars. Children from poor backgrounds are less likely to go on to further education.

Reasons

The poorest regions tend to be in areas where traditional industries, such as iron and steel, have closed down. When the factories closed, many people became unemployed and poverty increased. Modern industries have tended to locate in the south of the country. As a result, average wages and standards of living are higher in the south. Many reports have shown that health is closely linked to income. People earning high wages are able to afford healthy diets with plenty of fresh fruit and vegetables. Often, people on low wages are forced to buy cheaper, but less healthy, processed food.

Q3 How can poverty affect health?

Q4 Read the two opinions on poverty in Fig 3. What is your opinion on poverty in the UK?

I don't think people in developed nations are actually poor, they are only relatively poor to their richer countrymen. Try living in one of the Third World slum areas for a day and then start discussing about rich and poor.



Peddu, India

People who think there is no real poverty here in the UK must be going about with their eyes shut. To have a civilised country, we need to care about people experiencing hardship. I have been unemployed and believe me, living on benefit is not easy at all. The problem with Britain today is the greed of the rich and their arrogant attitude about it.



Peter, England

▲ Fig 3 Two views about poverty in the UK.

Key words

poverty line – a very low level of income
standard of living – the quality of life

SUMMARY

- Compared with other countries, the UK is very rich.
- Wealth within the UK is not shared equally.
- The South tends to be better-off than the North.
- The poorest groups tend to be the elderly and single parents.
- Poverty and health are closely linked.

SUMMARY activity

Use the data in Fig 1 to draw some shaded maps to show the differences in wealth and standard of living in the UK. What do your maps show?