

MAPS AND SYMBOLS



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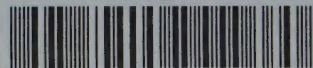
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MAPS AND SYMBOLS



ANGELA ROYSTON



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Maps and Symbols

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The photo on page 1 shows schoolchildren using maps and compasses to find directions.

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WHAT IS A MAP?

A map is a drawing that shows the shape of a place and the things that are there. Some maps can show a small place, such as a room. Other maps can show the whole world.

If you know how to read a map, it shows you where places are and helps you find your way.

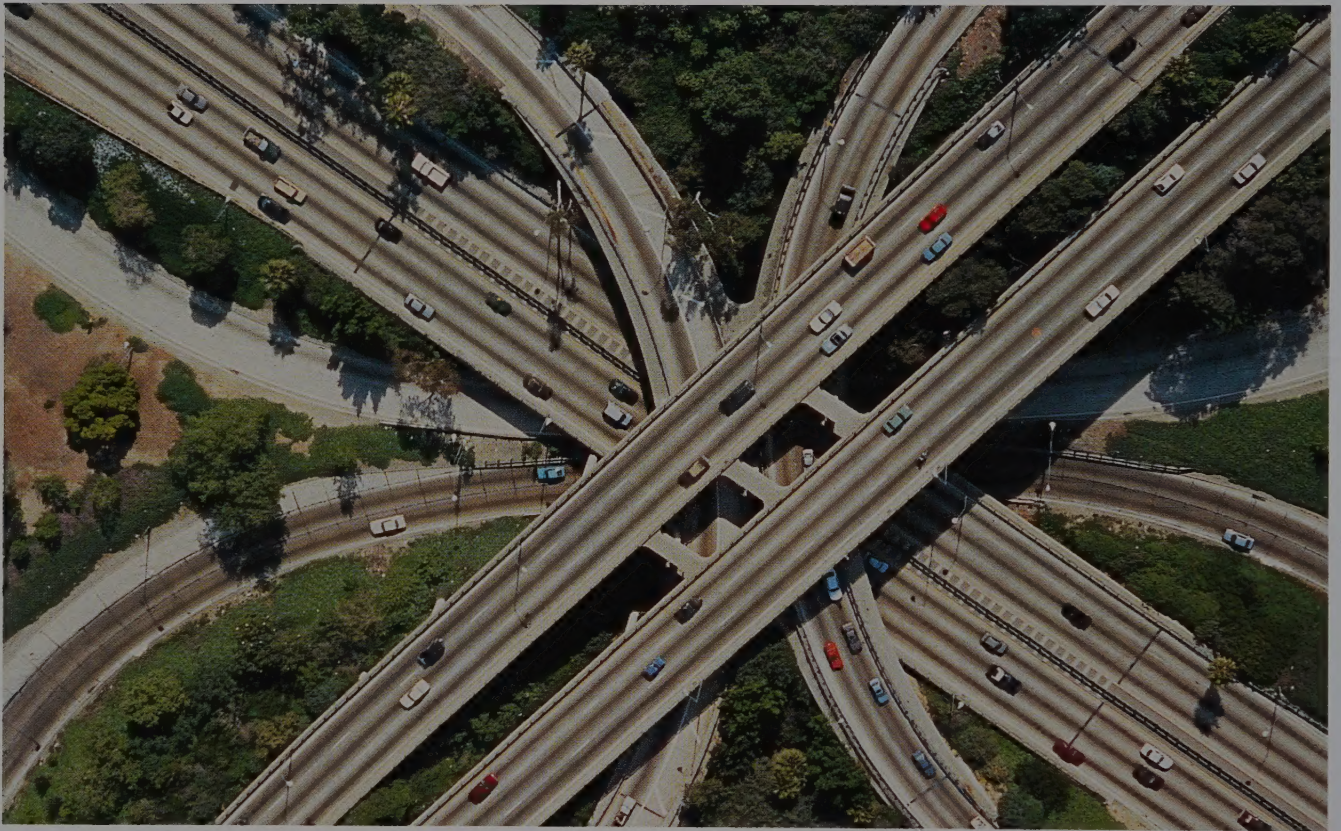


A satellite photograph of Earth from space, showing a large portion of the Western Hemisphere. North America is visible in the upper left, with the United States and Canada clearly defined. South America is in the lower left. The Atlantic Ocean occupies the center of the image. To the right, the western coast of Africa is visible. The Earth's surface is covered with a mix of green land, blue oceans, and white clouds. A small red dot is visible in the Atlantic Ocean, likely indicating a satellite location. The curvature of the Earth is evident at the top and bottom edges of the frame.

Satellites take photos of the Earth from space. The photos are then used to make accurate maps of the world.

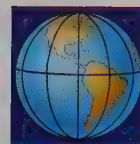
WHERE ARE YOU?

Some words tell you where something or someone is. In a game of hide-and-seek, you might look for people under the beds, behind the chairs or inside the wardrobes.



A flying bird sees the ground from above. This 'bird's-eye view' shows roads going under and over one another.

In hide-and-seek, the words 'under', 'behind' and 'inside' describe where the people could be compared to things you can see. Maps show where things are compared to each other.



WHERE ARE YOU?

In this bird's-eye-view of an imaginary town, see how the words 'above', 'on top of', 'in front of' or 'next to', describe where things are.

The satellite dishes are on top of the buildings.

The car is in front of the houses.

The birds are above the buildings.

The lorry is next to the hedge.

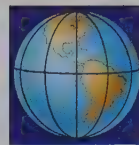
A Bird's-Eye View

The best way to see exactly where things are is to look down on them from above. A picture or drawing that shows a place from above is called a bird's-eye view or a plan.

A plan of a room shows the floor space that items take up. A map is a bird's eye view of a place with symbols to show what things are.

Things that you are used to seeing from the side can often look strange from above.

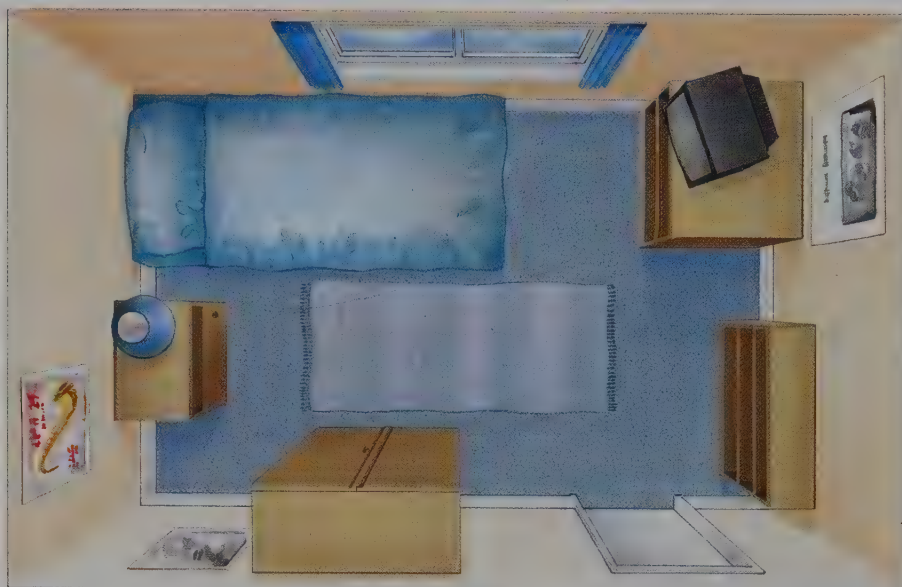




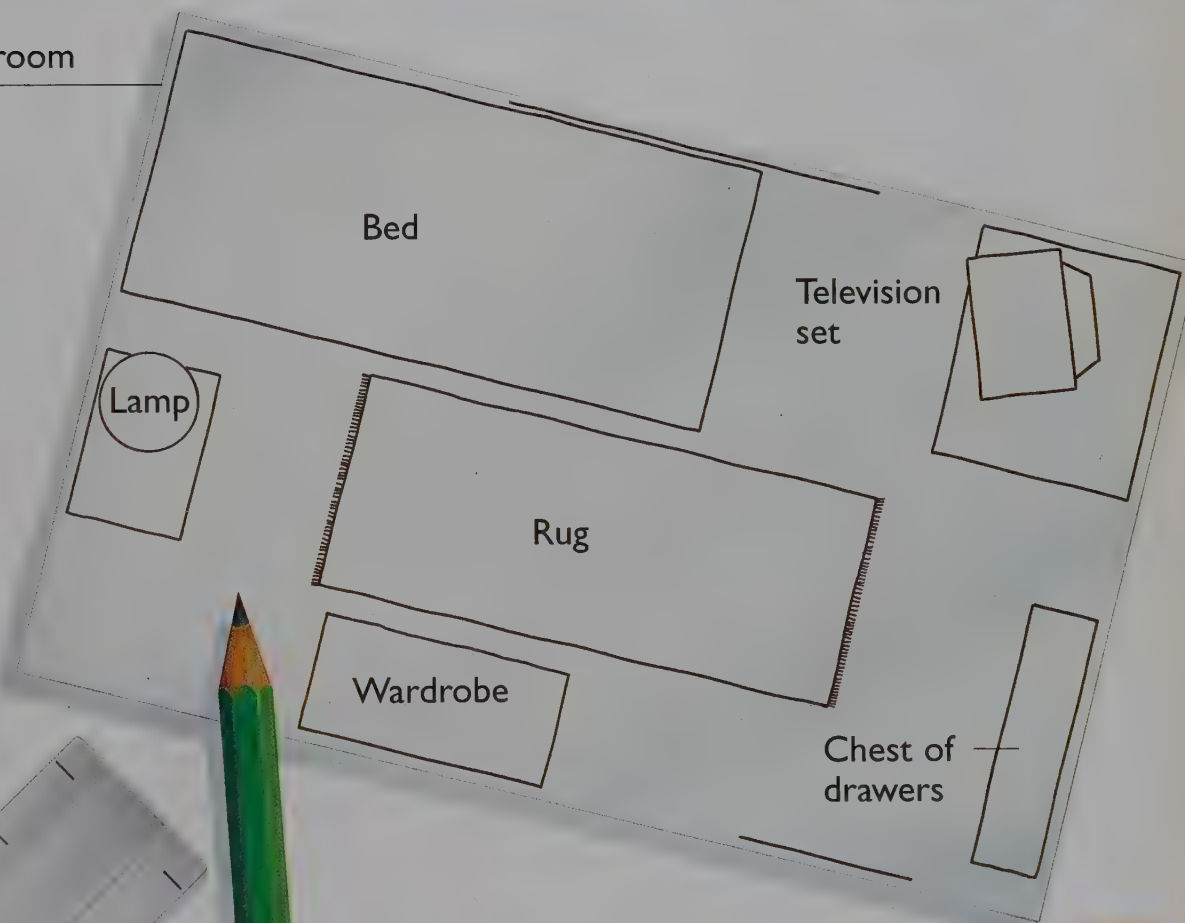
WHERE ARE YOU?

DRAW A PLAN

Imagine that you are a fly on the ceiling of your bedroom. Draw a plan view of your room. Remember to show just the top of your bed, chest of drawers, and so on. Do not try to show the sides or the height of things.



Wall of the room



Use a pencil, ruler and rubber to draw your plan.

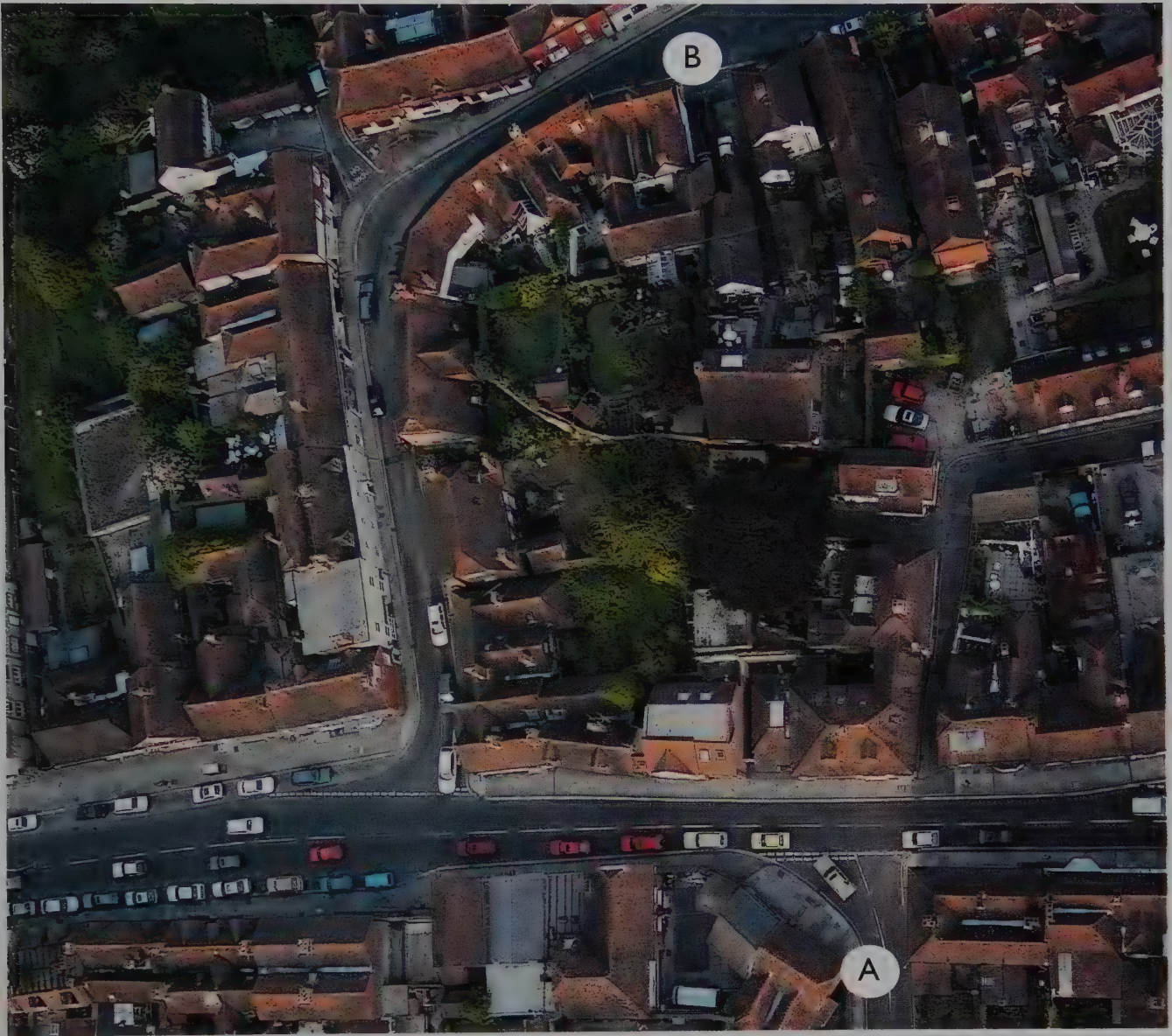
The words 'left' and 'right' tell you on which side something is. When you go straight ahead, you are moving forwards.

Use the words 'left', 'right' and 'straight on' to describe how to get to the school from the house on this map. Follow the arrows to help you find your way.





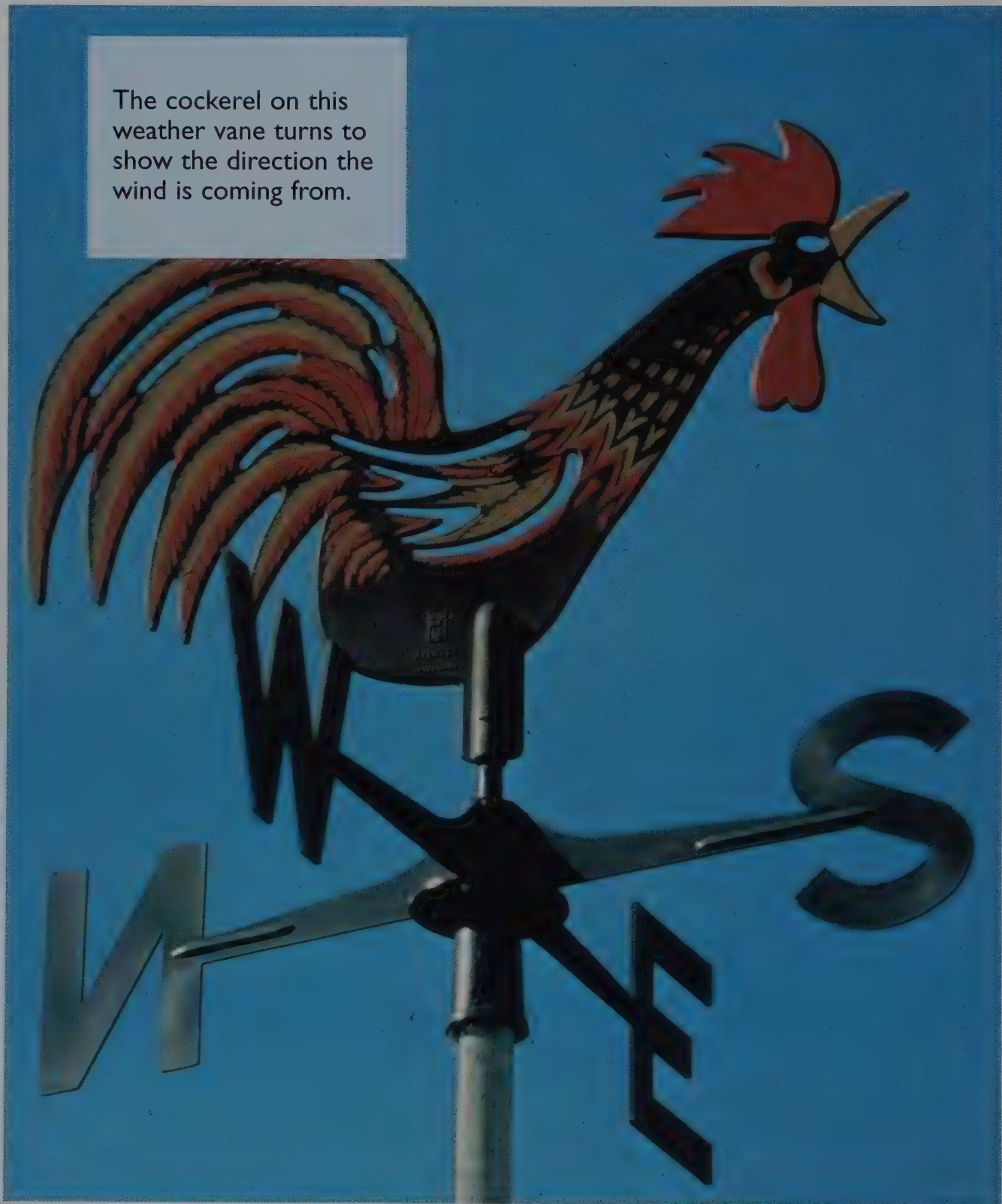
WHERE ARE YOU?

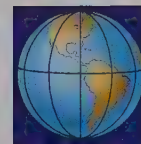


With the words forwards, backwards, left and right, you can give directions to anywhere in your neighbourhood. A map puts directions into a drawing.

In this bird's-eye view of a town, what directions would you give a driver to go from A to B?
(Answer on page 32.)

The cockerel on this weather vane turns to show the direction the wind is coming from.





WHERE ARE YOU?

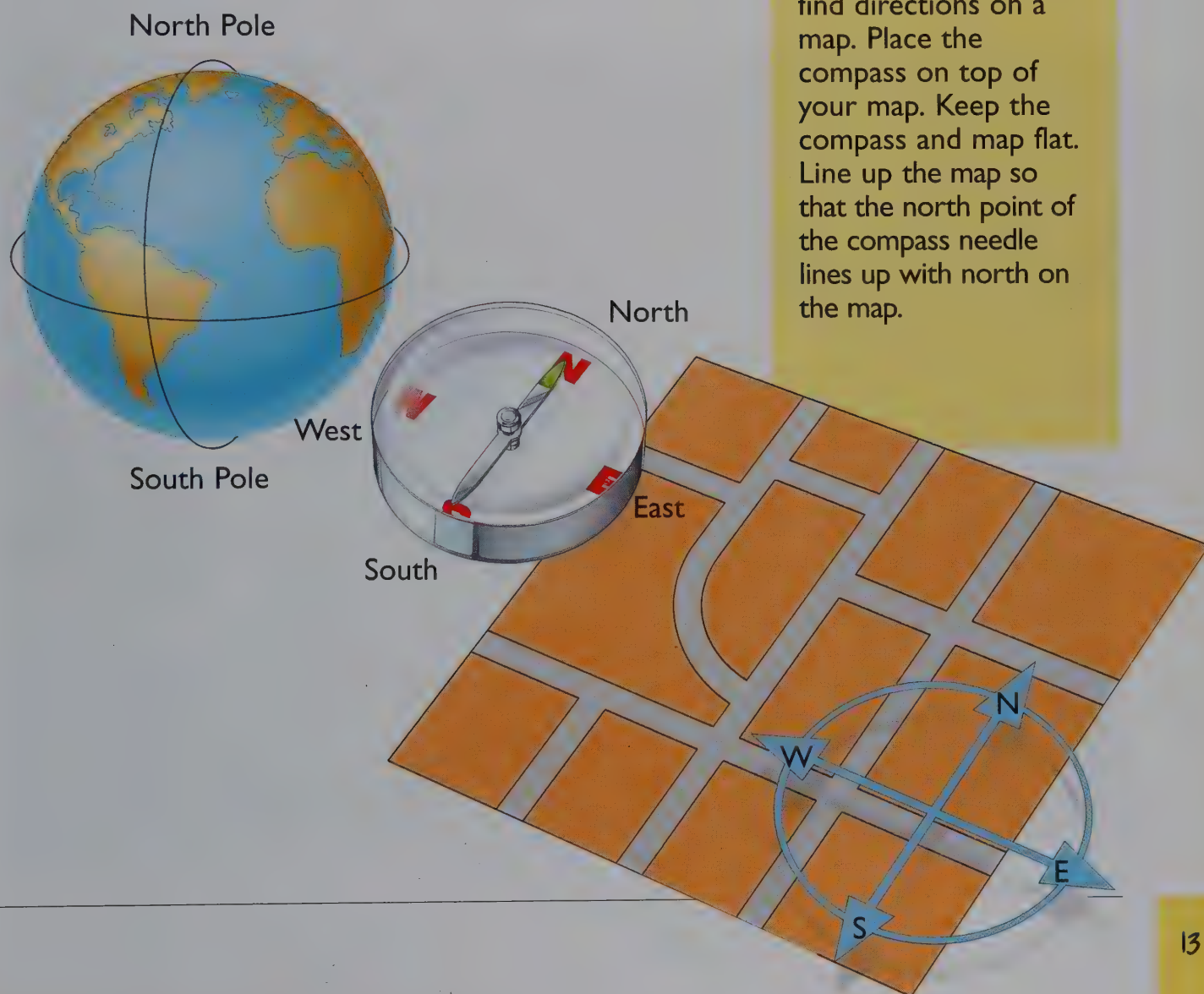
North, East, South and West

For long distances, people give directions using the words north, south, east and west.

Maps are usually drawn with north at the top and south at the bottom. East is then to the right and west to the left.

USE A COMPASS

A compass is used to find directions on a map. Place the compass on top of your map. Keep the compass and map flat. Line up the map so that the north point of the compass needle lines up with north on the map.

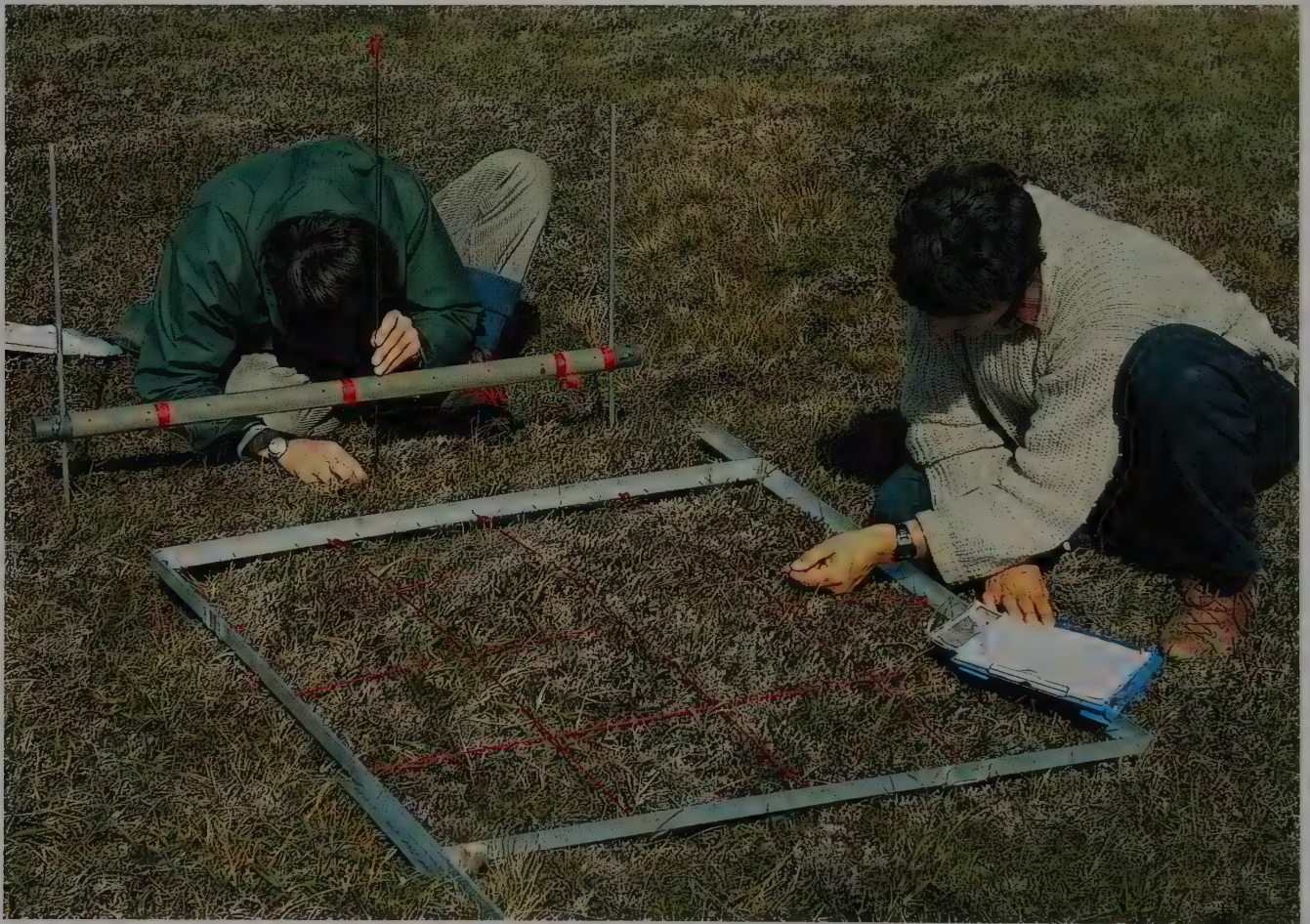


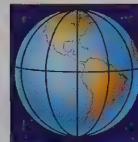
MAPS AND GRIDS

Maps are usually drawn on squared paper. The pattern of lines across and down the paper is called a grid. The sides of the squares are given numbers or letters.

Things can be found on a map by saying the letter and number of the square in which it sits. Large items may fill several squares.

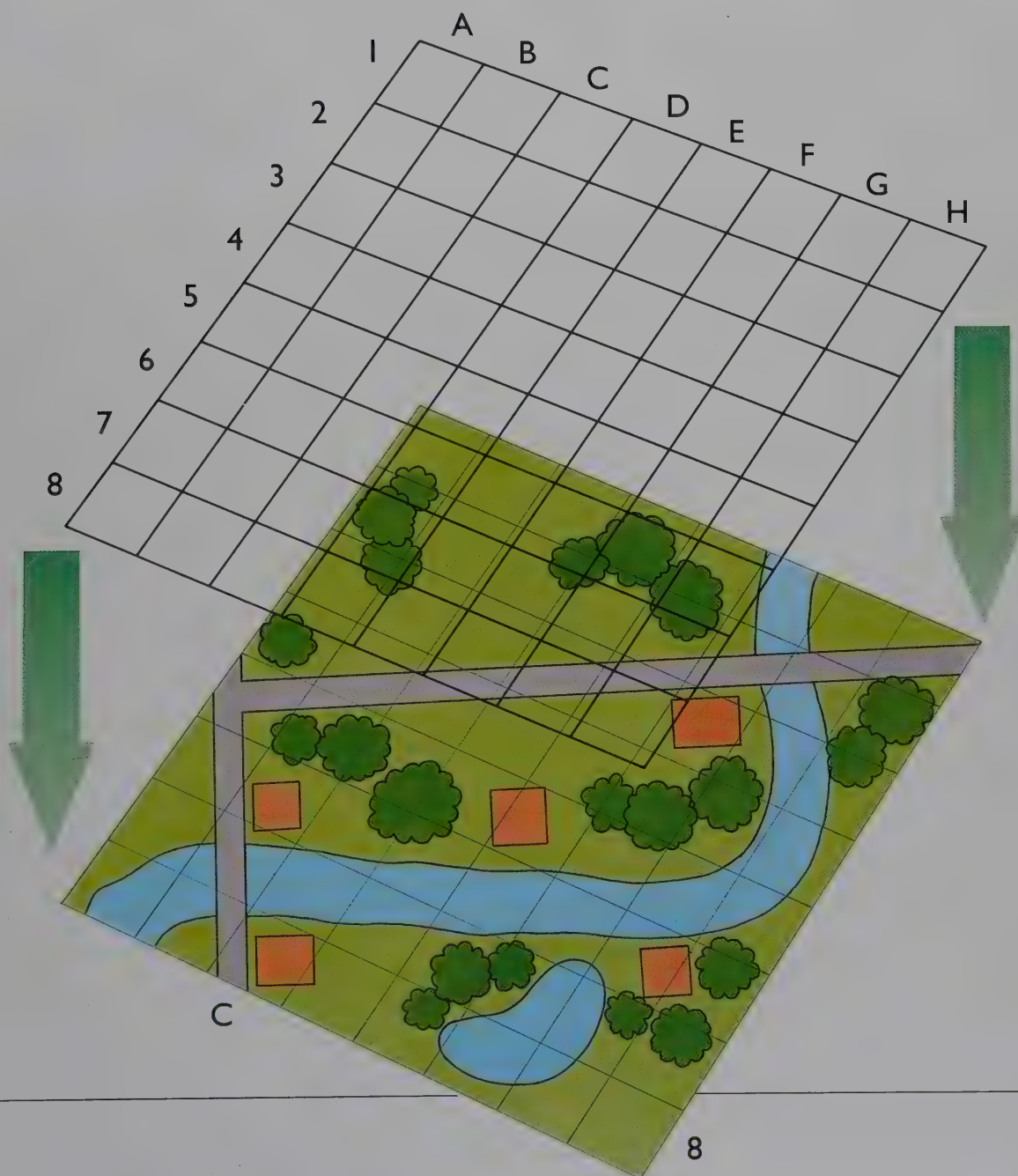
These scientists are using a grid to record which type of plant grows where.





Suppose you are told that the place you want is in C8. Instead of looking on the whole map, you just have to look in that square.

Placing a grid over the map below makes it much easier to find a particular landmark.



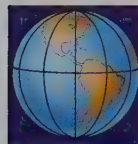
Mapping the Land

Maps of the countryside have a grid. Map-makers use special instruments to find which places are on a straight line.

Aeroplanes and satellites take bird's-eye-view photographs to help the map-makers draw their maps.

A surveyor uses a telescope-like instrument to measure distances and plot a straight line across the countryside.





Dinosaur Hunt

These dinosaur-bone hunters use a map with a grid to work out which areas they have searched. In which squares have they found skulls? (Answers on page 32.)



Herrerasaurus



Tyrannosaurus



Lambeosaurus



Plateosaurus

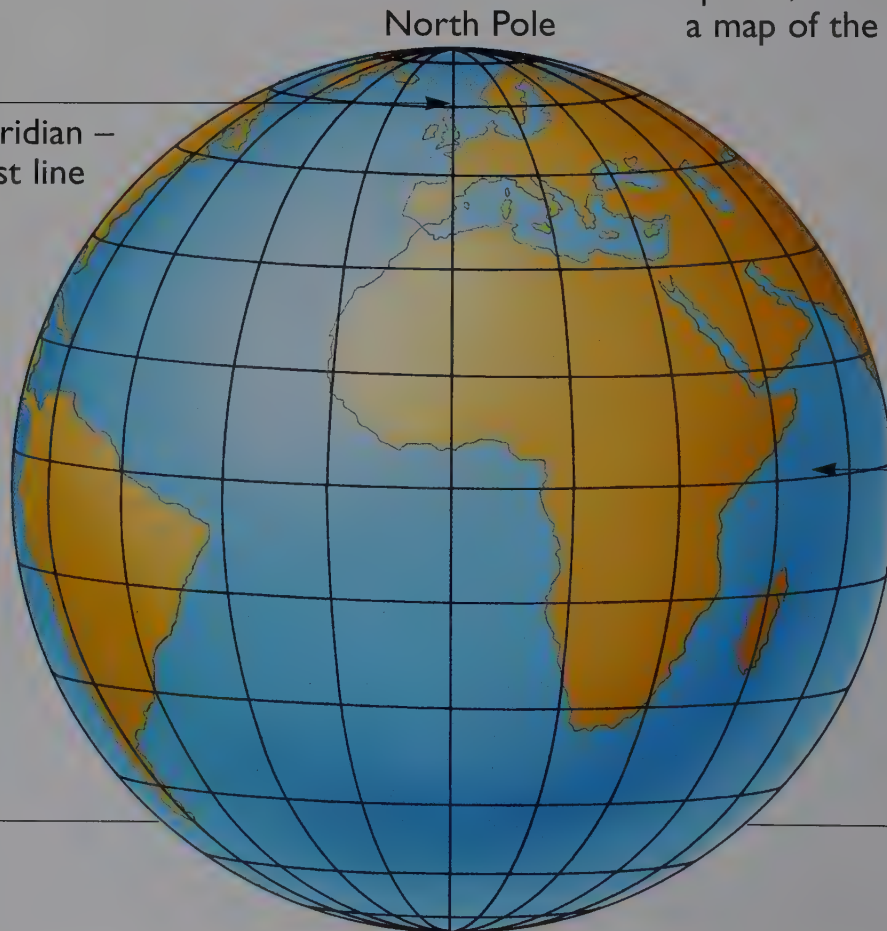
Maps of the World

Maps of the world have grids, too. The grid lines are imaginary, so you will not see them on the ground. The equator is an imaginary line drawn around the middle of the world.

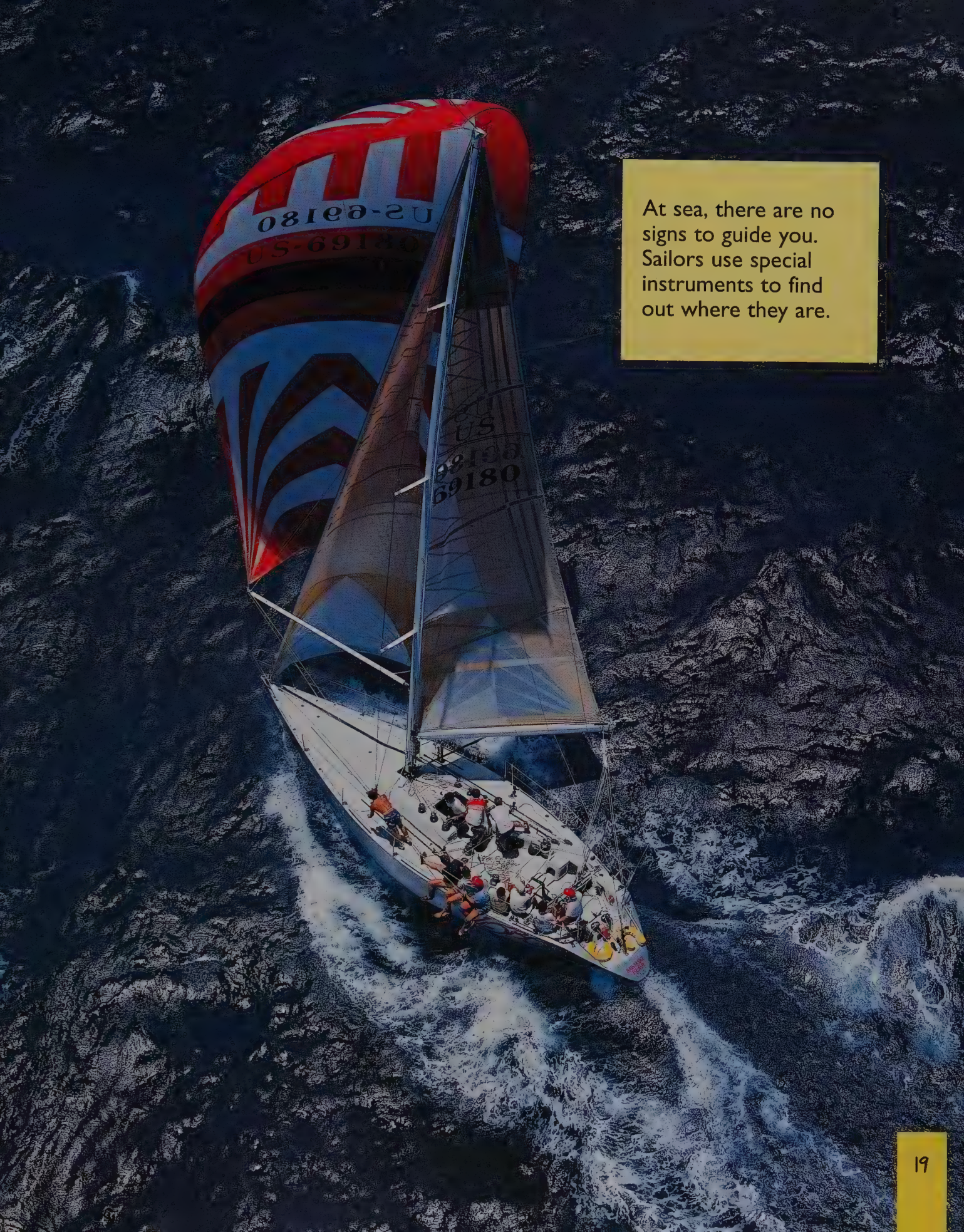
Lines of latitude tell you how far north or south of the equator you are. Lines of longitude tell you how far east or west you are. Together, these lines tell you exactly where you are on a map.

A globe is a ball, or sphere, on which is drawn a map of the Earth.

Greenwich Meridian –
the first and last line
of longitude.



Equator –
the central
line of
longitude.



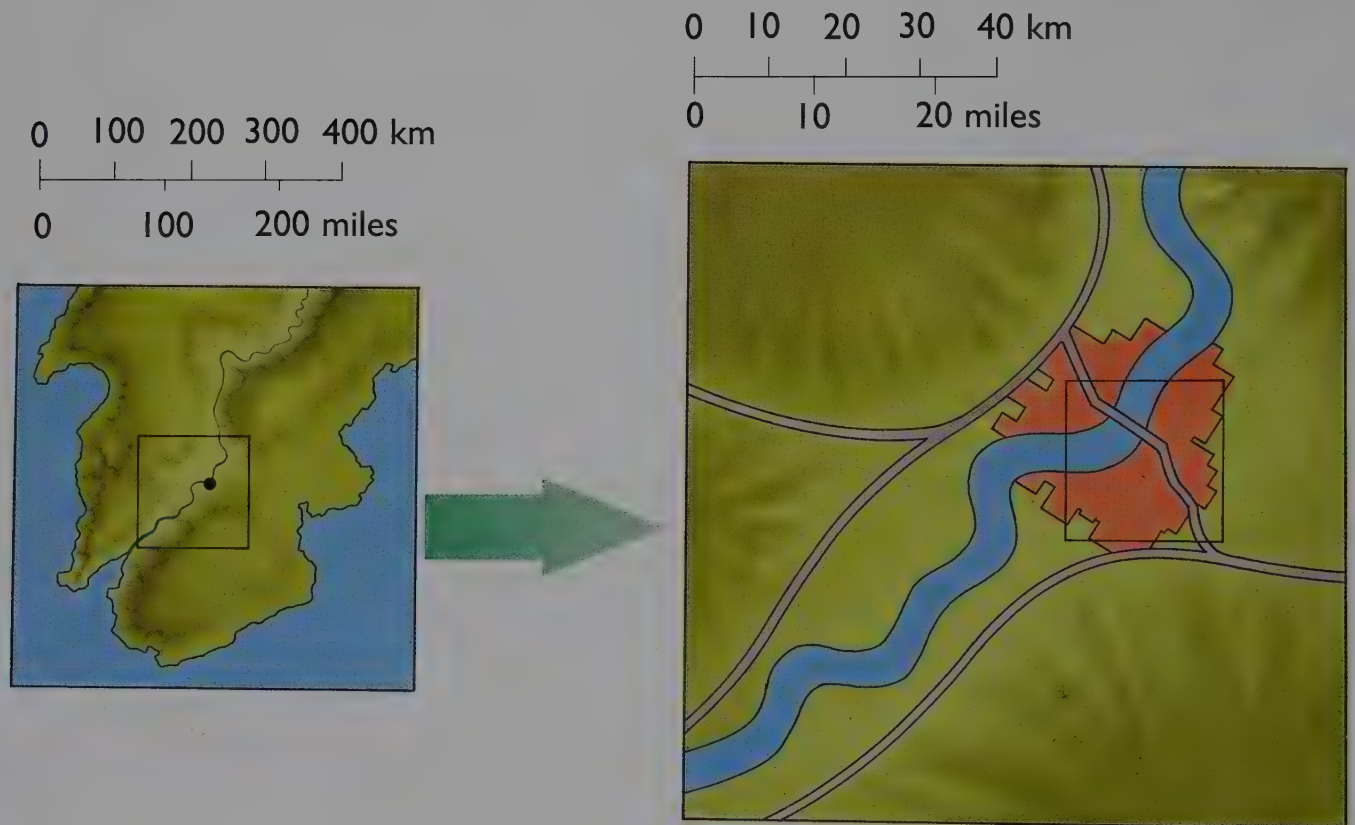
At sea, there are no signs to guide you. Sailors use special instruments to find out where they are.

SCALE

A map can show a large area, such as a whole country, or a smaller area, for example part of a country or just a town or city. The scale on a map tells you how much smaller the map is compared to the real thing.

When you know the scale, you can work out distances on the ground from distances on the map.

This series of maps shows the scale getting bigger from the map on the left to the one on the right.





In this model village, the buildings are 20 times smaller than the real ones. The scale of the models is written as 1/20th, or 1:20.



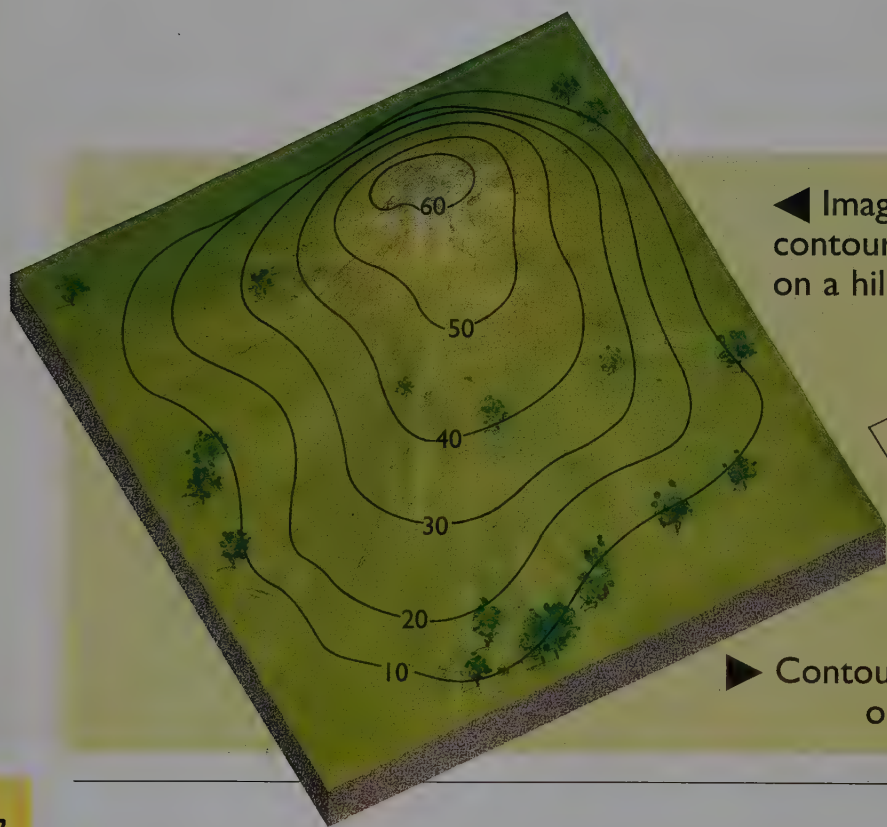
0 1 2 3 4 km
0 1 2 miles

Contours

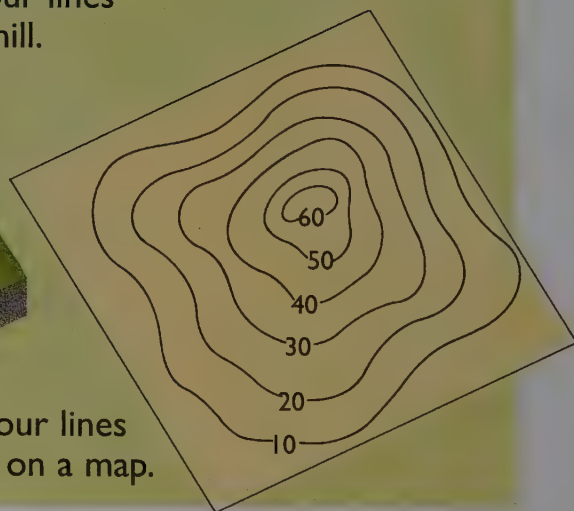
Maps are flat, but the land has mountains, hills and valleys. Map-makers cannot show height on a flat piece of paper. Instead, they use different colours and contour lines to show how high different places are.

The contour lines on a map each have a number or measurement. This measurement tells you the height of that line above sea level.


Contour lines show the shape of high ground as though it went up in steps. Each contour line joins up places that are the same height.



◀ Imaginary contour lines on a hill.



▶ Contour lines on a map.

An aerial photograph showing a village with red-roofed houses nestled in a valley. The hillsides are steep and covered in dense green forest. A winding road or path is visible on the right side of the valley. The sky is overcast with soft, grey clouds. A semi-transparent green box in the upper right corner contains text explaining contour lines.

These hills slope down into a valley. When a hill slopes steeply, the contour lines on the map are close together.

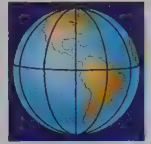
SYMBOLS

A map can never show you everything. Map-makers have to choose the most important things to show. They use symbols to fit in more information and to make maps easier and quicker to read.

Rivers, lakes, roads and towns all have special symbols. Some symbols use colour. Others are a special shape.

This traveller is looking at a map of Paris to find her way round the city. The symbols show important landmarks.





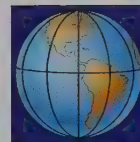
Colours and Shapes

Symbols are only useful if everyone can understand them. A map key, or legend, shows what each symbol means.

Maps the world over do not all use the same symbol for each thing. Mountains may be shown by colour or by pyramid-like shapes. Roads may be coloured red, green or yellow.

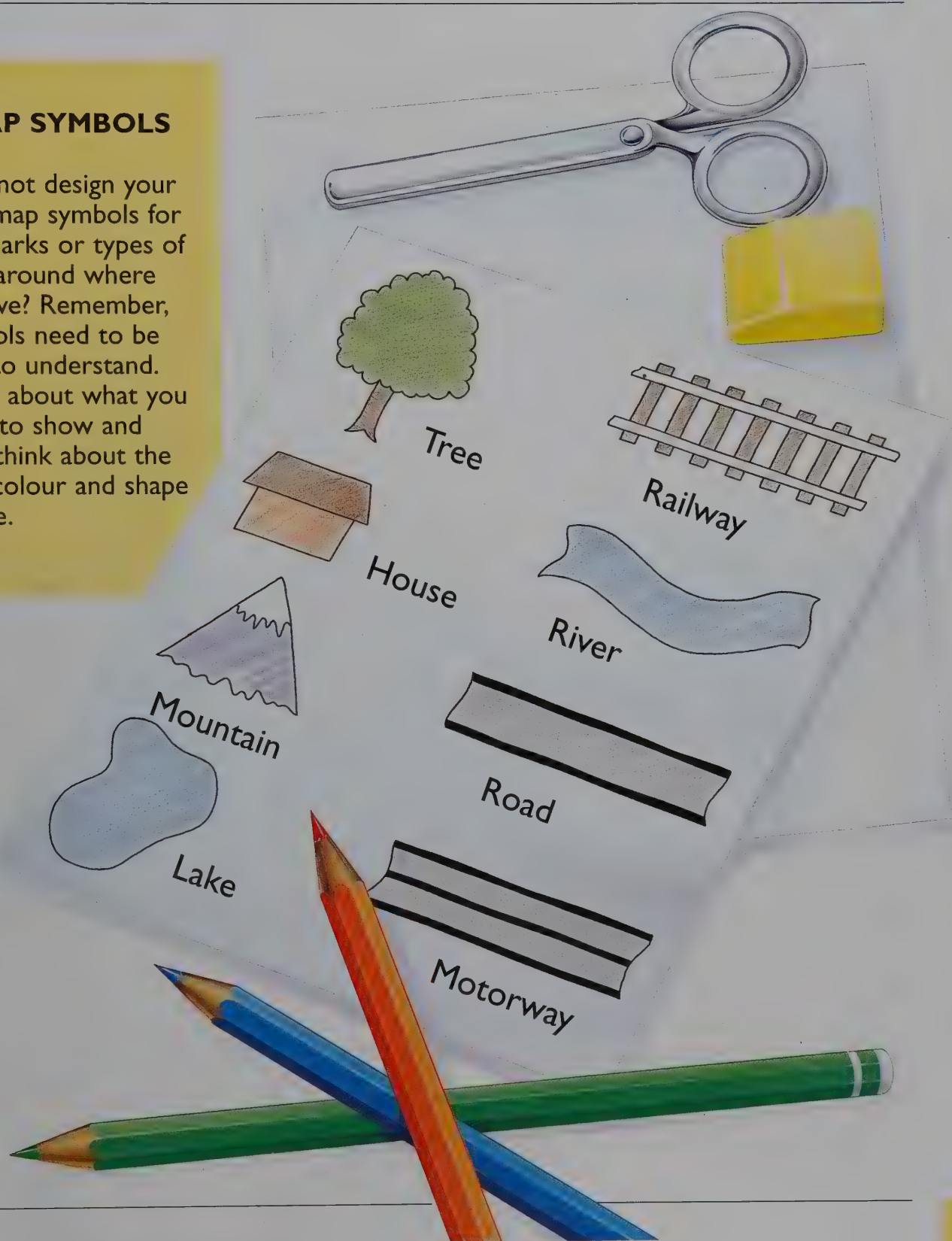
On a map of the area shown below, the roads, river, fields and houses would each be shown by a different symbol.





MAP SYMBOLS

Why not design your own map symbols for landmarks or types of road around where you live? Remember, symbols need to be easy to understand. Think about what you want to show and then think about the best colour and shape to use.



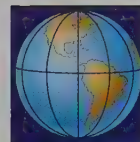
DRAWING A MAP

Before making a map, you have to decide what kind of map it is going to be. Some maps show countries and cities. Others show weather or tourist sites.

Symbols on a map show important landmarks, such as roads, hills, rivers, railway tracks and houses or towns. Colours show water, forests, low ground and high ground.

This girl is making a weather map. She places symbols for clouds, rain and the Sun on a map to show what the weather will be like.





DRAWING A MAP



Find a map of your neighbourhood. Draw a simple grid on tracing paper. Lay your grid over the map and carefully trace your

journey home from school. Add some symbols to your map for landmarks that you pass on your journey. Colour in your map and give it a key.

MAP FACTS AND FIGURES

Earth measurements

The equator is 40,075 kilometres long. The distance between the North and South Poles is 20,003 kilometres.

North Pole

There are really two North Poles. The geographic North Pole is where all lines of longitude meet. Compass needles, however, point to the magnetic North Pole, about 1,600 kilometres away.

First to reach the North Pole

On 6 April 1909, the Arctic explorers Robert Peary and Matthew Henson reached the North Pole. Frederick Cook claimed that he had reached the Pole first, in 1908, but his claim was never proved.

South Pole

The South Pole is in Antarctica and is 2,800 metres above sea level.

First to reach the South Pole

In 1911 Norwegian explorer Roald Amundsen and British explorer Robert Scott each led a team towards the South Pole. Amundsen won the race on 14 December. Scott and his team reached the South Pole a month later, but died on the journey back.

First compass

The Ancient Chinese were the first to use a magnetic compass. They used lodestone, a stone containing iron which is naturally magnetic. In the 1100s, sailors in the Mediterranean used lodestone compasses to help them find their way.

Computerized compass

GPS (Global Positioning System) uses radio signals beamed from a satellite circling the Earth and a computer to tell you where you are, wherever you are.

Pole Star

On a clear night, the Pole Star shows the direction of north if you are north of the equator. The Southern Cross points to the south if you are south of the equator.

Oldest map

The oldest known map is over 5,000 years old and was made in Sumeria. It was drawn on to a clay block and shows the plan of an estate.

First geography book

The Earth was shown as a round flat circle in a book produced by the Ancient Greeks 2,600 years ago.

East or west?

In 1492 Christopher Columbus sailed west from Spain expecting to find a new route to China and India in the east. When he reached the Caribbean islands he thought they were part of Asia and called them the West Indies.

Further Reading

Investigating Maps by Susan Montford (Young Library Limited, 1993).

Maps and Globes by Sabrina Crew (Watts, 1996).

Maps and Mazes: A First Guide to Map Making by Gillian Chapman (Macdonald Young Books, 1993).

Maps and Mapping by Barbara Taylor (Kingfisher, 1994).

Mapwork 1 by David Flint and Mandy Suhr (Wayland, 1992).

Also available as a *Big Book of Mapwork 1* (Wayland, 1998).

Worksheets to accompany *Mapwork 1* will be available in mid-1998).

Mapwork 2 by David Flint and Mandy Suhr (Wayland, 1992).

Philip's Picture Atlas for Children (Heinemann, 1995).

GLOSSARY

Compass An instrument for finding directions. A compass needle is magnetic and always points to magnetic north.

Contour A line on a map that joins places which are the same height above sea level.

Equator An imaginary line on a map drawn around the middle of the Earth.

Key A list of the symbols used on a map with their meanings.

Latitude Lines Lines drawn on a map from east to west. They show how far north or south a place is compared to the equator. The equator is the line of latitude 0 degrees.

Longitude Lines Lines drawn on a map from the North Pole to the South Pole. The Greenwich Meridian runs through London and is the line of longitude 0 degrees. Other lines of longitude show how far east or west a place is compared to the Greenwich Meridian.

Scale A way of showing large distances on the ground by short distances on a map or plan.

Sea level The surface of the sea.

Symbol A shape or drawing that represents something.



Schoolchildren study a globe to find the latitude and longitude of their city.

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Answers to questions in this book:

Page 11: To get from A to B on the photograph, the driver needs to go straight to the end of the road, turn left, then take the first turning on the right and follow the road round.

Page 17: Skulls were found in squares B2, B6, D8, E3, G11 and H6.



MAPS AND SYMBOLS

Discover different types of maps and learn how to use them.



- Find out how to draw a plan view of your bedroom.
- How are the heights of mountains measured?
- Are all map symbols the same the world over?

This book tells you all about maps and symbols.



The author

Angela Royston (left) has written many books for children about science and nature.

The consultant

Amanda Barker is a school geography teacher and examiner.

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RIVERS AND STREAMS • WEATHER AROUND YOU
WHERE PEOPLE LIVE • YOUR ENVIRONMENT



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