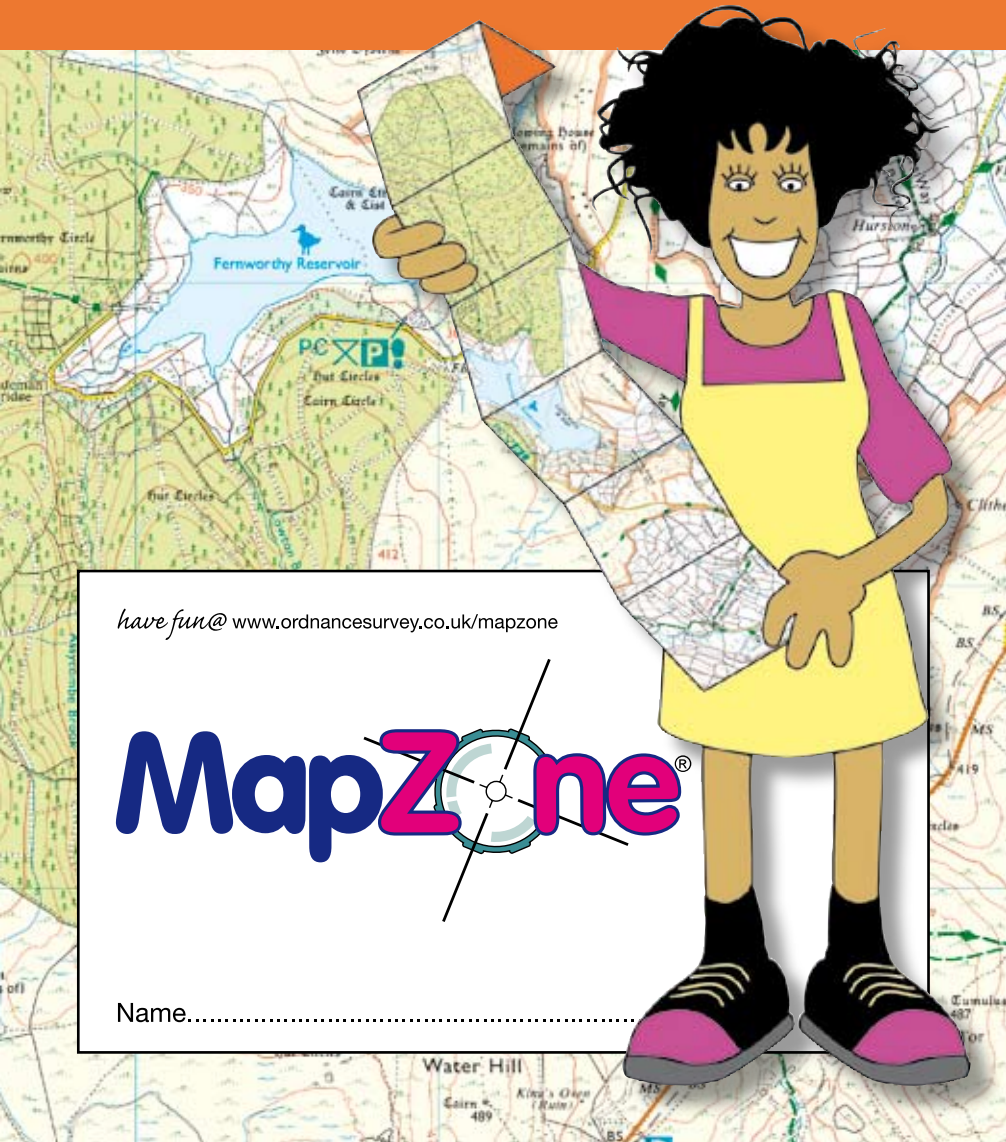




Ordnance  
Survey®

Map reading  
made easy *peasy*



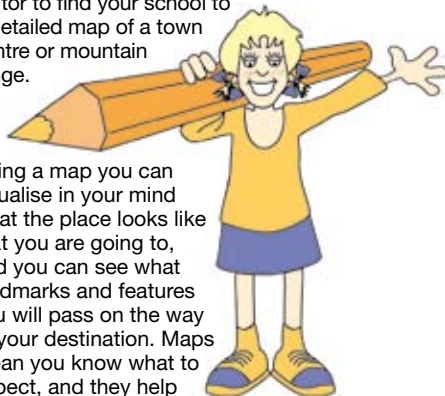
have fun@ [www.ordnancesurvey.co.uk/mapzone](http://www.ordnancesurvey.co.uk/mapzone)

**MapZone**®

Name.....

## 1. What is a map?

A map is simply a drawing or picture (in 2-D) of a landscape or area of a country (in 3-D). It could be anything from a sketch map for a visitor to find your school to a detailed map of a town centre or mountain range.



Using a map you can visualise in your mind what the place looks like that you are going to, and you can see what landmarks and features you will pass on the way to your destination. Maps mean you know what to expect, and they help you to know you are going in the right direction to arrive at your destination safely and quickly.



1:25 000 scale extract showing Snowdon, the highest mountain in Wales

### Question

Why not try drawing your own map to show a friend the route from your house to school, showing buildings and landmarks you pass on the way?

### Top Tip!

Have a look at a 1:25 000 scale map to give you some ideas of what you could draw if you are slightly unsure.

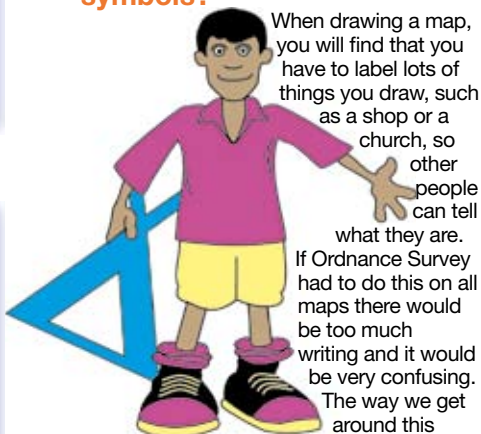
## 2. What are all the different symbols?



Sketch map of a school



1:25 000 scale extract showing part of London



When drawing a map, you will find that you have to label lots of things you draw, such as a shop or a church, so other people can tell what they are.

If Ordnance Survey had to do this on all maps there would be too much writing and it would be very confusing.

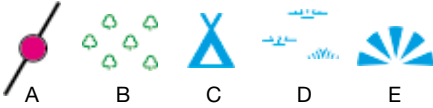
The way we get around this

problem is by using different shapes, colours and symbols to show all the roads, buildings and rivers and other interesting things in our landscape. Maps may even show you things you never even knew were there!

Maps usually have a key that explains the symbols and their meanings. If you find a symbol on the map that you don't know, simply look it up in the key.

## Question

- 2a. Have a look at the key on a 1:25 000 scale map and see if you can find out what these symbols mean.



- 2b. You can invent your own symbols for things on your own sketch map. Here are two ideas; can you guess what they are?



## Top Tip!

Get your friends and family to test you on how well you know the symbols. If you can learn them, then map reading is easy.

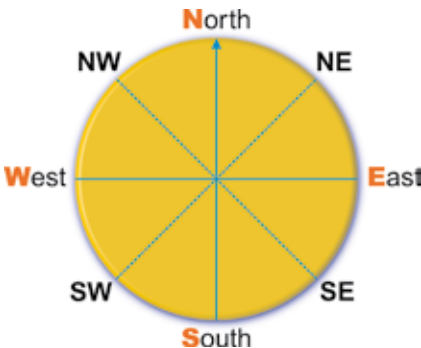
### 3. Which direction am I going?

Just as it is important to know which is your left and your right hand, in map reading it is important to understand where north, east, south and west are. You can remember where the points of the compass are by using one of these rhymes:

**N**aughty **E**lephants **S**quirt **W**ater

or

**N**obody **E**ver **S**wallows **W**hales



If you are walking in a direction half way between two of the points of a compass, you can say you are heading north-east, south-east, south-west or north-west, depending on the direction.

## Top Tip!

Ordnance Survey maps are always printed so that **north** is at the top of the sheet.

## Question

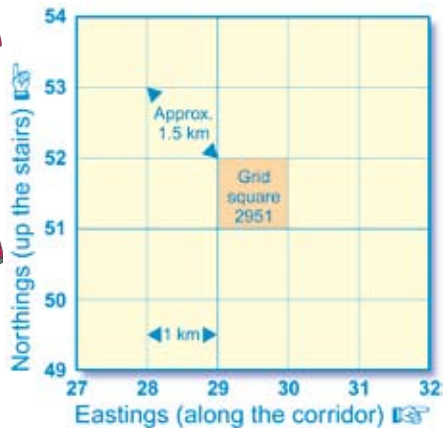
Using the 1:25 000 scale Bembridge Explorer® extract on this leaflet can you answer these questions?

- 3a. Which general direction are you heading if you are walking from point 1 to point 2?
- 3b. Which general direction are you heading if you are walking from point 2 to point 3?
- 3c. Which general direction are you heading if you are walking from point 3 to point 1?

### 4. How do grid references help me to find places?

You might have noticed by now that a 1:25 000 scale Ordnance Survey map is covered in a series of blue grid lines. These grid lines help you to pinpoint an exact location anywhere on the map by giving a unique number known as a grid reference. The vertical lines are called eastings, since they increase in value as you travel east on the map. The horizontal lines are called northings, since they increase in value as you travel north on the map.

#### Four-figure grid references



A four-figure grid reference is a handy way of identifying any square on a map. Grid references are easy if you can remember that you always have to go along the corridor before you go up the stairs. To find the number of a square first use the eastings to go along the corridor until you come to the bottom left-hand corner of the square you want. Write this two-figure number down. Then use the northing to go up the stairs until you find the same corner. Put this two-figure number after your first one and you now have the four-figure grid reference, which looks like this:

**2951**

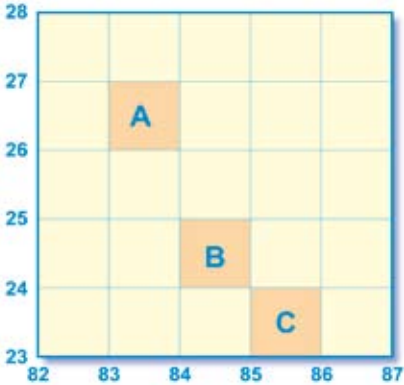
## Top Tip!

Always remember: *Along the corridor and then up the stairs.*

## Question

4a. Can you work out the four-figure grid references for the following examples?

A ..... B ..... C .....



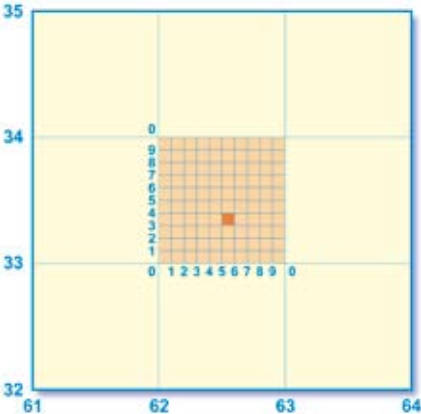
Using the Bembridge Explorer extract on this leaflet, can you answer these questions?

- 4b. What is the name of the school in grid square 6486?
- 4c. What is the name of the named building in grid square 6488?
- 4d. What grid square is Black Rock found in?

### Six-figure grid references

If you want to pinpoint an exact place on a map, such as your own house, you will need to use a six-figure grid reference. First find the four-figure grid reference for the square and write it down with a space after each set of numbers, like this:

62\_ 33\_



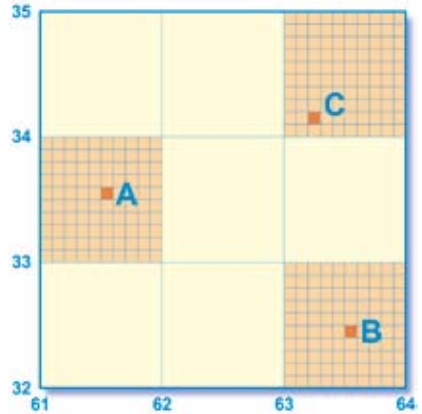
Now imagine this square is divided up into 100 tiny squares with 10 squares along each side. Still remembering to go *along the corridor and up the stairs*, work out the extra numbers you need and put them into your four-figure grid reference like this:

625 333

## Question

4e. Can you work out the six-figure grid references for the following examples?

A ..... B ..... C .....

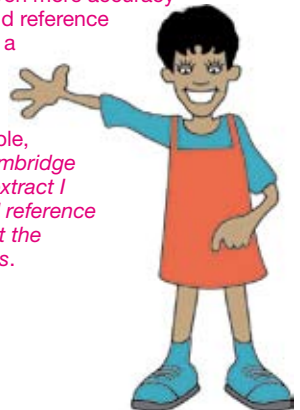


Using the Bembridge Explorer extract on this leaflet can you answer these questions?

- 4f. What is at grid reference 648876?
- 4g. What would you be doing at grid reference 644885?
- 4h. What building is to be found at grid reference 643882?

## Top Tip!

When giving directions you can provide even more accuracy to your grid reference by stating a nearby landmark or feature. For example, *on the Bembridge Explorer extract I am at grid reference 644874, at the crossroads.*



## 5. What is scale?

The scale of a map shows how much you would have to enlarge your map to get the actual size of the piece of land you are looking at. For example, your map has a scale of 1:25 000, which means that every 1 cm on the map represents 25 000 of those same units of measurement on the ground (for example, 25 000 cm = 250 metres).



1: 250 000 scale OS Travel Map – Road extract

## Question

5. Is a 1:250 000 scale map useful for walking or driving?



### 4 cm to 1 km

This means that every 4 cm on a map = 1 km in real life. To make it even easier, the grid lines are exactly 4 cm apart, so every square is 1 km by 1 km.

Maps are made at different scales for different purposes. The 1:25 000 scale map is very useful for walking, but if you use it in a car you will quickly *drive off the edge*! On the other hand, maps at 1:250 000 scale (note the extra zero) show lots more land but in far less detail.



1:25 000 scale Explorer extract

## 6. How do we measure distance?

It is always important to know how far you have to travel and how long it is going to take you. By measuring a distance on your map, you can work out how far that is in reality. You can measure this distance either in a straight line (as the crow flies) or following a winding route such as a country lane. To get this information from a map is very easy.

Here is a way of doing it:

You can measure between two points by using a piece of thin string. If you are measuring the distance in a straight line, then simply stretch the string between the two points. If you are following a road or track that is not straight, bend the string to follow the exact shape until you reach the second point.

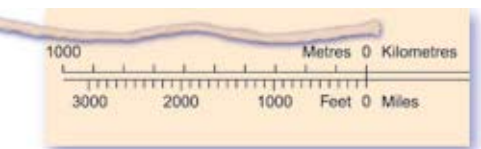


### Measuring distance using string

Now that you have a distance in centimetres marked on your string you can find out the real distance. You can do this in a couple of ways:

#### By eye

Place string against the scale bar on the map. This is usually at the foot of the map sheet.



#### By measuring

Measure your distance on your string with a ruler.

Suppose your string is 10 cms long. You know that 4 cm = 1 km, so the answer is 2.5 km.

Have a go at measuring the distances in the questions below using the Bembridge Explorer extract on this leaflet.

### Question

- How far is it in a straight line on the ground from point 1 to point 2?
- How far is it to walk along the road from point 4 (IRB Sta) to point 5 (PO)?
- Can you work out how long it would take you to walk both these distances?

(Most people walk at 3 km per hour, so it will take 20 minutes to walk in a straight line across a 1 km grid square.)

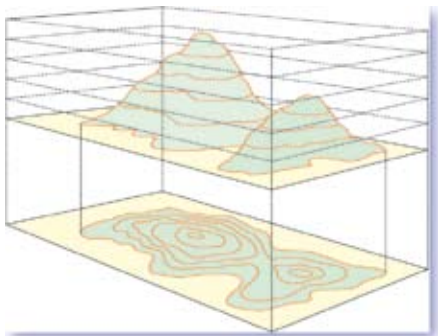
### Top Tip!

Remember that the grid lines on a 1:25 000 scale map are 1 km apart. A quick way of estimating distance is to count each square you cross in a straight

line. If going diagonally the distance across the grid square is about 1½ km.

## 7. How are hills and mountains shown on a map?

The ability to understand the shape of the ground from a map is a useful skill to learn, particularly in mountainous landscapes. The height and shape of the ground is shown on 1:25 000 scale maps by brown contour lines. A contour is a line drawn on a map that joins points of equal height above sea level. For 1:25 000 scale maps the interval between contours is usually 5 metres, although in mountainous regions it may well be 10 metres.



The above diagram shows the link between the shape of a hill and the contours representing it on a map. Another way of thinking about contour lines is as a tide mark left by the sea as the tide goes out, leaving a line every 5 metres.

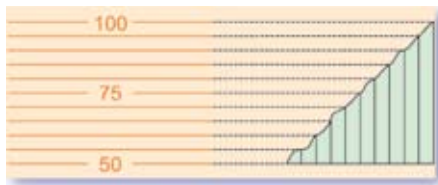
### Top Tip!

Remember contour numbering reads up hill – in other words the top of the number is uphill and the bottom is downhill.

Also remember the closer contour lines are together, the steeper the slope. The examples below illustrate this:



Shallow slope



Steep slope

## Question

Try this quick contour quiz using the Bembridge Explorer extract on this leaflet

- 7a. What type of slope is at the point where the parking symbol is on the map in grid square 6385? Is it a shallow slope or a steep slope?
- 7b. If you are walking from point 2 to point 5 in a straight line, is it uphill or downhill?



It's free, it's fun, it's



[www.ordnancesurvey.co.uk/mapzone](http://www.ordnancesurvey.co.uk/mapzone)

Unravel the mystery of maps with a visit to the virtual world of MapZone®. It's free, fun and packed with facts to help you learn all about maps and map reading.

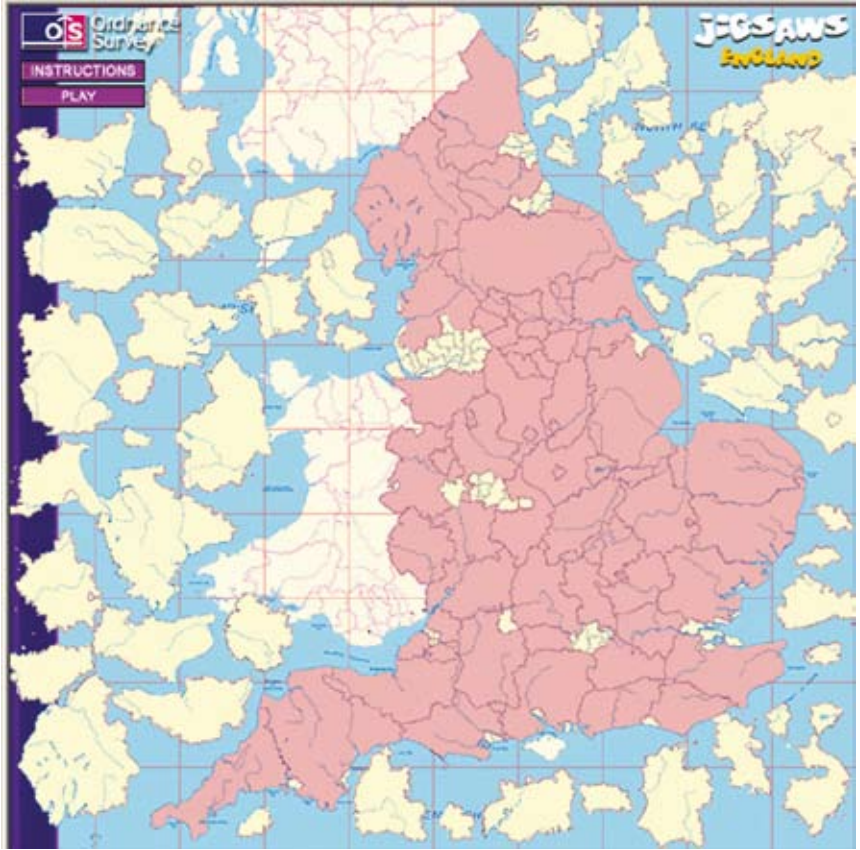
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# Take aim with our games

Check out our brilliant selection of free and fun games. We regularly add new puzzles, so don't forget to call back again soon.



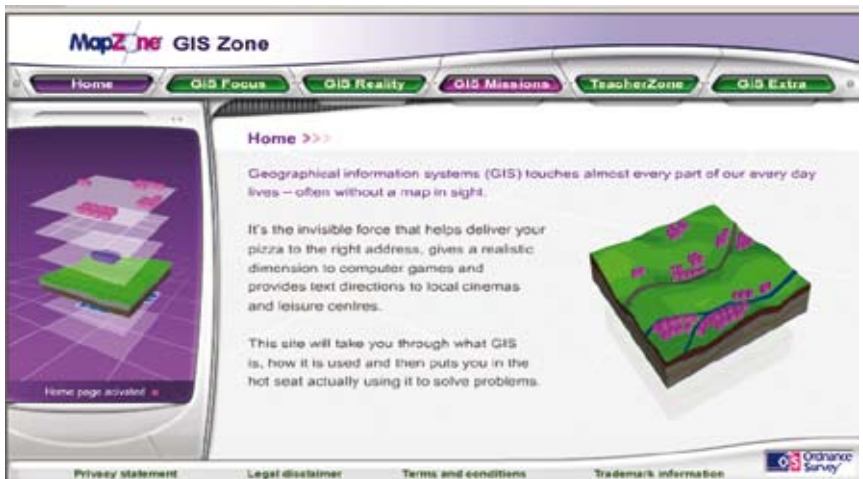
# Hands up for Homework Help

Banish homework hassles and snap up some map skills with our interactive guide. Whether you're testing your MapAbility in the MapTivity quiz or taking a seat in our MapSchool, Homework Help takes the mystery out of mapping.



# The future is GIS Zone

Heard about geographical information systems (GIS)? Possibly not, but they affect your life every day. Get ahead of the game and learn about them in a fun way.



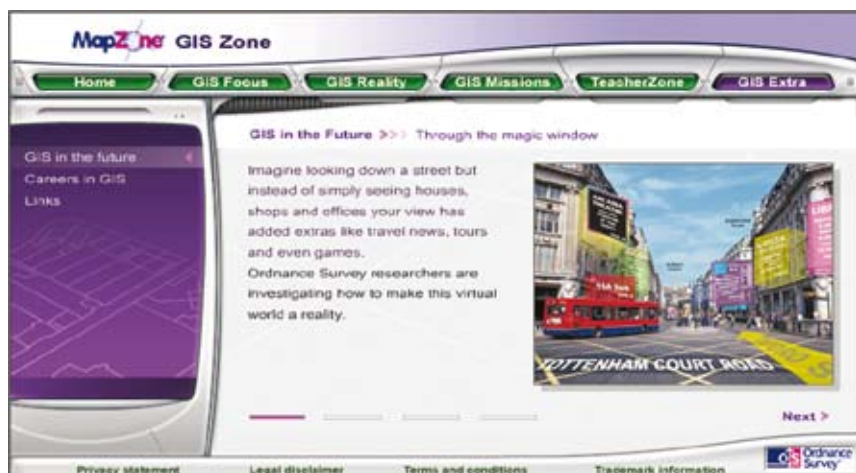
## Mission control

Want to have fun and also prove that you can make the decisions that matter? Use GIS to sift the evidence in our six exciting missions that we have specially created for you.



## GIS is coming to a screen near you

The future of GIS may be on your mobile phone screen. Find out about this and other developments that are changing the way we see things.



Maps can be great fun – and they can lead you to all sorts of discoveries. They can help you get to know an area really well, because they pinpoint interesting places that are often hidden away, which you might otherwise never find. They can also help you find different routes to places you already know.

To be sure you are not missing anything important you need to know about map symbols, scale, direction and distance. Knowing about these will help you unlock the secrets of maps. This leaflet explains the main things you need to understand, especially when using Ordnance Survey Explorer maps at 1:25 000 scale.

Maps can also help you in your geography, history, environmental science or citizenship classes – but they can provide entertainment, too. Find out how by discovering the games, quizzes and competitions featured on the web at [www.ordnancesurvey.co.uk/mapzone](http://www.ordnancesurvey.co.uk/mapzone).

Happy exploring!



**Vanessa Lawrence**  
Director General and Chief Executive  
Ordnance Survey

## Contact details

### Ordnance Survey Customer HelpLine

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Website: **[www.ordnancesurvey.co.uk](http://www.ordnancesurvey.co.uk)**

Email: **[customerservices@ordnancesurvey.co.uk](mailto:customerservices@ordnancesurvey.co.uk)**

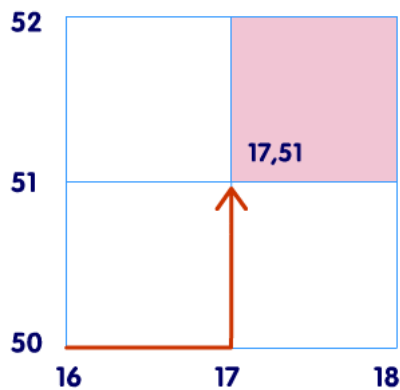
This leaflet was produced in association with The Expedition Company Ltd.

D02518 0505 (MR1E)

## Quick reference guide

This sheet is a quick guide to grid references. It should help you when you are asked to find something on a map, such as a town, or even an individual building.

The grid lines on an Ordnance Survey map are called eastings (along the corridor) and northings (up the stairs).

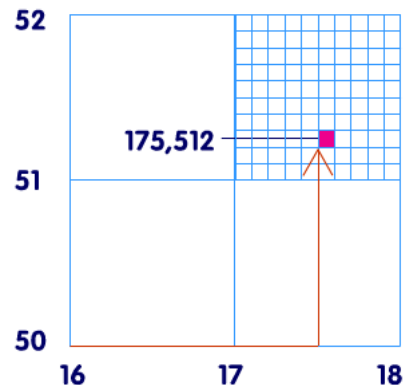


## Four-figure grid references

Each square has a grid reference which you get by putting together the numbers of the easting and northing that cross in its bottom left hand corner.

## Six-figure grid references

In your head, you should be able to divide all sides of the square into ten equal sections. By doing this, you can pinpoint locations within the square – these are called six-figure grid references.



## What is scale?

Scale is what makes map drawing possible. It takes real life things and reduces them in size many times so they can be shown on a map.

Every map has a scale printed on the front and you should always check this figure before you start reading it. It will tell you how much smaller the area shown on the map is compared to the same area in real life.



© Crown Copyright 2002: Explorer™ 161

## 1:25 000

This means that every one unit of measurement on the map (like a centimetre) is the same as 25 000 of those units (in this case 25 000 cm or 250 metres) in real life.

Ordnance Survey produces maps drawn to many different scales, depending on what people want to use them for.

## Large scale maps

Large scale maps are better for showing individual buildings in detail because they only cover a small area of land.



© Crown Copyright 2002: MasterMap®

# Understanding scale



© Crown Copyright 2002: OS Travel Map – Road No. 5

## Small scale maps

Small scale maps are ideal for travelling either by car or walking because they cover large areas of land.

Other maps are drawn to a smaller scale and show smaller amounts of detail, but cover a wider area. These maps are often used for planning long walks and drives.

It might help you to remember that the **larger** the number in the scale, the **smaller** the scale of the map will be.

# Understanding scale

## Scale summary

Ordnance Survey produces different maps for different uses. Each of these uses normally requires a different scale.

**1:1250**  
**OS MasterMap®**  
Ideal for architects



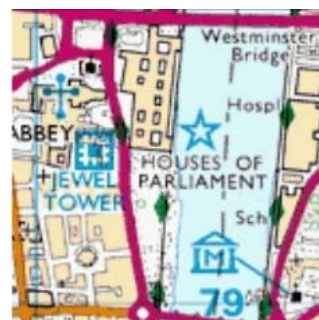
© Crown Copyright 2002: OS MasterMap®

**1:10 000**  
**Landplan®**  
Ideal for town developers



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**1:25 000**  
**Explorer™**  
Ideal for outdoor activities



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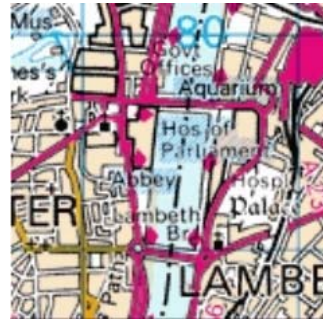


# Understanding scale

**1:50 000**

**Landranger®**

Ideal for planning a day out

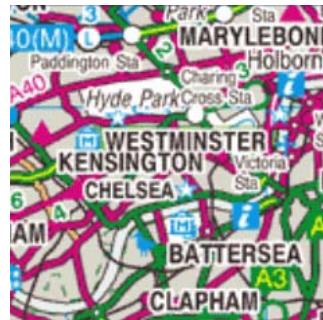


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**1:250 000**

**OS Travel Map – Road**

Ideal for motorists, and long journeys

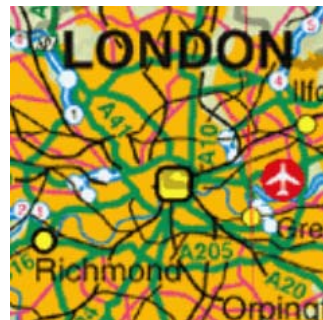


© Crown Copyright 2002:  
Travel Map – Road No. 5

**1:1 000 000**

**MiniScale®**

Ideal for seeing the whole country at a glance



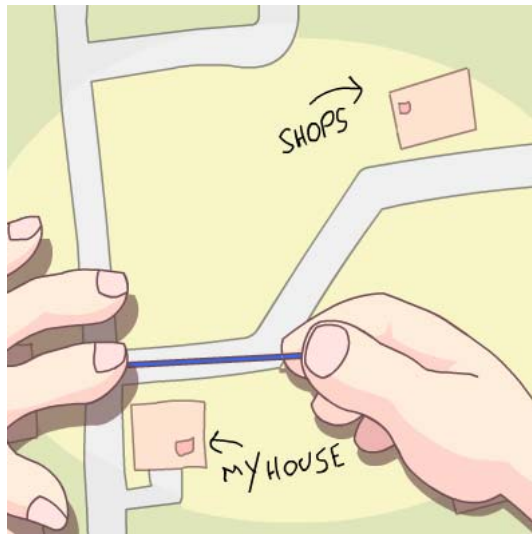
© Crown Copyright 2002: MiniScale®

# Measuring distance

## How long is a piece of string?

It's usually not possible to travel in a straight line between two points on a map. If you're following a road or footpath, it can change direction many times to avoid things like woods and rivers.

However, there are still simple ways of measuring the actual distance you will need to travel between two points. One of them is to use a piece of string.

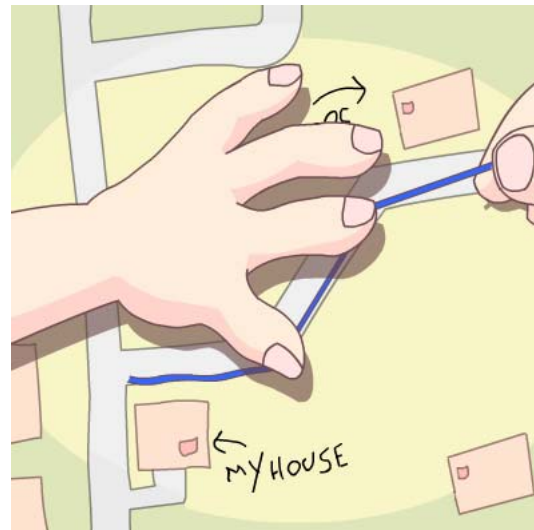


### Step 1

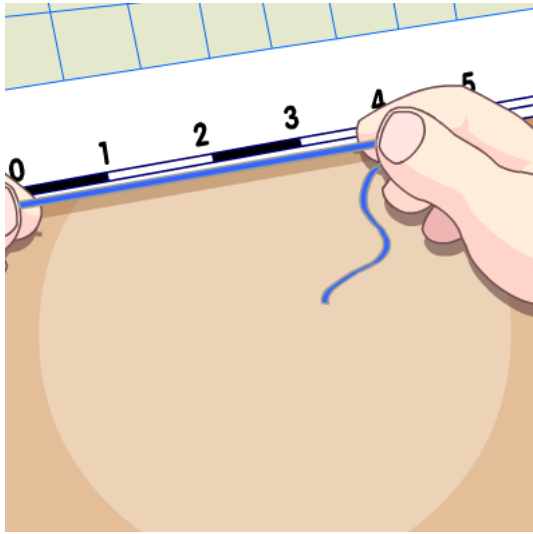
Take a length of string – it's best to take one longer than you think you'll need – and place one end on your starting point.

### Step 2

Now carefully lay the string along the road or path you know you're going to use, following the curves as closely as you can. When you reach your finishing point, mark it on your string with a pen.



# Measuring distance



## Step 3

Now that you have your distance from the map, you can straighten out your string and place it against the scale bar to find out how far you will actually be travelling.

## On the paper's edge

Another method of measuring distance is to take a sheet of paper and place the corner of a straight edge on your starting point. Now pivot the paper until the edge follows the route that you want to take.

## Step 1

Every time the route disappears or moves away from the straight edge of your paper, make a small mark on the edge and pivot the paper so the edge is back on course.



# Measuring distance



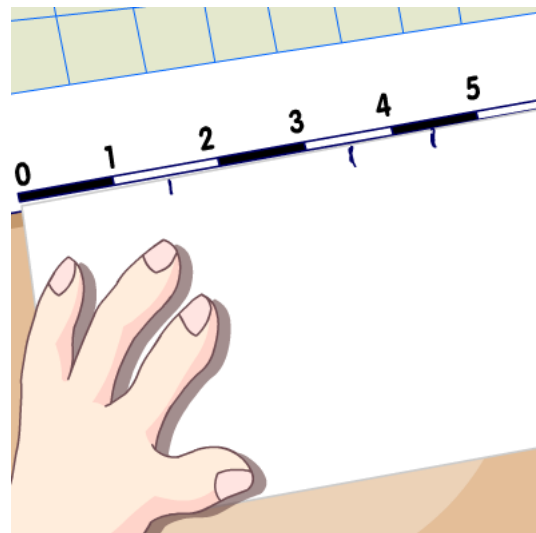
## Step 2

Repeat this process until you reach your destination.

## Step 3

You should be left with a series of marks along the edge of your paper. You can now place the sheet against the scale bar on your map.

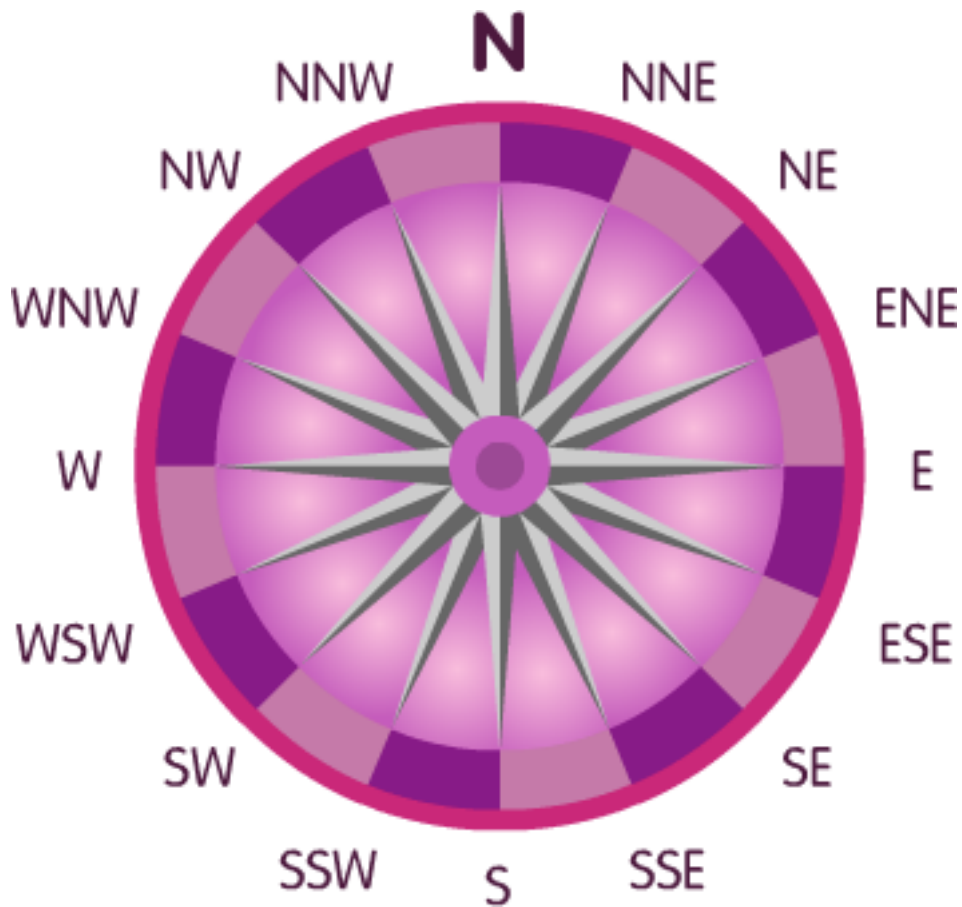
The last mark you made will tell you the real distance you need to travel.



# Compasses and directions

## 16-point compass

Use this compass as a 'print out and keep' version to help you with your directions when you're map reading. When you've printed out your copy, use scissors and glue to stick it onto some card and keep it in a safe place with your maps.



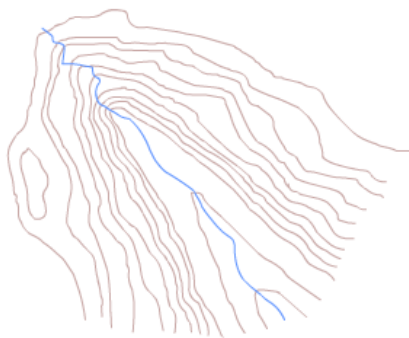
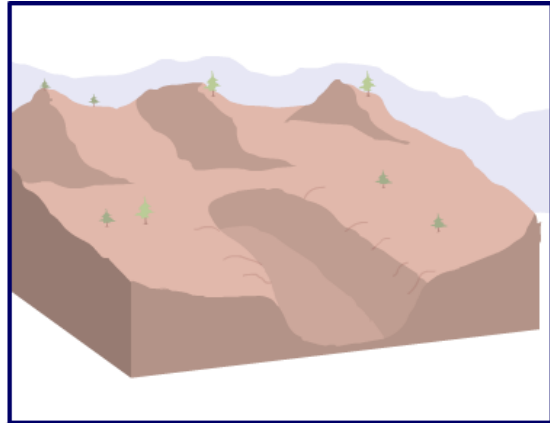
# Relief and contour lines

## How do we show height on maps?

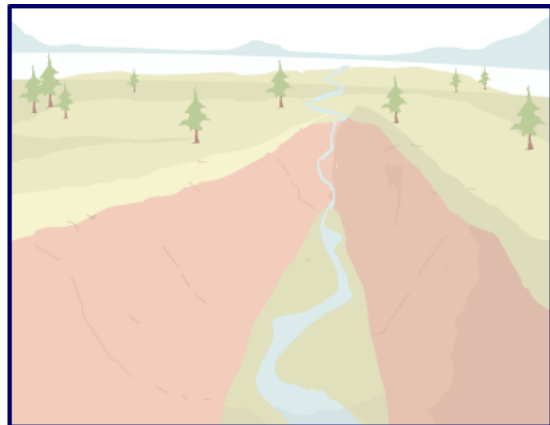
Contour lines are a map's way of showing you how high the land is. They join together places of the same height and form patterns that help us to imagine what the land actually looks like.



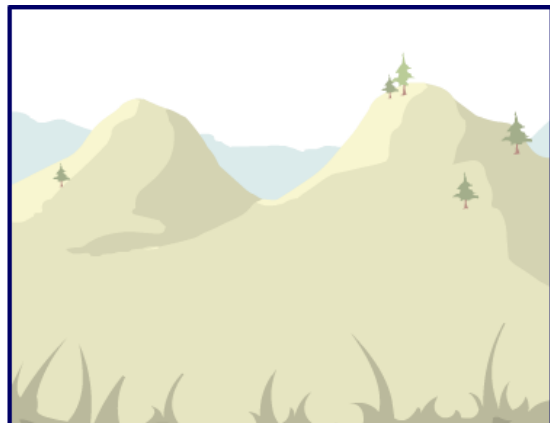
**U-shaped valley**



**V-shaped valley**



**Saddleback hills**



# Relief and contour lines



**Cliffs**



## **'Naismith's rule'**

Remember that the closer together the contour lines are, the steeper the land. Contour lines that are wide apart show us that the land is flatter.

When you're travelling across steep landscapes (where contour lines are very close together) it will add time on to your journey.

Naismith said that you should allow an extra minute of walking time for every 10 metres of height that you climb.

Contour lines are usually drawn at 10 metre intervals on a 1:50 000 scale map and at 5 metre intervals on a 1:25 000 scale map.