

MAP READING FOR WALKERS

The following text is a self-managed map reading course. Working through the interactive examples, you will learn and practice map reading. Help with queries can be obtained by asking other proficient map-readers who will no doubt be pleased to help. Always remember, practice is essential to gain the experience required to master the art of navigating with a map and compass.

The first chapter in most books on map reading is entitled what is a map. The answer to the question in our case might be, a scale drawing of the countryside in the form of a plan view with emblems to depict features including buildings, hills, hollows and gradients.

SCALE

Scale is very important, without it we don't know how far away or how big or small anything is. Our maps come in three scales, and working between scales, chopping from one to another is a bit like going from Fahrenheit to Centigrade, and we all know how difficult that is. So you have two choices, choose and stick to one scale, which is my choice. Or work with as many as you wish right from the start without getting too used to any particular one. As for which scale to choose, 1:25000 is the clearest and most magnified and portrays the most information, but the maps do not cover such a large area, and the new ones tend to be bigger. It is worth buying a laminated map; they are waterproof and won't tear. They cost twice as much but will last ten times longer; you don't need a case for it, and won't worry about messing it up.

GRID REFERENCES.

Grid references are used as a means of pinpointing a position on a map, of anywhere within the British Isles or even in the seas around them. We normally use three figure references (two sets of three digits), which should be within plus or minus 50 metres in any direction, we sometimes use four figure references (two sets of four digits), which if accurately plotted, will give a position to within plus or minus 5 metres in any direction. How to do this will be explained in detail later. As we are aware, grid references are used to find meeting points at the start of walks and can be used to direct the emergency services to the location of an incident.

The map is divided into one-kilometre squares by vertical and horizontal lines. Each line has a number in the margin ranging from 1 to 100. This is because the British Isles is divided into 100 kilometre square blocks (see diagram 1) and each block shares the same set of references except that each block has its own reference letters. We are in block SU, so any grid reference with the letters SU in front of it will be in our 100 kilometre x 100 kilometre (62-mile x 62-mile) area. It is important to look in the margins or legend (key) of the map you are using to determine which block you are in. A grid reference of the same numbers with SO or TQ in front will be 100 kilometres away (SP is north of us and TQ is to our east).

A grid reference is read from the bottom left hand corner of the map. The first half of the reference is read along the bottom from left to right (along the corridor) and the second half of the reference is read up the side of the map from the bottom to the top (up the stairs). So remember, 'along the corridor and up the stairs'.

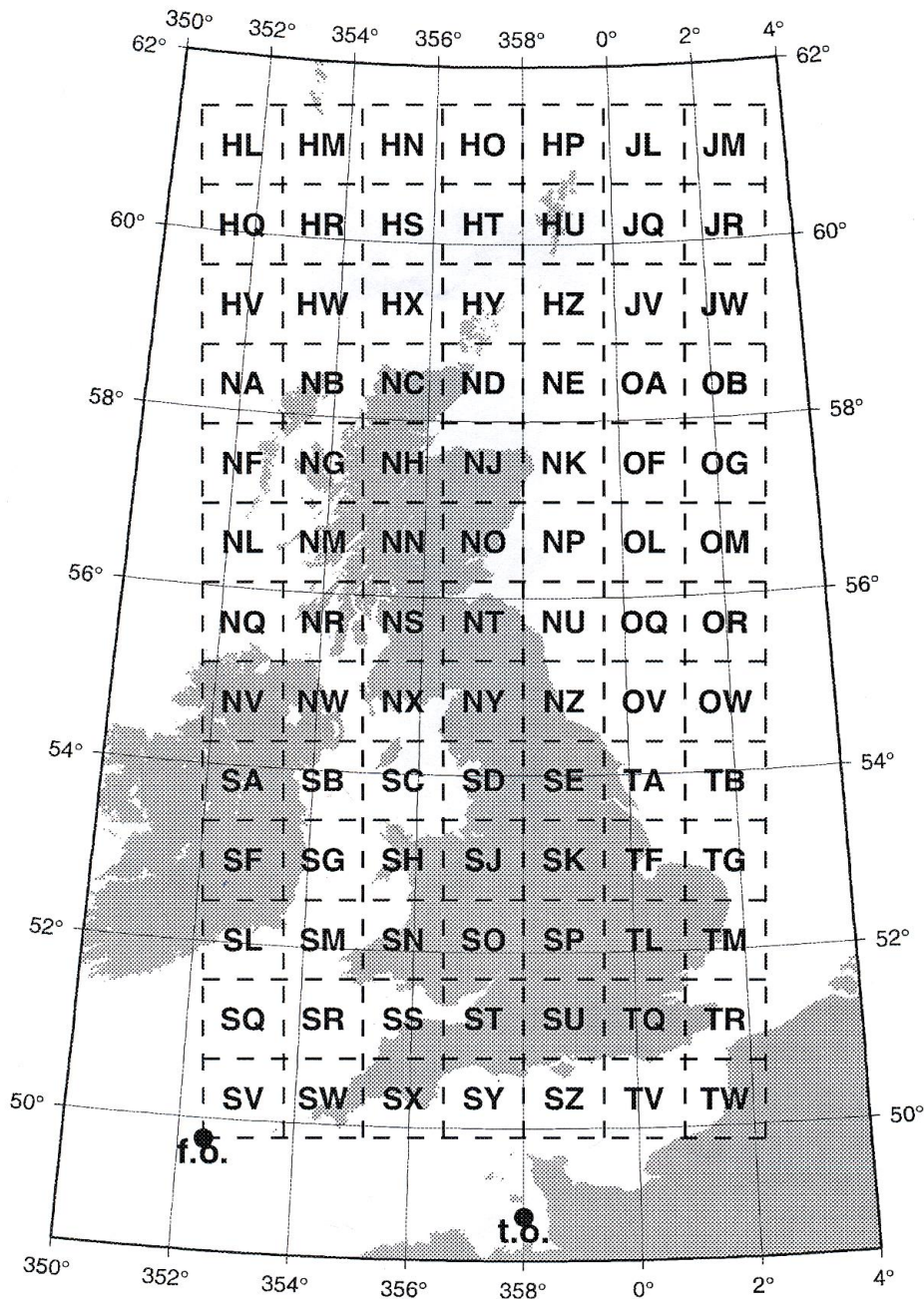


Diagram 1

This diagram shows the 100 Kilometre square blocks into which the National Grid is segmented. It also shows that, apart from the line **t.o.** at 358 degrees, neither the tapering Longitudinal lines nor the curved Latitudinal lines on the globe are parallel to the rectangular grid. This is why there is a grid north and true north (the north pole). There is also a magnetic north (three north's in total). Magnetic north is currently about four degrees to the west of true north. Due to changes in the magnetic field, magnetic north moves quite noticeably over a decade, whilst grid lines (grid north) and true north (following the Longitude lines to the poles) do not. This is why allowances are made for 'magnetic variation' when using the compass as a protractor against the map grid lines.

THE LEGEND

The legend of the map is the key and tells you what most of the symbols represent. You will also find information about the map in the margin around the edge. There are differences from map to map, for instance footpaths can be in red or in green, so it is important to make sure that you are familiar with the particular map you are using.

USING THE MAP

Everyone can read a map to at least some elementary degree, and from here with some instructions, it should be possible to just look at a map and become quite proficient on your own. To read a map proficiently and go out without getting too lost, a good memory is required. You need to be able to find where you started out from on the map, remember where you are going and the route you have chosen to get there, and most of all be able to keep track of where you specifically are on the map. Once you have lost control of this you are effectively lost. Practice and experience will help but concentration and possibly notes are the only aid to memory.

THE COMPASS

You will need a compass when you go out with a map. A good quality bottom of the range model will be more than good enough provided it has a rotating bezel (protractor) in a rectangular base plate. Silva or Suunto are good makes. There are others at about the same price but be careful which you choose, the needle must be well balanced and must not stick. There should **not** be an air bubble in the fluid inside it. If in any doubt buy a Silva. When you buy a compass it should come with a full instruction sheet and you should be able to work out for yourself how to use it.

The compass not only tells you where north is, but it will tell you in which direction you should be heading, and will give you a bearing from a church or other land mark. This will tell you roughly where you are on a path, and with a second cross bearing from another landmark you will know exactly where you are.

THE DIFFERENT NORTHS: ‘True north’ is at the north pole where all the longitudes meet, but ‘Magnetic north’ is in fact some eight hundred miles lower, somewhere north of Canada and varies over time.

We are only concerned with ‘Grid North’ which is the direction of the vertical grid lines on the map, and ‘Magnetic North’ where the compass needle points, currently (year 2005) 4 degrees west of grid north, and varies over time. Very rarely if ever do the two coincide. This is why you have to make a ‘magnetic variation’ correction when using a compass. The best way to allow for this difference is to put an indelible line across the centre of the bottom of the compass capsule, from four degrees west straight across to four degrees east of south (356 degrees to 176 degrees). Then cover it for protection with sellotape. Now use the new line when using the compass as ‘a compass’, and the original arrow emblem when using it on the map as ‘a protractor’. In a short time using this method you will soon remember how to make allowances without the new line.

On the next page there is a picture of a compass modified in this way.

THE MODIFIED COMPASS.

Note the black line pointing to 356 degrees, showing the 4 degree west magnetic variation. Once you have got used to using the compass in this way you should be able to dispense with the black line and remember to always point the magnetic needle to the required magnetic variation.

While looking at this picture we can cover 'back bearings'. This is a useful way of pointing the needle to where you are coming from when you have no way of seeing something to line up on ahead. You are in fact using the compass the other way around and using the back end of the needle. The back bearing in this case would be 198 degrees.

The compass is used in two ways, 'from the map' and 'from the ground'. There is a bit more to using a compass, but the following three paragraphs will give some idea and may assist with understanding the manufacturers instructions.



USING THE COMPASS

1. From the Map: You can point the map the right way up so that the top of the map faces north. To do this you set the compass bezel so that north is at the top, then lay the compass on the map so that one side is parallel to the vertical grid lines on the map. Now gently rotate the map with the compass on it, until the compass needle covers the direction line in the capsule base. The map will then be 'orientated' so that you can identify everything around you from the map.

To travel across a large field along an unmarked path to a stile at the other side, which you possibly cannot see. Lay the compass on the map so that the side of the base plate is parallel to the path on the map, and then rotate the bezel so that the lines in the capsule base under the needle are parallel to the vertical grid lines on the map. If you then hold the compass flat in front of you, so that the needle is over the arrow in the capsule base. You will be pointing in the direction you wish to travel and will continue to do so provided that you keep the compass pointing such that the needle stays in the same direction within the compass.

2. From the ground: Point the compass at something, for example at a church. Then rotate the bezel until the needle is over the arrow in the bottom of the housing. Then lay the compass on the map so that the side of the base plate points at the church on the map while the lines in the bottom of the bezel are parallel to the vertical grid lines. This will give you a straight line from the church to your current position.

Before we get onto page 6 you will find copies of pages from a very elementary, out of print book on map reading. The extracts are of open pages and the page numbers are only on the text pages on the bottom left hand corner. The pages should be read in the order that they appeared in the book and will help to understand the rest of the course. There were errors on page 14/15 of the book but the copy has been corrected.

THE MAP READING COURSE

The following is a self-help course working from the attached section of a 1:25000 map using a rectangle between grid references SU 72 36 (bottom left corner) and SU 778 400 (top right corner). This section of map is most suitable to be used to learn to read a map as it contains most of the features that you will find on a map including varying gradients. There is also at least one five-mile circular walk, which we have walked as a group, and can be plotted within this section of map. The following examples are all given grid references for you to find and actually see the examples. Please take the trouble to look at the examples as they arise. This will help you to get a feel of using the grid and map.

This course relies heavily on grid references to pinpoint examples and questions within the map. You will get plenty of practice at using the grid and will become very familiar with the working of the system. The 'Roamer', attached to the map on a piece of fine cord will be extremely helpful. There are ten graduations across the top and down the right hand side starting from the top right hand corner. This one is to the scale of this particular map and no other, it is used to accurately measure across and up a grid square to locate a point within the square to one tenth or even parts of a tenth of a square, an accuracy of within 100 metres or less. A clear plastic one, made by Silva can be purchased for less than £1 at a good map shop.

It would also be very helpful although not essential at this stage to have a compass. Angles on the map could be measured with a small plastic protractor, but you will need a compass when you go 'out in the field'.

TO ESTABLISH A GRID REFERENCE

The grid lines running up and across the map divide the map into one-kilometre squares. Every grid reference consists of two sets of figures, two sets of three in a six-figure reference, or two sets of four in the case of an eight-figure reference. This is where it gets confusing. The first set are always the (Easting), and are the numbers and subdivisions of the vertical lines running across the map, (along the corridor). These numbers are read from west to east, hence the name eastings. These verticals are also important when using the compass as a protractor.

The second set are always the (Northings), these lines run from the left to the right of the map (horizontal) the numbers are read from south to north (up the stairs). Confusion could come from the fact that northing lines run from west to east on the map and you've guessed it, the eastings run from south to north.

If you remember to think (along the corridor and up the stairs) when reading a grid reference, you won't get the numbers mixed up.

From here you will need to refer to the section of map provided, on the back there is a copy of the symbols used (key or legend). Look at the map to find each grid reference and example as they arise. This is invaluable and will help you to learn to read a map. The numbers of two cross lines always refer to the square to the right and above the point where they cross, you work within that square to the right and then upwards. So the six-figure grid reference for Worldham Church would be SU 751 382 and the more accurate eight-figure reference would be SU 7506 3817. It is not common or recognised practice, but the numbers are easier to read if they are separated by a space in the middle as above.

MAP READING

Now look on the map for the top of King Johns Hill, the three-figure grid reference is SU 755 377.

Looking at the map again, the reference for Kiln House is SU 728 and half way between 381 and 328, which after all is only fifty metres from either position, but if you want to give a really accurate reference you could give a four-figure reference, which would read SU 7277 3815.

Contours are the brown lines that show hills, valleys, and hollows and give an indication of how flat or hilly the area is. The closer the lines are together the steeper the slope, and the brown numbers indicating altitude show not only the height above sea level but also which way is up or down hill. Contours rise in five metre steps and the distance between them varies according to the gradient of the slope. For example, the highest point on Neatham Down at grid ref. SU 7353 3933 at the brown spot depicting the summit (152 metres above sea level) and the nearest contour to the top is an oblong circuit at 150 metres. The steepest face of the hill is to the south, while the most gradual descent would be to the east.

The highest point in grid square 74 36 is at grid ref. SU 7480 3666. Not a very obvious hilltop, looking at the contours of the map.

LANDMARKS AND FEATURES

With every map there is a 'key' it would be ideal to memorise all of the emblems, but most of us have to look them up and lose our place in doing so. A line of pylons carrying electricity cables can give a good indication of where you are. Two such lines go across grid square 72 36 and you will see a pylon at SU 7263 3681. The pylons are marked at their exact position on the map, so you can take an accurate bearing from them.

Field Boundaries are drawn on the map as thin black lines; an example of these is at SU 7320 3686. You will also see at grid ref. SU 7534 3900 that the green dotted line denoting a footpath clearly goes along the south side of the field boundary line, clearly showing which side of the fence or hedge the path is on.

Footpaths sometimes get diverted, and are even drawn in the wrong place when the maps are made. It is important to remember this when you feel that the path is either missing or seems to be wrong. Normally the maps are extremely accurate and you can set your direction of travel using a compass against the map. A question frequently asked is 'how accurate are maps'. Considering that the green dotted line denoting a footpath is half a millimetre wide (one eightieth of a kilometre at this scale). The line width would cover twelve and a half metres (41 feet), so not accurate enough to settle a border dispute.

If you run your compass or protractor over the course map set at a particular angle, you will notice that very few paths will coincide with the direction of the edge of the compass. This means that you can only be on one of the few paths that go in the right direction. Narrowing down the possibilities if you are unsure of where you are.

There is a triangle of paths in grid square SU 74 36 extending into the next square to the east (centred around the words 'Hartley Park'). They are faint black dotted lines and are not necessarily rights of way. Legal rights of way are in green on a 1: 25000 scale map. But in red on 1:3500 and 1:50000 scale maps. To stray from them is to trespass.

WATER

The answers to all questions from here can be found in the legend (key) of the map, or on the map itself.

Water is depicted in blue and although a useful landmark can present an obstruction. At grid ref. SU 7717 3757 a footpath crosses Kingsley Stream. There will probably be a bridge of some sort, but is one depicted on the map?

Hartley Pond is at grid ref. SU 744 361; there is the small black cross on the other side of the road and it can be one of three things, what are they and which is it?

There is a blue 'W' at SU 7342 3665, on the opposite corner to the words 'Round House', what is it?

'Sprs' in blue is written on the map at SU 755 361, what does this mean and how far away is another one to the northwest? (Remember each grid square has one-kilometre long sides).

At this stage you can read a map, you will be able to look in the legend for any emblem you may come across in the legend, and with practice by looking at the map will become more familiar with it. Maps are like books, the more you read the easier it becomes, and if you shut a map without noting your position will be lost and won't know where you are unless you can find your place on the map again.

USING A MAP.

Learning to read a map is the easy part, learning to use a map can only come with experience, having the ability to remember where you have been, where you are going and knowing where you are. A GPS will tell you where you are at the very least, and are easy to use at basic entry level. They are currently from £80 upwards if you shop around and could prove an invaluable piece of equipment.

To read a map successfully you need to know roughly where you are. This means knowing your direction of travel, knowing the speed at which you travel, (probably one grid square every 15 to 20 minutes) and being observant. This means keeping your eye on the ball, constantly being aware of where you are on a path, what you have passed and of every turn taken, and looking for your next junction or turning point. Map reading is a skill, which is acquired by practise and experience.

FINDING A WALK ON THE MAP

Putting a walk together can be quite difficult. You need a starting point with enough space to park and a circuit of footpaths of the right distance. Not too much track or road, some good views and pleasant countryside to walk in. Having established all of these factors, you will have a walk that you can go out and enjoy.

In our section of course map there is at least one five-mile walk starting from a lay by at grid ref. SU 751 380. To work out the distance, we know that each grid line is one kilometre from the next, and that two kilometres are roughly equal to a mile and a quarter. So one mile at the scale of this map would be sixty-four millimetres. A five mile walk at this scale would cover three hundred and twenty millimetres which can be measured in short straight lines using a ruler on the map. This is a very accurate way of gauging distances and will help to make sure that everyone knows the length of the walk.

Now as a final project sort your self out a five-mile walk from the course map, and go out to practice using your map and compass skills. If you cannot find a walk on the map, look in the envelope in the pack and see if that will help.

If you still don't feel up to it, go over the course again and get out into familiar surroundings with a map and compass, and practice your newfound skills. For further instruction you could buy or get a book on map reading out of the library. Simply Map Reading by Richard Neave, ISBN No. 0-86367-286-8 which used to cost £3 is a very a good choice. There is a copy of the book in the Hampshire library system, but you may have to order it, and there will be a fee to pay to have it brought in from elsewhere.

Always remember that the best map readers miss turnings and go off course, and in extreme conditions can get lost. Above all don't give up hope, in time you will be able to find your way with confidence.

The Map

