Navigation

Basic map and compass skills are useful for many walkers, and essential in hilly, heavily wooded and remote areas. Even if you are following a signed route or using a good guidebook, knowing how to find your way around with a map will give you more options for diversions and escape routes, and help if you get lost or encounter damaged or missing signs. Navigation skills are also essential for walk leaders intending to take groups of people out into the countryside.

Navigation Equipment

For effective navigation, in addition to the appropriate maps you should carry:

- A compass: in lowland areas you could rely purely on map-reading skills, but using map and compass together, provided you have the basic skills, will help you follow your route with much more accuracy, particularly in woods. In the hills a compass is essential, especially when visibility is poor. Choose an orienteering or protractor compass with a rectangular baseplate of reasonable size so it can be turned while wearing gloves, and clearly marked km/m scales that can be read in poor light.
- A pen or pencil
- A reliable watch, to help judge speed, monitor progress and plan for future journeys
- A torch, especially on short winter days
- Something to protect non-waterproof maps, such as a polythene bag or map case.

Some walkers find **GPS** satellite navigation units useful. These are hand-held receivers that pick up signals from satellites circling the earth, processing the information to give a read-out as a grid reference and an altitude to an accuracy of around 20m. They can be pre-programmed with a series of points along the route and will work out the bearing and distance required to reach them. However, they are not a substitute for traditional navigation and route-planning skills, which are in any case required to use GPS most effectively. Unlike compasses, GPS systems can run out of battery power and may lose satellite contact in bad conditions.

Map interpretation

Interpreting a map correctly is the most basic and useful navigational skill. Maps are simply an accurate picture of the ground as seen from above, scaled down from life size and with symbols to show particular features and landmarks. On a 1:25 000 map such as an Ordnance Survey (OS) Explorer (see Maps), 1 unit of length on the map represents 25,000 units on the ground, so 1cm on the map represents 25,000cm, that is 250m or 0.25km, on the ground. On a 1:50 000 map, 1cm on the map represents 500m on the ground.

To measure the approximate **distance** of your route, take a piece of thin string and lay it carefully along the exact route on the map, then lay it straight along the scale line on the map's margin. With practice, you'll soon learn to estimate the distances involved

by eye. As an extra guide, OS walkers' maps are divided into squares that represent a square kilometre on the ground. But don't forget the extra effort of climbing hills when estimating how long the route will take to walk (see Route Planning below).

To find out which features the different **symbols** represent (buildings, different kinds of church, electricity pylons, roads and railways, woods, orchards, scrub or marsh and so on) consult the key shown on the map. The best way to learn these symbols is to relate them to the way they appear on the ground.

Height and **relief** (the way the ground rises and falls) are shown on maps both by 'spot' heights, indicating the exact height at a certain point, and by contours, lines that link together points of the same height. Again, you will soon learn to interpret these through practice and experience. From the map you should recognise overall height, the steepness of slopes (for example, tightly-packed contours mean a steep slope), and the major natural landforms such as valleys, ridges and spurs. Be careful with contours, since the intervals between them vary on different map types.

Some map markings do not show on the ground, such as council boundaries (unless these follow a physical feature such as a river or ditch), contours and grid lines. Rights of way marked on maps will often be visible as a distinct path or track on the ground, but in less well-walked areas the path may not be visible.

Remember that, although a good map will remain useful for at least a few years, the landscape is ever-changing and you should not be surprised if some features on the ground do not agree with your map.

Grid references

Overlaid on all OS walkers' maps is a numbered grid dividing the country into 1km squares. The numbers repeat every 100km, so blocks of 100 squares are identified by a two-letter code. By using the letters and numbers and estimating tenths within a square, it's possible to give a unique 'grid reference' to a specific point anywhere in the country within 100m. The system is explained in detail on the maps themselves and in OS literature.

Using a compass

Many people who walk in lowland areas rely purely on map-reading skills and never use a compass. However, using map and compass together will help you follow your route with much more accuracy, particularly in woods, and in the hills it is a vital skill that could turn out to be a life-saver.

The following notes simply identify the main points – to learn how to use a compass properly you should consult one of the recommended books or, better still, take one of the short professional courses listed. Remember, you must ultimately practise out in the countryside and on a regular basis if you want to acquire effective and lasting navigational skills.

Three basic techniques should be mastered:

- **Setting the map by compass**: aligning the map in the direction you are facing so that the features on the map match those on the ground
- **Checking the direction of the path**, for example at a junction in a wood where you can see no other landmarks to help you
- **Travelling on a bearing**: A bearing is the angle from north of the direction you want to travel. You should first measure the bearing from 'grid north' on the map to your objective. Then, for accuracy you will have to convert this to a bearing from 'magnetic north', which always varies slightly from grid north: details of how to do this should be shown on the map. Finally, you align your compass with the ground and travel along the correct bearing.

Route Planning

Start by asking yourself what sort of route you will enjoy: what sort of places you'd like to visit, what sort of terrain you want to walk through and how long you want the route to be. Mostly you will want to use off-road paths and open country: roads are often unattractive, unsafe and uncomfortable to walk on. You should also consider:

- **Transport**., You'll need somewhere to park them safely and without causing annoyance or obstruction to others.
- **Length and timing**. The average walker takes an hour for every 3-4km, plus around 30 minutes for every 300m climbed (Naismith's rule), but you should adjust this for your own abilities, or those of the least experienced and able member of your party. Hills, muddy or uneven path surfaces, high winds and bad weather can also slow you down. Build in time for rests, breaks and sightseeing, and don't forget to take into account daylight hours and public transport times.
- **Meal breaks**. Look for good places to stop and eat at an appropriate point in the walk. If you're relying on a pub or café in remote country, check the opening times in advance.

You may find a walk that perfectly suits your needs in a guidebook, but with good map-reading skills you will be able to devise your own routes from scratch, or more easily adapt those devised by other people.

Keep things flexible and include extra time for changes of plan. As well as potential problems such as bad weather, tiredness or injury, and blocked paths, you may also find you'll have a more enjoyable walk by taking time to explore interesting features or alternative paths you find along the way. Look out for 'escape routes' and alternatives at the planning stage. Check the weather forecast on the day: online forecasts are on the Met Office site.

Route Cards

On most walks you can simply memorise your route or highlight it on the map. But for more demanding walks, consider preparing a route card. This should define the location of checkpoints along the way (grid references), times between checkpoints, bearings and "escape routes" in the event of accident, or bad weather.

Before setting out, you should leave a copy of the card with a responsible person, and notify them on your safe return. In the event of an accident, help will arrive more quickly if rescuers have detailed information about your route. If you feel a detailed card would unnecessarily restrict your movements, at least leave a few notes about your intended whereabouts.