

Scout Skills Mapping

info

Scout
Information
Centre

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INFORMATION SHEET

A map is a picture of a given area of what the ground looks like from directly above. When undertaking a journey, we need to be able to find our way around competently, sometimes in unfamiliar territory. It is then that we need to be able to use and read maps. The type of map required will depend upon the journey or destination.

A simple sketch map is maybe all that is required to find a room or building, or it may be a road map which helps you plan long distance routes across a whole country. There are also town maps and Ordnance Survey maps. All maps are drawn to a scale which means that a defined length on the map equates to a real length on the ground, for example one cm = one km.

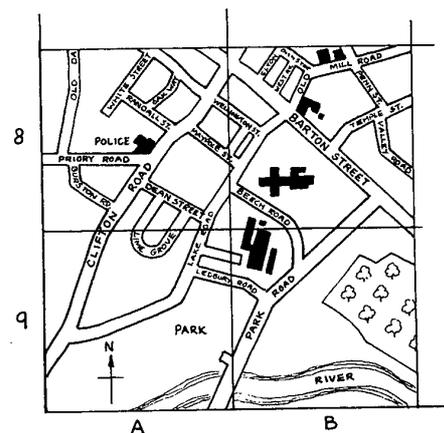
Road Maps

When travelling by road it is important that maps show routes clearly. One purpose of these maps is to show easily the type of road that you are either on, or wish to be on. It may be a straight, wide road like a motorway which will allow many miles to be travelled at high speed or it could be a narrow, winding road that twists through villages and towns.

All recognised routes in the United Kingdom have a number. For example, motorways are numbered M1 upwards. Other major roads carry the prefix letter A and then more minor roads are prefixed with the letter B and so on. On a road map, these different classes of road are differentiated by colour. At crossroads and major intersections, signposts state not only the place but the road numbers as well. A motorist reading from a road map can read the number easily and quickly on the signpost. A map will also show you whether the roads will take you through built up areas or whether there is another route, a bypass or the possibility of enjoying a more scenic journey.

Town Maps

A town map concentrates on important buildings and other features in the town as well as the streets and roads. Due to the amount of detail, the features might be numbered, in which case you would refer to a key at the bottom or side of the map. Much more detail, including all the street names, might be placed in a separate key in alphabetical order and this might include a reference to enable you to locate a point of interest on the map. In this case, the map will be divided into squares (or grids) with letters along the bottom and numbers up the sides. In the example below, the Police Station on the map would have the reference A8 in the key.



Ordnance Survey (O.S.) Maps

Ordnance Survey produce very detailed maps which are the most commonly used for hiking and expedition type activities. They show all features including footpaths, hills, valleys, water courses, railway lines, built up areas and so on. Thin orange-brown lines called contour lines on these maps indicate the height of the land above sea level and their shape indicates the shape of the land itself. Lines drawn close together indicate that the land rises or falls (that is gains or loses height) rapidly, while contours spaced more widely apart show that the slope, either up or down, is more gentle. Each contour will have its height above sea level printed on it at intervals so it is easy to decide if the ground is rising or falling.

Grid References

A grid system divides the whole area of the British Isles on maps into squares using lines running north to south and others crossing them, east to west. Each line has a number and by using these numbers, an area on any map can be located. For even greater accuracy, each square can be mentally divided by 10 on both lines and reference to these more accurate numbers will enable particular features to be located.

Indeed, the grid system on Ordnance Survey maps enables a location to be identified to within 100 metres, using a six figure grid reference and no matter what the scale of map, this grid reference will remain the same. Therefore, grid references can be transferred between Ordnance Survey maps of different scales. For details on how to find a grid reference, please see the Teach Yourself information section in this pack

Each Ordnance Survey map has a letter code. The numbers of adjoining sheets and the national grid reference system is shown on the key of some maps. Other maps print the letter code on the flap cover, or the map itself. The letter code recurs every 100km along the length and breadth of the country. However, as even the most inexperienced beginner is unlikely to be 100km from the expected position, the letter code is seldom used.

Symbols

Map symbols are the signs or diagrams shown on a map to indicate physical features. A list or 'key' of what these symbols mean is given at the same point on or in the map for identification. A number of the more common map symbols are shown below. These will be consistent on all modern O.S. maps but they might vary on other sorts of map, so it will be worth checking that on the map you are using that the symbol means what you think it does!



Cutting



Lake



Orchard

PC

Public convenience

CG

Coastguard



Church with spire



Electricity transmission line

Tricks of the trade

- The more you use maps, the more conversant you will become with them and how they translate into the real thing.
- Practise grid references. How accurate can you be?
- Ensure that you have the right sort of map for the occasion. A map which gives too little or too much information is of little value. For example, an Ordnance Survey map will not help you find Acacia Avenue in the local town!

Further information and resources

- *Back to Basics* - Available from the Information Centre at Gilwell Park. You can progress your map reading to more complicated levels. Try using different types of map; small and large scale, orienteering and so on.
- Factsheet entitled 'Ordnance Survey Map Reproduction' available from the Scout Information Centre

Estate agents often carry maps of the local area and will allow you a number of copies for Patrol work.

TEACH YOURSELF

Mapping is a skill, like many others, which becomes easier with practice and familiarity.

Time

Learning basic map reading will take from 30 minutes to three hours. You may wish to approach the subject in small bites, or you may prefer to get stuck in and learn as much as possible at once.

Equipment

You will need a variety of maps including town maps, road maps and Ordnance Survey maps of different scales. Compass work is not involved at this stage.

Learning all about it

Before having a go, it is advisable to read the Information Sheet in this pack, if you have not already done so. This outlines the different types of map and their uses.

Road maps show routes and types of road. A good starting point is to measure distances between two points on the map using a piece of string and the scale of the map.

Alternatively, you could use a sheet of plain paper and a pencil, marking off the distance on the straight stretches of roads and again, check them off against the scale. Once you know the distance between two points, you can start to estimate the time it would take to travel between those two points using different average speeds.

The most effective way to become familiar with road maps, is to act as a navigator on a journey and to follow the route on the map.

The best way of becoming familiar with Town maps is probably by walking a given route and specifying certain features (buildings, road junctions, rivers and so on) which must be found.

Ordnance Survey maps, as already mentioned, are the most detailed maps available and as well as featuring physical landmarks, have contour

lines which indicate the height of the land by linking together places of equal height above sea level. The closer the contour lines, the steeper the land.

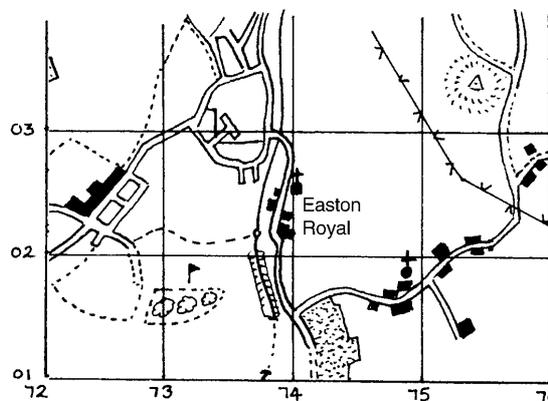
This can be most simply demonstrated by comparing maps of the Highlands of Scotland with Southern England or finding on a map a local hill that you know well and comparing the contours with those of some open, flat land.

In order to become familiar with some map symbols, try cutting a square about 2cm x 2cm from the centre of a plain postcard. Place the postcard over a map. Examine the portion of the map that is visible and try to describe the details to another person.

Another useful exercise is, using the same postcard and a local O.S. map, to try and visualise what the area looks like from a given point or grid reference. Then go to the location itself and see whether it looks anything like you imagined!

Grid reference is a means of locating any point on the map by using a six figure number. All O.S. maps have thin blue lines running top to bottom and side to side in parallel to form a grid pattern of squares. The lines running up and down are called eastings and have a two digit number which can be found at the top and the bottom of the map. Similarly, the lines running from side to side are called northings and also have a two digit number. This grid is on all OS maps which cover the British Isles.

Here is an example. Imagine that you wish to find the grid reference for the Railway Station in the village of Easton Royal.



Read, from the top or bottom edges of the map, the number of the vertical (easting) line on the

left-hand side of the station. In the diagrams, it is 73.

In your mind, divide that square into vertical tenths (as shown in detailed insert) and decide how many tenths from that easting the station is. In our example, it is 7. Therefore, the easting reference is 737. Whether reading or quoting a grid reference, the first three numbers always relate to the easting.

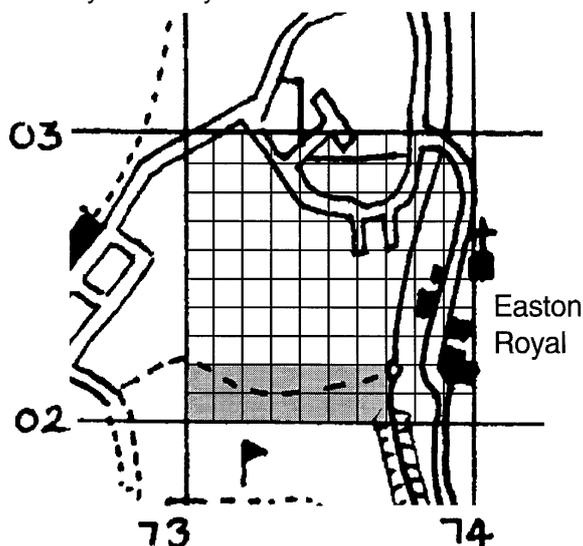
Now, working in a similar fashion, read the number of the nearest horizontal (northing) line below the station. In the example, this is 02.

Again, in your mind, divide the square horizontally into tenths and decide how many tenths the station is above the 02 line. In the example, it is approximately 2. Therefore the northing reference is 022.

The six figure grid reference for the station at Easton Royal is therefore 737022.

Here are a couple of simple mnemonics one of which might help you to remember which set of numbers to read when working out grid references:

'In the door...and up the stairs' or 'You can walk before you can fly'.



Safety rules

By themselves, maps are absolutely safe. It is only when people get hold of them that they become dangerous! Failing to correctly estimate the distance between two points whilst out walking can have disastrous consequences.

Equally, you might have measured the distance accurately but forgotten to take into account the fact that you are climbing the equivalent height of Mount Everest between those two points simply because the ground is undulating. Never set off walking in unfamiliar territory without letting someone know exactly where you are intending to go.

You will also need to have a basic knowledge of the compass and how to set a map and follow compass directions if you are to undertake a hike or expedition.

Can you do it?

When you feel confident about maps, check how you are doing and see which of the following you can tick off:

- Estimate distances using the map's scale
- Recognise 20 common map symbols
- Follow a route as a navigator in a car
- Visualise ground features from the contours of a map
- Give a six figure grid reference
- Walk a route, noting features on the map

So you want to know more?

- Find out how to set a map, then follow a route using the map;
- Learn about bearings;
- Talk to another Leader in your Group or District about mapping;
- Find out about Route cards and how to complete one.

Your notes on this session

HOW TO TRAIN OTHERS

This section is designed to give some practical ideas about you can help other people to understand mapping. This might be Leaders or Scouts - either in an informal way on a Troop night or more formally on a skills workshop, training course or something similar.

Objectives

By the end of the session, participants will be able to:

- I. Describe the key elements of road maps, town maps and Ordnance Survey maps;
- II. Identify a minimum of 20 symbols used on maps and describe their meanings;
- III. Demonstrate the use of a six figure grid reference;
- IV. Demonstrate the use of an Ordnance Survey map;
- V. Describe the terms 'eastings', 'northings' and 'scales' on an Ordnance Survey map;
- VI. Demonstrate how contour lines may be interpreted into land surface shapes.

Time

Approximately one hour.

Equipment

Road maps, town maps, a selection of Ordnance Survey maps.

Visual aids: 20 map symbols on cards; 3D model of ground features to illustrate contour lines; large sheets of paper and pens; games equipment as necessary.

Training method

Although some explanation of key elements and terms will be necessary, make this session as practical as possible.

Stress the need for different types of maps for different situations. That is, explain that different features are found on town, road and O.S. maps.

Map scales can be confusing. It is quite significant that we often describe the distance between two points in terms of time, rather than distance. We know it takes about an hour to get from home to work but we haven't got a clue how far it is! Spend time on this important aspect of mapping.

Training activities

1. Working in pairs, with maps, work out some grid references.
2. Make a sketch map of the venue that you are currently in, using scales of your choice.
3. Run a quiz night type activity with rounds on road signs, map symbols and so on.
4. Make up bingo cards of map symbols and play the game with a set of map symbol cards or on an OHP transparency.
5. Give each participant some paper and a pencil. Describe a journey by reading it from a map. For example, 'I left the local church and walked due north for 100 metres to the Post Office. Through the orchard to the east of the Post Office, I could hear a train on the railway line although it was 2 kilometres away. From the Post Office I walked a further 400 metres due north to the bridge over the canal. A boat was passing through the lock. The Bridge public house seemed very busy...' and so on. Participants should make a sketch map and compare results.
6. Participants, in small groups, make a display or mapping board showing map symbols and their meanings.
7. Participants, again in small groups, are given a copy of the same map (one per group). They then work out the answers to a number of written questions. For example:
 - What is the best walking route from 'A' to 'B'?
 - What is the best driving route from 'A' to 'B'?
 - If you stood on top of the hill at ... (six figure grid reference), what would you expect to see if you were looking in a south westerly direction?
 - You are at point Z ... (six figure map reference) when a cyclist says that he is lost and asks for directions to get to Y. Using the map, what instructions should be given?
8. Give each group a copy of the same Ordnance Survey map. Call out various objects or places. Give a point to the person who first calls out the correct grid reference

Your notes on this session

- number or who runs up to a flip chart or board and writes it down accurately.
9. In small groups, make a 3D model from polystyrene tiles, papier mache and so on, to represent a hill or feature from the map, to scale.
 10. In groups, or as individuals, ask participants to draw a sketch map that would enable a foreigner who is unable to communicate in English, to find his way between two local landmarks.

Hints and tips

- Learn to use a map keeping it the right way up. Do not turn it round.
- Practise estimating distances by pacing out across open stretches of ground. Place a coin or marker on the ground and walk, say, 100 metres; stop and turn right, walk 100 metres; stop and turn right again and walk 100 metres; and once again, stop, turn right and walk 100 metres. You should arrive back at the marker!

Checking their progress

Ask participants whether they feel they are happy with their ability to:

- Know the difference between town/road and Ordnance Survey maps
- Identify 20 map symbols
- Give six figure grid references
- Estimate distances
- Describe ground features from contour lines

So they want to know more?

- Learn to use a compass with maps;
- Learn about bearings;
- Talk with another Leader about map reading skills;
- Check for mapping requirements in the Scout Award, Pathfinder Award, Explorer Award and Chief Scout's Award;
- Read *Back to Basics* available from the Information Centre, Gilwell Park.
- Put it into practice - go out and use it!