



2. Map Care

All maps should be treated as important documents. Before setting on a journey, it must be made sure that it is well backed with a hard cardboard and wrapped with plastic covering, which is to be used as a map-case to protect against dirt and dampness.

The map should not be folded unnecessarily or rolled. Loss of maps should be reported immediately. Note that a reproduction of copyrighted maps without permission is illegal.

3 Key Information in a Topographical map



3.1 The Scale

This is one of the first pieces of information that you should discover from the map. The map scale is found usually at the prominent locations on the map; e.g. near the title, near the legend (which will be explained below).

Being familiar with map scales allows you to convert

The scale is usually written in the following manner, similar to a **ratio**:

$$1:50000$$

This ratio means that 1 cm on the map represents 50000cm or 500m on the actual terrain.

If the distance on the map between 2 points is 3 cm, then the actual distance on terrain would be calculated as follows:

$$1 : 50000$$

$$3 : y \text{ (where } x \text{ is the actual distance on terrain)}$$

$$\text{Thus } y : 50000 \times 3$$

$$y = 150000$$

$$\text{In metres, } y = 150000 / 100$$

$$y = 1500 \text{ m or } 1.5\text{km}$$

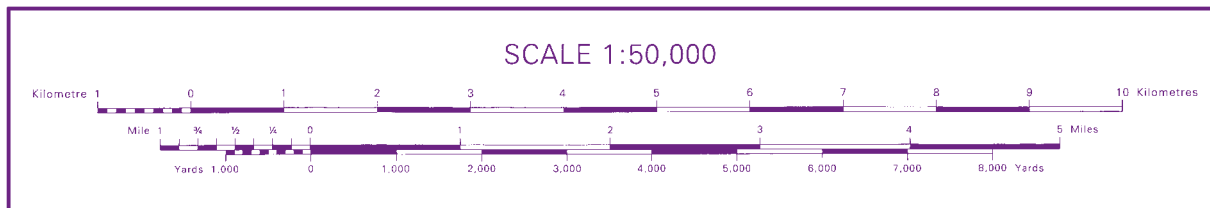
The map scale can also be written in the form of a fraction; specifically, known as a Representative Fraction (RF for short). The RF takes on the form depicted below:

$$\frac{1}{50,000}$$

The map scale can also be displayed as a linear scale as depicted below.

The scale can also be displayed in text form such as:

1 cm represents 500 m



3.2 The Legend

The Legend is a box explaining all the symbols that typically appear on a topographical map. These symbols are called conventional signs and usually fall into the following categories:

- a) Signs showing relief
- b) Cultural or man-made features
- c) Water features
- d) Vegetation

It is common to memorise the conventional signs, since you will discover that it will be a chore to keep referring to the legend repeatedly.

3.3 The Vertical Interval

The Vertical Interval is the difference in height from one contour line to the next. This allows us to determine the terrain just by looking at the arrangement of the contour lines. If the contour lines are densely bunched together, then the terrain is essentially steeper than if the contour lines were more spread out. In the latter case, the gradient of the terrain is gentler.



4. Grid References

Maps use grid lines to allow for quick and precise location of a point on the map, hence a position on actual ground. East to West lines are known as Northing, while North to South lines are known as Easting.

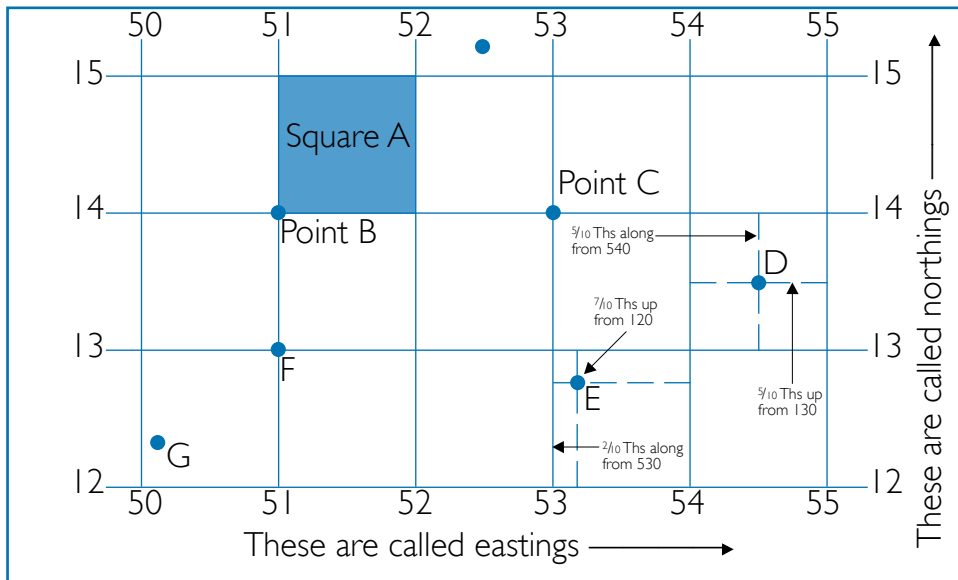
A specific number identifies both sets of lines. For Northing, this number increases by one unit each, as one looks northwards, i.e. from the bottom to the top of the map. On the other hand, Easting increases as you look eastwards, i.e. from left to right of the map.

By crossing each other, these lines form squares. Each square is identified by the numerical value of the relevant Easting and Northing found at its bottom-left or southwest corner. The value is read Easting

then Northing e.g. 3746 (where Easting 37 intersects with Northing 46). This is known as the Magnetic Grid Reference (MGR) of the Grid Square.

Each side of the square can be further divided into 10 smaller units. To identify a feature on a map, we use a 6-figure MGR. For instance, to identify a feature located right in the centre of Grid Square 3746 we use the MGR 375465.

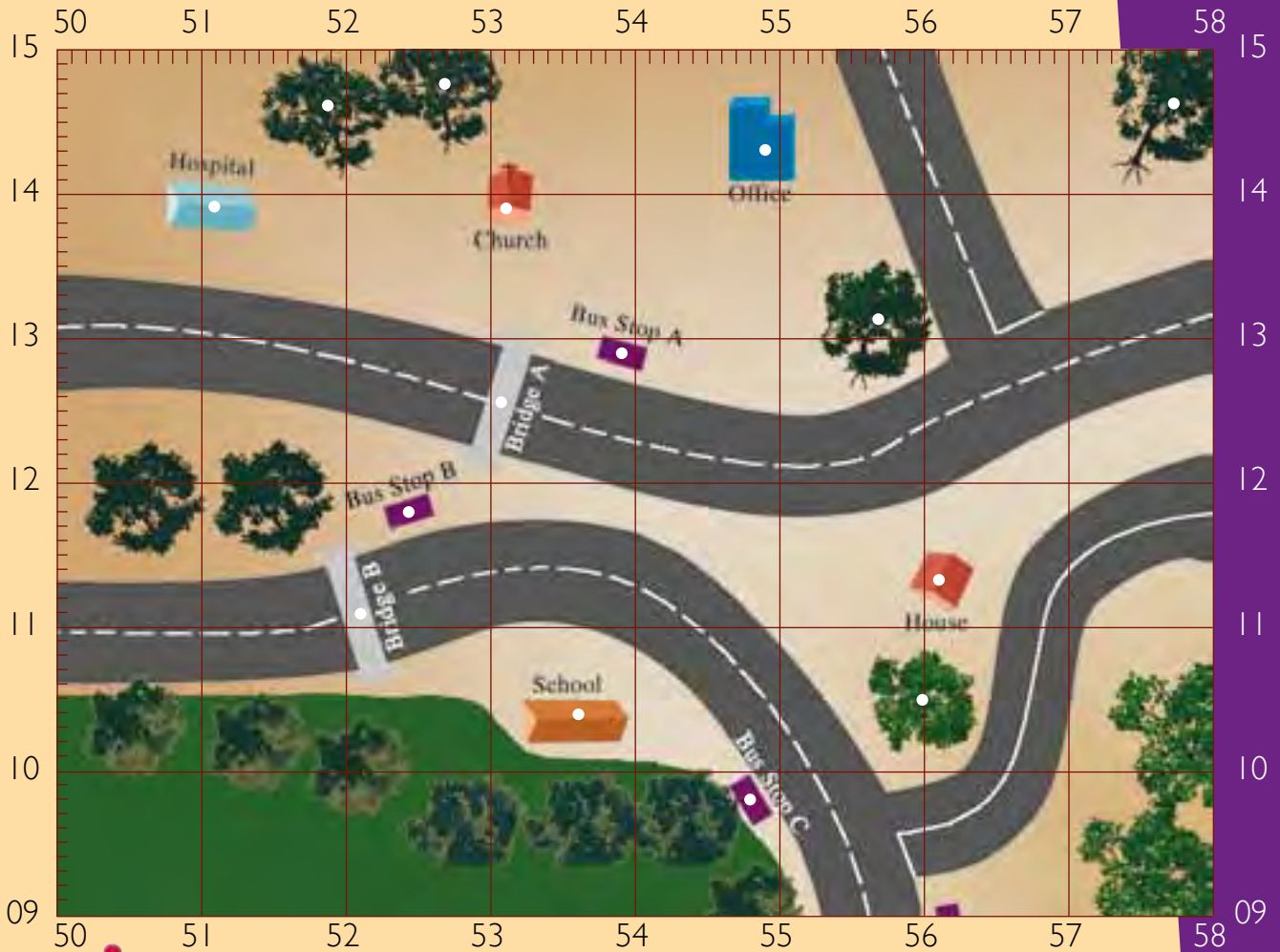
The third and sixth digit of the above MGR indicates that the feature is located halfway along both Easting 37 and Northing 46. Where these intersect is the centre of the Grid Square. Below is a further illustration.



These grid squares are drawn to the scale of 1:50 000. Each square measures 20mm x 20mm and represents a 1-kilometre square on the ground. Point B is given the six-figure reference 510140. Point C is at 530140, Point D at 545135 and Point E at 532127. Try the other points yourself!

WORKSHEET B : THE TOPOGRAPHICAL MAP

Grid Reference Exercise



20mm
represents
1-kilometre

Hospital	at	51 139
Church	at	53 139
Office	at	549 143
Bus Stop A	at	539 129
House	at	_____
Bridge B	at	_____
_____	at	548 098
_____	at	536 104

