

# THE COMPASS FOR LAND NAVIGATION

The magnetic compass works on the principle that the magnetic needle is attracted to the magnetic North pole and therefore always points to the north. Orienteering maps are drawn with magnetic north lines but most maps, like those produced by the Ordnance Survey, have lines drawn to grid north which require an adjustment to magnetic north when taking bearings.

By adding a rotational housing with degree markings to a transparent base plate with direction arrow, the conventional BASEPLATE COMPASS makes the map orientation, bearings and accurate direction finding very simple for beginners and experts.

## USING THE PROTRACTOR COMPASS

For all land navigation, map and compass should work together – like the lens and viewfinder on a camera. The orienteering method of navigation relies on careful reading of an orientated map. Although it is possible to orientate the map to ground with reference to terrain features, all experience and research evidence show that map reading is easier to learn and to sustain if the map is orientated 'or set' with the use of the compass.

With plenty of practice the early stages, navigating from an orientated map becomes habit and map reading competence and confidence flow from it. Navigational Strategies like use of handrails, route choice and simplification become much easier and safer if map matches ground and the compass gives the correct direction along which the map is read.

## PARTS OF THE COMPASS

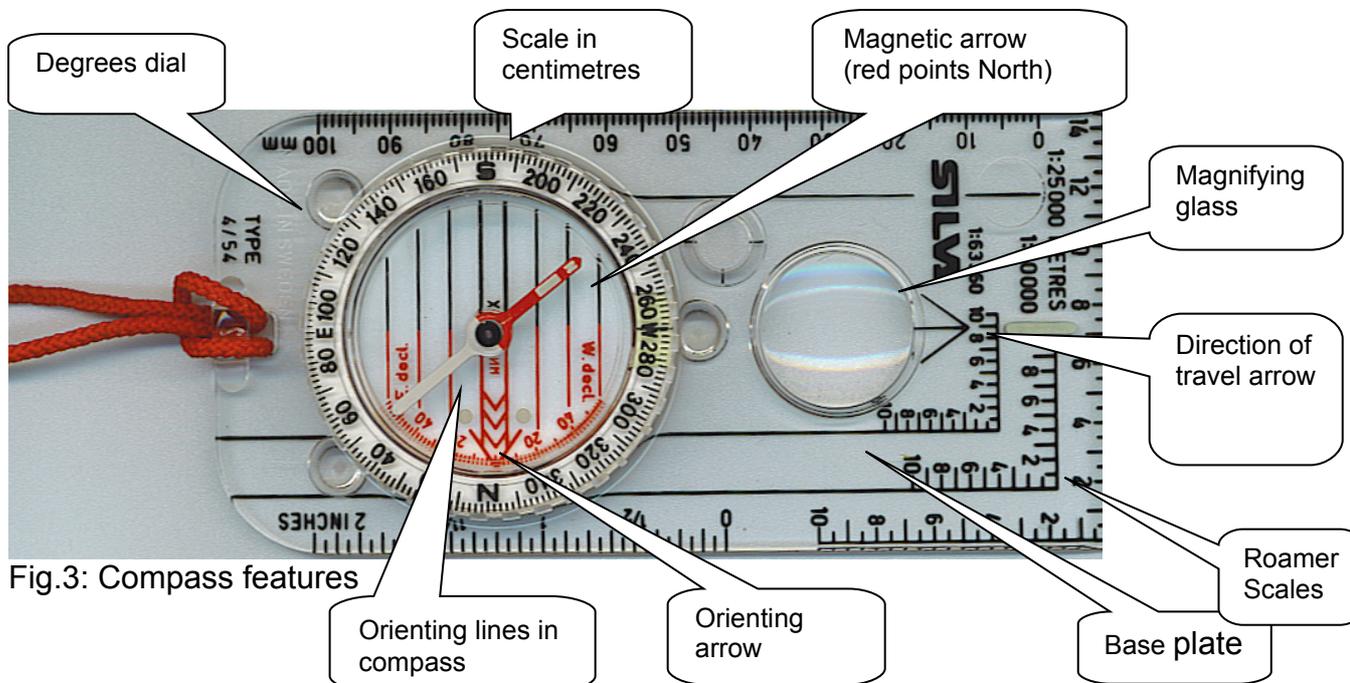


Fig.3: Compass features

### TOP TIP!

When buying compasses it is best to favour models with roamer scales and longer base plates. The following page shows how to take a bearing from the

map. Walking on a bearing is not easy. There are many distractions when walking on a bearing.

**By the end of the two day training course, participants would be expected to demonstrate taking a bearing and walking on it with confidence.**

## **PRECISION NAVIGATION**

The Silva System illustrated overleaf shows how the Protractor Compass can be used to take accurate bearings. A bearing gives direction in relation to north and can be measured in degrees if required (ie  $90^\circ$  = due East). When compass and map are used together, the navigator does not need to note the number of degrees but when reliance is on compass rather than map (no detail on map or a Safety Bearing given as an emergency procedure before starting an exercise) it is a good idea to note down the number of degrees which can be read off the moveable compass dial (the housing) where the sighting arrow meets it.

The compass should always be used as carefully as possible but precision compass work is particularly important between an attack point and destination and in complicated terrain where a series of short bearings between sighting points can reinforce accuracy. In fog or cloud careful bearings can be a vital back up to restricted map reading.

## **IMPORTANT STEPS TO REMEMBER IN FOLLOWING A BEARING ACCURATELY**

- i. Set the compass dial to the desired bearing.
- ii. Hold the compass in front of yourself.
- iii. Turn yourself around until the North end of the compass needle points to the North end of the dial. But NOT the North end of the base plate.
- iv. Move your line of sight from the centre of the dial out along the direction arrow on the BASE PLATE, looking ahead on your line of travel.
- v. Each time you reach that point you may need to repeat stages 3 and 4 or you may have been able to see a new point ahead on your line of travel.
- vi. You should not proceed on the compass alone, constantly looking at the compass and never at a distant point. You will then drift off line. An occasional glance at the compass should be sufficient to keep on line.
- vii. This is obviously easier to do on open terrain and harder in dense forest. In an open area in poor visibility take care that the boulder you sight on doesn't move!
- viii. Practice makes perfect!

## **SOME COMPASS STRATEGIES**

There are several map and compass strategies which can strengthen navigation techniques:

### **a) COMPASS AND PACING**

Here compass work is linked with distance judgement in backing up map reading. This technique can be useful both for competitive and recreational navigators. Some elite orienteers rely on compass and distance techniques to cover flat areas at great speed. They use accurate direction and distance to take them into the vicinity of the control feature before using precise map reading to locate themselves and find the control point. To develop this technique navigators calculate their own pace count on a measured 100 metres by running or walking at their normal navigation speed, counting every other pace. They check this in both directions and then use it to estimate distances on short routes where care is needed. As pacing alters in different terrain and when the navigator becomes

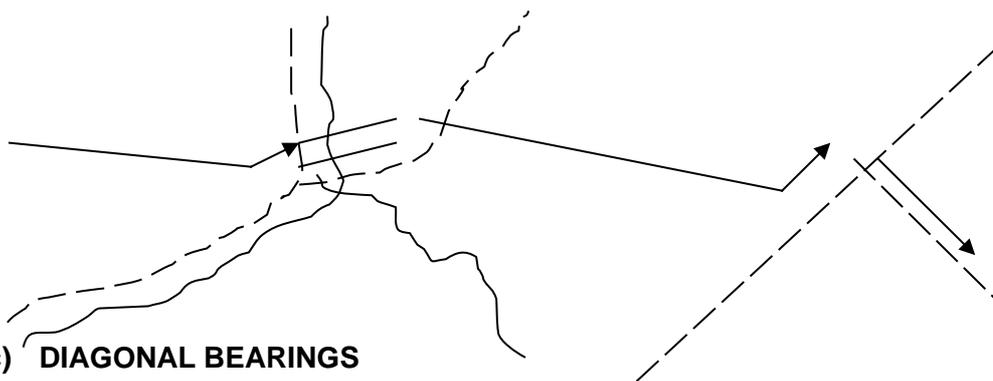
tired or fitter, it is necessary to check packing and to note differences uphill, downhill, and over rough ground.

By using the map scale they can measure the distance before they start a section of route and pace accordingly, so that they know the approximate point at which they should reach the control point. Experienced navigators stick a distance scale on their compass for this purpose. Some Silva compasses have interchangeable scales on the front edge.

Even if pacing is too pedantic for the recreational navigator, the ability to judge distance (even if based on rough estimates like numbers of football pitches or timing over longer distance) can be an important back-up to map and compass work. It can be practised in many ways (eg between path junctions or across open stretches of a route between walls and fences). However, it is important to remember that although compass supplies direction and pacing a guide to distance, the navigator still has to read the map carefully as he or she proceeds in the right direction for the right distance. Compass and pacing can never be a substitute for map reading.

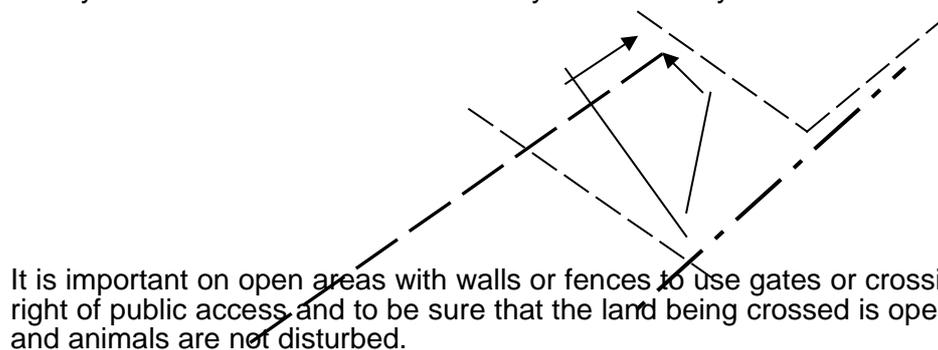
### b) AIMING OFF

If aiming for a destination point on a line feature like a path or a stream, the navigator deliberately takes a bearing to one side so that they will be able to know which way to turn.



### c) DIAGONAL BEARINGS

Open areas of hillsides or blocks of forests are often split up into grids of paths, walls or rides. It is often possible to take bearings across open country or woodland to hit wall or path junctions knowing that the navigator will be collected by a line feature on either side if they are not totally accurate.



It is important on open areas with walls or fences to use gates or crossing points with right of public access and to be sure that the land being crossed is open to the public and animals are not disturbed.

## CONCLUSION

Map and Compass together can open up the Great Outdoors whether it be Urban Park, Countryside Footpaths, Mountain or Forest. The exploring instinct is deep down in everyone of us and how much more exciting it is to navigate your own routes rather than following marked posts or keeping to the roads. Whether you are a walker, climber or orienteer, a mastery of compass skills helps to lead you safely in the right direction.