



# TRACKING & NAVIGATION

SKILLS BOOKLET



## BACK BEARING

Another way to check your direction of travel is to take a back bearing. You must do this before you lose sight of your starting position. With the compass set to the original bearing, point it to where you came from, this time, the opposite end of the needle (South end) should line up with the *bezel arrow*. If it does then you are still walking on the bearing.

The bearing should be  $\pm 180^\circ$  in the opposite direction to your original bearing:

Example 1.

Original bearing is  $56^\circ$ , then back bearing is  $236^\circ$  ( $56^\circ + 180^\circ = 236^\circ$ )

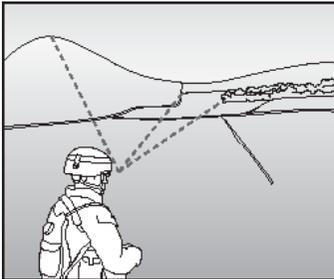
Example 2

Original bearing is  $242^\circ$ , then the back bearing is  $62^\circ$  ( $242^\circ - 180^\circ = 62^\circ$ )

Hint – the bearing shouldn't exceed  $360^\circ$ , so if you can't add  $180^\circ$  without going over  $360^\circ$ , minus it!

## TRIANGULATE

Sometimes you may not know your exact position. Using a compass and map can help locate you. Look around you, find two or three features on the landscape that can be found on the map. Take a compass bearing of each of the features and find the back bearings by adding or subtracting  $180^\circ$ . Using a pencil, draw the back bearings onto the map from the features. Your position is where the lines cross.



## PACING

Pacing is another skill to master. It is very useful to help you time how long a walk will last or how to navigate around obstacles. To do this you will need to find out how many paces it takes to walk 100m. First find a straight, flat 100m stretch, you might be lucky and have a running track or playground marked out with the distance nearby.

Now count the number of steps you make. Rather than counting both left and right steps, count the double paces. So, every time your right foot strikes the ground it counts as 1. Keep a note of the number of steps. Relax and walk the distance several times, you should find that the number of steps becomes more regular.



Distance (m)	Time
4000	1 hour (60mins)
1000	15mins
500	8mins
250	4mins
100	1.5mins

(note: that the times have been rounded up)

By looking at the map when you take the bearing, you can calculate how far away an object is and roughly the time to reach it.

It is always worth taking a note of the time as you start off. Using the table above, if the target is 500m away, you should reach the target in 8mins. As you get closer to the time, lookout for your target. If you don't reach the target within the time, then you may be off course!

So far you have only walked on flat ground. When you travel over different terrains your pace and timing per 100m will change. You may take little steps for steep hills or longer strides for going through grassland. Whenever you go over different terrains, take a note of the difference in pacing and timing. After a while, you will know how to judge these naturally - but the only way to do it is through practise!

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**TRI-FORCE**



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