In my travels I have learnt to not only use a GPS, but to have backup methods of navigation including knowing how to use a compass and paper topographic maps, as you never know when your GPS may give up the go or its batteries may run flat leaving you scratching your head and worse still, lost!

Excalibur and Silva make a range of compasses which are easy to use due to their simplicity and are sufficiently accurate. In this blog, I will take you through features of, and the very basics of how to use a compass.

Why you need a compass?

A compass helps you to find where you are and find your way; this is very useful but can be critical if you get lost.
The main ways you use a compass are:

- 'Setting' the map with the compass so that it matches what you see on the ground, and that you're heading in the right direction.
- Taking a bearing from the map and walking on a bearing (direction).
- Using a bearing to identify features on the ground by checking the bearing from where you are.
- Identifying your own position using 'back bearings' from two or more distant known features (also known as 'resectioning').

Compass features

Compasses come in many designs, but most compasses feature the same as those found in an all-time classic compass like the Silva Ranger. You need to make use of some or all of the compass features for different tasks.
Before you can use a compass to navigate you need to be familiar with the main features.

1. **Baseplate** – usually clear plastic base.
2. **Compass housing** – also known as the compass wheel or dial, with a mark preferably every two degrees covering 360 degrees, and N-S-E-W (the 'cardinal points').
3. **Magnetic needle** – red end for north, white for south (can be black end north and white for south in some cases).
4. **Compass lines** – on the bottom of the baseplate (also called 'orienting lines'.
5. **Orienting arrow** – fixed and aligned to north within the compass housing
6. **Index line** – extension of the direction of travel arrow.
7. **Direction of travel arrow** – the big arrow at the end of the baseplate.

Map scales 1:25 000, 1:50 000 and metric measurer (known as Romer scales).
The main working part of a compass is the magnetic 'needle' that floats on a central pivot.

The red end always points to the earth's magnetic north pole and the outer ring is marked with the cardinal points of the compass (N-S-E-W) and every 2 degrees. These markings are used to get bearings (the direction from where you are, to where you want to go).
If you rotate the ring (2. Compass housing) to line-up the red north of the needle to the red arrow on the base plate, a bearing can be taken from the compass ring.

Where is north?

There is however, a slight complication; magnetic north is not the same as map grid north because magnetic north (where the compass needle points) changes in different areas of the world, and also changes over time.
To get a completely accurate reading you have to adjust the bearing to take account of the difference between map grid north and magnetic north. The degree of deviation is marked on printed Ordnance Survey maps but as a rough guide, you should adjust by 2 degrees by turning the compass housing anticlockwise. For longer trips, the difference can have a significant impact on navigation.

How to use your compass

Items you may need to help carry out the following steps: Topographic map (if you haven't already got one in front of you while your scratching your head wondering… which way do I go…), ruler, pencil (ideally) or highlighter, protractor, eraser.
This step by step guide will make much more sense if you have the equipment listed above available to you to carry out each step while reading each step.

Step 1

Lay your map down somewhere flat and place your compass on top. Draw a line between your starting point and your destination to show the direction of travel. Now, line up the base plate edge with the direction in which you want to go, represented in the photo by the highlighted line on the map.

Line up the base plate edge with your direction of travel.

Step 2

Keeping the base plate edge of your compass in line with your direction of travel, carefully rotate the graduated dial until the N, orienting arrow (5), and compass lines (4) are all pointing in the direction of north on your map. On most maps north is straight up, but make sure you check with the legend on the map that you are using, I have seen maps that do not adhere to this cartographic standard. Ignore magnetic declination/variation, for now, if accuracy is not critical and the distance you have to travel is not enormous, you should be able to use the compass without declination/variation adjustment.

Rotate the graduated dial to line up with grid lines.

Step 3

Remove the compass from the map and hold it level out in front of you with the direction of travel arrow (7) is pointing straight ahead. Turn your body until the north end of the magnetic needle (in my case it's the red end, sometimes it's black as shown on compasses in other photos within this story) is directly over the orienting arrow (5), pointing to the "N" on the dial.
The direction of travel arrow is now pointing in precisely the direction you want to travel in order to reach your destination. The easiest way to use your compass now is by using the "snap or sight a line" method. While holding your compass in the direction of travel, look up and sight a landmark or object that is not too far away and is in the direction you want to travel.
Put your compass away or hang it around your neck and start walking towards the landmark or object that you spotted/sighted. Once you reach it, repeat the process by holding your compass as before making sure it is still set according to your map, sighting another landmark, and walking to it.
Continue doing this until you reach your destination. This is the method I find easiest and use most depending on the scenario.

Line up the needle with north on the graduated dial.

Find Your Exact Position on a Map

Now that you know how to use a compass to navigate in the direction you want to travel, the next step is to learn how to determine exactly where you are along that path at any given point. This is another important use for a compass and another important lesson well worth learning before you head bush.
In order to determine your position, you will need to choose two visible landmarks that you can easily identify on your map. Power lines bends in rivers or streams, mountains, and lakes are perfect for this. Choose two that you can see from where you are standing and mark them on your map as L1 and L2.
Holding the compass directly in front of you, point the direction of travel arrow toward the first landmark (L1) and rotate the compass dial until the black end of the magnetic needle points to "N" on the dial. Read the heading at the index line (which is the same as the direction of travel arrow).

Pivot compass around landmark until orienting lines match map grid lines

Place the compass on your map with base plate edge touching the first landmark (L1). Pivot the compass around on L1 until the orienting arrow or orienting lines align with the magnetic north lines on your map.
Draw a line from the landmark (L1) along the side of the base plate across your map. Repeat this process for the second landmark (L2) and where the two lines intersect on your map is your exact location.

The intersection of lines is your position.

So there you have it!

I’m not sure why so many people struggle to use their compass correctly or just don’t bother to learn. As you can see it’s pretty simple. After you have done it for the first time you can easily begin to get the hang of it.
Before I head off on an adventure of any sort I freshen up my skills on how to use a compass to ensure I’m familiar with it. Hopefully, this has helped some of you and for other, it might just be a quick refresher course.
Do you use or carry a compass with you on your adventures?