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## Using GPS and smartphones as navigation aids

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GPS devices and smartphones are increasingly being used for navigation in the mountains. Many devices will let you pre-plot a route using mapping software on your PC (such as **Memory Map** (<https://www.memory-map.co.uk/>), **Anquet** (<https://www.anquet.com/>) etc.), or download a prepared route from elsewhere, such as the **Walkhighlands** (<https://www.walkhighlands.co.uk/>) website. The line of the pre-planned route can then be shown on the screen.

It sounds the ideal solution for finding your way safely about the hills, but it's important to realise there are limitations to technology and that safe navigation involves the skills to read and interpret a map rather than just following an arrow. Mountain rescue teams respond to many call-outs because of GPS/smartphone failure, inappropriate route choice or because people are unable to use the technology effectively.

## Using your mobile phone for navigating in the hills

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[\(/assets/contentfiles/media-upload/Mobile\\_Navigation\\_Infographic\\_PORTRAIT\\_web.jpg\)](/assets/contentfiles/media-upload/Mobile_Navigation_Infographic_PORTRAIT_web.jpg)

In 2022, as part of our work with the Mountain Safety Group, we surveyed over 4,000 hill walkers to ask if they used mobile phone or GPS for navigating in the hills and what, if any, issues they had with using them.

87% of people responding said that they have used a phone or GPS for navigating at some point during their walks. Of those, over 40% said that they had experienced a situation where it had stopped working in some way.

It's clear that smartphones are increasingly being used as a tool for navigation in the mountains, however it is important to be aware that whatever system you are using for navigation, whether it is a mobile phone, GPS device or paper map and compass, the key to navigating successfully is being able to read and understand a map and how it relates to your surroundings, keeping track of your location and being able to find your way from point to point along a safe route.

[Learn more about navigation skills > \(/safety-and-skills/essential-skills/navigation\)](/safety-and-skills/essential-skills/navigation)

### Here are some things to think about when using your phone in the mountains:

**CHARGE** – make sure you start with 100% battery charge and charge your phone while you travel if you're using it for music or road navigation.

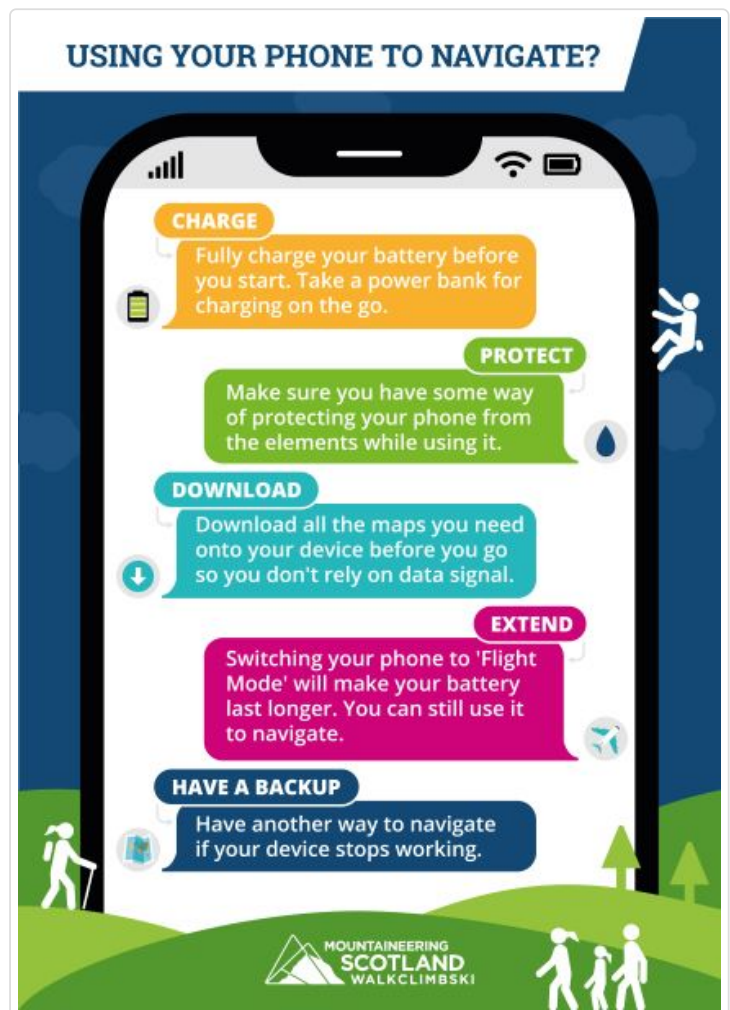
**PROTECT** – keep your phone in a waterproof case to protect it from the elements, even if it's rated as waterproof, and keep it close to your body when not in use to keep it warm, dry and help battery life.

**DOWNLOAD** – download all the maps you might need so you don't need to rely on mobile data to be able to access maps while you're on the hill. Include maps of the surrounding areas in case you need to change your route, and use a topographic map (eg OS or Harvey Maps) – not all digital maps are suitable for hiking in the hills! If you are planning to follow a route downloaded from an app or website, it's worth checking with other reliable sources of information to make sure it's safe and suitable for your level of experience and ability.

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**EXTEND** - Switching your phone to 'Flight Mode' stops it talking to the outside world and makes your battery last a lot longer. The GPS will still work, so you can still navigate. Taking a 'Power Bank' and an appropriate cable to link your phone to it, will give you the option to re-charge on the go – this might not work in very wet conditions though!

**TAKE A BACKUP** - No system is 100% fail safe, so having a separate system to navigate with if the phone or GPS were to fail is a must, for example a map and compass, and a good level of skill to be able to use them. If your phone isn't working and you can't use it to navigate, it also means you can't use it to phone for help either! Having a simple backup phone in the first aid kit with actual buttons and a battery that will last for 6 months switched off is something to consider too.



## GPS jamming

Occasionally GPS signals are jammed by the military for training purposes. We are sometimes informed of when this is scheduled to happen and include a news story on the website if the jamming is likely to affect hill walkers, though there are also GPS jamming exercises which are not announced.

## Map and compass navigation

Regardless of which device you choose you should still carry and be able to **navigate effectively with a paper map and compass**

(<https://www.mountaineering.scot/safety-and-skills/essential-skills/navigation>).

Even if you have a smartphone or GPS with full OS mapping, it can't read and interpret the map for you. All it can do is show your position - being able to actually interpret the map correctly remains an essential skill.

You need to be able to understand from the map what the terrain will be like, choose suitable routes from it and be able to make decisions about changing your route if you need to. For example, in the winter, there may be a dangerous cornice where a summer route runs close to the edge of the cliffs above a corrie. Plans may also change, the weather may close in, heavy rain



might mean that a burn won't be crossable, there may be an accident. All such eventualities can't be pre-programmed into a GPS, so everyone needs to be able to look at the map – whether on paper or a screen – and work out the best way to adjust any route to deal with changing situations.

Every hill and mountain walker needs to learn how to interpret a map, and to navigate effectively using a map and compass, including in poor visibility.

[Read more about navigation > \(/safety-and-skills/essential-skills/navigation\)](/safety-and-skills/essential-skills/navigation)

For those less sure of their abilities, Mountaineering Scotland offer excellent value navigation courses from just £45 including basic skills, night and winter navigation.

[Find out about courses > \(/safety-and-skills/courses-and-events/our-courses/navigation-course\)](/safety-and-skills/courses-and-events/our-courses/navigation-course)

## Your 'Get out of jail free' card

Download the **free OS Locate app** (<https://www.ordnancesurvey.co.uk/shop/os-locate>) onto your phone. A simple, quick tool which shows your location in a OS Grid Reference format which you can transfer onto your map to confirm your location.

Remember, any form of modern navigation technology should be viewed as an additional 'tool of the trade' to add to your navigation tool box. It should never be relied upon as a stand-alone method to navigate.

