Easy Stargazing

Stargazing Guy

Ten stargazing tips for beginners

- Have you ever wondered if that bright light in the sky is a star or a planet? Why can't you see the Moon every night?
- Have you been thinking about gazing at the stars?

These ten tips will help you to tell a star from a planet and understand why the Moon is not in the sky, amongst other amazing facts.

The important thing is to plan ahead. Use these tips for spending your first night under the stars.

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1. Dress for the weather

You're going to be outside for at least an hour, hopefully longer, so dress appropriately for the UK. Even in the summer take a warm jacket, thick socks, gloves, scarf and a hat. Don't forget appropriate footwear.

2. Safety first

Take torches and a fully charged mobile phone. Tell people where you're going and when you plan to finish and remember how difficult walking in true darkness is.

3. Make a plan

Where are you going? How will you get there and get back? What is the weather doing? Will there be a Full Moon? … and most importantly, what do you want to see?

Head out of town to a dark spot in the countryside. There are many amazing places to stargaze in the UK.

But you could even just walk around the corner to your local park or school playing field. It'll make a big difference to what you can see.

The amount of cloud cover in the UK varies across the seasons but even in the Winter months there can be 3 or 4 very good nights.

4. Have you got the right equipment?

You don't need a telescope or binoculars to stargaze – at least not for the first few times. For the first trip locate the North Star – see Page 4. For later visits consider downloading an app to your mobile – see Tip #9.

5. Let your eyes adapt to the darkness

Once you've found your observing site, you'll need to give your eyes time to get used to the darkness. This is called 'dark adaptation' and it takes up to half an hour.

After your eyes have adapted you won't believe how many more stars you can see than when you first arrived.

Don't browse on your phone while you wait; its bright screen will ruin your night vision. But turning your screen red will help preserve your dark adaption.

6. Learn the major constellations and easy to spot asterisms

Once you're dark-adapted it won't take you long to notice that the stars can be joined up to form patterns. You might recognise some straight away.

You may be able to see the giant saucepan-shaped Plough, balanced on the end of its handle.

But the Plough isn't a constellation – it's an asterism, a small pattern of stars immediately obvious to the naked eye, but which isn't one of the 88 formally recognised constellations.

The Plough forms part of the constellation of Ursa Major, the Great Bear. The Plough's handle represents the bear's tail, and fainter stars around it form the bear's legs and head.

There are 88 constellations in the sky, but very few look like the person, animal or object they represent. You need a lot of imagination to recognise most of them!

You can use constellations and their stars to star-hop around the night sky, like, for example, learning how to find the North Star – see Page 4.

7. Moongazing

Moongazing is one of the easiest parts of stargazing – the Moon is the largest and brightest object in the night sky – you can sometimes see it during daylight hours.

Whether the Moon is observable on any particular night depends on where it is in it's orbit in relation to the Sun and where you are standing on the rotating Earth – plus, of course, how cloudy it is!

The Moon changes its apparent shape with four distinct phases depending on the Moon's position as it orbits around the Earth, and the Earth's position as it orbits around the Sun. There are four main Moon phases, also known as Lunar Phases: First Quarter, Full Moon, Last Quarter and New Moon. An additional four intermediate phases make up the combined eight phases that comprise the Phases of the Moon in the following sequential order: New Moon, Waxing Crescent, First Quarter, Waxing Gibbous, Full Moon, Waning Gibbous, Last Quarter and Waning Crescent.

The phases of the Moon can be easily observed, just by looking.

8. Spot the planets with your naked eye

You can see five planets (Mercury, Venus, Mars, Jupiter and Saturn) with your eyes alone, although they're not all visible at the same time.

To the eye Venus is by far the brightest planet, shining like a beacon in the east when it's the 'Morning Star' before daybreak, or in the west when it's the 'Evening Star' at nightfall.

How can you tell which bright stars are planets? There's an easy way to tell them apart: stars twinkle, planets don't.

This is because while stars are points of light, planets are tiny discs, so stars are affected more by the movement of the air, providing an answer to the question 'why do stars twinkle?'

9. Get a stargazing app

There are many stargazing apps for your smartphone that will help you instantly locate stars, planets, constellations and deep-sky objects.

Here are two planetarium apps that will help you around the night sky, but you'll find plenty more in your app store. Turn your screen brightness right down or make it red to keep your night vision.

- Stellarium Mobile is a planetarium app that shows exactly what you see when you look up at the stars
- Star Walk 2 is an exquisite stargazing app that enable you to explore the sky through the screen of your device

10. Attend an event or presentation

There are many amateur astronomical associations in the UK and, if you are not ready or interested in joining, they often open their observatories for 'show and tell' type events – often for a small donation. The observatory at Toothill in Southampton has a regular monthly event.

There are also stargazing shows and short breaks – often held in stunning, dark sky locations – and they make great gifts. Try StarSafaris.com, who provide stargazing tours, events and education, both face-to-face and online.

Also, every year the South Downs National Park holds its Dark Sky Festival after it became the world's 13th International Dark Sky Reserve (IDSR).

If you stay at your observing site long enough, you'll notice that the stars which were low in the east when you arrived have climbed higher in the sky, and those which were low in the west are lower or might even have vanished from view altogether.

Only one star stays relatively still: Polaris, the North (Pole) Star, which is aligned with Earth's axis and can be found using the 'Pointer' stars in the Plough – see Page 4.

Return to your observing site 6 months later and you'll see the whole sky has changed. This is because the constellations we see change during the year, as Earth orbits the Sun.

Each season has its own constellations, which is why it takes a year to properly learn the sky and not just one night.

The same principal applies to the Southern Hemisphere, where there are constellations that are never seen from the UK and the Moon appears 'upside down'! Or the right way up, of course, if you are from a country in the Southern Hemisphere.

Good luck with your stargazing. Clear skies and ad astra!

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Find the North Star

In the Northern hemisphere you can use this handy technique to find the North Star, or pole star, that is always almost due North. Follow the last two stars of the Big Dipper, known as the plough in the UK, to a prominent star. This star is Polaris, also known as the North Star.

The North Star remains static in the night sky as the other stars rotate in a circle as the earth turns.

In the Southern hemisphere you can use the Southern Cross and the Pointers to find South, but it's not quite as simple as in the North.