



Forestry England

Beginner's guide to stargazing

**With fun activities,
top tips and more**

forestryengland.uk



Forestry England



Contents

Top forest stargazing spots	3
Stargazing top tips	4
Super star facts	5
Your first night under the stars	6
Have a game of torch tag	7
Find your way using the stars	8
Be a 'forest-star'	9
Continue your stargazing journey	10

 **Sky at Night**
MAGAZINE

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Forestry England

Top forest stargazing spots

Forests are great places to see stars, because there is so little light pollution.

Some Forestry England woods have been awarded Dark Sky Discovery Site status, so you'll get an excellent view of the night sky away from the bright glare of towns and streetlights.

Grizedale Forest, in the heart of the Lake District National Park, is a great spot for amateur stargazers, offering clear views of the night sky away from large towns and cities.

Kielder Water and Forest Park has official Dark Sky status and runs hundreds of events for beginners and serious astronomers alike from the award winning observatory.

Hamsterley Forest in Durham, offers visitors a great spot to explore the night skies and discover plenty of stars and constellations.

Awarded the Milky Way Class by Dark Sky Discovery, **Dalby Forest** in Yorkshire is a fantastic spot to see the stars, planets, nebulae and galaxies. Free stargazing events are run by the local astronomy group.

Butser Hill, in **Queen Elizabeth Country Park** in Hampshire, offers an oasis of dark for astronomers in the South East. Being the highest observing point in Hampshire, it's a fantastic spot to view the night sky.

Key

- ★ Great site for stargazing
- ★ Dark Sky Discovery Site



Dark Sky Discovery Sites are a nationwide network of places that provide great views and which are accessible to everyone.



Stargazing top tips

Get ready for your stargazing adventure with our five tips

1 Keep warm

Make sure you have an extra layer of clothing or a blanket to wrap up in.

2 Get comfy

Use a comfy chair or mat to lie on so you can gaze up at the stars for longer.

3 Choose somewhere dark

Whether in the garden or forest, choose a spot that's away from artificial lights so you can see more stars.

See **page 3** for our recommended places.

4 Use a red torch

This will help you to see where you're going in the dark and enhance your night vision.

5 Pick up a star chart

Find easily recognisable stars and constellations with a star chart, map or app.

Start with our simple objects and constellations on **page 5**.



Use a normal torch and fix a piece of **red cellophane** over the light.



Super star facts

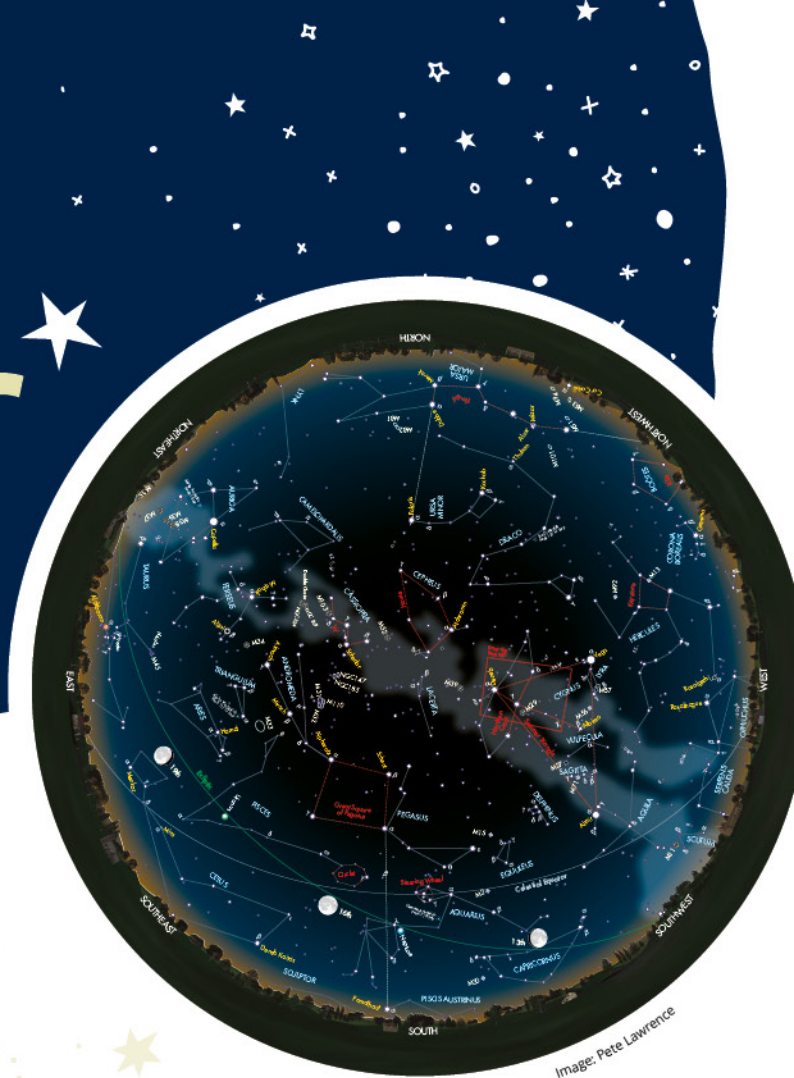


Image: Pete Lawrence

Before you begin looking at the night sky, start with some star facts.

What is a star?

Small stars are big balls of gas. They are like giant nuclear reactors converting hydrogen gas into helium and other elements, releasing huge amounts of energy in the process. The nearest star to the earth is the sun.

What is a constellation?

A constellation is a group of stars. There are 88 official constellations and 40 are named after animals, such as the fox, eagle, crow and even a fly!

What is a planet?

A planet is an object that orbits a star and must be big enough to form a spherical shape and clear away other smaller objects in its orbit.

How many stars can we see?

The human eye can see around 3,000 stars, but there are an estimated 200-400 billion stars in our galaxy, the Milky Way. Each one is a separate island in space, perhaps with planets and some may even have life.

Image: David Nunuk/Science Photo Library



Start a star diary

Keep track of the stars you spot in a star diary. Draw or write down your discoveries each night.



Your first night under the stars

Start your stargazing adventure with some easy to find objects and constellations.

The moon

Where it is: Its position varies, but it's the easiest object to find in the night sky. The moon is not a star, but a lump of rock. It shines because it reflects the sun's light. Did you know that the surface of the moon covers roughly the same area as Africa?

What you'll see: Keep an eye out for when the moon is in a quarter or half-moon phase. Try using a pair of binoculars to see more of the moon's craters, mountains, valleys and cliffs.



Image: Steve Marsh

The Plough

Where it is: The Plough is bright and easy to spot. It's a group of seven stars and lies in the northern sky, so to find it, locate north using a compass.

What you'll see: This pattern of stars looks like a saucepan and is part of the constellation of

Ursa Major, the Great Bear, marking the bear's tail and back.

It's worth noting that each of the Plough's seven stars has a name; not all stars do. These can be very useful in helping you find other stars and constellations.

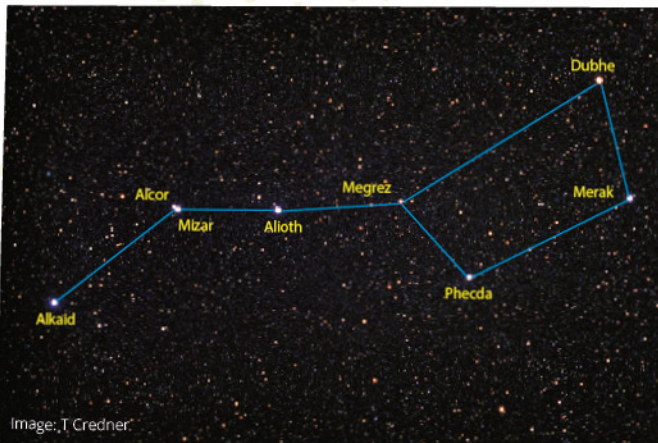
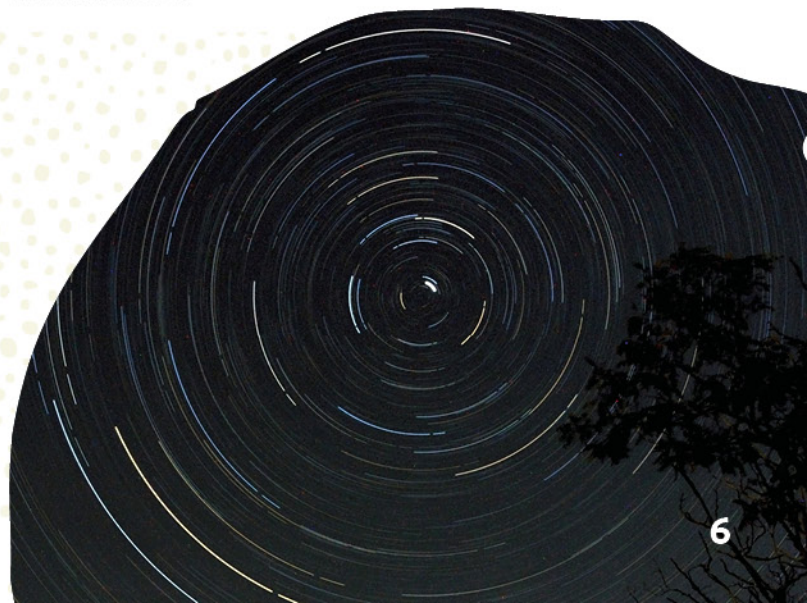


Image: T Credner

The Pole Star

Where it is: Use the Plough stars Dubhe and Merak to help you locate the Pole Star (Polaris). Start at Merak, draw a line through Dubhe and keep going straight. The next star you come across is Polaris.

What you'll see: Polaris isn't a very bright star, but it's famous because it sits almost directly above the North Pole and stays practically in the same place as our planet spins.





★ Have a game of torch tag!

It may get a little chilly while stargazing, so keep warm with a game of torch tag!

How to play

- 1 Choose one player to be 'rabbit' and give them the torch.
- 2 The other players will be 'foxes'. They must creep up and tag rabbit without being seen.
- 3 If rabbit hears a fox they should shine the torch in the fox's direction. If the torch light touches the fox, the fox is out.
- 4 The first fox to touch the rabbit wins. If no one manages to tag rabbit, then rabbit wins!

Be careful not to shine the torch in people's eyes.





Find your way using the stars

Stars were used as navigation tools in man's early explorations, and there are over 50 stars that can help people find their way.

You'll need:

Two sticks
(one shorter than the other)

Something to lie on
(a blanket or mat)



1 Lie down on your mat and push the shorter stick into the ground at eye level.

2 Push the longer stick into the ground beyond the shorter one.

3 Line the tips of the sticks up with a bright star.

4 Now, watch the star for a little while. If it appears to move up, you are facing east, down you are facing west, right you are facing south and left you are facing north.



Which way were you facing?

Answer:



Be a forest-star

Say that fast, what does it sound like?



Our foresters look after your forest for people, wildlife and timber. Can you find these star-like items to become a 'forest-star'?



Find something near you that is **star-shaped** (eg. a cone or a small stone)



Find a **spider's web** glistening with star-like dew drops



Make a **star-shaped picture** using natural materials from outside



If you are in the forest, find a **tree where the roots radiate outwards in a star-like shape**



What did you find?





Continue your stargazing journey

With so many stars and constellations to spot, you may want to try a few shorter stargazing adventures first. **But once you've have got your eye in, try looking for:**

The Pleiades

Where it is: In the constellation of Taurus, the Bull.

What you'll see: This open cluster is known as the Seven Sisters, which is roughly the number of stars you can see with the naked eye. It's also a lovely sight in binoculars, which will reveal several dozen more stars.



Orion's Belt

Where it is: In the constellation of Orion, the Hunter.

What you'll see: Three bright stars in a row. It's in the southern sky, so locate south using a compass.



Orion Nebula

Where it is: Find it below the middle star of Orion's belt. It's only visible during winter months.

What you'll see: The nebula is just visible to the naked eye as a misty patch, but binoculars and a small telescope will start to reveal the sweeping structure.

