

# STARGAZING SOUTH DOWNS

A SEASONAL POCKET GUIDE

SOUTH DOWNS  
NATIONAL PARK





Tim Peake at the Novium Museum, Chichester

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"My earliest memory of space was not actually from watching the television, it was as a young boy looking out of my bedroom window on clear, cloudless nights up into the starry skies and thinking and wondering about the Universe."

TIM PEAKE

# INTERNATIONAL DARK SKY RESERVE

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In May 2016 the South Downs National Park became the world's newest International Dark Sky Reserve (IDSR), the second in England and one of only 16 in the world!

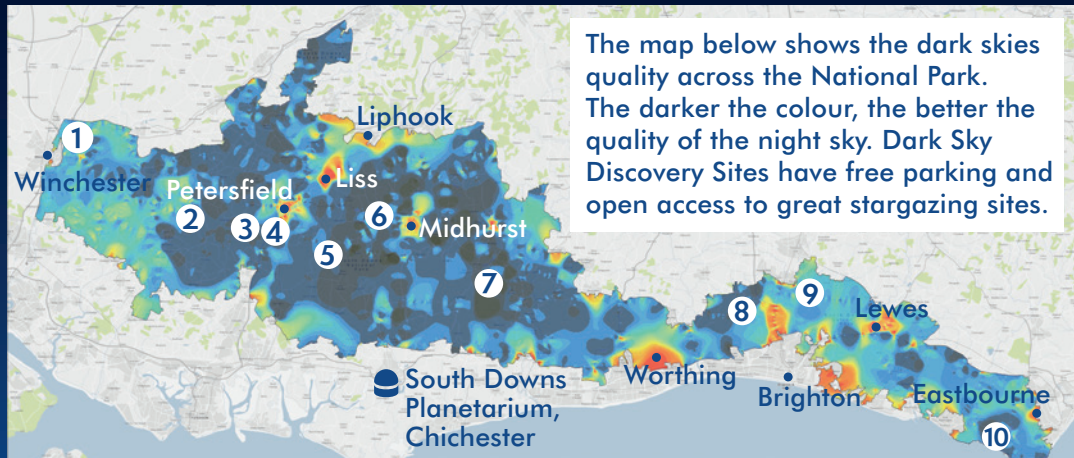
The star-studded skies overhead are as valuable as the National Park's beautiful rolling landscapes and, with properly dark skies in the South East of England under threat, this is a statement that the skies of the South Downs are worth protecting.

- 1 Snowdonia National Park
- 2 Brecon Beacons National Park
- 3 Exmoor National Park
- 4 South Downs National Park
- 5 Cranborne Chase AONB



# WHERE TO FIND THE TEN DARK SKY DISCOVERY SITES IN THE SOUTH DOWNS

- 1 Winchester Science Centre & Planetarium
- 2 Old Winchester Hill
- 3 Butser Hill
- 4 Buriton
- 5 Harting Down
- 6 Iping Common
- 7 Bignor Hill
- 8 Devil's Dyke
- 9 Ditchling Beacon
- 10 Birling Gap



# TOP TIPS FOR STARGAZING IN THE SOUTH DOWNS

- Check the phase of the moon to plan your trip – stargazing is best when the moon isn't full (see page 15)
- Take a blanket or mat to lie on
- Wrap up warm
- Take some snacks and a hot drink
- Allow time for your eyes to adjust – this takes around 20 minutes so turn off any lights, torches and put your mobile phone away
- If you have them take a telescope or a pair of binoculars – though on clear nights you will be able to see lots with the naked eye.



## Throw a Star Party

Stargazing with friends and family or your local community is a great way to spend an evening, and help raise awareness of the importance of dark skies in your area.

Find a suitable dark skies location (see map on page 4) and get everyone to meet there with their telescopes or binoculars. Set up each telescope on a different constellation or feature so everyone gets a chance to have a look.

Don't forget food and hot drinks to keep you warm.

# WHICH WAY IS NORTH?

The North Star is positioned above the North Pole and appears to stay still in the night sky as the Earth rotates beneath it. For this reason it has been used for centuries as a navigation tool, and still can be today!

Use the diagram to find the North Star and determine which way is north – no need for a compass.

North star  
(polaris)



Key for following pages

- Constellations
- Guide lines
- North Star
- ☼ Group of stars
- ★ Single star
- ☄ Galaxy

The  
Plough  
(Ursa  
Major)



# SPRING SKIES LOOKING NORTH

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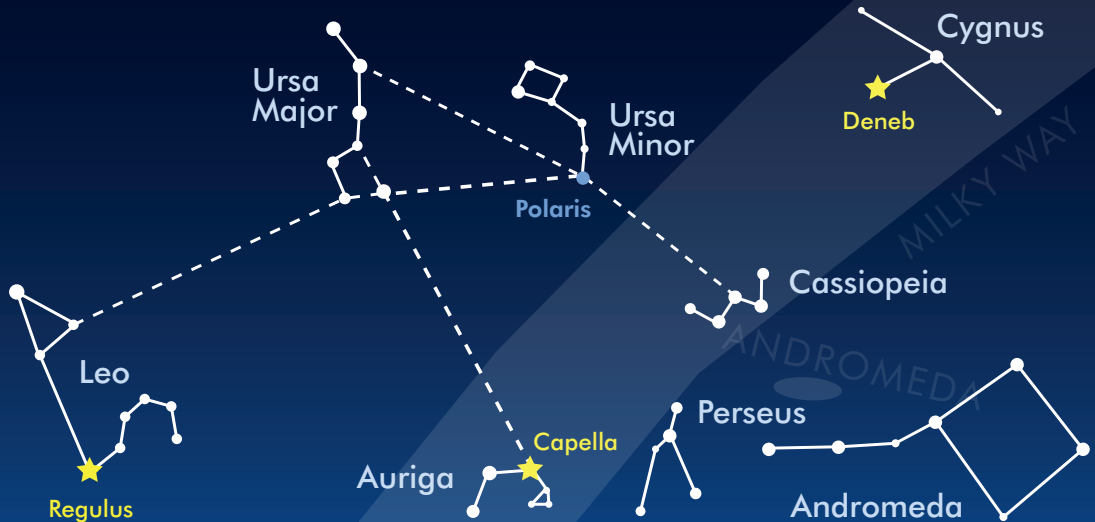


# SPRING SKIES LOOKING SOUTH

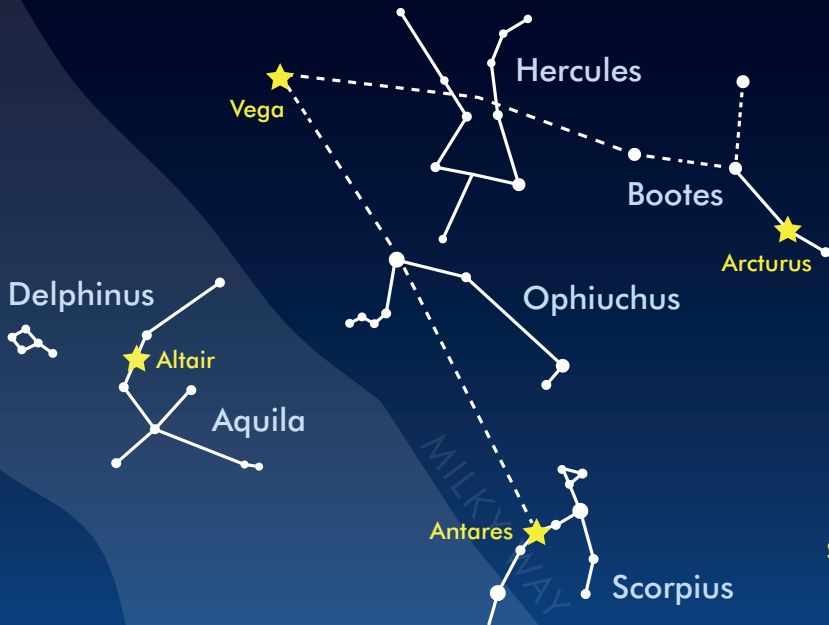
During spring, Leo the Lion is a prominent constellation with the bright star Regulus shining in the south. The second largest constellation in the sky, Virgo, lies underneath with its bright star Spica.



# SUMMER SKIES LOOKING NORTH



# SUMMER SKIES LOOKING SOUTH



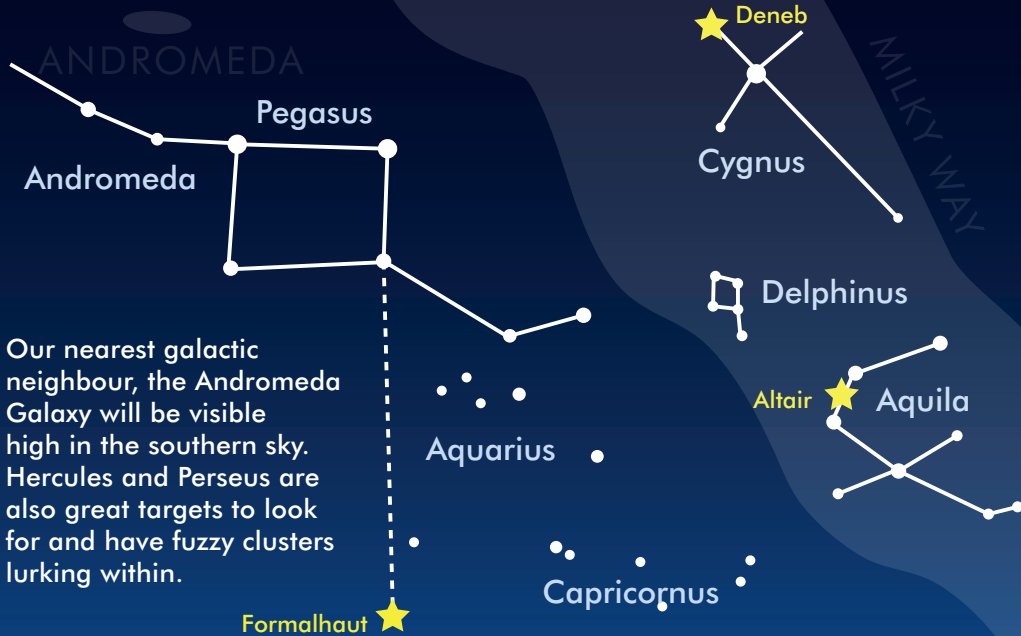
The summer sky is all about spotting the central hump of the Milky Way low in the south in the constellation of Sagittarius – you'll need a late night to see it at its brightest.



# AUTUMN SKIES LOOKING NORTH



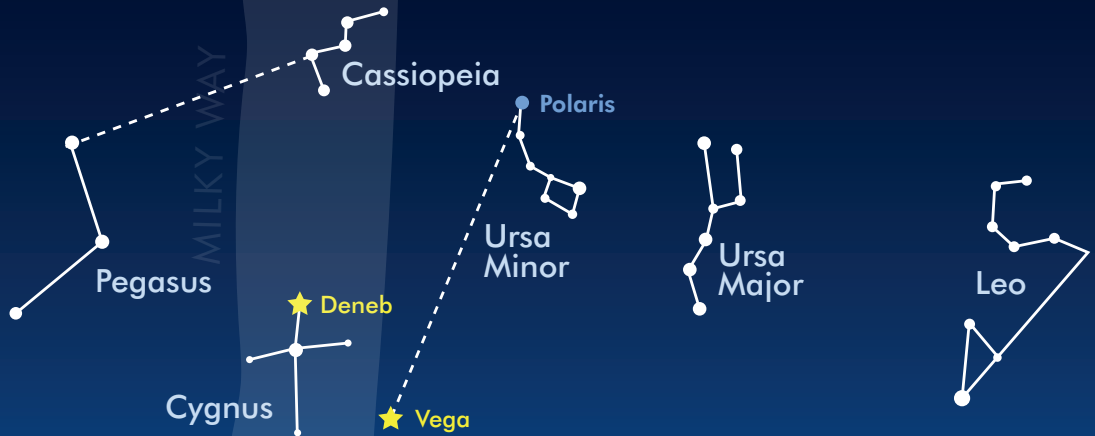
# AUTUMN SKIES LOOKING SOUTH



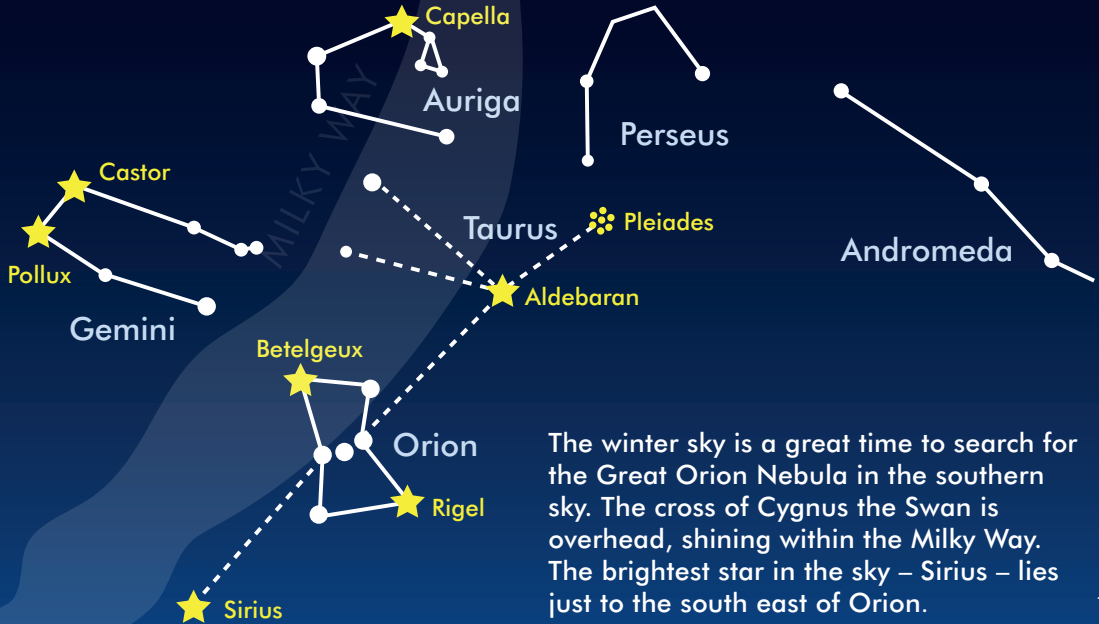
Our nearest galactic neighbour, the Andromeda Galaxy will be visible high in the southern sky. Hercules and Perseus are also great targets to look for and have fuzzy clusters lurking within.

# WINTER SKIES LOOKING NORTH

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# WINTER SKIES LOOKING SOUTH



The winter sky is a great time to search for the Great Orion Nebula in the southern sky. The cross of Cygnus the Swan is overhead, shining within the Milky Way. The brightest star in the sky – Sirius – lies just to the south east of Orion.

# OUR MOON

The moon sits approximately 239,000 miles away from Earth and is our nearest space neighbour. Measuring 2,160 miles across, it is a stark and barren place with no atmosphere. However you can spot craters and seas (fields of solidified lava) on the moon's surface.

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## Moon Phases



**Waxing  
Crescent**



**First  
Quarter**



**Waxing  
Gibbous**



**Full**



**Waning  
Gibbous**



**Last  
Quarter**



**Waning  
Crescent**

# WHAT IS A SHOOTING STAR?

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These streaks of light which you see racing across the night sky aren't actually anything to do with stars, they are instead tiny bits of dust and rock called meteoroids. As they fall into the Earth's atmosphere they burn up, creating a short-lived trail of light known as a meteor. If any of the meteoroid survives the fall to Earth the remaining bit is called a meteorite.

Meteor showers occur when the Earth passes through the trail of debris left by a comet as it orbits the sun. They can produce spectacular night time scenes – keep a lookout for the Perseids meteor shower which peaks on the 12 August and the Orionids shower on 22 October.



# NOCTURNAL WILDLIFE

Dark skies are not just important for helping us see the stars and planets, they are vital for nocturnal wildlife. Keep a look out or listen for some of these while you're stargazing in the South Downs.

There are about 16 protected species of bats breeding in the UK. It is easy to spot their jerky flight but to hear their cacophony of clicks and whistles you'll need a bat detector.

Most of the UK's 800 species of larger moths are strictly nocturnal. Look out for hawk-moths in the South Downs they are big and colourful.

Barn owls are unmistakable and appear like floating white ghosts as they patrol field margins for mice and shrews. Tawny owls are commonly found in woodland with their bodies streaked in brown and grey for camouflage.



Their recognisable bark or scream can shatter a peaceful night, and often sound quite eerie during mating season (December to February). Look for signs of foxes such as droppings (black if fresh or grey if old), hair on fences and their pungent scent.

Barn owl



Tawny owl



Shine your torch at moist, grassy areas to spot these little mammals. Hedgehogs are very timid so don't be shocked if they roll up into ball when you find them.



# HAVE YOU SEEN...

Keep your eyes peeled for these 11 features which you can see with the naked eye or a pair of binoculars.

- 1 The North Star
- 2 The moon's largest crater – Tycho
- 3 Shooting star
- 4 Jupiter
- 5 Saturn's rings
- 6 The dark dust lanes of the Milky Way in winter
- 7 Beehive Cluster in Cancer
- 8 The centre of the Milky Way in summer (in Sagittarius)
- 9 The Andromeda Galaxy (in Andromeda)
- 10 Orion Nebula (in Orion's sword)
- 11 Perseids meteor shower

# WHAT YOU CAN DO TO HELP

There are a few things you can do to help protect dark skies and nocturnal wildlife which depend on darkness for survival.



Check the outdoor lighting around your home. Is it really needed? If not, turn it off, or if it is, make sure it's fully shielded so light is directed down on to the ground.



Buy lamps under 500 lumens to reduce light pollution.



Plant paler, night-scented flowers to attract night-time insects.



Install a bat box on a tree in your garden.



Spread the word! Tell your family, friends and neighbours about why dark sky friendly lighting is important. The more people that know, the better protected our dark skies will be.

# USEFUL LINKS



If you would like to find out more about astronomy there are some great resources online, here are just a few:

[SOUTHDOWNS.GOV.UK](https://southdowns.gov.uk)

- [darksky.org](https://darksky.org)
- [darkskydiscovery.org.uk](https://darkskydiscovery.org.uk)
- [bbc.co.uk/earth/tags/space](https://bbc.co.uk/earth/tags/space)
- [astronomy.swin.edu.au/cosmos](https://astronomy.swin.edu.au/cosmos)
- [nasa.gov](https://nasa.gov)
- [fourmilab.ch/earthview/vplanet.html](https://fourmilab.ch/earthview/vplanet.html)
- [fourmilab.ch/yoursky](https://fourmilab.ch/yoursky)
- [sagasonline.org](https://sagasonline.org)
- [esa.int](https://esa.int)

The South Downs Planetarium in Chichester ([southdowns.org.uk](https://southdowns.org.uk)) or the Winchester Science Centre and Planetarium ([winchestersciencecentre.org](https://winchestersciencecentre.org)) bring the universe to life with regular stargazing events and planetarium shows.

There are also regular open evenings at the observatory in Hampshire, visit [hantsastro.org.uk](https://hantsastro.org.uk) for details.