



Stargazing Beginner Resources

Thank you for listening to Stars Over Surrey, here are some resources to get you started in your stargazing and astronomy journeys.

Dark Sites

<https://www.lightpollutionmap.info/>

<https://darksky.org/places/moores-reserve-south-downs-dark-sky-reserve/>

Join your local Astronomical Society

Night Sky Apps

Stellarium

Sky Safari 2

Star Walk 2

Aurora Apps

Aurora Watch UK

Glendale App (not on the app store, go to the website and create a short cut)

Equipment

Red Light Torches/head lights (wrap around your wrist to avoid blinding others)

Layers, weatherproof clothing

Comfortable chairs, camping mats, hot drinks, water, food

Full battery phone

Planisphere, star charts <https://www.skymaps.com/downloads.html>

Rachel uses:

Binoculars: Celestron Skymaster 15 x 70s

Smartscopes: Seestar S50, Seestar S30, Vaonis Vespera

Magazines

Astronomy Now

BBC Sky at Night

Sky and Telescope

Planning Books

Philips Stargazing 2025

Collins 2025 Guide to the Night Sky Britain and Ireland

Collins Moongazing by Tom Keress

Philips Moon Map

Collins Stargazer's Bible: Your Illustrated Companion to the Night Sky by Mary McIntyre, Ian Ridpath, and Rachel Federman

Astronomical Societies

Ewell <https://ewellastronomy.org/>

Guildford <https://www.guildfordas.org/>

Farnham <https://www.farnham-as.co.uk/>

Walton <http://www.waltonastrogroup.co.uk/>

<http://www.astronomyclubs.co.uk/Clubs/Counties.aspx>

Location Planning

Safety considerations trump light pollution

Astronomy Terms

Magnitude - how bright something is, in this scale the lower the magnitude, the brighter the object. The human eye can see up to magnitude 6 in good conditions.

Seeing - describes the sky quality, a very clear sky is good seeing or the seeing is good.

Bortle - describes the light pollution scale - Bortle 9 is the most polluted sky such as London and Bortle 1 is a non polluted sky like the Atacama desert in Chile.

Circumpolar - some stars are available in the sky all year around, but appear to rotate around the sky. These are circumpolar stars. The stars that are circumpolar stars vary by latitude.

Ecliptic - the apparent path of the Sun, Moon and planets across the sky.

Moon Phases

New Moon

1st Quarter Moon - waxing half moon

2nd Quarter/Half Moon - half moon

3rd Quarter Moon - waning half moon

Blue Moon - the 4th full moon within a 3 calendar month period (it is not blue)

Supermoon - when the full moon is slightly closer to Earth in its orbit and looks slightly bigger

Micromoon - when the moon is slightly further away from Earth in its orbit and looks slightly smaller.

Note: Venus and Mercury have the same phases

Eclipses

Total Solar Eclipse - where the Moon passes completely in front of the Sun, and blocks out the full solar disc so that the corona is visible. Note it is not safe to look directly at the Sun during an eclipse except during totality.

Partial Solar Eclipse - where the Moon moves partially across the solar disc.

Annular Solar Eclipse - where the Moon passes completely in front of the Sun, and the Moon is slightly further away from the Earth in its orbit so there is a “ring of fire” around the Moon when it passes in front of the Sun.

Lunar Eclipse - where the Earth is in between the Moon and the Sun, such that the Moon enters into the Earth’s shadow. Sometimes this is called a Blood Moon because the shadow has a red/orange hue.

Partial Lunar Eclipse - where the Earth is between the Moon and the Sun, such that part of the moon enters into the Earth’s shadow and it appears to have a bite taken out of it.

Planetary Language

Inferior - the planets between the Earth and the sun eg Mercury and Venus

Superior - the planets further away from the Sun than the Earth’s orbit eg Mars, Jupiter, Saturn, Uranus and Neptune.

Occultation - where one celestial body hides, or moves in front of another. For example, the Moon occulting Mars, is where the moon passes in front of Mars so you see Mars disappear behind it and appear on the otherside.

Transit - where one body transits in front of a larger body such as Mercury transiting the Sun will be Mercury moving along the solar disc. Or one of Jupiter’s moons, transiting across the disc of Jupiter.

Conjunction - where two objects appear to touch each other in the sky, technically, their discs need to overlap, but it’s often used to describe where they appear very close.

Opposition - where the Earth is between that planet and the Sun so we get the best view. Eg Saturn at opposition means that there is a straight line between the Sun, the Earth and Saturn and it will have its closest path to the Earth in its orbit around this time.

Elongation - where a planet appears to be furthest out to the East or West of its orbit around the Sun from the perspective of Earth. In the UK, Mercury is easiest to find with a low horizon when it’s at either elongation.

About

Rachel Dutton FRAS is an astronomer and cellist and she looks after outreach at the Guildford Astronomical Society. She presents Stars Over Surrey bringing a monthly review of space news, astronomical matters including a review of the past month's discoveries, events and space missions, Astrocast what to look for in the night sky over the coming month, forthcoming talks and events.



If you want a reminder of when the show is on, and links to the images discussed, you can sign up here for notifications from Rachel.

<https://mailchi.mp/f7101b2028fc/spaceastronomy-media-updates>

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