

St Benedict's

NIGHT SKY NEWS – Jan 2023

St Benedict's is a member of the **SOCIETY FOR POPULAR ASTRONOMY** and receives regular newsletters regarding astronomical events and information. If you would like to be included on the mailing list for these, please contact JGregory@st-benedicts.suffolk.sch.uk

STARS IN YOUR EYES

A HAPPY NEW YEAR TO ALL OUR MEMBERS AND READERS!

We are now past the Winter Solstice and the nights will start to shorten, but the evening skies will remain nicely dark at least until the clocks go forward at the end of March. Much therefore to see.

Although the mighty, southern constellations (the likes of Taurus, Orion, Gemini and Auriga) are rising high, this month's featured constellation is another of the lesser well known ones, but one which any self-respecting stargazer should try to spot – **LYNX**. With only one star brighter than 4th magnitude, you will need a really good, dark sky - no bright Moon and well away from any light pollution.

Unlike the “classical” constellations catalogued by Ptolemy in the 2nd century, Lynx is a relatively “modern” constellation, one of several that were introduced by the Polish astronomer Johannes Hevelius in the 17th century. Hevelius created the constellation to fill a relatively large gap between the two neighbouring constellations, **Auriga** and **Ursa Major**. He named it Lynx because it was pretty faint and it took the eyesight of a lynx to see it!

Stand looking to the north east and you will spot the unmistakable stars of Ursa Major (The Plough) to your left; the pair of bright stars (Castor and Pollux) of the constellation Gemini to your right; and above, almost overhead, the bright yellowish star, Capella, in the constellation Auriga. In between the sky will, at first, appear empty of stars – but, as your eyes get adjusted you will begin to make out a line of faint stars arranged almost vertically, this is constellation LYNX. Its brightest star (mag 3.3) is at the bottom, so try to spot that first and then work your way up.

Unlike the majority of constellations, there is no definite myth associated with Lynx. Hevelius named the constellation after the lynx because it is a relatively faint one. He wrote in his *Prodromus astronomiae* that only those who have the sight of a lynx can see it. The book is an unfinished work published by Hevelius' wife around 1690, a few years after his passing. In the accompanying star catalogue, Hevelius called the constellation “*Lynx, sive Tigris*” – Lynx or Tiger.

While it is not known if Hevelius had any myths in mind when he named the constellation, there is a figure in mythology that might be linked to the constellation's name. **Lynceus**, who sailed with Jason and the Argonauts, was said to have the keenest eyesight of all men and could even see things underground. He and his twin brother Idas were part of Jason's expedition to find the Golden Fleece.



THE MOON THIS MONTH

PHASE

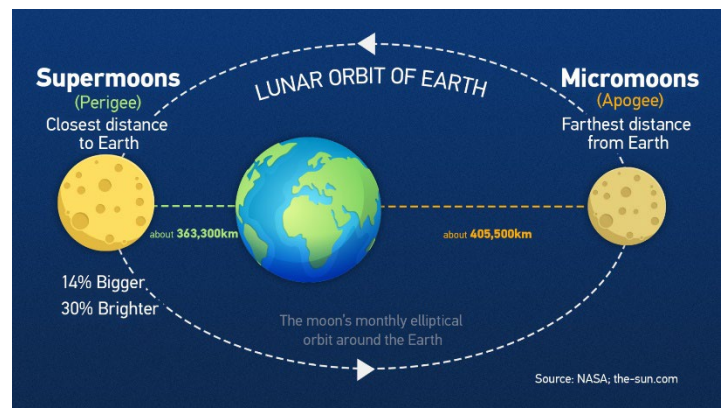
Full Moon	6th
3rd Quarter	15th
New Moon	21st
1st Quarter	28th



January's Full Moon is known as the **WOLF MOON**, although the name is often applied to the whole of the lunar month not just the night of the Full Moon. It is thought that the name arose among the tribes of North America because wolves were more likely to be heard howling at this time. It was traditionally believed that wolves howled due to hunger during winter, but we know today that wolves howl for different reasons. Howling and other wolf vocalizations are generally used to define territory, locate pack members, reinforce social bonds, and coordinate hunting.

Another fitting name for this Full Moon is the **Center Moon**. Used by the Assiniboine people of the Northern Great Plains, it refers to the idea that this Moon roughly marks the middle of the cold season. Other traditional names for the January Moon emphasize the harsh coldness of the season: **Cold Moon** (Cree), **Frost Exploding Moon** (Cree), **Freeze Up Moon** (Algonquin), and **Severe Moon** (Dakota). **Hard Moon** (Dakota) highlights the phenomenon of the fallen snow developing a hard crust.

This month's Moon is also notable from an astronomical point of view: it is a "**Micromoon**". It simply means that the Full Moon is at its farthest point from Earth (not the nearest point). In astronomical terms, we call this "apogee." Specifically, January's Micro full Moon is about 252,600 miles from Earth. Why is the Moon nearer or farther (in this instance) from Earth? Simple: The Moon orbits Earth in an elliptical path, not a circular one. At one point in its orbit it is closest to the Earth (perigee) and at the opposite point it is farthest from the Earth (apogee). When the Full Moon is at its closest point to Earth we call it a "supermoon". The distances do affect the Moon's apparent size and brightness, although it's probably not that visible to the naked eye.



When the Full Moon is at its farthest point from Earth we call it a "micromoon". The distances do affect the Moon's apparent size and brightness, although it's probably not that visible to the naked eye.

HOWLING AT THE MOON?

Although wolves were hunted and trapped to extinction in the UK by the late 18th century, there is still a common conception that wolves would actually howl at the Full Moon. Is this true? Sorry, no! It may be a romantic notion, but the truth of the matter is that wolves aren't howling at the moon; they have no more interest in our lunar companion than the rabbits they hunt or the fleas living in their fur. Before we get into the actual reason behind the howling of wolves, it is important to clear that question up. Throughout human history, different cultures have created stories to explain things they don't understand. Natural phenomena were often paired with such traditional stories, and passed down between generations. In Greek, Roman and Norse mythology, there was a strong connection between wolves and the moon, and Native American legends often saw wolves as the guardians of the moon, howling it into existence at night. Over the centuries, these legends faded into traditional, and even common knowledge, despite not having any real basis in science, merely in anecdotal experience.

Numerous research studies in modern times have shown that wolves do not howl in any sort of pattern in regards to the moon. In other words, whether it's a full moon, a new moon, or anything in between, including a completely cloudy sky, or if the moon hasn't even risen, wolves are still known to howl. There is so statistical significance to their frequency, duration or intensity in connection to the presence of the moon. So.... why are they howling at all?

As you can imagine, wolves need to communicate with each other about some basic things—danger, location, mating and dominance being the major "topics of conversation". The basic reasons that a wolf howls include signalling to the rest of the pack where they are located, which can help the pack unify if they've been split apart for some reason. Howling is also a warning for other packs or lone wolves to steer clear, since an established pack is holding the territory. The reason that wolves howl at night is because they're nocturnal; they aren't active during the day, and therefore need to communicate during the night in the most efficient way they can.

THE PLANETS THIS MONTH

MERCURY: From mid to late January will be the best time to spot Mercury in the morning twilight before sunrise. Look for Mercury appearing at about 5 degrees of altitude in the south-east from 07:20 GMT any time from mid-January to the end of the month and follow it as the sky brightens, 'though its period of visibility will be short.

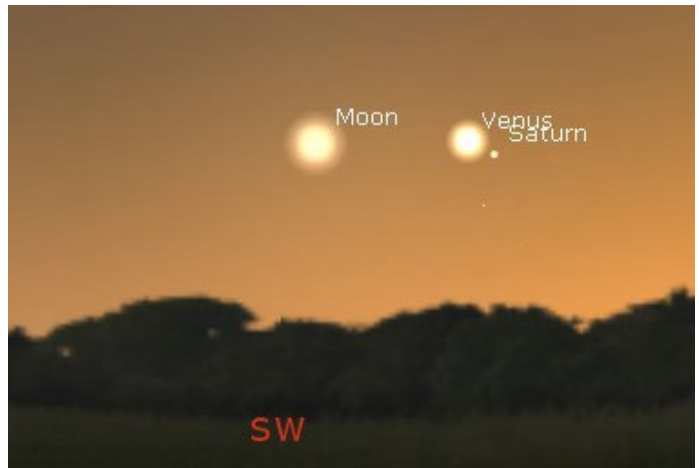
VENUS: An "evening star" - at magnitude -3.9 it will be very obvious, low to the south-western horizon soon after sunset and by late January it will appear at around 15 degrees of elevation as twilight falls.

MARS: Mars will be an excellent target during the whole evening/night during this period due to its high elevation when due-south and its reasonable apparent size. Also its unmistakable orange hue – the "Red Planet".

JUPITER: Jupiter continues to be an evening object, bright and to the south at about 35 degrees altitude. It is the first object (after the Moon) to become visible after sunset.

SATURN: Saturn is an early evening target, appearing low in the south west after sunset, but then setting itself within an hour or two.

On 23rd January, between 17:00 and 18:00, there will be a close encounter between Venus, Saturn and a waxing, crescent, first quarter Moon, low in the south west – see sky chart above.



METEORS THIS MONTH

January sees the peak of the **QUADRANTID** meteor shower, one of the most consistent showers often reaching a maximum rate of 100 per hour. The shower actually runs from 28th December to 12th January and peaks on the night of 3rd/4th January. Unlike most other showers whose peaks extend over 1-2 nights, the Quadrantids peak is merely a few hours at most. This month's peak is just before the Full Moon, which is not ideal as the sky will be bright. Many of the meteors are bright, bluish or yellowish-white, so you should be able to see quite a few if you time it right. Look to the north east.

The shower's name comes from *Quadrans Muralis*, a former constellation created in 1795 by the French astronomer Jérôme Lalande that included portions of **Boötes** and **Draco**. In 1922, the International Astronomical Union (IAU) devised a list of 88 modern constellations. The list was agreed upon by the IAU at its inaugural general assembly held in Rome in May 1922. It did not include constellation *Quadrans Muralis*. The IAU officially adopted this list in 1930, but this meteor shower still retains the name Quadrantids, for the original but now-obsolete constellation.



In 2004 astronomer Peter Jenniskens concluded that the parent body of the Quadrantids could be the minor planet 2003 EH1, which in turn may be related to the comet C/1490 Y1 that was observed by Chinese, Japanese and Korean astronomers some 500 years ago.

UPDATE ON THE WINCHCOMBE METEORITE

If any portion of a meteor survives its encounter with the Earth's atmosphere and actually reaches the ground, it becomes a **meteorite**. By examining meteorites we can gain an insight into the material that was present as our Solar System was forming, 4.6 billion years ago. On 28th February 2021 a meteorite landed in the village of Winchcombe, Gloucestershire – and it turned out to be a very interesting object indeed. The following report was first published in the school's *SCIENCE NEWS Monthly* in October 2022:

SPACE ROCKS! - Extra-terrestrial water has been found in a British meteorite

In February 2021, in the town of Winchcombe, Gloucestershire, a 4.6 billion year old meteorite fell to the Earth. Remarkably it landed on the driveway of a local family who recovered it and handed it over to the Natural History Museum in London where it could go on display. Not just that, though, as it could also be scientifically examined in fine detail. The museum has now announced that, for the first time in a UK meteorite, they have found extra-terrestrial water.



Dr Ashley King, of the Planetary Materials Group at NHM and the UK Fireball Alliance, told delegates at a British Science Festival in Leicester: *“What’s really exciting for us for us is that the Winchcombe meteorite was collected about 12 hours after landing, so the water that’s in the rock hasn’t been contaminated with the water that we have in our atmosphere. So it’s basically really fresh. We can be really confident when we measure the water that it is extra-terrestrial water.”*

The meteorite contains about 12% water that is locked up in a sort of mineral ‘mud’. The most interesting thing about the water is that it is virtually identical to the water found in Earth’s oceans. This adds to the evidence that a significant proportion of the Earth’s ocean water came by way of the early bombardment by meteorites in the first 500 million years after our planet’s formation. Some have suggested that comets, which are themselves largely made of water ice, may have played a major part, but Dr King says that the analysis of the Winchcombe meteorite places that theory in doubt - *“The composition of water on comets, at least a few that we visited, doesn’t really match the Earth’s oceans, but the composition of the water in the Winchcombe meteorite is a much better match. So that would imply that carbonaceous asteroids were probably the main source of water for Earth.”*

It has also been discovered that the meteorite and others like it contain certain amino acids, the building blocks of proteins, as well as the nucleobases – Adenine, Cytosine, Guanine and Thymine – central to the structure and function of DNA. This adds to the theory that such life-essential molecules did not arise primarily on Earth, but were brought here during the early years of the Solar System when Earth was being bombarded by huge numbers of large meteorites.

ISS SIGHTING TIMETABLE

The following ISS sightings are possible from Sunday Jan 1, 2022 through Thursday Jan 5, 2023. Not the best opportunities, as the ISS never gets high in the sky apart from Sunday 1 and Monday 2.

Date	Visible	Max Height*	Appears	Disappears
Sun Jan 1, 4:55 AM	1 min	19°	19° above ESE	10° above E
Sun Jan 1, 6:27 AM	4 min	34°	24° above WSW	10° above SE
Mon Jan 2, 5:41 AM	3 min	41°	41° above S	10° above SE
Mon Jan 2, 7:15 AM	3 min	13°	10° above WSW	10° above S
Tue Jan 3, 4:55 AM	1 min	16°	16° above ESE	10° above ESE
Tue Jan 3, 6:28 AM	3 min	19°	17° above WSW	10° above SSE
Wed Jan 4, 5:42 AM	2 min	22°	22° above S	10° above SSE
Thu Jan 5, 4:56 AM	< 1 min	11°	11° above SE	10° above SE

[Newmarket, England, United Kingdom | Sighting Opportunity | Spot The Station | NASA](#)

PRINCIPAL SOURCES OF INFORMATION

<https://www.constellation-guide.com/constellation-list/lynx-constellation/>

<https://www.timeanddate.com/moon/phases/>

<https://www.almanac.com/content/full-moon-january>

<https://www.scienceabc.com/nature/animals/why-do-wolves-how-at-the-moon.html>

[The Planets in December 2022 and January 2023 - Planetary Section \(popastro.com\)](#)

[Quadrantid meteor shower: when and where to see it in the UK | Royal Museums Greenwich \(rmg.co.uk\)](#)