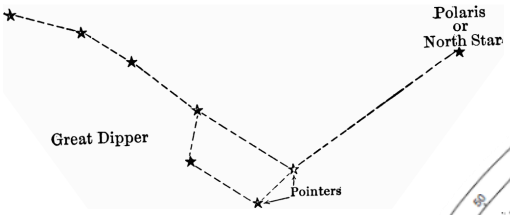
Stargazing Guide: January 2018

WINCHESTER SCIENCE CENTRE AND PLANETARIUM

What to look out for…

Constellations (star pictures) and interesting stars:

1 **The Plough** always the best place to start! The last two stars point to the North Star, Polaris, which you can use to orient your map. Polaris is always seen to the North as it is directly above the North Pole.



2 **Orion** (say "uh-RYE-un"). An unmistakable pattern rising in the East after sunset. There will be more about Orion in next month's guide.

3 **Taurus** (say "TOR-rus"). Look up/right from Orion to find the 'V' of the bull's face with his great orange eye. The fainter stars are the distant Hyades star cluster (say "HY-uh-deez").

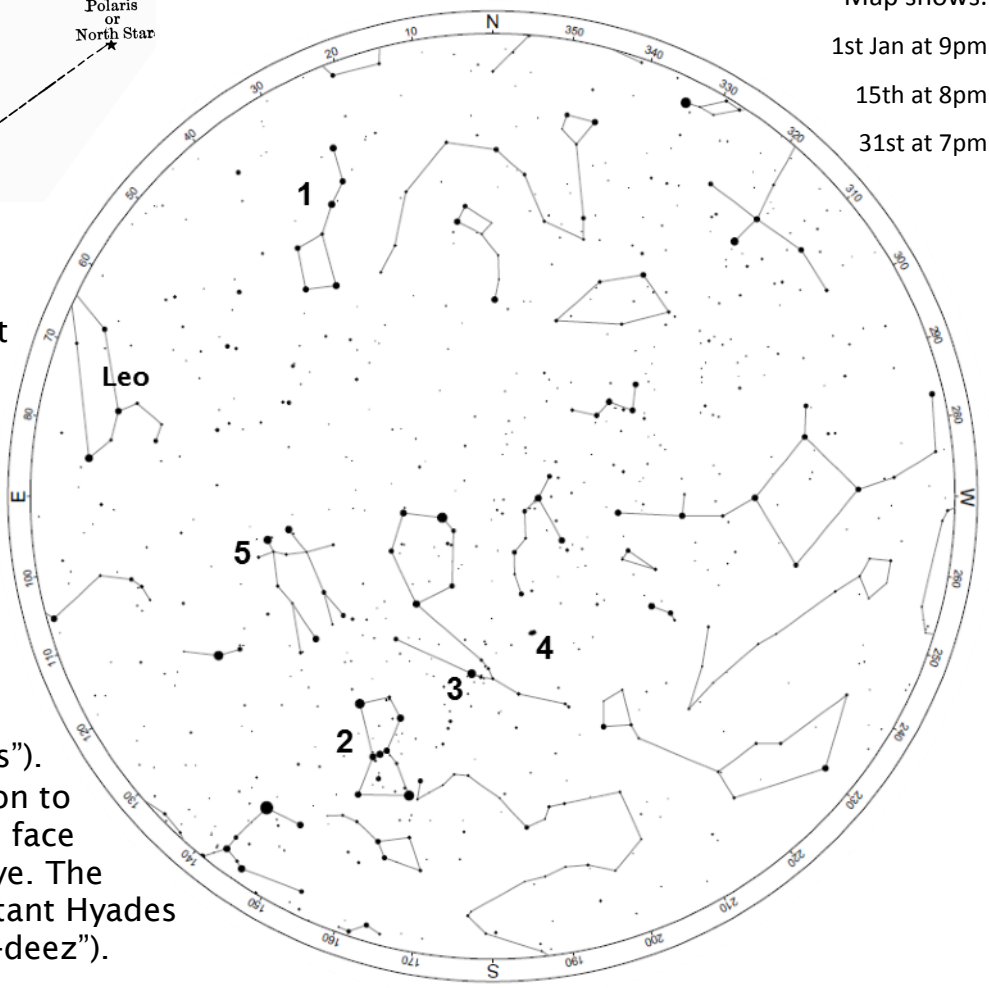
5 **Gemini** the Twins. Look first for their bright heads. In Greek mythology the brother on the left (Pollux) was immortal but the other twin (Castor) was mortal. When Castor died, Pollux was heartbroken and asked that they be placed in the stars so they could be together again.

Map shows:

1st Jan at 9pm

15th at 8pm

31st at 7pm



4 **Pleiades** (say "PLY-uh-deez"). Mentioned last month but well worth another look. This lovely star cluster is more than twice as far away as the Hyades. The stars are very young - between 75-150 million years old (born during the Jurassic and Cretaceous periods).

How to use this chart:

Imagine the chart flat & upside-down above your head. The circle around the outside shows the horizon all around you. Turn the chart to have North (N), South (S), East or West at the front depending on which direction you are looking.

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The Moon

Look for the large black mare (say "MAR-ray") which show where there used to be lakes of lava before these cooled and hardened back into rock.

Imagine how these looked when still glowing red! Research suggests the Moon had volcanic activity until about 100 million years ago, possibly even as recent as in the last 20 million years ago, and not billions of years as previously thought.

Planets

Mercury, Mars, Jupiter and **Saturn** are all visible this month in the morning before the sun rises.

Mars and Jupiter rise in the East before 4.00am each morning throughout the month. Mars rising about 3.30am each morning but Jupiter appearing earlier as the month progresses, and both are visible till the sun rises. At the start of the month they will be close together but the gap between the increases through the month.

Saturn and Mercury rise after Mars and Jupiter, shortly before the sun rise. At the beginning of the month Mercury rises first of the two but as the month progresses Saturn overtakes Mercury, as Mercury rises later each day but Saturn rises earlier each day.
By the end of the month Mercury will rise only just before the Sun making it incredibly difficult to spot.

Using Binoculars

Binoculars are fantastic for looking at star clusters like the Hyades and Pleiades. You will be able to see many, many more stars this way. Try counting how many you can spot!

With good binoculars and clear skies you might even be lucky enough to make out faint wisps of light reflecting from gas and dust surrounding the Pleiades. This is what gives them an unusual misty appearance by eye. Originally it was thought this was gas remaining from their birth, but it is now thought they just happen to be travelling through this misty cloud.

Tip of the Month

Find the darkest spot you can, even if this just means finding a shadow of a tree or wall to shield you from street-lights or moonlight. You'll be amazed how many more stars you can then see.

Download this star guide and those for other months from:
http://www.winchestersciencecentre.org/starguides

Winchester Science Centre & Planetarium, Telegraph Way, Winchester SO21 1HZ.

Stargazing Guide: General Information

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What might I see?

Stars! In a city you might see only a few stars because the city lights light the sky so much. But in dark countryside it's possible to pick out thousands of stars against a truly black sky.

You might also see the Moon or planets; these are lit by the Sun and reflect its light to us. Planets look just like stars and can be very bright. Also look for 'shooting stars' (trails left by tiny rocks falling from space) or slower-moving satellites.

If you're lucky enough to be somewhere very dark you could also try to spot nebulae (huge clouds of gas and dust) or even other galaxies. Both look like very faint smudges of light.

Why do I see different stars at different times?

As the Earth spins every 24 hours, carrying us with it, our view of space spins too. We see new objects come into view to the east, whilst others go out of view to the west. The best example of this is the rising and setting of our closest star, the Sun.

Because the Sun is relatively close to us (millions of times closer than the night-time stars), it looks incredibly bright. This means we can't see much else while it's in the sky and so we are unable to see other stars in that direction.

However, as the Earth carries us on our yearly orbit around the Sun, we get to see the Sun from different angles. This means different stars will be 'hidden' behind it. So you'll be able to see different stars depending on the time of the year.

Where will the Moon and planets be?

The Moon and planets are always moving (the Moon orbits around the Earth, the planets orbit the Sun). This means we see them against a different background of stars at different times, although they move across the stars too slowly for us to watch this motion by eye.

The Moon orbits the Earth every 27(ish) days, keeping the same side facing towards us. As it travels, it's lit from different angles by the Sun; this gives a clue as to when you'll see it:

If the near side is fully lit (Full Moon) it'll be up all night. If it's lit from the left you see it more in the morning, and if it's lit from the right you see it more in the afternoon. When only the far side is lit (New Moon) it'll be up all day.

Planets are more complicated as our view of them depends not only on where *they* are but also where *we* are as we orbit the Sun! You'll need a current sky guide to know where to look.

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