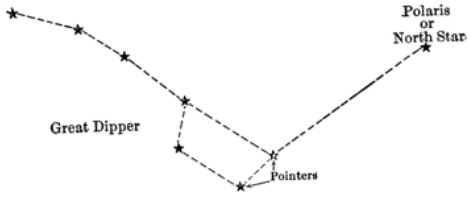
Stargazing Guide: December 2017

WINCHESTER SCIENCE CENTRE AND PLANETARIUM

What to look out for…

Constellations (star pictures) and interesting stars:

1 **The Plough** always the easiest place to start! Find it to the North-East. The last two stars point to the North Star, **Polaris**. Polaris is always seen to the North as it is above the North Pole.



2 **Taurus** (say "TOR-russ"), The Bull. He has a bright orange eye - the giant star Aldebaran, which is about 44 times wider than the Sun. The rest of the "V" shape that makes his face is formed by a star cluster called the Hyades, older than the Pleiades and only about a third as far from us.

3 **Perseus** (say "PER-see-us"). Contains Algol, the Winking Demon Star, which marks the eye of the Medusa's severed head as carried by the hero.

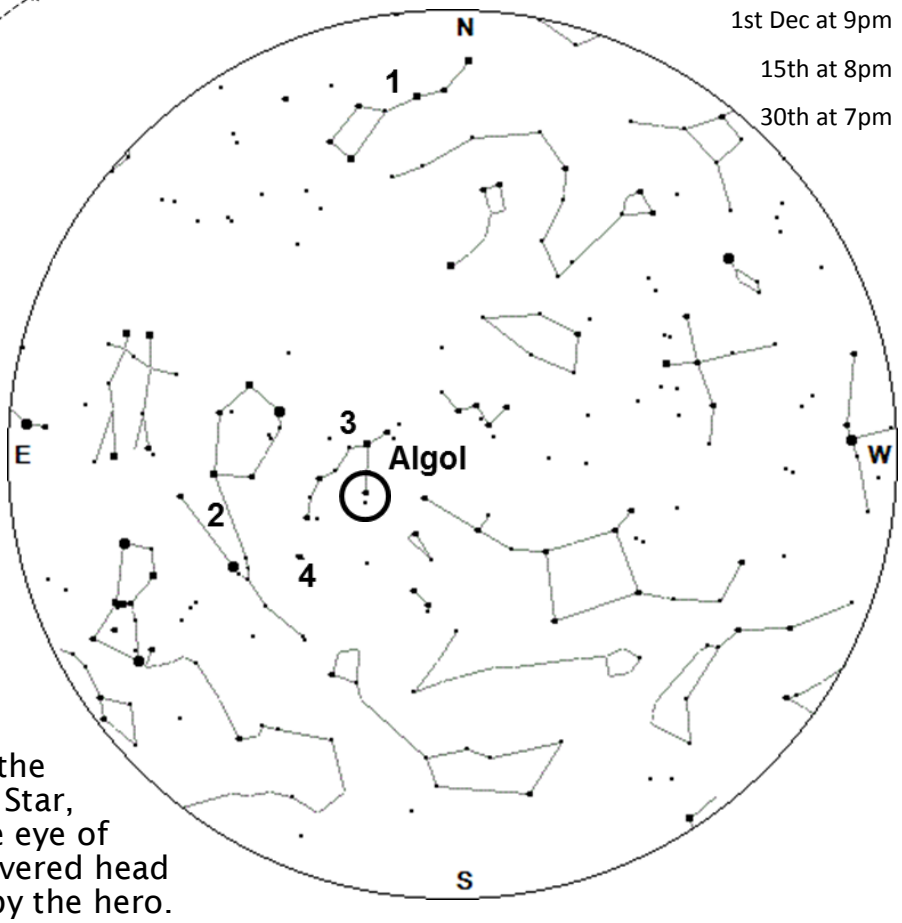
4 **Pleiades** (say "PLY-uh-deez"). A beautiful group of young stars also known as the Seven Sisters. Although you'll be lucky to see even six stars, there are over a thousand in this young cluster. Unusually, they really are close together in space, having formed from the same gas-cloud (nebula).

Map shows:

1st Dec at 9pm

15th at 8pm

30th at 7pm



Algol seems to wink every 69 hours. This is because it's actually two stars orbiting around each other. The wink comes when the dimmer star moves between us and the brighter one, blocking its light. Compare Algol's brightness to its neighbours and see if you can spot the wink!

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

Best viewed when lit from the side, as the craters throw long shadows. Look after dark around the 7th or before dawn on Christmas morning!

Planets

Saturn and **Mercury** are following the Sun in the sky. Both set shortly after the Sun in the South-West during the early parts of the month. By mid month they will set at approximately the same time as the Sun and be difficult to spot

Mars is visible each morning throughout the month before the dawn. Look for a bright, salmon-pink dot towards the East just before the Sun rises.

Jupiter and Venus rise in the early hours, Jupiter is visible shortly after Mars each morning as it gets closer to Mars in the sky throughout the month. Whereas Venus rises later as the month progresses getting closer to the dawn becoming more difficult to spot.

Mercury will be visible shortly before the dawn from mid-month rising earlier each day as the month progresses, Toward the end of the month you may even just about see Saturn shortly before the sun rises

Meteors (shooting stars)

The 13th and 14th December marks the annual Geminid shower, and with this year it being close to the time of the new moon it will make viewing these 'shooting stars' excellent. However these meteors are famed for their brightness so you may be lucky! The event occurs as the Earth orbits through a region containing small pieces of rock which then hit our atmosphere and burn up.

Using Binoculars

Binoculars are fantastic for looking at the Moon. You'll see different features depending on how it is lit. The best place to look is along the edge of the shadowed part, known as the terminator. Here the light slants against the surface creating beautifully long shadows that throw the landscape into sharp relief, dramatically lighting mountains and craters.

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

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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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