

# Stargazing Guide: September 2017

What to look out for...

## Constellations (star pictures) and interesting stars:

### 1 The Plough

This well known constellation is usually the easiest place to start. You will find it high up in the west. The last two stars point to **Polaris**, the North Star.

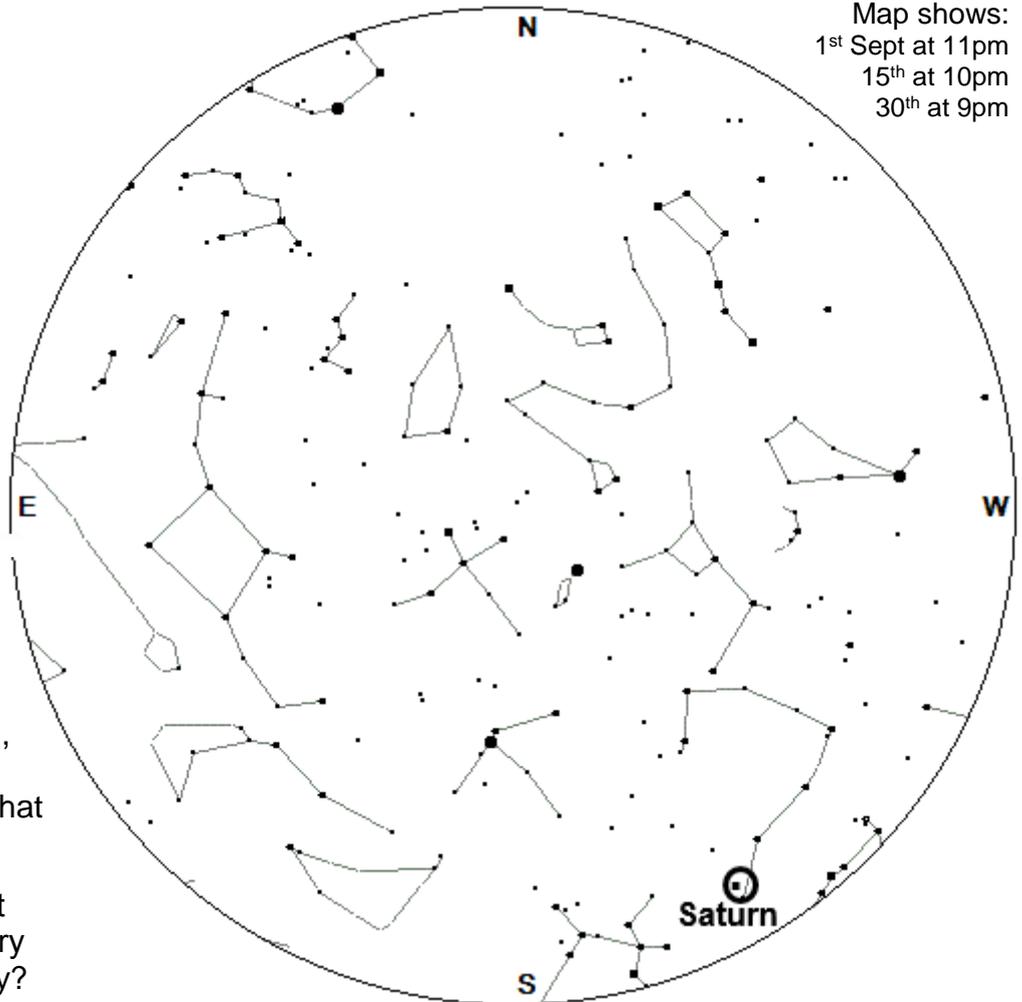


2 Pegasus (say "*Peg-uh-sis*") the Winged Horse.

This is a large constellation, easily found by the big square of four bright stars that form the horse's body.

The space within the 'Great Square of Pegasus' has very few stars. Can you spot any?

In a city you might see none at all, but in the dark countryside you might see four. On a really dark, clear night it's possible to see even more!



Map shows:  
1<sup>st</sup> Sept at 11pm  
15<sup>th</sup> at 10pm  
30<sup>th</sup> at 9pm

3 Pisces (say "*Pie-sees*") the Fish. Here is a challenge for you! Look out for one of the fishes' heads just under Pegasus, shown by a ring of stars.

4 Delphinus (say "*Dell-fin-us*") the Dolphin. It's easy to see how this tiny constellation got its name! You'll need quite a dark night but it's very pretty to see. Try finding it by using the huge triangle of bright stars to guide you (for more about this 'Summer Triangle', see the July stargazing guide).



**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.

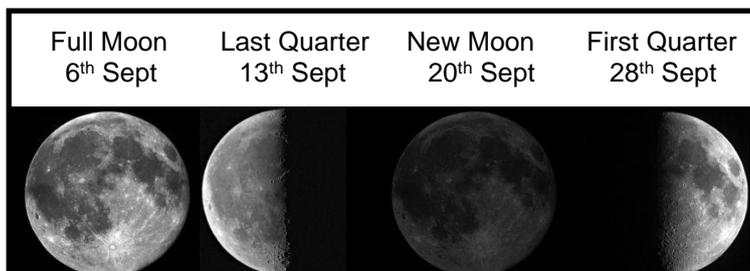
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## Other things to see

### The Moon

You will see the different phases of the Moon at different times of day as they will be placed differently with respect to the Sun.

A good time to look is at First Quarter, when the Moon is visible in the early evening and lit from the side, casting long shadows which highlight its features.



### Planets

**Saturn** can be seen low in the sky in the south west after sunset, looking like a very bright star. You will need a low horizon and to look soon after sunset, as Saturn itself will set not long afterwards.

**Venus** is easy to find for early risers, found to the east before dawn. It is exceptionally bright – more so than any other planet or star.

Just down/left from Venus, look also for salmon-pink **Mars**. Mars will be easier to spot in the second part of the month as it moves closer to Venus and further from the light of sunrise.

### Tip of the Month

When trying to see faint objects try looking slightly to one side, rather than directly. This is called **Averted Vision**.

Inside the back of your eye (on the **retina**) there are light receptors which detect the light entering your eye and send signals through to your brain. There are two different types of light receptor: rods and cones. **Rods** only detect light/dark, but don't need a lot of light to work. **Cones** see different colours, but need quite bright light to do this.

In the very centre of your eye (the macula) you have mostly cones. This means the centre of your vision is not very good for seeing in the dark! Try looking out of the corner of your eye so you catch the starlight on the edge of your retina. It's amazing how much more you can see.

This reliance on rods explains why it's difficult to see the colour of stars. You can sometimes see the colour of very bright stars, else binoculars or long-exposure photography can help.

Download this star guide and those for other months from:

<http://www.winchestersciencecentre.org/starguides>

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# Stargazing Guide: General Information



## 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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