

Bluffer's Guide to Orion

by Colin Johnston, Science Communicator

Orion the Hunter is the easiest identifiable constellation in the skies of the Northern Hemisphere. Big, and full of bright stars and interesting objects, Orion is a favourite amongst stargazers. Best of all, Orion is one of the tiny minority of constellations that actually looks like what is supposed to represent!

Take your audience outside about 10.00pm on an evening in the middle of the month and look south. You cannot miss Orion, a broad-shouldered, narrow-waisted figure with raised arms. Straight away the three stars in his belt will grab your attention, followed by the glittering white star Rigel in his left foot and the bright orangish star Betelgeuse in his right shoulder (assuming Orion is standing facing us and not with his back to us). Then as your eyes become accustomed to the dark you will discern the fuzzy star of his sword (except it's not a star as we shall see later).

Rigel is well-named, as the name is a mangled version of the Arabic for 'the left foot of the Central One'. The star is a B-class supergiant, according to the Hipparchos satellite it is 773 light years away and is about 40 000 times as bright as the Sun, making it the brightest star in our galactic neighbourhood. Betelgeuse is an M-class red supergiant, one of the largest stars known. If it were at the centre of our Solar System, its outer surface would possibly extend to the orbit of Jupiter, but thankfully Betelgeuse is really about 430 light years away. Betelgeuse is a highly variable star, sometimes it is actually brighter than Rigel. The star in the opposite shoulder from Betelgeuse is called Bellatrix and is the third brightest in the constellation.

Orion's sword hangs from his belt (the stars in the belt are called Alnitak, Alnilam and Mintaka) and looks like a diffuse star. It is in fact a nebula catalogued as M42. M42 is about 1200 light

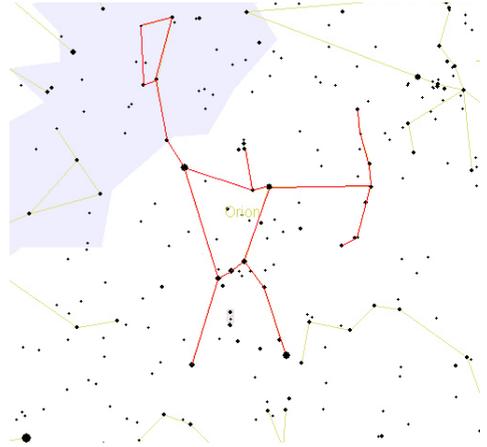


Image Credit: Colin Johnston, Science Communicator

The Mighty Hunter Orion stands proudly in the sky. Sirius is the prominent star in the lower left, and part of Taurus can be seen at upper right. Diagram created with Stary Night software.

years away and thirty light years across, and is the closest region of star formation to Earth. A lot of what proper astronomers know about how stars and planetary systems are formed from collapsing clouds of gas and dust has come from observing the Orion Nebula. As well as finding about seven hundred stars in various stages of formation, astronomers have discovered protoplanetary discs, brown dwarf stars and chaotic flows of hot gases in the nebula, these are all things you would expect to find in stellar nurseries. As well as being interesting, the nebula looks really cool too (see Image of the Month in the December 2006 Astronotes). Also in M42 (although you will need a telescope to pick it out) is the Trapezium, a tight open cluster of stars which have formed out of the nebula.

So who was Orion and what is he doing in the sky? Well, everyone knows he was a hunter but that is about it. The problem is that, unlike most constellations, the myths about Orion are rather rambling and contradictory, for example there are two totally different versions of his death. In short, Orion was a big, loud giant of a man and

indeed a mighty hunter, he also inherited some aquatic superpowers from his father who was the sea god Neptune. He also had a pet dog. When Orion met Diana, goddess of hunting, which they shared as a common interest, they got on famously, and soon wedding bells were in the air. Unfortunately for the couple, her brother Apollo didn't approve of the union and set out to get rid of his future brother-in-law-permanently! One version is that Apollo sent a scorpion to sting Orion to death. The other story goes that in one of those underhand tricks Greek gods were good at, one day when Orion was out for a swim; Apollo bet his sister that she could not hit a distant speck far out at sea with her bow. To prove

him wrong, she fired an arrow which scored a direct hit; only when Orion's body washed ashore did Diana discover that her target had been her boyfriend. Whichever way he was killed, after a good cry, Diana put Orion up among the stars along with his favourite belt, sword, lion's skin and club. Sirius, his dog, was put up beside him.

Orion's Belt is a handy guide to find other interesting objects. Following the line it makes upwards takes you to Aldebaran. Go the other way and you'll get to Sirius, the brightest star in the sky. The next bluffer's guide will fill you in with the details of Orion's other celestial neighbours.