



Messier 42 The Orion Nebula

Type: Emission & Reflection Nebula

Constellation: Orion

Distance: 1,344 light-years

Magnitude: 4.0

The Great Orion Nebula is one of the best and easiest objects to locate. To find it, you only need to look beneath the three stars that form Orion's belt. Even under suburban skies, you'll see it as a tiny, misty patch, while binoculars will reveal it to be slightly misshapen, with a bright, off-center core.

A small scope at low power will show the nebula as a smooth, smokey cloud with a slightly greenish

tint. Some texturing may be visible on the southern edge, along with a dark patch that goes by the name of The Fish's Mouth. You'll also see a tight group of three or four bright stars, known as the Trapezium. These are young stars - just 300,000 years old - born from the nebula itself.

Image Source: NASA, ESA, M. Robberto, and the Hubble Space Telescope Orion Treasury Project Team

OUR NEAREST NEIGHBORS

Saturn is low in the southwest after sunset and is visited by the waxing crescent Moon on the 14th. Similarly, you only have an hour or two to observe **Neptune** before it sinks too close to the horizon, but **Jupiter** remains visible throughout the evening. You'll find a first quarter Moon above it on the 18th. **Uranus** is the last of the evening planets and can be found about three degrees southwest of Botein (Delta Arietis). This places the two within the same binocular field, with the star acting as a convenient marker. **Venus** shines brilliantly in the predawn sky and is joined by the waning crescent Moon on the 8th. This is also a great time to spot **Mercury**, as the planet reaches elongation on the 12th and is visible to the lower left of Venus from about an hour before dawn. A thin Moon forms a triangle with the two planets on the 9th. **Mars** is too faint to be easily identified but may be spotted with binoculars at the end of the month, less than a degree from Mercury between the 26th and 28th. Lastly, the **Moon** turns new on the 11th and then full on the 25th.

Occultation of Antares: Observers in the western half of the US have the opportunity to see the Moon occult the star Antares on the morning of January 8th. It's best seen from the southern Pacific time zone around 90 minutes before sunrise, but check an astronomy app for your location.

The Crab Nebula: Conveniently located about a degree from Zeta Tauri, the Crab Nebula is a challenging target for binocular observers. A small scope will show a faint, oval patch, but a larger scope is required to see the shape that gives the nebula its name.

Messier 79: Winter's best globular is Messier 79. Easily found just four degrees from Beta Leporis, this cluster has a dense core and can be seen in a small telescope, but requires a larger scope to resolve its outer stars.

NGC 2169: A neat star cluster for small telescopes, a magnification of around 100x will show the individual stars forming a pattern that closely resembles the number 37.

The Crab Nebula



Source: NASA, ESA, J. Hester and A. Loll (ASU)

STELLAR CONCEPTS

Occultation: An occultation is what happens when one object passes in front of another, hiding it from view. In amateur astronomy, this typically involves the Moon hiding a bright star or planet. Historically, professional astronomers have used occultations of stars by planets to study the planets themselves. For example, in 1977, the rings of Uranus were discovered when a star appeared to blink as it passed behind the rings before being hidden by Uranus itself.