



## NGC 7293

### The Helix Nebula

Type: Planetary Nebula

Constellation: Aquarius

Distance: 530 light-years

Magnitude: 6.3

Apparent Diameter: 16'

Despite being probably the nearest planetary nebula to the Sun, the Helix Nebula can be a challenging target for visual observers. Its low surface brightness and relatively large apparent diameter (almost the size of the full Moon) make this target better suited to binocular observers and imagers. Telescopically, it's best seen with a low power eyepiece, while an O-III filter will definitely help to bring out some detail.

It appears as a large, misty gray disc through binoculars; small telescopes will show a faint ring of uniform brightness with a noticeably darker center. Larger scopes will reveal some structure in the ring, with the nebula brightening toward the north-northeast and south-southwest. The central star also becomes visible with averted vision.

Source: Paulo Lobao

## OUR NEAREST NEIGHBORS

**Mars** is lost to the Sun all month and won't emerge into the morning twilight until the end of November. Fortunately, **Venus** remains a brilliant sight for a few hours after sunset, with the crescent Moon nearby on the 8<sup>th</sup> and 9<sup>th</sup>. After reaching opposition in August, both **Jupiter** and **Saturn** are still well placed for observation before midnight. The gibbous Moon passes the planets from the 13<sup>th</sup> to the 15<sup>th</sup>. Similarly, **Neptune** reached opposition last month and **Uranus** reaches opposition on November 4<sup>th</sup>, making them both visible throughout the night. Heading into the dawn, **Mercury** becomes visible around mid-month and reaches greatest western elongation on the 24<sup>th</sup>. Lastly, **the Moon** turns new on October 6<sup>th</sup> and then full two weeks later, on October 20<sup>th</sup>.

**NGC 7662 - The Blue Snowball:** Another autumnal planetary, the Blue Snowball can be found close to Kappa Andromedae and appears as a bluish, slightly elongated hazy disc at higher magnifications.

**Delta Cephei:** This famous variable star changes brightness from magnitude 3.5 to 4.4 every 5.3663 days. It also has a pale blue companion, visible through telescopes at low power.

**M52:** Located in Cassiopeia, close to the border with Cepheus, a small telescope at low power will show this cluster as having a conical shape, with a bright yellowish star at its tip.

**Achird - Eta Cassiopeiae:** A colorful triple star easily found and easily split at lower power. The primary appears a brilliant white, with a coppery secondary closest and a third, bluish star a little further afield.

## NGC 7662 - The Blue Snowball



Source: Donald Waide

## STELLAR CONCEPTS

**Variable Star:** While some stars appear to shine with a constant, unwavering light, there are some that change with brightness over time. There are two basic types of variable stars: intrinsic and extrinsic. The first kind, intrinsic, vary in brightness due to changes within or on the surface of the star. For example, a pulsating variable (such as Delta Cephei) expands and contracts over time. An extrinsic variable changes brightness due to factors external to the star. One such example is an eclipsing binary star, where an unseen, fainter companion star directly passes in front of the primary star and causes it to fade. Algol (Beta Persei) is the most famous example of an eclipsing binary and was the first of its kind to be discovered.