Choosing Binoculars for Astronomy

Newcomers to astronomy are sometimes told that they should start their hobby by using binoculars and star charts. Although this advice has its merits we at Telescope House advise beginners to start with a telescope, as a telescope will offer a much wider range of astronomical study. Even so, most if not all amateur astronomers own binoculars and they can offer really good views of certain astronomical objects.

The night-time performance of binoculars depends on the aperture of the front (objective) lenses and the magnification provided by the eyepieces.

The wider the objective lenses, the more light the binocular will collect and transmit to your eyes. For astronomy, objective lenses of 50mm diameter or larger are recommended: 7x50 binoculars (7x power and 50mm objective lenses) are ideal stargazing glasses because they offer good light gathering qualities, good power, bright images and a wide field of view - which makes it easier to find things. A 10x50 binocular, also a popular size, has the same light-gathering capability but provides higher magnification (10x). The higher magnification may result in a slightly shakier image if you are holding the binoculars, but for astronomy it is advisable to mount the binoculars on a tripod. It not only reduces movement but also prevents arm and neck fatigue from prolonged overhead viewing. Into middle-age the human eye will only accept up to about 5mm exit pupil, so 10x50 binoculars may suit observers over about 40 years of age better.

The best binoculars for stargazing are those with 70mm, 80mm, or 100mm objective lenses. Because they admit more light, they can reveal fainter objects. But beware: such binoculars are very heavy and definitely need a tripod for support. Big binoculars often come in higher powers such as 14x, 16x, 20x, or even more.

Ten Favourite Binocular Targets:

1. The Moon – You should be able to see a considerable number of craters and rocky mountainous features quite clearly. Because its surface is so bright, the Moon is best observed during its crescent phases.

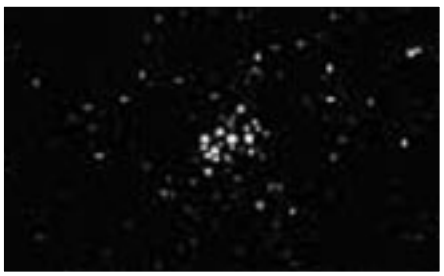
2. Jupiter and its Moons - Binoculars will reveal the bright disk of this giant planet, flanked by its four largest Moons, whose positions change nightly.

3. The Milky Way - Scanning along this dense band of stars on a summer night is immensely satisfying. You should see countless clusters, knots, vacant dark patches, and nebulous puffs.

Sagittarius Star Clouds - The part of the Milky Way near the constellation Sagittarius -"the Teapot"- reveals the richest detail in the night sky. It has many interesting objects, including the Lagoon, Swan, and Eagle Nebulas, the M24 Star Cloud, and a wealth of open clusters. Use a star chart to help identify them.

4 Bright Comets – Best seen in the wide field given by binoculars

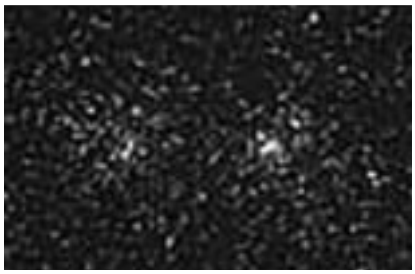
5. The Pleiades -This compact cluster



in Taurus appears as six or seven bright stars to the naked eye, but is revealed as several dozen in binoculars.

6. The Andromeda Galaxy - Easy to spot with the unaided eye under a dark autumn sky, this majestic "island universe" fills a good portion of the binoculars' field. You could see its bright core and faint disc, perhaps even the dark dust lane around the edge

7. The Orion Nebula - One of the most beautiful gems in the sky, this expansive winter nebula glows brightly, displaying intricate wisps and tendrils. At its heart are an easily split double star and a luminous quadruple star, called the Trapezium, which can be resolved with binoculars of 11x or more.



8. The Double Cluster - Residing halfway between the "W" of Cassiopeia and the constellation Perseus, these side-by-side stellar splashes are a true delight to behold.

9. Albireo - A bright double star in the head of Cygnus the Swan, notable for its gorgeous colour contrast: one star glows yellow, the other blue. Ten-power binoculars will separate the pair comfortably.

10. Scutum Star Cloud - This impressive star field contains the compact open cluster called the Wild Duck and some dark, starless patches.

For more on binocular astronomy we recommend the following books:

Touring the Universe Through Binoculars,
by Philip S. Harrington.

Exploring the Night Sky with Binoculars
by Patrick Moore

Binocular Astronomy
by Crossen & Tirion