

Choosing and using Binoculars

A pair of binoculars is one of the most underrated pieces of equipment. Most novices think that a telescope is a must, but a good pair of binoculars will reveal much more than a poor telescope. There are so many cheap telescopes on the market, which look appealing but in operation, field of view, stability and colour rendition are quite often worse than useless and a complete waste of money. It cannot be stressed sufficiently; invest in a good pair of binoculars rather than a cheap telescope. The picture here shows a selection of binoculars for Astronomy.

Compared to a telescope, binoculars actually have certain advantages. Although they are smaller and have lower magnifications, they are lighter, easier to take outside and use and are



less expensive. They give a much wider view than a telescope, thus making objects easier to find. Binoculars also let you use both eyes, providing surer, more natural views. In addition, everything seen through them is rendered the correct way up, not the upside-down or backward way that a telescope presents.

It is not possible to recommend the best types of binoculars as optics do vary between different manufacturers, but as a general guide it is essential to remember this: The larger the aperture,

the clearer the view, the less magnification the better. This can be demonstrated by what is known as the *aperture index* of binoculars.

Binoculars have two numbers set into them near the eyepieces or quoted on the box. These are usually rendered as 10 x 50 or 10 x 25 or any combination of numbers. What this means is that the binoculars have a magnifying power of x10 and the aperture of the main object glass is 50mm. To ascertain the aperture index, simply divide the magnification into the aperture, which with a pair of 10 x 50s is $10 \div 50 = 5$. A pair of 8 x 40s will have the same index and a pair of 7 x 50s will have an index of 7. The larger the aperture index, the better for stargazing they will be. An index of around 5 is good, anything below that is not really useful.

Many people complain that they cannot see too much through binoculars as they cannot keep them still enough or on target long enough due to the movements of the body. Actually one can turn this to your advantage. Believe it or not, evolution has turned man into a predator with our eyes fixed to the front of our head to see and judge the distance of prey. Our eyes once fixed on a target stay on target no matter what the movement of the body. Therefore, if you have an astronomical object in your sights, gently move the binoculars in a rounded motion around the target and the eye will naturally stay on the target regardless of what you are doing.

Similarly, with sighting the object initially, just look at the area of sky with your target in and without moving your head simply bring the binoculars up to your eyes. You should have little difficulty in seeing the magnified image at once. Try both of these methods if you do have difficulty looking for and maintaining a lock on objects. Of course in today's market you also have *Image Stabilized* binoculars which enable no shaking of the image no matter what the body movement is (unless you fall over), but such items can be very expensive!

If you are observing with a pair of binoculars, especially if they are the giant sets one can obtain today, you will find after a while that your arms are beginning to tire and that you have developed a pain in the middle of your back caused by bending over backwards to bring the instrument to bear on stars near the zenith. To deal with both these problems it is advantageous to invest in a tripod to steady the binoculars, preferably of a type that has a canted head enabling an observer to get under the tripod to observe the zenith. Even an ordinary tripod is a step in the right direction, as a properly mounted pair of binoculars will show much more detail in hazy objects than an unsteady hand held pair of even the finest binoculars.