



BUYING A TELESCOPE

When you have progressed to the point of buying a telescope you are faced with a bewildering variety of types, but a few simple decisions should make the choice a little more straightforward.

The most important single thing about a telescope is its aperture, which determines how much light it is able to gather. A small and cheap telescope that is sold on the basis of its huge magnification should be avoided.

There are a variety of telescope designs, but there are really only two basic types: refractors and reflectors. Refractors are similar to the classic terrestrial telescope, with an objective lens at one end to collect the light, and an eyepiece at the other. The typical 'Newtonian' reflector has an open tube, with a concave mirror at the bottom to collect the light, and a small flat secondary mirror near the top which reflects the light to an eyepiece on the side.

For a given aperture, a reflector is generally much cheaper than a refractor, and the larger sizes of refractor are not really portable. Which you choose depends on your interests: refractors give good high magnification views of planets, while reflectors are better at low magnification views of 'deep sky' objects.

The magnification is found by dividing the focal length of the telescope by that of the eyepiece, and you will need two or three eyepieces to give a range of magnifications. The maximum usable power for a particular telescope is about twice the aperture in mm (for example x200 for a 100 mm telescope), but even that power is only really usable in ideal conditions.

The Mount

Almost as important as the telescope is a good solid mount to support it. A photographic tripod is 'altazimuth' – i.e. it moves up and down and from side to side. Many astronomers prefer an 'equatorial' mount, in which one axis is aligned to the celestial pole so that the telescope only needs to be turned on one axis to keep an object in view as the sky rotates.

Many mounts have a motor drive that enable the telescope to follow this motion. Computerised or 'GoTo' mounts are now common, and these can be just as effective on altazimuth mounts.

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Weblinks

Sky at Night guide to buying your first telescope:
www.skyatnightmagazine.com/yourfirstscope

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