

Choosing a Telescope as a Gift

We at the Wabash Valley Astronomical Society (WVAS) believe that if you are going to buy a telescope as a gift, you should make a good choice that can be used for a lifetime. The price difference between a cheap toy telescope and a good telescope is not as much as most people think. In addition, telescopes are quite durable. There are many telescopes that are entering their second and third century of use! Minimal maintenance and care is all that is generally required for a telescope to last many years.

The smart buyer should investigate the options and know what to look for. A poor choice will result in a telescope that is hard to use and will end up at the back of the closet. A good choice can be enjoyed for a lifetime and encourage thought and imagination.

What to look for Good Optics, Steady Mount, Ease of use

In looking for a telescope to give as a gift, the things that you want to look for are good optics, a steady mount and a scope that is easy enough to put together be used. What??? There are a lot of terms used in astronomy and now is the time to learn some of them.

Some 'department store' scopes advertise high power (400x or more). It's a myth that the higher the power the better the telescope. Cheap optics and unsteady mounts make these department store scope a bad choice and almost impossible to use.

Good Optics?

Contrary to what many people believe, a lot of astronomy work is done at low magnification. The Moon is an excellent target viewed by both new and old astronomy buffs alike. We at WVAS observe the Moon for our open houses at only 50x to 200x. There is a simple reason that we do not observe at higher magnifications. At higher magnifications, even a slight breeze causes the best telescopes to sway and blur the image. This can cause you to quickly get frustrated and start losing interest. Astronomy can and should be fun.

Another reason is that the beautiful twinkling of the stars is caused by the atmosphere. With higher magnification, this twinkling effect becomes more pronounced. The nights that a telescope can even be used at 200x are very few. The result is that what might be a clear nebula with the Hubble Telescope becomes a faint indistinct blur through the best ground based telescope.

With the above information, we can therefore say 'Good Optics' is a telescope that can operate at lower magnifications. Put simply: pass on any telescope that advertises high power magnification.

Steady Mount?

If you look around at our open houses, you see telescopes mounted upon some massive tripods. We at WVAS spend anywhere from ¼ to 3 times what the telescope costs for those tripods. Those tripods are referred to as 'the mount'. The reason that we spend so much on the tripod is that if it lets the telescope shake around, the image will jump around and be almost unrecognizable.

Telescope mounts generally hold the telescope in one of two modes: 'Polar' and 'Altitude-Azimuth' (also called Alt-Az). Polar mode is where the base of the telescope is mounted at an angle. Alt-Az mode is where the base is horizontal with the ground. For a starter scope, we recommend an Alt-Az mount. A Polar mount is better for photographs, but astro-photography is something that is only possible after you know your way around the sky. An Alt-Az mount is generally quicker and easier to setup. A polar mount takes longer to setup, but is easier to point in the sky once set up and easier to keep on a given target.

So what makes a good mount? A good mount holds the telescope steady and allows the telescope to move smoothly from target to target. We at WVAS use both Polar and Alt-Az mounts.

Easy enough to put together to be used???

Telescopes come in many sizes from some that even fit in your pocket to 16" diameter or larger telescopes. In looking at the various telescopes that are available, you should consider the physical capabilities and patience of the

user. A telescope that needs several people to help set up or takes a long time to setup will rarely be used. Remember that a new user typically has less patience or skill setting up a telescope than an experienced user. The rule is that the best telescope for any observer is the one that will be used most often.

Telescopes that have a lot of bolts or screws will take a long time to set up and will have pieces that will easily be lost in the dark. Mounting bolts should be large, easy to grab with gloves on. (If you cannot put the telescope together with gloves on, then you probably would have problems putting it together in the dark.)

What makes a telescope easy enough to put together to be used? Few bolts that are large enough to handle in the cold and in the dark. This is the usual way that telescopes are used.

Why doesn't the image look like the picture on the box?

Everything that is on the box of a telescope is visible through that telescope. However, those pictures on the box are the best photos available, not necessarily from that telescope. Few objects have any color through a telescope. Even with all of the light that a telescope gathers for you, it usually is not enough to activate the color receptors in your eye. Nebulae and galaxies remain dim, fuzzy objects with no color in them even in the largest amateur telescope.

You will also note that the images through an amateur telescope are never as clear as some of the images on the box. Same story here. There is a reason that professional astronomers spend hundreds of millions or even billions of dollars for a telescope. Size and location for them really does matter and the difference is apparent from the photographs. The rings around Saturn are visible in most any telescope. The number of bands on Jupiter vary with the telescope. At least two bands are visible in even most small telescopes. To see more than three requires larger telescopes (about 5" aperture or more) and good seeing conditions. The Great Red Spot is generally visible in most telescopes, though it's not that red these days. (Its color is just fading out. We don't know why.)

Finding a company that cares about its customers

In looking at various telescopes, the features vary from manufacturer to manufacturer. Some manufacturers provide a solar filter right in the box with the telescope so that you can observe the Sun. Great Idea? Maybe. Most of these manufacturers provide filters that screw into the eyepiece. This is the point where the heat and intensity of the sun has been focused to almost a point. If the filter failed (which this type has a rather high rate of doing), you can be instantly blinded! If you ever find a solar filter that screws into the eyepiece, please destroy it for your own safety.

Companies that care about their customers start out by discouraging looking at the Sun. The reason is that it requires that the observer have the maturity to methodically set up the telescope with a special solar filter in place. These companies know that a blinded customer is not going to continue in the hobby nor is he likely to buy a larger telescope at some later time. When the observers' techniques are up to the task, then he will know what needs to be done and how.

Final comments....

Generally, we recommend that the first thing that you get is a good sky reference and learn the general location of the constellations and some of the objects in the sky. If you are really just now starting out, then you should consider getting a pair of binoculars instead. Binoculars are easy to use, let you see things that are too large to be viewed from a telescope AND can be used for other things (e.g. bird watching, race viewing....) Computer controlled scopes are available that can point to any location in the sky, but if you do not know some of the objects and where they are located, the computer will not help you a whole lot.

Who is Wabash Valley Astronomical Society?

WVAS is a local non-profit organization that has existed since 1971. Our group consists of people with an interest in astronomy from virtually every area of the community. We meet at the West Lafayette Observatory on Cumberland Avenue. We work with the area schools, conduct public open houses and provide presentations to local groups interested in astronomy. We normally meet the first Saturday of the month (except for January) at the observatory. Visitors are always welcome at our meetings.



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