

Christmas Shopping Guide

This is the time of year when everyone asks me “what kind of telescope should I buy for my spouse/child/grandchild?” The quick answer is **none**; take the money set aside for a telescope and purchase binoculars instead. There are two reasons for this: first, the expectations of what you are going to see through the telescope far exceed the reality, secondly, a telescope is a precision engineered optical device and such a device is not inexpensive. Telescopes purchased at department stores are worthless for astronomical use despite the pretty pictures printed on the box – objects the telescope cannot in fact see. A child given a department store scope will quickly give up in frustration and lose all interest in astronomy.

Still, with Christmastime fast approaching and money burning holes in pockets, people still insist on buying telescopes. I’ll throw out a few prices so you can help orient yourself and see what is a fair deal versus a rip-off. The prices given are for stripped down basic models with decent optics. Specifically for models called Newtonian reflectors with Dobsonian mounts, minimum of accessories and NO electronics. Dollar for dollar they are the best buys today. Add \$200 and up if you want electronics. **Note: all telescopes come with a very steep learning curve!** In my lifetime, I have never seen a pre-teen have the patience required to master a telescope.

Other types of telescopes other than Newtonian reflectors are available, of course, but to my mind are more suited to advanced amateurs or to people that value compactness over all other considerations, (*i.e.* condo owners, owners of hybrid cars).

Quality telescopes are sold by aperture – the diameter of the mirror (or lens); all sizes given below are in reference to the aperture. The length of the telescope is 4 to 8 times larger than the aperture, plus the mount. Caution: a telescope owner may come down with a case of aperture fever; there is no cure. The sufferer continually buys larger and larger telescopes in a futile attempt to find the size that allows him/her to see everything.

To be useful a telescope must be transported away from city lights, therefore fitting a tube into a car can be an issue. The way to avoid the problem is to have a truss-tube telescope that can be disassembled for transport; even a compact car owner can have a large telescope if it is of the truss tube variety. They do have the disadvantage of being rather heavy for their size. The below recommendations mostly ignore truss-tubes.

6 inch (150mm) the smallest size considered useful by amateurs, about \$300. Easily portable, an excellent size for young teens. Adults may find eyepiece uncomfortably low.

8 inch (200mm) possibly the most common size used by amateurs, about \$350. Very portable, widely owned by amateurs of both genders and all ages. Some scopes may have trouble fitting in compact cars.

10 inch (250mm) recently became the average size used by amateurs, about \$550. Starting to push the boundary of what can be transported by a standard sized car. It takes a strong woman to pick one up, many refuse to even try. The telescope is more bulky than actually heavy.

12 inch (300mm) needs a strong man to pick one up, about \$1200. Again, the telescope is more bulky than heavy. You likely need a pickup truck or SUV for transportation.

20 inch (500mm) transported to viewing site in pieces for later assembly, about \$8000. Definitely talking pickup truck here; the telescope is both bulky **and** heavy. Don't forget your ladder.

40 inch (1000mm) everyone's dream telescope, about \$140,000. Transported to the viewing site in pieces by a pickup truck towing a trailer and assembled by a team. You need a 12 foot ladder to look through the eyepiece.

Telescope accessories

If your spouse/child/grandchild already has a telescope there are a lot of accessories available that will enhance their viewing experience. You will have to rummage around their equipment however to see what they have or need. **For some items you will need to know certain specifications of their scope, i.e. focuser size.**

Accessory case: When you rummaged through their equipment and found it scattered everywhere, you just discovered the perfect gift. From \$30 up

Laser Collimator: Great for fine tuning a scope, normally needed just for reflectors. From \$50 up

Advanced Collimation tools: For the absolute perfectionist, normally only used on reflectors. \$200 and up

Eyepieces: Everyone needs a few. The long focal lengths (30mm & up) tend to be used the most (and are the most expensive). They come in two diameters 1.25 inches and 2 inches. Personally, I can't tell the quality difference between a \$300 and a \$400 eyepiece, but there is a huge difference between them and a \$50 eyepiece of the same focal length. Shorter focal length eyepieces are noticeably less expensive. If your astronomer wears glasses, buy ones that advertise high eye-relief. From \$30 to sky's the limit.

Barlow lens: will increase the magnification of any eyepiece 2x or 3x depending on the model. Effectively doubles the magnification choices on the telescope. Comes in two diameters, 1.25 and 2 inches. From \$44 to \$300

Observing chair: a special chair that adjusts in two inch increments, a real back saver. If your astronomer is handy with tools you can purchase just the plans. \$60 and up

Red flashlight: is an absolute must have item. Having more than one size does not hurt. The LED ones that use regular flashlight batteries are cheaper in the long run. \$15 to \$30

Planisphere: also a must have item. They need to be drawn for the latitude you live in; if you are a Florida winter resident, then your astronomer needs two different ones. Plastic ones are best as they get constantly covered with dew. Around \$11 to \$15

Filters: Everyone always needs more filters. Most common are Moon, O-III, light pollution, and Solar. You should probably not give a solar filter to a minor; it can be highly dangerous if misused. You must buy the filter that matches the eyepiece diameter or for solar filters, the outside diameter of the telescope. From \$20 to a few hundred.

Finders: All telescopes come with finders, but many need to be replaced and some require additional ones. A red dot finder, such as the Telrad Finder, or an upgraded finderscope are popular choices. Please note that replacing a finder may require a new finder mount which means drilling holes in the telescope tube. If your astronomer is a klutz, you may wish to rethink this gift. From \$40 and up

For additional useful information and a list of manufacturers, please drop me an e-mail at usher34105@earthlink.net.