

Tips for Purchasing Affordable Telescopes

Where to begin? You have been interested in astronomy for some time now and you have begun looking for your first telescope. If you have spent any time online looking you will soon find that you may quite possibly be in over your head. Today there are such a great variety of telescopes and brands it can sometimes be difficult finding exactly what you want. This is where I come in. A few years back I was in the same position and with a little help and possibly some luck I was able to find a good affordable telescope to begin my observing career with.

General Tips

First of all never buy anything you find at the mall, Wal-Mart, or any of those other superstores. These are often referred to as department store scopes and almost every experienced astronomer can tell you a horror story or two about them. In almost every case they are inferior pieces of equipment lacking any ability to give you even a touch of enjoyment. The best sign of a department store telescope would be the huge clearance sticker on them or pictures of beautiful full color deep space objects and claims of 500x magnification or some other outrageous claim (if you are confused about telescopes and power please read my other article about this topic first). These are to be avoided at all costs. Real telescopes come in plain brown boxes and blow away anything you will find in a department store.

Buy what you will use the most often. Sure it may be tempting to dive right into amateur astronomy and buy the biggest telescope on the market but you will probably never use it. As a beginner you must work your way into the hobby from the bottom up. There is no sense in buying the most expensive telescope available if you do not know how involved you will be. Well, unless you just like to throw money around. As a general rule telescopes are quite large, even the smallest ones. The pictures in the catalogs and online really do not do justice to how big the telescope really is.

Lastly you might want to aim for simplicity. This is the reason that the Dobsonian telescopes have become so popular in the past decade. They are quite simply the easiest telescopes to use. You don't have to worry about learning a new coordinate system or what setting circles are. You can basically plop the thing in your back yard any be on your way to becoming a pro in minutes. Also don't even consider astrophotography for the first few years. Allow yourself to become acquainted with the sky and the great multitude of objects that are just waiting to be experienced. Starting photography too quickly is a recipe for disaster and will probably kill your interests in astronomy all together.

Size Really does Matter

Like I said before, telescopes can be quite large. Keep this in mind when looking for your first telescope. There is nothing that will kill a budding interest in astronomy than buying a telescope that is too big, heavy, or clumsy to quickly move in and out. One overlooked factor when considering size is your location. If you live in the city you may want to get a smaller telescope that is easy to transport out into the country when the opportunity arises. Also the weather in your location is just as important. I will guarantee that if you live in a cold region a large telescope will get very little use in the cold winter months. You will most likely be frozen by the time you get the thing set up.

Although you cannot see as much with a small telescope there are still many more objects easily visible to you than you could probably imagine. As a general rule any refractor larger

than 90mm tends to be quite a large instrument at least in the eyes of a beginner. Most reflectors both equatorial and Dobsonian tend to get large over about six inches. The catadioptric (Schmidt-Cassegrain and Maksutov) telescopes look small but tend to be very heavy for their size. Any one of them over about six inches can become quite a burden for beginners.

Luckily for the new beginner recent advances in refractor design and generally a better selection of small telescopes will give you more choices. As of the printing of this article almost every major dealer is offering small refractors and catadioptric scopes for reasonable prices. The problem then becomes what exactly to pick.

What Telescope to Choose

With all of the new telescopes on the market today the choices are mind numbing. Not only is there a huge variety of telescopes well within the range of beginners but there are just as many dealers and manufacturers. In order to find the best telescope for your needs you must first answer a couple of simple questions. What do you really want to observe? Where do you live? Lastly, what is your tolerance for lugging around heavy equipment? If you can answer these three questions you are well on your way to buying your first telescope.

Small Refractors

To answer the first question, a small (60mm – 90mm) refractor is quite likely the best instrument for those who enjoy the moon and planets. Their small objectives tend to limit how much you can see beyond the solar system. They do however offer some of the sharpest images possible and can compete surprisingly well on the dimmer deep sky objects.

Refractors also tend to be the best choice for the urban observer as well as for the more casual observer. Most of the newer designs are much smaller than the classic refractors of the past and hence they are much easier to set up and tear down. There is nothing better in a cold climate region than a telescope you can bring inside and outside in one piece. This also tends to support that they may also be the most luggable scopes on the market with some of the small catadioptrics as the exception. A small refractor on a photo tripod or small field tripod is easily movable fully intact with one hand.

Newtonians and Dobsonians

For those out there who will spend most of their time observing objects far outside the solar system the Newtonian telescope is extremely hard to beat. Their increased deep sky capabilities come from the fact that they tend to be the largest of all of the beginner telescopes (aperture wise). A six inch Newtonian may easily be 50 or more inches in length and may weigh more than the other types. The Dobsonian telescopes have become extremely popular in the past decade chiefly due to their innovative design. They are simple to use, unbelievably affordable, lightweight, and extremely portable. Today the Dobsonian telescope between six and eight inches could very likely be the best all around beginner telescope.

If you are living in the suburbs or out in the country with fairly dark skies a Newtonian (particularly of the Dobsonian design) telescope will offer the most bang for your buck. However they can be quite large and in some cases may take multiple trips to set up and tear down. If you live in a cold climate region you may not want to make a large Dobsonian your first instrument, it may not get as much use as a smaller telescope. Plus the large mirrors they use tend to take a long time to cool down in extremely cold temperatures.

Catadioptrics

The newest entrants into the beginner telescope market are the catadioptric telescopes. These telescopes are Schmidt-Cassegrains or Maksutov and are generally very small instruments for their aperture size. For example a 90mm Maksutov telescope will be shorter than one foot in most cases. Their small size allows them to be extremely portable and easy to set up. On top of this most of the popular brands come with the ability to be upgraded to computer drives. Although I do not recommend a beginner getting a computer telescope it is really nice to have the option for a quick and simple upgrade. These telescopes tend to do well on both local (solar system) objects and deep space objects. The most common sizes are 90mm - which are excellent urban quick look scopes and 125mm for the more advanced or ambitious amateur. Their main downside however is their cost compared to the other choices you may have.

If you are either an urban or suburban observer the small catadioptric telescope may be exactly what you need. They are perhaps the best quick look scope on the market due to their extremely compact design. There are a few negatives however. They do not show nearly as large a field of view as competing Newtonians or many of the small refractors. They also take extremely long to cool down for those who live in cold climate regions. Due to the excessive use of lenses and mirrors these telescopes are by far the slowest of all to reach a stable temperature.

Price

Perhaps the most important factor that anyone thinks of when jumping into a new hobby. Astronomy is not cheap but it can be affordable. The most important thing to do when looking for a telescope is to first set a price limit for your purchase. This will allow you to narrow the field of contestants quickly. This also keeps you away from making an irrational purchase that you may regret in the future. Another good idea for the beginner is to find complete packages. Look for a telescope that offers a good selection of eyepieces and extras. This will keep your extra telescope costs way down. There is nothing worse than making a purchase and then finding out that you have to spend a couple of hundred more dollars to get the thing to do what you want.

Performance

There are a couple of things that you should know about what you are getting. These are some very general tips but ones that you should really listen to. When purchasing a telescope that comes with eyepieces, always buy one that supports 1¼ inch eyepieces. Also between eyepieces Plossl's are better than Kellner's and generally any telescope that comes with Plossl's will be a little bit better than one that comes with Kellner's. Mounts that come shipped with a telescope are almost always too small. Do not worry about this at the time of purchase unless there is an affordable upgrade option, you may want the better mount. If you don't get a better mount at the time of purchase you can count on your first major upgrade being a new mount. Aperture always wins, well at least most of the time. The only time going for the largest aperture is not recommended is when it is too large to use or if you live in a terribly light polluted area. As a general rule keep the aperture size under eight inches for an enjoyable first telescope.

Examples

Light Polluted Skies in a Warm Climate – You will probably want to look at small refractors or catadioptrics in the 90mm to 100mm range. If you do some traveling to the country a small Newtonian, preferably a six inch Dobsonian would also be a perfect telescope.

Light Polluted Skies in a Cold Climate – If half of the year is extremely cold you may want to go with a small refractor in the 80mm to 90mm range. Plus the light pollution will limit what you can really see anyway so a large telescope will just be a waste.

Suburban Skies in a Warm Climate – The perfect telescope for this region would probably be the six inch Newtonain, once again the Dobsonian being preferred. Another option may be a larger refractor in the 90mm to 100mm range or a 90mm catadioptric.

Suburban Skies in a Cold Climate – Stick with smaller designs that have a lot of light collecting power. A short tube 90mm refractor is an excellent telescope simply because it has a quick set up and tear down time. You could also look at a 90mm or 125mm (expensive) Catadioptrics but be warned about their long cool down times.

Dark Skies in a Warm Climate – Don't go crazy but anything up to and including an eight-inch Newtonain would be an ideal starter telescope.

Dark Skies in a Cold Climate – Once again the 90mm or 100mm refractor will offer the fastest set up times. However, if you live under dark skies a six-inch Newtonain may well be worth the extra effort. Curt Irwin