

The Best Telescope for Beginners

Astronomy is an exciting hobby! It ignites our curiosity of the fascinating universe around us. Unfortunately buying your first telescope can be an extremely complicated task. You can easily find yourself lost in technical jargon and endless options available. Beginner shoppers often jump into buying an unsuitable telescope, get frustrated trying to use it and eventually even give up on pursuing astronomy altogether. Choosing a Telescope

Should I Buy a Telescope, Spotting Scope or Binoculars?

Some people want to purchase a telescope straight away. Frankly, there is so much to learn about the night sky before you come to needing an Astronomical Telescope, so I would recommend a good pair of binoculars would be the first piece of kit you need. Before deciding on what to buy, think about what you are interested in viewing the most:

Astronomical Telescope – Astronomical Telescopes are designed for night viewing. They have unique optics and light gathering capabilities that allow us to view objects in complete darkness. They lack the ability to view objects during daytime properly. If you are mainly interested in astronomy, then buy a telescope otherwise buy a spotting scope or binoculars.



Spotting Scope – A spotting scope is a smaller telescope specifically designed for terrestrial viewing (land viewing). It is a powerful instrument yet portable and perfect for watching distant subjects on land or at sea. Spotting scopes are commonly used by birdwatchers, hunters and nature observers. If you are more interested in viewing objects on land or at sea, then you should consider a spotting scope.



Binoculars – A good pair of full-sized binoculars (10×50 and above) can be used for both daytime viewing as well as stargazing and amateur astronomy. Binoculars are an excellent option if you are just starting out with astronomy. In many cases, they are better than telescopes. Binoculars are easier to carry out to the field and easier to use or share with others. They provide a wider field of view than telescopes and can also be used for a variety of outdoor activities. If this sounds like you then refer to our guide on how to choose astronomy binoculars.



Telescope, Spotting Scope and Astronomical Binoculars

What is the MOST Important Feature in a Telescope?

The #1 feature of any telescope is Aperture. Aperture is the diameter of the telescope's main optical component (consisting of either a lens or mirror). The larger the aperture is, the more light comes in the telescope and the brighter your image will be. A telescope's function is to simply enhance the light of the moon, stars and galaxies thus allowing us to see them in the dark. With a large aperture, you will be able to see more stars and see them more clearly. When we look at the stars with our naked eye, we can only see the brightest ones. This is because our pupil acts as a very small "lens" and can only gather very little light.

Is the Biggest Aperture the Best Choice for Me?

Not necessarily. While a bigger aperture will result in a brighter and better image, it will also mean that your telescope will be larger, heavier and normally more expensive. Even more important than aperture is where you will be using your telescope the most.

Where Will I be Using My Telescope?

Effective astronomy requires viewing from a dark location. If your garden, out on the farm, is completely dark with no artificial light around then you can choose a large and bulky telescope. If you need to travel to a darker location (which is the case for many of us) then you should consider the portability of your telescope. Many high-end telescopes can be extremely large and can require a lot of time and experience to setup properly. If only the thought of setting up a huge telescope in the dark makes you shiver then buy a smaller, user-friendlier one to start with. You might find that you will use it much more often.

How Much Magnification Do I Need?

This is a common misconception when shopping for telescopes! In fact, magnification should hardly be a consideration when buying a telescope. As we mentioned before aperture should be your main consideration. If you have a small aperture, then you will see a darker image. More magnification will only make that dark image bigger. This is the same principal as if you were looking at a low-quality computer screen. If you zoom into the screen, you will only see a grainier picture.

High magnification also means you will see a narrow piece of the sky so unless you are watching deep space with a large commercial telescope magnification is NOT an important feature. Also, note that a magnification of a telescope can be increased or decreased by switching eyepieces. Some vendors will try to promote a low-quality telescope by stating that it has a high magnification. Beware of these types of offers! The telescope will usually have either a small aperture or a very poor optical quality.

Astronomy Telescopes

What Type of Telescope Should I Choose?

There are 3 basic types of telescopes: Refractor, Reflector and Cassegrain. A Refractor telescope uses lenses, a Reflector uses mirrors and a Cassegrain uses both.

A Refractor telescope is what most people think of when imagining how a telescope looks like. It is a long, gleaming tube with a large lens at one end and an eyepiece at the other. This is the most common type of telescope. A Refractor telescope can provide the finest images attainable for a given aperture. It is also the most expensive option when considering price vs. aperture.

A Reflector telescope uses mirrors instead of lenses. Because mirrors are cheaper to make than lenses, it is a better option when considering price vs. aperture. When well made a reflector can provide sharp, high contrast images at a small fraction of the cost of an equal-aperture refractor. A Reflector will also be much smaller in length than a Refractor of the same aperture. In other words, a Reflector is often a more portable telescope and better value for money.

A Cassegrain Telescope is a combination of a primary concave mirror and secondary convex mirrors and tends to be more costly.

What is the Best Type of Telescope for Beginners?

A particular type of Reflector is known as the Dobsonian telescope. These extremely popular instruments are available in apertures from 20cm up to more than 76cm. They represent the ultimate in observer convenience for casual viewing. A Dobsonian telescope is the most suitable for beginners for the following reasons:

- Relatively cheap compared to other types of telescope
- Totally manual and incredibly easy to use
- No setting up apart from moving it to your observing area
- Big light gathering ability, so you can view many different objects
- Fun and perfect for the beginner and advanced astronomer alike

Do I Need to Setup, Adjust and Maintain My Telescope?

Some telescopes require more maintenance than others. When buying a telescope, you should consider your experience level as well as how easy it is to setup, use and maintain it. Some people jump into buying an expensive telescope only to find out that they are unable to use it properly or can't be bothered maintaining it. Remember, a good telescope is one that you will enjoy taking out and using regularly.

Both Refractor and Dobsonian telescopes, for example, are the easiest ones to use and do not need much adjusting. Always make sure that you read carefully through your telescope's product description. Telescopes that are more suitable for beginners will typically state it on their product description.