

How to Choose Your **First** Telescope or Binoculars

Quick Guide: Here's the quick scoop...

Ages 11 and under consider binoculars first (recommended specs 7 x 50)

- The first number should no drop below 7 or exceed 11
- The second number should not drop below 35, the higher the better

Ages 12 and up we recommend a refractor telescope - minimum 60mm aperture (main mirror).

- When assembled use the lowest power lens (ironically the one with the highest number)

Want more detail?

TELESCOPES: There are generally two types of telescopes: Refractors and Reflectors

REFRACTORS: Use lenses to bend and gather light to focus the image

- Get one with at least a 60mm aperture (main mirror)

Advantages:

1. Doesn't need much alignment or cleaning and is easy to maintain
2. Provides a steady and crisp image

Disadvantage:

1. Smaller viewing area than a reflector telescope so it's a bit harder to look through



REFLECTORS: Use mirrors to gather light and focus an image

- Get one with at least a 4.5" aperture and a f/6 or higher focal ratio as these are less likely to need frequent adjustments

Advantages:

1. Slightly cheaper than refractors
2. Larger viewing area makes them easy to look through

Disadvantages:

1. Mirror alignments and cleaning need to be done regularly
2. A bit more difficult than refractors to find an image



BINOCULARS:

- Binoculars are much easier to look through than telescopes because you can use both eyes
- Binoculars provide a wider field of view and a sense of a 3-D image

Specs for binoculars contain two numbers with and 'x' in between like: (7 x 50)

The first number is the magnification (this number should be between 7 and 11)

- Any higher than 11 and you'll need a tripod to hold the image steady



The second number is the lens diameter (No less than 35, but can go as high as you want)

- The higher this number, the more light you will be able to gather

General Tips

1. Even low-end telescopes will show the phases of Venus, craters on the moon, four moons of Jupiter and rings around Saturn.
2. Learn to use your telescope during the day and focus it on a parked car so when you take it out at night you are not fumbling around in the dark trying to get it focused.
3. Objects you look at on the ground may appear upside down. This does not matter when viewing astronomical objects since there is no direction in space.
4. At night, start with the Moon. Easy to find and great to look at.
5. Your telescope will come with several eyepiece lenses. An eyepiece lens has to be attached to the telescope in order to see through it. Start with the lenses with the higher "mm" on it. For example use the 25 mm eyepiece before the 4 mm eyepiece.
6. If you have trouble putting the telescope together or getting it to work, find a local Astronomy Club and attend one of their Star Parties. The astronomy geeks will line up to show off and put it together for you – I might be one of them.
7. Keep the telescope on the porch or other easy-to-access location so you'll use it more.
8. Buy an eye-patch to keep from having to shut one eye while looking through the lens.
9. Don't buy any extras. It will come with everything you need to get started.
10. If you are looking for a specific recommendation for a beginner telescope we like this one or something similar - Celestron PowerSeeker 70EQ. It sells on Amazon for between \$95-\$135.

If you've read all the way to the bottom you get a gold star! Ask Home School Astronomy to send you a free download of the computer-based astronomy lesson "How to REALLY use a Telescope."

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Computer-based astronomy curriculum for homeschoolers

www.HomeSchoolAstronomy.com