



The Astronomical League

A Federation of Astronomical Societies

Astro Note D2 – **Avoiding a Bad Telescope**

Introduction – Buying a telescope is a complicated process. Considerations are part of the next Astro Note, but the first step in the process is to avoid telescopes that will not meet your needs. Those telescopes will end up gathering dust in the closet or under the bed.

1. Don't rush into this. You may have this telescope for a very long time, and it may be a substantial investment.
2. Seek out and maybe join your local Astronomy Club. All astronomy clubs have star parties, and most members are more than happy to show you their telescopes and what they can see. Try before you buy!
3. Decide on your astronomy budget. The sky's the limit when it comes to buying telescopes. It is important to set your limit before you actively start looking.
 - a. There is a subsection to the budget. Half of your budget will be used to buy the telescope and its mounting. The other half is for accessories and other "must haves" to go with the telescope. This is not an exaggeration.
4. Buy good optics. Buy the best optics you can afford. Remember you may have this telescope for the rest of your life.
5. Buy from a reputable dealer and a reputable manufacturer. This information, or at least reasonably good opinions, can be collected from your new friends in the Astronomy Club.
6. Bigger is better. With a larger diameter telescope you will see more objects, fainter objects, have greater resolution, and more magnification.
 - a. There is a subsection on size too. Buy one small enough that you will use it often. The bigger it is, the harder it is to transport and set up. You want one you will take with you and use frequently, not a giant in the closet.
7. Decide what you want to do with the telescope. Be honest with yourself. Choose your planned activities and desired objects. Options include:
 - a. Mostly planets and the moon, maybe the sun (with appropriate filtering), and a few of the brighter and bigger deep space objects. This does not need to be a huge telescope.
 - b. How faint? Bigger scopes see fainter objects. Most people don't want to see faint fuzzy patches; they want to see well defined objects.
 - c. Do you really want to do astrophotography? This is very hard and takes many hours of practice.

- d. Are you willing to point the telescope manually (cheaper, but you need to know the sky better) or do you want a fairly automated telescope (expensive, and you still need to know where some objects are)?
 - e. Stars and planets or galaxies and nebulae?
8. Remember binoculars. There are many great objects that are visible in a good pair of binoculars (and you can use them for scenery and bird watching too) and this is a much more economical first step.
 9. If the box or the salesperson starts telling you about the magnifications that you can get, run the other way! Take the diameter in inches and multiply it by 50. This is the maximum useful magnification for a telescope. More is not possible. 4 inches gets you 200 power.
 10. Choose the type of telescope that best fits your needs: Dobsonian, Newtonian, Catadioptric, or Refractor.
 11. Choose your mounting: Equatorial (best for photography) or Altitude-Azimuth.