

# How To Use **A** Telescope?

Frank Liu Dec. 10. 23

As astronomy beginners, we are obsessed with the splendid view of stars and ocean in the sky; we genuinely want to take a look at those objects in space on our own, not just all those scientists making images of Jupiter through AI and putting them on the internet and lying to us. Therefore, with excitement, we immediately went to Amazon and bought a telescope worth \$9999. However, when the telescope arrived, there were so many components in the package. What? It even asks us to assemble them... I thought they were going to send me the completed telescope. But it doesn't matter; instruction books are inside; just put them together like Lego. So, after we finish them, we may be confused about how to use them, and that's what I will talk about today.

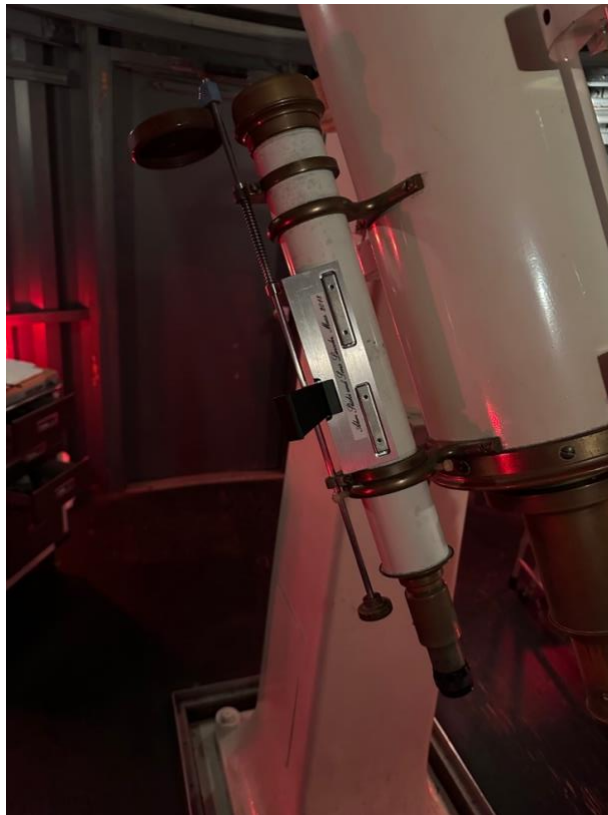
So, take "my" telescope as an instance. The Dolby Telescope, in the Harvard Smith Center of Astrophysics, is a 9-inch refracting telescope, and it was crafted by Alvan Clark & Sons.



(I know it may not be better than yours with the 9999-dollar, but hang in there. Actually, they are all used in the same way)

So, as we start to use our telescope, 1. we first need to remove the lens cover at the top of the telescope.

Secondly, we need to 2. use our Finder Scope to aim the objects we will look at. Some of them are cross-scopes or red dot laser scopes. Due to the fact that the stars that we usually look at are tiny, so they zoom in many times in their telescopes, so our view in the telescope, in the sky, is like a grain of sand in the sea; it's challenging to find the stars that we need to look at, and moving the telescope a little bit will make the scene move many, many times. So we need to use the Finder Scope because its magnification is not that large, so we can first use the permission letter to aim at the object we need to observe, give a general position, like a sniper aim, and then we will adjust our telescope.



Afterward, be patient, you almost forget a significant thing. 3. Choose the long eyepiece and put it at the end of the telescope. I will explain why we need to choose a long one later.



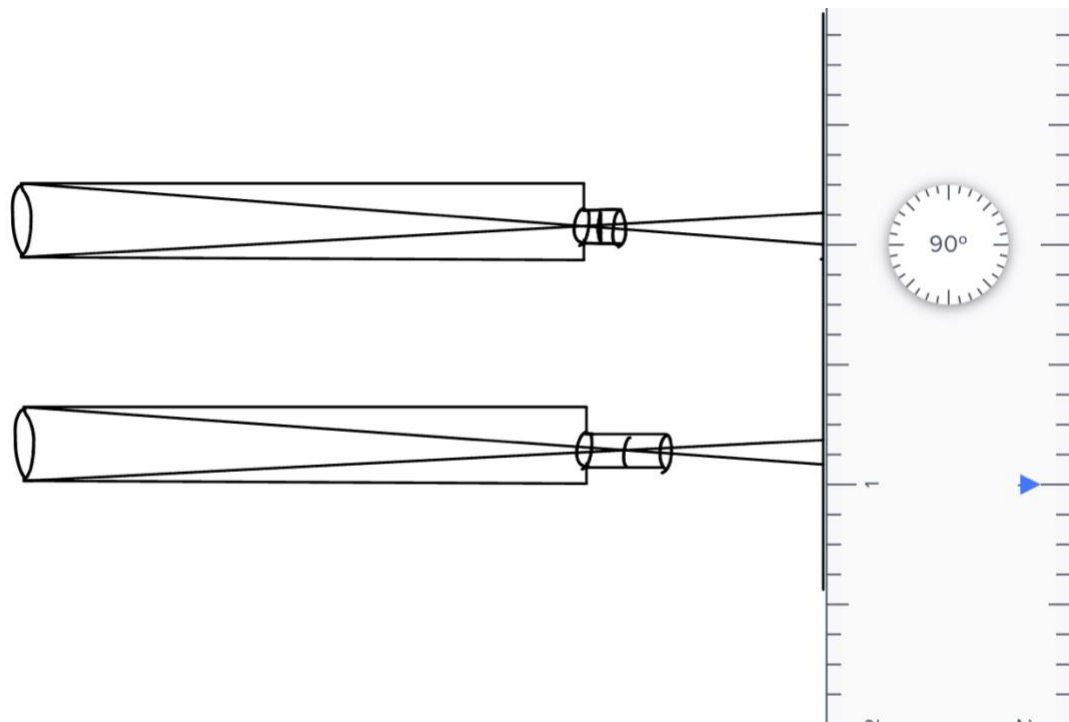
(All the eyepieces with different sizes)

4. Thus, we need to look through the eyepiece and adjust the Vertical Adjustment Knob and Horizontal Vertical Adjustment to make sure the object that we need to look at is just in the middle of the sight. (As shown in the following image)



Following that, 5. we need to adjust the Focusing Knob to adjust the clarity of the view. In the changing focusing Knob, we are changing the distance between the Objective Lens and Eyepiece. In this way, we are able to find the proper focus for our telescope.

Do you still remember what I mentioned about the long eyepiece? I chose a long eyepiece at first because I needed to give the view a larger area, which means with a lower magnification. What? Do you know what you are saying? It's definitely a longer lens with a larger magnification. Nevertheless, I am sorry you are wrong at this time. As we put in the long eyepiece, the distance between the eyepiece and the objective lens is longer than the shorter one. As we can see in the graph( I know my drawing is terrible; stop blaming me por favor), the image comes in different sizes. There is also the difference that different diameters of the eyepiece would bring with different magnification of the views.





(Focusing Knob)

6. Now, we can switch on our shorter eyepiece on our telescope if you want a greater magnification, repeating the instructions above to change the focus.

Congratulations, now you have learned how to use the telescope; enjoy your time with the vast starry sea with your telescope.

