THE ASTRONOMICAL LEAGUE
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Library Loaner Telescope Program

Users Manual: Telescope Operation

Loaner Scope's 250 Eyes

Telescopes can be complicated, difficult-to-use instruments. They need not be that way, though. Library patrons now have an opportunity to view the heavens through a telescope with good optics and a basic, easy-to-use design. Without having a great deal of expertise, the patron can obtain clear observations of craters on our Moon, Jupiter and its moons, Saturn and its rings, and the brighter star clusters and nebulae.

This 4.5 inch aperture telescope captures an equivalent amount of light as 250 human eyes. It has a zoom eyepiece, which gives a range of magnifications from 20 power to 60 power, and shows a large field of view spanning from 1º to over 2º. This telescope and zoom eyepiece combination gives the library patron a good introduction to the wonders that await in the night sky.

Please read these directions carefully,
then enjoy your journey into the heavenly realm!

The basics of the Library Loaner Telescope Program were originally conceived by the New Hampshire Astronomical Society (nhastro.com/ltp.php). The Astronomical League greatly appreciates its efforts in creating the library telescope program.

The Astronomical League promotes the advancement and understanding of astronomy and related sciences among its 16,000 members and the public-at-large. More information about the Astronomical League can be found at www.astroleague.org.

Important words of caution: Please read!

1. Do not insert or drop anything into the optical tube.
2. Do not remove the mirror cap at the end of the optical tube.
3. Do not attempt to clean the optics, either the eyepiece or mirror. If dirty, please contact the librarian.
4. Do not touch the mirrors or the eyepiece lens glass.
5. **Do not look at the sun with this telescope, as it is not designed for safe solar viewing. Severe and permanent eye damage will occur if the sun is observed with this telescope!**

Meet the Loaner Scope!

Unpack the telescope:

1. Carefully unbuckle the telescope from the seat belt.
2. Gently lift out of the seat. Be careful not to bump the zoom eyepiece or the black finder.
3. Place the scope on a table.
4. Slightly loosen the tube clamp, then move and rotate the tube to a comfortable viewing position.

Tube clamp

Learn the Loaner Scope's basic anatomy

How to focus

- Turn either one of the two knurled wheels on the focuser.
- Each zoom setting of the eyepiece requires a slightly different focus.
- Each person may need a different focus setting.
- If you wear glasses, first try using them when you look into the eyepiece. You may find that you do not need to use them. People with severe astigmatism will generally obtain better views while wearing glasses.

How to zoom

- The zoom eyepiece has a range of focal lengths from 8 to 24 mm. **The larger the focal length, the lower the magnification, and the wider the field of view.**
- Rotate the barrel so that the 24 mm focal length setting aligns with the white triangle.
- Twist the barrel to change magnifications.
- Refocus the eyepiece.
- As the eyepiece zooms to higher magnifications, the field of view decreases.

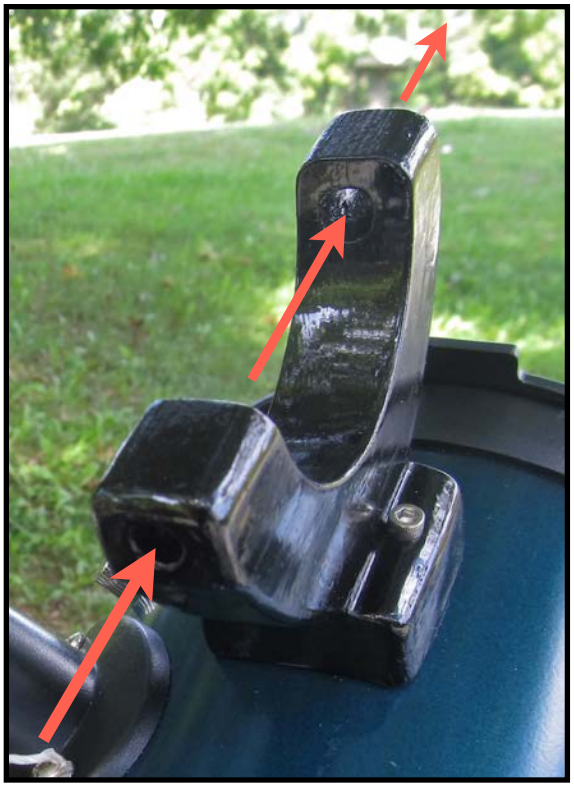
Focal Length (mm)	Magnification
24	20
18	27
12	40
8	60

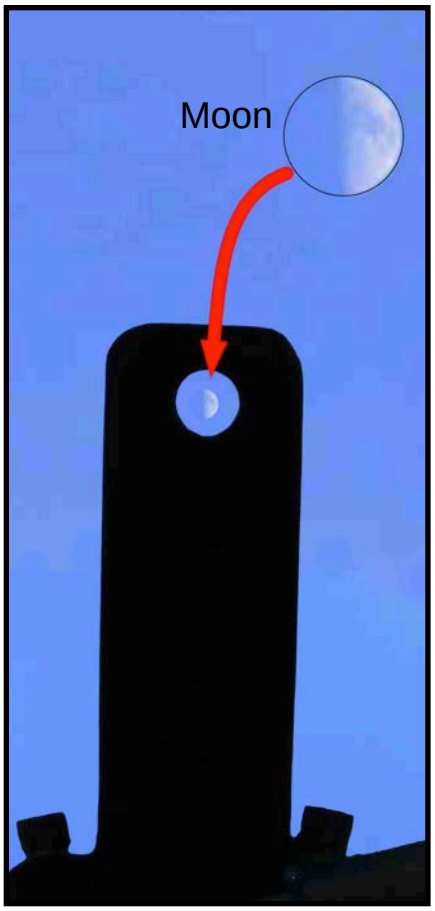
Using the finder

The black tube finder points in the same direction as the main telescope tube. Therefore, when the tube is centered on an object, that object appears in the scope's eyepiece.

How to place the sky object in the eyepiece

1. Rotate the eyepiece so that the 24 mm mark aligns with the arrow on the barrel. This setting has the widest field of view, making it much easier to find an object.
2. Look along the telescope's tube to point the scope in the general direction.
3. Move the scope so that the object is centered in the finder tube. The field of view of the finder tube is much larger than the field of the eyepiece.
4. The object should be in the eyepiece or right outside of its field of view.
5. If desired, rotate the zoom eyepiece for a higher magnification. Remember, the higher the magnification, the smaller the field of view.





Looking up the tube finder to center the Moon.

Packing up the Loaner Scope

- Place the eyepiece cap on the eyepiece.
- Place the moon port cover on the end cap
- Place the end cap on the open end of the telescope.

Transporting the Loaner Scope by car

- Carry the telescope with one hand using the handle and the other grabbing the platform and base together.
- Try not to bump the zoom eyepiece or the tube finder.
- Place the telescope on a car seat so that the zoom eyepiece and the black finder do not bump into the seat back or the seat buckle.
- Buckle the telescope in the seat as you would a person.