ENGLISH

CELESTRON®

FirstScope Instruction Manual – Model # 21024

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Introduction

Congratulations on your purchase of the FirstScope telescope. The FirstScope uses a Dobsonian Mount which is a simple, easy to use type – easy movement of altitude (up & down) and azimuth (side-to-side). The optical tube is a Newtonian reflector design. The FirstScope is made of the highest quality materials to ensure stability and durability. All this adds up to a telescope that gives you a lifetime of pleasure with a minimal amount of maintenance.

This telescope was designed for the First Time User offering exceptional value. The FirstScope features a compact and portable design with ample optical performance to excite any newcomer to the world of amateur astronomy. In addition, your FirstScope telescope is ideal for terrestrial observations which will open your eyes with superb high power viewing – select the object, aim, point, and focus.

The FirstScope telescope carries a **two year limited warranty**. For details see our website at www.celestron.com

Some of the standard features of the FirstScope include:

- All coated glass optical elements for clear, crisp images.
- Smooth functioning, rigid Dobsonian alt-azimuth mount with simple controls for easy targeting.
- Designed to be used on a table top or other flat, sturdy surface.
- Quick and easy set up.

Take time to read through this manual before embarking on your journey through the Universe. It may take a few observing sessions to become familiar with your telescope, so you should keep this manual handy until you have fully mastered your telescope's operation. The manual gives detailed information regarding each step as well as needed reference material and helpful hints guaranteed to make your observing experience as simple and pleasurable as possible.

Your telescope is designed to give you years of fun and rewarding observations. However, there are a few things to consider before using your telescope that will ensure your safety and protect your equipment.

Warning

- **Never look directly at the sun with the naked eye or with a telescope (unless you have the proper solar filter). Permanent and irreversible eye damage may result.**
- **Never use your telescope to project an image of the sun onto any surface. Internal heat build-up can damage the telescope and any accessories attached to it.**
- **Never use an eyepiece solar filter or a Herschel wedge. Internal heat build-up inside the telescope can cause these devices to crack or break, allowing unfiltered sunlight to pass through to the eye.**
- **Do not leave the telescope unsupervised, either when children are present or adults who may not be familiar with the correct operating procedures of your telescope.**

Figure 1-1

1.	**Focuser**	**6.**	**Arm**
2.	**Secondary (Diagonal) Mirror-- inside**	**7.**	**Tube End**
3.	**Optical Tube**	**8.**	**Primary Mirror -- inside**
4.	**Lock Nut**	**9.**	**Focus Knob**
5.	**Base**	**10.**	**Eyepiece**

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Assembly

Your telescope requires virtually no assembly. The telescope with its optical tube and mount are preassembled and almost ready to use when taken out of the carton.

Two eyepieces are included – 20mm (15 power) and a 4mm (75 power). Insert an eyepiece and you are ready to use the telescope. However, before beginning you should understand the functions and criteria of using a telescope in the following sections.

Installing the Eyepieces

The eyepiece (or ocular) is an optical element that magnifies the image focused by the telescope. Without the eyepiece it would be impossible to use the telescope visually. Eyepieces are commonly referred to by focal length and barrel diameter. The longer focal length (i.e., the larger the number) the lower the eyepiece magnification (i.e., power). Generally, you will use low-to-moderate power when viewing. For more information on how to determine power, see the section on "Calculating Magnification". The eyepiece fits directly into the focuser. To attach the eyepieces:

1. Make sure the thumbscrews are not protruding into the focuser tube. Then, insert the chrome barrel of the eyepieces into the focus tube (remove the plug up cap of the focuser first) and tighten the thumbscrews – see Figure 2-1.
2. The eyepieces can be changed by reversing the procedure as described above.
3. Locate objects with the low power eyepiece (15x) and then you can change to high power (75x) to see more detail.

Figure 2-1

Pointing the Telescope

The telescope is designed to be used on a table or other sturdy surface. The FirstScope is easy to move wherever you want to point it.

- Loosen the Lock Nut by turning it counterclockwise and hold the Tube End.
- Sight along the Optical Tube towards the object you want to find.
- Move the Tube End until you find the object you are searching for.
- Tighten the Lock Nut.

Note: You can leave the Lock Nut slightly loose and it will make it easy to make slight changes in any direction by moving the Tube End.

Figure 2-2

Telescope Basics

A telescope is an instrument that collects and focuses light. The nature of the optical design determines how the light is focused. Some telescopes, known as refractors, use lenses, and other telescopes, known as reflectors (Newtonians), use mirrors.

A **Newtonian** reflector uses a single concave mirror as its primary. Light enters the tube traveling to the mirror at the back end. There light is bent forward in the tube to a single point, its focal point. Since putting your head in front of the telescope to look at the image with an eyepiece would keep the reflector from working, a flat (secondary) mirror called a *diagonal* intercepts the light and points it out the side of the tube at right angles to the tube. The eyepiece is placed there for easy viewing.

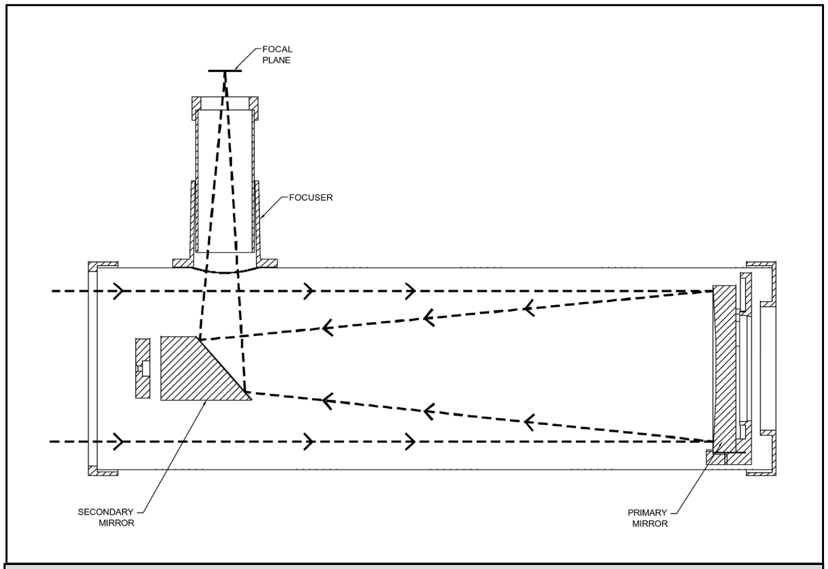


Figure 3-1
Cutaway view of the light path of the Newtonian optical design.

Newtonian Reflector telescopes replace heavy lenses with mirrors to collect and focus the light, providing much more light-gathering power for the money spent. Because the light path is intercepted and reflected out to the side, you can have focal lengths up to 1000mm and still enjoy a telescope that is relatively compact and portable. A Newtonian Reflector telescope offers such impressive light-gathering characteristics you can take a serious interest in deep space astronomy even on a modest budget.   Newtonian Reflector telescopes do require more care and maintenance because the primary mirror is exposed to air and dust. However, this small drawback does not hamper this type of telescope's popularity with those who want an economical telescope that can still resolve faint, distant objects.

Image Orientation

Newtonian reflectors normally produce an inverted image (upside down and backward) – with the FirstScope when viewing from the rear looking into the eyepiece. If viewing from either side, when looking into the eyepiece, the image will appear rotated at an angle. If you view from the front (looking into the eyepiece) and slightly to either side so as not to block the optical path, the image will be correct which is very useful for looking at terrestrial views.

Figure 3-2a
FirstScope when viewing from the front of the tube.

Figure 3-2b
FirstScope when viewing from the rear of the tube.

Focusing

To focus your FirstScope telescope, simply turn the focus knob located directly below the eyepiece. Turning the knob clockwise allows you to focus on an object that is farther than the one you are currently observing. Turning the knob counterclockwise from you allows you to focus on an object closer than the one you are currently observing.

Note: If you wear corrective lenses (specifically glasses), you may want to remove them when observing with an eyepiece attached to the telescope. If you have astigmatism, corrective lenses must be worn at all times.

Figure 3-3

Calculating Magnification

You can change the power of your telescope just by changing the eyepiece (ocular). To determine the magnification of your telescope, simply divide the focal length of the telescope by the focal length of the eyepiece used. In equation format, the formula looks like this:

$$\text{Magnification} = \frac{\text{Focal Length of Telescope (mm)}}{\text{Focal Length of Eyepiece (mm)}}$$

Let's say, for example, you are using the 20mm eyepiece that came with your telescope. To determine the magnification you simply divide the focal length of your telescope (the FirstScope for this example has a focal length of 300mm) by the focal length of the eyepiece, 20mm. Dividing 300 by 20 yields a magnification of 15 power.

The FirstScope has a usable magnification range of 10x (lowest power) to 150x (highest power) with various optional accessories. The standard accessories supplied with the FirstScope provide you with 15x and 75x.

Determining Field of View

Determining the field of view is important if you want to get an idea of the angular size of the object you are observing. To calculate the actual field of view, divide the apparent field of the eyepiece (supplied by the eyepiece manufacturer) by the magnification. In equation format, the formula looks like this:

$$\text{True Field} = \frac{\text{Apparent Field of Eyepiece}}{\text{Magnification}}$$

As you can see, before determining the field of view, you must calculate the magnification. Using the example in the previous section, we can determine the field of view using the same 20mm eyepiece that is supplied standard with the FirstScope telescope. The 20mm eyepiece has an apparent field of view of 25°. Divide the 25° by the magnification, which is 15 power. This yields an actual field of 1.7°.

To convert degrees to feet at 1,000 yards (which is more useful for terrestrial observing) multiply the angular field of view by 52.5. Multiply the angular field of 1.7° by 52.5. This produces a linear field width of 89 feet at a distance of one thousand yards or 29 meters @ 1,000 meters.

General Observing Hints

When working with any optical instrument, there are a few things to remember to ensure you get the best possible image. If you wear corrective lenses (specifically glasses) you may want to remove them when looking through the telescope unless you have astigmatism.

- Never look through window glass. Glass found in household windows is optically imperfect, and as a result, may vary in thickness from one part of a window to the next. This inconsistency can and will affect the ability to focus your telescope. In most cases you will not be able to achieve a truly sharp image and may actually see a double image.
- Never look across or over objects that are producing heat waves. This includes asphalt parking lots on hot summer days or building rooftops.
- Hazy skies, fog, and mist can also make it difficult to focus when viewing terrestrially. The amount of detail seen under these conditions is greatly reduced.

Astronomy Basics

Up to this point, this manual covered the assembly and basic operation of your telescope. However, to understand your telescope more thoroughly, you need to know a little about the night sky. This section deals with observational astronomy in general and includes information on the night sky and polar alignment.

For telescopes with equatorial mounts, the users have setting circles and polar alignment methods to help them find objects in the sky. With your altazimuth mount, you can use a method called “star hopping” which is described in the “Celestial Observing Section” later in this manual. Good star maps are essential in helping you locate deep sky objects and current monthly astronomy magazines will help you locate where the planets are.

The Celestial Coordinate System

To help find objects in the sky, astronomers use a celestial coordinate system that is similar to our geographical co-ordinate system here on Earth. The celestial coordinate system has poles, lines of longitude and latitude, and an equator. For the most part, these remain fixed against the background stars.

The celestial equator runs 360 degrees around the Earth and separates the northern celestial hemisphere from the southern. Like the Earth's equator, it bears a reading of zero degrees. On Earth this would be latitude. However, in the sky this is referred to as declination, or DEC for short. Lines of declination are named for their angular distance above and below the celestial equator. The lines are broken down into degrees, minutes of arc, and seconds of arc. Declination readings south of the equator carry a minus sign (-) in front of the coordinate and those north of the celestial equator are either blank (i.e., no designation) or preceded by a plus sign (+).

The celestial equivalent of longitude is called Right Ascension, or R.A. for short. Like the Earth's lines of longitude, they run from pole to pole and are evenly spaced 15 degrees apart. Although the longitude lines are separated by an angular distance, they are also a measure of time. Each line of longitude is one hour apart from the next. Since the Earth rotates once every 24 hours, there are 24 lines total. As a result, the R.A. coordinates are marked off in units of time. It begins with an arbitrary point in the constellation of Pisces designated as 0 hours, 0 minutes, 0 seconds. All other points are designated by how far (i.e., how long) they lag behind this coordinate after it passes overhead moving toward the west.

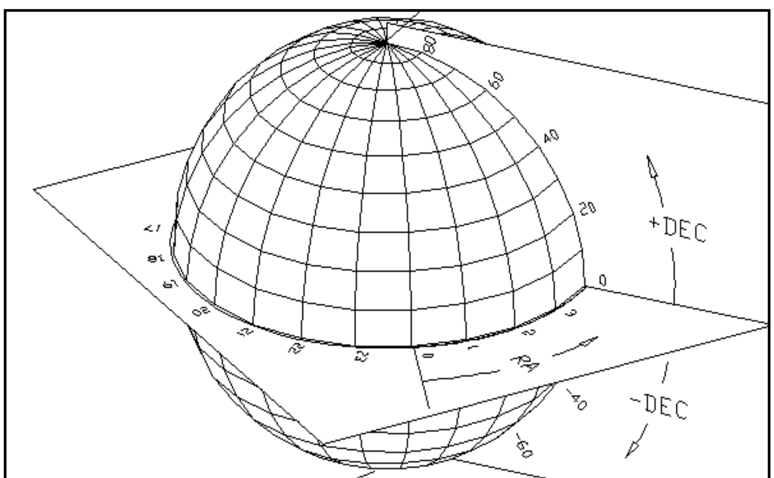


Figure 4-1
The celestial sphere seen from the outside showing R.A. and DEC.

Motion of the Stars

The daily motion of the Sun across the sky is familiar to even the most casual observer. This daily trek is not the Sun moving as early astronomers thought, but the result of the Earth's rotation. The Earth's rotation also causes the stars to do the same, scribing out a large circle as the Earth completes one rotation. The size of the circular path a star follows depends on where it is in the sky. Stars near the celestial equator form the largest circles rising in the east and setting in the west. Moving toward the north celestial pole, the point around which the stars in the northern hemisphere appear to rotate, these circles become smaller. Stars in the mid-celestial latitudes rise in the northeast and set in the northwest. Stars at high celestial latitudes are always above the horizon, and are said to be circumpolar because they never rise and never set. You will never see the stars complete one circle because the sunlight during the day washes out the starlight. However, part of this circular motion of stars in this region of the sky can be seen by setting up a camera on a tripod and opening the shutter for a couple hours. The timed exposure will reveal semicircles that revolve around the pole. (This description of stellar motions also applies to the southern hemisphere except all stars south of the celestial equator move around the south celestial pole.)

Starts seen near the north celestial pole

Starts seen near the celestial equator

Starts seen looking in the opposite direction of the north celestial pole

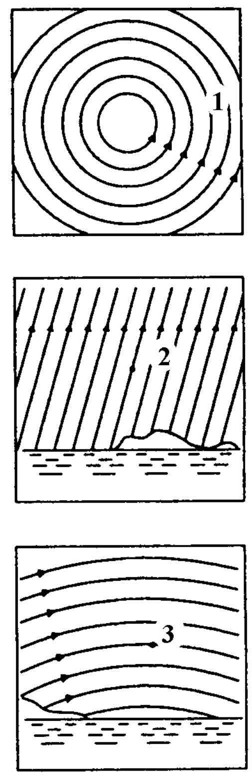
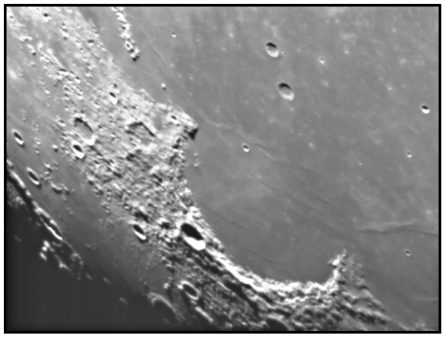


Figure 4-2
All stars appear to rotate around the celestial poles. However, the appearance of this motion varies depending on where you are looking in the sky. Near the north celestial pole the stars scribe out recognizable circles centered on the pole (1). Stars near the celestial equator also follow circular paths around the pole. But, the complete path is interrupted by the horizon. These appear to rise in the east and set in the west (2). Looking toward the opposite pole, stars curve or arc in the opposite direction scribing a circle around the opposite pole (3).

Celestial Observing

With your telescope set up (and you have removed the front lens cap from the optical tube), you are ready to use it for observing. This section covers visual observing hints for both solar system and deep sky objects as well as general observing conditions which will affect your ability to observe.

Observing the Moon



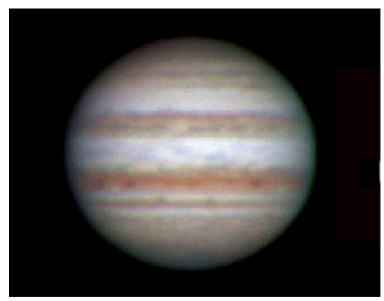
Often, it is tempting to look at the Moon when it is full. At this time, the face we see is fully illuminated and its light can be overpowering. In addition, little or no contrast can be seen during this phase.

One of the best times to observe the Moon is during its partial phases (around the time of first or third quarter). Long shadows reveal a great amount of detail on the lunar surface. At low power you will be able to the lunar disk. Change to the higher power eyepiece to focus in on a smaller area.

Lunar Observing Hints

To increase contrast and bring out detail on the lunar surface, use optional filters. A yellow filter works well at improving contrast while a neutral density or polarizing filter will reduce overall surface brightness and glare.

Observing the Planets



Other fascinating targets include the naked eye planets. You can see Venus go through its lunar-like phases. Mars can reveal a host of surface detail and one, if not both, of its polar caps. You will be able to see the cloud belts of Jupiter and the great Red Spot (if it is visible at the time you are observing). In addition, you will also be able to see the moons of Jupiter as they orbit the giant planet. Saturn, with its beautiful rings, is easily visible at moderate power.

Planetary Observing Hints

- Remember that atmospheric conditions are usually the limiting factor on how much planetary detail will be visible. So, avoid observing the planets when they are low on the horizon or when they are directly over a source of radiating heat, such as a rooftop or chimney. See the "Seeing Conditions" section later in this section.
- To increase contrast and bring out detail on the planetary surface, try using Celestron eyepiece filters.

Observing Deep Sky Objects- Star Hopping

Deep-sky objects are simply those objects outside the boundaries of our solar system. They include star clusters, planetary nebulae, diffuse nebulae, double stars and other galaxies outside our own Milky Way. Most deep-sky objects have a large angular size. Therefore, low-to-moderate power is all you need to see them. Visually, they are too faint to reveal any of the color seen in long exposure photographs or detailed structure like spiral arms of galaxies, etc. which can only be seen with larger telescopes. Instead, they appear black and white and are fuzzy patches. And, because of their low surface brightness, they should be observed from a dark-sky location. Light pollution around large urban areas washes out most nebulae making them difficult, if not impossible, to observe. Light Pollution Reduction filters help reduce the background sky brightness, thus increasing contrast.

As your interest in astronomy grows, you will probably navigate to larger aperture telescopes which will show much more detail and enhance the quality of the views you will see.

Star Hopping

One convenient way to find deep-sky objects is by star hopping. Star hopping is done by using bright stars to "guide" you to an object. For successful star hopping, it is helpful to know the field of view of your telescope. If you're using the standard 20mm eyepiece with the FirstScope telescope, your field of view is approximately 2.7º. If you know an object is 3º away from your present location, then you just need to move about one field of view. If you're using another eyepiece, then consult the section on determining field of view.

Some helpful tools and information for Star Hopping:

- Star Charts (Maps) / Star Atlas – a necessary map of the stars which is somewhat like a roadmap for cars.
- Knowledge – know the relative position of bright stars and constellations which are starting point for star hopping. You can gain this knowledge from various books available.
- Finderscope – helpful tool. A finderscope is a small, low power, wide field telescope used to aim a larger telescope at a remote object. You can see more stars with a finderscope than you can with the naked eye.
- Binoculars – a helpful tool in locating bright stars and searching an area you are looking for objects in. Can be a substitute or supplement to a finderscope.
- Books – several books are available solely on Star Hopping.
- Measurement Guide – the approximate distances spanned with your hand held out at arms length. Your index finger @ 1°, three fingers @ 3°, closed fist @ 10°.

Star hopping may seem difficult at first but through patience, determination, and practice you can learn this skill and remember it forever. Listed below are directions for locating two popular objects.

The Andromeda Galaxy (Figure 5-1), also known as M31, is an easy target. To find M31:

1. Locate the constellation of Pegasus, a large square visible in the fall (in the eastern sky, moving toward the point overhead) and winter months (overhead, moving toward the west).
2. Start at the star in the northeast corner—Alpha (α) Andromedae.
3. Move northeast approximately 7°. There you will find two stars of equal brightness—Delta (δ) and Pi (π) Andromeda—about 3° apart.
4. Continue in the same direction another 8°. There you will find two stars—Beta (β) and Mu (μ) Andromedae—also about 3° apart.
5. Move 3° northwest—the same distance between the two stars—to the Andromeda galaxy.

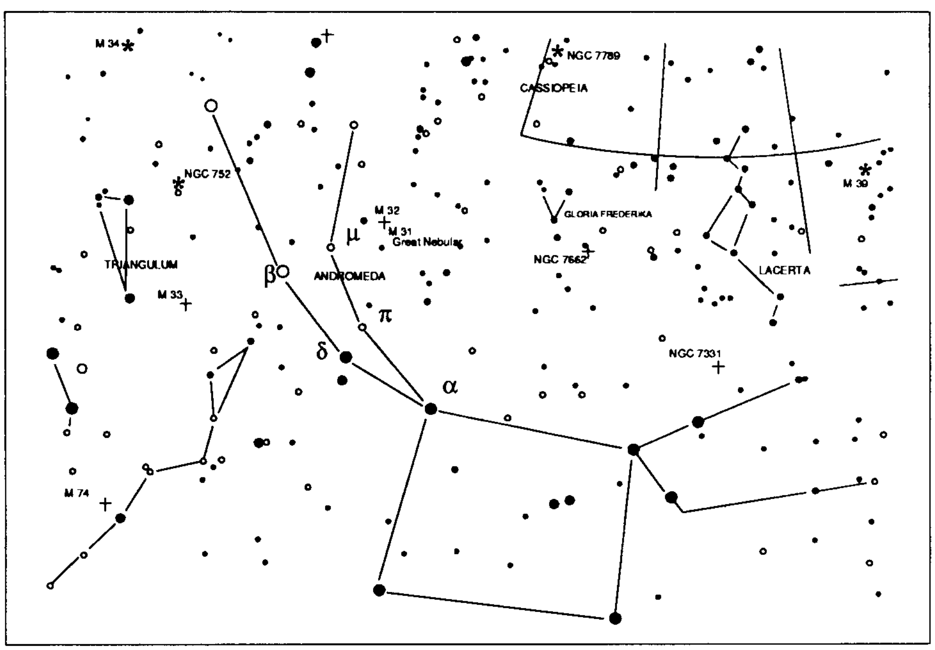


Figure 5-1

Star hopping to the Andromeda Galaxy (M31) is a snap, since all the stars needed to do so are visible to the naked eye.

Star hopping will take some getting used to and objects that don't have stars near them that are visible to the naked eye are challenging. One such object is M57 (Figure 5-2), the famed Ring Nebula. Here's how to find it:

1. Find the constellation of Lyra, a small parallelogram visible in the summer and fall months. Lyra is easy to pick out because it contains the bright star Vega.

2. Start at the star Vega—Alpha (α) Lyrae—and move a few degrees southeast to find the parallelogram. The four stars that make up this geometric shape are all similar in brightness, making them easy to see.

3. Locate the two southernmost stars that make up the parallelogram—Beta (β) and Gamma (γ) Lyra.

4. Point about halfway between these two stars.

5. Move about ½° toward Beta (β) Lyra, while remaining on a line connecting the two stars.

6. Look through the telescope and the Ring Nebula should be in your field of view. The Ring Nebula's angular size is quite small and difficult to see.

7. Because the Ring Nebula is rather faint, you may need to use "averted vision" to see it. "Averted vision" is a technique of looking slightly away from the object you're observing. So, if you are observing the Ring Nebula, center it in your field of view and then look off toward the side. This causes light from the object viewed to fall on the black and white sensitive rods of your eyes, rather than your eyes color sensitive cones. (Remember that when observing faint objects, it's important to try to observe from a dark location, away from street and city lights. The average eye takes about 20 minutes to fully adapt to the darkness. So always use a red-filtered flashlight to preserve your dark-adapted night vision).

   These two examples should give you an idea of how to star hop to deep-sky objects. To use this method on other objects, consult a star atlas, then star hop to the object of your choice using "naked eye" stars.

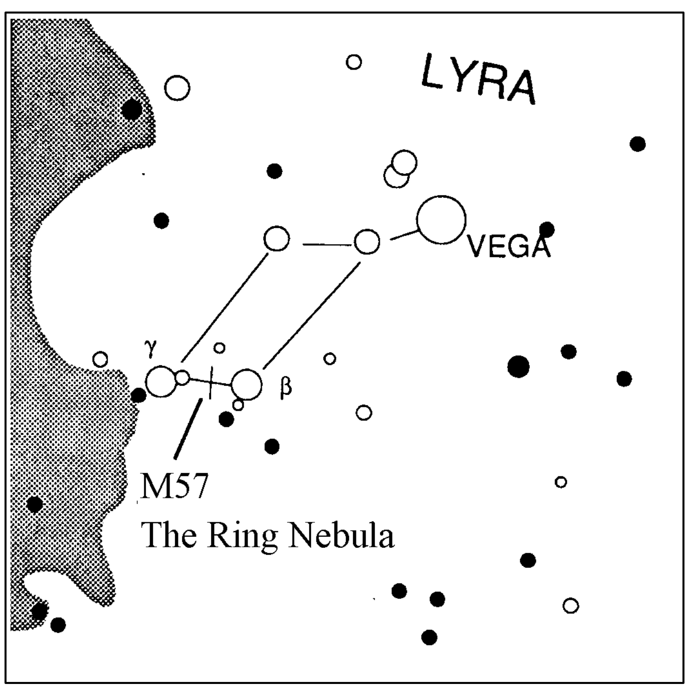


Figure 5-2

Seeing Conditions

Viewing conditions affect what you can see through your telescope during an observing session. Conditions include transparency, sky illumination, and seeing. Understanding viewing conditions and the effect they have on observing will help you get the most out of your telescope.

Transparency

Transparency is the clarity of the atmosphere which is affected by clouds, moisture, and other airborne particles. Thick cumulus clouds are completely opaque while cirrus can be thin, allowing the light from the brightest stars through. Hazy skies absorb more light than clear skies making fainter objects harder to see and reducing contrast on brighter objects. Aerosols ejected into the upper atmosphere from volcanic eruptions also affect transparency. Ideal conditions are when the night sky is inky black.

Sky Illumination

General sky brightening caused by the Moon, aurorae, natural airglow, and light pollution greatly affect transparency. While not a problem for the brighter stars and planets, bright skies reduce the contrast of extended nebulae making them difficult, if not impossible to see. To maximize your observing, limit deep sky viewing to moonless nights far from the light polluted skies found around major urban areas. LPR filters enhance deep sky viewing from light polluted areas by blocking unwanted light while transmitting light from certain deep sky objects. You can, on the other hand, observe planets and stars from light polluted areas or when the Moon is out.

Seeing

Seeing conditions refers to the stability of the atmosphere and directly affects the amount of fine detail seen in extended objects. The air in our atmosphere acts as a lens which bends and distorts incoming light rays. The amount of bending depends on air density. Varying temperature layers have different densities and, therefore, bend light differently. Light rays from the same object arrive slightly displaced creating an imperfect or smeared image. These atmospheric disturbances vary from time-to-time and place-to-place. The size of the air parcels compared to your aperture determines the "seeing" quality. Under good seeing conditions, fine detail is visible on the brighter planets like Jupiter and Mars, and stars are pinpoint images. Under poor seeing conditions, images are blurred and stars appear as blobs.

The conditions described here apply to both visual and photographic observations.

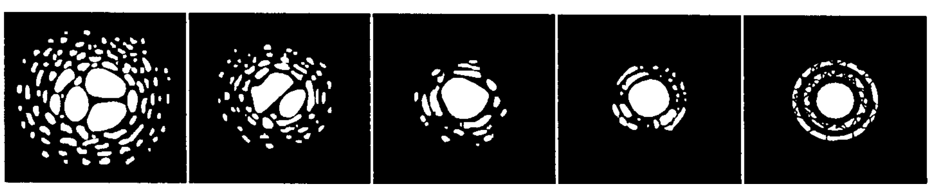


Figure 5-3
Seeing conditions directly affect image quality. These drawings represent a point source (i.e., star) under bad seeing conditions (left) to excellent conditions (right). Most often, seeing conditions produce images that lie somewhere between these two extremes.

Telescope Maintenance

While your telescope requires little maintenance, there are a few things to remember that will ensure your telescope performs at its best.

Care and Cleaning of the Optics

Occasionally, dust and/or moisture may build up on the primary and secondary mirrors of your telescope. Special care should be taken when cleaning any instrument so as not to damage the optics.

If dust has built up on the optics, remove it with a brush (made of camel's hair) or a can of pressurized air. Spray at an angle to the glass surface for approximately two to four seconds. Then, use an optical cleaning solution and white tissue paper to remove any remaining debris. Apply the solution to the tissue and then apply the tissue paper to the optics. Low pressure strokes should go from the center of the lens (or mirror) to the outer portion. **Do NOT rub in circles!**

You can use a commercially made lens cleaner or mix your own. A good cleaning solution is isopropyl alcohol mixed with distilled water. The solution should be 60% isopropyl alcohol and 40% distilled water. Or, liquid dish soap diluted with water (a couple of drops per one quart of water) can be used.

Occasionally, you may experience dew build-up on the optics of your telescope during an observing session. If you want to continue observing, the dew must be removed, either with a hair dryer (on low setting) or by pointing the telescope downward until the dew has evaporated.

If moisture condenses on the inside of the optics, remove the accessories from the telescope. Place the telescope in a dust-free environment and point it down. This will remove the moisture from the telescope tube.

To minimize the need to clean your telescope, replace all lens covers once you have finished using it. Since the cells are NOT sealed, the covers should be placed over the openings when not in use. This will prevent contaminants from entering the optical tube.

Internal adjustments and cleaning should be done only by the Celestron repair department. If your telescope is in need of internal cleaning, please call the factory for a return authorization number and price quote.

Collimation of a Newtonian

The optical performance of most Newtonian reflecting telescopes can be optimized by re-collimating (aligning) the telescope's optics, as needed. To collimate the telescope simply means to bring its optical elements into balance. Poor collimation will result in optical aberrations and distortions.

Your telescope should rarely need to be re-collimated unless it has been roughly treated, dropped, etc.

Before collimating your telescope, take time to familiarize yourself with all its components. The primary mirror is the large mirror at the back end of the telescope tube and can only be adjusted at the factory. The secondary mirror (the small, elliptical mirror under the focuser in the front of the tube) has three adjustment screws (Phillips head) to perform collimation.

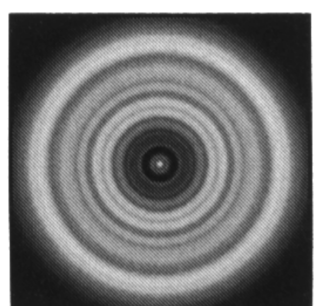


Figure 6-1
A collimated telescope should appear as a symmetrical ring pattern similar to the diffraction star disk seen here.

Aligning the Secondary Mirror

If you have an eyepiece in the focuser, remove it. Rack the focuser tube in completely, using the focusing knobs, until its silver tube is no longer visible. You will be looking through the focuser at a reflection of your eye in the secondary mirror superimposed on the primary mirror (Figure 6-2). If the primary mirror is not centered in the secondary mirror, adjust the secondary mirror screws by alternately tightening and loosening them until the mirror is centered.

Both mirrors aligned with your eye looking into the focuser.

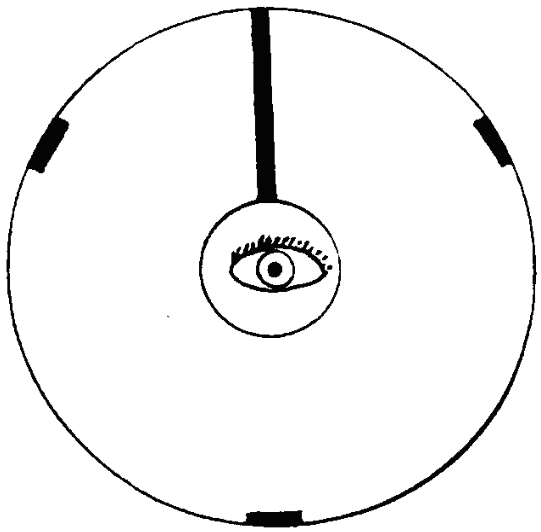


Figure 6-2

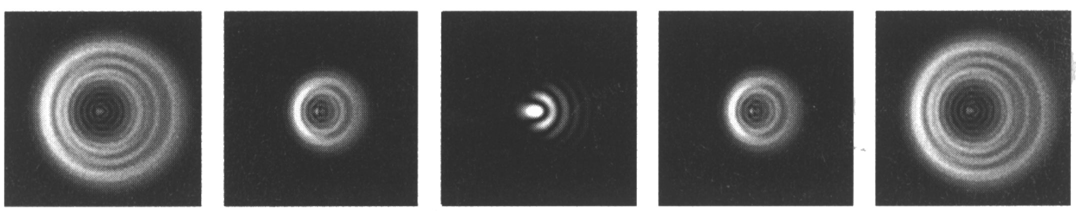


Figure 6-3

Even though the star pattern appears the same on both sides of focus, they are asymmetric. The dark obstruction is skewed off to the left side of the diffraction pattern indicating poor collimation.

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Optional Accessories

To enhance the enjoyment of your FirstScope, Celestron offers a FirstScope Accessory Kit (# 21024-ACC) and also various other accessory items. Details are available on the Celestron website.

FirstScope Specifications	Model # 21024
Optical Design	Newtonian reflector
Aperture	76mm (3.0")
Focal Length	300mm
Focal Ratio	f/4
Optical Coatings	Coated
Eyepieces - 1.25" Barrel	20mm (15x), 4mm (75x)
Apparent FOV -- 20mm @ 25° and 4mm @ 33°	
Angular Field of View w/20mm eyepiece	1.7°
Linear FOV w/20mm –ft@1000yds/m@1000m	89/29
Limiting Stellar Magnitude	11.9
Resolution -- Raleigh (arc seconds)	1.82
Resolution -- Dawes Limit " "	1.53
Light Gathering Power	118x
Optical Tube Length	10.5" (26.7cm)
Telescope Weight	69oz (2kg)

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(Products or instructions may change without notice or obligation.)

2835 Columbia Street
Torrance, CA 90503 U.S.A.
Tel. (310) 328-9560
Fax. (310) 212-5835
Website www.celestron.com

Item # 21024-INST Rev.2
03-09