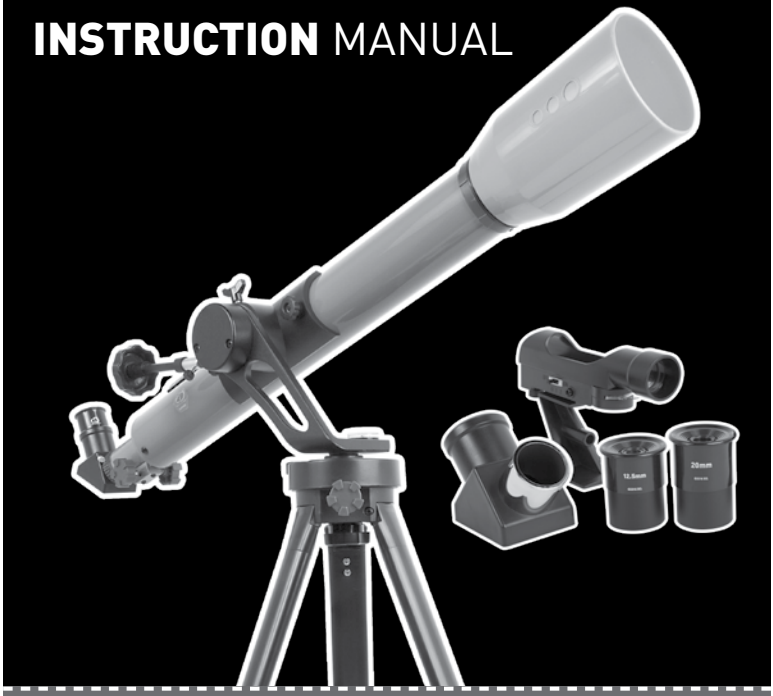
Discovery™

AGES 10+

INSTRUCTION MANUAL



60mm Advanced Telescope

Space Exploration Gear

⚠ WARNING:
SUN HAZARD – Never look directly at the sun with this device.

⚠ WARNING:
CHOKING HAZARD – Small parts. Not for children under 3 years.

⚠ WARNING:
Contains button or coin cell battery. Hazardous if swallowed - see instructions.

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Instruction Manual, &
Downloadable Planisphere Visit:

www.exploreone.com/pages/product-manuals

HOW TO SET UP

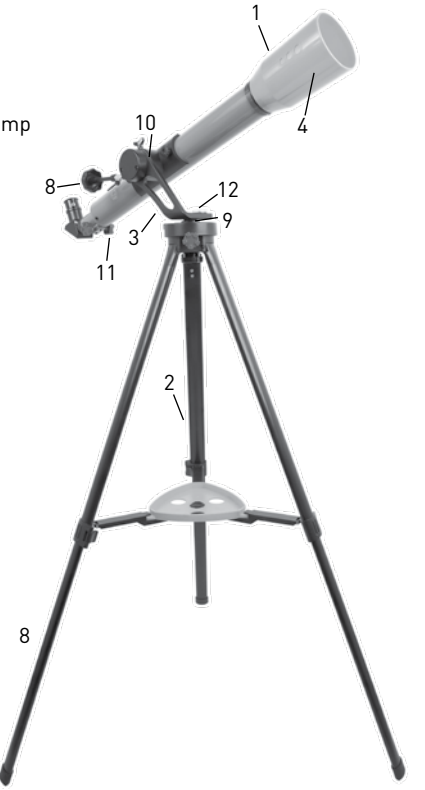
Welcome to the world of amateur astronomy!
Unlock the secrets of many of the night sky's brightest treasures and expand your knowledge of all things celestial with the Discovery 60mm Student Telescope.
Turn this refractor to Earth's nearest neighbor and see up close views of the craters and ridges that define the Moon's chiseled surface. Journey out into the solar system and watch the four Galilean moons as they march across Jupiter. If you want to venture farther, seek out deep sky favorites like the Pleiades Star Cluster and reveal brilliant stars that are hidden to the unaided eye.
The smooth alt-azimuth mount and the included navigation aids make it easy to explore the solar system and deep sky. For added versatility, this refractor telescope, which has a 700mm focal length, comes with two eyepieces to provide magnifications of 35x and 56x

Assembly:
Note: We recommend assembling your telescope for the first time in the daylight or in a lit room so that you can familiarize yourself with assembly steps and all components.

- Open the tripod until the tripod spreaders are level. Put the accessory tray in place and turn it to lock it into place. Set the tripod height by adjusting each leg with its locking clamp.
- Insert the mounting arm from above into the opening in the tripod head and secure it in place by tightening the screw.
- Set the optical tube assembly into the clamp on the mount by aligning the threaded bolts on the tube with the openings in the clamp. Tighten the locking nuts until snug. Be careful not to over-tighten.
- Insert the diagonal into the focuser and secure it by tightening the screws.
- Slide the red dot viewfinder into the finder bracket that is already mounted on the telescope tub.
- Place your chosen eyepiece into the diagonal.

HOW TO SET UP

1. 60mm Objective Lens
2. Tripod with accessory tray
3. Telescope mounting arm with clamp
4. Optical Tube Assembly (OTA) with Dew Shield
5. Red Dot Viewfinder
6. .25" Eyepieces (12.5mm and 20mm)
7. Diagonal
8. Slow-motion Control Cable
9. Tension Control Azimuth (left and right)
10. Tension Control Altitude (up and down)
11. Focuser
12. Azimuth Wheel



TELESCOPE TERMS TO KNOW:

Diagonal: A mirror that deflects the ray of light 90 degrees.
With a horizontal telescope tube, this device deflects the light upwards so that you can comfortably observe by looking downwards into the eyepiece. The image in a diagonal mirror appears upright, but rotated around its vertical axis (mirror image).

Focal length: Everything that magnifies an object via an optic lens has a certain focal length. The focal length is the length of the path the light travels from the surface of the lens to its focal point. The focal point is also referred to as the focus. In focus, the image is clear. In the case of a telescope, the focal length of the telescope tube and the eyepieces are used to determine magnification.

Lens: The lens turns the light that falls on it around in such a way so that the light gives a clear image in the focal point after it has traveled a certain distance (focal length).

Eyepiece: An eyepiece is a system made for your eye and comprised of one or more lenses. In an eyepiece, the clear image that is generated in the focal point of a lens is captured and magnified still more.

Magnification: The magnification corresponds to the difference between observation with the naked eye and observation through a magnifying device like a telescope. If a telescope configuration has a magnification of 30x, then an object viewed through the telescope will appear 30 times larger than it would with the naked eye. To calculate the magnification of your telescope setup, divide the focal length of the telescope tube by the focal length of the eyepiece.

Using/Aligning the Red Dot Viewfinder:

The viewfinder is powered by a CR-2032 battery that is included. Before using the viewfinder for the first time, remember to remove the plastic insulator that is blocking the battery from connecting.

When it is time to replace the battery, remove the battery cap by loosening the set screw. Take out the old battery and slide a new battery in place with the positive side showing. Replace the cap, and tighten the set screw.

For the viewfinder to be effective, it must be aligned. To do this:

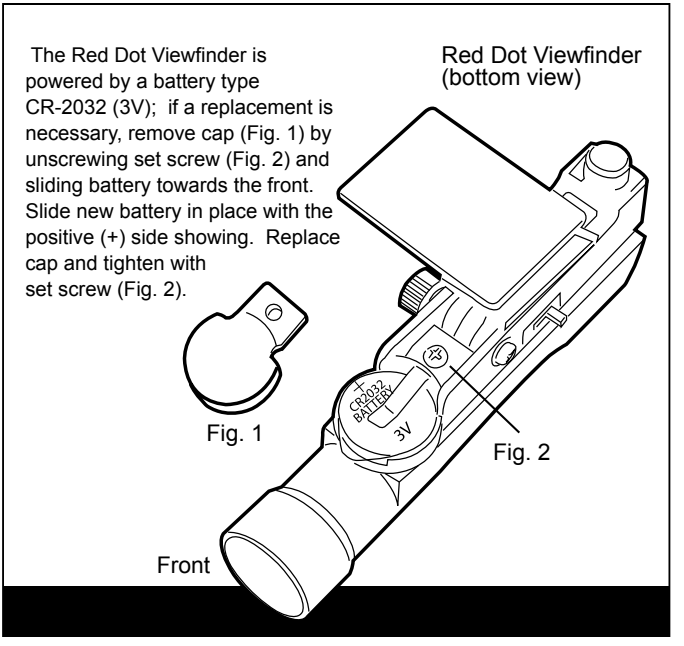
- Insert the 20mm eyepiece into the diagonal and power on the viewfinder by sliding the switch on its right side to an "On" position.
- Point the eyepiece at an easy to identify target like a telephone pole that is approximately 200 yards away. Center the object in the eyepiece. Lock the telescope into place by tightening the panhandle.
- Without moving the telescope, position the red dot using the two adjustment screws so that it shares the same view as the one in your eyepiece. The front screw will move the viewfinder up and down, and the other will move it side to side. Your viewfinder is now aligned.

Note: To preserve battery life, don't forget to turn off the viewfinder after use.

Did you know?

The magnifying power of a telescope is determined by dividing the focal length of the telescope by the focal length of the eyepiece. This means that as the focal length of your eyepiece increases, the magnifying power decreases.

The Red Dot Viewfinder is powered by a battery type CR-2032 (3V); if a replacement is necessary, remove cap (Fig. 1) by unscrewing set screw (Fig. 2) and sliding battery towards the front. Slide new battery in place with the positive (+) side showing. Replace cap and tighten with set screw (Fig. 2).



Using your telescope:
After you have aligned your viewfinder, you are ready to start observing! Put the 20mm eyepiece into the diagonal to get the widest field of view. This wider field of view will make it easier to locate and track objects.
Use the panhandle to move the scope up, down and side to side until your target comes into view in the eyepiece. It is important to remember that the rotation of the Earth means objects will move out of your eyepiece fairly quickly. Once you have found and focused on your desired target, you can track it as it journeys across the night sky using the panhandle.

For a closer look at an object, you can insert the 12.5mm eyepiece. The magnification will increase from 30x to 48x.

Cleaning:
Your telescope is a precision optical device and keeping the optics free of dust and dirt is crucial for optimal performance. To clean the lenses (objective and eyepiece) use only a photo-grade soft brush or a lint-free cloth, like a microfiber cloth. Do not press down too hard while cleaning, as this might scratch the lens. Ask your parents to help if your telescope is really dirty. f necessary, the cleaning cloth can be moistened with an optical glass cleaning fluid and the lens wiped clean using very little pressure. Do not use harsh detergents!

Make sure your telescope is always protected against dust and dirt. After use, leave it in a warm room to dry off before storing.

POSSIBLE OBJECTS FOR OBSERVATION:

Terrestrial objects

Take note of the examples below, including Mount Rushmore and the golf course. Start with the 20 mm eyepiece and focus until the image is clear. After mastering the 20 mm eyepiece, switch to the 12.5 mm eyepiece and practice scanning and focusing until the image is clear. Choose several terrestrial objects to practice focusing on, but never point your telescope at or near the sun, or you risk blindness.

Terrestrial Images

f=20 mm f=12.5 mm

The Moon

Diameter: 3,476 km
Distance: Approximately 384,401 km
The Moon is the Earth's only natural satellite, and it is the second brightest object in the sky (after the Sun). Although it is our closest neighbor, a lot of people have never really taken a good long like at the Moon. With your telescope, you should be able to see several interesting lunar features. These include lunar maria, which appear as vast plains, and some of the larger craters. The best views will be found along the terminator, which is the edge where the visible and cloaked portions of the Moon meet.

The Moon

f=20 mm f=12.5 mm

Troubleshooting Guide:

No picture	Remove dust protection cap and sun-shield from the objective opening.
Blurred picture	Adjust focus using focus ring.
No focus possible	Wait for temperature to balance out.
Bad quality	Never observe through a glass surface such as a window.
Viewing object visible in the finder, but not through the telescope	Align finder to telescope (see instructions)
Despite using star diagonal prism the picture is "crooked"	The star diagonal prism should be vertical in the eyepiece connection.

SAFETY WARNINGS

Read and follow the instructions, safety rules, and first aid information.

- Respect privacy: When using this device, respect the privacy of other people. For example, do not use them to look into people's homes.
- Choking hazard: Children should only use device under adult supervision. Keep packaging materials like plastic bags and rubber bands out of the reach of children as these materials pose a choking hazard.
- Risk of blindness: Never use this device to look directly at the Sun or in the direct proximity of the Sun. Doing so may result in a permanent loss of vision.
- Do not disassemble this device. In the event of a defect, please contact your dealer. The dealer will contact the Customer Service Department and can send the device in to be repaired if necessary.
- Battery guidelines: The red dot viewfinder contains electronic components that are powered by batteries. Batteries should be kept out of children's reach. When inserting batteries, please ensure the polarity is correct. Insert the batteries according to the displayed +/- information. Never mix old and new batteries. Replace all batteries at the same time. Never mix alkaline, standard carbon-zinc and rechargeable nickel-cadmium batteries. Never short circuit the device or batteries or throw either into a fire. Leaking or damaged batteries can cause injury if they come into contact with the skin. If you need to handle such batteries, please wear suitable safety gloves. Remove batteries from the product before extended storage to prevent leaking. Do not immerse the battery compartment in water.

⚠ **WARNING:** This product contains a Button or Coin Cell Battery. A swallowed Button or Coin Cell Battery can cause internal chemical burns in as little as two hours and lead to death. Dispose of used batteries immediately. Keep new and used batteries away from children. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

- Do not subject the device to temperatures exceeding 60° C (140° F).

- Disposal: Keep packaging materials, like plastic bags and rubber bands, away from children as they a pose a risk of suffocation. Dispose of packaging materials as legally required. Consult the local authority on the matter if necessary and recycle materials when possible.

CONFORMS TO THE SAFETY REQUIREMENTS OF ASTM F963

JourneyNorth, Inc.