



DELUXE ADVENTURE SET

50 MM TELESCOPE W/ AZ PAN TILT MOUNT,
900X MICROSCOPE SET, COMPACT BINOCULARS

INSTRUCTION MANUAL



x2
NOT INCLUDED

Do not mix old and new batteries. Do not mix alkaline, standard (carbon-zinc), or rechargeable (ni-cad, ni-mh, etc.) batteries. Non-rechargeable batteries are not to be recharged. Please recycle batteries responsibly.



x1
INCLUDED



WARNING:

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



WARNING:

Contains button or coin cell battery.
Hazardous if swallowed – see instructions.



WARNING:

This product contains a button battery. If swallowed, it could cause severe injury or death in just 2 hours. Seek medical attention immediately.



WARNING:

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



WARNING:

FUNCTIONAL SHARP POINT – Not for children under 3 years.



WARNING:

The lens contains lead that may be harmful.
Wash hands after touching.



IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW THE INSTRUCTIONS BEFORE USE.
KEEP THESE INSTRUCTIONS FOR LATER USE.



• **SUN WARNING: WARNING – NEVER ATTEMPT TO OBSERVE THE SUN WITH THIS DEVICE! OBSERVING THE SUN – EVEN FOR A MOMENT – WILL CAUSE INSTANT AND IRREVERSIBLE DAMAGE TO YOUR EYE OR EVEN BLINDNESS.** EYE DAMAGE IS OFTEN PAINLESS, SO THERE IS NO WARNING TO THE OBSERVER THAT THE DAMAGE HAS OCCURRED UNTIL IT IS TOO LATE. DO NOT POINT THE DEVICE AT OR NEAR THE SUN. DO NOT LOOK THROUGH THE DEVICE AS IT IS MOVING. CHILDREN SHOULD ALWAYS HAVE ADULT SUPERVISION WHILE OBSERVING.

• **RESPECT PRIVACY:** WHEN USING THIS DEVICE, RESPECT THE PRIVACY OF OTHER PEOPLE. FOR EXAMPLE, DO NOT USE IT 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.

• **RISK OF FIRE:** DO NOT PLACE DEVICE, PARTICULARLY THE LENSES, IN DIRECT SUNLIGHT. THE CONCENTRATION OF LIGHT RAYS COULD CAUSE A FIRE.

• **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.

• **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 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.



• THE WEEE SYMBOL IF PRESENT INDICATES THAT THIS ITEM CONTAINS ELECTRICAL OR ELECTRONIC COMPONENTS WHICH MUST BE COLLECTED AND DISPOSED OF SEPARATELY.

• NEVER DISPOSE OF ELECTRICAL OR ELECTRONIC WASTE IN GENERAL MUNICIPAL WASTE. COLLECT AND DISPOSE OF SUCH WASTE SEPARATELY.

• MAKE USE OF THE RETURN AND COLLECTION SYSTEMS AVAILABLE TO YOU, OR YOUR LOCAL RECYCLING PROGRAM. CONTACT YOUR LOCAL AUTHORITY OR PLACE OF PURCHASE TO FIND OUT WHAT SCHEMES ARE AVAILABLE.

• ELECTRICAL AND ELECTRONIC EQUIPMENT CONTAINS HAZARDOUS SUBSTANCES WHICH, WHEN DISPOSED OF INCORRECTLY, MAY LEAK INTO THE GROUND. THIS CAN CONTRIBUTE TO SOIL AND WATER POLLUTION WHICH IS HAZARDOUS TO HUMAN HEALTH, AND ENDANGER WILDLIFE.

• IT IS ESSENTIAL THAT CONSUMERS LOOK TO RE-USE OR RECYCLE ELECTRICAL OR ELECTRONIC WASTE TO AVOID IT GOING TO LANDFILL SITES OR INCINERATION WITHOUT TREATMENT.



BUTTON/COIN BATTERY 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.

• A SWALLOWED BUTTON OR COIN CELL BATTERY CAN CAUSE INTERNAL CHEMICAL BURNS IN AS LITTLE AS TWO HOURS AND LEAD TO DEATH DUE TO CHEMICAL BURNS AND POTENTIAL PERFORATION OF THE ESOPHAGUS.

• DISPOSE OF USED BATTERIES IMMEDIATELY, FLAT/DRAINED BATTERIES CAN STILL BE DANGEROUS

• 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.

• IF YOU SUSPECT YOUR CHILD HAS SWALLOWED OR INSERTED A BUTTON BATTERY IMMEDIATELY CALL THE POISONS CONTROL HOTLINE AND SEEK IMMEDIATE MEDICAL ATTENTION.

• EXAMINE DEVICES AND MAKE SURE THE BATTERY COMPARTMENT IS CORRECTLY SECURED, E.G. THAT THE SCREW OR ANOTHER MECHANICAL FASTENER IS TIGHTENED. DO NOT USE IF COMPARTMENT IS NOT SECURE.

• TELL OTHERS ABOUT THE RISK ASSOCIATED WITH BUTTON BATTERIES AND HOW TO KEEP THEIR CHILDREN SAFE.



Parts Overview

1. 50mm Telescope
2. Pan-Tilt Alt-Azimuth Mount
3. Tripod
4. Optical Tube Assembly (OTA) with Dew Shield
5. Focus Wheel
6. Diagonal
7. 12.5mm and 20 mm Eyepieces
8. 2x Barlow Lens
9. Red Dot Viewfinder
10. Smartphone Adapter



Available Downloads Visit:
www.esmanuals.com

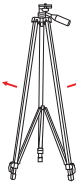




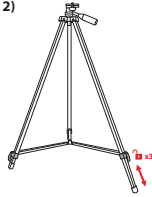
How To Set Up

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.

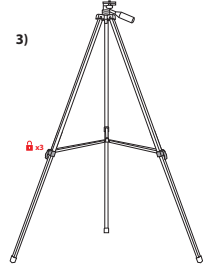
1)



2)



3)



4a)



5a)



6a)



6b)



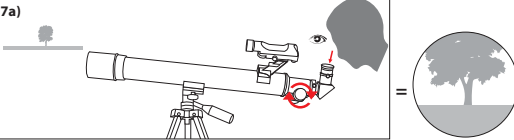
4b)



5b)



7a)



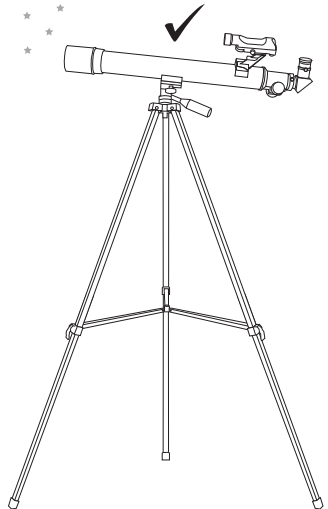
7b)



7e)



8)



How to set up

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.

1. Open the tripod until the tripod spreaders are fully extended.
 2. To set the tripod height, unlatch the hinged locking mechanisms on each leg and extend or retract the leg to the desired setting.
 3. When the tripod is the proper height, relatch any open locking mechanisms on each leg before attaching the telescope tube.
- 4a-b.** Set the telescope tube on the mount head so that the thread is aligned with the locking screw in the centre of the mounting plate. Secure the tube to the mount by tightening the locking screw until it is secure. Be careful not to over-tighten the locking screw.
- 5a.** Slide the red dot viewfinder into the finder bracket that is already mounted on the telescope tube and insert the diagonal into the focuser.
- 5b.** Secure the diagonal by tightening the focuser thumbscrews. Place your chosen eyepiece into the diagonal. We recommend starting with the 20 mm because it will provide the widest field of view.
- 6a-b.** To move the telescope up or down and left or right, loosen the handle. Move the telescope up or down, left or right and tighten the handle to lock it to the desired position.

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.

Note: Please recycle used batteries responsibly.

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

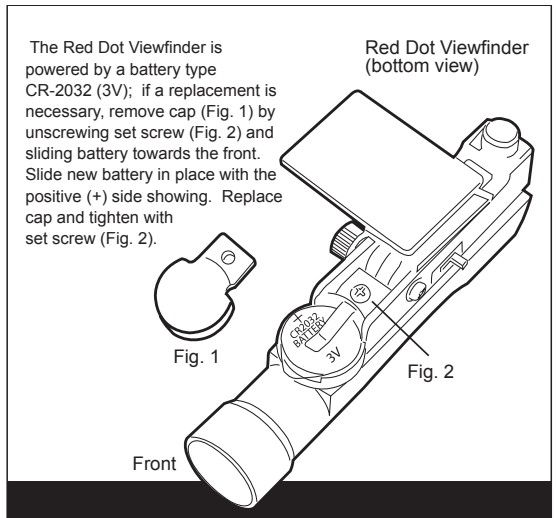
Insert the 20 mm eyepiece into the diagonal and power on the viewfinder by sliding the switch on its right side to an “On” position.

7a. Point the eyepiece at an easy to identify target like a tree that is approximately 200 yards away. Centre the object in the eyepiece. Lock the telescope into place by tightening the panhandle.

Note: Terrestrial objects will appear reversed due to the optical setup. This rotation is perfectly normal for a refractor using a standard diagonal, and it will not affect astronomical viewing.

7b-e. 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.

8. Telescope is ready for viewing.



Using Your Telescope:

After you have aligned your viewfinder, you are ready to start observing! Put the 20 mm eyepiece into the focuser 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.

To get a closer look at an object, take out the 20 mm eyepiece and replace it with the 12.5 mm eyepiece. This will increase the magnification to 48x. For the strongest magnification, take out the 12.5 mm eyepiece and insert the 2x Barlow lens into the diagonal. Put the 12.5 mm eyepiece into the Barlow lens and secure it in place, this will up the magnification from 48x to 96x. If you use the Barlow lens with the 26 mm eyepiece, the magnification will change from 30x to 60x.

Focal Length	Eyepiece	Magnification	2x Barlow Lens
600mm	20mm	30x	60x
600mm	12.5mm	48x	96x

Note: Terrestrial objects will appear reversed due to the optical setup. This rotation is perfectly normal for a refractor using a standard diagonal, and it will not affect astronomical viewing.

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 microfibre cloth. Do not press down too hard while cleaning, as this might scratch the lens. If necessary, the cleaning cloth can be moistened with an optical glass cleaning fluid and the lens wiped clean using very little pressure. **The eyepiece is NOT waterproof so do not spray fluids directly onto the glass or dip it in water. Never use harsh detergents! After you have finished cleaning an eyepiece, allow it to fully dry before storing.**

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

Troubleshooting Guide:

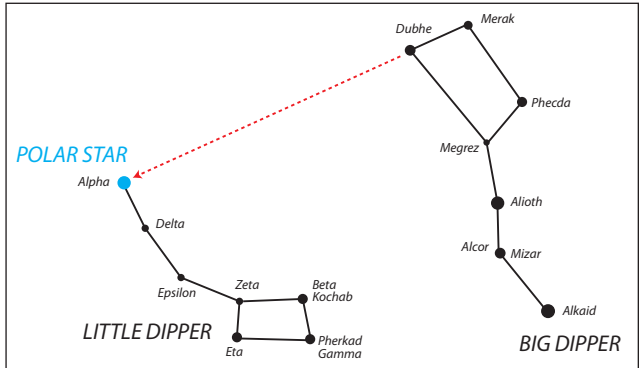
Problem	Solution
No picture	Remove dust protection cap.
Blurred picture	Adjust focus using focus wheel.
No focus possible	Wait for temperature to balance out.
Bad quality	Never observe through a glass surface such as a window.
Viewing object visible in the finder, but not through the telescope	Align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

Observing Tips:

Star hopping

Star hopping is a technique used by amateur astronomers to navigate the night sky. By using easily recognizable constellations and asterisms as a guide, an observer can locate stars and other objects.

For example, Polaris, which is commonly referred to as The North Star, can be located quickly using star hopping. First, find the Big Dipper asterism in the Ursa Major constellation. The popular pattern is defined by seven stars, and the two stars on the front edge of the Big Dipper's "bowl" are Merak and Dubhe. Next, draw an imaginary line from the bottom star (Merak) on this front edge through the top star (Dubhe) on the front edge. Follow the line to the first bright star you see. That should be Polaris. Finally, to verify your finding, locate the Little Dipper asterism, Polaris is the anchor star at the end of the Little Dipper's "handle."



Note: The positioning of the Big Dipper in relation to the Little Dipper does not change, but the orientation of both in the night sky will rotate throughout the year due to the motion of the Earth.

Possible Objects for Observation:

What you can observe at any one time in your telescope depends on several factors beyond aperture and magnification. These factors include location, date, time and sky conditions. The following are all objects that can be seen with the unaided eye and/or binoculars. Your telescope can enhance views of any of these objects if the observing conditions are right.

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 look 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 shadowed portions of the Moon meet.



Image credit: Howard Eskildsen



Orion Nebula(M42):

Right ascension: 05: 35.4 (hours: minutes)

Declination: -05: 27 (degrees: minutes)

Distance: Approximately 1,344 light years

The Orion Nebula is a vast star-forming region located in the "sword" branching off of the famous Orion's Belt. Also known as Messier 42, this diffuse nebula is bright enough to see with the unaided eye — although it will only appear as a slightly foggy star. However, with your telescope, you can see many of the beautiful details, such as the billowing clouds of gas and dust where new stars are being born.

Image credit: NASA, ESA, M. Robberto [Space Telescope Science Institute/ESA] and the Hubble Space Telescope Orion Treasury Project Team

Note: Images are for illustration purposes only. Quality of your image may vary depending upon atmospheric conditions and location.

Pleiades Star Cluster(M45):

Right ascension: 03: 47.0 (hours: minutes)

Declination: +24: 07 (degrees: minutes)

Distance: Approximately 444 light years

The Pleiades Star Cluster is a group of brilliant blue stars located in the Taurus Constellation. Also known as Messier 45 or “Seven Sisters”, this open star cluster consists of more than 1,000 confirmed stars, although an average of only six are visible to the unaided eye. With your telescope, you can quickly reveal some of the more elusive members of this legendary and beautiful cluster.



Image credit: NASA/JPL-Caltech/UCLA

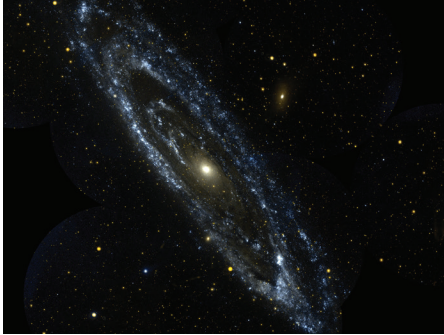


Image credit: NASA/JPL-Caltech

Andromeda Galaxy(M31):

Right ascension: 00: 42.7 (hours: minutes)

Declination: +41: 16 (degrees: minutes)

Distance: Approximately 2.54 million light years

The Andromeda Galaxy is the closest major galaxy to our own Milky Way. Also known as Messier 31, this famous spiral galaxy is part of the Local Group of galaxies. Although it is technically bright enough to see with the unaided eye under a very dark sky, your telescope may show its bright centre, hints of its spiral structure and its much smaller companion galaxies known as M32 and M110.

Dumbbell Nebula(M27)

Right ascension: 19:59.6 (hours: minutes)

Declination: +22:43 (degrees: minutes)

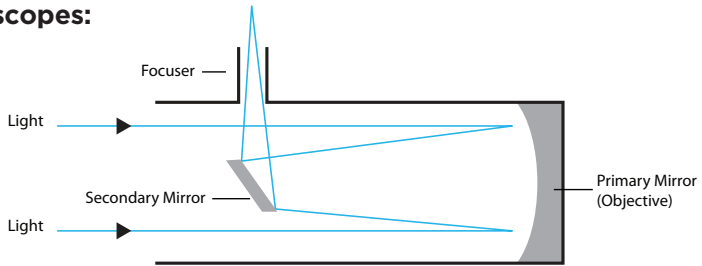
Distance: Approximately 1,360 light years

The Dumbbell Nebula was the first planetary nebula ever discovered. It is one of the most popular sights in the Vulpecula constellation. Easy to find with binoculars and amazing in a telescope, the shape of this bright, double-lobed nebula has been compared to a dumbbell, an hourglass or an apple core. As an added bonus, the white dwarf that lies at the heart of the Dumbbell Nebula is larger than any other star of its kind.



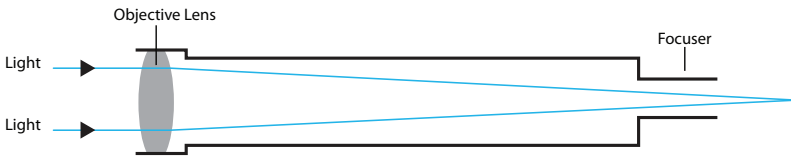
Image credit: NASA/JPL-Caltech/Harvard-Smithsonian CfA

Types Of Telescopes:



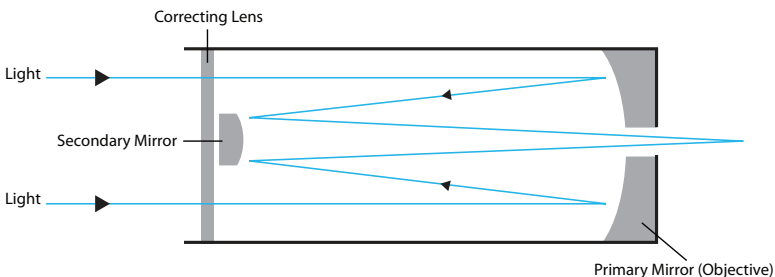
Reflector

A reflector telescope uses mirrors to gather and focus light. Light enters the telescope through its open front end and travels to the concave primary mirror at the back. From there the light is reflected back up the tube to a flat secondary mirror, which sits at a 45° angle in relation to the eyepiece. Light bounces off of this secondary mirror and out through the eyepiece. A reflector telescope is designed for astronomical use. Terrestrial objects may appear inverted, sideways or at an angle depending on how your tube is oriented due to optical design. This rotation is perfectly normal on all Newtonian reflectors and will not affect astronomical viewing.



Reflector:

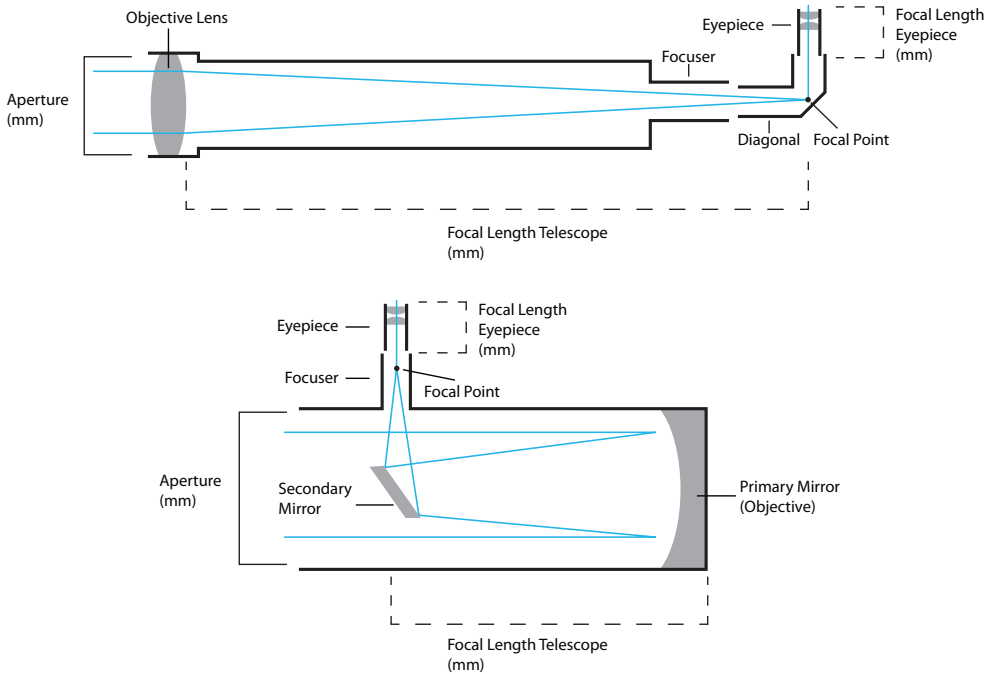
A refracting telescope uses a collection of lenses to gather and focus light. A refractor's views will be upside down if a diagonal is not in use. A standard diagonal will generate a "right side up" image, however, it will rotate the image on the vertical axis (mirror image). To get the "right side up" image without the rotation, you will need to use a special diagonal with an erect image prism.



Catadioptric:

A catadioptric telescope uses a combination of mirrors and lenses to gather and focus light. Popular catadioptric designs include the Maksutov-Cassegrain and Schmidt-Cassegrain.

Telescope Terms to Know:



Aperture:

This figure, which is usually expressed in millimeters, is the diameter of a telescope's light-gathering surface (objective lens in a refractor or primary mirror in a reflector). Aperture is the key factor in determining the brightness and sharpness of the image.

Objective Lens:

The objective lens is the main light-gathering component of a refractor telescope. It is actually composed of several lens elements.

Diagonal:

This accessory houses 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 standard diagonal mirror appears upright, but rotated around its vertical axis (mirror image). To get an image without this rotation, you will need to use a special diagonal with an erect image prism.

Eyepiece:

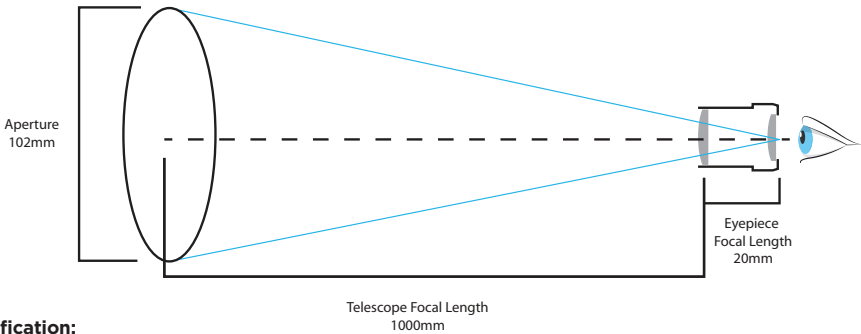
An eyepiece is an optical accessory comprised of several lens elements. It determines the magnification of a particular observing setup.

Primary Mirror:

The primary mirror is the principle light-gathering surface of a reflector telescope.

Secondary Mirror:

A secondary mirror is a small mirror that sits at a 45° angle in relation to the primary mirror of a reflecting telescope. Light from the primary mirror is reflected back up the tube to the secondary mirror. The light is directed from this mirror up into the eyepiece.



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. For example, a 20 mm eyepiece in a telescope with a 1000mm focal length will result in 50x power, which will make the object appear 50 times larger. If you change the eyepiece, the power goes up or down accordingly.

$$\text{Magnification} = \frac{\text{Telescope Focal Length}}{\text{Eyepiece Focal Length}}$$

Focal ratio :

The focal ratio of a telescope is determined by dividing the telescope’s focal length by its aperture (usually expressed in millimeters). It plays a key role in determining a telescope’s field of view and significantly impacts imaging time in astrophotography. For example, a telescope with a focal length of 1000mm and a 100mm clear aperture has a focal ratio of f/10.

$$\text{Focal Ratio} = \frac{\text{Telescope Focal Length}}{\text{Telescope Aperture}}$$

Focal length (Telescope):

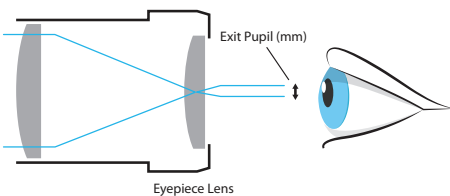
The focal length is the distance in millimeters between the objective lens or primary mirror and the point at which entering light rays converge — otherwise known as the focal point. The focal lengths of the telescope tube and the eyepiece are used to determine magnification.

Focal length (Eyepiece):

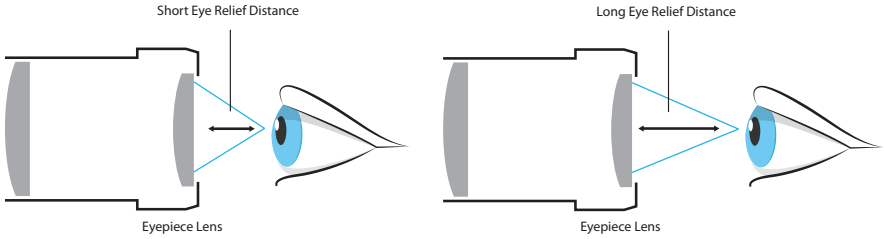
The focal length is the distance in millimeters between the centre of the first lens element in an eyepiece and the focal point. The focal lengths of the telescope tube and the eyepiece are used to determine magnification. Short eyepiece focal lengths produce higher magnifications than long eyepiece focal lengths.

Exit Pupil :

The exit pupil is the diameter of the beam of light coming out of the eyepiece. To calculate exit pupil, divide the focal length of your eyepiece by your telescope’s focal ratio. For example, if you use a 20 mm eyepiece with an f/5 telescope, the exit pupil would be 4mm.

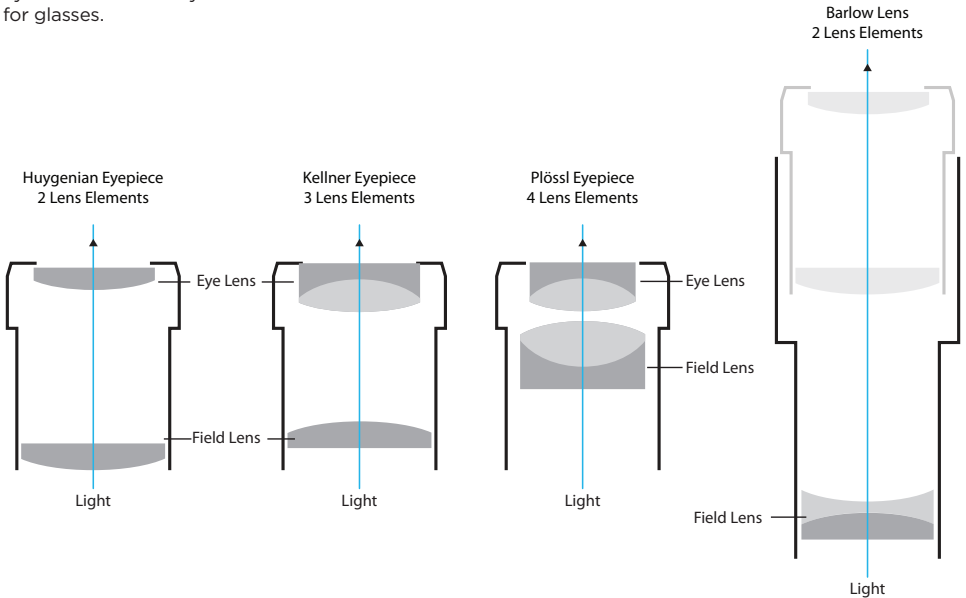


$$\text{Exit Pupil} = \frac{\text{Eyepiece Focal Length}}{\text{Telescope Focal Ratio}}$$



Eye Relief :

Eye relief is all about a comfortable viewing experience because it is the distance at which you need to position your eye from the eyepiece's outermost surface to enjoy the full field of view. This characteristic is of special concern to observers who wear glasses to correct an astigmatism, because a long enough eye relief is necessary to allow room for glasses.



Huygenian Eyepieces:

A Huygenian eyepiece uses two plano-convex lenses separated by an air gap. They have a fairly narrow apparent field of view.

Kellner Eyepieces:

A Kellner eyepiece uses three lens elements - two of which are paired together in an achromatic doublet design to minimize chromatic aberrations. They typically produce an apparent field of view around 45°.

Plössl Eyepieces:

A Plössl eyepiece uses two doublets (a pairing of lens) for a total of four lens elements. This eyepiece design delivers sharp views and an apparent field of view of approximately 50°, which works well for both planetary and deep sky viewing.

Barlow Lens:

A Barlow lens effectively increases the focal length of a telescope. It is inserted between the eyepiece and the focuser/diagonal (depending on the optical setup) and multiplies the magnification power of the eyepiece. For example, a 2x Barlow will double the magnification of a particular eyepiece.

Notes:



IMPORTANT SAFETY INSTRUCTIONS


READ AND FOLLOW THE INSTRUCTIONS BEFORE USE. KEEP THESE INSTRUCTIONS FOR LATER USE.

• **THIS MICROSCOPE SET IS INTENDED FOR CHILDREN OLDER THAN AGE 9.** CHILDREN SHOULD ONLY USE THIS DEVICE UNDER ADULT SUPERVISION. NEVER LEAVE A CHILD UNSUPERVISED WITH THIS DEVICE. ACCESSORIES IN THE EXPERIMENT KIT MAY HAVE SHARP EDGES AND TIPS. PLEASE STORE THE DEVICE AND ALL OF ITS ACCESSORIES AND AIDS OUT OF THE REACH OF YOUNG CHILDREN WHEN NOT BEING USED DUE TO A RISK OF INJURY.

• **CHEMICALS:** ANY CHEMICALS AND LIQUIDS USED IN CONJUNCTION WITH THE DEVICE SHOULD BE KEPT OUT OF REACH OF CHILDREN. DO NOT DRINK ANY OF THE CHEMICALS CONTAINED IN THIS SET. HANDS SHOULD BE WASHED THOROUGHLY UNDER RUNNING WATER AFTER WORKING WITH THESE CHEMICALS. IN CASE OF ACCIDENTAL CONTACT WITH EYES OR MOUTH, RINSE THE AFFECTED AREA WITH WATER. SEEK MEDICAL TREATMENT FOR AILMENTS ARISING FROM CONTACT WITH THE CHEMICAL SUBSTANCE, AND TAKE THE CHEMICALS WITH YOU TO THE DOCTOR.



• **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.

 **BATTERY GUIDELINES:** THIS DEVICE 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 IMMERSER THE BATTERY COMPARTMENT IN WATER. NON-RECHARGEABLE BATTERIES ARE NOT TO BE RECHARGED. RECHARGEABLE BATTERIES ARE TO BE REMOVED FROM THE TOY BEFORE BEING CHARGED. RECHARGEABLE BATTERIES ARE ONLY TO BE CHARGED UNDER ADULT SUPERVISION. EXHAUSTED BATTERIES ARE TO BE REMOVED FROM TOY. THE SUPPLY TERMINALS ARE NOT TO BE SHORT-CIRCUITED. PLEASE RECYCLE BATTERIES RESPONSIBLY.

• **RISK OF FIRE:** DO NOT PLACE DEVICE, PARTICULARLY THE LENSES, IN DIRECT SUNLIGHT. THE CONCENTRATION OF LIGHT RAYS COULD CAUSE A FIRE.

• **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.

• **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 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.



• THE WEEE SYMBOL IF PRESENT INDICATES THAT THIS ITEM CONTAINS ELECTRICAL OR ELECTRONIC COMPONENTS WHICH MUST BE COLLECTED AND DISPOSED OF SEPARATELY.

• NEVER DISPOSE OF ELECTRICAL OR ELECTRONIC WASTE IN GENERAL MUNICIPAL WASTE. COLLECT AND DISPOSE OF SUCH WASTE SEPARATELY.

• MAKE USE OF THE RETURN AND COLLECTION SYSTEMS AVAILABLE TO YOU, OR YOUR LOCAL RECYCLING PROGRAM. CONTACT YOUR LOCAL AUTHORITY OR PLACE OF PURCHASE TO FIND OUT WHAT SCHEMES ARE AVAILABLE.

• ELECTRICAL AND ELECTRONIC EQUIPMENT CONTAINS HAZARDOUS SUBSTANCE WHICH, WHEN DISPOSED OF INCORRECTLY, MAY LEAK INTO THE GROUND. THIS CAN CONTRIBUTE TO SOIL AND WATER POLLUTION WHICH IS HAZARDOUS TO HUMAN HEALTH, AND ENDANGER WILDLIFE.

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Parts Overview

1. Eyepiece
2. Focus Knob
3. Stage
4. Metal Stage Clips
5. Objective Turret (5x, 20x, 45x)
6. Illumination On/Off Switch and Mirror
7. Battery Cover (not visible)
8. Microscope Arm

9. (3) Prepared Slides and (3) Blank Slides
10. (3) Slide Covers & Labels
11. (3) Collection Vials
12. Spatula
13. Scalpel*
14. Tweezers/Stirring Rod/Pipette

*Not suitable for children under 3 years of age.
Contains functional sharp points.

Observe, investigate, discover!

When you want to take your investigations to the cellular level, the 900x Microscope is ready to reveal the hidden details of the world around you. Everyday things like sand, onion skin, hair and pollen will show their extraordinary sides when viewed at magnifications ranging from 100x to 900x. To jumpstart your observations, the set comes with prepared specimens, collection tools and an experiment guide.

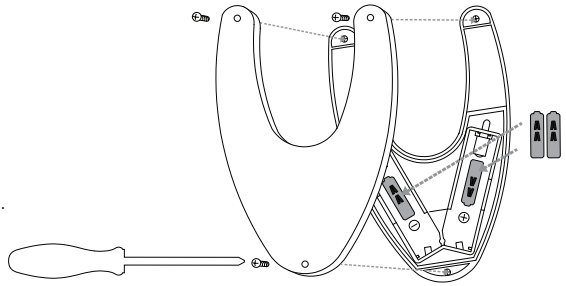
How do I use my microscope?

Before you use your microscope, make sure that the table, desk or surface that you place it on is stable and is not subject to vibration. If the microscope needs to be moved, hold it by the arm and base while carefully transferring it. Once the microscope is in a suitable location and the batteries are installed, check the light source to make sure that it illuminates. Use a microfibre cleaning cloth to gently wipe the lenses off. If the stage is dirty with dust or oil, carefully clean it off. Make sure that you only raise and lower the stage using the focus adjustment knob.

Install batteries

1. Remove button screws and cover.
2. Install batteries with the positive (+) and negative (-) in the correct direction indicated by the battery compartment label.
3. Replace the cover and screws.

Do not mix old and new batteries. Do not mix alkaline, standard (carbon-zinc), or rechargeable (ni-cad, ni-mh, etc.) batteries. Non-rechargeable batteries are not to be recharged. Please recycle batteries responsibly.



How do I operate the illumination?

Locate the mirror/light on the base of the microscope. Flip the mirror/light to the “on” position (with the light facing up) and the light will illuminate. This microscope is equipped with an incandescent light that illuminates the specimen from below.

How do I adjust my microscope correctly?

Place the microscope in a suitable location as described above, and sit in a comfortable viewing position. Always start each observation with the lowest magnification. Adjust the distance of the microscope stage so that the stage is in the lowest position — farthest away from the turret head. Turn the objective turret until it clicks into place at the lowest magnification (Objective: 5x/Magnification: 100x). Note: Before you change the objective setting, always make sure the microscope stage is farthest away from the turret by rotating the focus knob. Separating the stage and turret by rotating the focus knob will avoid causing damage to the specimen slide or microscope. When starting an observation, always start with the 5x objective in the rotating head.

How do I observe the specimen?

Sitting in your location with adequate illumination chosen from the colour filter wheel, the following basic rules should be observed. Start with a simple observation at the lowest magnification.

Place the prepared slide directly under the objective on the microscope stage and secure it with the stage clips. The prepared slide should be located directly over the lower illumination. Look through the eyepiece and carefully turn the focus knob until the image appears clear and sharp. Higher levels of magnification can be achieved by turning the objective turret to a higher setting (400x or 900x). Following this procedure creates a steady increase of magnification without overpowering the view of the object. The following magnification order should be used: 100x, 400x then 900x. Each time the magnification changes (due to the objective change), the image sharpness must be readjusted with the focus knob. When doing this, be careful because if you move the microscope stage too quickly, the objective and the slide could come into contact and cause damage to the slide or microscope.

For transparent objects (e.g. sea salt), light is projected by the lower light traveling from below the stage, through the objective and eyepiece, and finally into your eye. This process of light transmission is known as microscopy. Many micro-organisms found in water, plant components and the smallest animal parts are transparent in nature. Opaque specimens, on the other hand, will need to be prepared for viewing. Opaque specimens can be made transparent by a process of treatment and penetration with the correct materials (media), or by slicing. You can read more about creating specimens in the enclosed microscope experiments booklet.

Magnification Guide:

Eyepiece	Objective	Power
20x	5x	100x
20x	20x	400x
20x	45x	900x

Did You Know?

The highest magnification is not always the best for every specimen!

Smart Microscope Slides

This microscope set includes a number of prepared slides designed to jumpstart your investigations.

These Smart Microscope Slides include a QR code on the label that can be used to access additional information about the particular specimen. With a quick scan of the QR code, you can gain a deeper understanding of a specimen's structures, functionality and more.

To scan the QR codes, use your phone's camera and focus on the QR code or download a QR code reader from your app store and follow your app directions to scan the code with your phone. After scanning, you will be directed to a website with additional information on the specimen.

Slide example



To see our full list of smart slides, scan this code.





IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW THE INSTRUCTIONS BEFORE USE.
KEEP THESE INSTRUCTIONS FOR LATER USE.



• **SUN WARNING: WARNING – NEVER ATTEMPT TO OBSERVE THE SUN WITH THIS DEVICE! OBSERVING THE SUN – EVEN FOR A MOMENT – WILL CAUSE INSTANT AND IRREVERSIBLE DAMAGE TO YOUR EYE OR EVEN BLINDNESS.** EYE DAMAGE IS OFTEN PAINLESS, SO THERE IS NO WARNING TO THE OBSERVER THAT THE DAMAGE HAS OCCURRED UNTIL IT IS TOO LATE. DO NOT POINT THE DEVICE AT OR NEAR THE SUN. DO NOT LOOK THROUGH THE DEVICE AS IT IS MOVING. CHILDREN SHOULD ALWAYS HAVE ADULT SUPERVISION WHILE OBSERVING.

• **RESPECT PRIVACY:** WHEN USING THIS DEVICE, RESPECT THE PRIVACY OF OTHER PEOPLE. FOR EXAMPLE, DO NOT USE IT 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.

• **RISK OF FIRE:** DO NOT PLACE DEVICE, PARTICULARLY THE LENSES, IN DIRECT SUNLIGHT. THE CONCENTRATION OF LIGHT RAYS COULD CAUSE A FIRE.

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Parts Overview

1. Compact Binocular
2. Central Focusing Wheel
3. Eyepiece Lens
4. Objective Lens
5. Optical Tube
6. Lanyard (behind binoculars not shown)
7. Carry Bag

Discover The World Around!

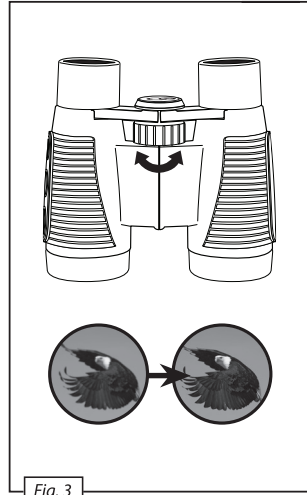
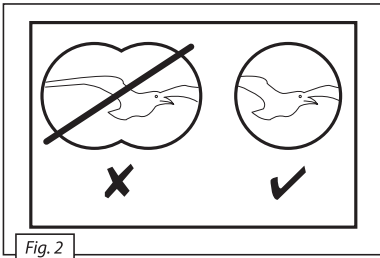
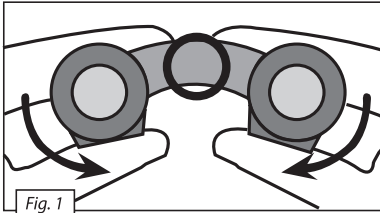
Your compact binoculars are the perfect companion for countless outdoor adventures. With these sturdy binoculars, you can investigate amazing species and sights. Take them on a nature walk to get a detailed look at birds and other wildlife without disturbing them. Take them on a hike to navigate your path and view distant landmarks. Most of all, keep them close by for on-the-go exploration.

Determining Eye Distance

The distance between one's eyes varies from person to person, so it is essential that you adjust your binoculars before you use them. Take the binoculars in both hands (Fig. 1) and hold them to your eyes. Fold them so that you see a single circle when looking through them (Fig. 2).

Adjusting The Focus

To adjust the focus, simply turn the center focus wheel (Fig. 3).



Cleaning Instructions

To clean the eyepieces and/or objective lenses, only use a soft, lint-free cloth like a microfiber cloth. Do not apply excess pressure to the cloth to avoid scratching the lenses. To remove more stubborn dirt, moisten the cleaning cloth with an eyeglass-cleaning solution and wipe the lenses gently being careful to avoid excess pressure. Protect this device from dust and moisture. When using in high humidity conditions, let the device sit for a short period of time before storing so that residual moisture can dissipate.

Using The Smartphone Adapter: SUPERVISION BY ADULTS

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

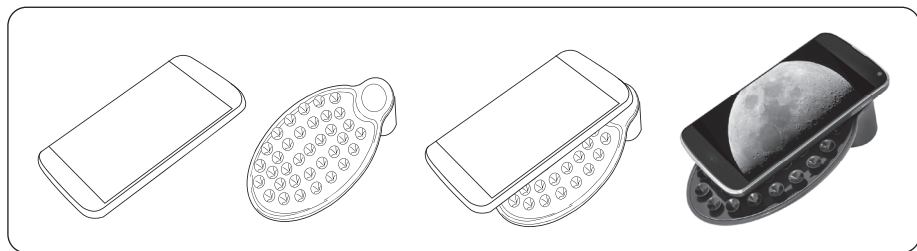
The Smartphone Adapter will allow you to connect almost any “smart” device to an eyepiece.

To use the adapter, place it directly onto the selected eyepiece and secure it by tightening the set screw until snug. Be careful not to overtighten because this could damage the adapter and/or the eyepiece.

The camera lens on your smart device will need to be centered over the eyepiece. This alignment is best done by opening the camera function and viewing the image while you center the device. Once you have positioned the device correctly, carefully press it onto the suction cup/non-skid surface of the adapter pad. Never allow the adapter pad to hold your device without you supporting the item as well.

The point at which you secure the eyepiece/adapter combination into the diagonal/focuser depends largely on the dimensions of your device. For smaller devices like smart phones, it may be easier to secure it to the eyepiece/adapter combination before inserting the entire unit into the diagonal on the telescope. For larger devices, such as tablets, it may be easier to secure the eyepiece/adapter combination into the diagonal, and then align and attach your device.

After positioning your device and capturing images, you can enhance and edit the photos using the imaging software of your choice. One option can be found at <https://www.getpaint.net/>.



WARNING: Do not leave your device unsupported or unattended on the adapter pad.

Though the surface of the adapter pad is designed with suction cups and is non-skid, the manufacturer cannot assure that the pad will support the weight of various devices or guarantee that it will adhere to all surfaces on various smart devices. The pad is not intended to secure, balance or support the device on its own, and the operator should not let the device rest solely on the adapter pad. Leaving the device unattended or allowing it to balance on its own without operator support may result in the device falling, unbalancing the entire instrument and possibly damaging the telescope or your smart device.

CHEMICALS

Any chemicals and liquids used in preparing, using, or cleaning should be kept out of reach of children. Do not drink any chemicals. Hands should be washed thoroughly under running water after use. In case of accidental contact with the eyes or mouth rinse with water. Seek medical treatment for ailments arising from contact with the chemical substances and take the chemicals with you to the doctor.

Keep packaging materials (plastic bags, rubber bands, etc.) away from children. There is a risk of

SUFFOCATION.

Dispose of packaging materials as legally required. Consult the local authority on the matter if necessary.

DISPOSAL

Dispose of the packaging materials properly, according to their type, such as paper or cardboard. Contact your local waste-disposal service or environmental authority for information on the proper disposal. Please take the current legal regulations into account when disposing of your device. You can get more information on the proper disposal from your local waste-disposal service or environmental authority.

Notes:

Notes:



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