



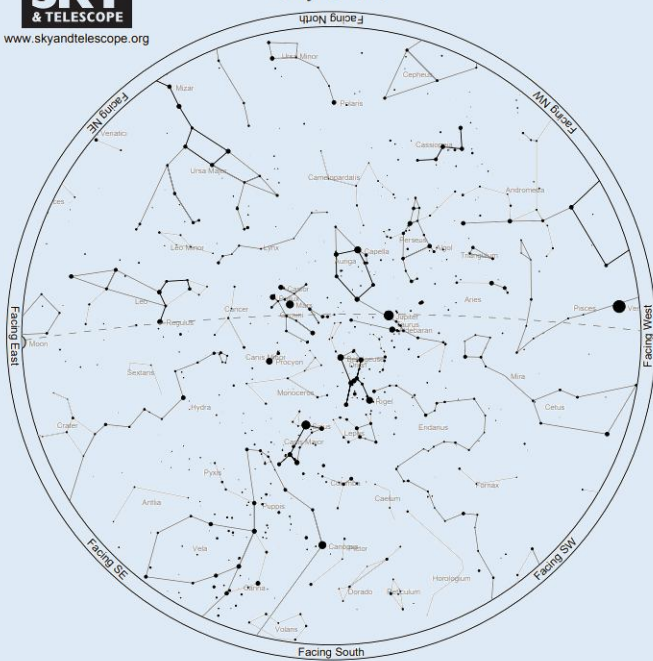
ASTRONOMY OF THE MONTH

FEBRUARY NIGHT SKY

SKY
& TELESCOPE

www.skyandtelescope.org

Sky Chart



Location: Panaji

Latitude: 15° 29' N, longitude: 73° 49' E

Time: 2025 February 15, 21:00 (UTC +05:30)

Powered by: Heavens-Above.com

February night Sky will Start with Orion arm being on zenith and rising Leo and Ursa Major constellation

For astrophotographers this is time to click some object like

1. Orion Nebula
2. Horsehead Nebula
3. Flame Nebula
4. Bode's Galaxy
5. Leo Triplet

Full Moon : 12th February

New Moon : 28th February

ASTRONOMICAL EVENTS

Mars Moon Conjunction (09-02-2025)

On February 9, the 92%-illuminated Moon will be close to Mars (mag -0.8) in the sky. Observe them with the naked eye or through a pair of binoculars in the constellation Gemini.

Venus at greatest brightness (16-02-2025)

Venus will reach its greatest brightness in its 2024–2025 evening apparition. It will be shining brightly at mag -4.6.

Saturn Mercury Conjunction (25-02-2025)

This is good chance to observe conjunction of 2 planets Saturn and Mercury. These 2 planets coming in one line with earth. You can observe 2 planets in evening sky at West direction. 2 planets will be about 1.4 degrees apart from each other



ASSOCIATION OF FRIENDS OF ASTRONOMY GOA PUBLIC ASTRONOMICAL OBSERVATORY



(Under Dept. of Sc., Tech., Waste Mgmt., Govt. of Goa)

Visibility of Planets for the month of FEBRUARY.

Planet Name	Visibility Start	Visibility Ends
Venus	After Sunset	Till about 09:15PM
Jupiter	After Sunset	Till 02:10AM
Mars	After Sunset	Till 05:00 AM


PAO Panaji : Public Astronomical Observatory at Junta House, Panjim will be open for public on all weekdays (Monday to Saturday) from 14th November onwards at 7:00PM to 9:00 PM

PAO Margao : Public Astronomical Observatory at Ravindra Bhavan, Margao will be open for public on Tuesdays and Saturdays from 16th November onwards at 7:00PM to 9:00 PM

For more information about PAO and AFA you can contact
Satish Nayak (9518502404) or
Gaurav Dhumatker (9923544025)

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TELESCOPES AND MOUNTS (PART 4)

Newtonian Telescope

A Newtonian telescope, named after Sir Isaac Newton, is a type of reflector telescope that uses a concave primary mirror and a flat diagonal secondary mirror to gather and focus light. Since its invention in 1668, the Newtonian telescope has become one of the most popular designs for amateur and professional astronomers due to its affordability, simplicity, and effectiveness.

A Newtonian telescope consists of several essential parts, each playing a crucial role in its operation. Below is an in-depth breakdown of these components and their functions.

1. Primary Mirror

The primary mirror is the most critical component of a Newtonian telescope. It is a concave mirror located at the base of the optical tube. The primary mirror's primary function is to collect and focus incoming light into a single point.

Types of Primary Mirrors:

Parabolic Mirror: This mirror shape reduces spherical aberration and provides sharp images.

Spherical Mirror: Less expensive but introduces spherical aberration, which may require corrective optics.

The size of the primary mirror, or aperture, determines the telescope's light-gathering ability

and resolving power. Larger mirrors enable the observation of faint celestial objects in greater detail. More the light better is the quality of Image

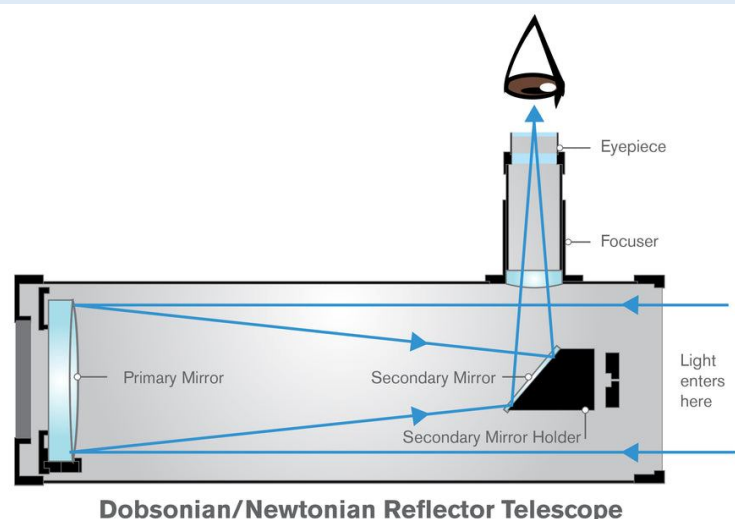
2. Secondary Mirror

The secondary mirror is a small, flat, diagonally placed mirror at 45 degree positioned near the top of the telescope tube. Its primary function is to redirect light from the primary mirror to the eyepiece.

The placement and size of the secondary mirror affect the telescope's overall performance. A properly aligned secondary mirror ensures minimal light loss and optimal image quality.

3. Eyepiece and Focuser

The eyepiece is where the observer looks through to view the magnified image. It consists of multiple lenses that enhance the detail and clarity of celestial objects. The





focuser allows for precise adjustments to ensure a sharp and well-defined image.

Types of Eyepieces:

Plössl Eyepiece: Offers a wide field of view and good eye relief.

Kellner Eyepiece: A more affordable option with decent optical performance.

Nagler Eyepiece: Provides an ultra-wide field of view for immersive observations.

Types of Focusers:

Rack-and-Pinion Focuser: Uses a gear mechanism for smooth adjustments.

Crayford Focuser: A friction-based system that provides precise focusing with minimal backlash.

4. Optical Tube Assembly (OTA)

The optical tube assembly houses all the optical components, including the primary and secondary mirrors. It is designed to keep the mirrors aligned and protect them from external elements such as dust and moisture.

The length and diameter of the tube affect portability and stability. Shorter tubes offer compact designs, while longer tubes provide higher focal ratios for planetary observation.

5. Finder Scope

A finder scope is a small auxiliary telescope mounted on the main optical tube. It provides a wider field of view, helping astronomers locate and center celestial objects before viewing them through the primary eyepiece.

There are two main types of finder scopes:

Optical Finder Scope: Uses lenses and provides a magnified image.



Red Dot Finder: Projects a red dot onto a non-magnifying screen for easier alignment.

6. Collimation Screws

Collimation screws are used to align the primary and secondary mirrors. Proper collimation is essential for optimal image quality. Misalignment can cause image distortions and reduced sharpness.

9. Cooling Fans

Some Newtonian telescopes, particularly larger models, include cooling fans near the primary mirror. These fans help equalize the temperature inside the optical tube, reducing thermal distortions and improving image stability.



AFA EVENTS OF JANUARY 2024





Sessions for Schools



