BAA BUFFALO ASTRONOMICAL ASSOCIATION

How to Use the Library's Telescope

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Welcome

- Introduction
- Telescope Basics
- The Library Telescope
- Upcoming Eclipses
- Q & A
- Breakout Sessions

Introduction

- Who are we?
- The Buffalo Astronomical Association

For more than 70 years a meeting place for Western New Yorkers who share in common a love for the wonders of the universe

Introduction

- We have about 150 members from all walks of life
- Very active in outreach
- Member Meetings (September through June)
- Free Public Nights (April through October)
- www.buffaloastronomy.com
- Facebook: @BuffaloAstronomy
- Instagram: @buffaloastronomical

Introduction

Who are we?

What are we about?


BILLS
Thomas Szwed
CELESTRON
NexStar 8se
CELESTRON


HOPE


BAA
BUFFALO


MOTOR
HARLEY-DAVIDSON
CYCLES


BAA
BUFFALO

Telescope Basics

What does a Telescope do?

Telescopes Gather Light!

Telescope Basics

- There are 3 Types of Telescopes:
  - Reflectors – All Reflectors have mirrors (also known as Newtonians)
  - Refractors – All Refractors have lenses
  - Catadioptric (Compound) – All Compound telescopes have both

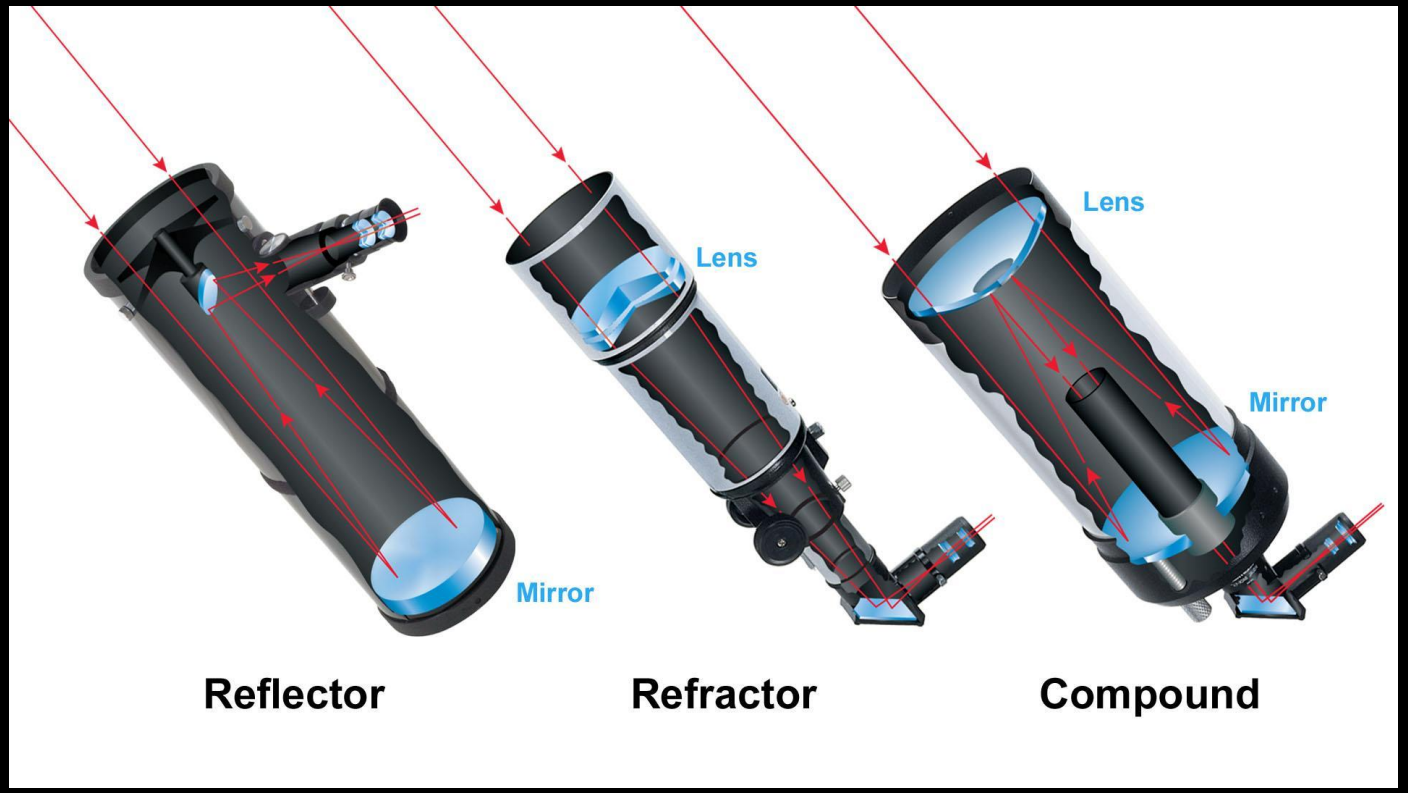
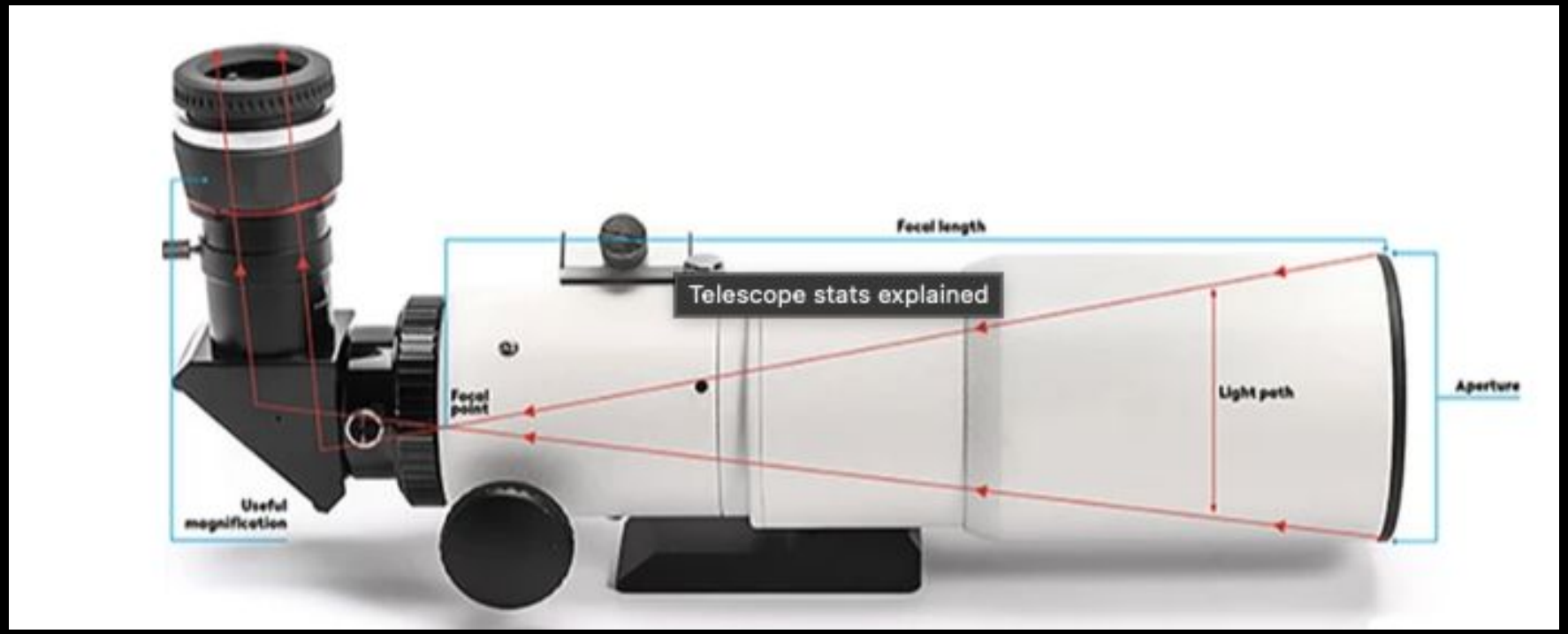


Image: Sky & Telescope

Telescope Basics

- The 3 Most Important Characteristics of Telescopes:
  - Aperture
  - Focal Length
  - Focal Ratio - (Focal length / Aperture)



What About Magnification?

Telescope Basics

- Magnification is a result of the Relationship Between the Eyepiece and the Telescope
- The Telescope has a fixed Focal Length and always presents the same image
- Changing to an Eyepiece of a different Focal Length will change the Magnification

Telescope Basics

Telescope Focal length / Eyepiece Focal Length

For a telescope with the same Focal Length, **LARGER** Eyepiece Focal Length gives **LOWER** Magnification

For a telescope with the same Focal Lenth, **SMALLER** Eyepiece Focal Length gives **HIGHER** Magnification

The amount of Magnification that can be used depends on the aperture of the telescope and the sky conditions.

Telescope Basics

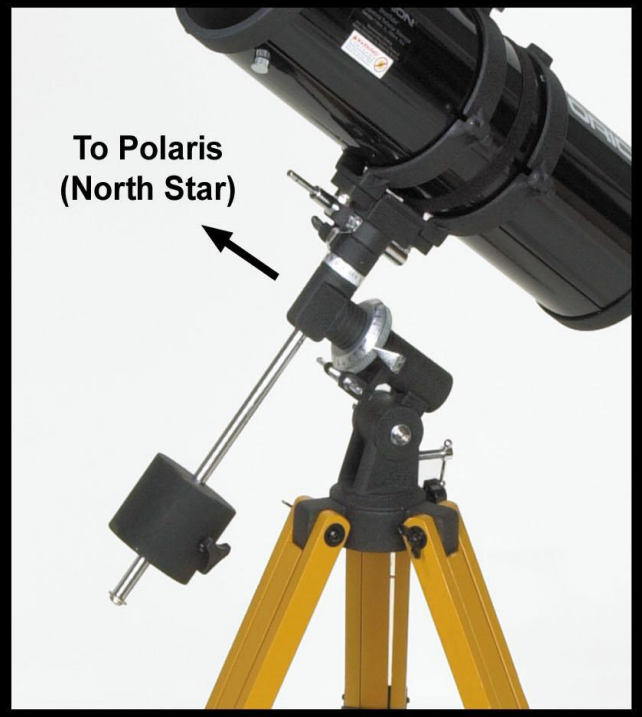
- Bonus Topic: Barlow Lens
- A Barlow Lens multiplies the Telescope Focal Length by it's Factor
  - A 2X Barlow multiplies the Telescope's FL by 2
  - A 3X Barlow multiplies the Telescope's FL by 3 … and so on
- This effectively increases the Magnification
- Will reduce the Light Transmission
- Best for close in views of the Moon, Planets, and Splitting Close double Stars (**if the conditions allow for it**)

Telescope Basics

- Two Types of Mounts:
  - Alt-azimuth (Alt-Az)
  - Equatorial

Alt-azimuth (“Alt-Az”)

Equatorial



Your Library's Telescope

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Your Library's Telescope

Your Library's Telescope

- What Type of Telescope is?
- What type of mount?

IMPORTANT SAFETY MESSAGE

!!! NEVER POINT THE TELESCOPE NEAR/AT THE SUN, UNLESS YOU HAVE A PROPER SOLAR FILTER AND KNOW HOW TO SAFELY USE IT!!!

Your Library's Telescope

- Telescope Tips:
  - Keep Dust Covers on when not using the telescope
  - Pro Tip: Take it out during the day and practice
  - Set the telescope on sturdy base
  - Take the scope out before dark
  - Align the finder (breakout session)
  - Let the scope acclimate
  - Go for the Moon first
  - Practice by finding bright stars
  - Find other bright objects (finder chart breakout session)

Your Library's Telescope

- Finder Alignment Tips:
  - Do this before dark
  - Find a "far away" terrestrial object (mailbox, telephone pole, etc.)
  - Center it in the eyepiece (use largest focal length eyepiece)
  - Adjust finder until it is also centered on the object
  - Check eyepiece is still centered (easy to move scope when adjusting)
  - Iterate as necessary
  - Optional:
    - Repeat process with shorter focal length eyepiece to refine further

Upcoming Solar Eclipse's

- Partial Annular Solar Eclipse:

Oct 14, 2023 at 1:12 pm

Max View in Springville, New York

Global Event:	Annular Solar Eclipse
Local Type:	Partial Solar Eclipse, in Springville, New York
Begins:	Sat, Oct 14, 2023 at 11:57 am
Maximum:	Sat, Oct 14, 2023 at 1:12 pm 0.394 Magnitude
Ends:	Sat, Oct 14, 2023 at 2:28 pm
Duration:	2 hours, 32 minutes

October 14, 2023 — Annular Solar Eclipse — Springville

Upcoming Solar Eclipse's

- Partial Annular Solar Eclipse:

Time	Phase	Event	Direction	Altitude
11:57:02 am Sat, Oct 14		Partial Eclipse begins The Moon touches the Sun's edge.	 160°	 37.3°
1:12:05 pm Sat, Oct 14		Maximum Eclipse Moon is closest to the center of the Sun.	 183°	 39.2°
2:28:38 pm Sat, Oct 14		Partial Eclipse ends The Moon leaves the Sun's edge.	 207°	 35.4°

Upcoming Solar Eclipse's

- The Big One! Total Solar Eclipse:

Apr 8, 2024 at 3:20 pm

Max View in Springville, New York

Global Event:	Total Solar Eclipse
Local Type:	Total Solar Eclipse, in Springville, New York
Begins:	Mon, Apr 8, 2024 at 2:04 pm
Maximum:	Mon, Apr 8, 2024 at 3:20 pm 1.014 Magnitude
Ends:	Mon, Apr 8, 2024 at 4:32 pm
Duration:	2 hours, 27 minutes
Totality:	3 minutes, 21 seconds

April 8, 2024 — Total Solar Eclipse — Springville

Upcoming Solar Eclipse's

- The Big One! Total Solar Eclipse:

Time	Phase	Event	Direction	Altitude
2:04:52 pm Mon, Apr 8		Partial Eclipse begins The Moon touches the Sun's edge.	200°	53.5°
3:18:38 pm Mon, Apr 8		Full Eclipse begins The Sun becomes totally eclipsed.	226°	45.9°
3:20:19 pm Mon, Apr 8		Maximum Eclipse Moon is closest to the center of the Sun.	226°	45.7°
3:21:59 pm Mon, Apr 8		Full Eclipse ends The total eclipse ends.	227°	45.5°
4:32:20 pm Mon, Apr 8		Partial Eclipse ends The Moon leaves the Sun's edge.	245°	34.7°

Upcoming Solar Eclipse's

- Eclipse Resources:
  - https://www.buffaloastronomy.com/
  - https://buffaloeclipse.org/
  - https://www.timeanddate.com/astronomy/
  - https://www.mreclipse.com/
  - https://www.solareclipsetimer.com/

Your Library's Telescope

Questions?