

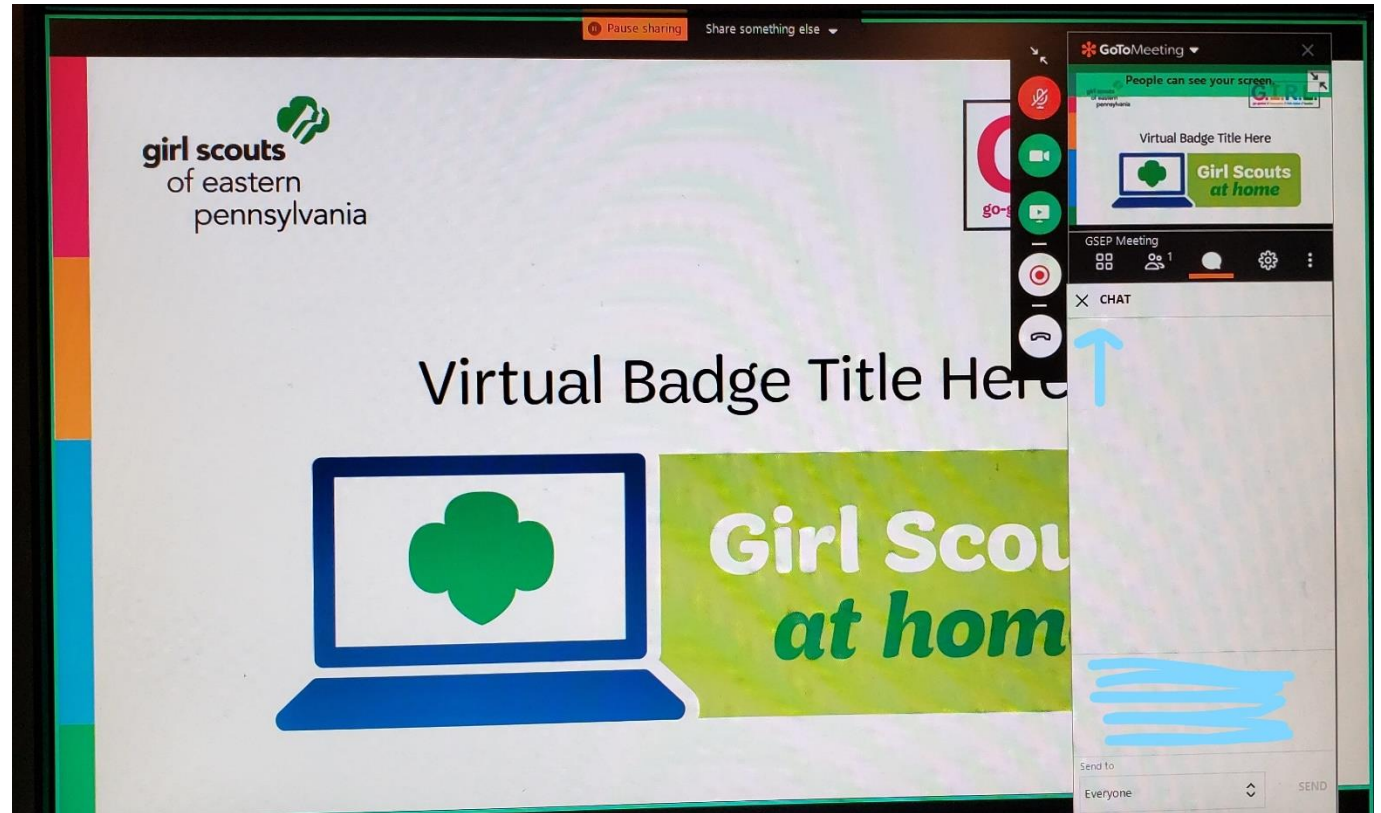
Senior Badge – Space Science Expert



Girl Scouts
at home

How will this Virtual Troop Meeting Work?

- On the right side of your screen, there is a control panel. You should see a microphone, a video camera and a chat bubble.
- When we sing together, you will want to click on your microphone so it is green. Then everyone will be able to hear you.
- If you have a webcam, clicking on it will let everyone else in the meeting see you too.
- The Chat Log looks like a cartoon thought bubble...see it underlined in red? You can type questions or comments into the chat log and everyone will be able to see what you write!





Meeting Norms:

- Staying muted unless asked to unmute by the presenter***
- Only using the chat log for VTM related messages***
- Use of appropriate language during VTMs***
- Behavior modelling the GS Promise and Law***



Girl Scouts
at home



**Space Science
Expert**

The Girl Scout Promise & Law

**On my honor, I will try:
to serve God
& my country,
to help people
at all times,
& to live by the
Girl Scout Law.**

Promise

**I will do my best to be
honest & fair, friendly & helpful,
considerate & caring,
courageous & strong,
& responsible for what I say & do,
& to respect myself & others,
respect authority,
use resources wisely,
make the world a better place,
& be a sister to every Girl Scout.**

Law

Purpose of this Badge

When you've earned this badge, you will understand more about the Universe, your place in it, and how light is used to make discoveries about it.



Space Science Expert

Badge Requirement Steps

1. Uncover the stuff you're made of
2. Explore the brilliance of stars
3. Discover telescopes as light collectors
4. Find the light in the darkness
5. Share your knowledge



**Explore the
Brilliance of Stars**

Stage 1: Star Forming Region/Prenatal Stage:



The Orion Nebula (M42)



The Rosette Nebula (NGC 2237)



The Trifid Nebula (M20)



The Cone Nebula (NGC 2264)



The Eagle Nebula (M16)

ORION NEBULA



Stage 2: Protostars/Birth

Protostars/Birth:

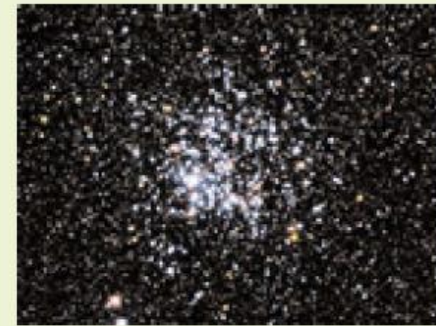
When there is enough mass for Hydrogen to fuse into Helium at its core, a star is born!



Star Cluster in the Center of the Rosette
(NGC 2244)



The Pleiades (M45)



The Wild Duck Cluster (M11)

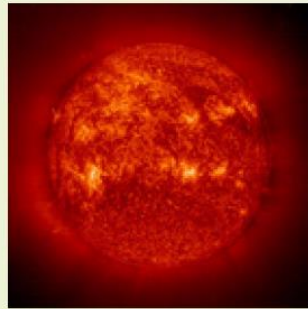
THE PLEAIDES



Stage 3: Main Sequence Stars/Adulthood

Main Sequence Stars/Adulthood:

A star will spend most of its life steadily converting Hydrogen into Helium and not changing size very much.



The Sun



Alpha Centauri

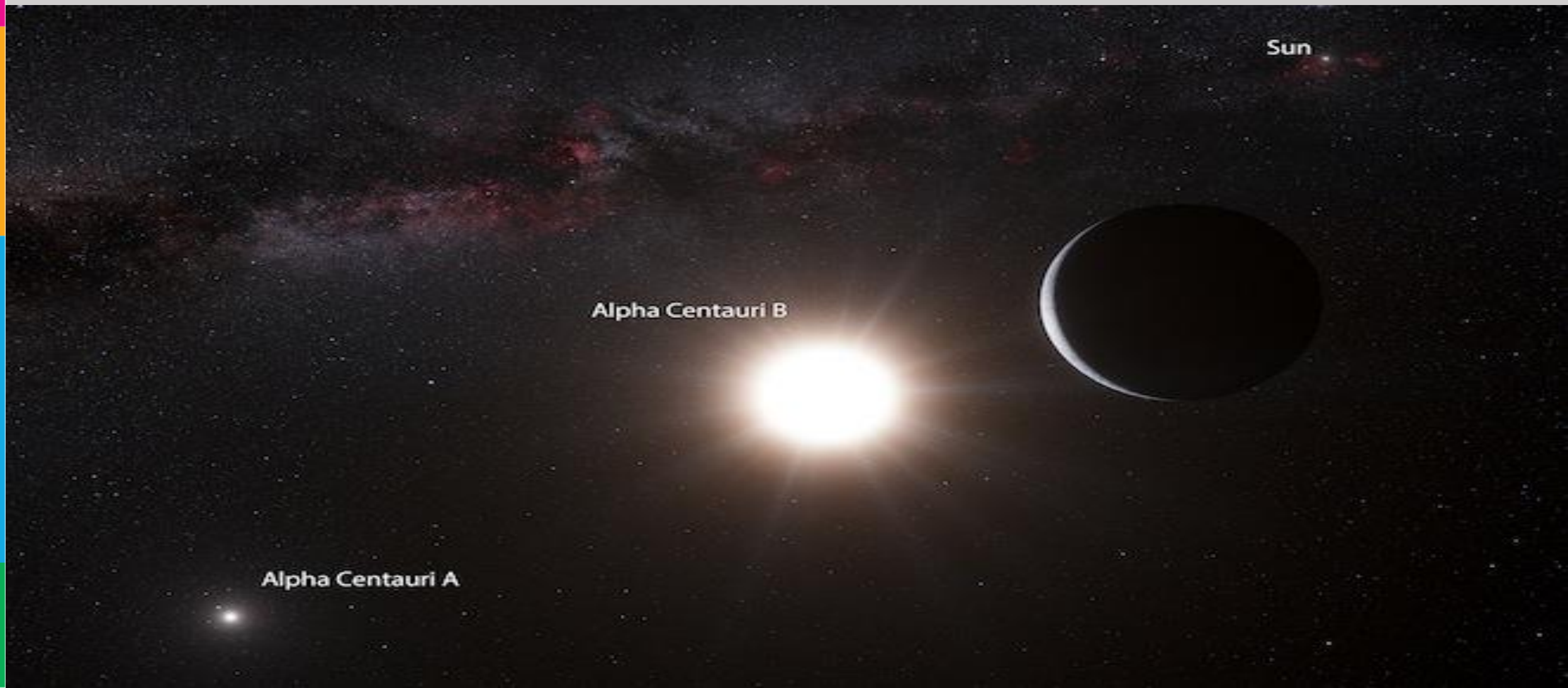


Globular Cluster (M13)



Proxima Centauri

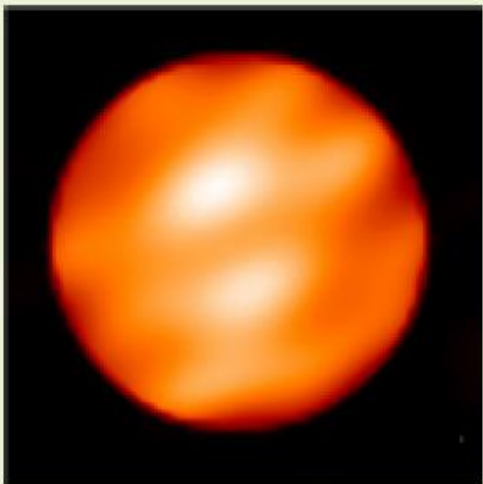
ALPHA CENTAURI



Stage 4: Crisis/Aging Stars

Crisis/Aging Stars:

When a star runs out of Hydrogen fuel, it undergoes rapid structural changes, making the star expand and contract.



Betelgeuse



Antares



Red Giant Aldebaran

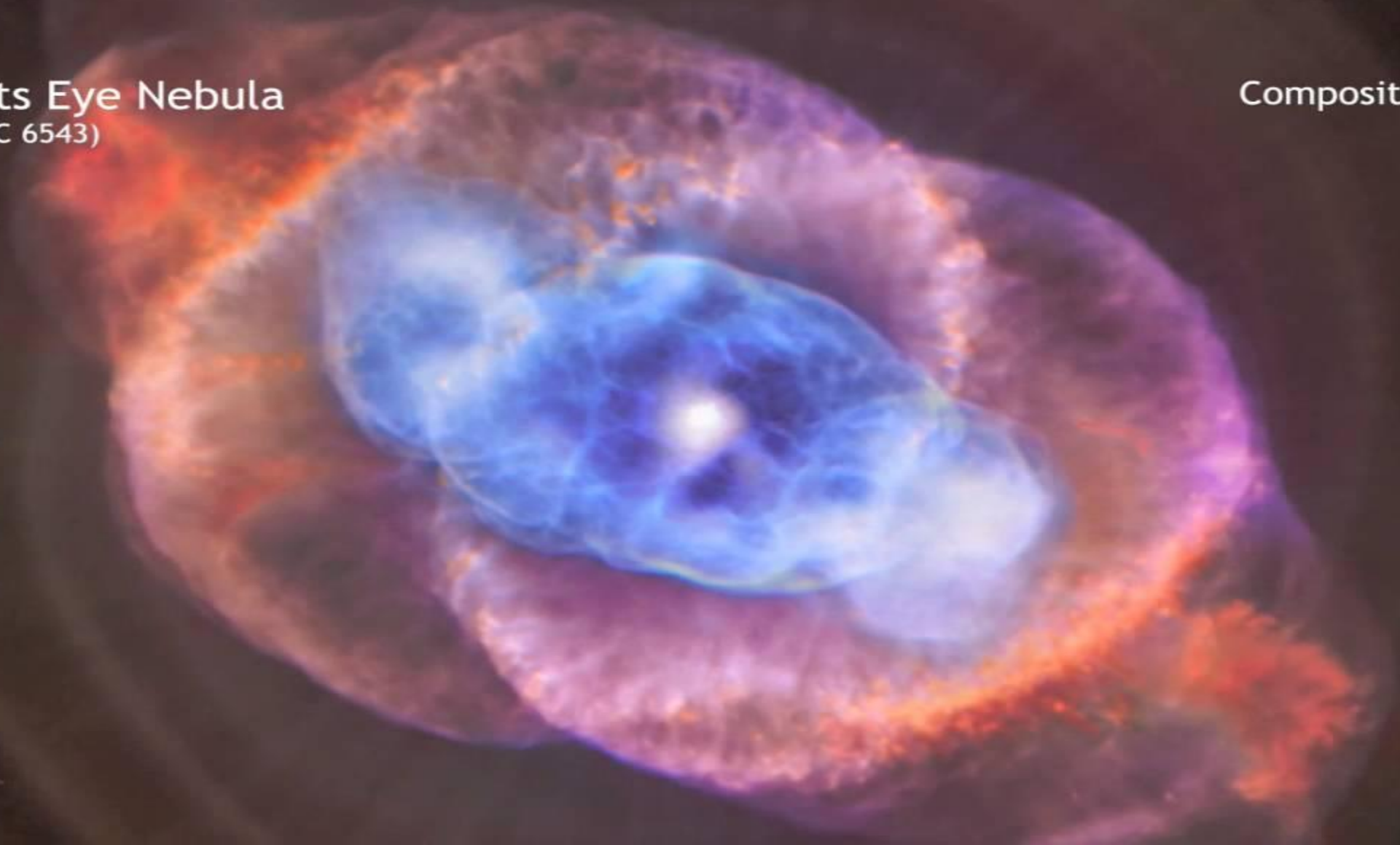
BETELGEUSE



STAGE 5: OLD STARS

Cats Eye Nebula
(NGC 6543)

Composite



STAGE 6: DEATH OF A STAR



The Ring Nebula (M57)



The Dumbbell Nebula (M27)



The Helix Nebula (NGC 7293)



The Crab Nebula (M1)

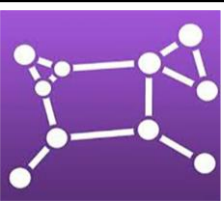


The Veil Nebula (NGC 6960 & 6992)

STAGE 7: GRAVEYARD



<http://skymaps.com/downloads.html>



FREE* EACH MONTH FOR YOU TO EXPLORE, LEARN & ENJOY THE NIGHT SKY

Sky Calendar – April 2020

- 

Sky Map

& ENJOY THE NIGHT SKY

at Sky Calendar on Twitter
http://twitter.com/skymaps

h UT.
eiades)
d 2.9.
years.

NORTHERN HEMISPHERE
APRIL 2020

SKY MAP SHOWS HOW
THE NIGHT SKY LOOKS

EARLY APR 10 PM
LATE APR 9 PM

(set 1 hour for daylight saving)

SKY MAP DRAWN FOR
A LATITUDE OF 40°
NORTH AND IS
SUITABLE FOR
LATITUDES UP
TO 15° NORTH
OR SOUTH
OF THIS

Use the Big Dipper (or Plough) located in the northern sky to find Polaris, the North Star.
The constellation Leo (The Lion) is high up in the southern sky. Regulus and Leo have been associated with "Kingship" since ancient times.

The center of the map is the part of the sky directly overhead (Zenith). The outer edge shows the horizon. Celestial objects are shown as they appear at the date and time given. In April, the Big Dipper is low in the east and the Little Dipper is high in the north.

Trace the ecliptic by following an imaginary line from Spica to Regulus. The constellation Leo (The Lion) is high up in the southern sky. Regulus and Leo have been associated with "Kingship" since ancient times.

Time = UT - 4 hours.)

PRODUCTS • <http://Skymaps.com/store>

- STAR CHARTS & ASTRO POSTERS
- TELESCOPES & BINOCULARS

free distribution of The Evening Sky Map

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TERMS OF SALE: BOOKS FOR NON-FINANCIAL EDUCATIONAL USE: ACTIVITYBOOKS FOR EDUCATION

STARS ARE PLOTTED BY MAGNITUDE. STARS WITH A MAGNITUDE GREATER THAN 6.5 ARE NOT SHOWN.

SYMBOLS:

- Galaxy
- Double Star
- Variable Star
- Diffuse Nebula
- Planetary Nebula
- Open Star Cluster
- Globular Star Cluster

Star Magnitudes: -1 0 1 2 3 4

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Star Magnitudes

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<https://hubblesite.org/resource-gallery/learning-resources/tonights-sky>



HUBBLESITE

An astronomical illustration of a constellation, likely Taurus, featuring a bull's head and a human figure. A blue line connects several stars to form a geometric shape.

TONIGHT'S SKY

HUBBLE SPACE TELESCOPE

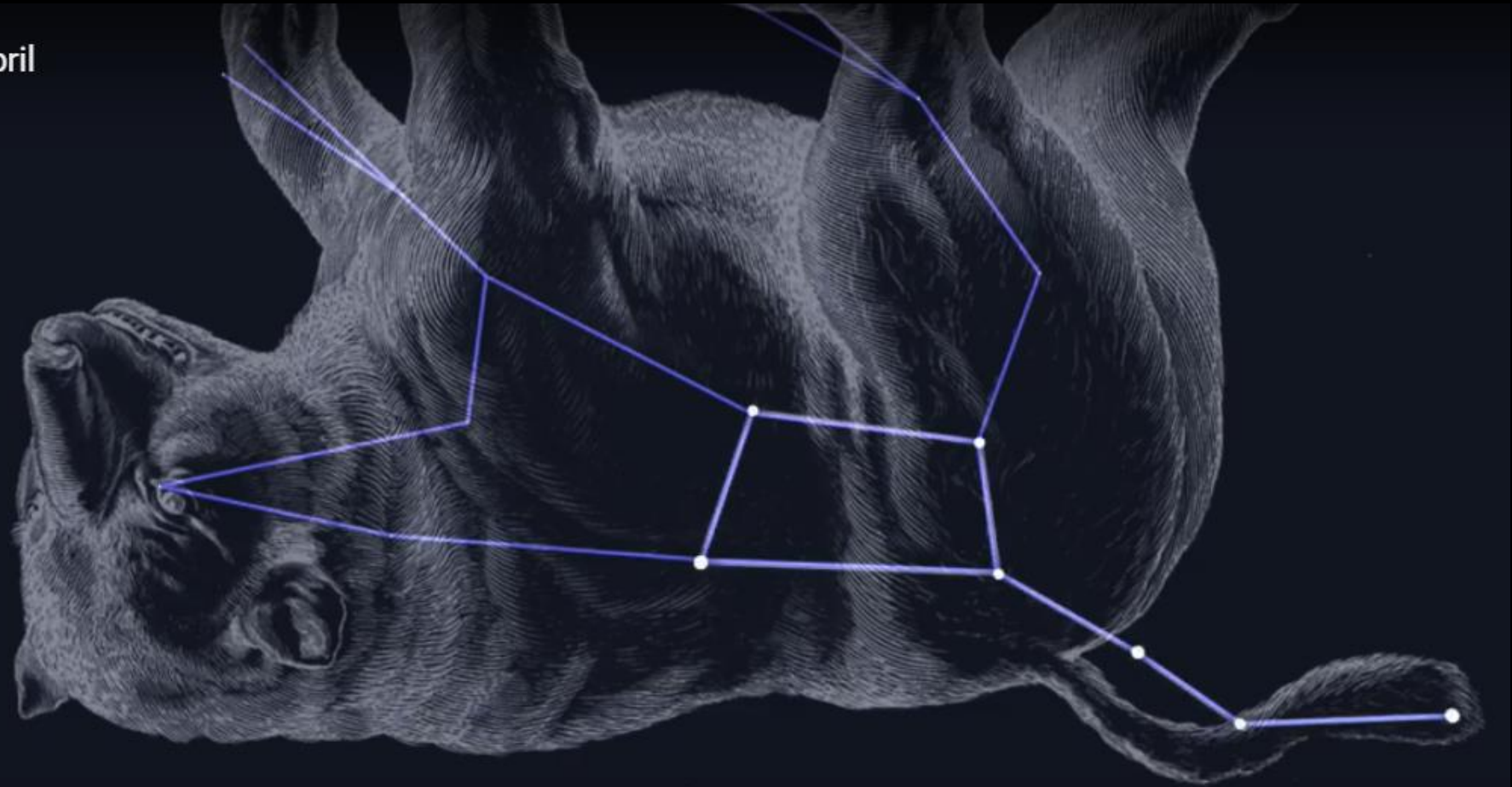
30 Years of Discovery

CELEBRATE WITH US

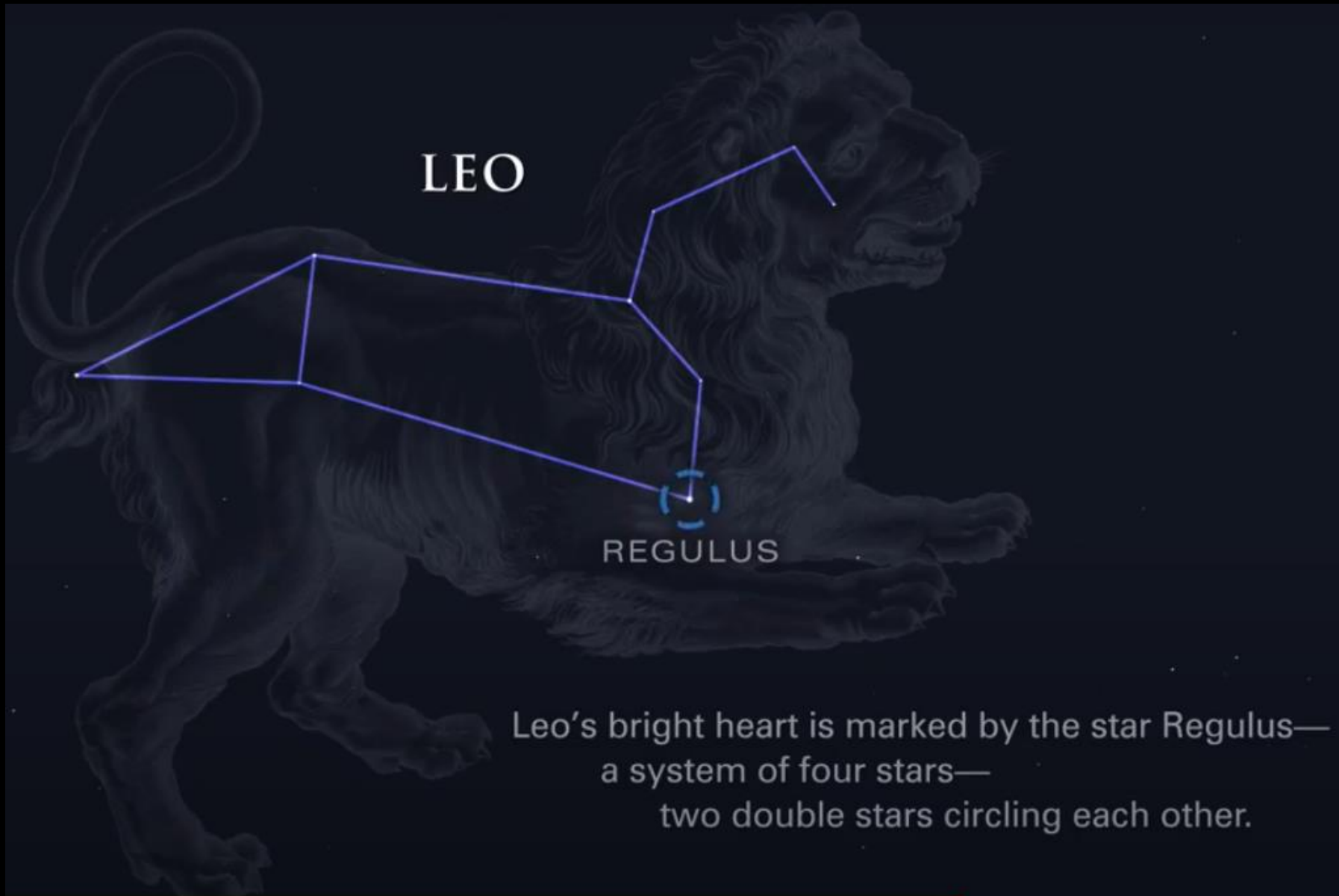
During the spring,
our view is away from the cloudy plane of the Milky Way,
and the clearer view reveals other galaxies.



Tonight's Sky: April



South of the Great Bear
roams another great beast: Leo the Lion.



Find a dark location because city lights wash out images.

Cover flashlight lens with red tape or plastic to help your eyes adapt to the dark.

Look for “low light photography” apps for your smartphone.

Turn off the flash.

Use a DSLR or mirrorless camera that allows you to open the shutter for at least 30 seconds.

Explore how shutter speed, ISO, focal length, and aperture affect your images.



Astrophotography



Keep your smartphone or camera still throughout the exposure by using a tripod, bean bag, or bag of rice.

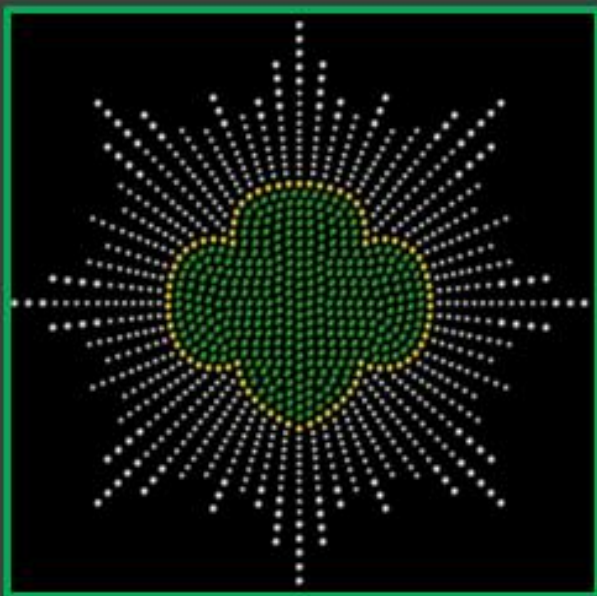


Step 3:
Discover
Telescopes as
Light Collectors



The Human Eye Versus a Telescope

YOUR NEXT STEPS



Check out resources in post meeting email



Continue to work on your observation scrapbook



Share what you've learned