SEAL Solar Eclipse Activities for Libraries

GORDON AND BETTY MOORE FOUNDATION

NASA@ My Library

STAR net Science-Technology Activities & Resources For Libraries

Eclipse Resources for Public Libraries

Date and Location

Facilitators

Names here

Today's Agenda

- Agenda here

After Lunch Break

- Agenda here

SEAL

Introductions

Please share your name, location, position

Sorting Games:
How Big? How Far? How Hot?

Work together to sort the cards in order of:

Green border = size (smallest to largest)

Blue border = distance (closest to farthest from Earth)

Red border = temperature (coldest to hottest)

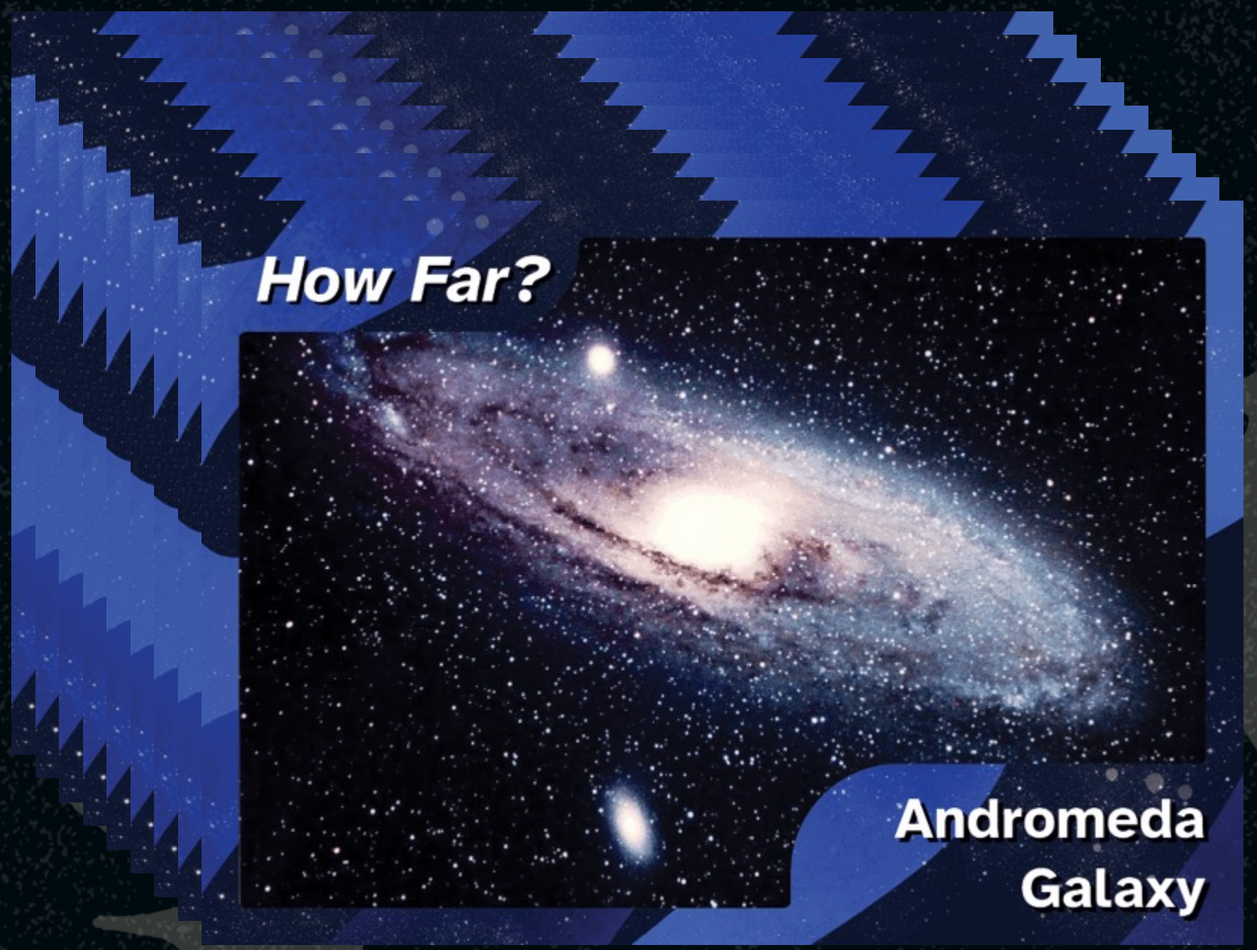
ALA STEM Learning 2016

How Big?

- Lions
- International Space Station
- Moon
- Mars
- Earth
- Jupiter
- Sun
- Solar System
- Andromeda Galaxy

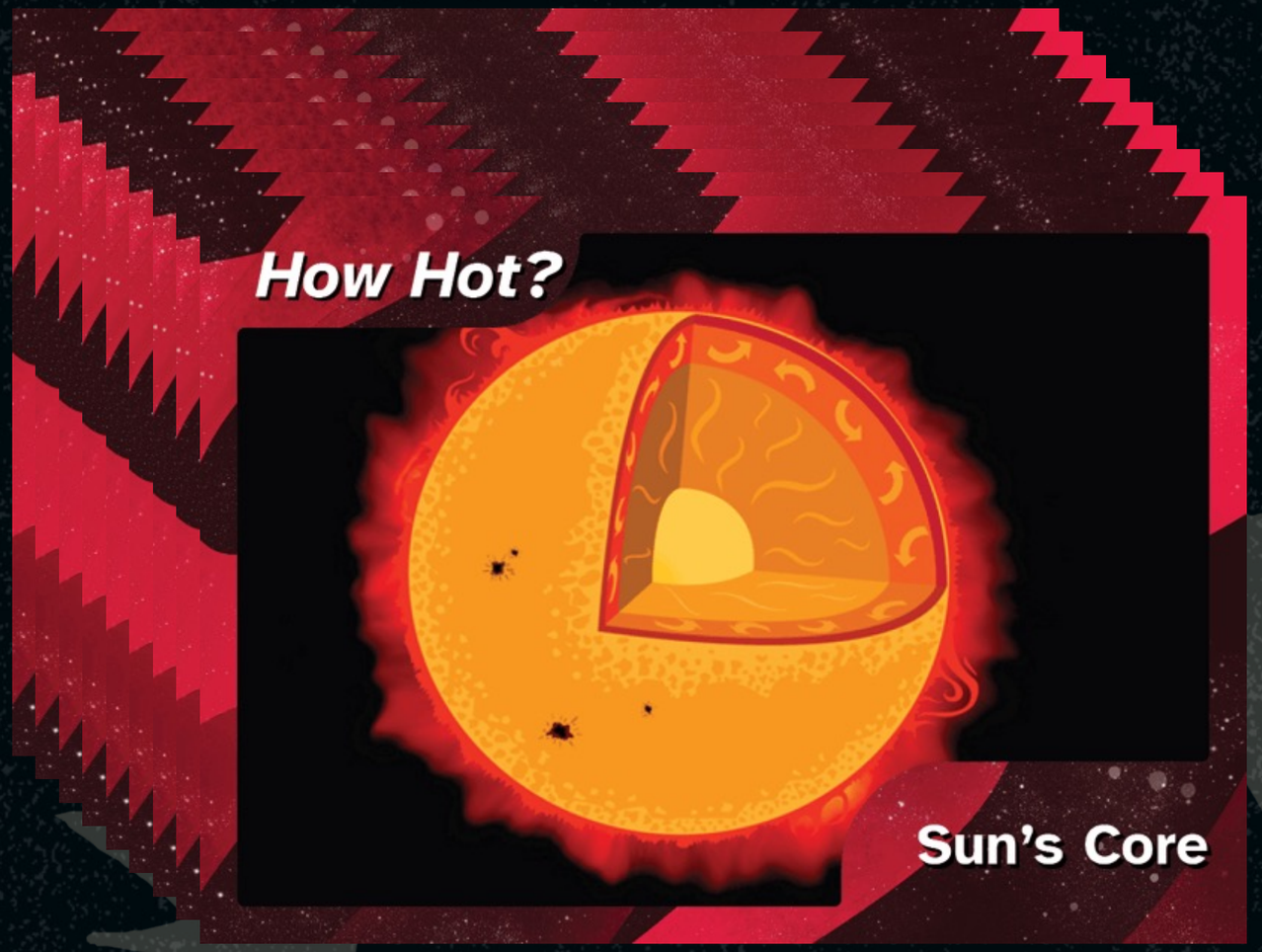
How Far?

- Eagle
- Jet
- Aurora
- Hubble Space Telescope
- Moon
- Sun
- Saturn
- Orion Nebula
- Andromeda Galaxy

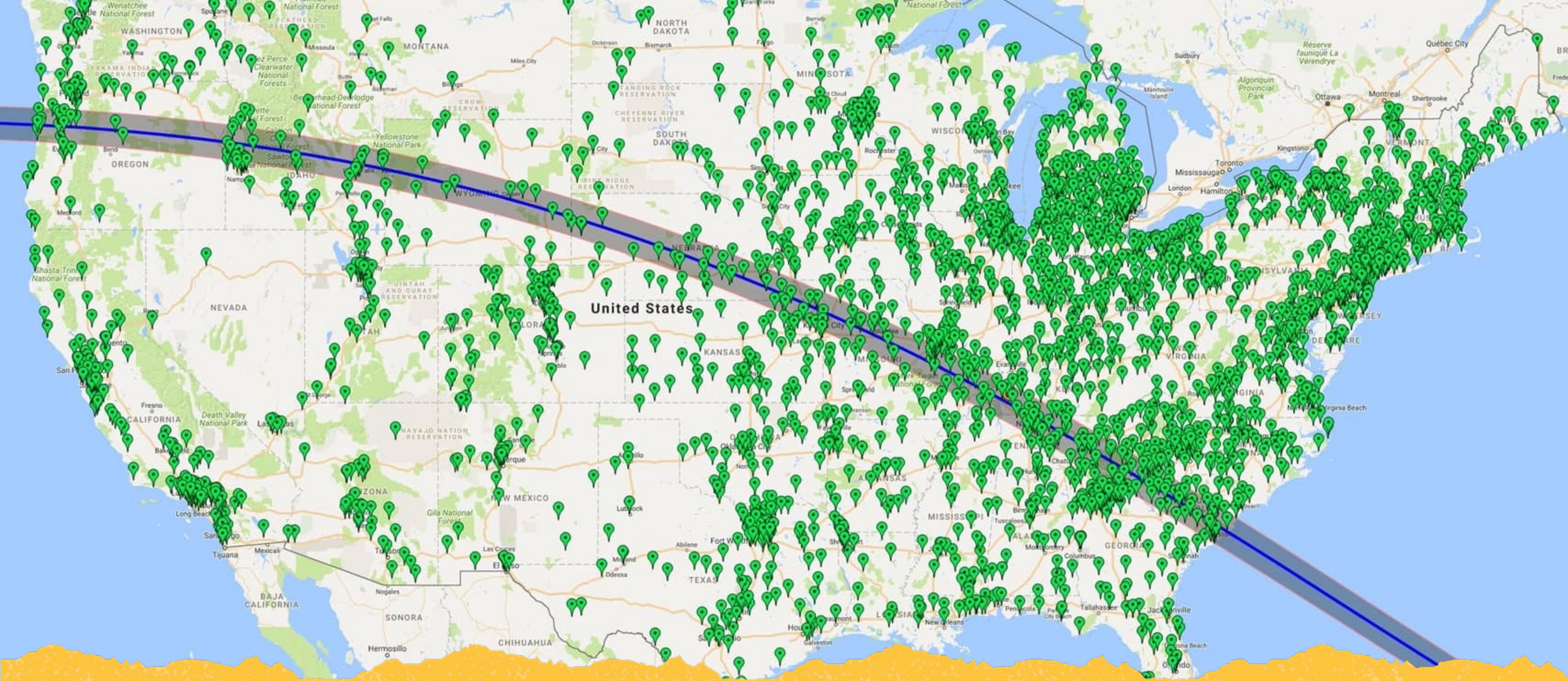


How Hot?

- Comet’s Surface (171 °F; 77 °C)
- Lava (1,832 °F; 1,000 °C)
- Meteor (3,100 °F; 1,700 °C)
- Sunspot (6,332 °F; 3,500 °C)
- Sun’s Surface (9,932 °F; 5,500 °C)
- Earth’s Core (10,832 °F; 6,000 °C)
- Lightning Bolt (52,232 °F; 29,000 °C)
- Sun’s Corona (3.6 million °F; 2 million °C)
- Sun’s Core (27 million °F; 15 million °C)



The 2017 Great American Eclipse



Libraries that Participated

Photo Credit: Cerritos Library

- **2.1 million** glasses distributed
- More than **7,000** individual library locations participated through *STAR Net*
- This included public library branches, book mobiles, tribal libraries, library consortia and state libraries

By the Numbers

“We had one of the biggest events our Library has ever seen. So, in my language, we say Waewaenen (Thank You)!”

Menomin Hawpetoss,
Menominee County Library

What Libraries Said

Photo Credit: Longview Public Library

"Our eclipse programming has connected us with community collaborators for future programming and has created excitement from our patrons about future STEM programming."

- Fort Fairfield Public Library

What Libraries Said

Photo Credit: Monticello-Union Township Public

Image Credit: Space Science Institue/NCIL

What's Next?

The 2023 and 2024 Eclipses

Photo Credit: American Astronomical Society

Distributing 5 million eclipse glasses to public libraries

Workshops and trainings in all 50 states and 4 U.S. Territories

SPACE SCIENCE INSTITUTE

SSI's Mission

Discover, Educate, Inspire

- Enable scientists to advance our understanding of Earth and the Universe
- Increase science and tech literacy for all
- Inspire youth to pursue STEM education and careers

NCIL
National Center for Interactive Learning

STARnet
Science-Technology Activities & Resources For Libraries

STAR net

Science-Technology Activities & Resources For Libraries

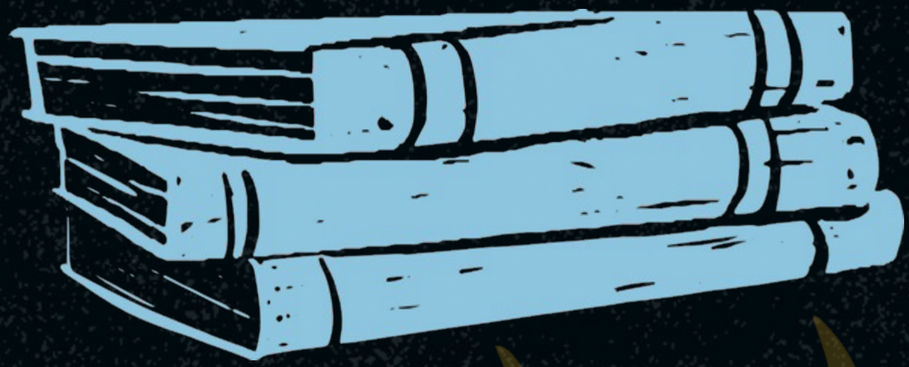
STAR Library Education Network

Who we are and what we do!

What does STAR Net do?

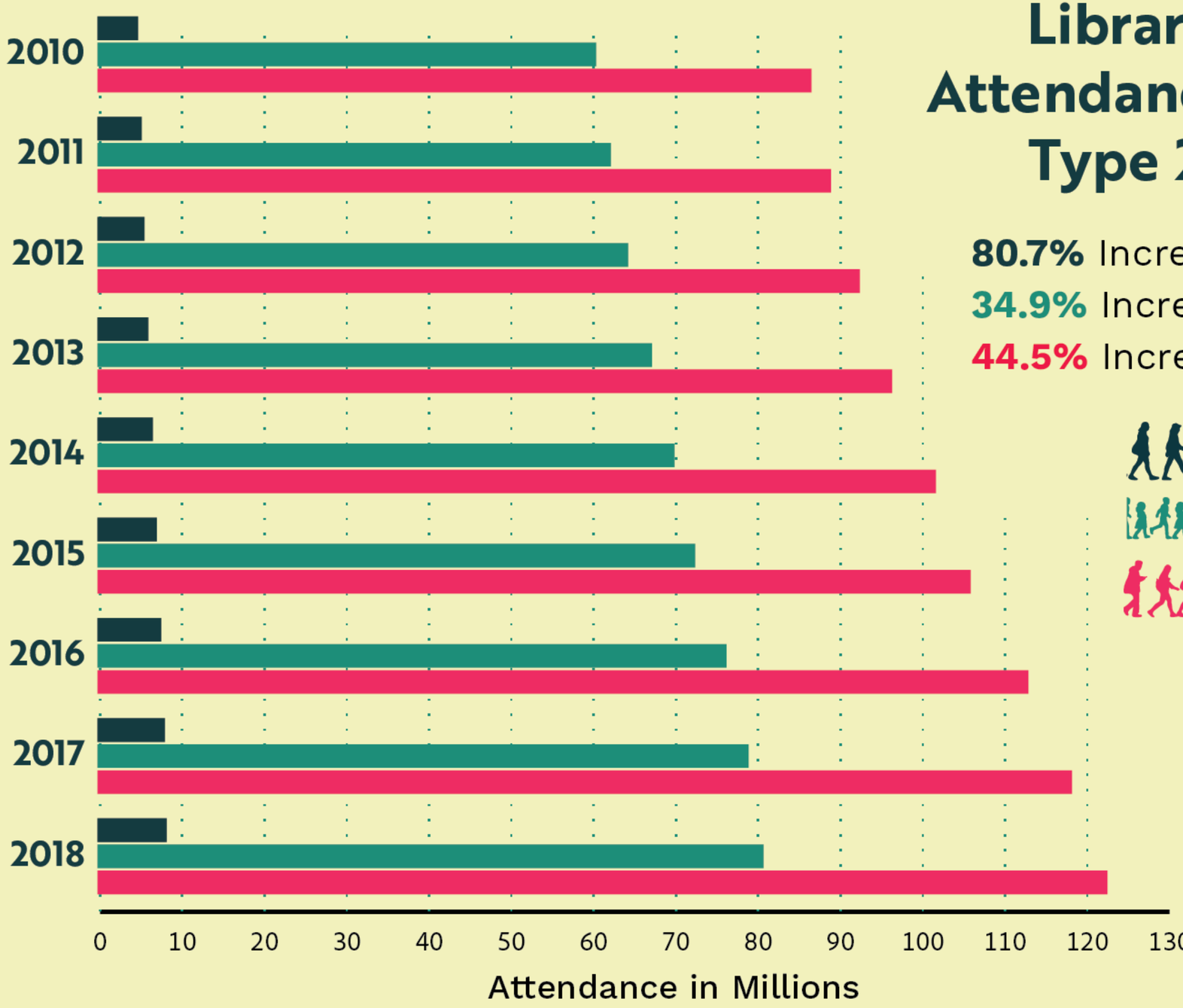
- Exhibits
- Kits
- Professional Development
- Community Dialogues
- Partnership Guidance
- SME Matchmaking
- Events
- Interactive Activities
- Facilitation Strategies
- Resource Dissemination
- Eclipse Glasses and Training!

Why Libraries?



- 70% of the US population visits their local public library at least once a year
- Demographics at library programs on average are a 1:1 match with demographics outside the door
- Library staff are well educated and trained professionals who are comfortable trying new things and sharing results
- Libraries are safe spaces in the community providing:
  - Support in accessing government services
  - Free safety resources (classes, books, etc.) for parents
  - A place for homeless patrons to rest safely
  - Translation services
  - Gathering places for cultural groups

Library Program Attendance by Program Type 2010-2018



80.7% Increase in Young Adult

34.9% Increase in Children's

44.5% Increase Total

Young Adult

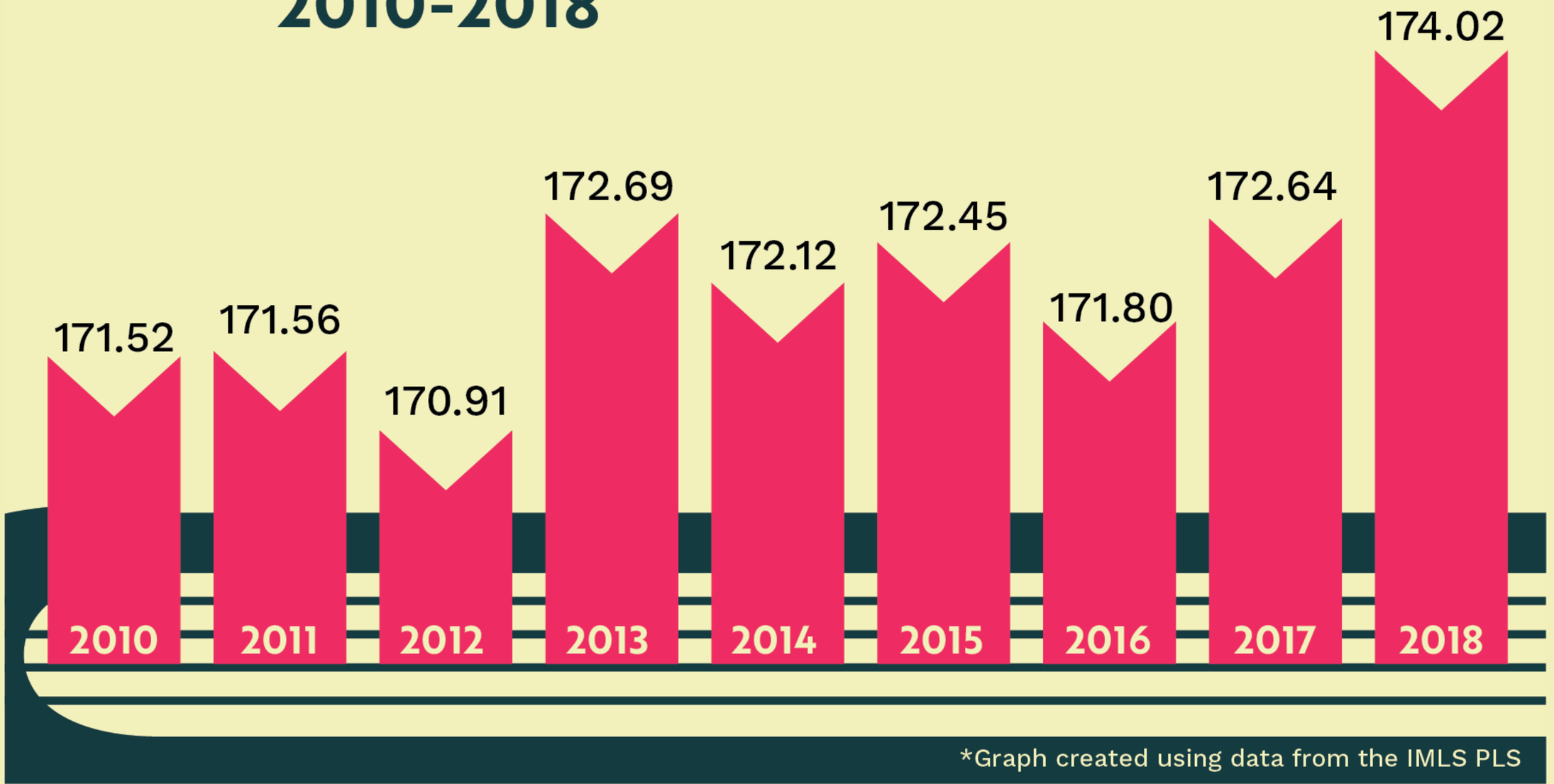
Children's

Total

*Graph created using data from the IMLS PLS

Registered Library Users per Year (in millions) 2010-2018

Registered library users increased by 1.6%



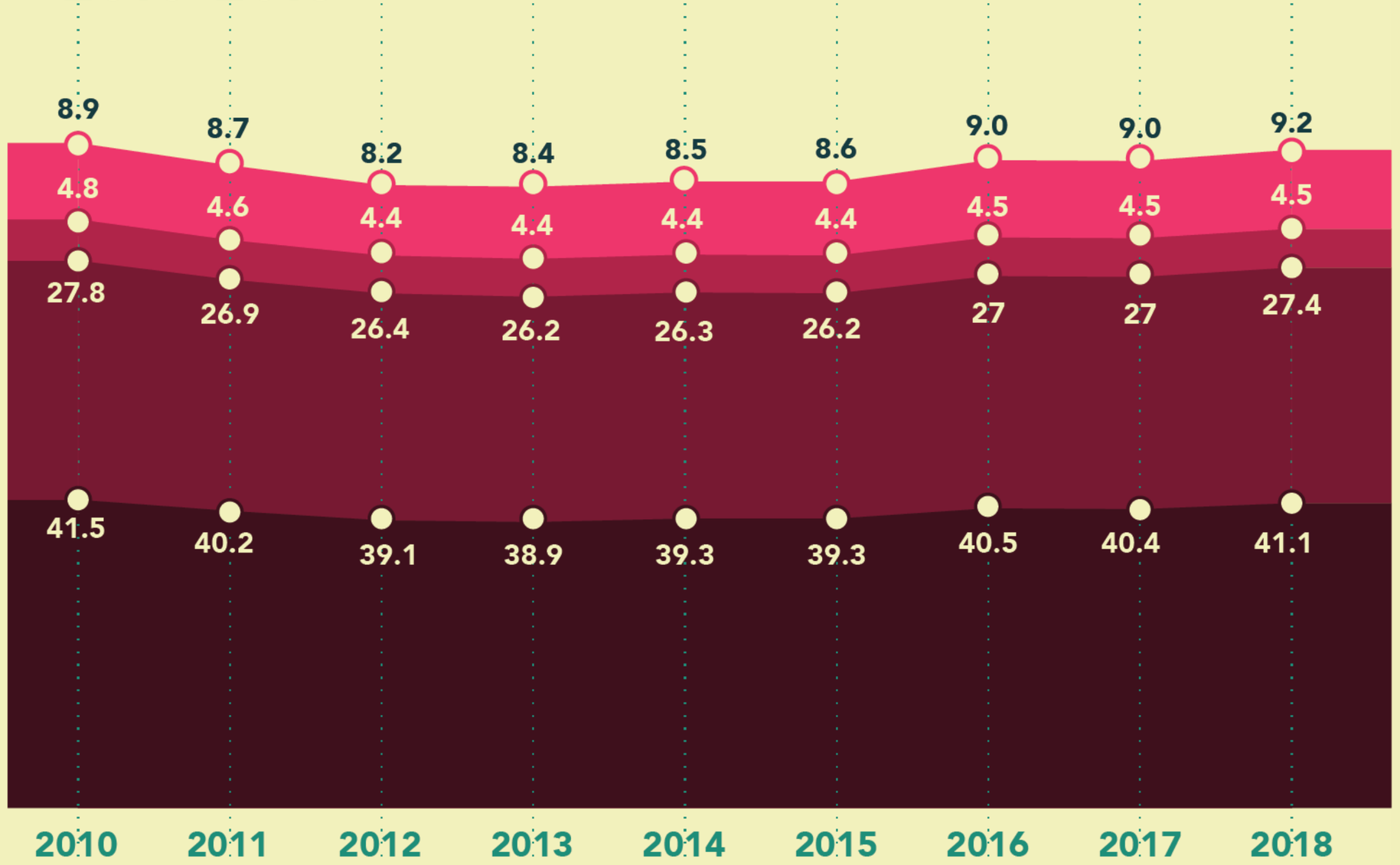
*Graph created using data from the IMLS PLS

Per Capita Operating Expenditures of Public Libraries 2010-2018

1.0% decrease in total operating expenditures

1.4% decrease in staff expenditures

6.2% decrease in collections expenditures



*Graph created using data from the IMLS PLS

Eclipse 101

Slide deck created by Dr. James Harold,
NCIL's resident space plasma physicist


What do we know about the Sun?


Very constant, very predictable.

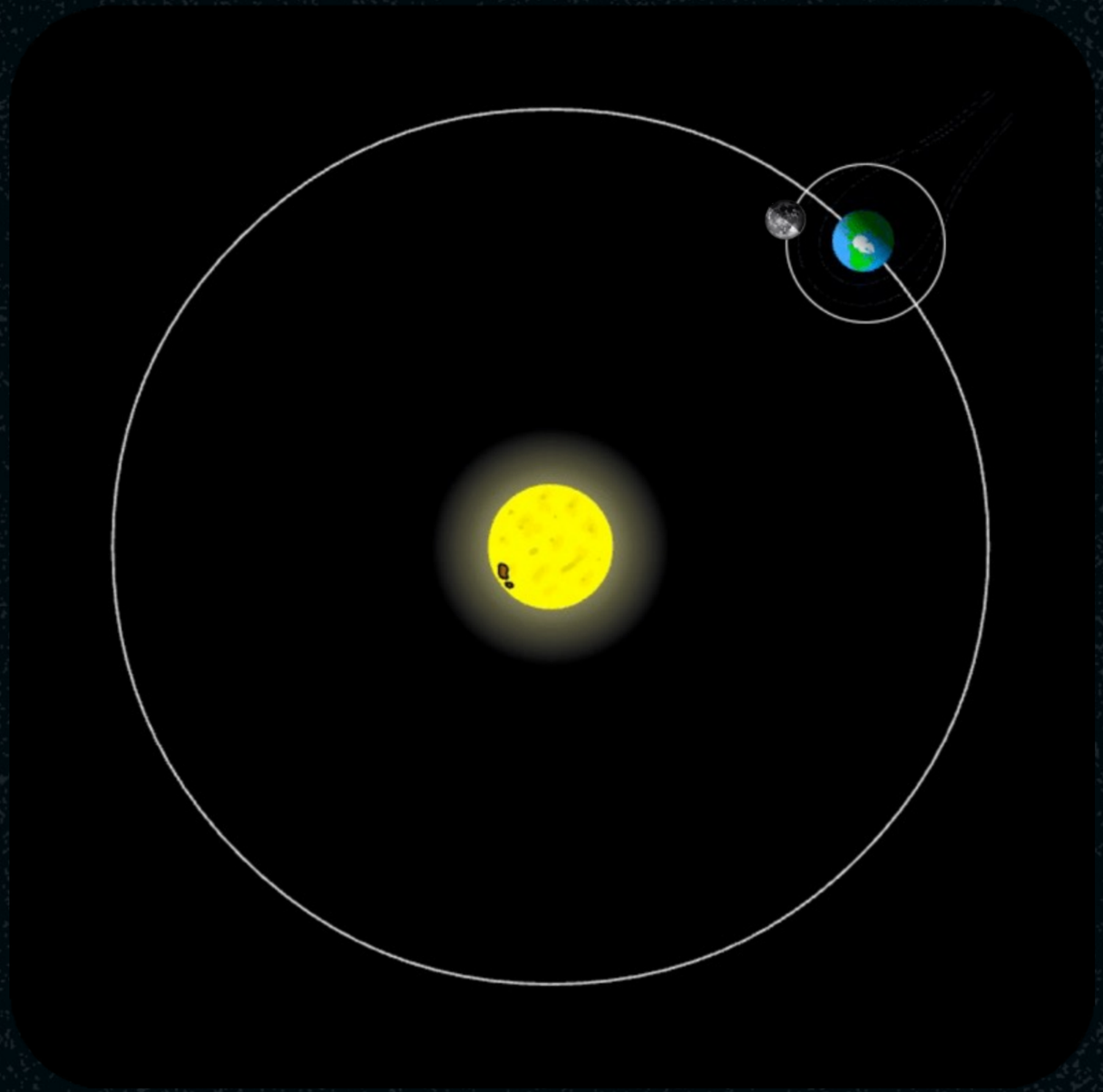
And then every now and then, this happens...

And very, very rarely this...

Or maybe this.

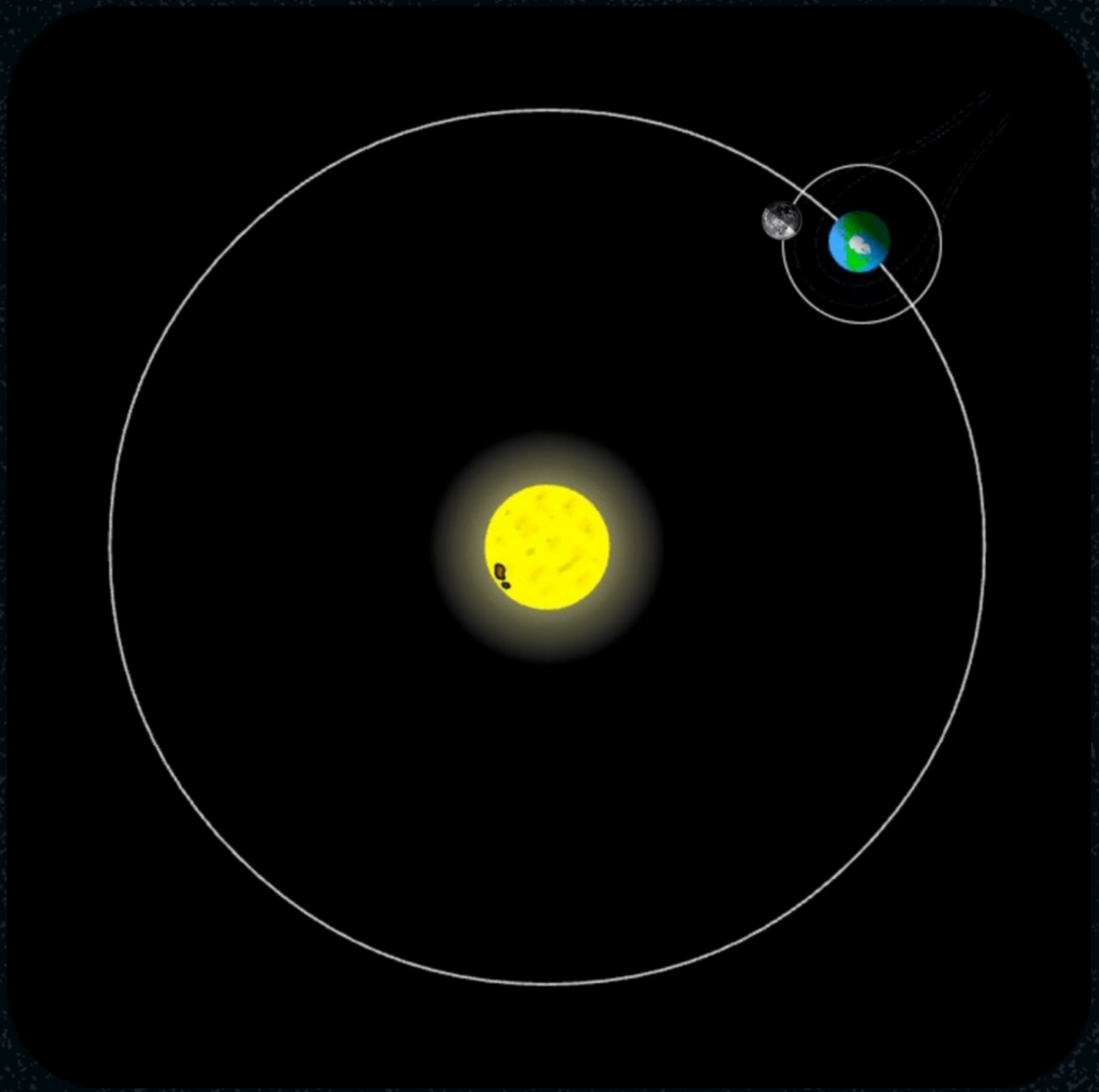
So what's going on?

The Moon gets in front of the Sun, casting a shadow on the Earth. The end.



Not so fast.
We have questions!

- Why are solar eclipses rare?
- Why are there different kinds of eclipses?
- What's the big deal with "totality"?
- Is this entire exercise fraught with danger?!



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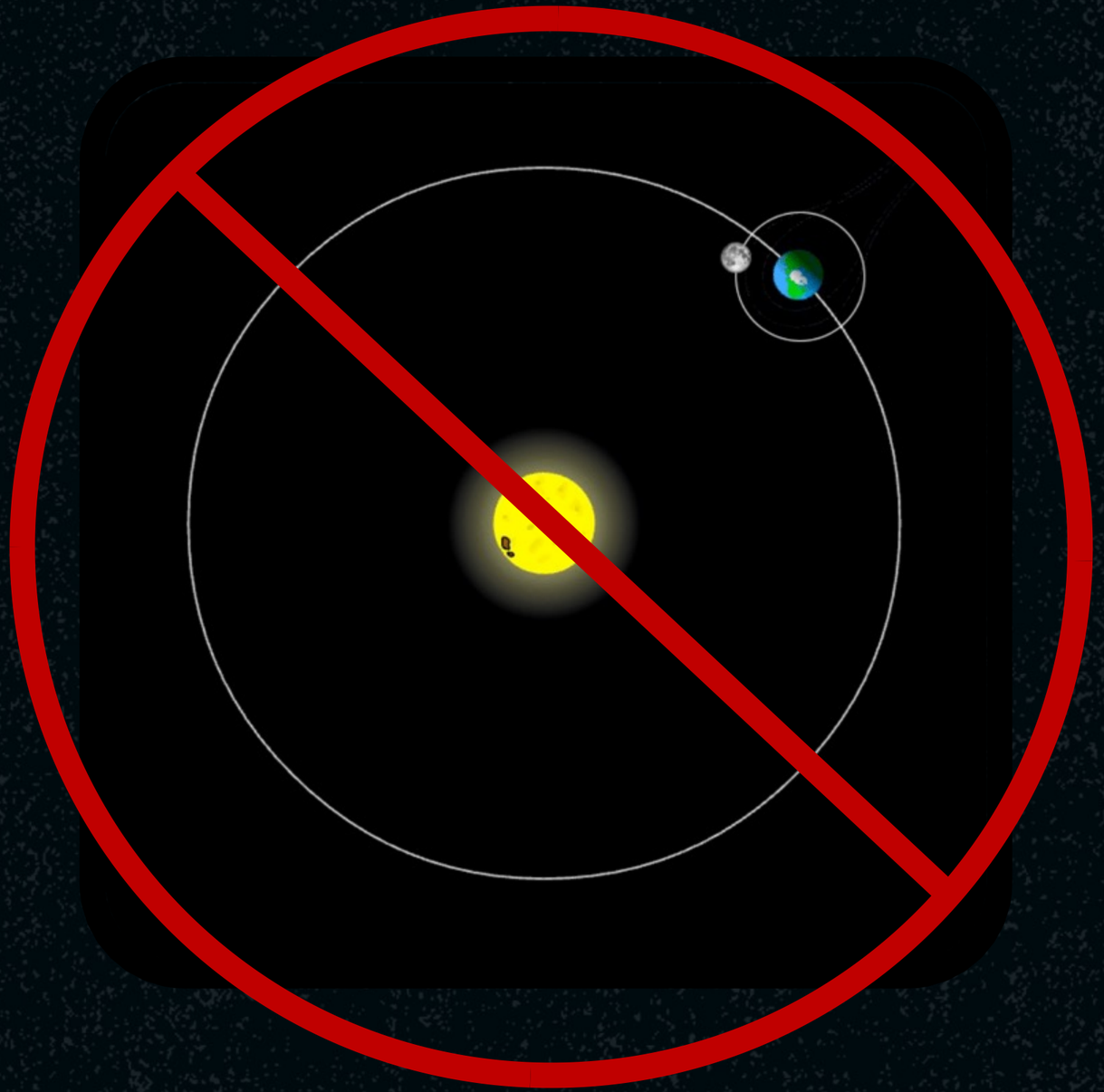
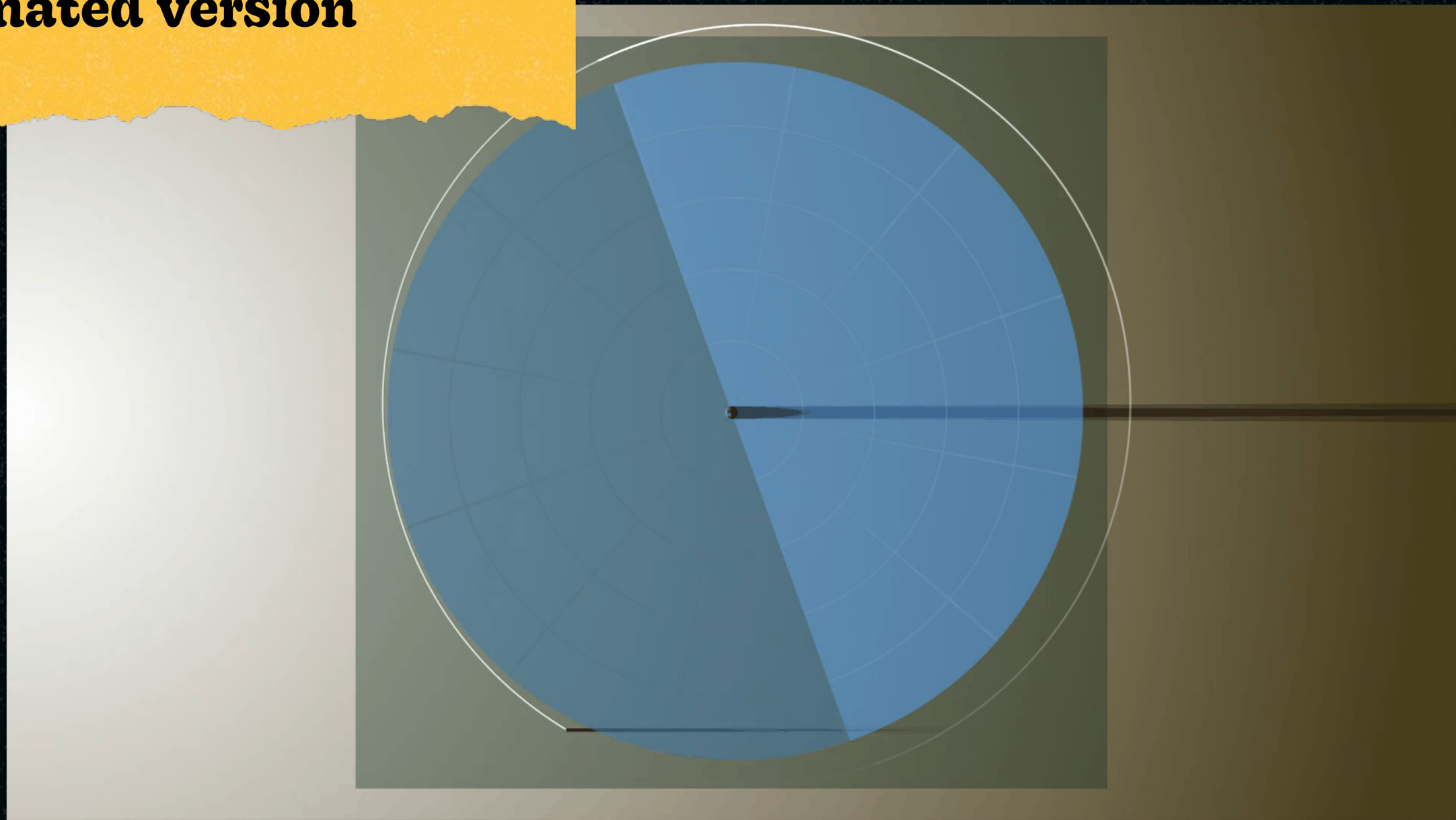


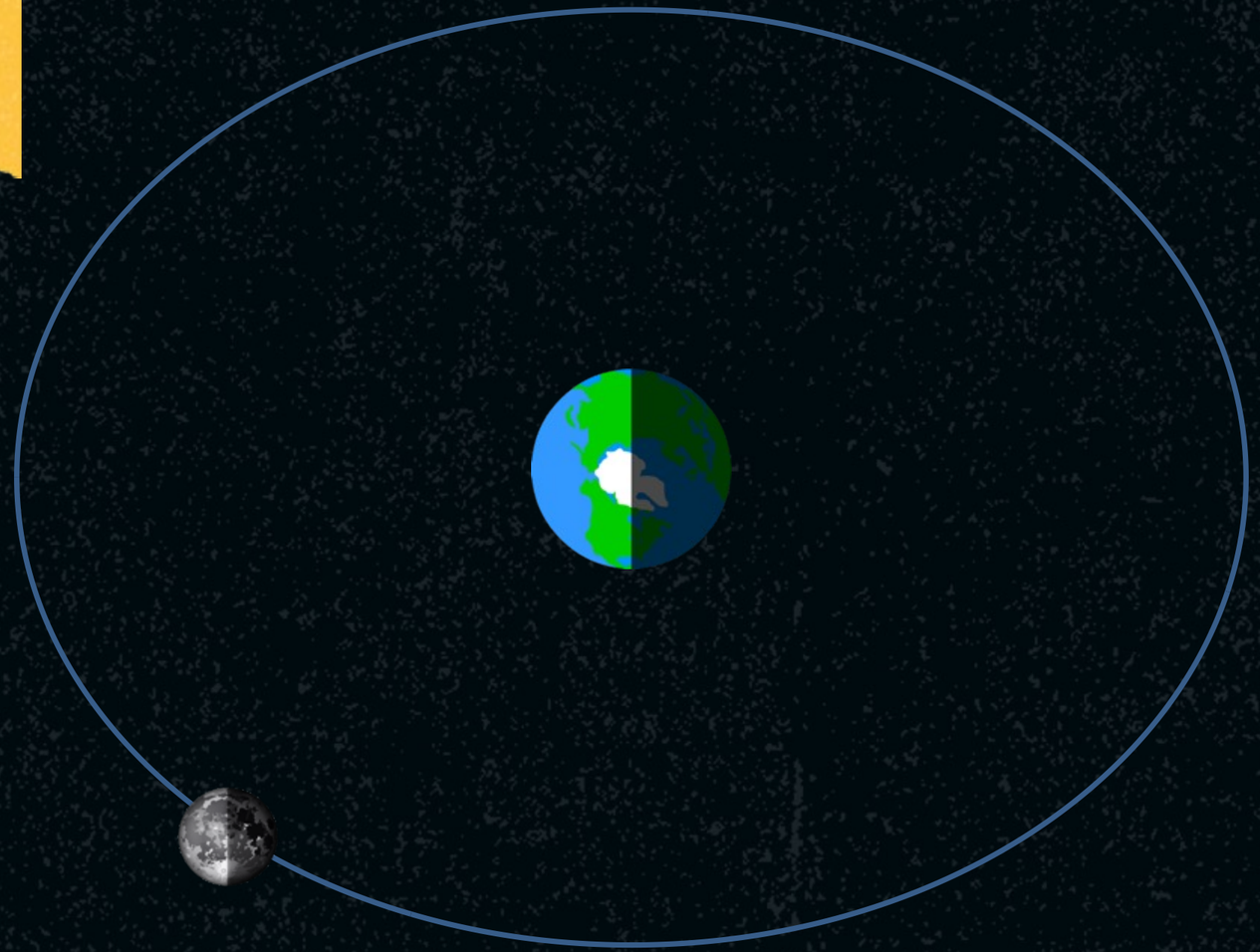
Why not an eclipse every month?

(Sun is still waaaay off the screen)

The animated version



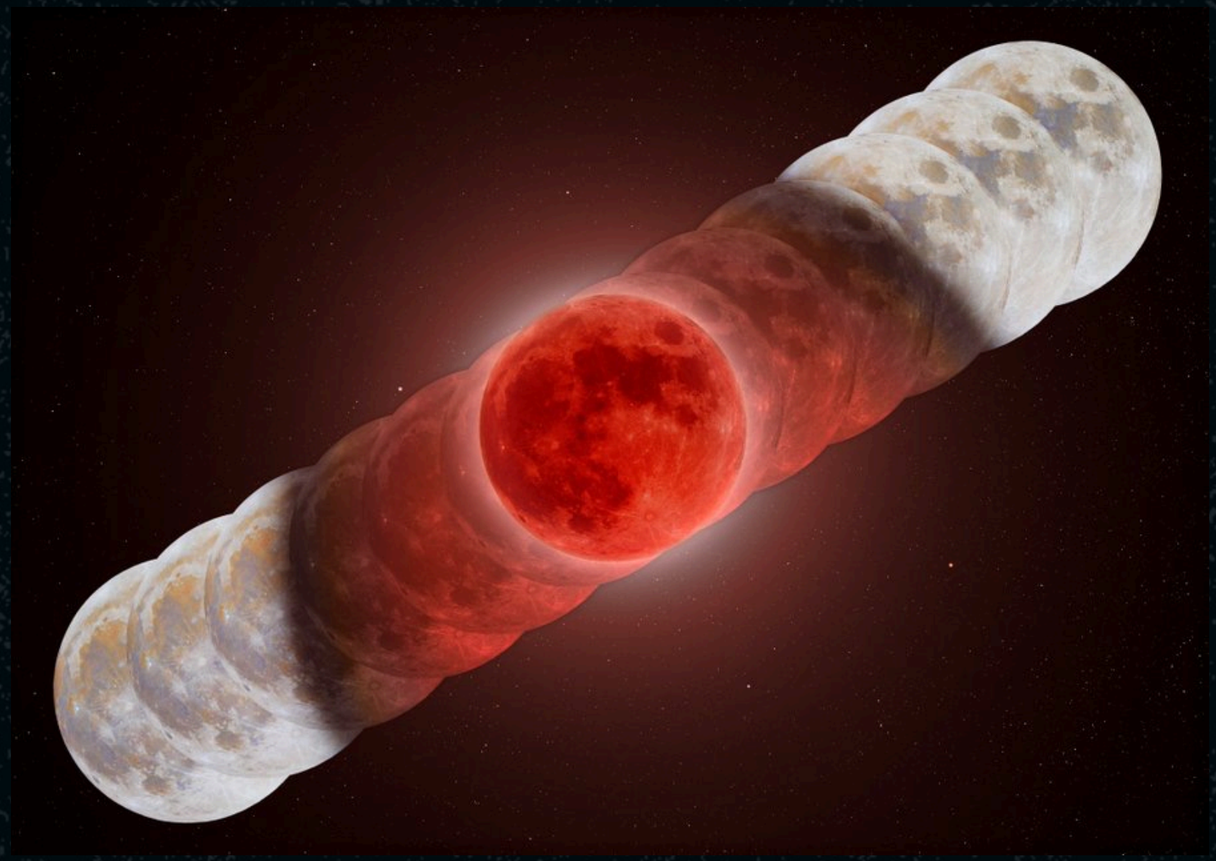
And... “Annular Eclipses”?



(Sun is always going to be way off screen)

While we're on the subject: what about "Lunar Eclipses"?

Shadow of the Moon on the Earth during an eclipse. *(from the NASA/NOAA DSCOVR spacecraft)*



Shadow of the Earth on the Moon during an eclipse. *(Courtesy Andrew McCarthy, Cosmic Background).*

Review: name this event

Solar Eclipse

Lunar Eclipse

Apocalypse

Let's demonstrate this concept with an activity!

Big Sun, Small Moon

What will we see on October 14th, 2023?

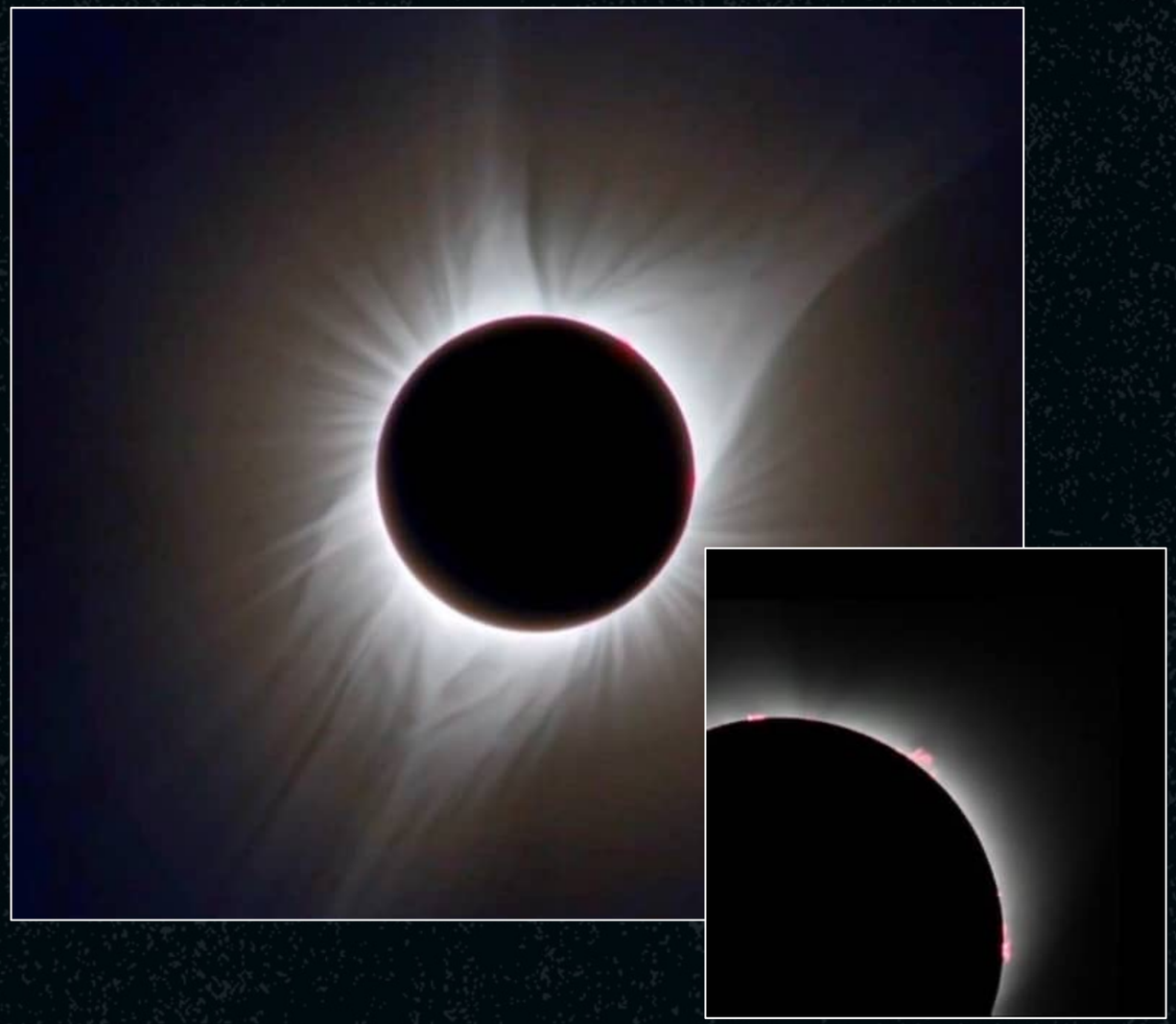
- Partial (with sunspots?)
- Totality, with a ring on it.
- *You will need your eclipse glasses on through the entire event!*

What will we see on April 8th, 2024?

- Partial (with sunspots?)
- Diamond Ring
- Bailey's Beads
- *Totality… glasses off!*

What's so special about totality?

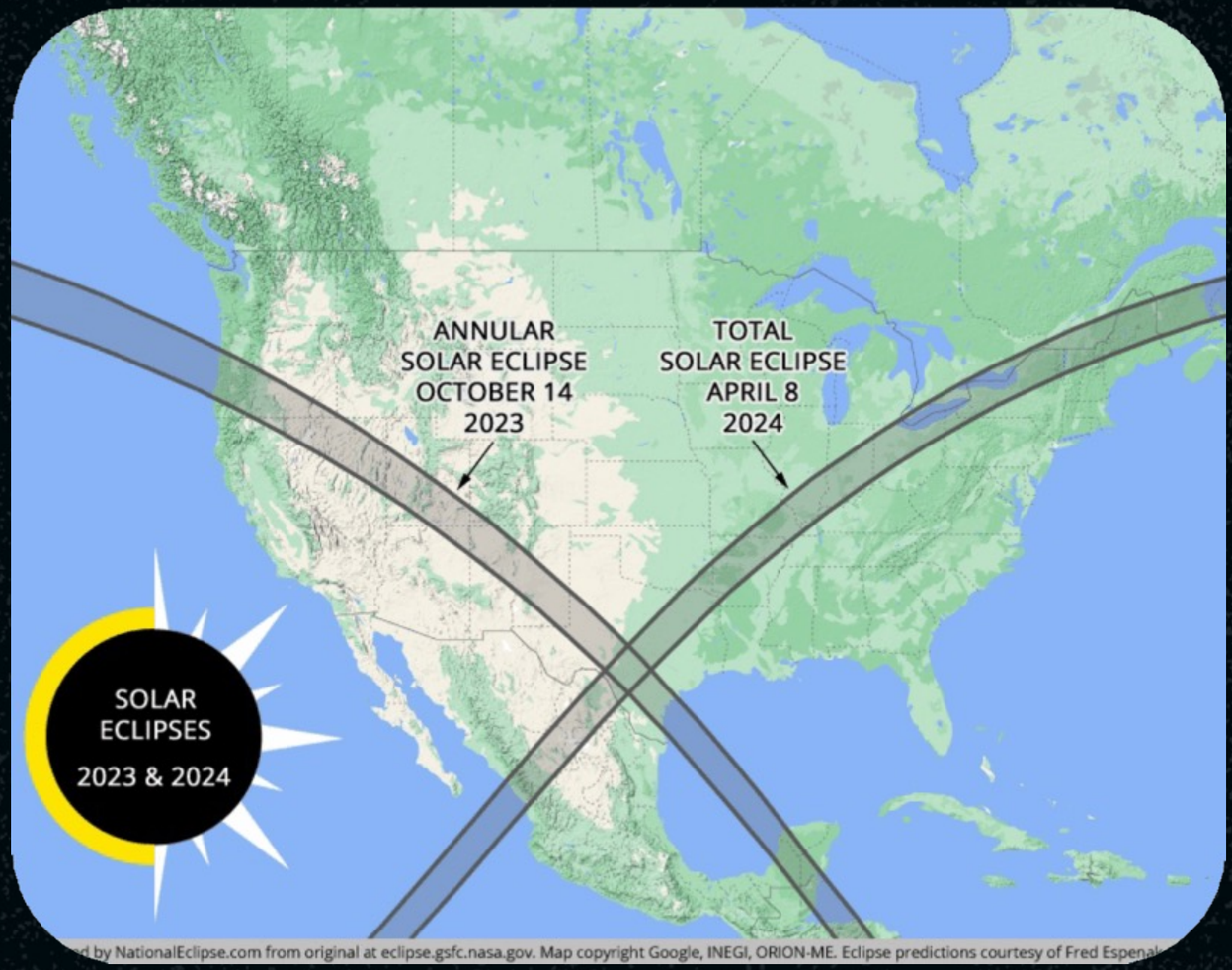
- See the Sun's atmosphere: the solar corona.
- The Sun is 400,000 times brighter than the corona. (Even 99% of an eclipse is too bright to see the corona)
- Totality is the only time you can (and should!) take off your eclipse glasses to look at the Sun.
- Hot gases move along the Sun's magnetic field, tracing its complex structure.
- Solar prominences arch above the Sun's surface.



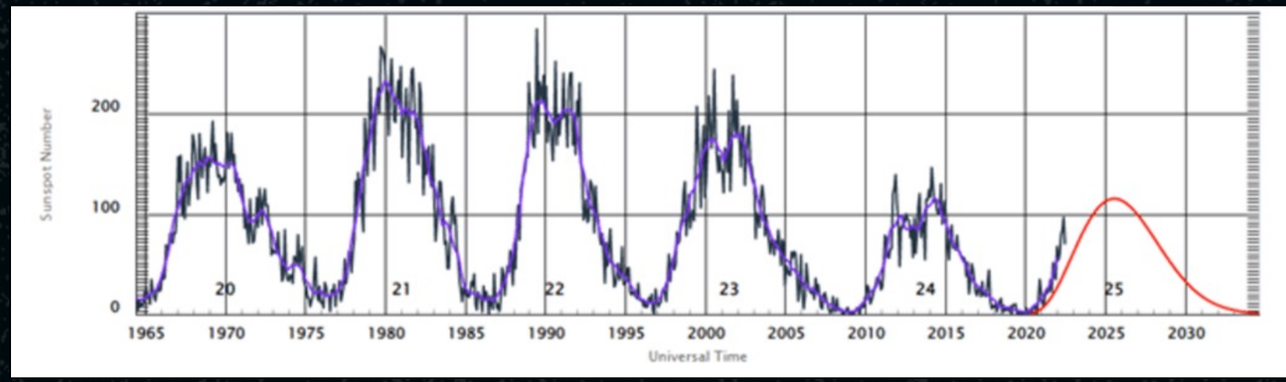
The 2023 and 2024 North American Eclipses

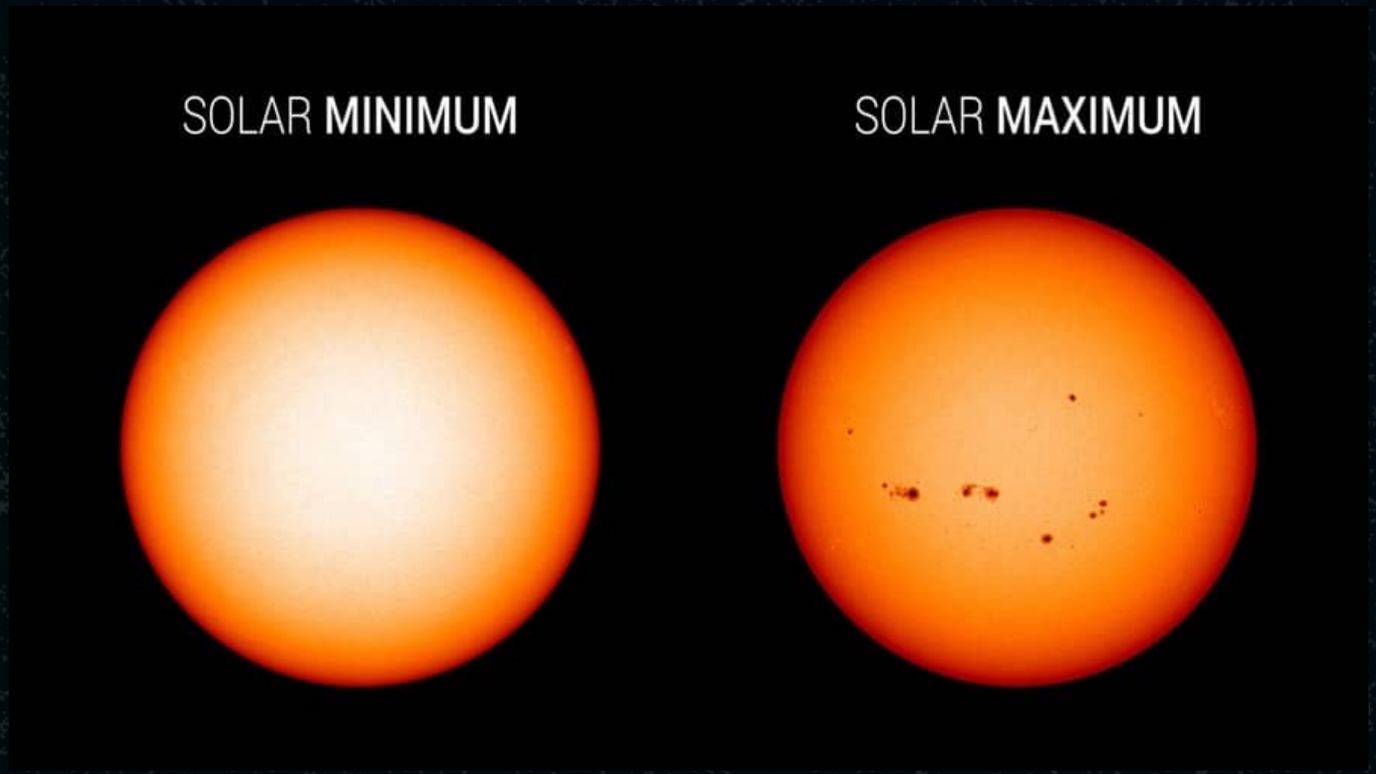
To find information about the eclipse in your area go to:

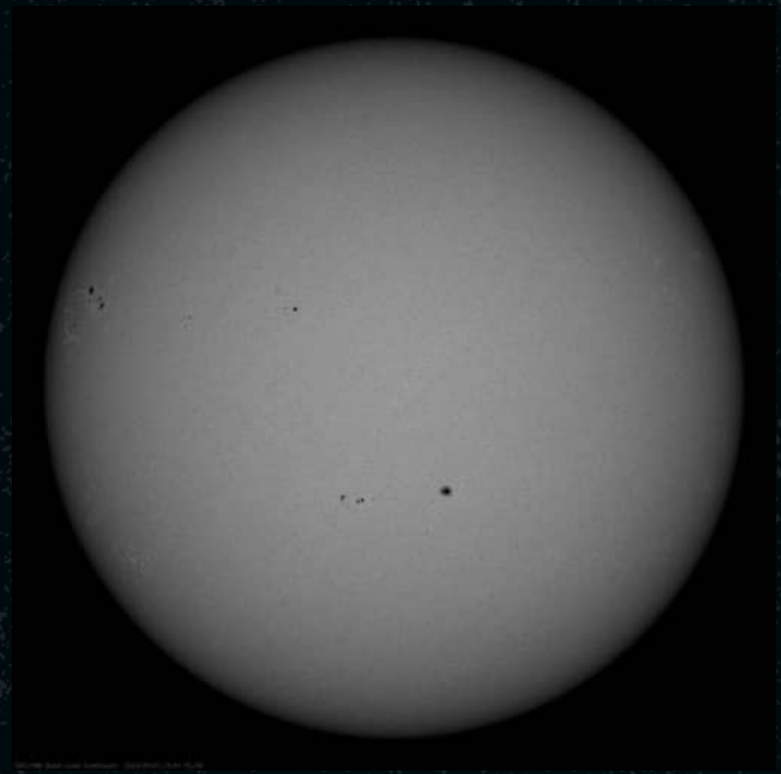
- GreatAmericanEclipse.com maps;
- TimeandDate.com for specifics.
- 4 min is about the maximum for totality
- Sci Games Eclilpse page



Things to observe any time you like: Sunspots!

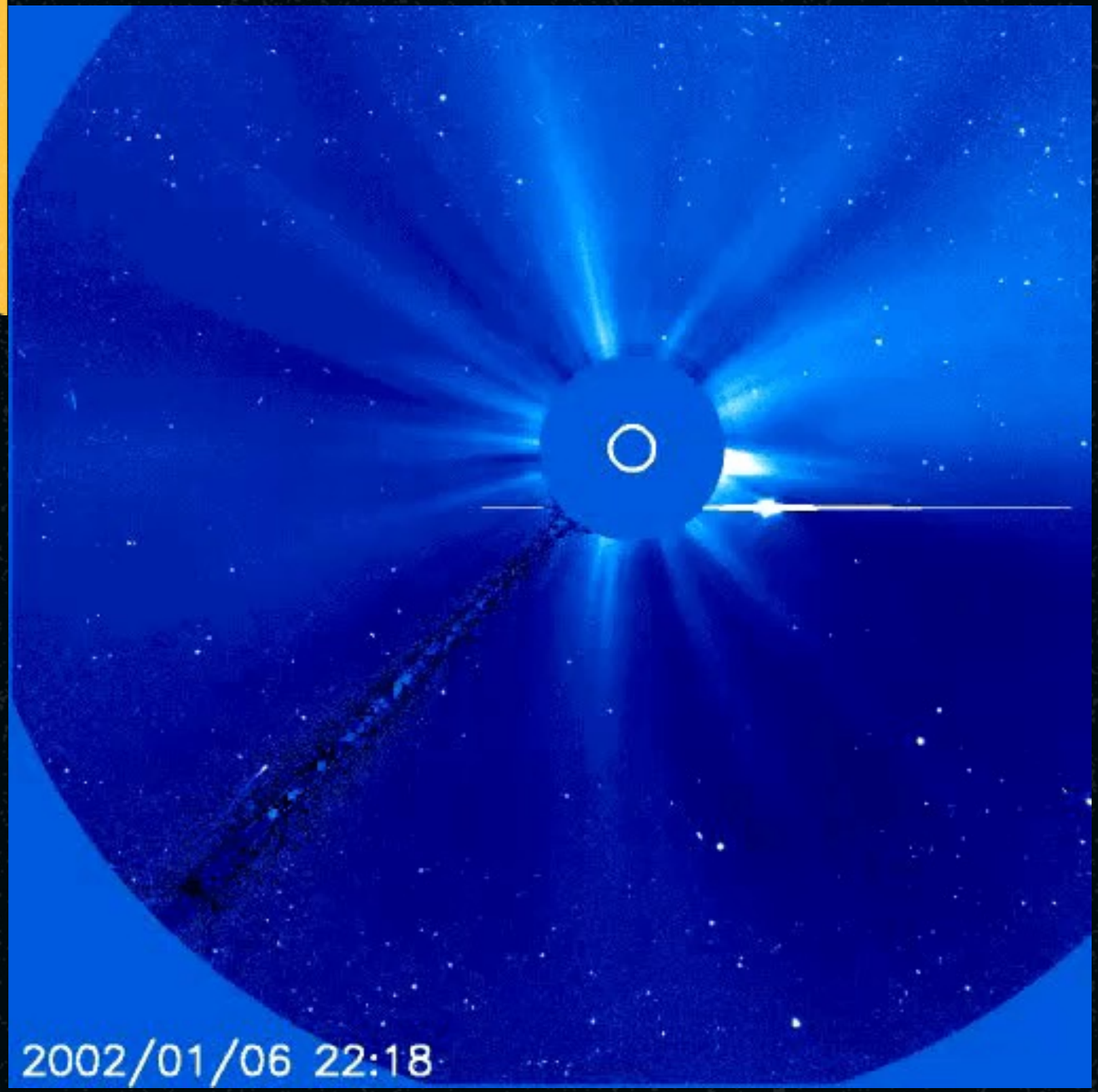




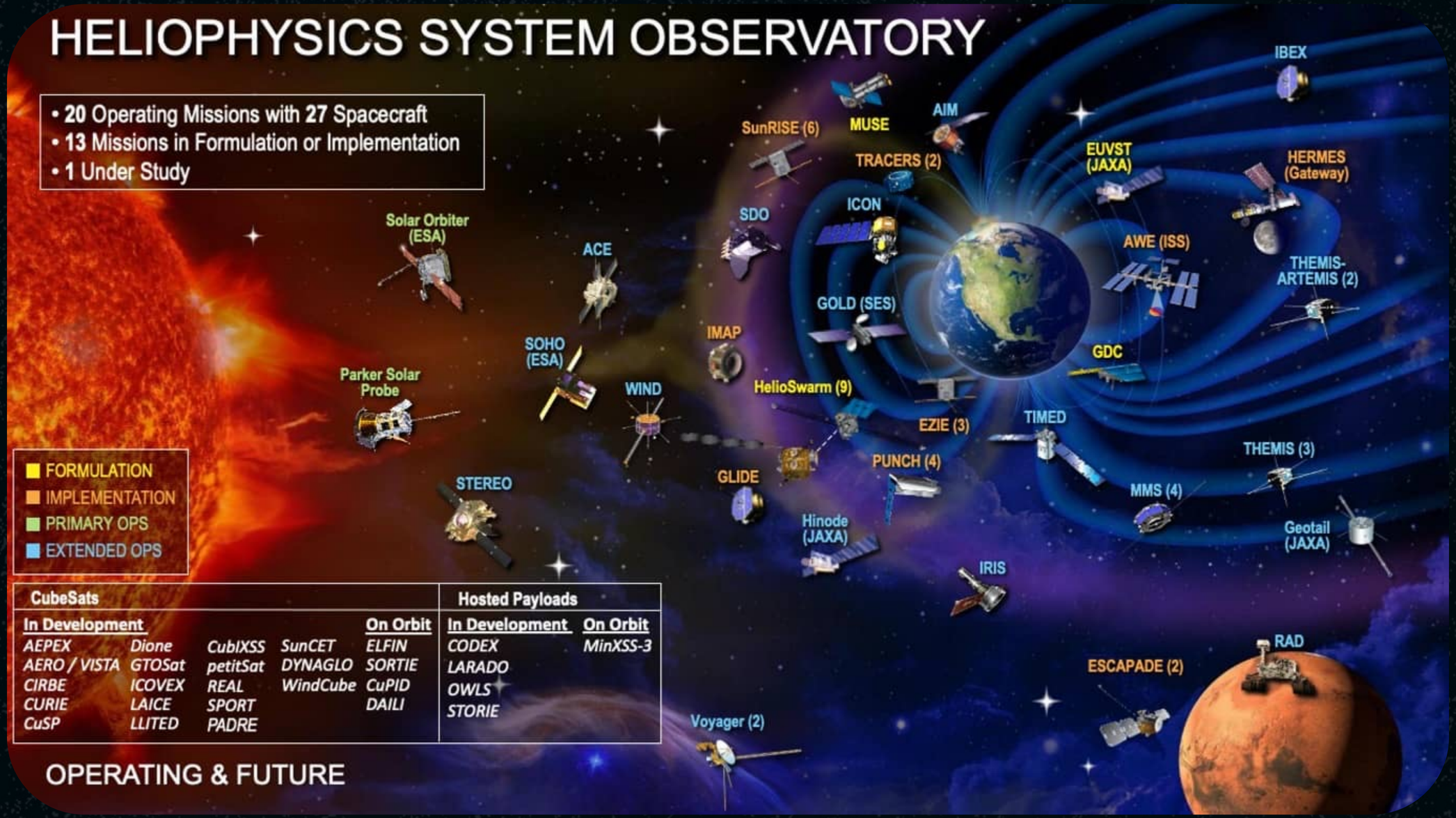


Eclipse science?

- Yes! Space-based telescopes make their own eclipses and study “space weather.”
- Other questions:
- Citizen Science programs study eclipses’ effects on animals, insects, and the environment; and on the Earth’s outer atmosphere.



What other sun science is going on?



Lunch Break

STEM ACTIVITY Clearinghouse

STAR★net

www.clearinghouse.
starnetlibraries.org

STAR_net
Science-Technology Activities & Resources For Libraries

In partnership with
Cornerstones of Science
awakening curiosity, enriching lives

STEM ACTIVITY Clearinghouse

Search

VIEWED ITEMS

Diversión con Burbujas

¡Diviértate con Burbujas de Explora...

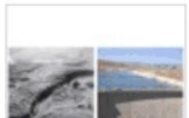
Water Cycle Paper Craft

Patrons learn about how the water...

UV Kid

In this activity, children use common...

NEW ITEMS



Walk Through Time: Water in the Four Corners Region Virtual Photo Gallery

Browse and Filter All Activities

In the STEM Activity Clearinghouse, librarians and library staff can find high quality, vetted STEM activities that are appropriate for library use. STEM stands for **S**cience, **T**echnology, **E**ngineering, and **M**ath.

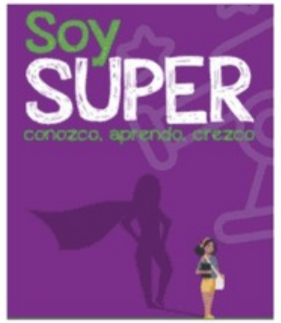
You can search by audience, content level, and difficulty, among others. You can also browse collections that we've curated just for you! Almost all the activities in the Clearinghouse have pictures or videos of real libraries doing these activities. Activities developed outside the STAR_Net Project will include tips and tricks for implementing in your library, and will link you back to the original source content so you can explore more.

FEATURED COLLECTIONS

All Collections >

Take & Make

We Are Water



I'm Super

We're Super Creative

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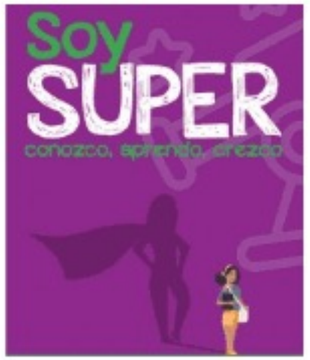

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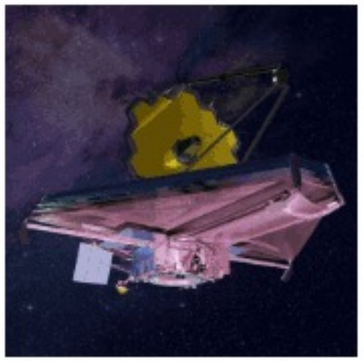
I'm Super Curious



Look Up! Explore Our Universe

Moon, Mars, and Beyond

Look Up! First Image

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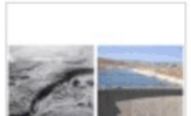

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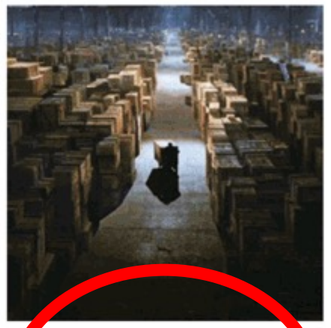

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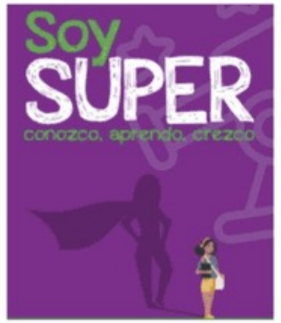

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SORT

Age Group

- All Ages (10)
- Family (464)
- Infant (0-2) (1)
- Pre-K (81)
- Early Elementary (255)
- Upper Elementary (425)
- Tweens (9-12) (402)

Time to Complete Activity

- Under 10 minutes (21)
- 10-20 minutes (114)
- 20-40 minutes (206)
- 40 minutes to 1 hour (237)
- 1-2 hours (77)
- 2-4 hours (10)
- Long Duration (days to months) (27)

ACTIVITIES

There are 531 items.

Sort by -- Show 12 per page

Showing 1 - 12 of 531 items

Previous 1 2 3 ... 45 Next Show all

Can a Toaster Make Wind?

★★★★☆ *1 Review(s)*

In this demo, patrons investigate the source of wind by using a toaster to heat air while they observe its effect on a small aluminum foil kite.

Check It Out

How-to Video

Teacher's Guide

Content Area
Earth Science

Age Group
Family
Upper Elementary
Tweens (9-12)
Teens

Time to Complete Activity
Under 10 minutes

Cost associated with Activity Materials
$0 ("found" items)

Difficulty Level (by content)
Medium

STEM Tools

SORT

Age Group

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✓Tweens

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- [x] 40 minutes to 1 hour (237)
- [ ] 1-2 hours (77)
- [ ] 2-4 hours (10)
- [ ] Long Duration (days to months) (27)

✓Tweens
✓One hour

Difficulty Level (by content)

- [x] Easy (258)
- [ ] Medium (236)
- [ ] Rocket Scientist (21)

✓Tweens
✓One hour
✓Easy

Additional Languages Available

☑ Española / Spanish (37)

- ✓ Tweens
- ✓ One hour
- ✓ Easy
- ✓ Instructions in Spanish

SORT

ACTIVITIES > AGE GROUP TWEENS-9-12 > TIME TO COMPLETE ACTIVITY 40-MINUTES-TO-1-HOUR > DIFFICULTY LEVEL (BY CONTENT) EASY > ADDITIONAL LANGUAGES AVAILABLE ESPANOLA-SPANISH

There are 14 items.

Age Group

- [ ] Family (14)
- [ ] Pre-K (1)
- [ ] Early Elementary (6)
- [ ] Upper Elementary (13)
- [x] Tweens (9-12) (14)
- [ ] Teens (2)
- [ ] All Ages (0)

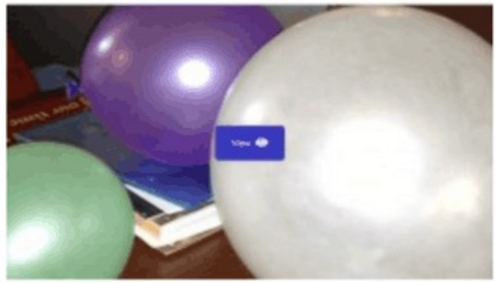
Time to Complete Activity

- [ ] 10-20 minutes (1)
- [ ] 20-40 minutes (4)
- [x] 40 minutes to 1 hour (14)
- [ ] 1-2 hours (1)
- [ ] Under 10 minutes (0)
- [ ] 2-4 hours (0)
- [ ] Long Duration (days to months) (0)

Sort by -- Show 12 per page

Showing 1 - 12 of 14 items

Previous 1 2 Next Show all



Globos Rebotantes

Deportes + Ingeniería = ¡Gran Diversión! La ingeniería en deportes se centra en el diseño, desarrollo y prueba de implementos deportivos, tales como las pelotas.

Check It Out

Age Group
Family
Upper Elementary
Tweens (9-12)

Time to Complete Activity
40 minutes to 1 hour

Cost associated with Activity Materials
$5-$10

Difficulty Level (by content)
Easy

Additional Languages Available
Española / Spanish

View larger

Tweet | Share | Google+ | Pinterest

Send to a friend

Print

Diversión con Burbujas

¡Diviértate con Burbujas de Explora en casa!

Open Activity

Write a review

Age Group
Family
Early Elementary
Upper Elementary
Tweens (9-12)

Time to Complete Activity
20-40 minutes
40 minutes to 1 hour

Cost associated with Activity Materials
$5-$10

Difficulty Level (by content)
Easy

Mess Level
High

Additional Languages Available
Española / Spanish

Report a broken link

Categorized Incorrectly? Let us know!

RELATED PROGRAMMING RESOURCES

RELATED PROGRAMMING RESOURCES

Hints for uses in your library	Patrons of all ages will love experimenting with bubbles! This activity is best done outside for easy cleanup.
Related Links	How to Make Bubbles The Science Behind Bubbles Science World: Bubbles Science World: Bubble Tricks
Originating Source	Explora
Related Books [Suggest a book]	Science Magic for Kids: 68 Simple and Safe Experiements by William R Wellnitz Bubble Fun by Neville Astley and Mark Baker Bubble Trouble by Tom Percival

REVIEWS

Be the first to write your review!

RELATED PROGRAMMING RESOURCES

Hints for uses in your library	Patrons of all ages will love experimenting with bubbles! This activity is best done outside for easy cleanup.
Related Links	How to Make Bubbles The Science Behind Bubbles Science World: Bubbles Science World: Bubble Tricks
Originating Source	Explora
Related Books [Suggest a book]	Science Magic for Kids: 68 Simple and Safe Experiements by William R Wellnitz Bubble Fun by Neville Astley and Mark Baker Bubble Trouble by Tom Percival

REVIEWS

Be the first to write your review!

WRITE A REVIEW

Diversión con Burbujas

¡Diviértate con Burbujas de Explora en casa!

Participants Enjoyed the Activity:

Participants Learned from This Activity:

Activity Instructions Were Clear and Easy to Follow:

Would Recommend:

Title: *

State Library Circulating Kits

Scan the QR Code for access to the PDF version of the kit list. Links to purchase the items are within the PDF too!

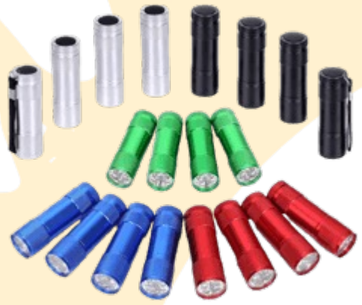
bit.ly/SEALkitlist

Multi-generational Kit

- Tub
- 1 Coronado Personal Solar Telescope
- 1 Telescope Case
- 1 Telescope Mount
- “When the Sun Goes Dark” book
- 2 Large Sunoculars
- Big Sun, Little Moon (Handout Only)

Younger Audience Kit

- Tub (WARNING Doesn’t travel well without reinforcement)
- 1 Sunspotter
- Moon Bear’s Shadow Book
- Moon Bear’s Shadow Activity Pieces
- 2 Sunocular minis
- Sorting Game Printable Files



SEAL

Discussion

What are some ideas you have for facilitating a program using the kit materials?

GLOBE Eclipse

Volunteers will take temperature, cloud, and land cover observations using simple tools (smart phone and thermometer) before and after the 2023 and 2024 eclipses.

Observations needed on and off the eclipse path

The GLOBE Observer team seeks U.S. library partners!

nesec NASA Earth Science Education Collaborative

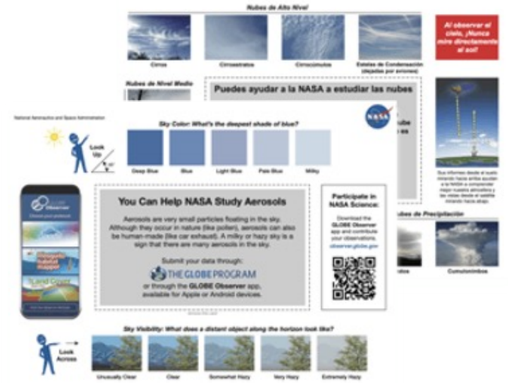
NASA Science Activation

GLOBE Eclipse

Opportunity for Libraries

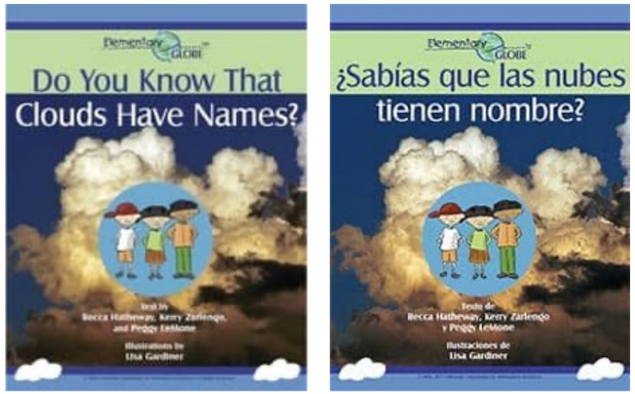
Up to 100 U.S. public libraries will receive GLOBE Observer Eclipse kits and ongoing support.
Resources are shown that will be included in the kit.

Bilingual GLOBE Observer Card
use center hole as a pinhole camera
100 per library



Bilingual GLOBE Sky Windows
100 per library

Digital talking air temperature thermometer
One per library
(limited supply of Spanish)



Elementary GLOBE Clouds Books
English and Spanish

Plus more resources and activities will be online at:
observer.globe.gov/eclipse

nesec NASA Earth Science Education Collaborative

NASA SCIENCE ACTIVATION

Timeline for GLOBE Kits

May 4: Webinar on GLOBE Observer Eclipse Kits.

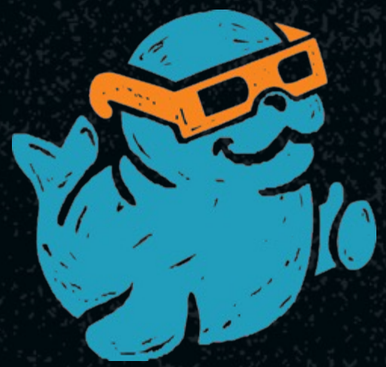
May 31: Applications due for library kits.

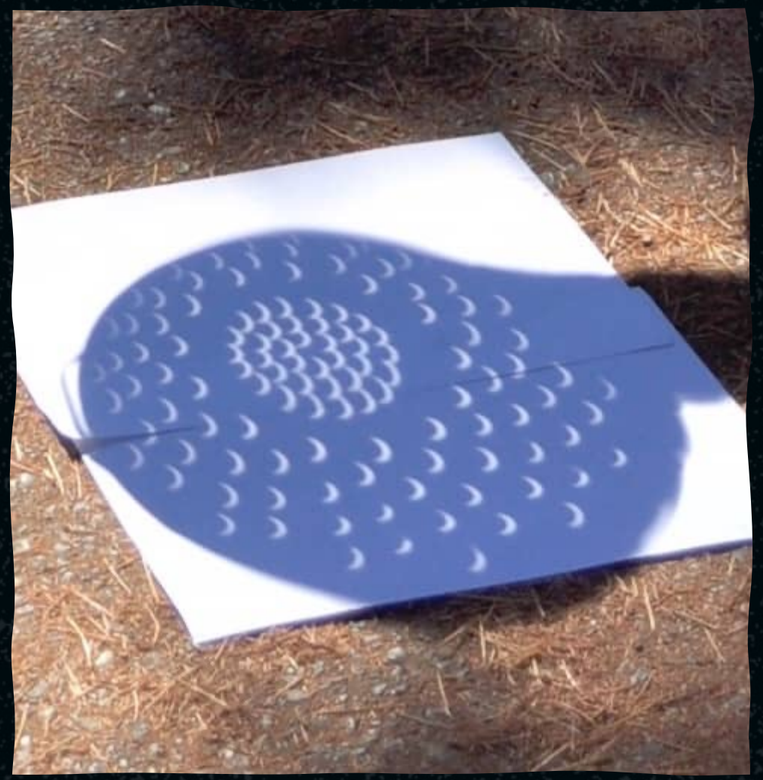
Mid-June and July: Kits shipped to libraries.

More details will be coming soon!

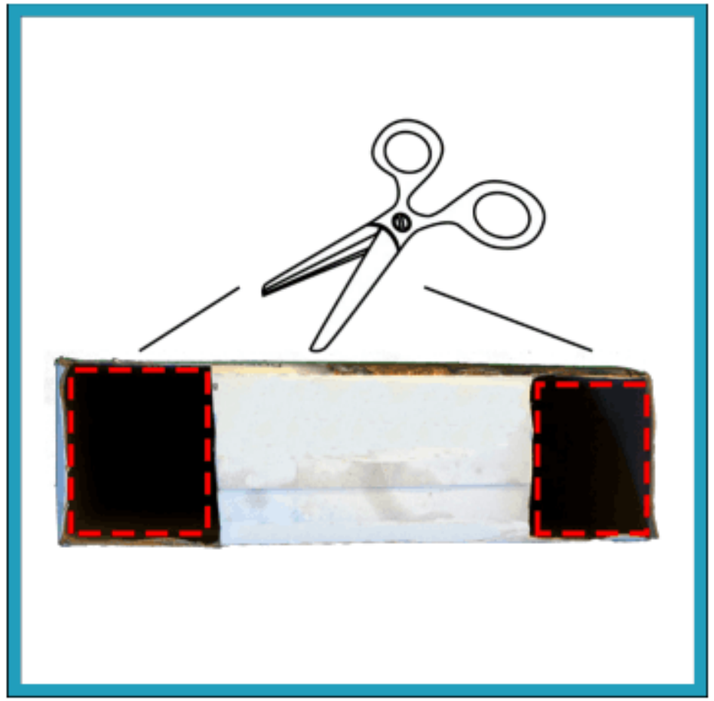
Safe Solar Viewing Stations

A. Solar Telescope
B. Sun Spotter
C. Sunoculars
D. Indirect Solar Viewing





Indirect/Low-Cost Solar Viewing



1. On one short side of your box, cut two holes with your scissors or craft knife. If necessary, secure this side of the box with tap to hold it together after cutting.

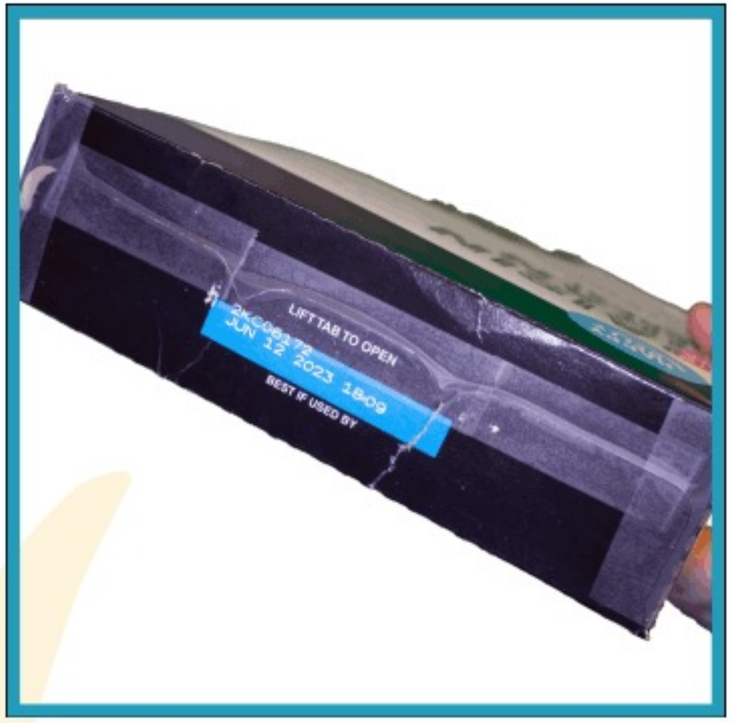
2. Cover one of the holes with foil and secure it with tape.

3. Poke a small hole in the center of the foil using a pen, pencil, or other small pointy object.

Cereal Box Viewer

4. Using the short side of your box as a guide, trim a strip of white paper so that it is slightly smaller than the short side of the box. This will ensure that your piece of paper fits into the inside of your box without getting crumpled.

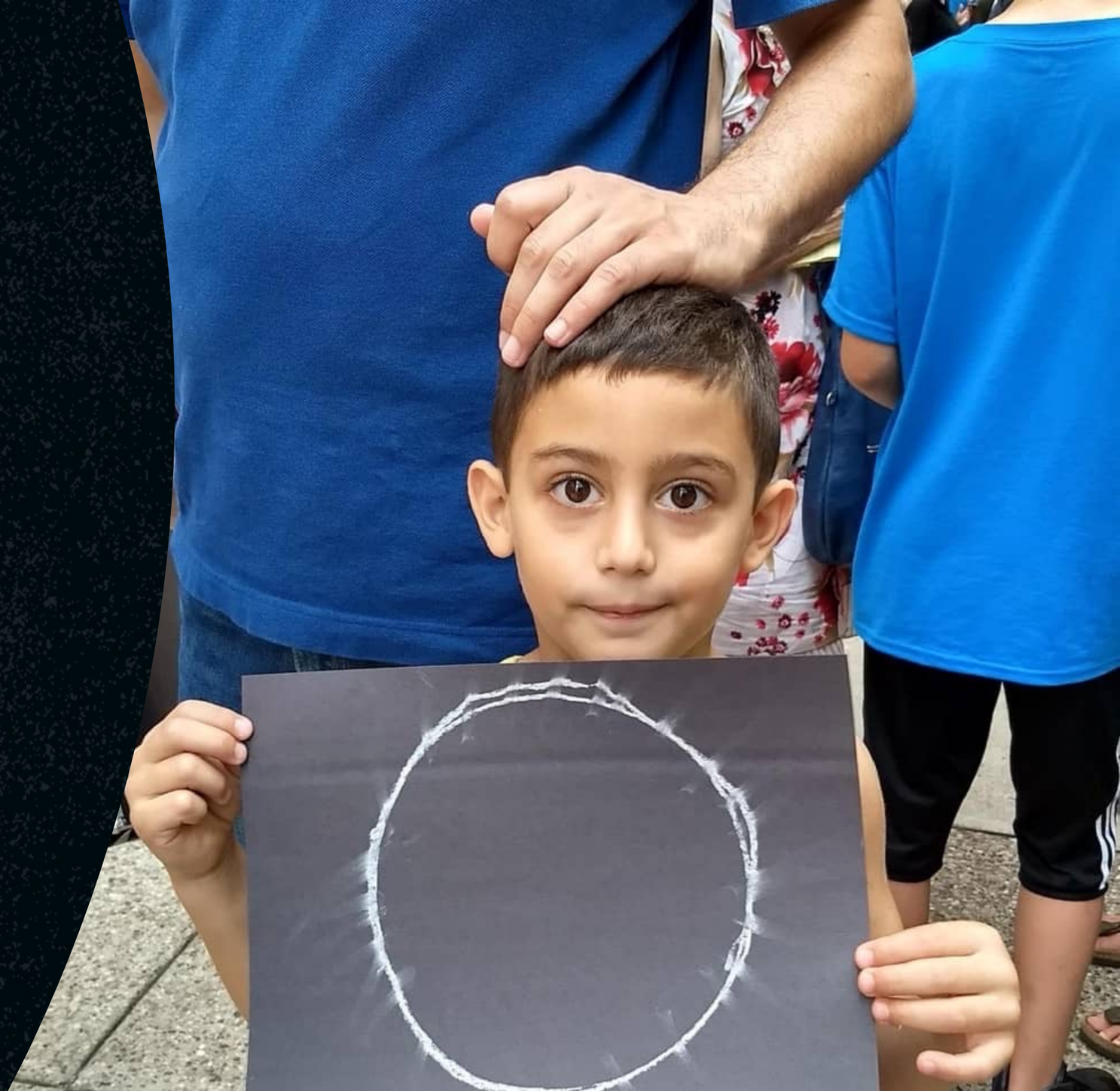
5. Tape your strip of white paper inside the short edge of the box opposite from the side you cut the holes in step 1.

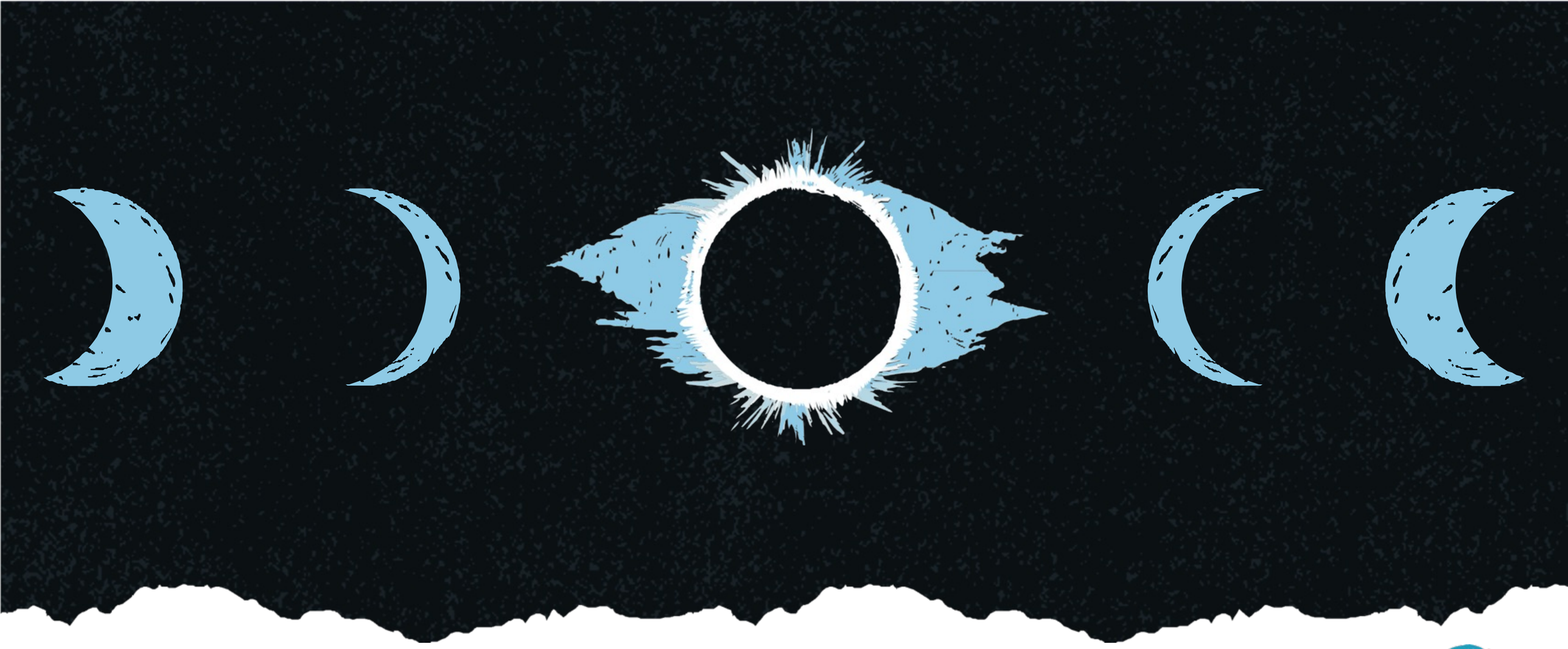


6. Seal this end of the box with tape along all edges. This will help prevent light from leaking into your eclipse viewer.

STEAM Activity

Eclipse Chalk Art





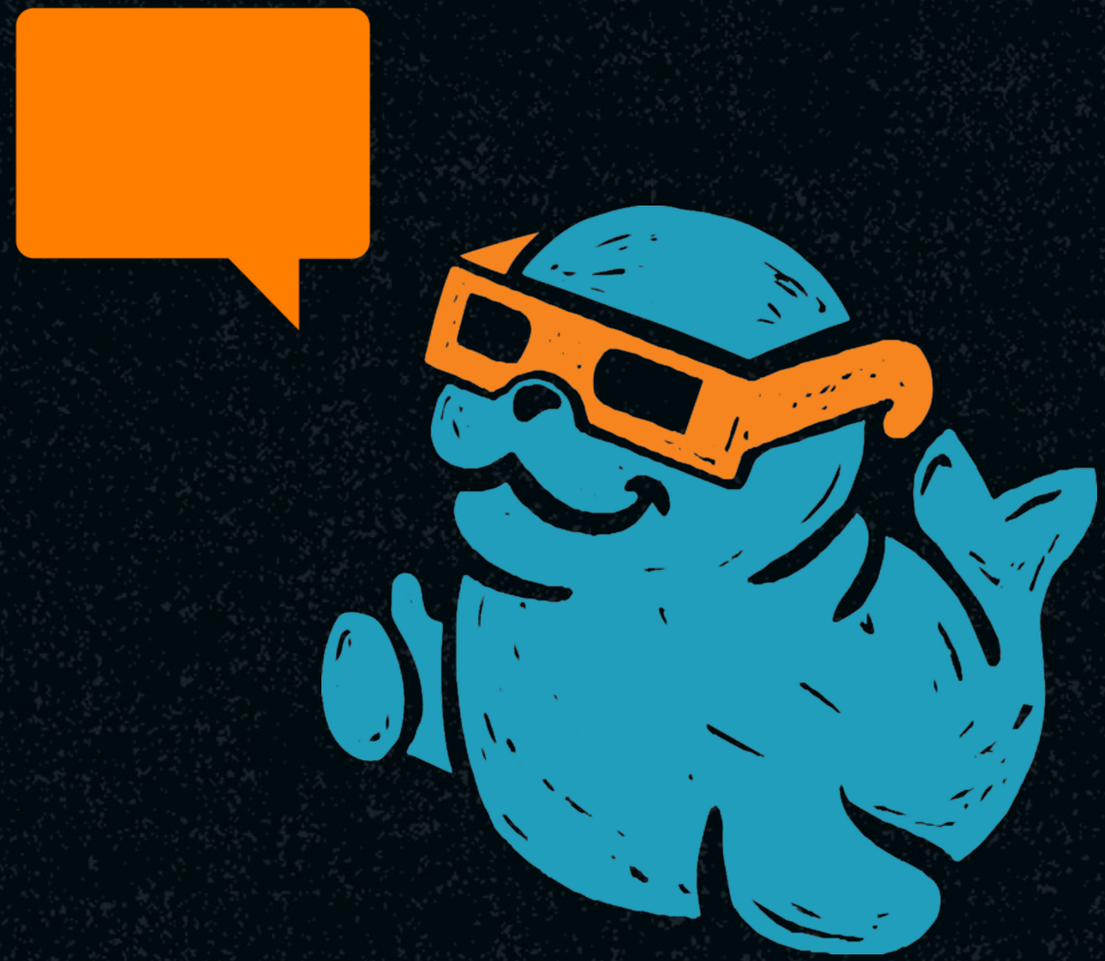
15 Minute Break!

Credit: Pioneer Library System

Facilitation Styles

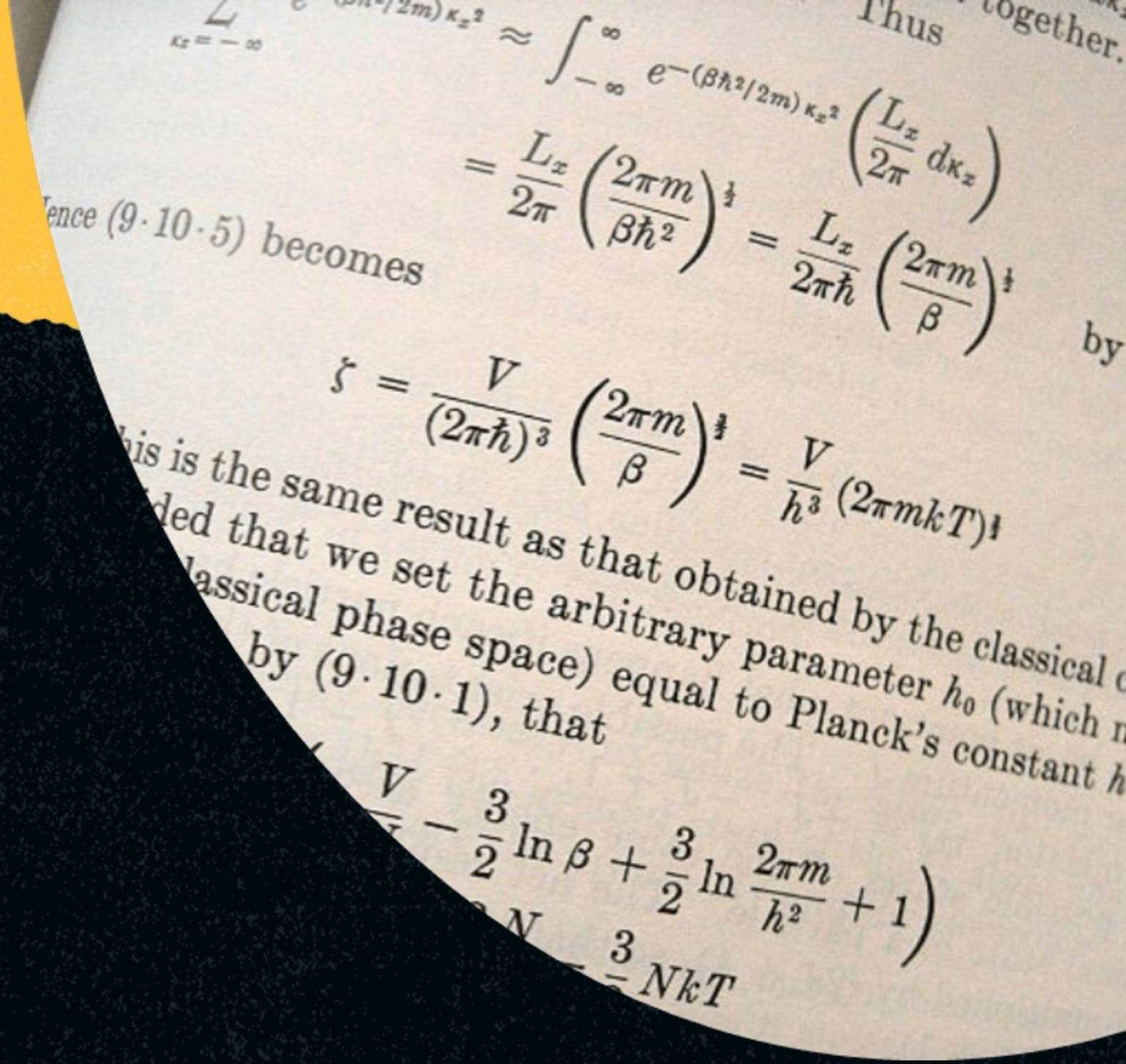
Turn and talk with a neighbor

What is an impactful learning experience you have had? This could be from any point in your life.



Fact or Fiction?

"Science is a collection of facts"



$$\sum_{k_x=-\infty}^{\infty} e^{-(\beta\hbar^2/2m)k_x^2} \approx \int_{-\infty}^{\infty} e^{-(\beta\hbar^2/2m)k_x^2} \left(\frac{L_x}{2\pi}\, dk_x\right)$$

Thus

together.

$$= \frac{L_x}{2\pi}\left(\frac{2\pi m}{\beta\hbar^2}\right)^{\frac{1}{2}} = \frac{L_x}{2\pi\hbar}\left(\frac{2\pi m}{\beta}\right)^{\frac{1}{2}}$$

ence (9·10·5) becomes

by

$$\zeta = \frac{V}{(2\pi\hbar)^3}\left(\frac{2\pi m}{\beta}\right)^{\frac{3}{2}} = \frac{V}{h^3}(2\pi mkT)^{\frac{3}{2}}$$

his is the same result as that obtained by the classical
ded that we set the arbitrary parameter h_0 (which
lassical phase space) equal to Planck's constant h
by (9·10·1), that

$$\frac{V}{} - \frac{3}{2}\ln\beta + \frac{3}{2}\ln\frac{2\pi m}{h^2} + 1\Big)$$

$$N \quad \frac{3}{} NkT$$

Exploration

Inquiry

Credit: Muhlenberg Community Library

Creativity

Credit: Prince George’s County Memorial Library System

Fact or Fiction?

"Facilitating STEM requires subject matter expertise"

Illustration by Kevan Mills. Credit: Space Science Institute

What do you notice about this image?

Sage on the Stage

Have you ever had an experience like this?

Illustration by Kevan Mills. Credit: Space Science Institute

What do you notice about this image?

Trivia Master

(or Initiation-Response-Evaluation)

Illustration by Kevan Mills. Credit: Space Science Institute

Trivia Master

(or Initiation-Response-Evaluation)

Facilitators

- Ask closed questions
- Control discussion
- Do majority of talking

Patrons

- Recall, list, recite, label
- Rewarded for “correct” answers

Illustration by Kevan Mills. Credit:
Space Science Institute

What do you notice about this image?

Guide on the Side

“Guide on the Side” Strategies for Your STEAM Programs

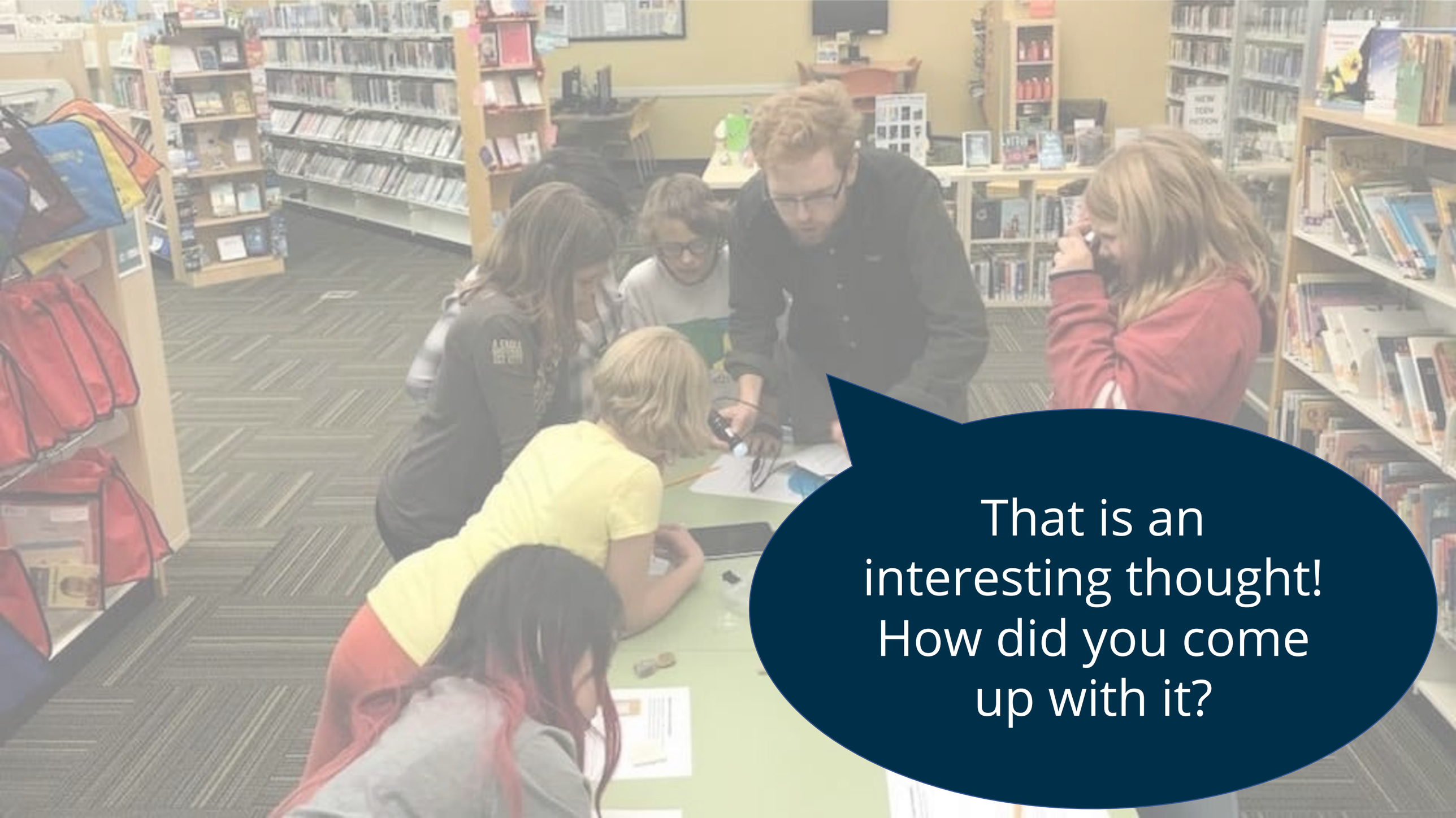
Credit: Space Science Institute

Strategy 1

Create a safe learning environment

Credit: Space Science Institute


I don’t know…let’s find out together!


That is an interesting thought! How did you come up with it?

Strategy 2

Open-ended questions

Credit: Space Science Institute/High Plains Library District

Credit: Rolling Hills Consolidated Library

Strategy 3

Illustration by Kevan Mills. Credit: Space Science Institute

Illustration by Kevan Mills. Credit: Space Science Institute

Illustration by Kevan Mills. Credit: Space Science Institute

Illustration by Kevan Mills. Credit: Space Science Institute

Let's take another look

Illustration by Kevan Mills. Credit: Space Science Institute

Illustration by Kevan Mills. Credit: Space Science Institute

Illustration by Kevan Mills. Credit: Space Science Institute

Illustration by Kevan Mills. Credit: Space Science Institute

What did you observe?

Illustration by Kevan Mills. Credit: Space Science Institute

Strategy 3: Wait Time

Wait approximately 5 seconds after asking a question.

Respond to someone who took longer to form his or her thoughts.

Gives time for learners to think about and articulate their ideas.

Strategy 4

Turn and talk

Credit: Rolling Hills Consolidated Library

Credit: Pioneer Library System

“Help each other figure this out. Take your time. I will come back in a few minutes to see how you’re doing.”

Strategy 5

Hands-on activities

Have you tried any of these facilitation strategies in your organization?

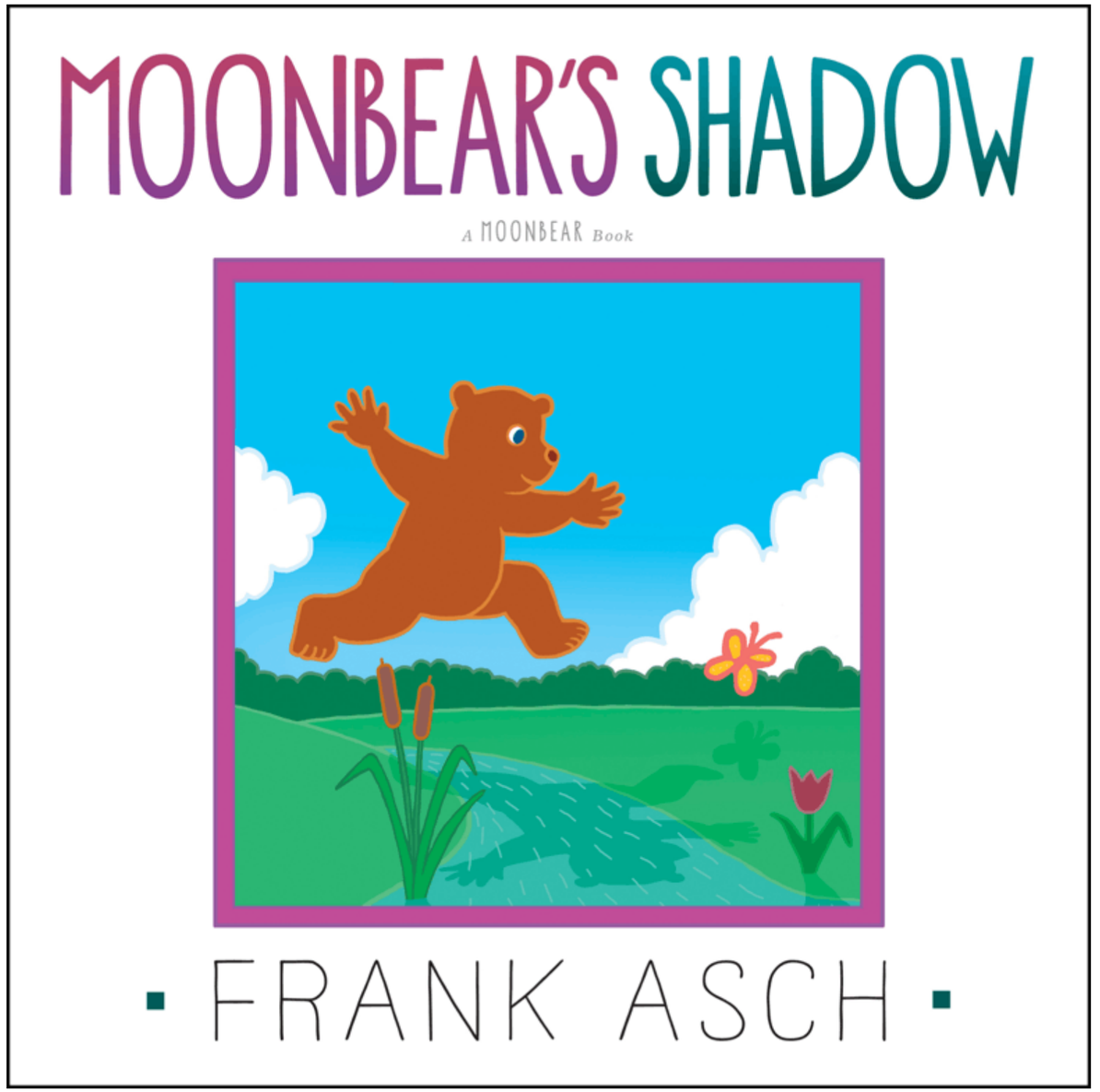
Turn and discuss with your neighbor

1. Create a Safe Learning Environment
2. Open-Ended Questions
3. 5-Second Wait Time
4. Turn and Talk
5. Hands-on Activities

Which facilitation style matches the impactful learning experience you shared earlier?

1. Sage on the Stage
2. Trivia Master
3. Guide on the Side

Hands-On Activity



Partnerships and Your Community

- How would you promote solar science programs in your community?
- What community partners could help with facilitation?

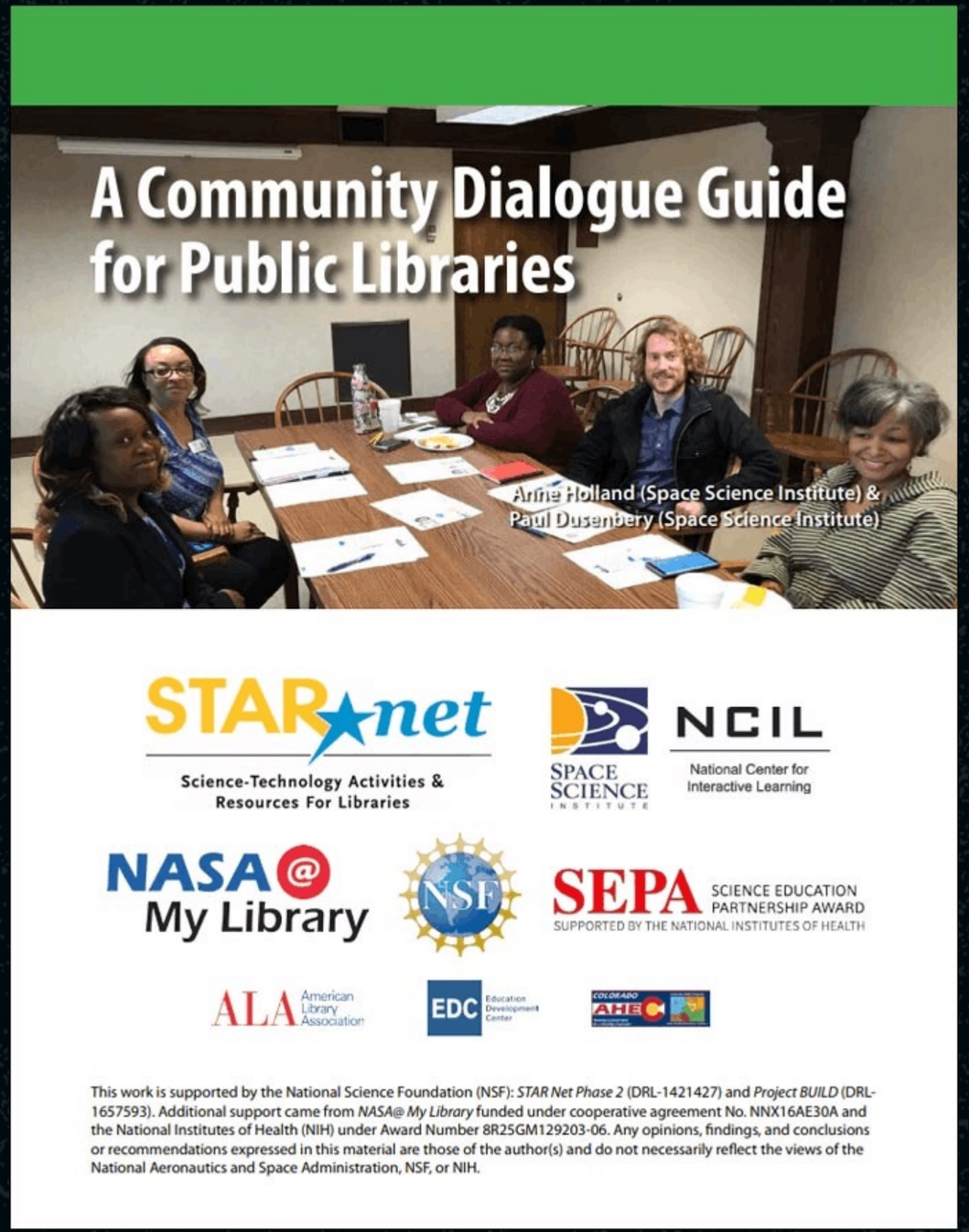
Think about reaching those historically excluded in STEAM

Community Dialogues

A Community Dialogue is a loosely facilitated discussion that provides the opportunity for library staff and community leaders or members to discuss common, community-based challenges or aspirations.

Community Dialogues can help your library:

- Expand your understanding of patrons' feelings about their local library and its programs, including programming related to STEM
- Obtain meaningful feedback from the community on who visits the library and why
- Have a conversation about how the library can better serve ethnically, economically, and geographically underserved and underrepresented audiences
- Better connect with local organizations and potential future partners that have shared interests with the library and community



Make Dialogues work for you

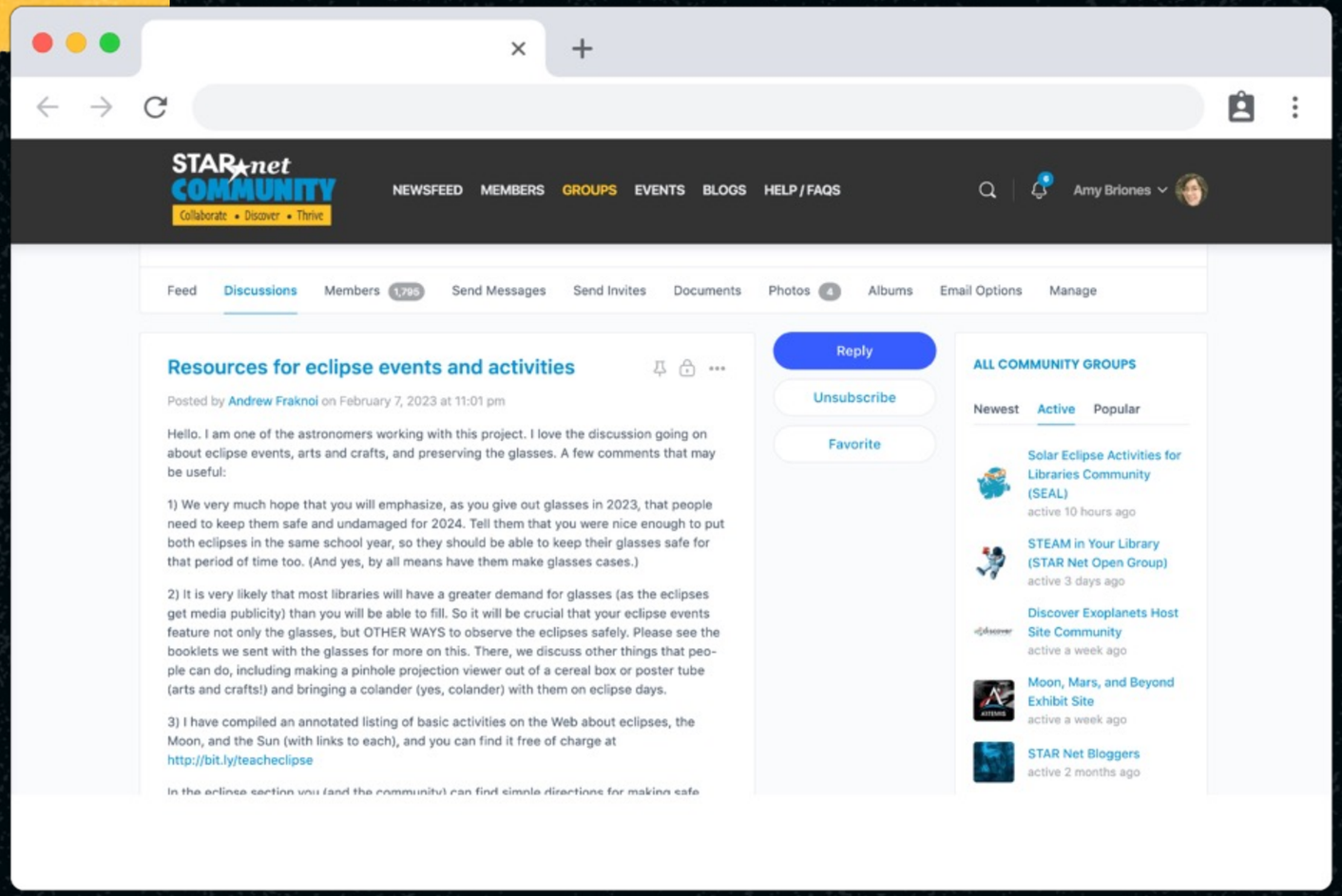
Community Dialogues are about more than leaving the room with a list of to-dos and answers to all the questions. Rather, they are about discussing topics and issues in an inclusive and uninhibited environment, with community representatives and stakeholders.

STAR Net Community Dialogues
https://www.starnetlibraries.org/deia/community-dialogues/

SEAL Group on the STAR Net Online Community

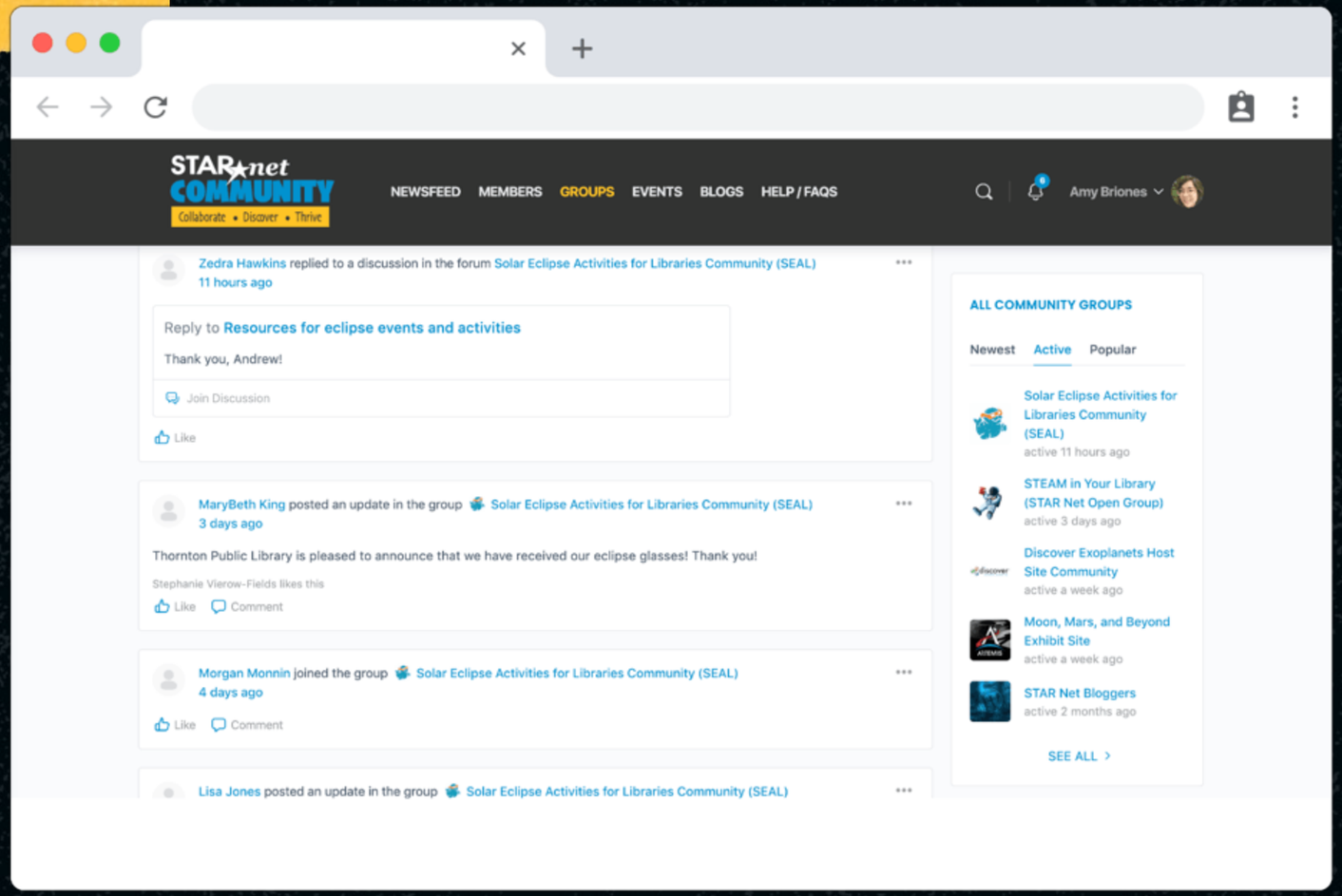
What is the Community?

- Online network specially curated for you
- Opportunity to interact with fellow libraries
- Place where all relevant documents are accessible
- Place to upload your program pictures, activity documents, and chat



What is the Community?

Similar to other social media platforms, you can post discussions, “like” other’s comments, upload documents for activities and share pictures



Maintaining Your Eclipse Glasses

If you're getting a box of glasses from us, keep them boxed up until you're ready to distribute!

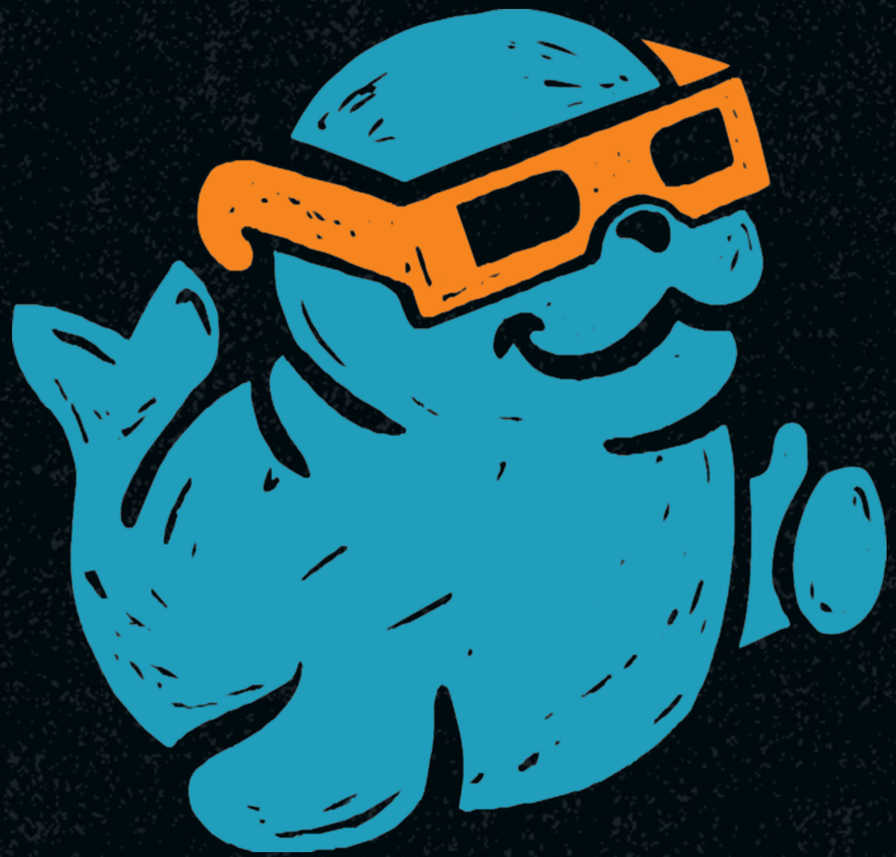
If you have old glasses, make sure they don't have any scratches or holes. (Hold them up to the Sun and make sure no points of light shine through)

Keep open glasses in an envelope or folder to prevent scratches and folding

Make sure any old glasses you get donated to you are tested and have the appropriate safety numbers on them.

Two Schools of Thought on Photographing an Eclipse

1. Don’t. Enjoy this rare experience without distractions.
2. Ignore the people who suggest #1. We like taking pictures and showing them to people later.

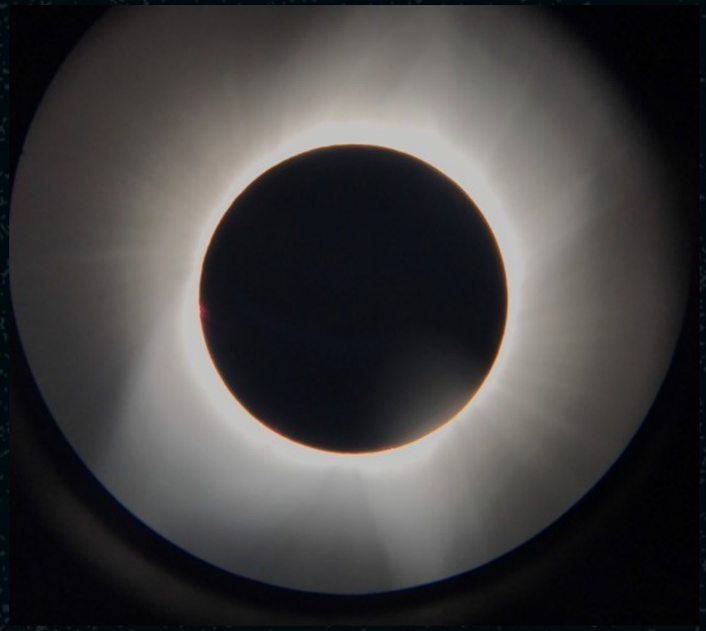


Things to remember when taking pictures

- Treat your camera like your eyes.
- The sun is small in the sky, and camera phones are wide angle. Zoom if you can.
- Exposure matters. Unless it’s totality, you’ll have to have a filter.
  - You can take pictures of people too! The partial phase can last 2+ hours: there’s plenty of time to take all the pictures you want. But totality is only 1-4 minutes.
  - Even if there are clouds you can get cool photos.

What kind of camera will you have?

- If you have a camera phone:
  - You can take pictures through your eclipse glasses (but zoom!)
  - You can take pictures through a solar telescope.
  - At totality you can take pictures with no filter.
  - Practice manual settings (exposure, focus). Camera phone logic wasn't really made for this.
  - There's at least one app to help.
- If you have a fancy camera
  - Get the best zoom lens you can.
  - There are "black glass" filters.
  - One word: "stacking".
- Everything except totality can be practiced any time!



Free Additional Resources
(Take a Picture of This Slide!!)

Register for FREE Eclipse Glasses

https://www.surveymonkey.com/r/BT58RYV

500+ STEAM Activities for Public Libraries

http://clearinghouse.starnetlibraries.org

STAR Net Online Community

https://community.starnetlibraries.org/

Eclipses in Fiction (books, music, art, videos)

https://www.fraknoi.com/wp-content/uploads/2022/11/Resources-Connecting-Eclipses-and-Other-Fields.pdf

#STEMInLib Videos

https://youtube.com/starnetlibraries

NASA's Night Sky Network

https://nightsky.jpl.nasa.gov/

NASA's Solar System Ambassadors

https://solarsystem.nasa.gov/solar-system-ambassadors/events/

Getting Started with SEAL

https://community.starnetlibraries.org/get-started-with-seal/

In 2023 and 2024, DO Look Up!*

Image Credit: Cerritos LIbrary

*with safe solar viewing equipment, of course!

For questions, contact
Anne Holland
(aholland@spacescience.org) or
Brooks Mitchell
(bmitchell@spacescience.org)

STAR★net
Science-Technology Activities & Resources For Libraries

GORDON AND BETTY MOORE FOUNDATION