

STEM Events for Your Library's 2018 Programming

December 12, 2017


Presenter: Brooks Mitchell

The webinar will begin at 1:00 p.m. (MT) and will be recorded.

While you're waiting:

- 1) Introduce yourself in the chat box (Library and City/State)
- 2) Answer our poll question
- 3) Test your audio by clicking on "Meeting" and then "Audio Setup Wizard". You will not need a mic for this webinar.



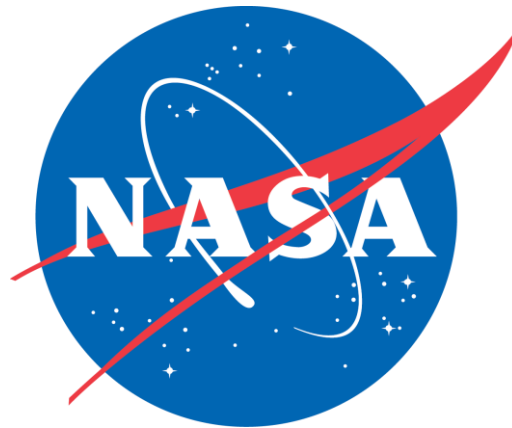
Audio problems? Click and highlight the  button at the top of your screen. You can also click "Meeting" > "Audio Setup Wizard". You will not need microphone capabilities.

Today's Agenda

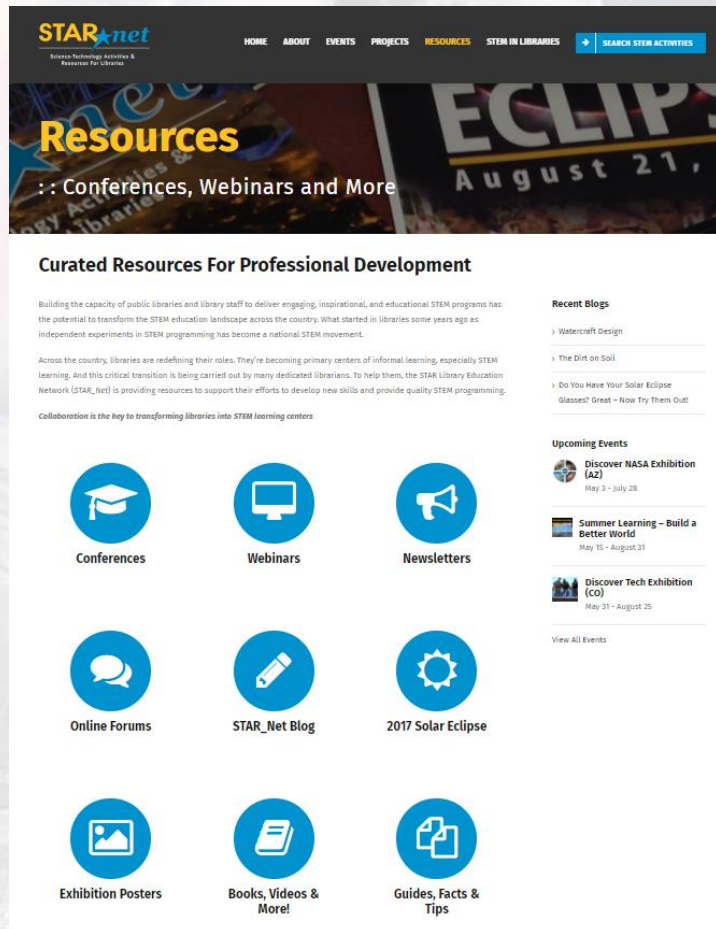
- Professional Development Resources
- **Engineers Week (Feb. 18-24)**
- **Earth Day (April 22)**
- **NASA InSight Mission (May 5 *and* November 26)**
- **Parker Solar Probe Launch (July 31)**
- **Lights on Afterschool (October 25)**
- **International Observe the Moon Night (October 20)**
- Q&A



Thanks to Our Partners



Join STAR Net!



STARnet
Science-Technology Activities &
Resources For Libraries

HOME ABOUT EVENTS PROJECTS RESOURCES STEM IN LIBRARIES + SEARCH STEM ACTIVITIES

Resources


:: Conferences, Webinars and More

Curated Resources For Professional Development


Building the capacity of public libraries and library staff to deliver engaging, inspirational, and educational STEM programs has the potential to transform the STEM education landscape across the country. What started in libraries some years ago as independent experiments in STEM programming has become a national STEM movement.

Across the country, libraries are redefining their roles. They're becoming primary centers of informal learning, especially STEM learning. And this critical transition is being carried out by many dedicated librarians. To help them, the STAR Library Education Network (STAR_Net) is providing resources to support their efforts to develop new skills and provide quality STEM programming.


Collaboration is the key to transforming libraries into STEM learning centers




Conferences




Webinars




Newsletters




Online Forums




STAR_Net Blog




2017 Solar Eclipse



Exhibition Posters



Books, Videos & More!



Guides, Facts & Tips

Recent Blogs

- Watercraft Design
- The Dirt on Soil
- Do You Have Your Solar Eclipse Glasses? Great - Now Try Them Out!

Upcoming Events

- Discover NASA Exhibition (AZ)
May 3 - July 28
- Summer Learning - Build a Better World
May 15 - August 31
- Discover Tech Exhibition (CO)
May 31 - August 25

[View All Events](#)

Professional development resources including webinars, newsletters, blogs, forums, videos, and much more!

Upcoming Webinars

- Webinars are announced and archived at:
<http://www.starnetlibraries.org/resources/webinars/>
- **Building a Better Program for Engineer's Week**
 - Tuesday, January 9th at 1:00 p.m. (MT)
 - [Register Here](#)
- **Celebrate 60 Years of Earth Observations with NASA**
 - Tuesday, March 6th at 1:00 p.m. (MT)
 - Registration Opens Early February

STEM ACTIVITY Clearinghouse

For example:
[DIY Sun Cookies](#)

STEM Activity Clearinghouse

Search

STARnet Science-Technology Activities & Resources For Libraries

Cornerstones of Science awakening curiosity, enriching lives

Collections 2017 Total Solar Eclipse

ATTRIBUTES

2017 TOTAL SOLAR ECLIPSE

There are 7 items.

Showing 1 - 7 of 7 items

Content Area

- ☐ Earth Science (0)
- ☐ Astronomy and Space (0)
- ☐ Chemistry (0)
- ☐ Physics (0)
- ☐ Engineering (0)
- ☐ Mathematics (0)
- ☐ Technology and Computing (0)
- ☐ Health Science (0)

Age Group

- ☐ Family (0)
- ☐ Infant (0-2) (0)
- ☐ Pre-K (0)
- ☐ Early Elementary (0)
- ☐ Upper Elementary (0)
- ☐ Tweens (9-12) (0)
- ☐ Teens (0)
- ☐ Adults (0)

Time to Complete Activity

- ☐ Under 10 minutes (0)
- ☐ 10-20 minutes (0)
- ☐ 20-40 minutes (0)
- ☐ 40 minutes to 1 hour (0)
- ☐ 1-2 hours (0)
- ☐ 2-4 hours (0)
- ☐ Long Duration (days to months) (0)

How Big, How Far, How Hot, How Old?

This is an activity about scale. Participants will arrange imagery of Earth and many other space objects in order of their size from smallest to largest, their distance from Earth's surface, their temperature from coolest to hottest, and/or their age from youngest to oldest.

[Open Activity](#) [Report broken link](#)

Content Area

- Earth Science
- Astronomy and Space

Age Group

- Family
- Upper Elementary
- Tweens (9-12)

Time to Complete Activity

10-20 minutes

Difficulty Level (by content)

Medium

[View Details](#)

How Can the Little Moon Hide the Giant Sun?

This is an activity exploring the concept that distance affects how we perceive an object's size, specifically pertaining to the size of the Sun and the Moon as seen from Earth.

[Open Activity](#) [Report broken link](#)

Content Area

- Earth Science
- Astronomy and Space

Age Group

- Early Elementary
- Upper Elementary

Time to Complete Activity

40 minutes to 1 hour

Difficulty Level (by content)

Easy



Like an activity and think other library staff should know how great it is? Didn't like an activity or have modifications to make it better? **Make sure to leave a review!**

Engineers Week

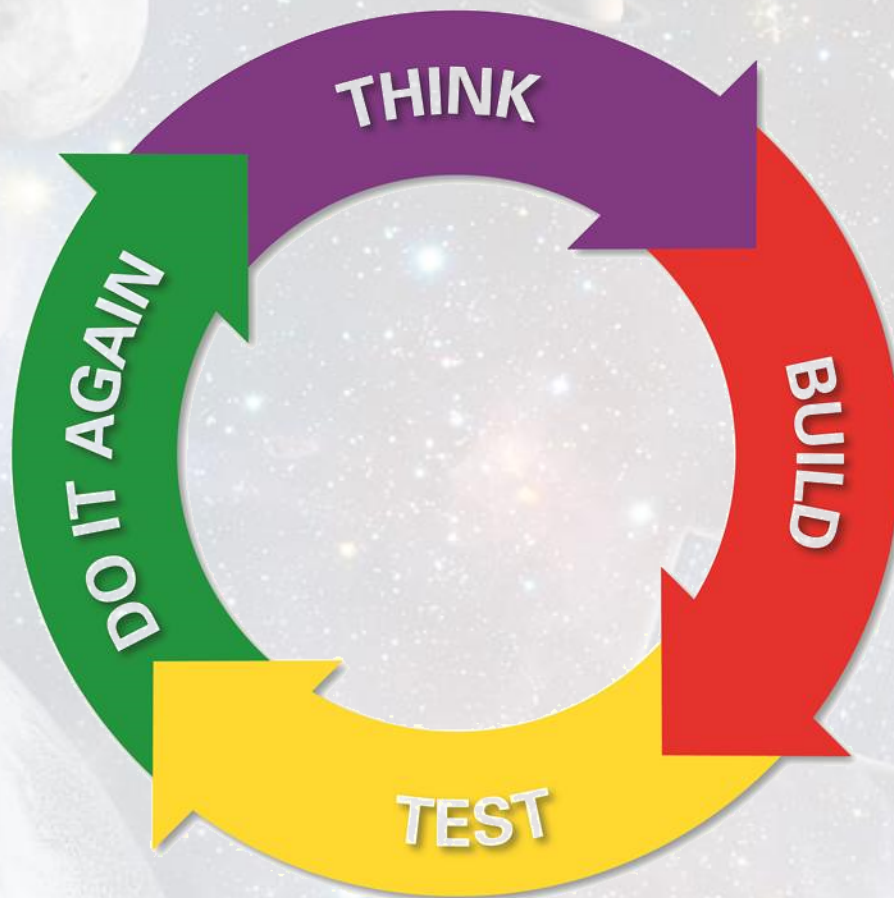
February 18-24, 2018

- Celebrate how engineers make a difference in our world
- Increase public dialogue about the need for engineers
- Bring engineering to life for kids, educators, and parents

Engineers Week Resources

- [Engineers Week](#) landing page on STAR Net
- Building a Better Program for Engineers Week webinar on Tue., Jan. 9 at 1:00 pm MST
 - [Register here](#)
- STEM Activity Clearinghouse Collections
 - [Span-tastic Bridges](#)
 - [Designed to Survive](#)
 - [Clean Up Our World](#)
 - [Power From Nature](#)
- [DiscoverE resources](#) and [Dream Big](#) Resources

Be Creative...Be an Engineer!



Daylight in a Bottle



Hands-on STEM: Daylight in a Bottle

Looking for a way to “shine a light” on the world of engineering and sustainable energy at your library? Look no further than [Daylight in a Bottle](#).

This activity highlights **daylighting**, or the act of using natural light to brighten a room - it is simple, easy, fun, and cheap! Make sure to watch the videos in the Related Links section to learn more about how this method is used in other parts of the world. As always, please leave a review and let us know what you think.

[Activity Link](#)

[Liter of Light Video](#)

[Liter of Light Instructional Video](#) (more complex)

Earth Day

Chat Box: What has your library done successfully in the past for Earth Day?

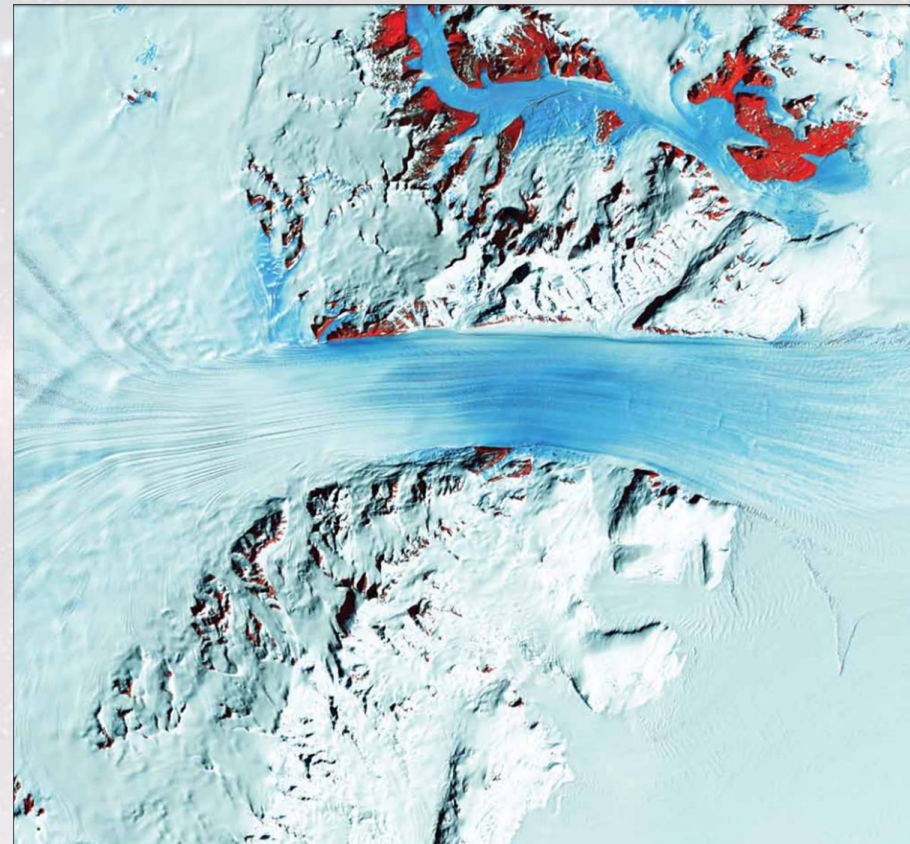
60 Years of Earth Observations from Space

On Jan. 31, 1958, the first U.S. satellite, Explorer 1, was launched. This was the start of extraordinary technological and scientific advances, improving both understanding of our planet and the lives we lead on it.

Celebrate Earth Day 2018 and beyond with NASA resources for exploring your planet and neighborhood, and contributing to NASA science through the GLOBE Observer citizen science app. Resources, and programming ideas will be available to support a wide range of library programs and audiences: children, families, tweens/teens, and adults. Use Earth day to connect science to your community interests, including the following topics, and many more!

Earth Day Programming Ideas

- Environmental awareness and stewardship
- Recycling
- Photography
- Gardening, planning or community gardens
- Local/library cleanup
- Nature walks
- Citizen science
- Agriculture
- 60 years of change in my community
- Arts and crafts
- Story hour
- Book clubs and reading lists
- Art and science

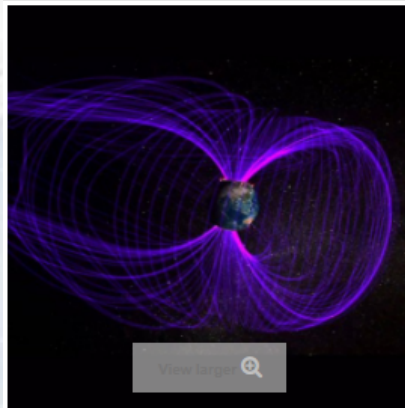


Earth Day Resources

- [NASA Globe Observer](#) – Citizen Science!!
 - [2017 Webinar Recording](#)
- 2018 Webinar on March 6
 - Registration will open early February
- [2017 Earth Science for a Better World](#) webinar recording
- Favorite Earth Day activities
 - [Who Dirtied the Water?](#)
 - [UV Kid](#)
 - [Low Tech Water Filter](#)
 - [Exploring Earth: Investigating Clouds](#)

Neato Magneto

Activity Link



Neato-Magneto Planets

Participants study magnetic fields at four separate stations: examining magnetic fields generated by everyday items, mapping out a magnetic field using a compass, creating models of Earth's and Jupiter's magnetic fields, and observing aurora produced by magnetic fields on both planets.

[Open Activity](#)

[How-to Video](#)

Hints for use in your library: Have the children use caution when experimenting with magnets! They should not be brought near computers, computer monitors, audio tapes, or other magnetic devices.

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[f Share](#)

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[Pinterest](#)



[Write a review](#)



[Send to a friend](#)



[Print](#)

Content Area
Earth Science

Age Group
Family
Upper Elementary
Twins (9-12)

Time to Complete Activity
10-20 minutes
40 minutes to 1 hour

Time needed to prep Activity
10-20 minutes

Cost associated with Activity Materials
\$1-\$5

Difficulty Level (by content)
Medium

Mess Level
Medium

[Report a broken link](#)

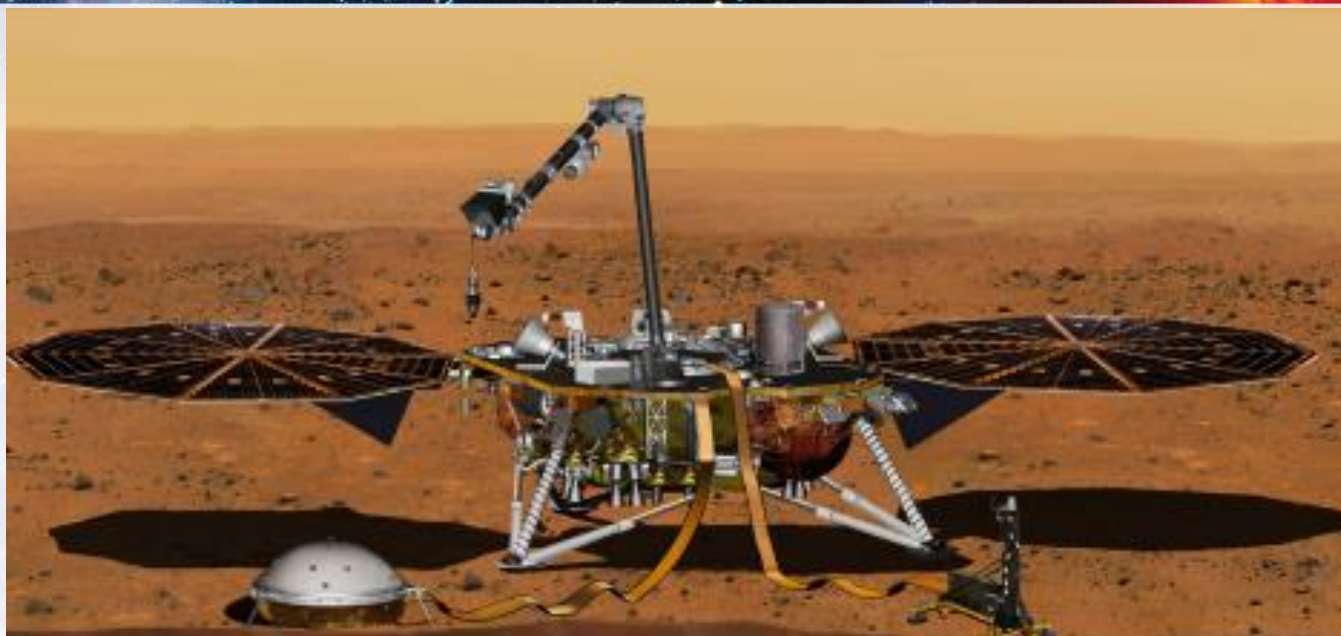
[Categorized Incorrectly? Let us know!](#)

MORE INFO

Participants study magnetic fields at four separate stations: examining magnetic fields generated by everyday items, mapping out a magnetic field using a compass, creating models of Earth's and Jupiter's magnetic fields, and observing aurora produced by magnetic fields on both planets.

Mars InSight Launch *and* Landing

- NASA Discovery Program mission that will place a single geophysical lander on Mars to study its deep interior
- Understanding the interior of Mars and the processes that shaped the rocky planets/inner solar system over four billion years ago
- Using sophisticated geophysical instruments
- Launches on May 5 and lands November 26



InSight Mission Overview

Launch opportunity opens — May 5, 2018

Landing — November 26, 2018

Surface operations — 728 days / 708 sols

Instrument deployment — About 60 sols (including 20 sols margin)

**Data volume over 1 Martian year — More than 29 GB
(processed seismic data posted to the Web in 2 weeks;
remaining science data less than 3 months, no proprietary
period)**

Mars InSight Resources

- [STAR Net InSight Landing Page](#)
- [NASA InSight Home Page](#)
- Off to Mars! Programming Ideas for the InSight Launch webinar on March 13th
 - Registration will open in mid February

Mars InSight Activities

- [Search for Life](#)
- [Recipe for a Planet \(Mars Edition\)](#)
- [Dunking the Planets](#)
- [Mars Match Game](#)
- [Build a Space Colony](#)

Strange New Planet

- [Activity Link](#)

[Home](#) > [Activities](#) > [Astronomy and Space](#) > [Strange New Planet](#)

[Back to Search results for "strange" \(2 other results\)](#)



[View larger](#)

Strange New Planet

In this simulation of space exploration, participants plan and carry out five missions to a "planet" and communicate their discoveries to their family or a friend.

[Open Activity](#)

[Teacher's Guide](#)

[Tweet](#)

[f Share](#)

[Google+](#)

[Pinterest](#)

Rating ★★★★★

Participants Enjoyed the Activity ★★★★★☆

Participants Learned from This Activity ★★★★★☆

Activity Instructions Were Clear and Easy to Follow

★★★★★

Would Recommend ★★★★★



Read reviews (1)



Write a review

Content Area

Astronomy and Space

Age Group

Family

Early Elementary

Upper Elementary

Tweens (9-12)

Time to Complete Activity

40 minutes to 1 hour

Time needed to prep Activity

20-40 minutes

Cost associated with Activity Materials

\$10-\$20

[Report a broken link](#)

[Categorized Incorrectly? Let us know!](#)

[Send to a friend](#)

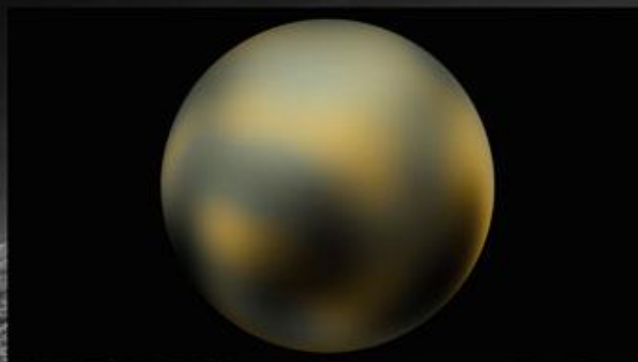
[Print](#)

Telescope View from Earth



Background Image Credit: NASA/JHU APL/SwRI
Inset Image Credit: Dr. R. Albrecht, ESA/ESO Space Telescope
European Coordinating Facility: NASA

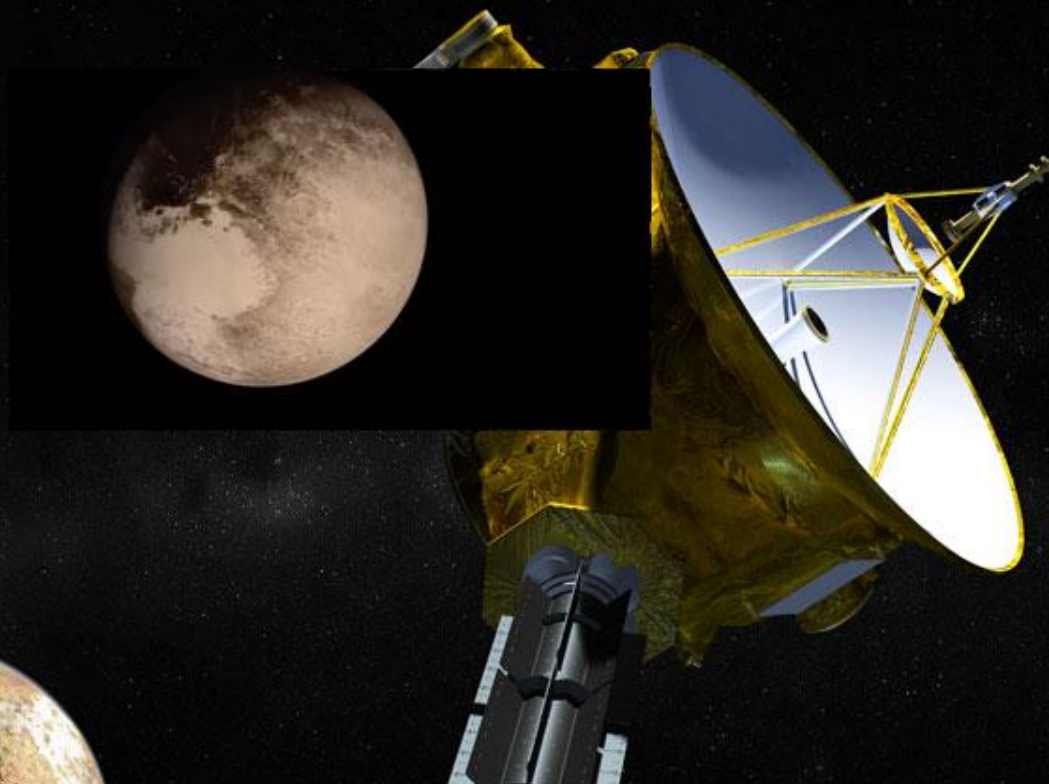
Telescope View from Space



Background Image Credit: NASA/JHU APL/SwRI

Inset Image Credit: NASA, ESA, and M. Buie (Southwest Research Institute)

Space Probe



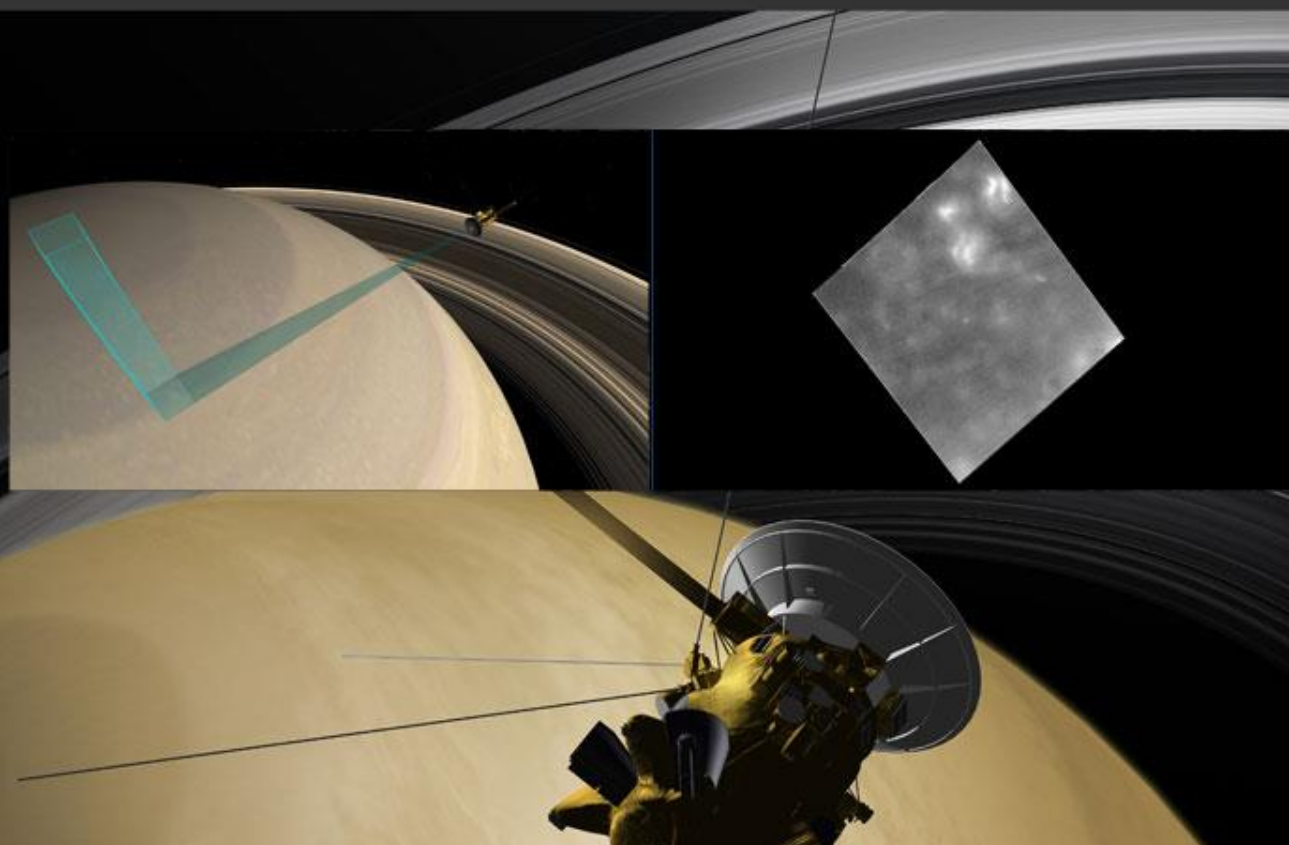
Background Image Credit: NASA
Inset Video Credit: NASA

Space Probe



Credit: NASA/Johns Hopkins University Applied
Physics Laboratory/Southwest Research Institute

Orbiter: Cassini at Saturn



Background Image Credit: NASA / Jet Propulsion Laboratory - Caltech
Inset Videos Credit: NASA/JPL-Caltech/
Space Science Institute/Hampton University

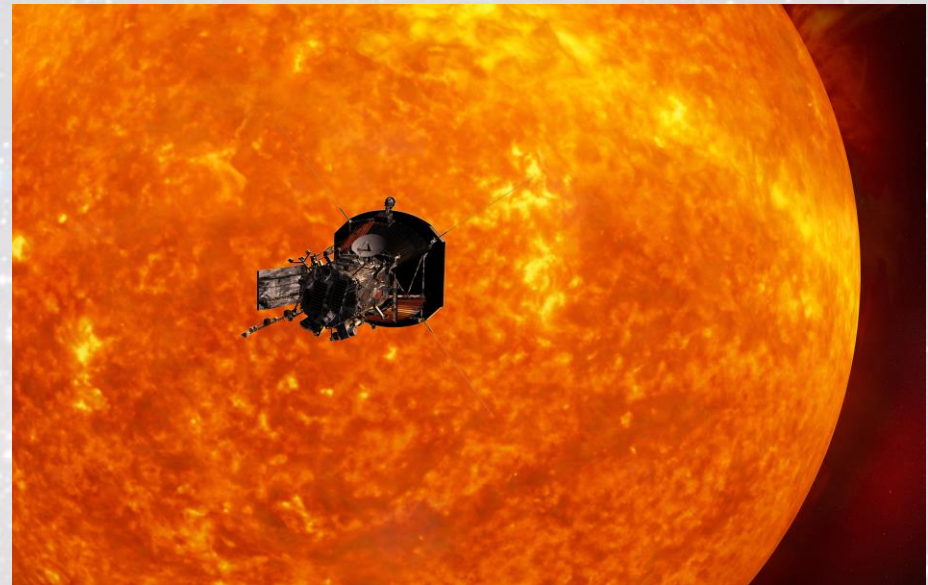
Lander: Curiosity Rover on Mars



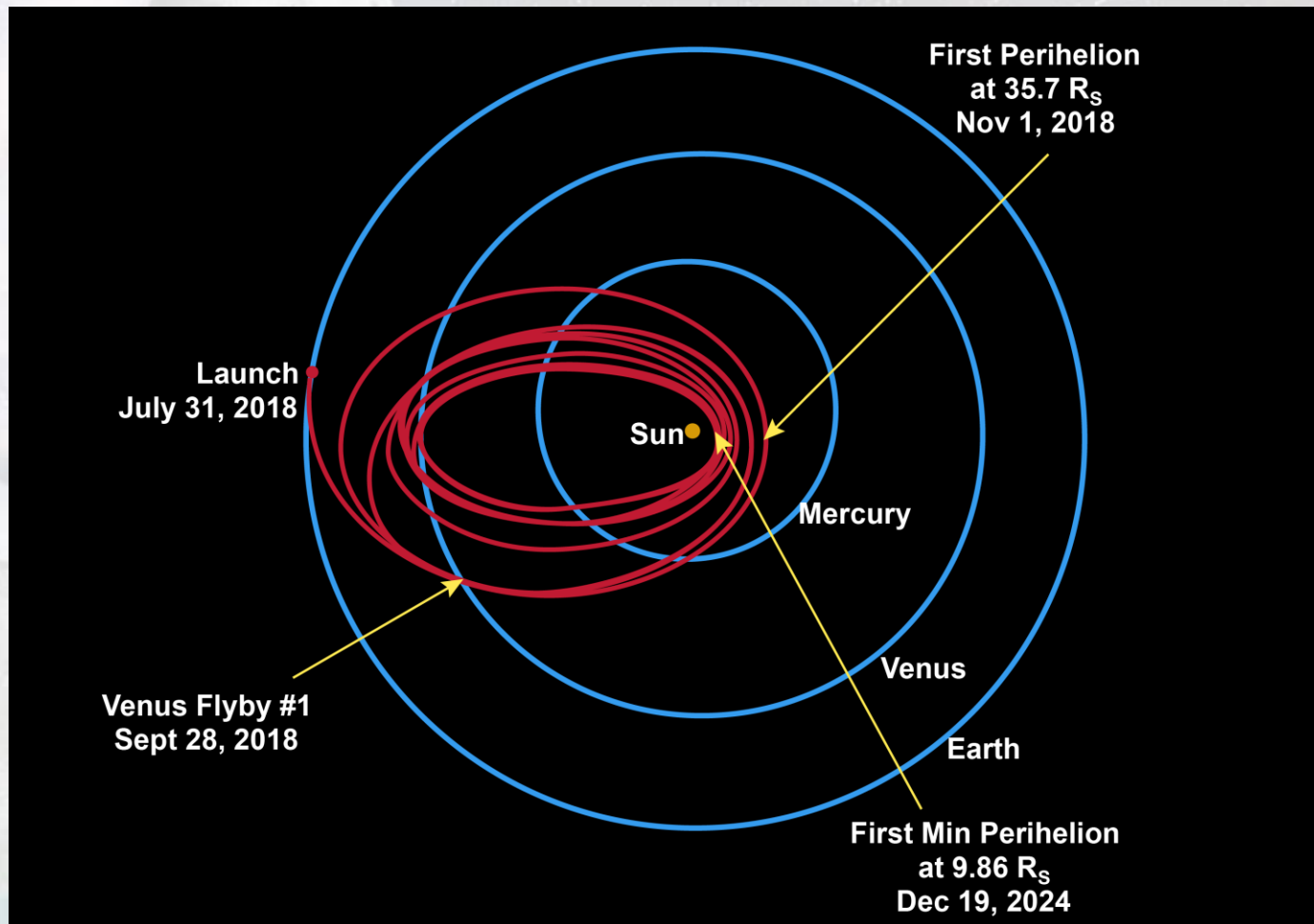
Credit: NASA/JPL-Caltech/MSSS

Parker Solar Probe

- NASA mission to “Touch the Sun”
- Launch window starts July 31, 2018
- Coming within four million miles of the Sun
 - Seven times closer than ever before
- Experiencing temperatures reaching 2,500 Fahrenheit



Mission Trajectory



Courtesy:
parkersolarprobe.
jhuapl.edu

Parker Solar Probe Resources

- [Parker Solar Probe Landing Page](#)
- Repurpose your 2017 Eclipse ideas!
 - ([2017 Solar Eclipse Clearinghouse Collection](#))
- Solar Vision app
- [NASA Parker Homepage](#)

How Big? How Far? How Hot?



Activities

Astronomy and Space

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

[◀ Back to Search results for "how far" \(10 other results\)](#)



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

This NASA@ My Library Activity Guide will help library staff facilitate these sorting activities in large or small groups, with patrons from Pre-K to adult.

[Open Activity](#)



Tweet



Share



Google+



Pinterest



Write a review



Send to a friend



Print

Content Area

Astronomy and Space

Age Group

Family

Pre-K

Early Elementary

Upper Elementary

Tweens (9-12)

Teens

Adults

Time to Complete Activity

10-20 minutes

Time needed to prep Activity

Under 5 minutes

Difficulty Level (by content)

Medium

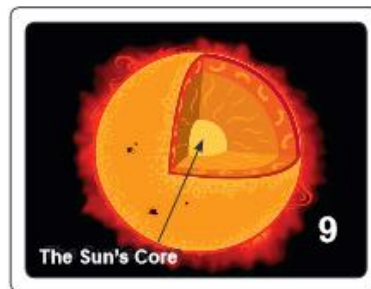
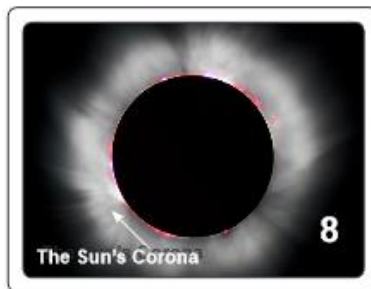
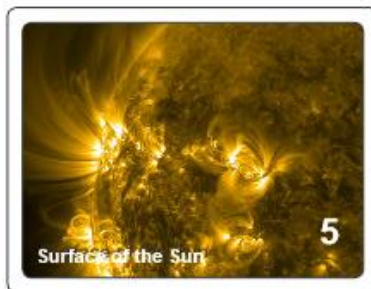
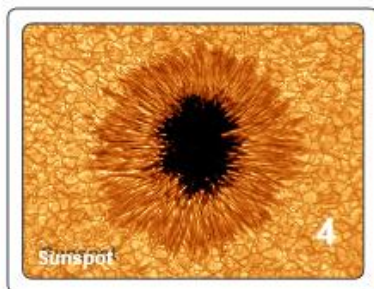
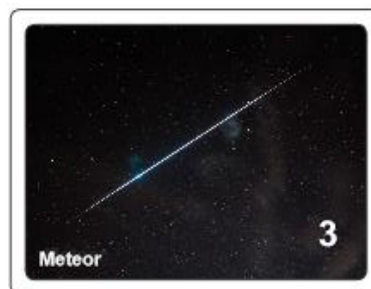
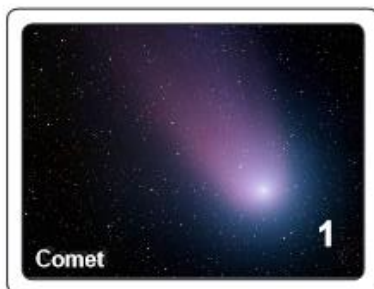
Mess Level

Low

[Report a broken link](#)

[Categorized Incorrectly? Let us know!](#)

Sorting Game Cards - How Hot?



Simple Instructions - How Hot?

- This is the card deck with the sunspot on top (marked with red dots on the back).
- Ask participants to grab a card (or a few if you have a small group) and line up in the correct order for the objects (from coldest to hottest)
- The suggested "correct" order is: 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). Remember though, there is a large variance in temperatures, and the discussion is more important than the right answers (see images at the end of this guide).
- If participants are getting stuck, consider providing the following hints (remember, you're a "guide on the side" – you don't need to provide correct answers, just start a discussion!):
 - Comets absorb and reflect solar light, they don't have any light (or heat) source of their own.
 - Sunspots are cooler than the rest of the Sun's surface.
 - Lava can melt metal, but dissipates heat so quickly it can flow through tubes without re-melting them.
 - The Earth's core is actually hotter than the Sun's surface!
 - Lightning bolts can be up to 5x hotter than the surface of the Sun!




Frequently Asked Questions:

- How hot is lava?
Up to 2,000 °F, depending on its speed and composition
- Is the Sun's atmosphere (corona) the coolest part of the Sun?
No! It's actually one of the hotter parts, hotter than the surface and sunspots. The reason is still a mystery, but it may have something to do with the Sun's changing magnetic fields.

Scale Model of Sun and Earth

[Home](#) > [Activities](#) > [Astronomy and Space](#) > [Scale Model of Sun and Earth](#)

[◀ Back to Search results for "scale" \(7 other results\)](#)




View larger


Scale Model of Sun and Earth


This is a lesson about size and scale, also called the Solar Pizza.

Open Activity

[Tweet](#) [Share](#) [Google+](#) [Pinterest](#)

 Write a review

 Send to a friend

 Print

Content Area
Astronomy and Space

Time to Complete Activity
Under 10 minutes

Difficulty Level (by content)
Easy

Mess Level
Low

Report a broken link

Categorized Incorrectly? Let us know!

MORE INFO

This is a lesson about size and scale, also called the Solar Pizza. Learners, or the facilitator, will cut out scaled images of the Sun and Earth and walk them approximately sixty-five feet apart to

How to Video Link: <https://www.youtube.com/watch?v=r-TdpeSZStg>

Lights on Afterschool

- October 25, 2018
- Presented by the [Afterschool Alliance along with numerous partners](#)
- [STAR Net Webinar Recording Link](#)
- 2018 Webinar will occur in early August
- Afterschool Alliance [report on how libraries and afterschool providers work together](#)

Survey Highlights

365

afterschool
providers

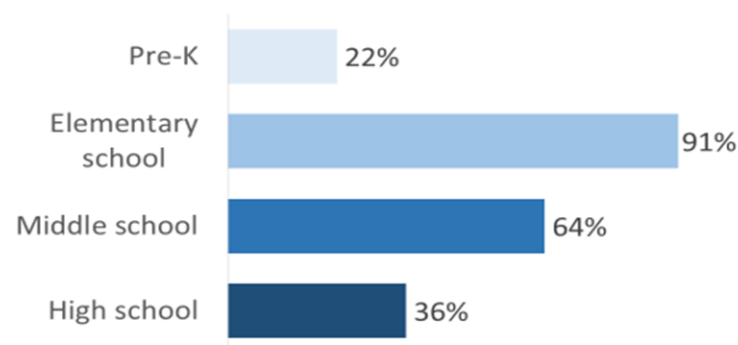
98%

believed there
are benefits to
partnering with
public libraries

74%

have worked
with a public
library before

Ages of students served



What are afterschool programs and libraries doing together?

Summer reading or summer learning initiative.	65%
Library visit (e.g. to check out books, use computers, see an exhibit, etc.)	58%
Special events (such as a family night, Maker Faire, or other themed event)	48%
Librarian outreach	43%
Visited library for an education program	41%
Science, technology, engineering or math (STEM) education	29%
Book share or donation.	25%
Curriculum development or support (any topic).	18%
Professional development (library staff training afterschool educators)	11%
Other	5%

STEM Partnerships

- Of those who've worked with a public library before, only 29% have done STEM.
- Of those who hadn't worked with a public library, 63% had not considered a partnership in STEM.

“

I wasn't aware
libraries had STEM.

I thought of them more
as a literacy resource.

”



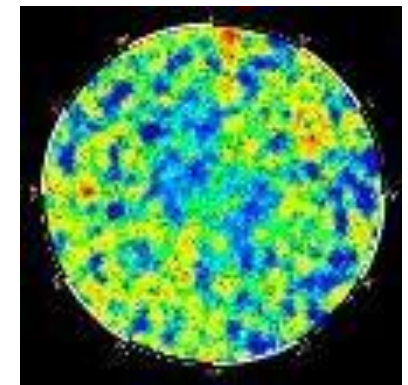
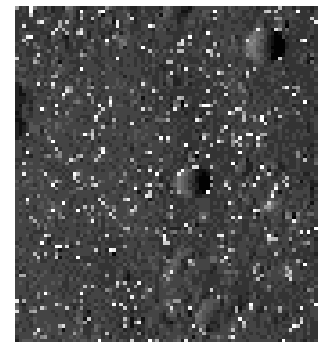
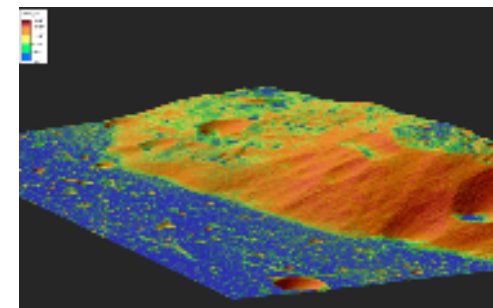
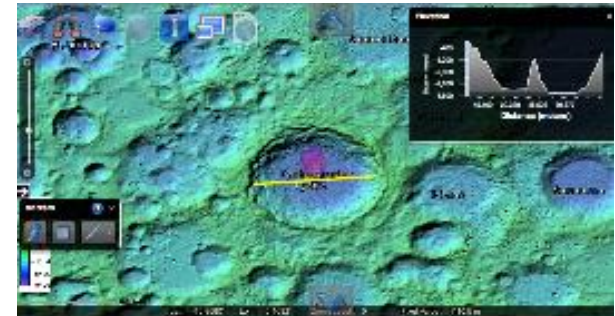
Photo courtesy of Ypsilanti District Library, MI

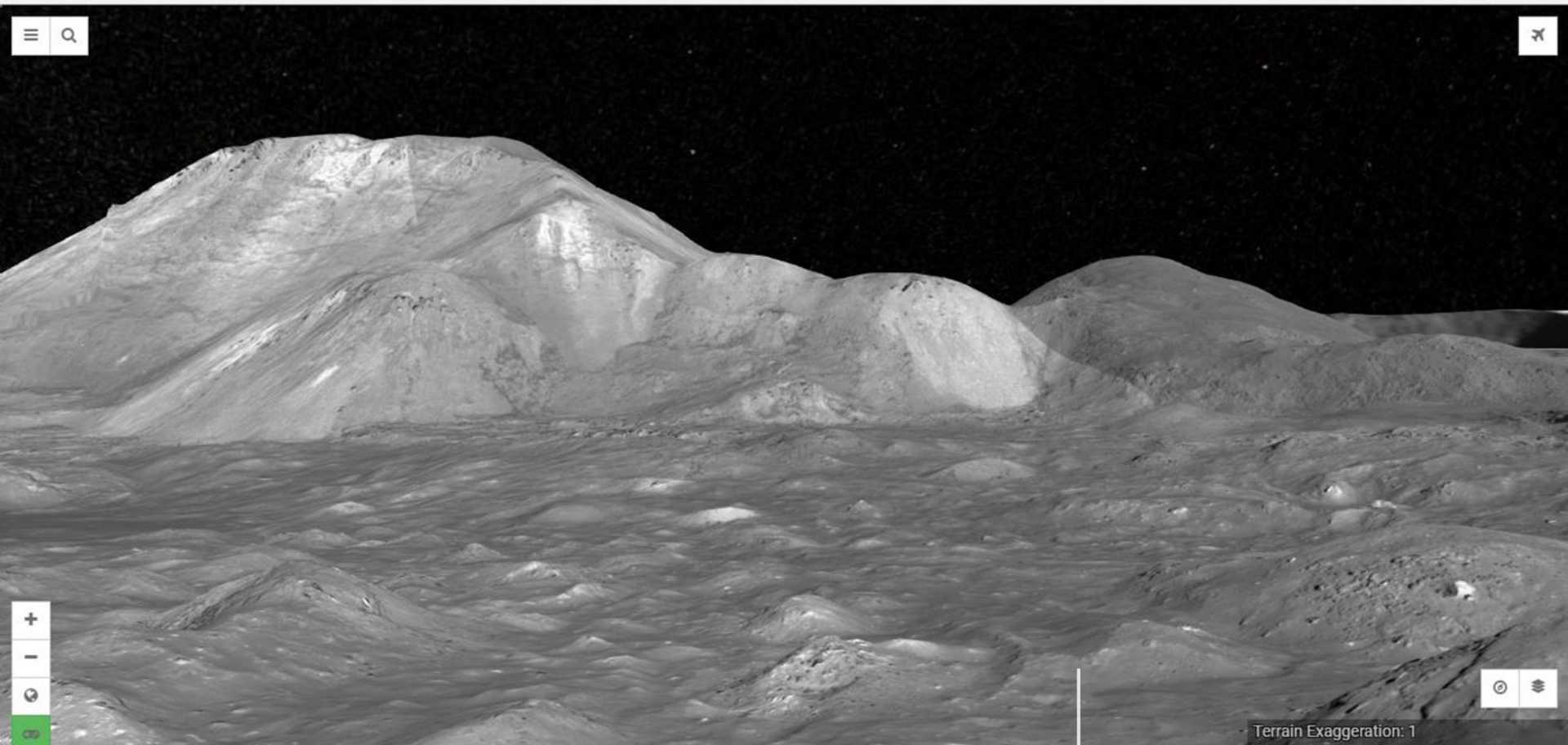
International Observe the Moon Night

- Will occur on October 20, 2018
- [Official InOMN Website](#)
- [2017 Webinar Recording](#)
 - 2018 STAR Net Webinar will occur in mid-August
- [STEM Activity Clearinghouse Moon Collection](#)
- [NASA Moon Trek Website](#)

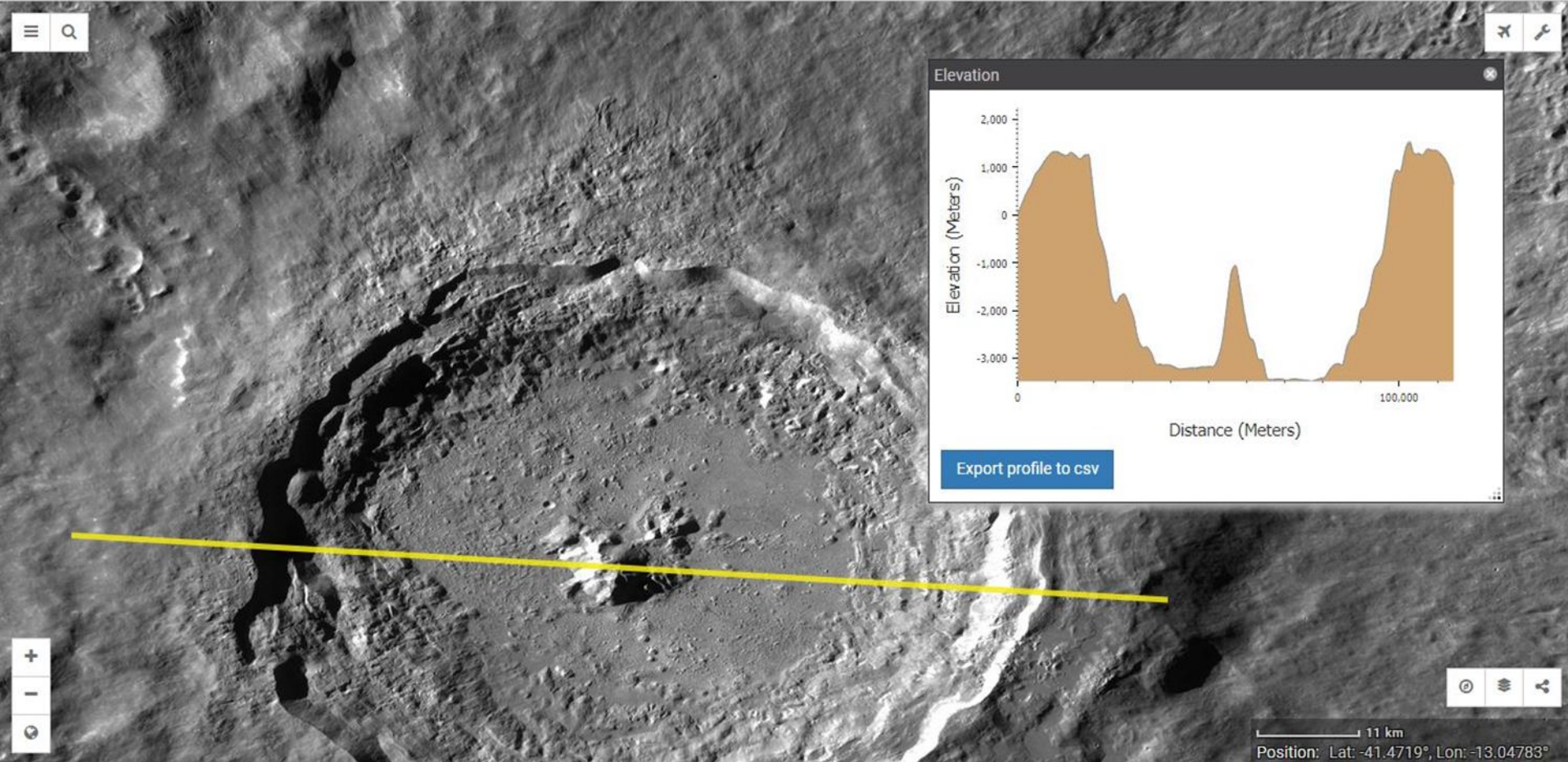
Moon Trek

- Analysis tools
 - Lighting, Slope, Hazard, Profile, Sun angle
- Browse, search and download of data products
- Visualization (with overlays)
- Collaboration (bookmark)
- 3D print and terrain view
- Data
 - LRO, Apollo, LP, GRAIL, Clementine, Chandrayaan-1, Kaguya
 - Gravity models, Imagery, DEMs, Hazards, Resources
- Users
 - Missions, Lunar scientists, EPO

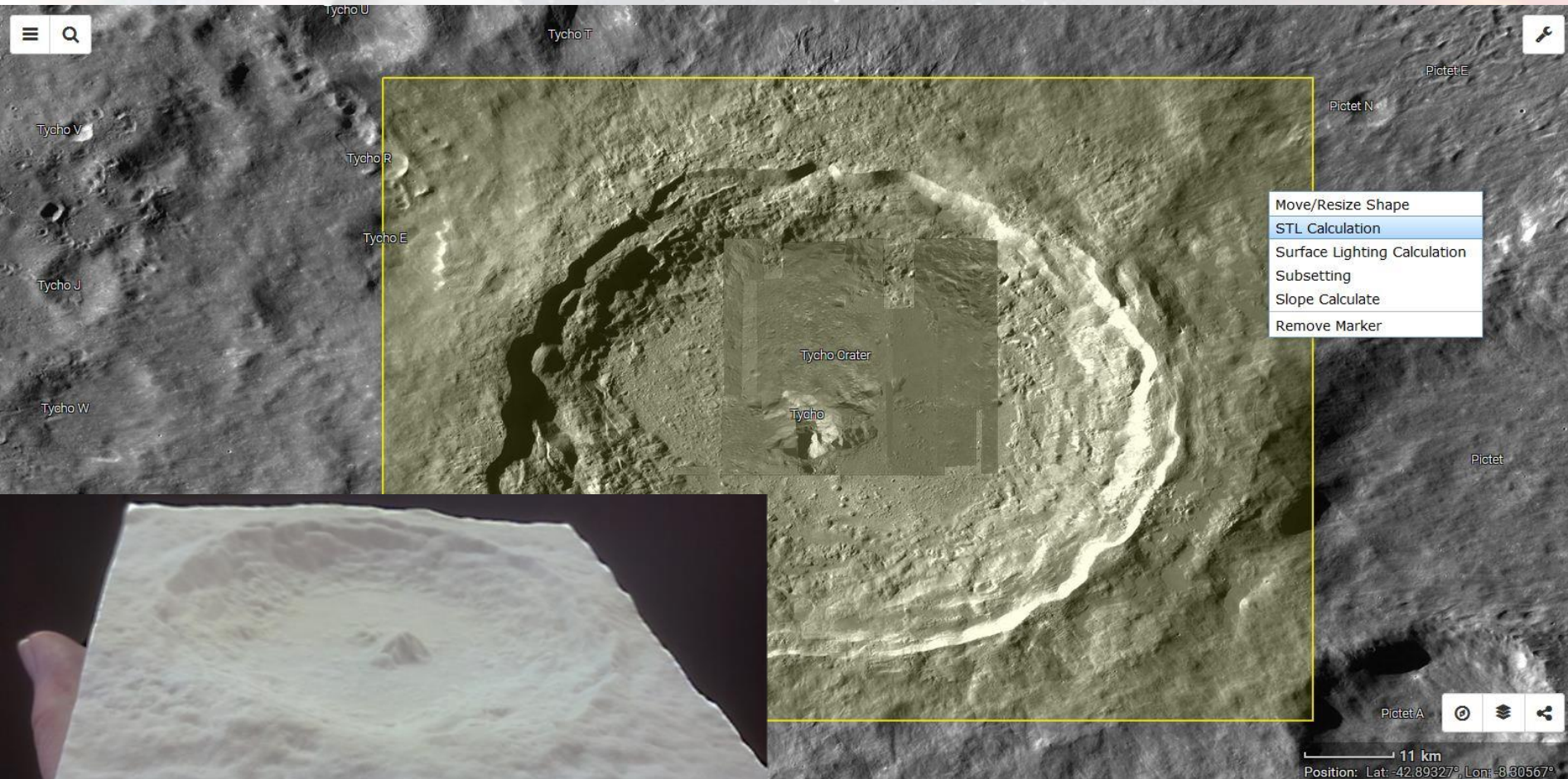




Terrain Exaggeration: 1



3D Print Generation



Thank you!

STAR Net

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www.facebook.com/STARLibraries

twitter.com/STARNet_Project