

# Welcome to Daytime Astronomy at Your Library! Before we begin, take a moment to answer some of the following questions with members of your table:

- What is your earliest memory of the Moon?
- When was the first time you used a telescope?
- If given the opportunity, would you become an astronaut? Why or why not?
- Congratulations! Whether you like it or not, you are now an astronaut. You are allowed to take one shoebox worth of personal items to keep you comfortable on your first mission...what's in your shoebox?
- If you lived on the International Space Station, what would your job be?

# Daytime Astronomy at Your Library

Saturday, June 24, 2017

**STAR**★net

Science-Technology Activities &  
Resources For Libraries



# Presenters

## ***NASA @ My Library Initiative/STAR\_Net Project***

- Lainie Castle
  - Project Director for the American Library Association Public Programs Office
- Paul Dusenbery
  - Director, National Center for Interactive Learning (NCIL)/Space Science Institute (SSI)
- Anne Holland
  - Community Engagement Manager, NCIL/SSI
- Keliann LaConte
  - Professional Development Manager, NCIL/SSI
- Brooks Mitchell
  - Education Coordinator, NCIL/SSI

# Session Agenda


- Welcome and Introductions
- Background on the Solar Eclipse/Making Sun Cookies
- Facilitated Hands-on Activities
- Spectrum of Eclipse-related Resources
- Safety While Solar Viewing
- Outside Solar Viewing Stations
- Close



# A Show of Hands


- What kind of library do you come from?
- Are you currently planning a program for the 2017 Great American Eclipse?
- Did you receive an Eclipse Kit from us?

# Hands-on Activity Guide: Sun Cookies




Science-Technology Activities &  
Resources For Libraries

In partnership with




**Cornerstones  
of Science**  
awakening curiosity, enriching lives



---

Activities > Astronomy and Space > Sun Cookies



View larger

### Sun Cookies

Learners will use candy pieces and a cookie to make an accurate model of the Sun that they can eat.

[Open Activity](#)

Report broken link

Tweet
 Share
 Google+
 Pinterest

Write a review

Send to a friend
 Print

**Content Area**  
Astronomy and Space

**Age Group**  
Family  
Early Elementary  
Upper Elementary  
Twens (9-12)  
Adults

**Time to Complete Activity**  
10-20 minutes

**Time needed to prep Activity**  
5-10 minutes

**Difficulty Level (by content)**  
Easy

**Mess Level**  
Medium

**MORE INFO**

Learners will use candy pieces and a cookie to make an accurate model of the Sun that they can eat. This activity is from the DIY Sun Science app and is for ages 7 and up.



Our Star, the Sun



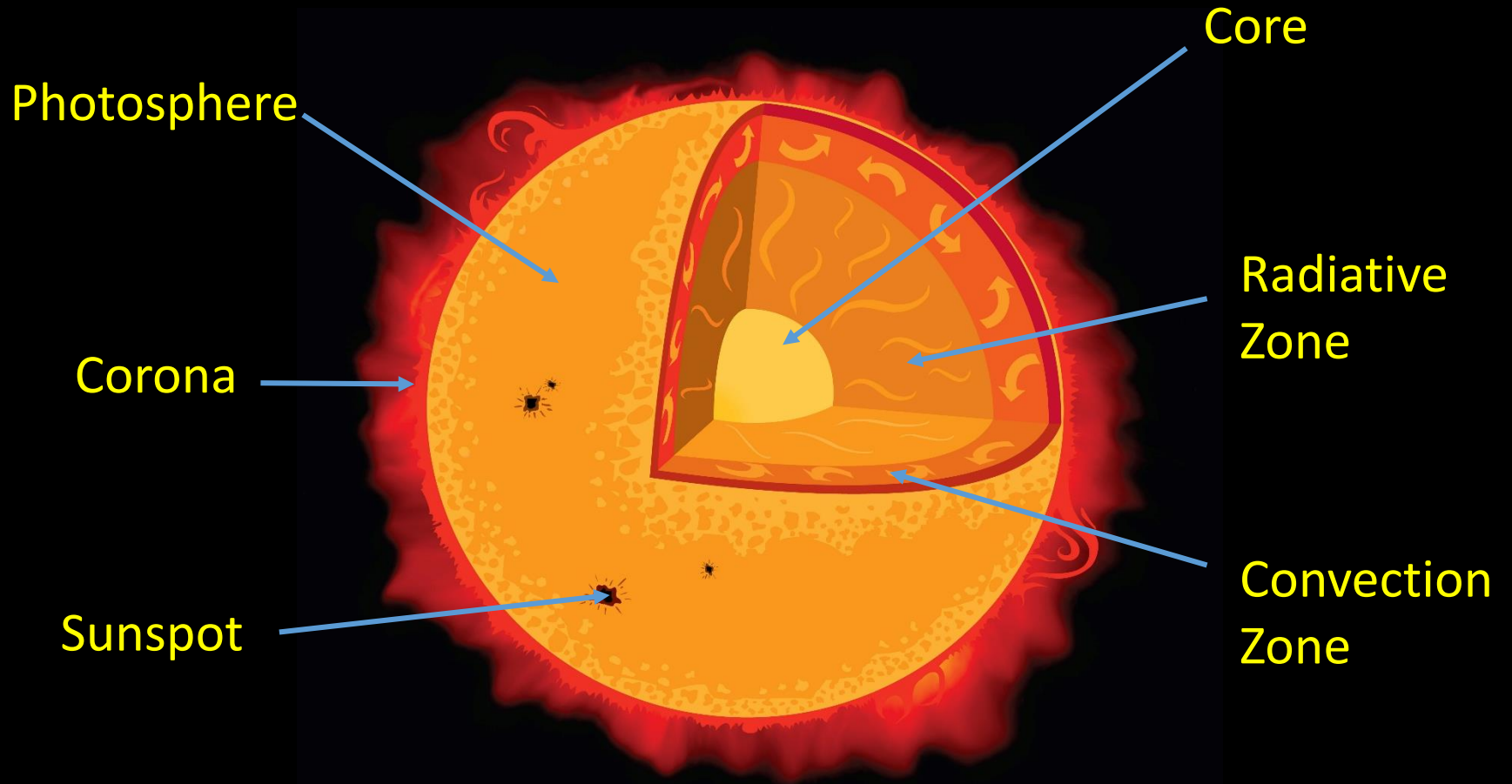


00103



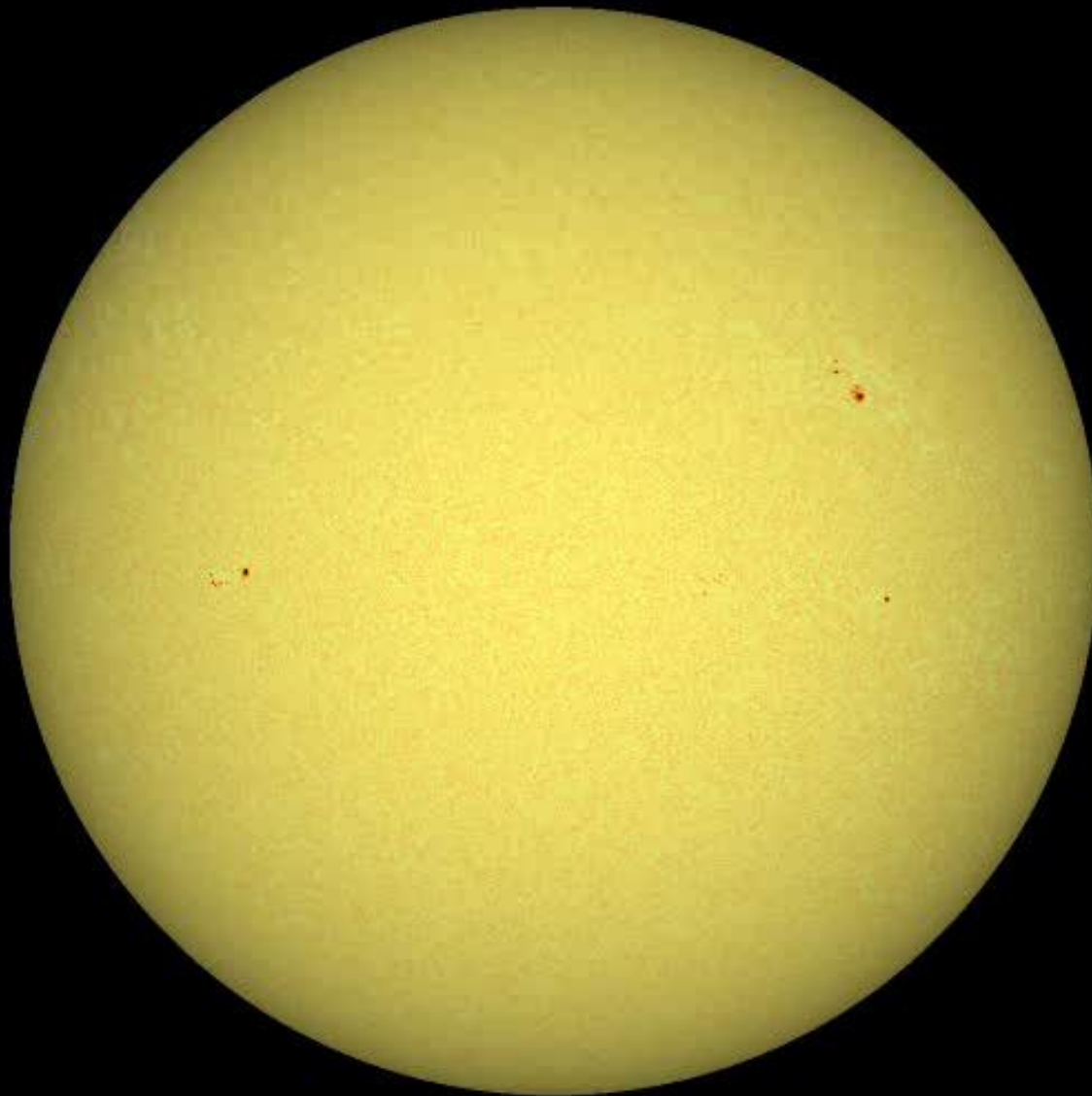


# Regions of the Sun

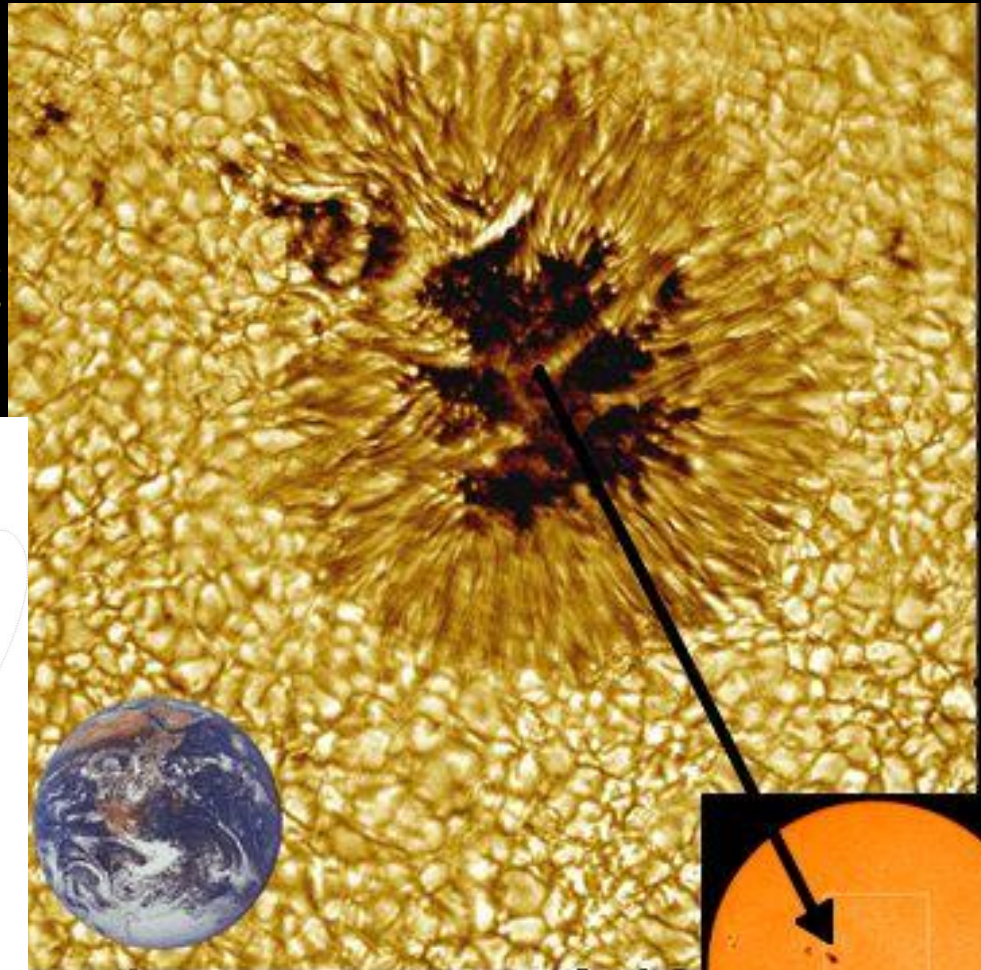
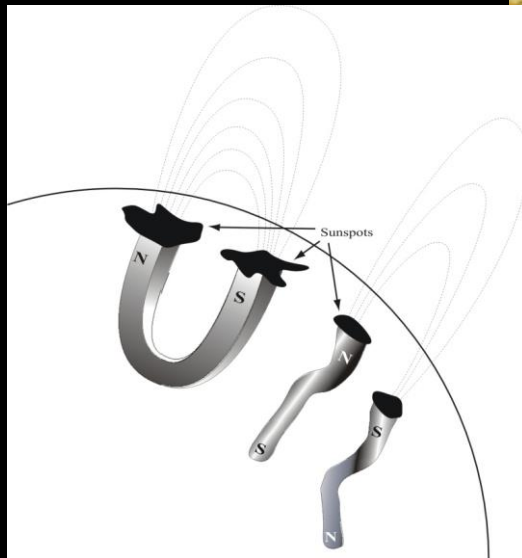




Seeing  
Spots

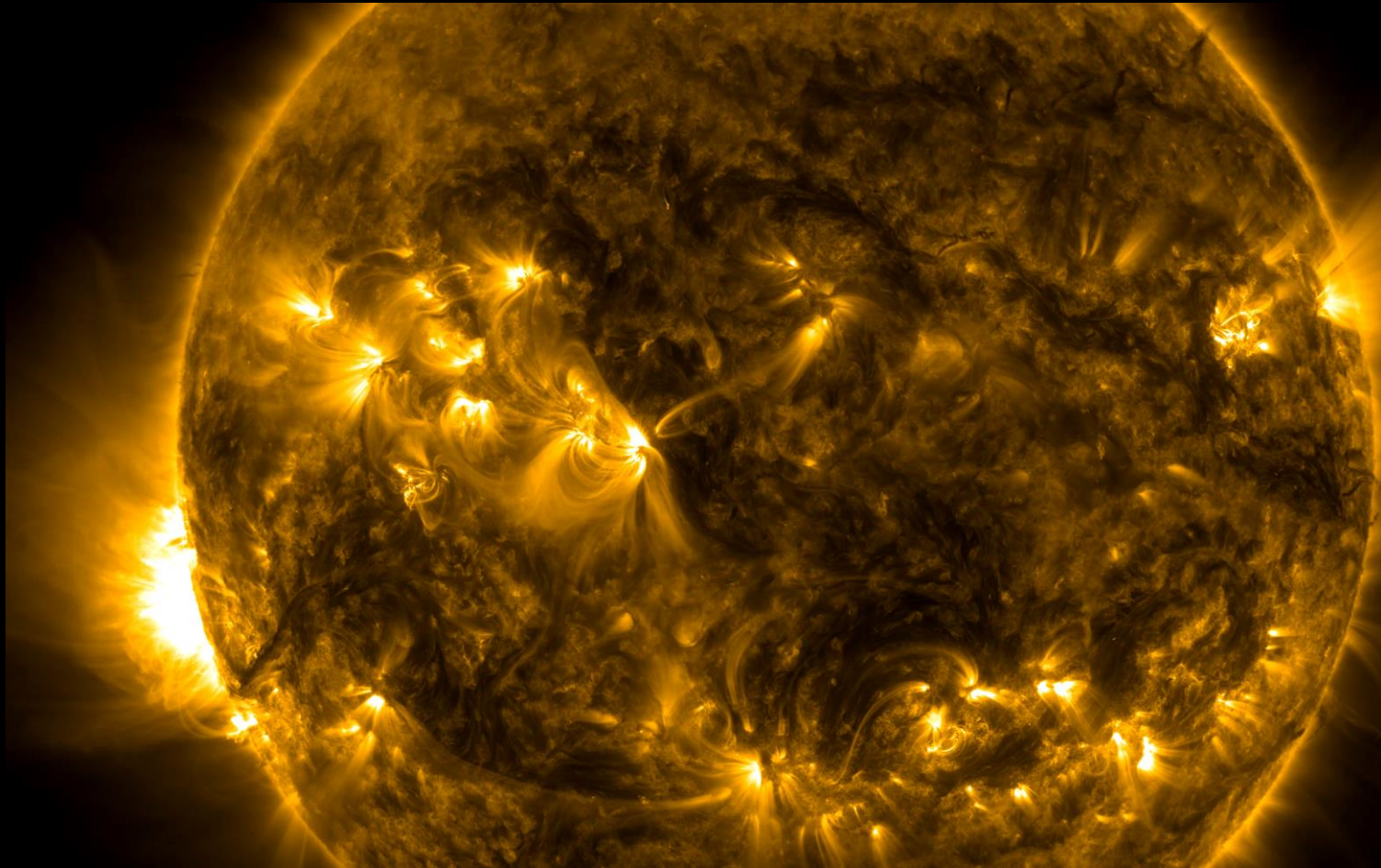



Sunspots:  
cool, dark,  
& magnetic

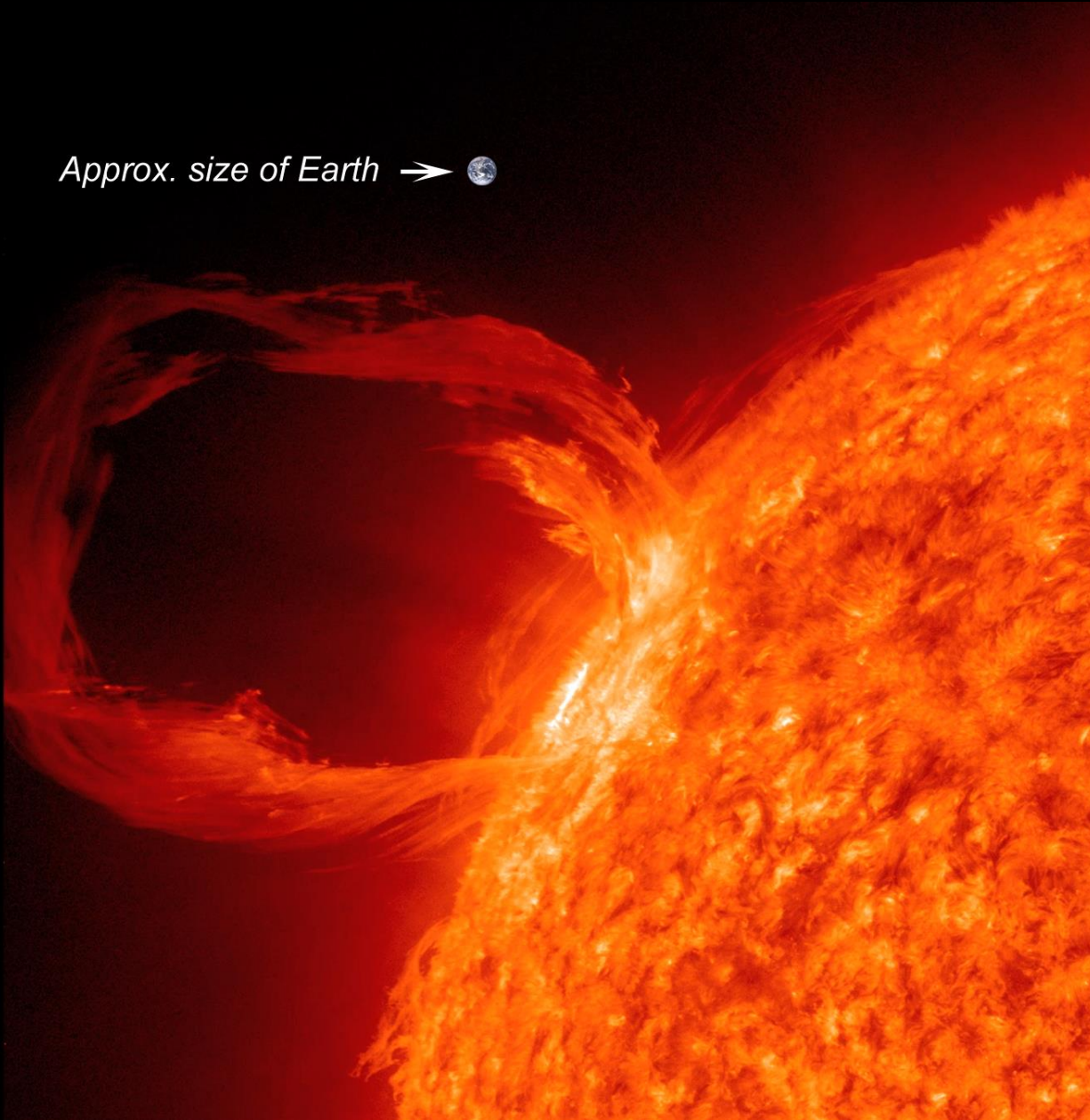




# Magnetic Loops



Approx. size of Earth → 

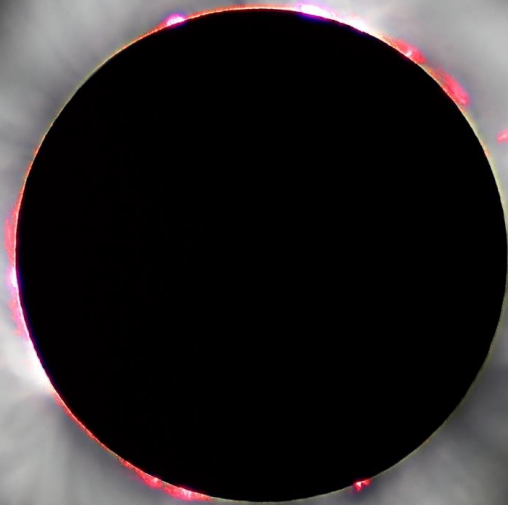


# Solar Prominences

Earth-Sun distance  
not to scale



Total Solar Eclipse - 1999



Participate in  
the August  
2017 Solar  
Eclipse!

<http://www.scigames.org/apps.php>

# Solar Vision

The Sun may seem featureless, but the closer we look, the more we see. These pages will let you peer at the Sun using x-rays, ultraviolet light, and even magnetic fields. How much can you find going on in the Sun?

Filters

Eclipse

Today's Sun

Credits



# Facilitated Activity: Scale Model of Sun and Earth


**STAR**net Science-Technology Activities & Resources For Libraries

In partnership with **CS Cornerstones of Science** awakening curiosity, enriching lives

**STEM ACTIVITY** Clearinghouse

Search

Home > Collections > 2017 Solar Eclipse > Scale Model of Sun and Earth



**Scale Model of Sun and Earth**

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

[Open Activity](#)

Report broken link

[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

**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 simultaneously show the size scale and distance scale of the Sun and Earth.

# Facilitated Activity: Eclipse Chalk Art

## What Is This About?

Observing a total solar eclipse can be an exciting, once in a life time experience! Long before there were cameras or telescopes, eclipse watchers recorded what they saw in the sky in words, drawings, and paintings. You can have fun creating your own picture of a solar eclipse with chalk and paper!

## Materials: (you provide)

- Paper, dark blue or black. Smooth cardstock paper works best (not construction paper).
- White, non-toxic chalk
- Pencil
- Scissors
- Masking tape
- Circle templates cut from cardstock, file folders or cereal boxes
- OPTIONAL: Brightly colored construction paper or foam sheets for cut-out horizon detail.



## To Do:

- Make circle templates on stiff paper. Trace around the masking tape roll with a pencil, and cut out the template. Make several for group activities.
- Place the template on a piece of dark paper. Secure with a loop of masking tape or simply hold down with one hand.
- Draw a thick circle of chalk around the template. Go around 2 or 3 times. It does not need to be neat.
- Holding the template in place, smudge the chalk away from the center of the circle using a finger to create the corona of the sun.
- When you are done smudging, remove the circle template.
- Add words, pictures, or fun designs.
- You've made total solar eclipse art!



*Credit: J. Henricks, Girl Scouts of Northern California*



# Eclipse-related Resources



Join Our Community My Account

STARnet  
Science-Technology Activities &  
Resources For Libraries

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

Solar Eclipse Countdown:  
66 Days and Counting...

Download the Eclipse Guide designed for libraries!

- Conferences
- Webinars
- Newsletters
- STAR\_Net Blog
- 2017 Solar Eclipse
- Online Forums
- Exhibition Posters
- Books, Videos & More
- Guides, Facts & Tips

DOWN VISIT RESOURCE CENTER

## Join The STAR\_Net Community!

By joining, you'll get access to our email newsletters, online forums, social network, blogging community, and a treasure trove of resources and standards-based activities!

JOIN TODAY!

LOGIN NOW

# Eclipse Resource Center

## Eclipse Resource Center

: : Vetted Programming Materials for Libraries

### Welcome to our Eclipse Resource Center!

Thank you for your interest in joining libraries around the country in providing programming for the 2017 Total Solar Eclipse. Funded by the **NASA@ My Library** program, STAR\_Net has developed this resource center to assist your library in creating promotion and program materials for your eclipse event that include images, videos, animations, posters, artwork and a variety of outside resources such as FAQs and science activities related to Sun-Earth connections.

For questions or suggestions regarding the resources on this page, please email us at [2017eclipse@SpaceScience.org](mailto:2017eclipse@SpaceScience.org). Over the next several months we will be adding more resources, so check back regularly.



Download a **FREE** copy of our **New 2017 Solar Eclipse Guide**

Written by Andrew Raiiroi and Dennis Schatz

**BUY DISCOUNTED ECLIPSE GLASSES**

### Looking for Affordable Eclipse Glasses?

While STAR\_Net is providing over two million **free eclipse glasses to public libraries** with funding from the Moore Foundation and Google, American Paper Optics is also providing discounted eclipse glasses for other educators (schools, museums, etc.) that may not qualify for this grant.

### Educational Videos



**WATCH 2017 ECLIPSE PSA**

Length: 3 minutes, 14 seconds  
Credit: Fiske Planetarium/Univ. of Colorado



**WATCH 2017 ECLIPSE FAQs**

Length: 6 minutes, 34 seconds  
Credit: Fiske Planetarium/Univ. of Colorado



**WATCH 2017 ECLIPSE OVERVIEW**

Length: 1 minute, 19 seconds  
Credit: NASA's GSFC

[VIEW MORE VIDEOS >](#)



**WATCH INTRO TO HELIOPHYSICS**

Length: 3 minutes, 10 seconds  
Credit: NASA's GSFC



**WATCH ECLIPSE PREVIEW SHOW**

Length: 29 minutes, 31 seconds  
Credit: NASA's GSFC

### Safe Solar Eclipse Viewing Ideas

1. Make a pinhole viewer
2. Partner with a local astronomical society
3. Offer paper eye wear with solar-safe filters



### Resource Center Menu

- > Home
- > Hands-on Activities
- > Educational Resources
  - > \*\*Online Course\*\*
  - > Books & Articles
  - > Eclipse Videos
  - > Eclipse Webinars
  - > Eclipse Websites
  - > Eclipse FAQs
  - > Eclipse Newsletters
- > Event Planning
  - > Partnerships
  - > Outreach
  - > Safety
  - > Forum
- > Media Toolkit
  - > Images & Videos
  - > Downloadables
  - > Media Templates



# STEM Activity Clearinghouse

VIEWED ITEMS



Scale Model of Sun and...  
This is a lesson about size and...

TAGS

aerodynamics test

Books, Videos & More

Guides, Facts & Tips

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 Science, Technology, Engineering, and Math.

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 librarians 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.

This site is still in beta, please contact Anne Holland (aholland@spacescience.org) with any suggestions!

FEATURED COLLECTIONS

All Collections >



Browse All Activities

View Details



Earth Science

View Details



Playful Building

View Details



Space Science

View Details



Healthy Living

View Details



STAR\_Net Hands-on Activities

View Details



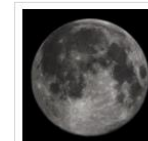
Technology and Engineering

View Details



Activities for Pre-K

View Details



# Safe Solar Viewing (Telescope and Binoculars)

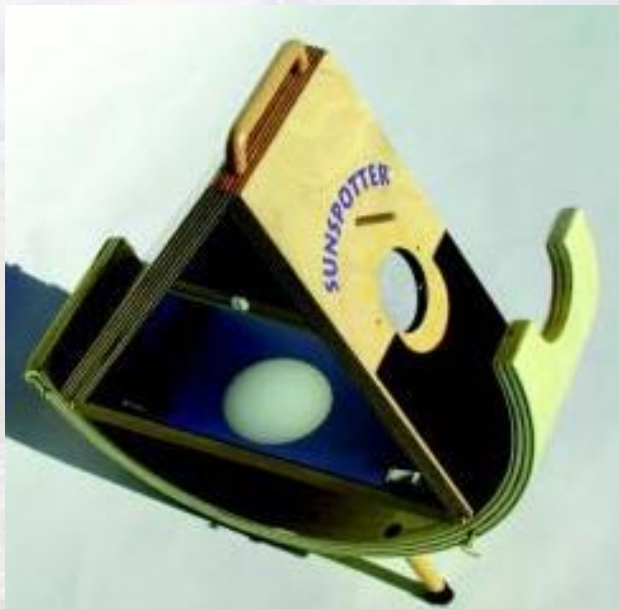
- Do not use a telescope or binoculars for solar viewing unless they have a filter made specifically for solar viewing. This filter needs to cover the end of the telescope/binoculars where light enters. Eyepiece filters are not good enough and you will damage your equipment (and then probably your eyes!)
- DO NOT use an unfiltered telescope or binoculars during totality. When the moon begins to move out from in front of the sun, the magnified light WILL damage your eyes. Your retina do not have pain sensors. They will be damaged before you feel it.
- If you are using a filtered telescope/binoculars during partial obscuration, put it away/cover it during totality, or people will mob them, potentially injuring themselves





# Safe Solar Viewing (Indirect Viewing)

- Indirect viewing (not using a filter to look directly at the sun) is the safest way for young audiences to view the eclipse.
- Create a pinhole projector (see the Clearinghouse for instructions), purchase a “SunSpotter”, use a colander, or even a cheese grater!





# Safe Solar Viewing (Glasses)

- Do not view the partially eclipsed sun with regular sun glasses, no matter how dark
- You must use special solar glasses, ISO certified 12312-2:2015
- You can also use a welders mask, but it **MUST** be rated 14 or higher. Most commercially available masks are **NOT** rated this high. Go to a specialty store
- For glasses (and telescopes/binoculars) point the item towards the sun and place your hand where your eyes would be to test if there are any defects in your glasses/filter. If you see a pinpoint of light **DO NOT USE THE ITEM.**



Not Cylons, probably...



# Come see us!

- **“High-impact STEM Events to Foster Collaboration”**
  - McCormick Place, W196c
  - Sunday, 1:00-2:30 p.m.
- **NASA Booth 4051**
  - Giveaways, Hyperwall presentations, and more!