

NISE Net Online Workshop

Join the Eclipse Party! What are You Doing to Celebrate the August 21, 2017 Total Solar Eclipse?

Tuesday, June 27, 2017



Welcome! Today's presenters are:

- Ali Jackson, Director of National Collaborative Projects – Sciencenter
- Leah Ritz, Director of Education - The Science Zone Casper, WY
- Latongia Pepper, Physical Science Specialist - Roper Mountain Science Center
- Derrick H. Pitts, Sc.D., Chief Astronomer and Planetarium Programs Director - The Franklin Institute Science Museum
- Becky Wolfe, Manager, Science Education & Resources - The Children's Museum of Indianapolis



As we wait to get started with today's discussion, please:

Update your display name. Include your first and last name, and institution

Introduce yourself in the Chat Box (click on the Chat Box icon at the bottom of your screen)

Questions? Feel free to type your questions into the Chat Box and we'll make sure to address those. Or use the "raise your hand" function located in the Participants List and we'll unmute your audio.

Today's discussion will be recorded and shared on nisenet.org at: nisenet.org/events/online-workshop

NISE Network



The National Informal STEM Education Network supports learning about science, technology, engineering, and math in communities across the U.S.

NISE Net Eclipse Resources

- www.nisenet.org includes links to a variety of eclipse resources
- Additional NISE Net Online Workshops
- 2017 Explore Science: Earth & Space Toolkit
 - Event Planning Guide
 - NNSN Eclipse Planning Slideshow
 - Exploring Earth: Bear's Shadow
 - Exploring the Solar System: Big Sun, Small Moon
 - Exploring the Solar System: Solar Eclipse
 - Eclipse poster and pinhole postcard





Educating Visitors – Partial Eclipse

Becky Wolfe

Manager, Science
Education & Resources



91% Eclipsed

- Programs
 - Teacher workshops
 - Public Programs
 - Day-of homeschool program
 - Day-of signage and viewing station
- Main Messages
 - What is happening and how do I view safely?
 - Why is everyone making a big deal of this?

- Shadows of the Moon – Public program
 - Moon phases
 - Eclipse
 - How are they different
 - Viewing safely
- Family take-aways
 - Solar eclipse glasses
 - Pinhole postcard (NISEnet)
 - Cereal Box viewer.



Related Cart Programs

- Eclipse = Let's talk about the Sun!
- NISEnet Kits
 - Nanosunscreen
 - UV beads
 - Added UV protection – sunscreen and sunglasses to the program.



Day of Programs

- Registered Homeschool programs
- Family viewing area
 - Signage near museum's exits
 - Announcements during afternoon
 - Area to view safely – with staff and glasses



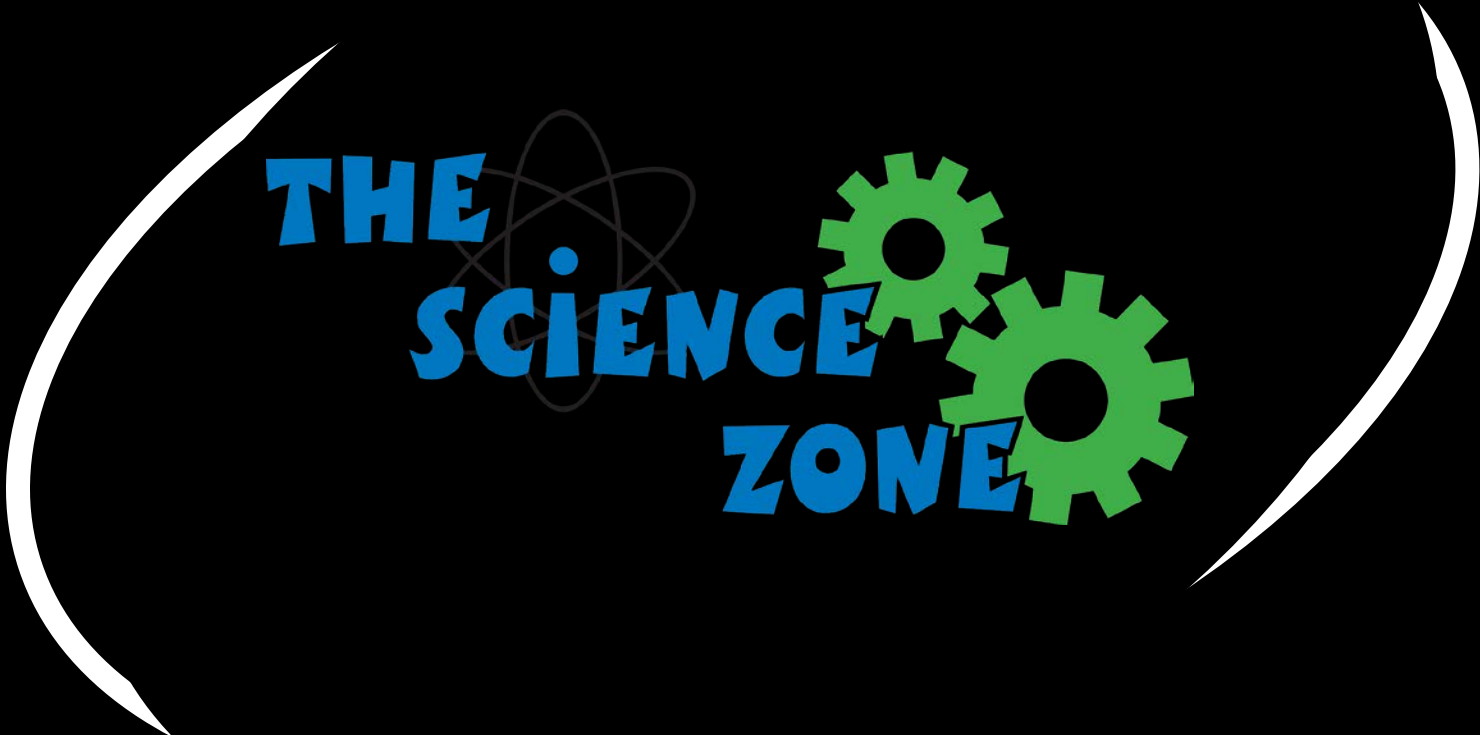
Other Programs

- Teacher PD – Earth/Sun/Moon System
- Social! – blogs, tweets - you name it!
- Media events
 - Onsite media coverage
 - Saturday Science the weekend prior



Fun Resources

- High Altitude Balloons -
<http://eclipse.montana.edu/>
- Yardstick Eclipse -
<https://www.astrosociety.org/ASPYardstickEclipseInstructions.pdf>
- Cereal Box viewers -
<https://eclipse2017.nasa.gov/sites/default/files/EclipseCerealBoxViewer.pdf>



**THE
SCIENCE
ZONE**

Casper, Wyoming



6. **Casper, Wyoming**

Wyoming's second-largest city had a population of 55,316 in 2010, and it has increased by some 5,000 since. Its elevation is 5,200 feet (1,585m). Because Casper offers more amenities than most places along the center line to its northwest, it will be the destination for vast numbers of visitors. Let's hope its 27 square miles and 100 restaurants can handle them.

Eclipse starts: 10:22:17 a.m. MDT

Eclipse ends: 1:09:26 p.m. MDT

Maximum eclipse: 11:43:52 a.m. MDT

Sun's altitude at maximum eclipse: 54°

Duration of totality: 2 minutes, 26 seconds

Width of the Moon's shadow:

67.4 miles (108.5km)

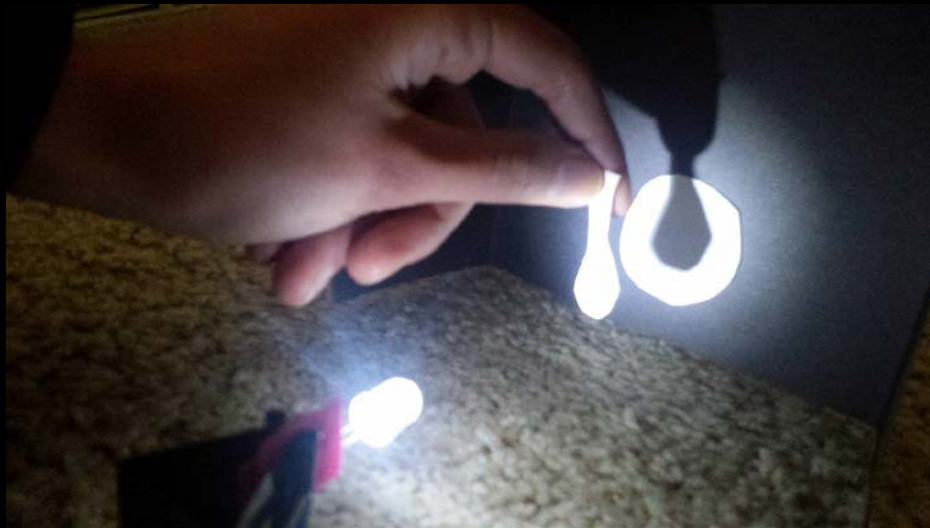


www.eclipsecasper.com


Exhibits



Field Trips & Summer Camps



Outreach




2,000,000 °F = temperature
 400x the moon = size
 93 million = miles to Earth
 8 mins = time for light to reach Earth

Total Solar Eclipse

August 21, 2017

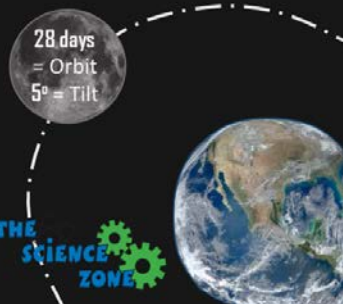
Pinhole viewer
 With your back to the sun, hold this card out in front of you. On the ground you should see an image of the Sun as it becomes obscured by the moon.










Did you know?

- Totality starts at 11:42:40 AM in Casper and lasts 2m 26s
- The last Total Solar Eclipse in the US was in 1979 and the next one will be in 2024
- Solar Eclipses only happen during new moons
- During the total solar eclipse, the sky will darken, stars will appear, and temps will drop




28 days = Orbit
 5° = Tilt



THE SCIENCE ZONE

Pre-Totally			Totality	Post-Totally		
10:22 AM			11:43-11:45 AM			1:09 PM
						
First Contact	Partial Eclipse	Second Contact	Total Eclipse	Third Contact	Partial Eclipse	Final Contact

Watch for these eclipse features:

 <p>What: Bailey's Bead & the Diamond Ring When: Near Second & Third Contact Why: Sun's rays pass through craters on the moon's surface just before & after totality</p>	 <p>What: Shadow bands When: Just before & after totality Why: Thin wavy lines of light and dark shimmer across plain colored surfaces</p>	 <p>What: Tree leaf projections When: Pre & Post Totality Why: Gaps between leaves project an image of the moon passing over the sun</p>
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Keynote Presentation





PARTIAL ECLIPSE, TOTAL COVERAGE

Or “Yes, you can see something here too. Let us show you how!”

Derrick H. Pitts, Sc.D.
Chief Astronomer
Fels Planetarium Director

The Franklin Institute
Philadelphia

PRIOR TO...

Orientation, Training, Preparation

Eclipse Start – 1:41p

Max Eclipse – 2:44p

Eclipse End – 4:01p

Magnitude – 79%

- Announce event to museum, community, media.
 - Explain the what, when and how
 - Work w/ social media and website teams
- Train museum staff and outreach partners to engage our audiences using venue engagement, cart and observatory activities, VR experiences, planetarium content,
- Train community partners to host event training workshops.
- Assemble materials for visitor activities; telescope prep; permit application.
- Coordinate local and national media engagement at all locations.
- Distribute 8000 solar viewers through associated TFI astro/space science programs.

PRIOR TO...

Coordinate/Support Community
Partner Events

- Coordinate Aug. 19 'Super Solar Saturday' pre-eclipse event at local outdoor music venue.
 - Partnership: Mann Music Center, TFI, UPenn Astro Grad Student Outreach team.
 - Includes intro to solar science, eclipse viewer demonstration, construction, and use, solar viewing via filtered telescope and Sunspotters, give-away of solar viewing cards, space-themed VR experience with give-away of 1000 Google cardboards.

DAY OF ... AT TFI

Activities and Observing

Eclipse Start – 1:41p

Max Eclipse – 2:44p

Eclipse End – 4:01p

Magnitude – 79%

- 9:30a – 10:30a
 - Preparation for viewer building and observing
- 10:30a -12:30p
 - Making pinhole camera and pinhole card projection devices
- 12:30p – 4:30p
 - Eclipse viewing on Winter St.
- 1:00p – 4:00p:
 - TFI Staff Directing Observing
- 4:00p to 5:00p:
 - Winter St. clean up
- Observatory open 10a to 12 noon:
- Planetarium open as walk-thru experience
- Staffed by TFI Museum programs, volunteers and UPenn Astro Grad Student Outreach team.

DAY OF...AT ST. JOSEPH

See the Eclipse!

Eclipse Start: 11:40:34a

Totality Starts: 1:06:19p

Max Eclipse: 1:07:38p

Totality End: 1:08:57p

Eclipse Ends: 2:34:27p

Duration of Totality: 2m 38.6secs

- Live Stream for Franklin Institute
- Potential for media work



Hope you all have a great eclipse experience!



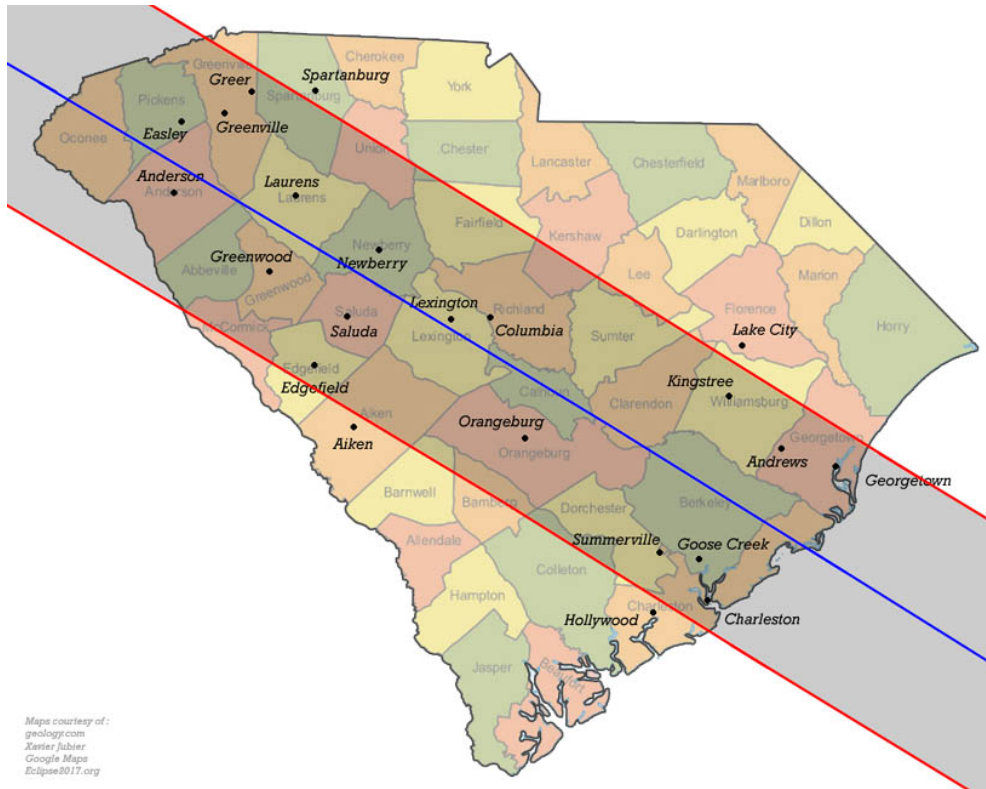


Greenville SC Eclipse Facts

- **Partial Eclipse Start Time: 1:09 pm**
- **Total Eclipse Start Time: 2:38 pm**
- **Duration: 2 minutes approx.**
- **% chance of seeing totality approx. 65%**



Roper Mountain Science Center



Maps courtesy of:
geology.com
Xavier Jubier
Google Maps
Eclipse2017.org

July 2016 Early Planning



Roper Mountain Science Center

Solar Eclipse Central 2017 - Upstate, SC

Roper Mountain Hosts Events for Rare Solar Eclipse



Roper Mountain in Greenville, SC is the place to catch this rare celestial event! Greenville County and parts of surrounding counties will be in the path of totality for this awe-inspiring eclipse of the Sun on August 21, 2017. This spectacular event will engulf Greenville at 2:38PM (EST) in a dark shadow for around two minutes, giving observers a once in a lifetime celestial experience!



**Official NASA
Viewing Site**

Public Programs

- Second Saturday
- Starry Nights
- Butterfly Adventure
- Summer Camps
- Summer Planetarium Shows
- Science On Wheels
- Scouts
- Holiday Lights
- Solar Eclipse 2017

[Eclipse Extravaganza!: August 19 – 21, 2017](#)

[Countdown to the solar eclipse](#)

[Quick facts about the total solar eclipse](#)

[What causes a solar eclipse?](#)

[Where can you view totality in the Upstate?](#)

[Activities before the eclipse: February – August 2017](#)

[Eclipse resources](#)

[Teacher Eclipse activities](#)

SC Space Grant Consortium NASA Grant

- **Partners**
 - **College of Charleston**
 - **SC State Museum**
 - **Children's Museum of SC (Myrtle Beach)**
 - **US Coast Guard (balloon)**
 - **NC Morehead Planetarium (Solar Show for Planetariums)**

SC Space Grant Consortium NASA Grant

- **Benefits**
 - Free Short Show for the Planetarium on Eclipse
 - Teacher Professional Developments with kits
 - Link to Balloon launch with camera for live shots
 - Cooperative with Space Grant Consortium
- www.scspacegrant.cofc.edu



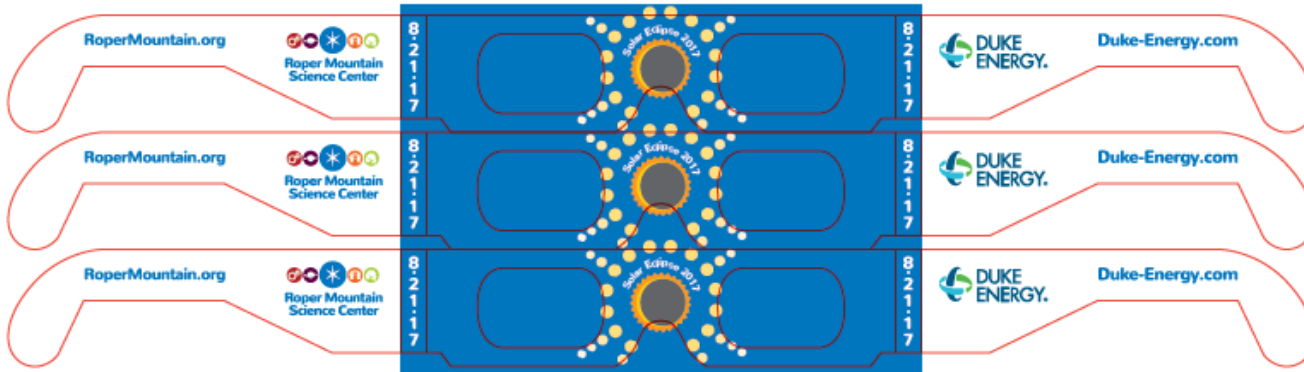
Eclipse Extravaganza!

August 19 – 21

- Eclipse Extravaganza special hours 10am-5pm Saturday, Sunday, Monday!
- Full Dome Eclipse Shows in the newly renovated T.C. Hooper Planetarium.
- Programs on safe viewing of the eclipse.
- Special observation sites with Astronomers assisting visitors on Monday.
- Dozens of hands-on activities for all ages
- Live animals, rainforest, habitats, and the Living History Farm
- Citizen Science projects and design challenges



Roper Mountain Science Center



VIEW A SOLAR ECLIPSE SAFELY WITH THIS CARD!

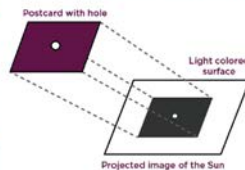
Use the hole in this card to project an image of the sun onto a flat, light colored surface.

It is never safe to look directly at the sun's rays. YOU RISK PERMANENT DAMAGE TO YOUR EYES IF YOU FAIL TO FOLLOW THIS INSTRUCTION, EVEN IF THE SUN IS PARTLY BLOCKED.

ONLY at the point of totality (the short time when the moon completely blocks the sun) is it safe to look directly at the sun. At all other times, you must use a filter like special glasses for direct viewing or use this card to create a pinhole projection of the eclipse.

WHEN ANY PART OF THE SUN'S BRIGHT DISK IS SHOWING, YOU MUST USE A SOLAR VIEWER TO LOOK AT THE SUN!

For more info on how to view the eclipse safely, visit <https://eclipse2017.nasa.gov/safety>.



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WSPA TV / 7 NEWS “Carolina’s Family” Partnership

- **Chief Meteorologist Christy Henderson on site at Roper Mountain location to Emcee event**
- **News stories pre-event on safety and science of the eclipse**
- **Countdown Clocks building excitement on-air**
- **Outdoor Billboard and Digital Advertising Countdown Clocks will be co-branded with Roper Mountain Science Center logo**
- **Promotional videos for Roper Mountain Event**
- **Safety info on wspa.com with Roper Mountain logo**
- **Design a “Color the Eclipse” coloring sheet for kids and provide online at ropermountain.org and wspa.com.**



Other Partnerships

- **Proterra:** Run shuttle to and from offsite parking lot
- **ECPI:** Provide tents/activities/water to visitors waiting for shuttle
- **Area hotels:** To provide shuttle from hotels to event
- **Sunstore Solar:** Sponsoring Bands and solar activity
- **Upstate Universities:** USC Upstate, Furman, Clemson University
- **NISE Network:** Earth and Space Science Tool Kits



Takeaways:

- Raise awareness about the event and Safe viewing
- Connect with educators, local organizations, and media
- Use available resources to plan a fun and engaging experience

<https://eclipse2017.nasa.gov/>

<http://www.nsta.org/publications/press/extras/solarscience.aspx>

<http://www.eclipsewise.com/help/faq.html>

<http://www.eclipse2017.org/2017/faq.htm>

<http://nisenet.org/earthspacekit>

For more information visit:

<https://www.ropermountain.org/main.asp?titleid=eclipse2017>

Contact: Latongia Pepper at lpepper@Greenville.k12.sc.us

Q & A

Thank you

