



2017

Explore Science: Earth & Space

Event Planning and Promotion Guide

Credits and Rights



The Explore Science: Earth & Space 2017 toolkit is developed and distributed by the National Informal STEM Education Network (NISE Network).



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Introduction

Welcome to Explore Science: Earth & Space! The National Informal STEM Education Network (NISE Net) has assembled a new set of engaging, hands-on Earth and space science experiences with connections to science, technology, and society. We have developed this guide to help you plan successful Earth and space-themed events, to highlight professional development opportunities within this project, and to point you toward additional, non-NISE Net resources related to the topic of Earth and space.

NISE Network

The National Informal STEM Education Network (NISE Network) is a national community of informal educators and scientists dedicated to fostering public awareness, engagement, and understanding of current science, technology, engineering, and math (STEM). Since 2005, the NISE Network has worked together to develop and disseminate educational materials and professional development resources around the country. Our public educational experiences take the form of hands-on activities and kits, longer-format programs, and small exhibitions. Our products are created through an iterative, collaborative process that involves scientists, informal science educators, and targeted public audiences. This nisenet.org website is an online digital library of public educational products and tools designed for educators and scientists.

Explore Science: Earth & Space Toolkit

Two hundred and fifty (250) Explore Science: Earth & Space toolkits were awarded to successful applicants from eligible organizations across the country, and consist of hands-on activities, professional development materials, and marketing and promotional resources. The activities work best for family audiences, with a range of experiences appropriate for participants ages four through adult.

The Explore Science: Earth & Space toolkit materials have been designed to engage participants in Earth and space phenomena, reflect on science as a way of knowing, and identify as science learners. Through the lens of Earth and space science, the hands-on activities in this toolkit will allow learners to understand science as a process and as something that people *just like them* do.

The activities can be used throughout the year during any number of STEM-themed annual events and celestial events (see the Year-Round section in the timeline), but an important event that we wanted to be sure to provide resources around in this year's kit is the total solar eclipse that occurs on August 21, 2017. Two activities in the kit in particular are focused on the eclipse: one demonstrates shadows more broadly, and the other provides a working model of an eclipse. Additional materials are also included about planning a public solar eclipse event.

In addition to the physical toolkits, all digital materials will be made available online for free download in February 2017 at <http://www.nisenet.org/earthspacekit>.

How to Participate

Even if you weren't awarded a physical toolkit, you can still download and use the digital materials to engage public audiences in Earth and space science. If you download the materials, you're not required to fill out a report, but we'd still love to hear from you.

Requirements

Explore Science: Earth & Space physical 2017 toolkit recipients are required to:

1. **Host an event in March – May 2017:**

Host at least one public engagement event using your toolkit. Public events can be stand-alone events OR you can incorporate your event into an existing STEM event.

2. **Report on the use of the toolkit:**

Physical toolkit recipients are required to complete a short online report describing their experiences with the toolkit. Partner feedback is a valuable tool when improving our educational materials and professional development resources based on community needs. Successful applicants will be provided with a link to the final report. Reports will include optional evaluation questions to capture the impacts of the project activities on the public. Required reports must be submitted online by **June 15, 2017**.

In addition to the required report, we encourage you to participate in partner surveys conducted by project evaluators.

Additional opportunities (not required but encouraged):

- **Attending Professional Development online workshops for informal science educators:** The NISE Network will offer a variety of free one-hour online workshops featuring a variety of topics, as well as a four-week online training on engaging participants in Earth and space programming using the toolkits. All online workshops will be recorded and archived. More information will be available through the NISE Network newsletter at <http://www.nisenet.org/newsletter>.
- **Collaborating with local experts:** We encourage you to collaborate with both local scientists (Earth and space science professionals) and local enthusiasts (e.g., amateur astronomy clubs).
- **Collaborating locally to reach underserved audiences:** Partnerships with K-12 schools, afterschool programs, local chapters of national youth-serving organizations, libraries, and local community groups can help your event reach underserved audiences. Tips for collaboration can be found at <http://www.nisenet.org/collaboration-guide>.

Hosting an Earth and Space Public Engagement Event

STEM Events in March – May 2017

Explore Science: Earth & Space toolkit recipients are required to host at least one public engagement event between March and May 2017. Events can be stand-alone events or you can incorporate your event into existing Earth and space-themed STEM events such as:

- World Water Day, March 22, 2017: <http://www.worldwaterday.org>
- Earth Hour, March 2015, 2017: <http://www.earthhour.org>
- Global Astronomy Month, April: <http://www.gam-awb.org/>
- Yuri's Night, April 12, 2017: <http://yurisnight.net>
- Earth Day, April 22, 2017: <http://www.earthday.org>
- National Environmental Education Week, week of Earth Day
<http://www.neefusa.org/greening-stem/environmental-education-week>
- Astronomy Day (Spring), April 29, 2017:
<http://www.astroleague.org/al/astroday/astrodayform.html>
- Astronomy Week (Spring), April 24–30, 2017:
<http://www.astroleague.org/al/astroday/astrodayform.html>

Examples of Celestial Events in March – May 2017

Explore Science: Earth & Space toolkits can serve as a great centerpiece during regularly scheduled day or nighttime programming to celebrate celestial events. Example events are listed below, but more can be found at <https://nightsky.jpl.nasa.gov/planner.cfm>.

- Vernal (Spring) Equinox, March 20, 2017
- Meteor showers (e.g., Lyrids Meteor Shower, April 2017, or Eta Aquarids Meteor Shower, May 2017)
- Planetary viewings (e.g., Jupiter at Opposition, April 7, 2017)
- Regular full moon viewings

Planning Timeline

One to three months before your event

- Make contact with the individuals and institutions that might be interested in organizing an Earth & Space event in your community. Please see the sections in this guide on collaborating and finding local experts.
- Schedule a kickoff meeting to organize your event. Include both museum staff and collaborating experts. Topics for the agenda include:
 - What are your goals for holding an Explore Science: Earth & Space event?
 - Who is your target audience?
 - What kinds of events and activities would reach this audience and meet your goals?
 - Who will lead the planning of the event? Who else will be involved?
 - How will you communicate with your collaborators?
 - What dates will you hold your event?
 - Do you need funding to support the event? If so, where will it come from?
- Choose a date and add your event to your institutional calendars. Be sure to keep celestial events and annual STEM events in mind when choosing an event date.
- Plan your event. Your planning process might include creating:
 - A brief description of the event (type of activities, dates, times, location, collaborators)
 - A budget (and local fundraising plan, if necessary)
 - An outline of the event goals (and a plan for evaluating how well the event meets the goals)
 - A list of tasks and notes of who is responsible for each task
 - A schedule with the major milestones for preparation
 - A marketing strategy
- Become familiar with the materials in the Explore Science: Earth & Space toolkit.
- Begin promoting your event. Coordinate efforts between your own institution and your collaborators.
- Talk with collaborators about potential sources of staff and volunteers for the event.
- Choose a date and location for your training session(s) for staff, volunteers, and collaborators, and invite all appropriate event participants. You may want to hold a training session roughly a week in advance and offer another session immediately before your event for volunteers who may attend that day.
- Let volunteers and collaborators know in advance about available training materials, such as online activity training videos and online workshop opportunities. A summary email including a list of all resources can be a valuable reference for participants leading up to and immediately before the event.

At least one month before your event

- Review your plans with your facility manager and/or health and safety officer. Many facilities have guidelines or restrictions that could affect the logistics of your event or the demonstrations and activities you can include. You might ask about:

- Restrictions related to use of water, open flames, chemicals, or hanging or suspended objects if you are hoping to include any of these in your events
- Parking for visitors and your volunteers/collaborators
- Cleaning and sanitation service schedules
- Security needs
- Outdoor activity needs

- Ensure you have adequate staff and volunteers for your event.
- Draft an activity floor plan. Keep in mind that some activities need water, some can be messy, some work best in a dimmer space, and some are better with a place for visitors to sit down.

A few weeks before your event

- Continue to promote your event.
- Consider creating signs or handouts listing the activities you're offering, as well as their times and locations.
- Create additional tabletop signs for activities that you may offer in addition to the activities contained in the toolkit.
- Do a test run of the activities.
- Prepare for staff and volunteer training session(s).
- Make final preparations for your event (staffing, supplies, floor plan, schedule, and evaluation). Some activities may require advance preparation so be sure to allow enough time to prepare materials prior to your event.

The week of your event

- Hold staff/volunteer training session(s).
- Continue to promote your event.
- Hold your Explore Science: Earth & Space event!

After your event

- Debrief on your event with your planning team. Identify elements of your event that were successful, as well as things you might want to change next time.
- Fill out your online Explore Science: Earth & Space event report form. Reports are due by June 15, 2017.
- Document your event for your future use. Save copies of programs, posters, and any newspaper or media coverage of your event.
- Thank your collaborators, sponsors, and volunteers.
- Discuss future plans with collaborators and colleagues. Choose an event date for next year and get the date on relevant community and organizational calendars.

Year-Round

- Incorporate Explore Science: Earth & Space toolkit activities into other events. See "Using Your Kit All Year Long" for details regarding additional audiences and events where Explore Science: Earth & Space can be applied.

Using Your Kit All Year Long

We encourage you to use your toolkit all year round, during celestial events, STEM events, and other programming for public audiences (camps, afterschool clubs, science festivals, etc.):

Solar eclipse August 21, 2017:

- <http://eclipse2017.nasa.gov>
- <https://informal.jpl.nasa.gov/museum/content/eclipse-2017>

Celestial events—Meteor showers, lunar eclipses, full moons, planetary events, and more:

- <http://earthsky.org/tonight>
- <https://in-the-sky.org/newscal.php>
- <https://nightsky.jpl.nasa.gov/planner.cfm>
- <https://stardate.org/nightsky>
- <http://www.timeanddate.com/astronomy>
- <http://www.skyandtelescope.com/observing/sky-at-a-glance/>

Earth- and space-themed STEM events:

- World Water Day, March 22, 2017: <http://www.worldwaterday.org>
- Earth Hour, March 25, 2017: <http://www.earthhour.org>
- Global Astronomy Month, April: <http://www.gam-awb.org/>
- Yuri's Night, April 12, 2017: <http://yurisnight.net>
- Earth Day, April 22, 2017: <http://www.earthday.org>
- National Environmental Education Week, week of Earth Day
<http://www.neefusa.org/greening-stem/environmental-education-week>
- Astronomy Day (Spring), April 29, 2017:
<http://www.astroleague.org/al/astroday/astrodayform.html>
- Astronomy Week (Spring), April 24–30, 2017:
<http://www.astroleague.org/al/astroday/astrodayform.html>
- World Oceans Day, June 8, 2017: <http://www.worldoceansday.org/>
- Asteroid Day, June 30, 2017: <http://asteroidday.org>
- International Observe the Moon Night, July 15, 2017: <http://observethemoonnight.org>
- Astronomy Day (Fall), September 30, 2017:
<http://www.astroleague.org/al/astroday/astrodayform.html>
- Astronomy Week (Fall), September 25–October 1, 2017:
<http://www.astroleague.org/al/astroday/astrodayform.html>
- World Space Week, October 4–10, 2017: <http://www.worldspaceweek.org>
- Earth Science Week, October 8–14, 2017: <http://www.earthsciweek.org/>

More STEM events: <http://www.nisenet.org/seasons>

Collaborations & Finding Local Experts

Finding Local Experts

We strongly encourage you to collaborate with local experts consisting of Earth and space science professionals as well as science enthusiasts in your area. Volunteer experts are a key ingredient to many successful public engagement efforts.

It is up to your organization to choose your local collaborators. Your regional hub leader can assist you in finding local partners in your geographic area. The toolkit includes training and orientation materials to help prepare your event volunteers and staff for using the activities.

Volunteer networks focused on astronomy and space include:

The Solar System Ambassadors Program (SSA)

This is a public outreach program designed to work with motivated volunteers across the nation. These volunteers communicate the excitement of the NASA Jet Propulsion Lab's (JPL) space exploration missions and information about recent discoveries to people in their local communities. For 2016, there are 700 ambassadors in 50 states, Washington DC, Puerto Rico, US Virgin Islands, and Guam. Volunteer ambassadors bring the excitement of space to the public. Ambassadors are space enthusiasts from various walks of life who are interested in providing greater service and inspiration to the community at large.

<http://solarsystem.nasa.gov/ssa/home.cfm>

The Night Sky Network

This is a nationwide coalition of amateur astronomy clubs bringing the science, technology, and inspiration of NASA's missions to the general public. Night Sky Network members share their time and telescopes to provide unique astronomy experiences at science museums, observatories, classrooms, and under the real night sky.

<http://nightsky.jpl.nasa.gov/index.cfm>

AAS Astronomy Ambassadors

The American Astronomical Society (AAS), in partnership with the Astronomical Society of the Pacific (ASP), members of the Center for Astronomy Education (CAE), and other organizations active in science education and public outreach (EPO), has launched a series of professional development workshops and a community of practice designed to help improve early-career astronomers' ability to effectively communicate with students and the public. Called Astronomy Ambassadors, the program provides mentoring and training experiences for young astronomers, from advanced undergraduates to new faculty. It also provides access to resources and a network of contacts within the astronomy EPO community.

<http://aas.org/outreach/roster-aas-astronomy-ambassadors>

Colleges and Universities

Many colleges and universities have astronomy and Earth science departments. Others may have clubs or local chapters of professional societies. Once you connect with a faculty or staff member they should be able to also suggest undergraduate and graduate students who could volunteer at your event.

Finding Additional Volunteers

In addition to finding subject matter experts, you will probably need to recruit other volunteers to help with your event. Potential sources of volunteers may include:

- College students, classes, or clubs with community service requirements
- High school science clubs, or students suggested by local high school science teachers
- Local chapters of professional science and engineering groups that are often associated with local colleges, such as:
 - National Action Council for Minorities in Engineering: <http://www.nacme.org>
 - National Society of Black Engineers (NSBE): <http://www.nsbe.org/home.aspx>
 - National Organization of Gay and Lesbian Scientists and Technical Professionals: <http://www.noglstp.org>
 - Society for Advancement of Chicanos and Native Americans in Science (SACNAS): <http://sacnas.org>
 - Society of Asian Scientists and Engineers: <http://www.saseconnect.org>
 - MAES – Latinos in Science and Engineering: <http://mymaes.org>
 - Society of Hispanic Professional Engineers: <http://shpe.org>
 - Society of Women Engineers (SWE): <http://societyofwomenengineers.swe.org>
- Drama and theater students
- Local industry staff and retirees

Regional Hub Leaders

The NISE Network community within the United States is organized around four "regional hubs" based on geographic proximity. Regional hubs facilitate partner interaction in the Network, help museum educators connect with scientists and each other, and provide support to institutions in their region. To find your region and contact your regional hub leader, please see below.

Regional hub leaders will be able to help connect you with experts in your area and answer other questions about the project:

- **NORTHEAST**
Northeast: NY, VT, NH, ME, RI, CT, and MA
Mid-Atlantic: PA, NJ, MD, DC, DE, OH, and WV
Ali Jackson, ajackson@sciencenter.org
Sciencenter, Ithaca, NY
607-272-0600x144

- **SOUTHEAST**
Southeast: VA, NC, SC, KY, TN, LA, MS, AL, GA, FL, and Puerto Rico
South: TX, AR, and OK
Brad Herring, bradh@ncmls.org
Museum of Life and Science, Durham, NC
919-220-5429x360

- **MIDWEST**
ND, SD, NE, KS, MN, IA, MO, WI, IL, MI, and IN
Christina Leavell, cleavell@smm.org
Science Museum of Minnesota, St. Paul, MN
651-221-9434

- **WEST**
Southwest: CA, NV, AZ, and HI
West: AK, WA, OR, ID, MT, WY, CO, UT, and NM
Frank Kusiak, frank_kusiak@berkeley.edu
Lawrence Hall of Science, Berkeley, CA
510-643-7827

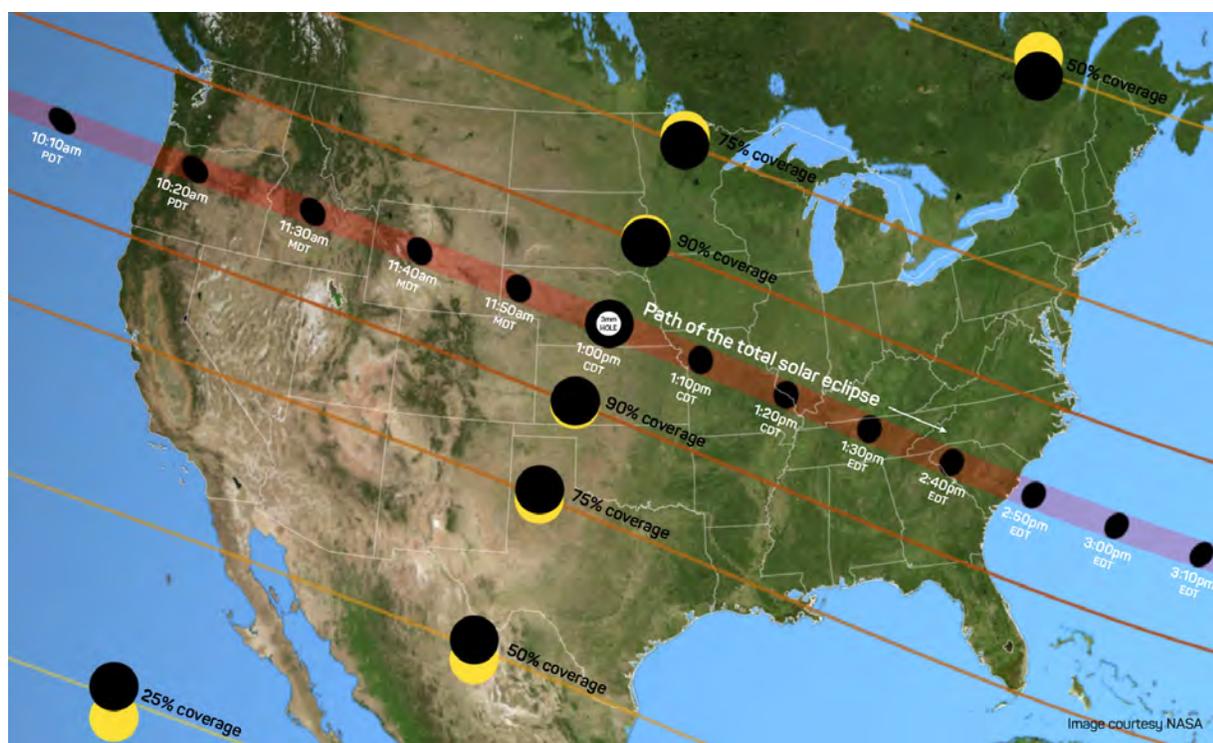
Planning an August 21, 2017, Solar Eclipse Event

What Is a Solar Eclipse?

A solar eclipse occurs when the Moon blocks any part of the Sun. A total solar eclipse is a rare and exciting event in which the Moon completely blocks the Sun, temporarily turning daytime into nighttime. A total solar eclipse is an historic event and a wonderful opportunity to view one of nature's most stunning displays. On August 21, 2017, a total solar eclipse will cross the continental United States from Oregon to South Carolina. The last time a total eclipse crossed the United States from sea to sea was June 8, 1918. The 2017 eclipse in either total or partial phase can be seen by over 500 million people in North and South America, Europe, and Africa. In the US, millions of people will gather along the path of totality, a strip of land less than 100 miles wide, to see the complete blocking out of the Sun by the Moon. The path of totality will cross the US starting in Oregon at 10:17am PDT and ending in South Carolina at 2:47pm EDT. The length of totality is greatest closest to the centerline in the path, while totality diminishes to just seconds near the edge of the path of totality. The rest of North America, Canada, Central and South America, Europe, and Africa will be able to see a partial eclipse.

NASA provides an interactive eclipse map that shows the path of totality across the continental US, including times for both the partial and total eclipse.

<http://eclipse.gsfc.nasa.gov/SEgoogle/SEgoogle2001/SE2017Aug21Tgoogle.html>



Additional information and eclipse resources can be found on the solar eclipse event page at <http://www.nisenet.org/events/other/solar-eclipse-august-21-2017>. Additionally, the NISE Network will be hosting online workshops on the eclipse in early 2017. For more information on these workshops you can visit <http://www.nisenet.org/events/online-workshop>.

Planning Ahead

When planning your event, we strongly encourage you to collaborate with your local experts, professionals and astronomy enthusiasts alike. For more information on finding local experts, please refer to the *Collaborations & Finding Local Experts* section on page 10 of this planning guide. We also strongly encourage you to begin planning your event early, as there's a high likelihood that many of your local experts will be heading to the path of totality and therefore may not be available for your event. Additionally, the solar eclipse will occur on a Monday, so be sure to check that your facility is open to the public, and in some states this is the first day of public school for the year.

Explore Science: Earth & Space toolkit eclipse connections

When hosting a solar eclipse event you may want to facilitate the following solar eclipse-related activities and resources found in the Earth & Space toolkit.

- *Exploring Earth: Big Sun, Small Moon* hands-on activity
- *Exploring Earth: Solar Eclipse* hands-on activity
- *Exploring Earth: Bear's Shadow* hands-on activity
- Solar eclipse pin-hole postcard
- Solar eclipse poster
- Night Sky Network's *Preparing for a Partial Eclipse: An Event to Remember* presentation
- NSTA's *Solar Science: Exploring Sunspots, Seasons, Eclipses and More*, book and insert

Additional hands-on activities and resources related to the eclipse can be found here:

- NISE Network solar eclipse event page: <http://www.nisenet.org/events/other/solar-eclipse-august-21-2017>
- NASA's eclipse education resources: <http://eclipse2017.nasa.gov/education>
- Citizen science activities: <http://eclipse2017.nasa.gov/citizen-science>
- Astronomical Society of the Pacific Eclipse Resource Guide: <https://www.astrosociety.org/education/astronomy-resource-guides/eclipse-resource-guide/>
- DIY Sun viewing: <https://www.youtube.com/watch?v=GSHxInLDVDw>
- An Observers Guide to Viewing the Eclipse (Solar Science): <https://www.nsta.org/publications/press/extras/files/solarscience/SolarScienceInsert.pdf>
- Eclipse resources using NISE Net's page on NASA Wavelength: <http://nasawavelength.org/users/nisenet/>
- Museum Alliance: <https://informal.jpl.nasa.gov/museum/>
- Night Sky Network: <https://nightsky.jpl.nasa.gov/>

Safety

An eclipse is a rare and striking phenomenon you won't want to miss, but you must carefully follow safety procedures. It is vital that you protect your eyes at all times.

The only safe way to look directly at the uneclipsed or partially eclipsed Sun is through special-purpose solar filters, such as eclipse glasses or handheld solar viewers. Homemade filters or ordinary sunglasses, even very dark ones, are NOT safe for looking at the Sun. To date, only three manufacturers have certified that their eclipse glasses and hand-held solar viewers meet the standards for such products.

Eclipse safety glasses

Sources for eclipse glasses:

1. Rainbow Symphony: <http://www.rainbowsymphony.com/eclipse-glasses/>
2. American Paper Optics: <http://www.eclipseglasses.com/collections/eclipse-glasses-stock>
3. Thousand Oaks Optical: <http://www.thousandoaksoptical.com/ecplise.html>

For additional safety information on viewing the eclipse visit these NASA websites:

<http://eclipse2017.nasa.gov/safety>

http://eclipse2017.nasa.gov/sites/default/files/Solar_Eclipse_Safety_RTFv14.pdf

Live Streaming Feeds of the Eclipse

Prior to your event you should check your local weather for the forecast for your area. If it's going to be cloudy, don't worry! You can still host a great hands-on educational event for those who come to your facility using hands-on activities and displaying a live feed.

NASA live stream: You can connect to NASA's live streaming event and project or display the eclipse live from another location. On August 21, 2017, NASA EDGE will join forces with the NASA Heliophysics Education Consortium to air a live webcast of the total solar eclipse from Southern Illinois University from Carbondale, Illinois. The webcast will begin airing at 12 noon EDT (16:30 UTC). Prior to the totality in Carbondale at 11:52:26 AM CDT, NASA will introduce you to the science of eclipses and a variety of NASA experts including mission scientists, engineers, and educators. Throughout the entire webcast they will switch to live views of the total eclipse as it occurs.

Eclipse MEGACAST Live Streaming Video: <http://eclipse2017.nasa.gov/eclipse-megacast>

Exploratorium live stream: The Exploratorium is also offering a live streaming webcast from two different locations in the US.

Exploratorium Live Stream: <https://www.exploratorium.edu/eclipse>

How to Display Live Feeds

If you plan on streaming the solar eclipse live at your facility, keep the following in mind:

- It is easy to use a laptop or desktop computer connected to a projector or large screen TV. Be sure to check if you have the right video connectors and dongles. Many computers will have a VGA or HDMI output that can often be run directly into a display device.
- Make sure your browser and Operating System are updated:
- Use a wired network connection instead of Wi-Fi.
- Test the website the day before.
- Bookmark alternative URLs or mirror sites for your live stream in case the server gets overloaded.
- If the streaming site uses Flash, you may need to download the latest version of Flash or create an exemption for that site to run Flash (since Flash is being phased out).
- Many live streams will have commentary and/or musical audio options, so consider a speaker system for your audience. For small groups, computer speakers may suffice but consider an amplified setup if you are expecting a larger crowd.
- If your event is outside, make sure you have access to the Internet, power, and a canopy. A big-screen TV would work better than a projector in this situation, but make sure to anchor the screen to protect it from the wind.

Press and Marketing Materials for Your Eclipse Event

Many people in your community may turn to you for information about the eclipse, especially in terms of safe viewing. We suggest having press and marketing materials on your website including information about safety. NASA has put together a list of resources including safety information, marketing materials and event logos that you may use:

- Safety: <http://eclipse2017.nasa.gov/safety>
- Downloadable press and marketing materials: <http://eclipse2017.nasa.gov/downloadables>
- NASA press kit: <http://eclipse2017.nasa.gov/press-kit>

Submit Your Event to NASA's Eclipse Website

You can also help promote your event by submitting details to the NASA eclipse event map:

<http://sdo.gsfc.nasa.gov/epo/educators/2017eclipse.html>

Training Staff and Volunteers

Training Resources

The Explore Science: Earth & Space toolkit includes many training resources that will help your staff and volunteers feel comfortable engaging public audiences in the topic of Earth and space science. All of the resources listed below are also available online at <http://www.nisenet.org/earthspacekit>.

- Orientation presentation for staff and volunteers including a project overview and details about the educational products
- Facilitator guides for each activity
- Training and content videos for all activities
- Tips for leading hands-on activities
- Calendar of celestial and STEM-related events (additional opportunities to use your kit)
- List of Earth and space books, and other resources
- An eclipse package (products from NASA and other projects, links, and suggested resources)

Online Workshops

In addition to the resources listed above, the NISE Network will also offer a variety of free online workshops that your staff and volunteers are welcome and encouraged to participate in. There will be multiple one-hour workshops featuring training on a variety of topics, and one four-week online training about engaging participants in Earth and space programming using the toolkit materials. All online workshops will be recorded and archived.

Upcoming online workshops:

<http://www.nisenet.org/events/online-workshop>

Recordings of past online workshops:

http://www.nisenet.org/search/product_category/online-workshops-31



Additional Professional Development Tools

The NISE Network has created a wide variety of professional development tools, guides, workshops, and training materials as resources designed for educators and scientists to improve their capacity to engage the public in current science and technology.

http://www.nisenet.org/About_Professional_Development

Additional Resources

In addition to the materials provided in this toolkit, we also want to feature a few other sources that contain a wealth of Earth and space content:

NASA Wavelength Digital Library

NASA Wavelength is your pathway into a digital collection of Earth and space science resources for educators of all levels, from elementary to college to out-of-school programs. These resources, developed through funding from the NASA Science Mission Directorate (SMD), have undergone a peer-review process through which educators and scientists ensure the content is accurate and useful in an educational setting.

<http://nasawavelength.org>

Additionally, the NISE Network has a curated list of programs, media, and professional development resources in the NASA Wavelength Digital Library that directly relate to the toolkit.

<http://nasawavelength.org/users/nisenet>

NASA Museum Alliance

The Museum Alliance is a community of practice comprising informal science educators at museums, science centers, planetariums, NASA Visitor Centers, Challenger Learning Centers, observatories, zoos, aquariums, parks, and nature centers who wish to share NASA information with their visitors. It is intended to bring current NASA science and technology to visitors through professional development of the museums' staff, advance notice of NASA events, and provision of materials such as visualizations, access to NASA experts, educational materials, etc.

<http://informal.jpl.nasa.gov/museum/>

Astronomical Society of the Pacific

The Astronomical Society of the Pacific (ASP) designs and delivers innovative astronomy toolkits, programs, publication, and education guides to inspire youth and adults.

<http://www.astrosociety.org/education/>

Solar Eclipse 2017 Resources

In addition to the resources included in your Earth & Space toolkit there are many organizations sharing materials and resources to help you plan for the 2017 solar eclipse. Please refer to the *Planning an August 21, 2017, Solar Eclipse Event* section of this guide for links and more information.

Evaluating Your Event

The activities and materials included in your Explore Science: Earth & Space toolkit have been evaluated with public audiences, and reviewed by scientists and informal science educators. The NISE Network also evaluates the national impact of Explore Science: Earth & Space events. The findings from these evaluation studies are used to improve future toolkit materials, and to inform the Network of its impact on the public.

Additionally, you may want to evaluate your local Explore Science: Earth & Space event against your own event goals. Evaluating your local event has several benefits. It can help clarify your goals, provide information that you can use to improve your event next year, gain funding or sponsorship for projects, and inform your understanding of your audience and the impact of your work. If you're interested in learning more about evaluation, following is a selection of resources to help you get started.

Team-Based Inquiry

Team-Based Inquiry (TBI) is a practical approach to empowering education professionals to get the data they need, when they need it, to improve their products and practices and, ultimately, more effectively engage public and professional audiences. The TBI process involves an ongoing cycle of inquiry: question, investigate, reflect, and improve. The Team-Based Inquiry guide explains each step of the TBI process and features ways TBI is used in the NISE Network to improve educational experiences and professional practice. Resources include templates, forms, training materials, and training videos. <http://www.nisenet.org/catalog/team-based-inquiry-guide>

NISE Network program evaluation tools

Including program evaluation template:

<http://www.nisenet.org/catalog/nise-network-program-evaluation-tools-package>

NISE Network evaluation efforts

Information about NISE Net evaluation: http://www.nisenet.org/About_Evaluation_Research

Additional Resources

- **Informalscience.org**
Informal education resources:
<http://www.informalscience.org>
- **The National Science Foundation**
Guidebook on project evaluation for researchers:
http://www.nsf.gov/pubs/2002/nsf02057/nsf02057_1.pdf
- **The University of Wisconsin Extension**
Guides to planning and implementing evaluation:
<http://www.uwex.edu/ces/pdande/evaluation/evaldocs.html>
learningstore.uwex.edu/Planning-a-Program-Evaluation—P1033C0.aspx

Staying in Touch

NISE Network Monthly E-Newsletter

The NISE Network sends a monthly electronic newsletter. Subscribe here:

<http://www.nisenet.org/newsletter>

If you have subscribed to the newsletter, but you are not receiving it via email, please see our FAQ page for assistance:

<http://www.nisenet.org/faqs>

NISE Network Social Networking

In addition to the monthly *NISE Network electronic monthly newsletter*, the NISE Network has many ways to get updates and connect with other professionals in the NISE Network through social networking sites that you already use:

<http://www.nisenet.org/social>

If you are posting about your events and experiences, we encourage you to use these hashtags on your social network platforms:

#nisenet

#explorescience

NASA Social Media

Follow, share, and be a part of the conversation on popular social media sites with NASA:

<https://science.nasa.gov/get-involved/connect>

NISE Network Regional Hub Leaders

The NISE Network community within the United States is organized around four "regional hubs" based on geographic proximity. Regional hubs facilitate partner interaction in the Network, help museum educators connect with scientists and each other, and provide support to institutions in their region. To find your region and contact your regional hub leader, please see the section on regional hub leaders earlier in this guide, or visit:

<http://www.nisenet.org/contact>

NASA Museum Alliance News

Informal education professionals are invited to apply for free membership to the NASA Museum Alliance. You can receive regular news from NASA Museum Alliance by joining at:

<https://informal.jpl.nasa.gov/museum/About/Application>

NASA Education "Science WOW!" Newsletter

The "Science WOW!" message features NASA's latest science education offerings delivered "Weekly on Wednesdays."

https://www.nasa.gov/audience/foreducators/Express_Landing.html

Promotional and Marketing Materials

We've put together a collection of resources to help you promote and market your Explore Science: Earth & Space event. We've designed everything to be as easy to use as possible by creating templates, common software platforms, and simple instructions for adding your information and logos to generate attractive posters, banners, and other marketing materials.

All of the artwork and images shown on the following pages are available in electronic format on the USB thumb drive included in your toolkit, or online. We've provided Spanish and English options to help promote bilingual events. You can find materials online at:

<http://www.nisenet.org/earthspacekit>

NASA Acknowledgment of Support

The Explore Science: Earth & Space toolkits are part of the Space and Earth Informal STEM Education project, led by the Science Museum of Minnesota, funded by the National Aeronautics and Space Administration under cooperative agreement award number NNX16AC67A.

Although your event might not receive direct NASA funding, if you use our kit materials or produce deliverables based on the kit materials, you should follow NASA guidelines for acknowledging NASA support.

Statement for deliverables and publications:

This material is based upon work supported by NASA under cooperative agreement award number NNX16AC67A. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the National Aeronautics and Space Administration (NASA).

Use of the NASA seal logo, program identifiers, or flags is restricted by NASA and **should not** be added to your press release or event promotional materials.

The NASA insignia logo (the blue "meatball" insignia), the retired NASA logotype (the red "worm" logo), and the NASA seal may not be used for any purpose without explicit permission. These images may not be used by persons who are not NASA employees or on products, publications or web pages that are not NASA-sponsored. These images may not be used to imply endorsement or support of any external organization, program, effort, or persons. For more information, please visit <http://www.nasa.gov/multimedia/guidelines>.

Sample Press Release

Your logo here



Date:
Contact:
Phone:
Email:

Explore Earth and space science at [name of your organization]!

[Insert your local Explore Science: Earth & Space location, dates, and specific activity information here].

The Explore Science: Earth & Space event at [name of your organization] is part of a nationwide celebration of educational programs designed to engage audiences in the awe-inspiring fields of Earth and space science. This exciting event provides an opportunity to connect with current NASA science research and explore Earth and space phenomena.

The Explore Science: Earth & Space event will include exciting science, take-home materials, and engaging discussion about science and society. Participants will make clouds, imagine what extraterrestrial life might be like, investigate gravity, explore icy worlds, and much more! These fun activities introduce guests to the ongoing research happening at NASA in the fields of heliophysics, Earth science, planetary science, and astrophysics, and allow them to get hands-on with Earth and space science concepts.

[Insert information about other special activities that your location may host, information about local partnerships and collaborations, and any other event-specific information.]

The Explore Science: Earth & Space project is led by the Science Museum of Minnesota, in collaboration with the National Aeronautics and Space Administration (NASA). Explore Science: Earth & Space toolkits are developed and distributed nationwide by the National Informal STEM Education Network (NISE Net). Throughout spring and summer of 2017, events are taking place at over 250 museums and institutions throughout the country.



The National Informal STEM Education Network (NISE Network) is a national community of informal educators and scientists dedicated to fostering public awareness, engagement, and understanding of current science, technology, engineering, and math (STEM). For more information about NISE Net and to download a digital Explore Science: Earth & Space toolkit please visit: www.nisenet.org.

This material is based upon work supported by NASA under cooperative agreement award number NNX16AC67A. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the National Aeronautics and Space Administration (NASA).

Photo Release Form

Most institutions require that some kind of photo release form be signed in order for you to circulate photos from your event in any way. Whether or not this is a formal policy in your institution, you should always ask for permission before photographing participants, especially children. Getting signed releases gives you the flexibility to use your photos in newsletters, reports, and other settings.

We welcome you to share photos from your event with us by sending them to us. However, we do have the following caveat: in order to be able to use and share photos of local events, we must have a release form signed by each person in the photo. We understand that for many of our partners, it is not possible to get release forms from every person photographed or recorded. For this reason, we do not require or expect photographs of your events.

The National Informal STEM Education Network (NISE Net) photo release form is included on the next page. Fill in your organization's name in the second blank on the first line, then copy the form to use at your event. When you are asking visitors to fill out the form, be sure to explain that they can choose **not** to have their photograph or their child's photograph taken and still participate in the activity.

Here are a few tips to ensure you get a release from every person you photograph:

- If you are using a photographer for your Explore Science: Earth & Space event, be sure to explain to them that they will need to get consent before taking photographs.
- It's helpful to have the releases and pens on a clipboard or two that you can hand to the visitor.
- In larger settings, or spaces with a lot of activity, consider assigning a staff person to join the photographer and ask visitors to sign the release before the photographer takes pictures. This person can ensure that no photographs are taken without consent, and can also ask the photographer to delete any pictures from their camera of visitors who did not consent.
- Jot down a description of the person on their release form (for example, "young girl, brown hair, yellow shirt"). This can help you match releases to photos later on.
- If you are hosting an event with nametags and registration, you can ask visitors to fill out the release when they register. If they have consented to have their photo taken, give them a sticker for their nametag. Then the photographer can take photos only of people with the stickers.

If you are able to get signed releases, please share those photos with us! You may send a USB with photos along with a scan of the photo releases to the Science Museum of Minnesota at:

Christina Leavell
Science Museum of Minnesota
120 West Kellogg Boulevard
Saint Paul, MN 55102

Alternatively, you can email them to Christina Leavell at cleavell@smm.org.

Questions regarding acknowledgments or credits can be directed to cleavell@smm.org as well.

Explore Science: Earth & Space Photo Consent and Release

I, _____, hereby authorize the _____ (the "Museum"), as the agent acting for and on behalf of the NISE Network, and its partners, agents, representatives, assigns, successors in interest and licensees, to photograph, audiotape, and/or videotape me and grant the Museum and its partners the irrevocable right to use my photograph, audio recording, video recording, or any reproduction or modification thereof (the "Photograph," "Audio," and/or "Video"), in any manner or medium throughout the world an unlimited number of times in perpetuity in advertising, trade, promotion, exhibition, or any other lawful purpose.

I understand that I will not receive any monetary compensation for the permissions I am granting herein. I hereby waive any right of inspection or approval of the uses to which the Museum and the NISE Network may put the Photograph, Audio, and/or Video. I acknowledge the Museum and the NISE Network will rely on this permission and hereby release and discharge the Museum and the NISE Network from any and all claims and demands arising out of or in connection with the Photograph or the exercise of the permissions granted here, including any or all claims for libel, invasion of privacy, or emotional distress.

I understand that I cannot withdraw my consent after I sign this form and that this consent and release is binding on me and my heirs, legal representatives and assigns.

YES NO (please check one)

- I grant permission for Photographs** to be collected and used by the Museum and the NISE Network.
- I grant permission for Audio** to be collected and used by the Museum and the NISE Network.
- I grant permission for Video** to be collected and used by the Museum and the NISE Network.

Date: _____ Signature: _____

Address: _____

Phone Number: _____ Email Address: _____

If the individual named above is under 18 years of age, please complete the following:

I am the parent or legal guardian of the individual named above, and I hereby sign this Media Consent and Release on behalf of such individual in accordance with the statements above.

Name: _____ Date: _____

Signature: _____

Address: _____

Phone Number: _____

Logos

Explore Science: Earth & Space logos

You are very welcome to use the Explore Science: Earth & Space logos on your press release or event promotional materials. There are many variations and formats for the Explore Science: Earth & Space logos available for use in graphic materials. All Explore Science: Earth & Space logos are included on the USB thumb drive, and all the promotional materials are available on the website at:

<http://www.nisenet.org/earthspacekit>

You can find the logos at:

<http://www.nisenet.org/catalog/explore-science-earth-space-logos>

NISE Network logos

You can find logos and promotional materials for all the NISE Network promotional materials and logos here:

<http://nisenet.org/prmaterials>

NASA seal, logo, program identifiers

Use of the NASA seal, logo, program identifiers, or flags is restricted by NASA; please do not add the NASA logo to your press release or event promotion materials.

The NASA insignia logo (the blue “meatball” insignia), the retired NASA logotype (the red “worm” logo), and the NASA seal may not be used for any purpose without explicit permission. These images may not be used by persons who are not NASA employees, or on products, publications or web pages that are not NASA-sponsored. These images may not be used to imply endorsement or support of any external organization, program, effort, or persons. For more information, please visit <http://www.nasa.gov/multimedia/guidelines>.

Horizontal logo



Vertical logo



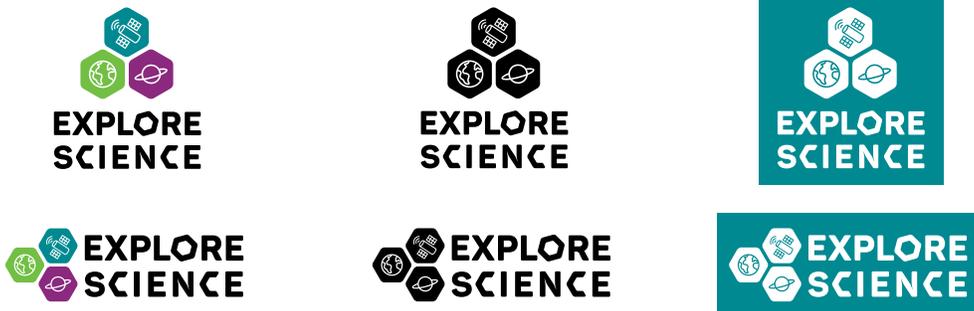
Explore Science mark



English logo versions



Logo mark versions



Bilingual logo versions



Colors

Green, teal, and purple are the primary colors of the Explore Science: Earth & Space color palette.

Color specifications



Fonts

The Explore Science: Earth & Space project uses two fonts: Panton and Calibri.

PANTON LIGHT

ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
uvwxyz 1234567890

CALIBRI LIGHT

ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
uvwxyz 1234567890

PANTON REGULAR

ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
uvwxyz 1234567890

CALIBRI REGULAR

ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
uvwxyz 1234567890

PANTON EXTRA BOLD

**ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
uvwxyz 1234567890**

CALIBRI BOLD

**ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
uvwxyz 1234567890**

PANTON FONT FAMILY

The Explore Science logo was based on the Panton typeface. Panton is used throughout Explore Science materials. The versatile font family includes ten different weights. Free download is not available, but the font can be purchased online from various sources.

CALIBRI FONT FAMILY

Calibri is also used in Explore Science materials. Calibri Regular and Bold come with the Windows operating system and also with Microsoft Word for Mac. Calibri Light can be purchased online from various sources.

Social Media

We encourage you to use these hashtags on your social networks to promote your event:

#nisenet

#explorescience

Banners

Two large Explore Science: Earth & Space banners are included in your toolkit (English and bilingual Spanish-English). You can use adhesive vinyl lettering to customize the banner with your event date, times, location, and other information.

If you would like to print additional banners with your customized event information, it's easy to do. Use the banner template on the USB thumb drive, then send your art to one of the many online banner-printing companies or take it to your local printer. A similar large vinyl banner with grommets should cost about \$100.



64 x 24 inches

Customizable Ads and Posters

To help you promote your event, PDF, JPEG, and Adobe Illustrator files are provided.



Each ad layout is provided in both English and bilingual format



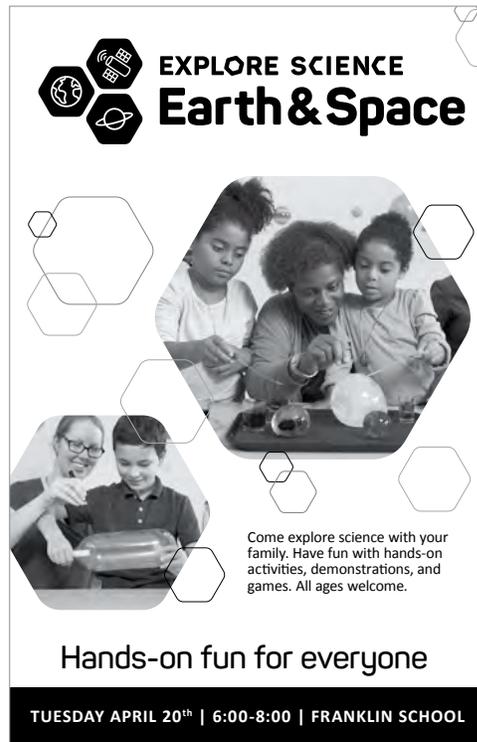
11 x 17 posters



Each poster layout is provided in both English and bilingual format

8.5 x 11 posters

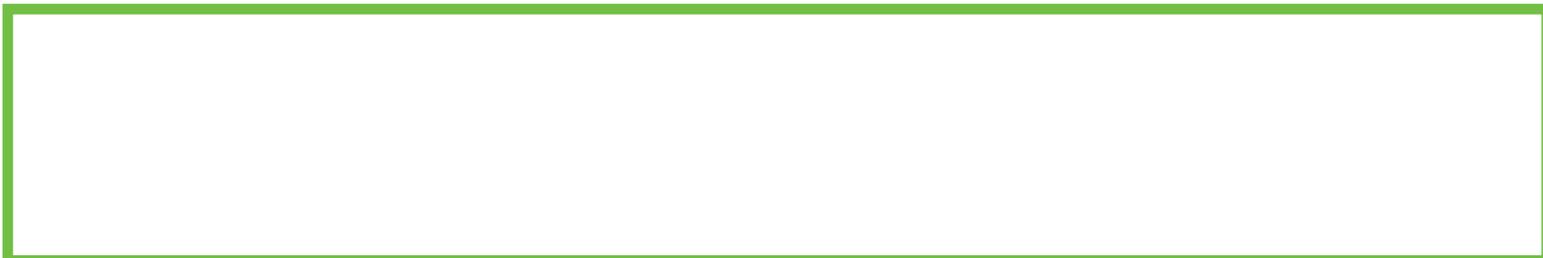
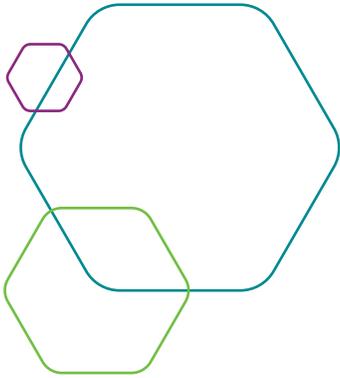
Each ad and poster is also provided in black and white

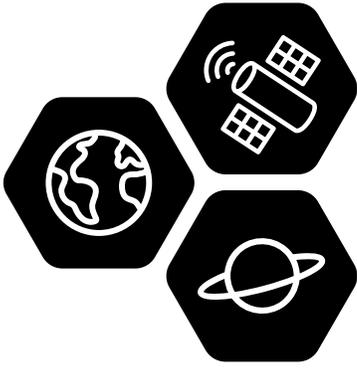




EXPLORE SCIENCE

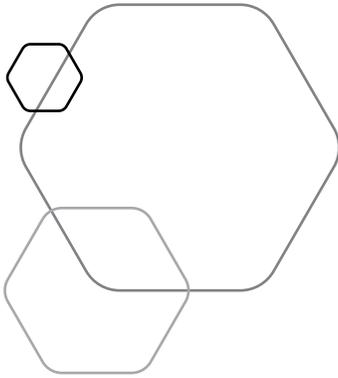
Earth & Space





EXPLORE SCIENCE

Earth & Space



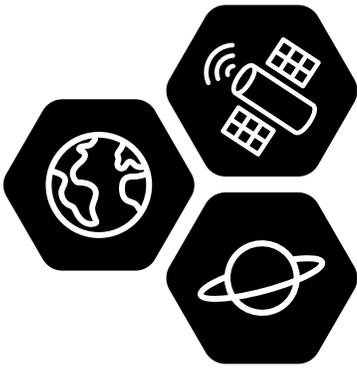


EXPLORE SCIENCE

Earth & Space



**Hands-on fun
for everyone!**



EXPLORE SCIENCE

Earth & Space



**Hands-on fun
for everyone!**

Press Photos

We have provided a selection of press photos that you can use to market your Explore Science: Earth & Space events.



ExSci_Space_Promo_20160717_1122.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1133.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1136_edit.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1152.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1163_edit.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1170.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1179.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1344.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1366.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1410.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1425.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1592.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160717_1608.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1027.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1031.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1066.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1069.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1079.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1093.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1099.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1102.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1215.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1265_edit.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1325.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1355.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1361.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1414.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1453.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1491.jpg
Credit: Emily Maletz



ExSci_Space_Promo_20160718_1495_edit.jpg
Credit: Emily Maletz



ExSci_Space_Promo_Eclipse1.jpg
Credit: Science Museum of Minnesota



ExSci_Space_Promo_Eclipse3.jpg
Credit: Science Museum of Minnesota

creative commons



CC BY-NC-SA 3.0

We encourage you to use the provided publicity photos in marketing your event, and in creating related materials. These photos were taken by the Science Museum of Minnesota in Saint Paul, MN, and by Emily Maletz in Portland, OR.

Please see image thumbnails for credit information.

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