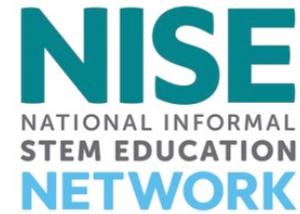


NISE Network Online Workshop

Girl Scouts and STEM: New Space Science Badges and Opportunities to Connect with the Explore Science: Earth & Space Toolkits

Tuesday, August 21, 2018



Welcome! Today's presenters are:

- **Pamela Harman**, SETI Institute
- **Suzanne Harper**, Girl Scouts of the USA
- **Cole Grissom**, Girl Scouts of the USA
- **Brad Herring**, NISE Network
- **Elsbeth Kersh**, Girl Scouts of Northern California
- **Lisa Hoover**, Chabot Space and Science Center



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

Update your display name. Right click your image and update your first and last name, and institution

Introduce yourself! Type your name and institution into the Chat Box

Questions? Feel free to type your questions into the Chat Box at any time throughout the online workshop

All workshops are recorded and archived online at <http://www.nisenet.org/event-type/online-workshop>

Online Workshop Overview



- Girl Scouts of the USA Overview
- Girl Scouts Space Science Badges
- NISE Net's Explore Science: Earth & Space Toolkits Overview and Badge Connections
- NISE Net and Girl Scouts Events
- Q/A

Reaching for the Stars: NASA Science for Girl Scouts





The New Girl Scout STEM Program

STEM Focus Areas



Engineering

Computer
Science

Outdoor
STEM

STEM Strategic Partners



Councils +
Volunteers

STEM
Organizations
+ Experts

Funders

National STEM Outcomes

- * Increased STEM interest
- * Increased STEM confidence
- * Increased STEM competence
- * Understand the value of STEM to society



NEW STEM Journeys and Badges



Journeys: STEM + Leadership

- * Hands-on challenges — how to solve problems like engineers, programmers and scientists.
- * Take Action project — girls use what they've learned to address a problem.
- * This connects STEM to helping people in the real world.

Badges: STEM + Skills

- * Hands-on activities teach girls specific STEM skills.
- * Building STEM skills builds STEM confidence



STEM for Girl Scout Daisies

BADGES

Space Science



Space Science Explorer



Cybersecurity Basics



Cybersecurity Safeguards



Cybersecurity Investigator

Robotics



What Robots Do



How Robots Move



Design a Robot

Mechanical Engineering



Model Car Design Challenge



Roller Coaster Design Challenge



Board Game Design Challenge

JOURNEY AWARDS

Engineering Journey



Think Like an Engineer



Take Action

Computer Science Journey



Think Like a Programmer



Take Action

Outdoor STEM Journey



Think Like a Citizen Scientist



Take Action

STEM for Girl Scout Brownies

BADGES

Space Science



Space Science
Adventurer

Cybersecurity



Cybersecurity
Basics



Cybersecurity
Safeguards



Cybersecurity
Investigator

Robotics



Programming
Robots



Designing
Robots



Showcasing
Robots

Mechanical Engineering



Fling Flyer
Design
Challenge



Leap Bot
Design
Challenge



Race Car
Design
Challenge

JOURNEY AWARDS

Engineering Journey



Think Like an
Engineer



Take
Action

Computer Science Journey



Think Like a
Programmer



Take
Action

Outdoor STEM Journey



Think Like a
Citizen
Scientist



Take
Action

2018

STEM for Girl Scout Juniors

BADGES

Space Science



Space Science Investigator

Cybersecurity



Cybersecurity Basics



Cybersecurity Safeguards



Cybersecurity Investigator

Robotics



Programming Robots



Designing Robots



Showcasing Robots

Mechanical Engineering



Balloon Car Design Challenge



Crane Design Challenge



Paddle Boat Design Challenge

JOURNEY AWARDS

Engineering Journey

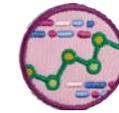


Think Like an Engineer



Take Action

Computer Science Journey



Think Like a Programmer



Take Action

Outdoor STEM Journey



Think Like a Citizen Scientist



Take Action

2018

STEM for Girl Scout Cadettes

BADGES

Robotics



Programming
Robots



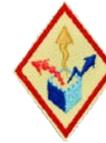
Designing
Robots



Showcasing
Robots

JOURNEY AWARDS

Engineering Journey



Think Like an
Engineer



Take
Action



Leader in
Action

Computer Science Journey



Think Like a
Programmer



Take
Action



Leader in
Action

2018

STEM for Girl Scout Seniors

BADGES

Robotics



Programming
Robots



Designing
Robots



Showcasing
Robots

JOURNEY AWARDS

Engineering Journey



Think Like
an Engineer



Take
Action

Computer Science Journey



Think Like a
Programmer



Take
Action

2018

STEM for Girl Scout Ambassadors

BADGES

Robotics



Programming
Robots



Designing
Robots



Showcasing
Robots

JOURNEY AWARDS

Engineering Journey



Think Like
an Engineer



Take
Action

Computer Science Journey



Think Like a
Programmer



Take
Action

2018

“We want to explore. We’re curious people.”

—Eileen Collins, NASA Space Shuttle commander and Air Force pilot



Space Science Explorer

Space scientists are people who study outer space—what’s in the sky. In this badge, you can be a space scientist as you look at the sky and talk about what you see!

Steps

1. Explore the Sun
2. Observe the Moon
3. Meet the stars

Purpose

When I’ve earned this badge, I will have explored and observed the Sun, Moon, and stars.



Daisy

3 steps
2 choices

STEP

1

Explore the Sun

Have you ever heard the words “sunrise” and “sunset”? That’s how we describe the Sun coming up in the morning (sunrise) and going down at night (sunset). But did you know that the Earth—the planet where we live—is actually spinning like a top in space? That’s why the Sun seems to move across the sky. On the part of the Earth facing the Sun, it’s day. On the part facing away, it’s night. Wow!

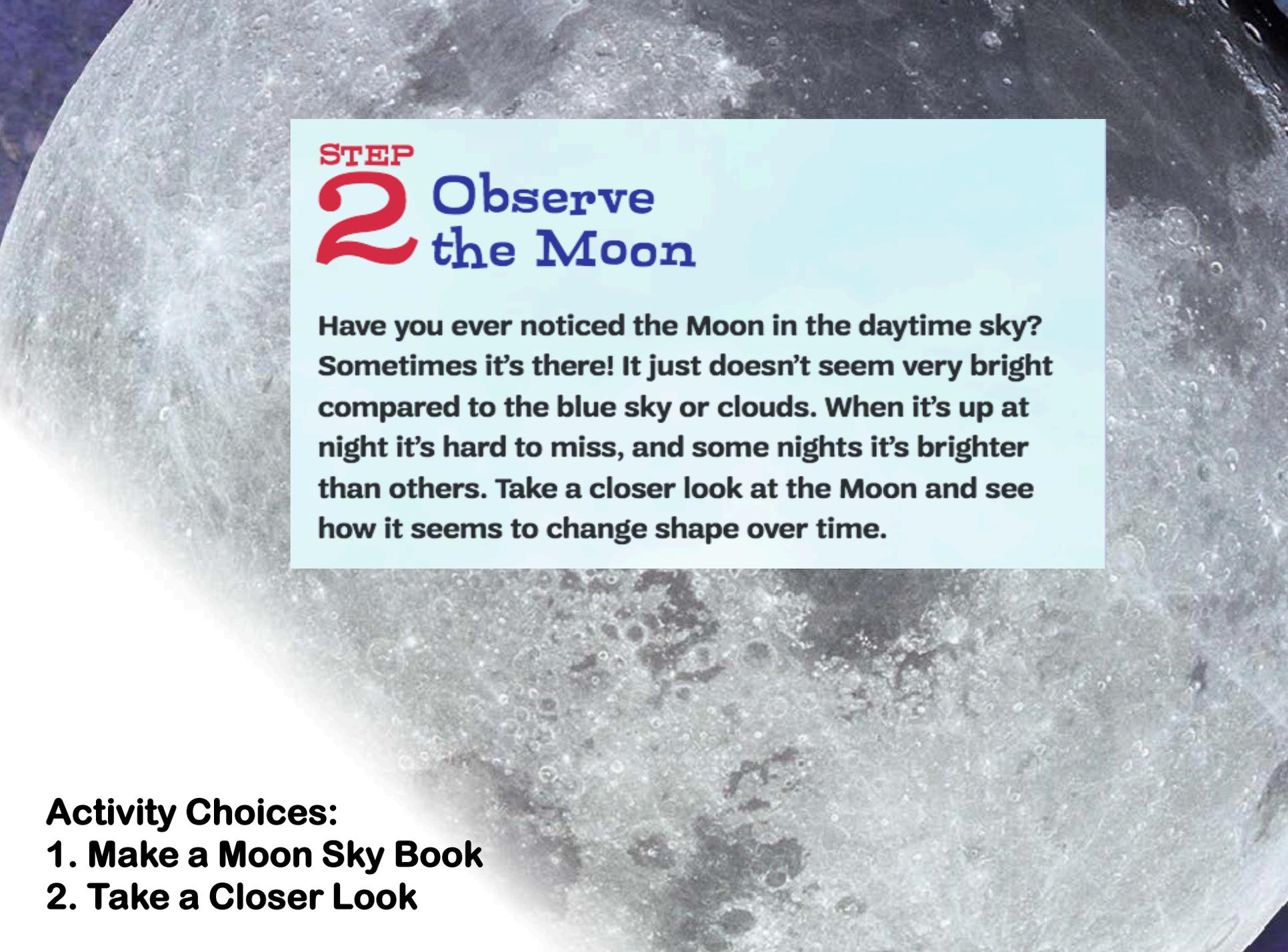
Activity Choices:

- 1. Make a Day Sky Book**
- 2. Make a Shadow Poster**

For More Fun:

Make a Pinhole Projector





STEP
2 **Observe**
the Moon

Have you ever noticed the Moon in the daytime sky? Sometimes it's there! It just doesn't seem very bright compared to the blue sky or clouds. When it's up at night it's hard to miss, and some nights it's brighter than others. Take a closer look at the Moon and see how it seems to change shape over time.

Activity Choices:

- 1. Make a Moon Sky Book**
- 2. Take a Closer Look**



STEP
3 Meet
the stars

Now that you've observed the Sun (our closest star) and the Moon, it's time to see more stars! All of the other stars are much farther away than the Sun and the Moon. That's why they look like tiny points of light.

Activity Choices:

- 1. Make a Pretend Telescope**
- 2. Make a Star Pattern**



**“Some of
the most fun
people I know are
scientists.”**

—Mae C. Jemison, NASA
astronaut and
physician



Space Science Adventurer

Whether you’ve searched for shooting stars or found shapes in the clouds, you’ve probably already spent some time looking at the sky. Now’s your chance to see the sky in a new way—like a space scientist does!

Steps

1. Meet the neighbors
2. See more than before
3. Investigate the Moon
4. Be a stargazer
5. Celebrate and share

Purpose

When I’ve earned this badge, I will know how to investigate and learn about the Sun, Moon, planets, and stars.

Brownie

**5 steps
3 choices**



STEP

1

Meet the neighbors

If you live in a city, your neighbors live close to you. If you're in the country, they're farther away. Think of your home planet—Earth—as part of a neighborhood. Earth's neighborhood is our Solar System, and the other planets are the neighbors. Some planets are close, and some are farther away. Now get to know the neighbors!

Activity Choices:

1. Create a Picture of Our Planets
2. Name Those Planets
3. Make a Pocket Solar System

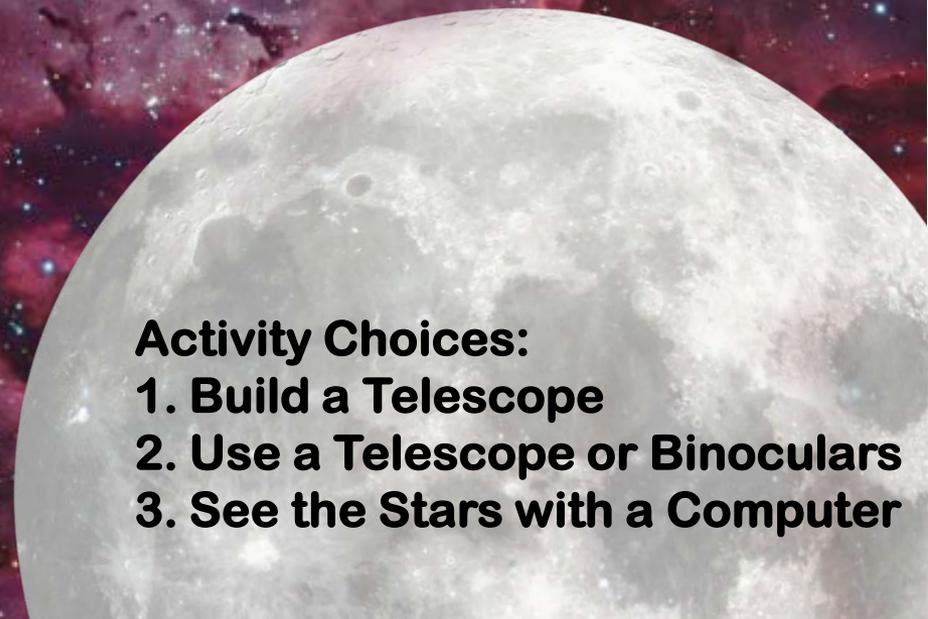


STEP
**2 See more
than before**

The objects in our Solar System—and beyond—are far away. In order to look at them in more detail, space scientists need to use tools. You can use some of these tools too—give it a try!

Activity Choices:

- 1. Build a Telescope**
- 2. Use a Telescope or Binoculars**
- 3. See the Stars with a Computer**



STEP
3 Investigate
the Moon

Have you ever noticed that the Moon looks different at different times of the month? It doesn't actually change shape, but it looks different. As the Moon orbits (or moves around) the Earth, the Sun lights different parts of it. This makes the Moon look like it is changing shape. These shapes are called the "phases of the Moon." Learn more about the Moon in this step!

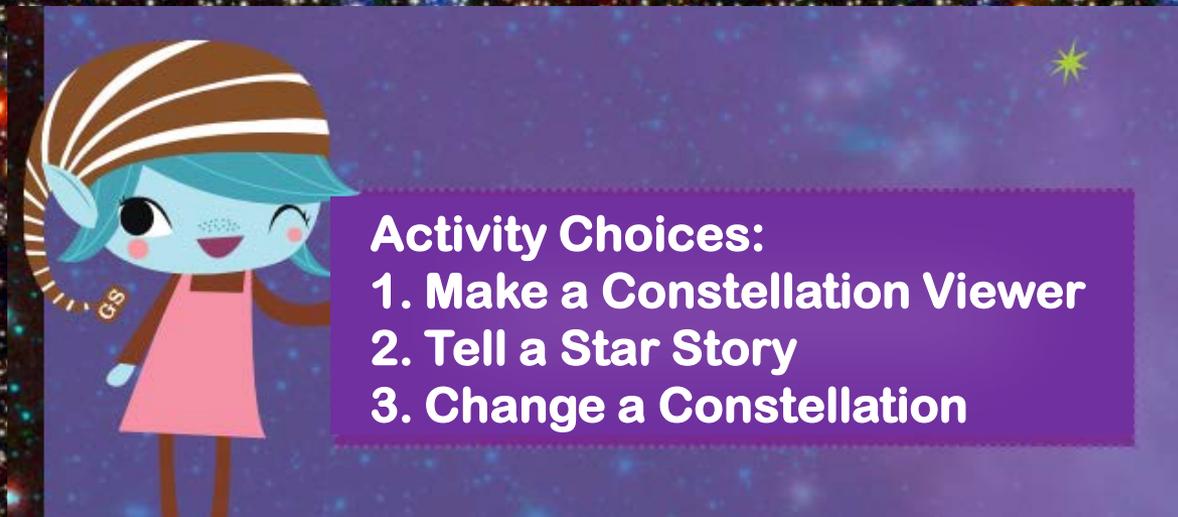
Activity Choices:

- 1. Model the Moon**
- 2. Make a Moon Art Project**
- 3. Meet the Moon Phases**



STEP
4 Be a
stargazer

For as long as people have been looking at the sky, they've noticed shapes and patterns in the stars. Groups of stars that form shapes are called constellations. Around the world, many people have created different constellations and stories about them. Today, astronomers have agreed to use the same 88 constellations to make maps of the sky for science.

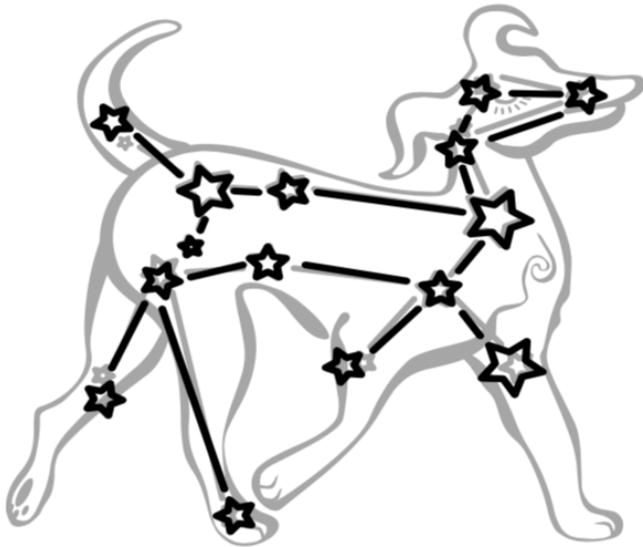


Activity Choices:

1. Make a Constellation Viewer
2. Tell a Star Story
3. Change a Constellation

STEP
**5 Celebrate
and share**

Now that you've learned about the Solar System and the stars, it's time to celebrate and share what you've learned! Whether you hold a space-themed party or share your favorite project with younger Girl Scouts, take some time to create a fun end-of-badge memory of your experiences.



Activity Choices:

- 1. Hold a Space Party**
- 2. Share with Daisies**
- 3. Attend a Stargazing Event**



Space Science Investigator

Junior

“Science is full of researchers working to understand nature. There’s no way to tell what will help humans and our world in the years to come, but some discoveries certainly will.”

—Lori Fenton, planetary scientist who studies how the wind shapes the surfaces of Earth, Venus, and Mars

Our Solar System spreads out across space. It’s much larger than you might think and the stars are even farther away than you can imagine. Venture through the Solar System and beyond, and discover that space is even bigger than you thought.

Steps

1. Model the Solar System
2. Circle the Sun
3. Discover the stars
4. Use tools to explore
5. Share your sky

Purpose

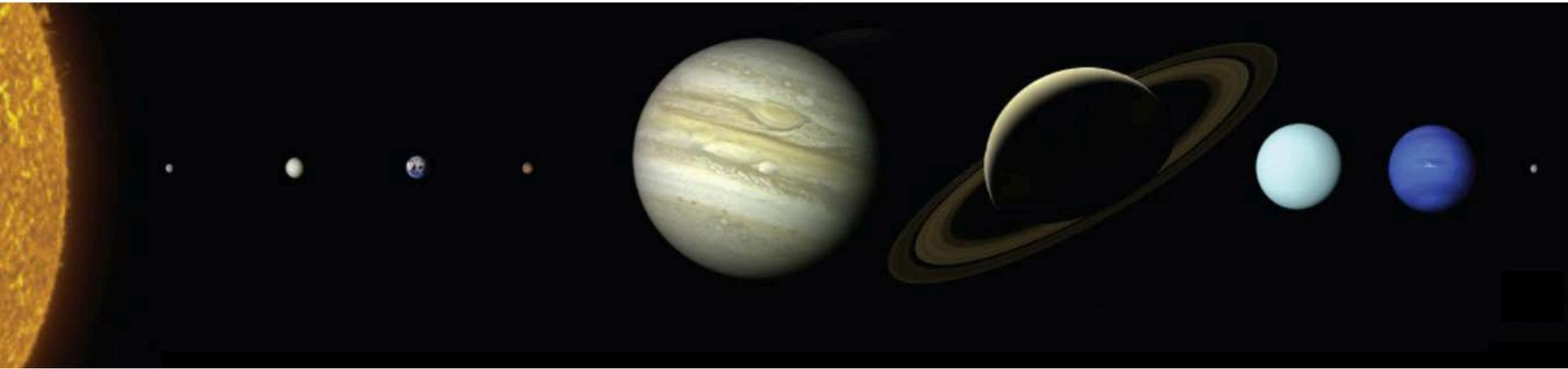
When I’ve earned this badge I will understand that the Earth orbits the Sun and how far away the Sun, Moon, planets, and stars are from our home planet, Earth.



5 steps
3 choices

STEP **1** **Model the** **Solar System**

Our Solar System is made up of planets, moons, asteroids, comets, and dust that orbit (move around) the Sun. The whole system is spread out through space. Make a model of celestial objects in this step.

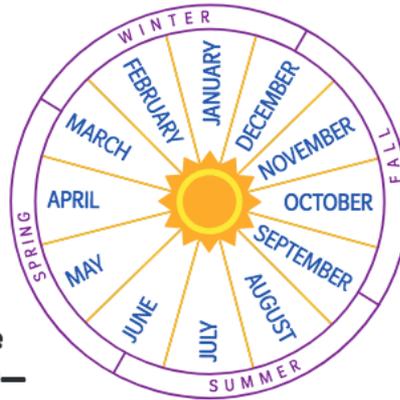


Activity Choices:

- 1. Make Models of the Planets**
- 2. Find a Scale Model of the Earth-Moon System**
- 3. Take a Solar System Walk**

STEP **2** Circle the Sun

What is a year? How do we measure a year? The Earth orbits (moves around) the Sun, and one orbit is equal to one year—actually it takes the Earth 365.24+ days. How many times have you orbited the Sun?



Activity Choices:

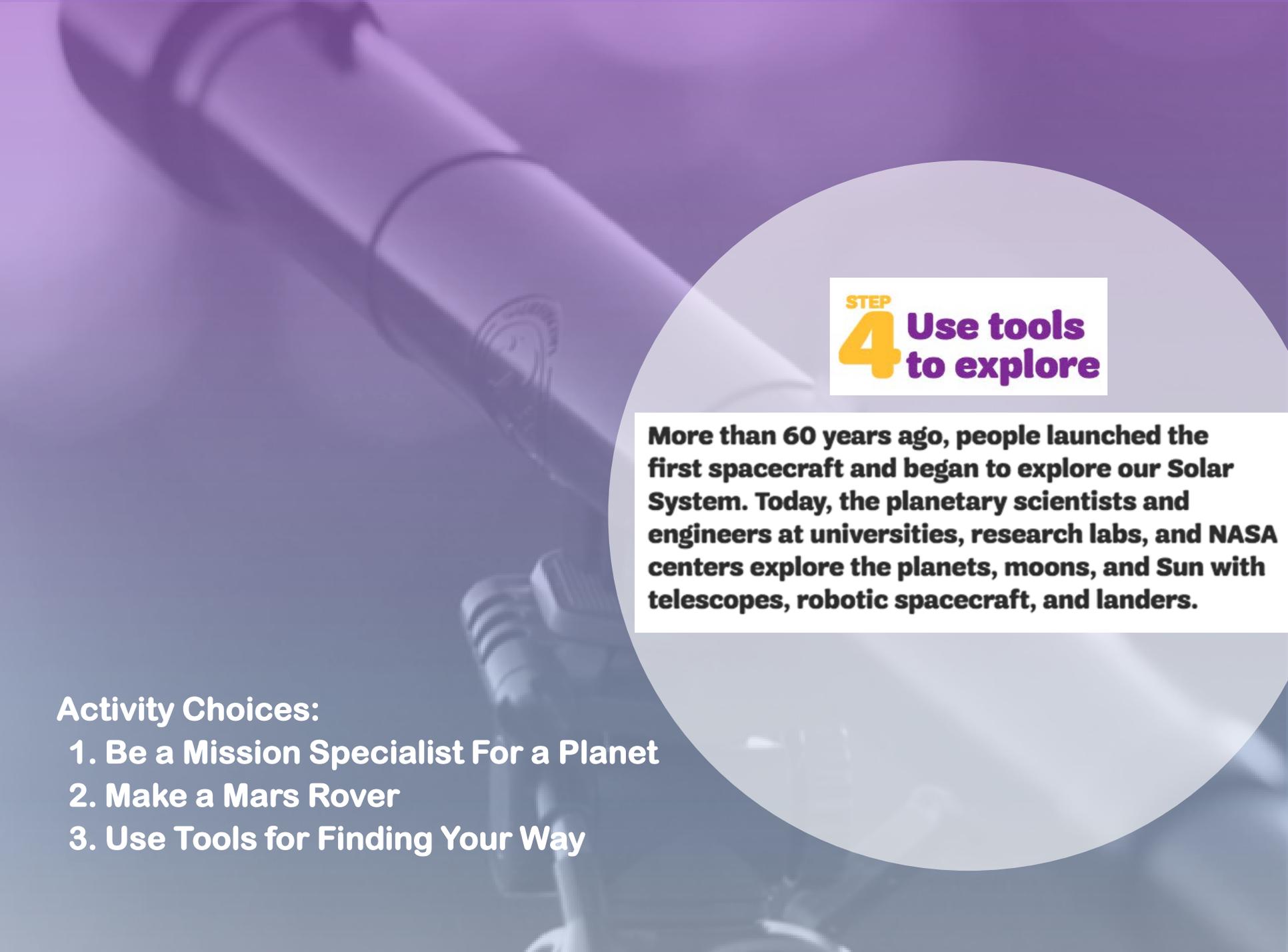
- 1. Dance the Earth's Year**
- 2. Find Your Age on Other Planets**
- 3. Show Your Years in Pictures**

STEP **3 Discover the stars**

Objects in space are *very* far away. The Moon—the closest object to Earth—is about 240,000 miles away. If you could drive a car to the Moon at 60 miles per hour, it would take more than five and a half months to get there! The Sun is about 400 times farther away—roughly 93 million miles—and it's the closest star to us. Scientists measure space with a different ruler marked in “light-years.” A light-year (ly) is the **distance** that light travels in one year at 186,000 miles per second—one light-year is about 6 trillion miles.

Activity Choices:

- 1. Make a 3-D Constellation**
- 2. Create Your “Girl Scout Minute”**
- 3. Go on a Night Sky Scavenger Hunt**

The background of the slide features a purple-tinted image of a telescope on the left and a hand holding a tool, possibly a wrench or screwdriver, on the right. A large, light purple circle is overlaid on the right side of the image, containing the main text and graphics.

STEP
4 Use tools to explore

More than 60 years ago, people launched the first spacecraft and began to explore our Solar System. Today, the planetary scientists and engineers at universities, research labs, and NASA centers explore the planets, moons, and Sun with telescopes, robotic spacecraft, and landers.

Activity Choices:

- 1. Be a Mission Specialist For a Planet**
- 2. Make a Mars Rover**
- 3. Use Tools for Finding Your Way**



STEP
5 Share
your sky

Scientists communicate with each other—they discuss questions that interest them, share their research, and demonstrate their enthusiasm for space! Now that you've learned about our place in space, it's time to connect with your community and share your knowledge—just like a scientist.

Activity Choices:

- 1. Attend a Star Party**
- 2. Create a Space Show**
- 3. Share with Younger Girl Scouts**

Explore Science: Earth & Space Toolkits



Explore Science: Earth and Space Toolkits



Description

- **STEM educational resources**, including hands-on activities, videos, and media
- **Professional resources** for planning, implementation, and staff training
- **All necessary materials** to build partnerships, provide professional development, and engage the public

2019 Toolkit Application

- **350 copies** distributed in early 2019
- Applications due November 1, 2018
 - <http://www.nisenet.org/earthspace-kit-apply>

Toolkit Eligibility



The physical toolkit is designed for informal science education public events and outreach. To be eligible to receive a physical toolkit, organizations must be:

- Located in the United States
- Public informal science outreach and education institutions such as:
 - science museums and science centers,
 - children’s museums,
 - natural history museums,
 - public planetariums and observatories, and
 - NASA visitor centers

Please note that K-12 schools, afterschool programs, libraries, parks, and astronomy clubs are not eligible to receive physical toolkits. Consider downloading a digital toolkit if your organization does not meet eligibility criteria. Digital toolkits will be available for download in February 2019 at nisenet.org/earthspacekit

Toolkits & Badges



Activities from the NISE Network's Explore Science: Earth and Space toolkits can supplement, and in some cases satisfy some of the requirements for a Girl Scout to earn a Space Science badge.

Digital versions of the 2017 & 2018 Earth & Space toolkits are available for download

- 2017 Explore Science: Earth & Space toolkit: www.nisenet.org/earthspacekit-2017
- 2018 Explore Science: Earth & Space toolkit: www.nisenet.org/earthspacekit-2018

Daisy Space Science Explorer Badge

Step: Explore the Sun

NISE Net's Exploring Earth: Bear's Shadow serves as an introduction to the nature of shadows, leading up to the “Explore the Sun: Make a shadow poster” option.

Step: Observe the Moon

NISE Net's Exploring the Solar System: Hide and Seek Moon can introduce binocular use and safety, and share some cultural significance of the Moon through the Moon Rope picture book, written and illustrated by Louis Elhert and translated by Amy Price, before girls observe the Moon in “Observe the Moon: Take a closer look.”

Step: Meet the Stars

NISE Net's Exploring the Universe: Filtered Light can add another layer of learning to the option, “Meet the Stars: Make a pretend telescope,” by allowing girls to discover an important feature of real telescopes.

Brownie Space Science Adventurer Badge

Step: Meet the Neighbors

NISE Net's Exploring the Solar System: Pocket Solar System is specifically listed in the Badge guide and will satisfy the option, "Meet the Neighbors: Make a pocket Solar System"

Step: Investigate the Moon

- *NISE Net's Exploring the Solar System: Solar Eclipse* can supplement the option, "Investigate the Moon: Model the Moon" by encouraging girls to further explore the Sun, Earth, Moon system and its visible effects on Earth.
- *NISE Net's Exploring the Solar System: Craters* can supplement the option "Investigate the Moon: Make a Moon art project." The simulated Moon landscape that girls create by making craters can be considered a temporary art project, reminiscent of a sand mandala, or the girls can document their project by taking photos of it. They might even attempt photographing the landscape in different lighting and from various angles.

Junior Space Science Investigator Badge

Step: Model the Solar System

NISE Net's Exploring the Universe: Objects in Motion includes an optional extension called "Exploring Ratios," in which participants make playdough balls with mass ratios that match real object pairs in space. By completing this extension, girls will satisfy the option, "Find a scale model of the Earth-Moon system."

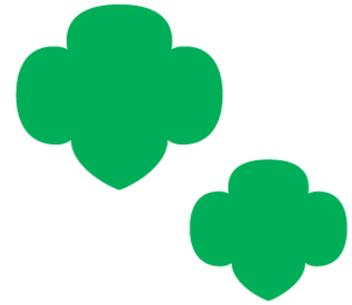
Step: Circle the Sun

NISE Net's Exploring the Universe: Orbiting Objects can supplement the learning in the option, "Circle the Sun: Dance the Earth's year" by inviting girls to explore the motions of bodies in space, and the relationships between mass, gravity, and acceleration.

Step: Use Tools to Explore

NISE Net's Exploring the Solar System: Mars Rovers can supplement the option, "Use tools to explore: Make a Mars rover," by allowing girls to act out a Mars rover mission in a full-body, cooperative challenge.

Girl Scout councils, programming partners, and new badges (oh my)



Shared goal: high-quality STEM programs for girls

Partner Programs

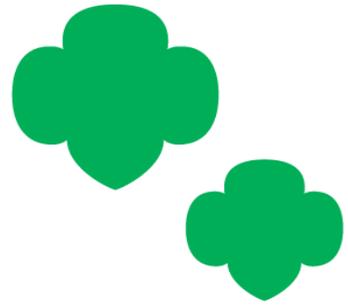
- Align practices with GSLE
- Enhance National Program Portfolio content
- Connect girls with experts
- Expand organization's reach



Check out NISE Net's webinar: Girl Scouts and Community Partners



Aligning Needs & Goals



Shared goal: high-quality STEM programs for girls

Goal: Encourage member engagement with new Space Science badges

Offers: Outstanding exhibits, programming, and expertise

Offers: Large population of enthusiastic girl and adult members

Goal: Expand reach to girls and under-represented audiences

Goal: Girls gather, connect, and learn together

Offers: Well-established overnights for large groups





NEW SPACE & ASTRONOMY
ODYSSEY OVERNIGHTS FOR
GIRL SCOUTS

Lisa Hoover, Programs Manager
LHoover@ChabotSpace.org



OVERNIGHT PROGRAMS AND PARTNERS

PROGRAMS

- Odyssey Overnights
 - Scouting Groups
 - Youth Groups
 - Schools
- Girl Scouts
- Slumber with the Stars
 - Public
 - Members
 - Adults and Families
- 2,800 served annually



PARTNERS



PROGRAMS



CHABOT SPACE & SCIENCE CENTER

10000 Skyline Blvd. in Oakland
ChabotSpace.org

Girl Scout Badge Overnights

Discover the wonders of the universe as you earn one of the NEW Space Science badges overnight. Your evening will be filled with interactive explorations at Chabot Space & Science Center. Venture through our Solar System and beyond in the planetarium. Investigate the night sky using telescopes. Gain confidence in your astronomy skills and have a blast on this stellar overnight experience.

November 3-4 | Juniors

Space Science Investigator Overnight

April 13-14 | Daisies & Brownies

Space Science Explorer/Adventurer Overnight

June 22-23 | Daisies, Brownie, & Junior Families

Space Science Badge Overnight – Family Edition

OVERNIGHT STRUCTURE



WORKSHOP

DINNER

LIVE PLANETARIUM SHOW

HANDS-ON ACTIVITIES

TELESCOPE VIEWING

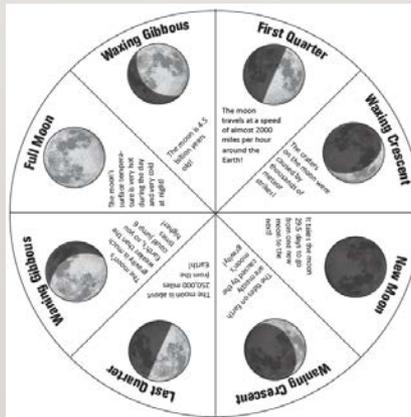
BREAKFAST

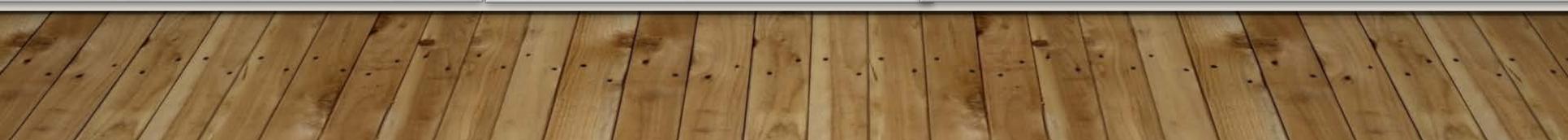
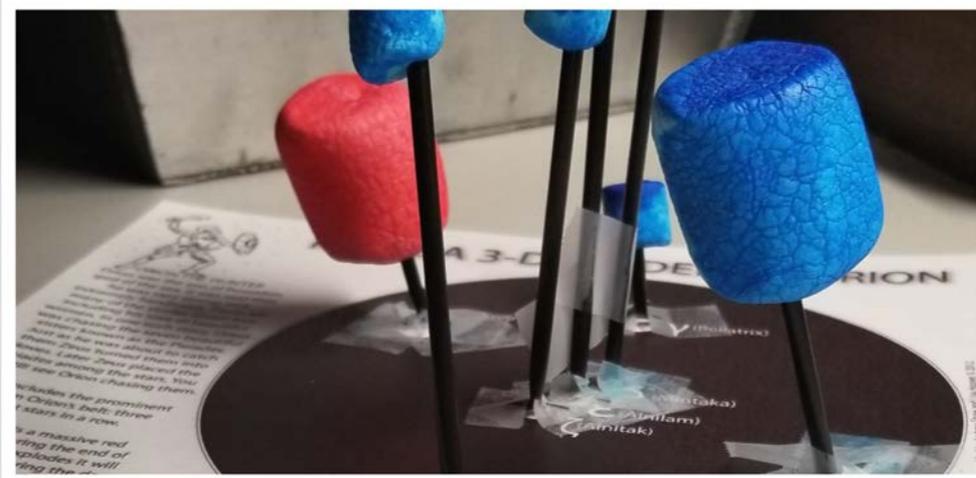
MORNING PLANETARIUM SHOW

BADGE DISTRIBUTION

BROWNIES & DAISIES

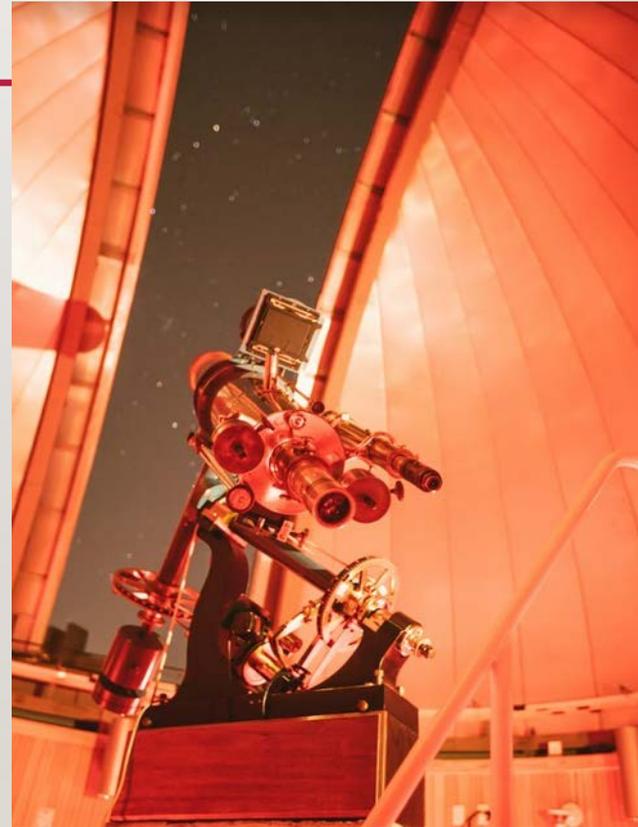
- POCKET SOLAR SYSTEM
- TELESCOPE VIEWING
- MODEL THE MOON/MOON PHASES
- CONSTELLATION VIEWER
- SUNION
- BIG SUN, SMALL MOON
- FILTERED LIGHT





JUNIORS – SPACE SCIENCE INVESTIGATOR

- SOLAR SYSTEM
 - SCIENCE THEATER
 - CLAY SOLAR SYSTEM MODEL
 - POCKET SOLAR SYSTEM
 - SOLAR SYSTEM JEWELRY
 - SOLAR SYSTEM WALK
- CONSTELLATIONS
 - 3-D MARSHMALLOW CONSTELLATION
 - PLANISPHERE
 - CELESTIAL SCAVENGER HUNT
- STAR PARTY



SOLAR SYSTEM ACTIVITIES



SCIENCE THEATER



NASA'S SPACE SCHOOL MUSICAL



HIKE



SCAVENGER HUNT



BOTTLE CAP SWAPS



Questions?

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Lisa Hoover, Chabot Space and Science Center
LHoover@ChabotSpace.org

Brad Herring, NISE Network South Regional Hub Leader
Brad.Herring@lifeandscience.org



Upcoming Online Workshops

Explore Science: Let's Do Chemistry Kit & Celebrate National Chemistry Week (October 21-27)

Tuesday, September 11, 2018

2pm-3pm Eastern / 11am-12pm Pacific



NISE
NETWORK

ONLINE
WORKSHOPS

Learn More About the 2019 Explore Science: Earth & Space Toolkit

Tuesday, September 18, 2018

2pm-3pm Eastern / 11am-12pm Pacific

Deepening and Extending Family Engagement and Learning Through Interactive Exhibits and Facilitated Hands-on Activities

Tuesday, October 23, 2018

2pm-3pm Eastern / 11am-12pm Pacific

nisenet.org/events

Get Involved

Learn more and access the
NISE Network's online digital resources
nisenet.org

Subscribe to the monthly newsletter
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Thank You

