

From Thin Mints to Thin Films: Museum Partnerships Engaging Girl Scouts in STEM Education



NISE
NATIONAL INFORMAL
STEM EDUCATION
NETWORK

ASTC Conference, October 2018, Hartford, CT

Presenters

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Overview



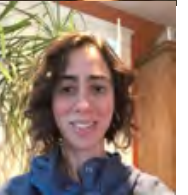
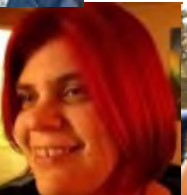
- **Girl Scout badges, STEM outcomes**
- **NISE Network's**
Explore Science: Earth & Space Toolkits
Overview and Badge Connections
- **Museums partnering with local Girl Scouts**
 - Ongoing programming, Skill building workshops
 - Overnights, special events
 - Collaboration tips
- **Discussion, Q/A**

**Pamela Harman
SETI Institute**

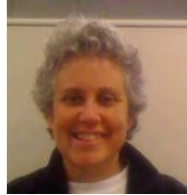
**Reaching For The Stars: NASA
Science for Girl Scouts**

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Reaching for the Stars: NASA Science for Girl Scouts (Girl Scout Stars, GS Stars)



Rockman et al
Research & Evaluation



**I can't wait to
be a Girl Scout.**





Girl Scouts' STEM Initiative



National Program Outcomes



SENSE OF SELF



POSITIVE VALUES



CHALLENGE SEEKING



HEALTHY RELATIONSHIPS



COMMUNITY PROBLEM SOLVING

Take Action to Change the World



STEM



Outdoor



Life Skills



Entrepreneurship

Girl Scout Leadership Experience

STEM Vision and Strategy

- ❖ Offer all girls high-quality, multi-year and progressive STEM program
- ❖ Increase girls' interest, confidence, competency in STEM, as well as their understanding of STEM's value to people and society
- ❖ Reach more underserved girls with STEM program
- ❖ Support Girl Scout councils to implement program, build local partnerships and share best practices in STEM

Opportunity for Impact

2nd - 3rd grade

75%

1.4 million



STEM Outcomes

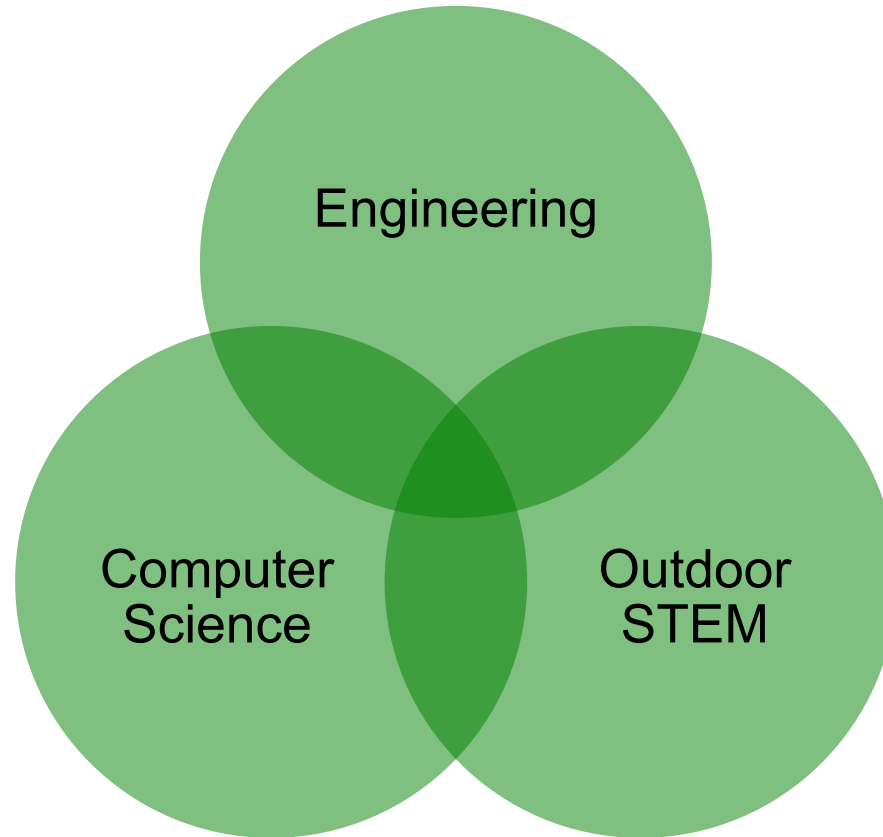
STEM Interest

STEM Confidence

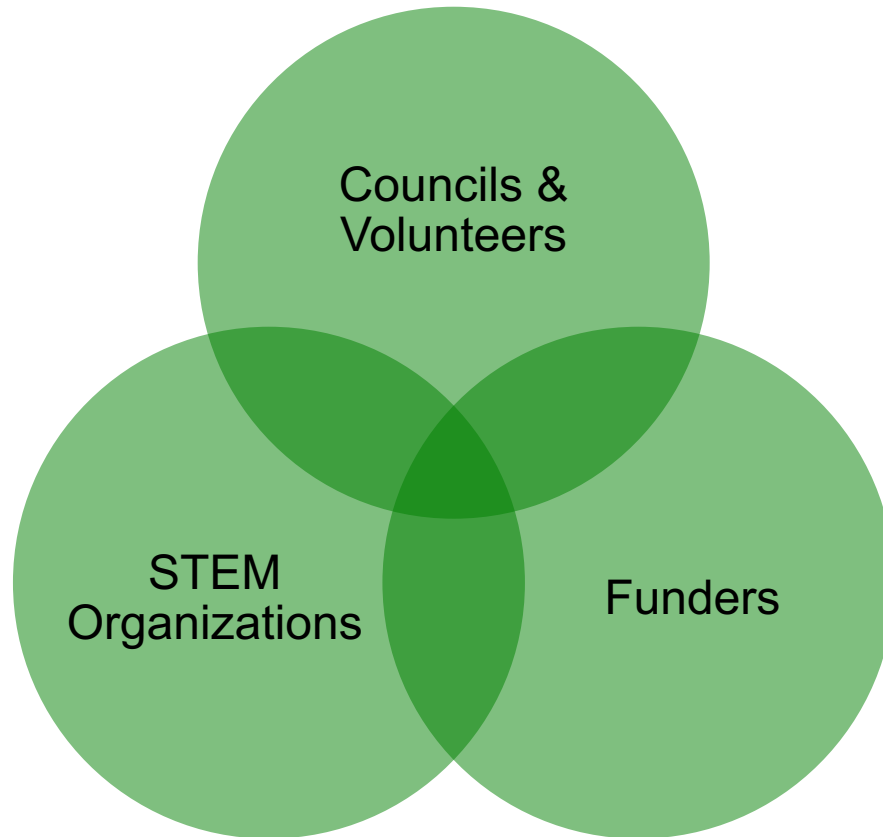
Value of STEM to
People & Society

STEM
Competence
(Knowledge)

Strategic Program Focus



Strategic Partners



Partnering with Girl Scouts

Local Partnerships

- Contact the Girl Scout council in your area (ask for the program lead or the STEM program lead)
 - Go to <http://www.girlscouts.org/>.
 - Click on “find a council.”
 - See graphic on next slide.
- Possibilities to explore: workshops/events that align with national and/or council programs, career exploration, etc.
- Share your certificate of compliance
- Check with local council about Girl Scouts’ Safety Activity Checkpoints

The Girl Scout Difference

Who We Are

Our History

Our Leadership

Advocacy

Lifetime of Leadership

Research

Global

Traditions

Girl Scouts and Civic Engagement

Girl Scouts and the Environment

Girl Scouts and Faith

Girl Scouts and STEM

Our Partners

Our Stories

Renew

Use the Girl Scout Council Finder to connect with your local Girl Scout council.



Find Councils

By Zip Code	By State	By Council Name
Find the Girl Scout Council Serving Your Area	Find a Girl Scout Council by State	Find a Girl Scout Council by Council Name
<input type="text" value="Enter ZIP Code"/> GO	Select a State: <input type="text"/> GO	Select a Council: <input type="text"/> GO



Donate Find a Course Español

Join Volunteer

Search

ABOUT GIRL SCOUTS OUR PROGRAM SHOP COOKIES FOR ADULTS FOR GIRLS

Girl Scout STEM Pledge: Let's add millions of girls to the STEM pipeline by 2025! [GO](#) »

Girl Scout STEM PLEDGE

Help us put millions of girls through our STEM programs by 2025.

MORE

Girl Scouts STEM leaders start here

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

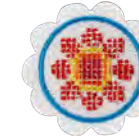


Think Like an Engineer



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



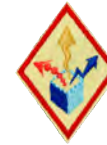
Designing
Robots



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

WHAT'S NEW

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



**“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**





“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



Space Science Investigator

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.



Junior

**5 steps
3 choices**

?

Catherine McCarthy

NISE Network

**Science Museum of Minnesota,
Saint Paul, MN**

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NISE
NATIONAL INFORMAL
STEM EDUCATION
NETWORK

**WHAT IS THE
NISE NETWORK?**

The National Informal STEM Education Network
is dedicated to supporting learning about science,
technology, engineering, and math (STEM).

NISE Net

includes
informal educators
and scientists.



NISE Net supports **informal learning about STEM** in communities across the United States.

Our activities are
**fun and
accessible**
for everyone.



Together we reach **millions of people** each year!



NISE Net

brings together diverse people to share and learn from each other.

WHAT WE CREATE



Educational products

- kits of hands-on activities for use in museums (and similar settings)
- exhibits for museums



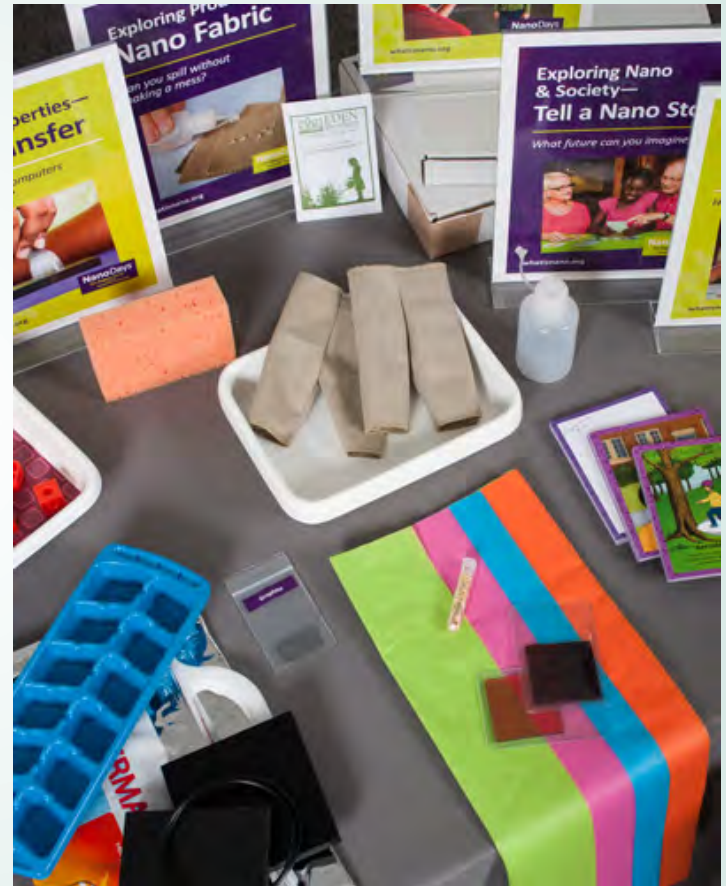
Professional development tools

- training videos
- online workshops
- written guides
- planning resources

KIT CONTENTS

Each kit includes:

- hands-on activities
- posters, media, and graphics
- event planning materials
- training videos

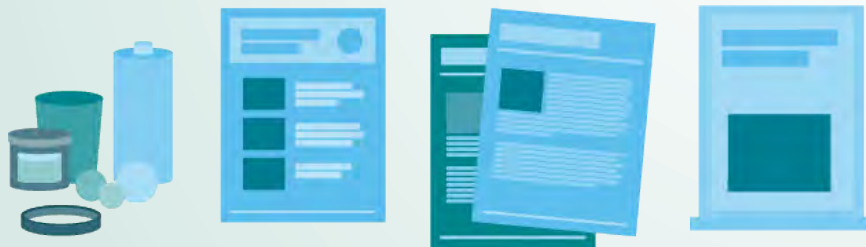


All resources are available for free download at nisenet.org

KIT CONTENTS

Each activity includes:

- all necessary materials
- step-by-step instructions
- facilitator guide & background info
- activity sign



All resources are available for free download at nisenet.org

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

Partner Expectations



Recipients must:

- Use the toolkit for at least one event between March and May
- Meet data reporting requirements – due June 2018

Recipients may:

- Attend professional development online workshops
- Collaborate with local experts
- Collaborate locally to reach underserved audiences

Using Your Toolkit All Year Long



- **Celestial events:** Meteor showers, lunar eclipses, full moons, planetary events, and more
- **Earth and space science events:**
 - World Water Day, March 22, 2019
 - Earth Hour, March 30, 2019
 - Global Astronomy Month, April
 - Yuri's Night, April 12, 2019
 - Earth Day, April 22, 2019
 - National Environmental Education Week, week of Earth Day
 - Astronomy Day (Spring), May 11, 2019
 - Astronomy Week (Spring), May 6-12, 2019
 - World Oceans Day, June 8, 2019
 - Asteroid Day, June 30, 2017
 - International Observe the Moon Night, October 20, 2018; TBD 2019
 - Astronomy Day (Fall), October 5, 2019
 - Astronomy Week (Fall), September 30-October 6, 2019
 - World Space Week, October 4-10, 2019
 - Earth Science Week, October 14-20, 2019

Toolkits & Girl Scout 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

Badge Step

NISE Network Earth & Space toolkit activity

Daisy Space Science Explorer Badge (grades K-1)

- **Explore the Sun** Exploring Earth: Bear's Shadow
- **Observe the Moon** Exploring the Solar System: Hide and Seek Moon
- **Meet the Stars** Exploring the Universe: Filtered Light

Brownie Space Science Adventurer Badge (grades 2-3)

- **Meet the Neighbors** Exploring the Solar System: Pocket Solar System
- **Investigate the Moon** Exploring the Solar System: Solar Eclipse & Exploring the Solar System: Craters

Junior Space Science Investigator Badge (grades 4-5)

- **Model the Solar System** Exploring the Universe: Objects in Motion
- **Circle the Sun** Exploring the Universe: Orbiting Objects
- **Use Tools to Explore** Exploring the Solar System: Mars Rovers



EXPLORE SCIENCE Earth & Space

Applications Now Open!

**Explore Science: Earth & Space 2019 toolkit applications
are due November 1, 2018**



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

Thank You



This material is based upon work supported by NASA under cooperative agreement award numbers NNX16AC67A and 80NSSC18M0061.

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).

Joelle Adolfi

**Rochester Museum & Science
Center, Rochester, NY**

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Girl Scouting at the Rochester Museum and Science Center

What we offer...

- At the RMSC we offer a variety of Girl Scout badges for Brownies through Seniors.
- Our programs are on “demand” now
- As well as customized overnights.

Girl Scouts: Brownies

Home Scientist

Hiker

Inventor

Outdoor Art Creator

Bugs

Girl Scouts: Juniors

Geocacher

Detective

Flowers

Girl Scouts: Cadettes

Special Agent

Trees

Girl Scouts: Seniors

Sky

Girl Scouts at RMSC



Brownie Home Scientist with
Nano Kits

New GSA badges and NISEnet kits

Space Science Badge-

- **Daisy:** Space Science Explorer
- **Brownie:** Space Science Adventurer
- **Junior:** Space Science Investigator

Robotics-

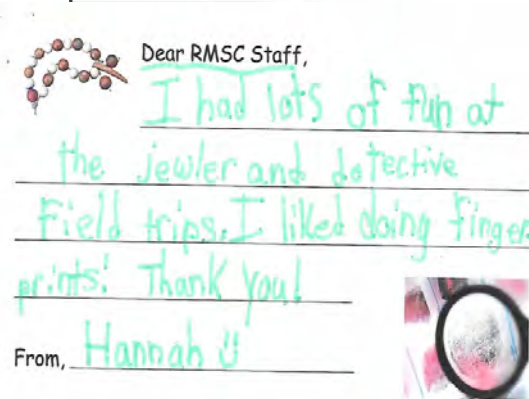
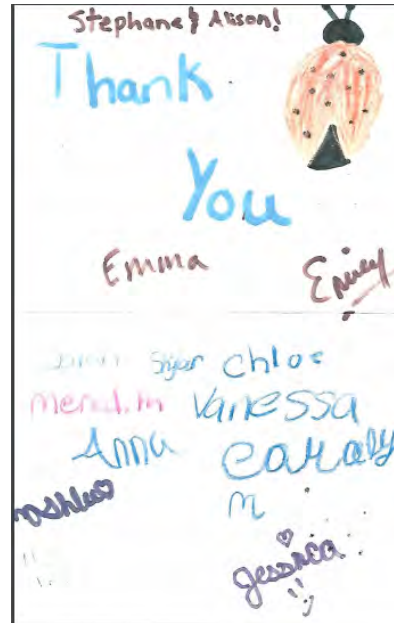
- **Daisy:** All three badges in one class
 - **Brownie:** Programming badge and Design badge
 - **Junior:** Programming badge and Design badge
- * All have the opportunity to use what they learned from the program toward their Showcasing badge.



Tips and Challenges

Tips!

- Fun- should not seem like school!
- Unique experience-only at the RMSC.
- Hands on, project based- they are learning through doing.
- Inquiry based learning- asking questions, not giving answers.
- Completing badge requirements within a 3 hour class.
- Cost effective- Admission to the RMSC included with Scout Program.
- Class is in the Instructor's hands.
- Organized bin of materials are ready for instructors.



Challenges

- Getting the word out!
- Creating quality programming that we can excel at.
- Finding quality instructors.
- Classroom space, technology, supplies and materials!
- Weekend programming
- Scheduled programs vs. Program that ran
- Knowing Girl Scout Council Boundaries
- Who to contact at Girl Scouts

Partnering with Girl Scouts of Western New York

Partnering up for Science Events

Troop Facilitation



STEM-A-Palooza, a Girl Scouts of Western New York event



Using resources from the RMSC to help facilitate troop activities.

Kristen Martin

**The Tech Museum of
Innovation, San Jose, CA**

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The Tech
Museum of Innovation

Girl Scouts
@ The Tech

Partnership history

- Originated 2009-2010 with two Junior programs :
 - Math Whiz
 - Make it Matter
- Big changes for 2012
 - GS badging program changed
 - Switched Junior programs:
 - Detective
 - Entertainment Technology
 - Greater demand - offering 15-20 sessions
- Present day
 - Programs for Daisies through Seniors
 - 48 session dates FY19



2018-2019 Program Offerings

*Schedule for year is set in advance;
sessions may be added if demand is high

Program	Age/Level	GSUSA Badge	Cost	Includes	# Sessions offered
Robo-Designer	Daisy K-1st	What Robots Do Design a Robot	\$40	Both robotics badges + Tech fun patch Museum Admission; IMAX film	3
Home Scientist	Brownie 2nd-3rd	Home Scientist	\$35	Program badge + Tech fun patch Museum Admission	19
Robo-Designer		Designing Robots	\$40	Program badge + Tech fun patch Museum Admission; IMAX film	3
Amusement Innovator	Junior 4-5th	Entertainment Technology	\$30	Tech fun patch; Museum Admission	6
Tech Detective		Detective	\$30	Tech fun patch: Museum Admission	6
Robo-Designer		Designing Robots	\$40	Program badge + Tech fun patch Museum Admission; IMAX film	3
Special Agent	Cadette 6-8th	Special Agent	\$30	Tech fun patch: Museum Admission	4
Change Makers	Senior 9-10th	Social Innovator	\$65	Program badge + Tech fun patch Museum Admission; lunch	4



Benefits of VIP Partnership

- Programs featured in council's annual Program Guide
- Marketing through multiple channels: Facebook features, direct e-news to members, lobby flyers, lobby monitor ads, cross promotion to other STEM program attendees
- Invitations to table at special council events (Bridging, STEM Career events)

girl scouts
of northern california

The Guide

 2018-2019 Programs & Events



Girl Scouts @ The Tech!

Now offering new badge programs for Daisies through Seniors!

New for 2018-19:

Robo-Designers
Daisies, Brownies
and Juniors

**Changemakers: A Tech for Global Good
Social Innovator badge program**
Seniors and Cadettes

Plus all your old favorites return: Home Scientist, Tech Detective, Amusement Innovator and Special Agent!

For more information on badge programs, dates, and tickets visit thetech.org/girlscouts.



The Tech
Museum of Innovation

201 South Market Street
San Jose, CA 95113
1-408-294-8324



Challenges

- Some programming is difficult to fill (age-level related)
- Competing events and programs (no programs during cookie sales)
- Meeting demand
- Negotiating what success looks like (Tech vs. GSNorCal - primarily regarding attendance)



Successes

- Huge program growth
 - from 2 to 8 programs
 - from 6 to 48 sessions
- Girls in STEM initiative
 - Served roughly 4,000 girls in GS programs over the last 8 years
- Advertising partnership
- Revenue



Tips for Other Museums

- Make it fun!
- Match badge programs to existing experiences/activities or adopt badge programming that match your center's programming themes
- Start small and grow with demand
- Work with your local council to determine needs



Discussion and Questions

Discussion



How can I learn more about the new badges?

Discussion



**Practical
suggestions for
making
overnights
successful?**

Discussion



**Suggestions for
connecting with
local troops?**

Discussion



**Other
Questions?**

Discussion



**Other
Questions?**

Thank You



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