

# 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

**Pamela Harman**, SETI Institute

Reaching For The Stars: NASA Science for Girl Scouts  
[pharman@seti.org](mailto:pharman@seti.org)

**Catherine McCarthy**, NISE Network

Science Museum of Minnesota  
[cmccarthy@smm.org](mailto:cmccarthy@smm.org)

**Joelle Adolfi**,

Rochester Museum & Science Center  
[jadolfi@rmsc.org](mailto:jadolfi@rmsc.org)

**Kristen Martin**,

The Tech Museum of Innovation  
[kmartin@thetech.org](mailto:kmartin@thetech.org)





# 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**



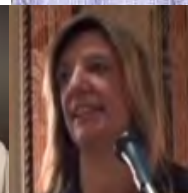
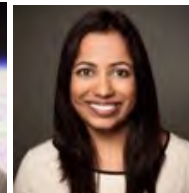
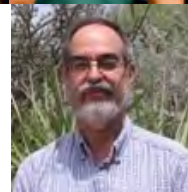
**Pamela Harman  
SETI Institute**

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

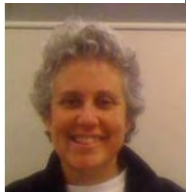
**[pharman@seti.org](mailto:pharman@seti.org)**



# 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

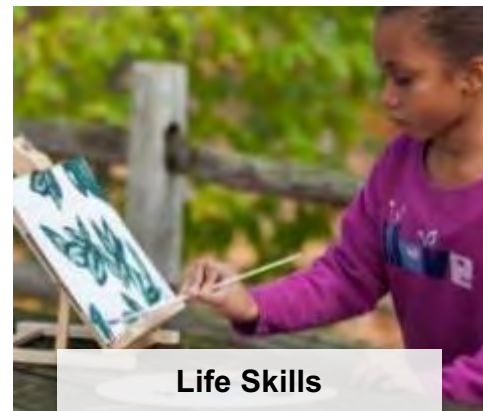
Take Action to Change the World



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

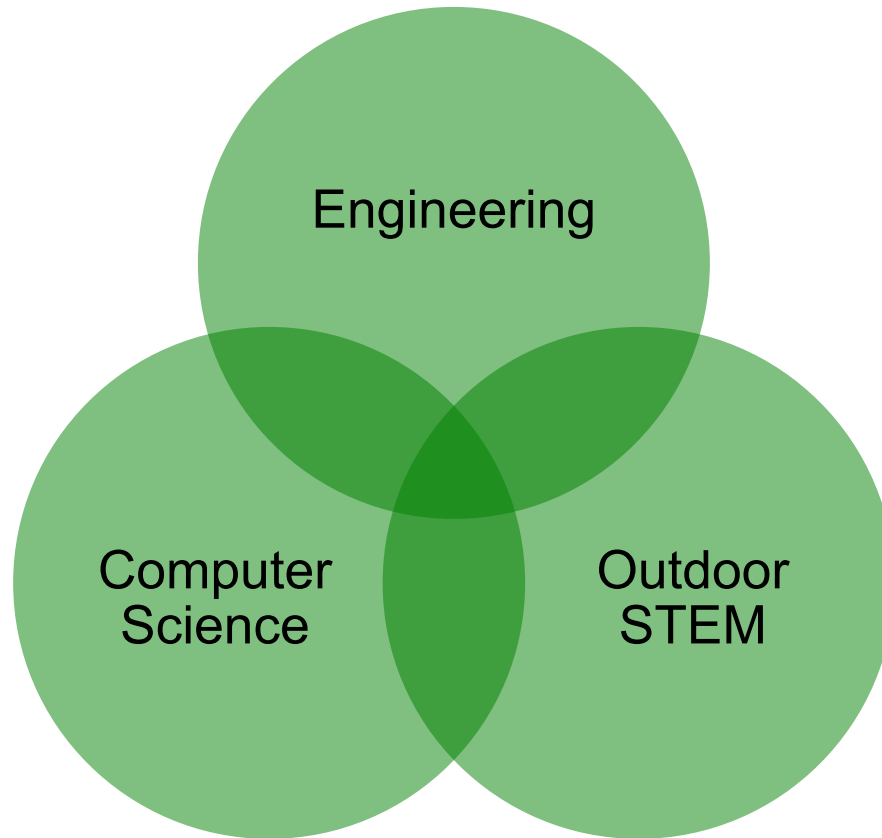
STEM Interest

STEM Confidence

Value of STEM to  
People & Society

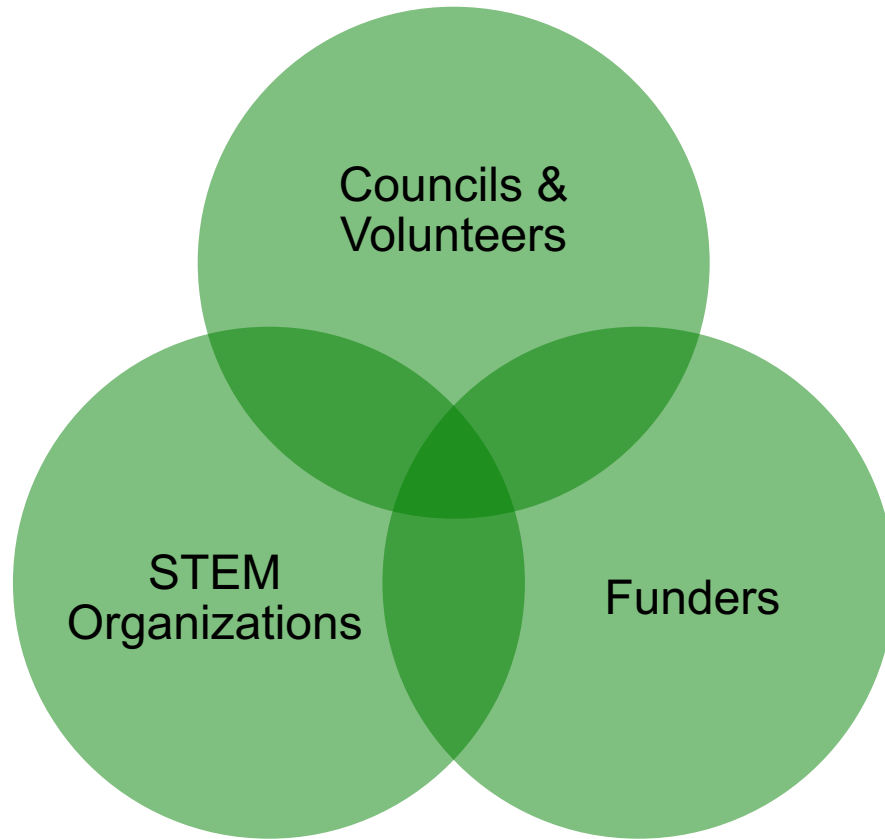
STEM  
Competence  
(Knowledge)

# 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

Find the Girl Scout Council Serving Your Area

Enter ZIP Code

GO

### By State

Find a Girl Scout Council by State

Select a State:



GO

### By Council Name

Find a Girl Scout Council by Council Name

Select a Council:



GO





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[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  
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  
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

**S**pace 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

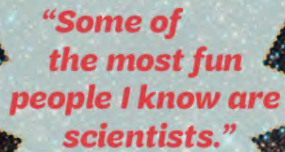
When I've earned this badge, I will have explored and observed the Sun, Moon, and stars.



# 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

**W**hether 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

**O**ur 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**

**[cmccarthy@smm.org](mailto:cmccarthy@smm.org)**





**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

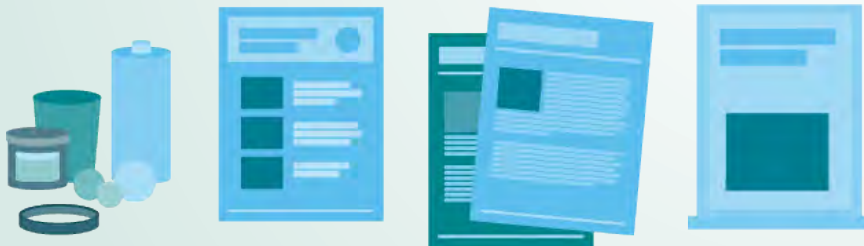


All resources are available for free download at **nisenet.org**

# 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](https://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](http://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](http://www.nisenet.org/earthspacekit-2017)
- 2018 Explore Science: Earth & Space toolkit: [www.nisenet.org/earthspacekit-2018](http://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





**Joelle Adolfi**

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

**[jadolfi@rmssc.org](mailto:jadolfi@rmssc.org)**

# 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



**RMSC**  
Rochester Museum & Science Center

reward  
your  
curiosity.

Science  
Museum  
+

Strasenburgh  
Planetarium  
+

Cumming  
Nature Center  
+

# 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-

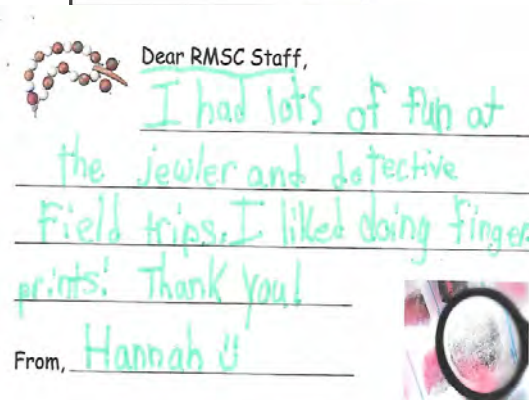
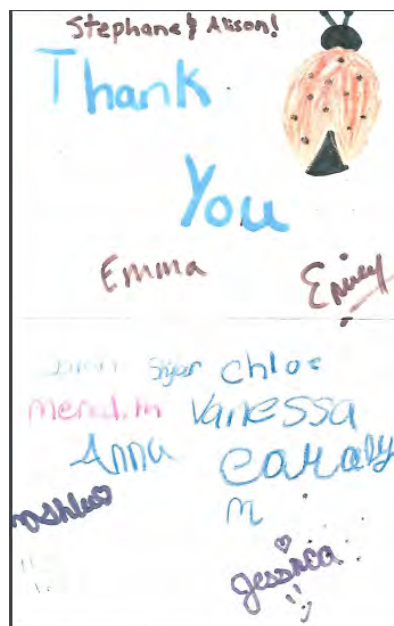
- **Daisy:** All three badges in one class
  - **Brownie:** Programming badge and Design badge
  - **Junior:** Programming badge and Design badge
- \* All have the opportunity to use what they learned from the program toward their Showcasing badge.



# 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



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

Troop Facilitation



Using resources from the  
RMSC to help facilitate troop  
activities.



**Kristen Martin**

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

**[kmartin@thetech.org](mailto:kmartin@thetech.org)**



**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](http://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

