



BROWNIE

STEM Career Exploration Badge

BADGE OVERVIEW:

In the STEM Career Exploration badge, Brownies find out how all the things they love—like camping, baking, and walking their dog—can become a job that changes the world. They look at careers in STEM, exploring how the jobs make a difference for people, animals, and the environment. Finally, Brownies create a plan to turn their dreams for the future into a reality!

STEPS

1. Explore your interests
2. Discover the possibilities
3. Learn about the day-to-day
4. Brainstorm your next steps
5. Share your goals

When girls earn this badge, they'll know how to use STEM to help others.

About the STEM Career Exploration badge

Amplify the badge: You don't need a technical background to do this badge with girls, but having other resources like videos or an expert who can speak to your troop can make the topic even more fun and interesting—and help you take it beyond the basic activities.

We've included two ways for you to amplify the STEM Career Exploration Badge:

- In *STEM Career Exploration 1*: Watch videos as part of Step 2.
- In *STEM Career Exploration 2*: Organize a guest speaker for Step 3.

Check out the instructions in the “Overview” for each meeting and the “Ideas to Amplify the Badge” section of this handout for tips, information, and a list of recommended videos for each STEM field.

Use the Talking Points (But Make Them Your Own): In each meeting, you'll find suggested talking points under the heading “SAY.” Some volunteers, especially new ones, find it helpful to follow the script. Others use the talking points as a guide and deliver the information in their own words. Either way is just fine.

Be Prepared (It's What Girl Scouts Do!): Each meeting includes a “Prepare Ahead” section that includes a materials list and what kind of set-up is required. Read it in advance so you have enough time to gather supplies and enlist help, if needed.

Use Girl Scouts' Three Processes: Girl-led, learning by doing, cooperative learning—these three processes are the key to making sure girls have fun in Girl Scouts and keep coming back.

“Learning by doing” and “cooperative learning” are built into this badge thanks to the hands-on activities. Remember to keep the meetings girl-led so you can help create an experience where girls know they can make choices and have their voices heard.

Leave Time for the Closing Ceremony: If girls are having fun doing an activity, you may be tempted to skip the Closing Ceremony so they can keep going—but the Closing Ceremony is absolutely key to their learning.

Here's why: When girls leave a meeting, they'll remember how much fun it was to do an activity, but they may not realize its relationship to STEM careers. For example, they may not realize that they just learned how to turn their interest in video games into a career—unless you tell them. When you do that, you turn a hands-on activity into a minds-on activity.

That's why the Closing Ceremony is so important. It's where you can connect the dots for girls by:

- Pointing out how they worked like people in a STEM field. (For example: They worked on a challenge in each field. They may have struggled a bit with the activity—but they persisted. Now they know that they can solve hard problems if they keep trying.)
- Reminding girls that they already use STEM everyday—and that it's fun to solve problems using STEM!
- Letting them know that they have what it takes to continue exploring STEM.

These simple messages can boost girls' confidence and interest in STEM—and end the meeting on an upbeat note!

Tell Your Troop Story: As a Girl Scout leader, you're designing experiences that girls will remember their whole lives. Try to capture those memories with photos or videos. Brownies love remembering all they did, and it's a great way for parents to see how Girl Scouting helps their girls!

And please do share your photos and videos with GSUSA by emailing them to STEM@girlscouts.org (with photo releases if at all possible!).



To Prepare for the Meetings

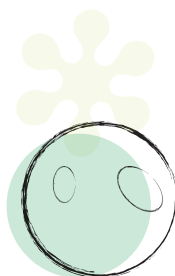
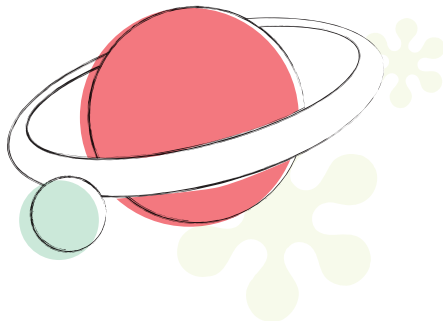
Before each meeting, you'll find an Overview, notes to Prepare Ahead, and a Materials List, all specific to that meeting.

Before each meeting, read through the Meeting Plan and any Meeting Aids. This will help you get familiar with the flow of the meeting, activity steps, and talking points ("SAY"). However, feel free to adapt them to fit your troop, meeting time, and available materials.

Handouts for each meeting are listed in the "Overview" section of the meeting. In addition, this handout and the following handouts are available in the Meeting Aids for every meeting:

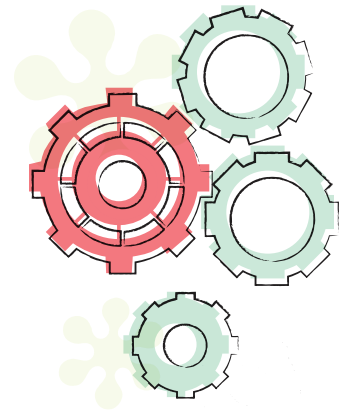
- **Brownie STEM Career Exploration Badge—Materials List:** Each meeting has its own materials list. However, if you like to do all your supply shopping at one time, use this handout. It includes all of the materials needed for the two badge meetings, *STEM Career Exploration 1 & 2*.
- **Brownie STEM Career Exploration Badge—Glossary:** This is a list of words introduced in the badge with definitions.
- **Think, Pair, Share:** These facilitation tips will help you to make sure that every girl's voice is heard during brainstorming activities.

Before the badge, decide if you would like to include videos or a guest speaker. As part of the STEM Career Exploration badge, girls can watch videos and hear directly from STEM professionals. In the first badge meeting, you'll find areas to show videos, and in



the second badge meeting, you'll find instructions to help organize an in-person speaker or live video chat.

Before each meeting, review the Prepare Ahead section and make sure you have the correct technology for the meeting. Check out the "Ideas to Amplify the Badge" section of this handout for more tips and a list of videos for each STEM field.



Go over words girls can learn. In the Prepare Ahead section for each meeting, you'll see a list of words girls may or may not know how to define. You can find a full list of vocabulary for the badge in the **Brownie STEM Career Exploration Badge—Glossary**.

Gather materials for the badge activities. Before each meeting, gather materials for the meeting's activities. Review the materials list to see what you already have or if there are items you can ask girls to bring. If your meeting location doesn't have a flag, bring a small one that you can take turns holding or hang in the room.

Each meeting includes its own materials list. However, if you like to do all your supply shopping at one time, use the **Brownie STEM Career Exploration Badge—Materials List**. It includes all of the materials needed for the two badge meetings, *STEM Career Exploration 1 & 2*.

Ideas to Amplify the Badge

We've included two ways for you to amplify the STEM Career Exploration Badge:

- In *STEM Career Exploration 1*: Watch videos as part of Step 2.
- In *STEM Career Exploration 2*: Organize a guest speaker for Step 3.

Watch Videos for Step Two. As part of Step Two, you can show videos to introduce careers in six different fields of STEM.

We recommend the following videos:

- **Computer Science:** Mary Beth Westmoreland, Chief Technology Officer at Blackbaud
- **Creative Technology & Design:** Catie Cuan, PhD Student and Artist
- **Engineering:** Debbie Sterling, Founder and CEO of GoldieBlox
- **Food & Agriculture:** Chavonda Jacobs-Young, ARS Administrator and Acting USDA Chief Scientist
- **Health & Wellness:** Monica Rho, Director of Women's Sports Medicine
- **Nature & Environment:** Rae Wynn-Grant, National Geographic Society Fellow

Before the first badge meeting, make sure to set up and test your technology. You'll need an internet-connected device with the ability to stream videos for the troop. For example, you might have a laptop with a projector or a way to broadcast the videos on a television.

Check out the longer list at the right for more videos related to each field. Feel free to swap out any videos for those you think your girls will be more interested in. If there's one they really love, please let us know at STEM@girlscouts.org!

Organize a Guest Speaker for Step Three. If you'd like to include a guest speaker for Step Three, we recommend that you start thinking early (before starting the badge) to figure out who you would invite to the second badge meeting, *STEM Career Exploration 2*.

Start by thinking about your options and asking girls who they'd like to hear from about their career path and work experience. You'll have a troop brainstorm to help in the Closing Ceremony of *STEM Career Exploration 1*.

Other Videos of IF/THEN Ambassadors We Think Your Girls Might Love:

Computer Science	<ul style="list-style-type: none"> • <u>Gracie Ermi</u>, Research Software Engineer II at Vulcan, Inc. • <u>Bea Mendez Gandica</u>, Program Manager at Microsoft and Founder of Nuevo Foundation • <u>Kim Swennen</u>, Senior Software Engineer at Youtube
Creative Technology & Design	<ul style="list-style-type: none"> • <u>Heather Chandler</u>, Game Development Consultant • <u>Karina Popovich</u>, CEO and Founder of Alpha Brand • <u>Samantha Porter</u>, Digital Preservation Specialist at the University of Minnesota
Engineering	<ul style="list-style-type: none"> • <u>Aisha Lawrey</u>, Senior Director, Programs and Scholarships at the National Action Council for Minorities in Engineering (NACME) • <u>Nikki Sereika</u>, Aircraft Maintenance Technician at Southwest Airlines • <u>Arlyne Simon</u>, Biomedical Engineer & Author
Food & Agriculture	<ul style="list-style-type: none"> • <u>Magan Lewis</u>, Integrated Field Sciences Global Innovation Lead at Corteva Agriscience • <u>Helen Tran</u>, Postdoctoral Scholar at Stanford University (she uses tech to help agriculture!)
Health & Wellness	<ul style="list-style-type: none"> • <u>Cori Lathan</u>, Co-Founder and CEO of AnthroTronix, Inc. (she's created robots for kids with disabilities and wearable sensors to train surgeons and soldiers!) • <u>Sarah Wilson</u>, Research Engineer at the Steadman Philippon Research Institute (she studies sports medicine and analyzes human movement!) • <u>Julie Mirpuri</u>, Assistant Professor (she's a pediatrician who specializes in taking care of babies!)
Nature & the Environment	<ul style="list-style-type: none"> • <u>Katy Croff Bell</u>, Founding Director of the Open Ocean Initiative at the MIT Media Lab and a Fellow at the National Geographic Society • <u>Adele Luta</u>, Scientist and Innovator (she's an astrophysicist!) • <u>Earyn McGee</u>, Graduate Researcher (she studies lizards!)

Then, look for STEM experts willing to share their story and career experience. For example, you might:

- Seek out teachers and experts in your friends and family network to invite to the meeting
- Reach out to local schools for guidance on speakers and supporting girls
- Connect online with STEM professional who can video chat with girls

If you have trouble finding in an expert in one field, see if you can invite someone to speak more broadly about a range of careers, like a guidance counselor or job recruiter.

Keep It Girl-Led: Girls will tell you what field(s) they're most interested in at the end of *STEM Career Exploration 1*. As much as possible, try to find a speaker who matches what girls are interested in so they're engaged and can help lead the conversation.

Make sure to share the time, location/link, and any questions girl want answered with your guest so they have enough time to prepare for the meeting.

Check Out These Tips for Hosting a Guest Speaker. Keep the badge girl-led by having girls decide who they'd like to speak with for Step Three. At the end of *STEM Career Exploration 1*, discuss as a troop what field girls are most interested in and what sort of STEM professional girls would like to talk to for Step 3.

For example, ask girls:

- *What field are you most interested in?*
- *What sort of STEM professional would you like to invite to the meeting? What career would you like them to have?*
- *What are some things you want to know about having a career in STEM?*
- *What questions do you want to ask the professional?*



Encourage the troop to brainstorm questions for each of the categories below:

Questions about the professional's initial interest in the field, such as:

- *How did you get into that career?*
- *What sparked your interest in the field or career?*
- *When you were younger, how did you want to make a difference in the world? What did you like to do?*

Questions about their day-to-day job, such as:

- *What do you do?*
- *How do you use STEM in your job?*
- *What are some things you do every day at your job?*
- *What are your favorite and least favorite parts of your job?*
- *What skills do you use the most?*
- *Can you show us where you work or some of the tools you use?*

Questions about their career path, such as:

- *How did you get into the field or career? What kinds of steps did you take?*
- *What was the biggest lesson you learned along the way?*
- *What advice do you have for others interested in the field or career?*
- *What are some things Brownies can do now to learn more?*

Badge & Meeting Length

- This badge has been designed to fit into two 90-minute troop meetings.
- There is no snack time scheduled in these meetings, but you can add 15 minutes of “wiggle room” for snacks or activities that run long.
- The times given for each activity are recommended for troop meetings. However, before each meeting, review the amount of time given for each and decide if you think your troop will need more, less, or the same amount of time to complete them. Feel free to adjust the time for any of the activities as needed.
- Give girls 10- and 5-minute warnings before they need to wrap up the last activity so you'll have time for the Closing Ceremony.

Get Help from Your Family and Friends Network

Your Friends and Family Network can include:

- Girls' parents, aunts, uncles, older siblings, cousins, friends, etc.
- Other volunteers who have offered to help with the meeting.

Ask your Network to help:

- Bring materials or other supplies to the meeting.
- Assist with badge activities.
- Make snacks.

Award Connection

After completing all five steps, girls earn the STEM Career Exploration badge.

You can buy the award from your council shop or the Girl Scout Shop.

STEM Career Exploration

BADGE BREAKDOWN BY MEETING

STEM CAREER EXPLORATION 1

- 1. As Girls Arrive:**
Draw Your Superhero Self
- 2. Opening Ceremony:**
How Do You Want to Change the World?
- 3. Step 1:**
Explore Your Interests
- 4. Step 2:**
Discover the Possibilities
- 5. Closing Ceremony:**
Choose Your Own Future

- Brownies explore what they like to do and learn how their interests can become a career.
- They imagine themselves as superheroes to identify personal strengths.
- They make a collage to share with others more about themselves and their interests.
- They brainstorm how different jobs use STEM.
- They play a game and are introduced to six different STEM fields.

STEM CAREER EXPLORATION 2

- 1. As Girls Arrive:**
Play the Part
- 2. Opening Ceremony:**
Making Your Dreams Real
- 3. Step 3:**
Learn About the Day-to-Day
- 4. Step 4:**
Brainstorm Your Next Steps
- 5. Step 5:**
Share your Goals
- 6. Closing Ceremony:**
Create the Future & Awards

- Brownies look deeper at careers in STEM.
- They roleplay what it's like to have a job in the field and examine tools and objects from each.
- They either visit career stations to explore STEM careers or hear more about a career from a STEM professional.
- They think of things they can do and steps they can take to reach their career goal.
- They create a drawing to share their dreams with others.

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they'll know how
to use STEM
to help others.**

