



Brownie Home Scientist Badge Activity Plan 1

Badge Purpose: When girls have earned this badge, they'll be able to see the science all around them.

Planning Guides Link: Science, Technology, Engineering and Math.

Fun Patch Link: Kitchen Chemistry

Activity Plan Length: 1.5 hours

Involve Family and Friends: Participation from family and friends can enrich your troop's Girl Scout experience, both for the girls and for you. Use the suggestions below to make it easier for you to connect with additional support.

- Before the meeting:
 - Send a note to families to find those with interest in or expertise with the topic. Ask them to lead or support an activity or two, or even lead the whole meeting.
 - Offer this activity plan as a starting place and point out that they may choose alternative activities using the *Customize It!* section as a guide. For example: If an activity plan directs girls to sit outside and observe animal habitats, you may choose to go to the zoo and learn about animal habitats there instead.
- At home:
 - Encourage families to ask questions about their girls' badge activities. Some examples that work for any badge include: What did you learn? What surprised you? What does it make you think of trying next?
- Throughout the year:
 - Suggest to families ways that girls can share or display their Girl Scout accomplishments. Possibilities include a bulletin board, a scrapbook, a special memories box or family sharing time.

Girls Take the Lead: Include girl leadership through long-term planning, short-term meeting prep and specific activities at meetings.

- Long Term Planning
 - If you use "Plan Your Brownie Year", share this with the girls at the start of the year. Have them ask friends and family to help out with specific meetings or activities. Let the girls brainstorm ways to make the plans their own, such as thinking of related field trip activities. If a girl has experience with a field trip, ask her to be assistant tour guide.
 - If you are adapting the "Plan Your Brownie Year", get the girls' input on which badges to choose. Offer just a few choices in each category or timeframe to make decisions easier. Every girl should have at least one badge or journey she's excited about.
- Short Term Planning
 - Ask a family to help lead a badge. Make sure they have access to activity plans and any resources you might have. Keep additional requested materials to a minimum.
 - Choose two helpers to stay after a meeting for 15 minutes. Give them each an activity to introduce and either instruct or help guide at the next meeting.

- Before a meeting, ask everyone to vote on some aspect of the activity: draw posters or perform skits, open with a song or game, etc.
- Use a rotating list of helper tasks, called a 'kaper chart', to share responsibilities. Examples include acting as emcee of the meeting, leading an opening game, bringing a snack next meeting or taking attendance.
- At the Meeting
 - During the opening, have 1-2 girls share their answers to a get-to-know-you question.
 - Have girls fulfill their kaper chart responsibilities.
 - Try to find something in each activity that you can let girls decide or manage.

Customize It: If your group wants to expand work on this badge or simply try different activities, go for it! There are many ways to earn this award, including: completing the activities as listed in the *Brownie Girl's Guide to Girl Scouting*, completing two of these activity plans, attending a council-sponsored event or customizing activities. Pick the one(s) that work best for your group. Girls will know they have earned the award if:

- They can explain how they use science in their lives in multiple ways, including cooking and fun
- They can explain several simple scientific concepts such as static electricity, density and chemical reactions.

Tips and Tools

- Check out ways to stay safe using Safety-Wise at <http://gsrv.gs/safetywise>.
- Ensure that your activities are accessible to everyone. Ask in advance if any special accommodations need to be made. If you have questions regarding specific adaptations, please contact River Valleys at 800-845-0787.
- If you have girls or adults who are allergic to latex, use combs and wool socks to create static electricity instead of latex.

Resources

- This activity plan has been adapted from the Brownie Skill-Building Badge set for the *It's Your World—Change It!* Home Scientist Badge, which can be used for additional information and activities.
- For more information about fun and simple science experiments, go to the PBS Zoom webpage atpbskids.org/zoom.

Getting Started

Time Allotment: 15 minutes

Materials Needed:

- Optional: Girl Scout Promise and Law printed out on poster board

Steps:

1. Welcome everyone to the meeting.
2. Recite the Girl Scout Promise and Law. Use repeat-after-me or say it as a group if girls know it by heart.

Girl Scout Promise	Girl Scout Law
<i>On my honor, I will try:</i> To serve God and my country, To help people at all times, And to live by the Girl Scout Law.	<i>I will do my best to be</i> honest and fair, friendly and helpful, considerate and caring, courageous and strong, and responsible for what I say and do, <i>and to</i> respect myself and others, respect authority, use resources wisely, make the world a better place, and be a sister to every Girl Scout.

3. Sing the Brownie Smile Song. Use repeat-after-me or sing as a group if girls know it by heart.

The Brownie Smile Song
I've got something in my pocket It belongs across my face I keep it very close at hand In a most convenient place I'm sure you wouldn't guess it If you guessed a long, long while So I'll take it out and put it on It's a great big Brownie Smile!

Activity #1: Salt and Pepper Dance Party

Badge Connection: Step 2— Create static electricity

Time Allotment: 10 minutes

Prep Needed:

- Gather materials and supplies.
- Inflate balloons.

Materials Needed:

- Plates (one per girl)
- Salt
- Pepper
- Balloons (one per girl)

Steps:

1. Have each girl put a small amount of salt and pepper on her plate.
2. Hand out a balloon to each girl. Have the girls rub the balloons on their hair until their hair starts to stand up.
3. Have the girls run the balloon over their plate **without touching** the plate, salt or pepper. What happens? Tell girls:

- When you rub the balloon on your hair, you are putting electrons on the balloon, giving it a negative charge. Salt and pepper have a positive charge.
- Since opposites attract, the salt and pepper are both pulled toward the balloon, but pepper is lighter so it moves first. When the salt and pepper touch the balloon, the electrons jump to them. Then, the attraction is gone and the salt and pepper fall off.

Activity #2: Kitchen Chemistry

Badge Connection: Step 1—Be a kitchen chemist

Time Allotment: 20 minutes

Prep Needed:

- Gather materials and supplies.
- Pour about ½ cup of juice into each small zipper bag and zip tightly.

Materials Needed:

- Small plastic zipper bags (one per girl)
- Large plastic zipper bags (one per girl)
- Fruit juice
- Ice
- Salt
- Water
- Spoons (one per girl)
- Optional: Bowls

Steps:

1. Give each girl a large plastic zipper bag. Help the girls each put ½ cup water, ½ cup salt, and 1 cup of ice in her bag.
2. Give each girl a small zipper bag filled with fruit juice to put in her large bag. Ensure that all the bags are very well zipped.
3. Have the girls shake their bags (large containing small) as hard as they can repeatedly. Check the bags occasionally to see if the juice has turned into sorbet and has reached the proper consistency. Have the girls remove the small bags. Collect the larger bags to prevent messes.
4. Girls can squeeze their sorbet into a bowl to eat it or eat it directly out of the small plastic bag

Activity #3: Snack Chat

Badge Connection: Questions link to multiple badge steps

Time Allotment: 15 minutes

Steps:

1. While enjoying snack, here are some things for girls to talk about:
 - Has anyone done other activities with static electricity? What else can you do with static?
 - While static electricity is fun, electricity can be dangerous. What do you do to stay safe? (Hint: static shocks on a large scale are called lightning!)
 - What other foods can you make using science?
 - Now that you've learned different kinds of science, can you think of other ways you use science in your life?

Activity #4: Cauldron Bubbles

Badge Connection: Step 3—Dive into density

Time Allotment: 15 minutes

Prep Needed:

- Gather materials and supplies.

- Optional: Pour water and oil into the glasses ahead of time.

Materials Needed:

- Clear glasses
- Pitcher
- Water
- Oil
- Salt
- Pepper
- Sugar
- Optional: Sand

Steps:

1. Divide girls into small groups. Give each group a cup and a small amount of salt, pepper, sand and sugar.
2. Have girls fill a glass half full with water. Then add about ½ inch of oil. The oil should float on top of the water because it is less dense. This means that if you had a gallon of each, the oil would weigh less than the water.
3. Ask the girls to pour in some salt and share with the group what they see happen. The salt is less dense than the oil so it will sink down to the water layer, but it will bring an oil bubble with it. The oil and salt together are more dense than water, so they sink together in the water. Then, the salt dissolves and the oil bubble is again less dense than the water and floats back up to the top.
4. Have the girls take turns trying the other materials. Is the result the same or different?

Wrapping Up

Time Allotment: 15 minutes

Materials Needed:

- Optional: Make New Friends printed on poster board

Steps:

1. Instruct girls to get into a Friendship Circle. Have girls stand in a circle and cross their right arms over their left, holding hands with the person on each side of them.
2. Sing “Make New Friends.”

Make New Friends		
Verse One	Verse Two	Verse Three
Make new friends, but keep the old. One is silver, the other is gold.	A circle is round, it has no end. That's how long, I will be your friend.	You have one hand, I have the other. Put them together, We have each other.

3. After the song, ask everyone to be quiet.
4. Assign a girl to start the friendship squeeze by gently squeezing her neighbor’s hand with her right hand. Then, that girl squeezes with her right hand. One by one, each girl passes the squeeze until it travels around the circle. When the squeeze returns to the girl who started, she says “Goodbye Sister Girl Scouts” and the girls unwrap and face outward instead of inward.
5. Optional: Have girls make a wish after their hand has been squeezed and before they pass the squeeze along. Girls can also put their right foot out into the circle when they receive the friendship squeeze, so that everyone can see it travel along the circle.

More to Explore

- Field Trip Ideas:
 - Visit your local science museum or children’s museum.
 - Visit a dairy or other food production plant to see how they use science to make food.
 - Visit a science lab at a high school or college.

- Speaker Ideas
 - Have a chef visit and teach how they use science to make food.
 - Have a lab technician from a local factory or plant talk about what they do.
 - Have a college student majoring in chemistry or physics talk to the girls about what they’re learning and why they want to be a scientist.

Suggestions

Do you have any suggestions to improve this activity plan? Do you have ideas for other possible badge-earning activities? Please email troopsupport@girlscoutsrv.org.

Family Follow-Up Email

Use the email below as a template to let families know what girls did at the meeting today. Feel free to add additional information, including:

- When and where you will be meeting next
- What activities you will do at the next meeting
- Family help or assistance that is needed
- Supplies or materials that girls will need to bring to the next meeting
- Reminders about important dates and upcoming activities

Hello Girl Scout Families:

We had a wonderful time today learning about everyday science and are on our way to earning the Home Scientist Badge.

We had fun:

- Making salt and pepper dance with static electricity
- Making our own sorbet snack
- Playing with density

Continue the fun at home:

- Visit pbskids.org/zoom for more great science experiments you can do with your Girl Scout at home.
- Look through the *Girls Guide to Girl Scouting* with your Girl Scout to find other activities you can try at home.

Thank you for bringing your Brownie to Girl Scouts!