

BROWNIE HOME SCIENTIST BADGE – MEETING 1

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

Activity Plan Length: 1.5 hours

Time	Activity	Materials Needed
15 minutes	 Getting Started Girls recite the Girl Scout Promise + Law and sing the Brownie Smile song. 	 (Optional) Girl Scout Promise and Law poster (Optional) Brownie Smile song lyrics poster
10 minutes	Salt and Pepper Dance PartyGirls experiment with static electricity.	 Plates (one per girl) Salt Pepper Balloons (one per girl)
20 minutes	Kitchen Chemistry • Girls experiment to make sorbet.	 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 (one per girl)
15 minutes	 Snack Chat Girls enjoy snack and discuss science and experiments. 	□ Snack
15 minutes	 Cauldron Bubbles Girls experiment with ingredients with different densities. 	 Clear glasses Pitcher Water Oil Salt Pepper Sugar (Optional) Sand
15 minutes	Wrapping Up	 (Optional) Make New Friends song lyrics poster

Getting Started

Time: 15 minutes

Materials Needed: (Optional) Girl Scout Promise and Law poster and (optional) Brownie Smile song lyrics poster

Welcome everyone to the meeting, recite the Girl Scout Promise and Law, and sing the Brownie Smile song.

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Badge Connection: Step 2 - Create static electricity

Materials Needed: Plates (one per girl); salt; pepper; balloons (one per girl) Prep Needed:

- Inflate balloons prior to the meeting starting. Set these aside so the girls aren't distracted as they arrive.
- 1. Have each girl put a small amount of salt and pepper on her plate.
- 2. Give an inflated balloon to each girl. Have the girls rub the balloons on their hair until their hair starts to stand up.
- 3. Without touching the actual plate, have the girls run the balloon over the salt and 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

Time: 20 minutes

Badge Connection: Step 1 – Be a kitchen chemist

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

Prep Needed:

- Pour about ½ cup of juice into each small zipper bag and zip tightly.
- 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 are the bags are very well zipped.
- 3. Have the girls shake their bags (the large bags containing the small ones) as hard as they can, repeatedly. Check the bags occasionally to see if the juice has reached the proper consistency and turned into sorbet. 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

Time: 15 minutes

Badge Connection: Questions link to multiple badge steps Materials Needed: Healthy snack

- 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?

Badge Connection: Step 3 — Dive into density

Materials Needed: Clear glasses; pitcher; water; oil; salt; pepper; sugar; (optional) sand

- 1. Divide girls into small groups. Give each group a cup and a small amount of salt, pepper, sugar, and (if using) sand. (Keep the dry ingredients separate from the wet.)
- 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 some salt into the water and oil mixture. Ask the girls what they see happening. 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: 15 minutes

Materials Needed: (Optional) Make New Friends song lyrics poster

Close the meeting by singing Make New Friends and doing a friendship 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:
 - o Invite a chef to visit and talk about how they use science to make food.
 - Invite a lab technician or scientist from a local science laboratory, factory, or plant to talk about what they do.
 - Invite a chemistry or physics college student to talk about what they're learning and why they want to be a scientist.