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

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.

• If you have girls or adults who are allergic to latex, use combs and wool socks to create static electricity instead of latex.

Activity #1: Salt and Pepper Dance Party

Badge Connection: Step 2—Create static electricity

Time Allotment: 10 minutes

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

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 ½ cup fruit juice to put in her large bag. Ensure that are 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

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!)
• 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

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 denser 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?

More to Explore

• Field Trip Ideas:
  o Visit your local science museum or children’s museum.
  o Visit a dairy or other food production plant to see how they use science to make food.

• Speaker Ideas
  o Have a chef visit and teach how they use science to make food.
  o 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.

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.

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:
  • Look through the Girl’s 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!

This activity plan was adapted from Girl Scouts River Valleys.