Taken from the Volunteer Toolkit Badge Year for Brownies
Home Scientist 1

Overview

Note to Volunteers The excitement and fast pace of running troop meetings for the first time can sometimes leave us tongue-tied. For that reason scripting is included for guiding girls through a meeting; these "lines" are under the heading "**SAY**." However, you're the expert. If you feel you don't need the script, do what makes sense for you and your girls.

Prepare Ahead

- Get your badges here.
- Talk to anyone helping you about what they will do at this meeting.
- Throughout the year, you'll guide the girls on their Take Action Project. When it comes up in your meetings, you'll want to make sure girls understand the steps for taking action: They will see a need, work with others to brainstorm solutions, develop a plan, and do the project.
- Before the meeting, inflate balloons; have at least two per girl. Have a few extra in case some pop.

Get Help from the Friends and Family Network

- Find out if anyone has interest or expertise in science that they can share as a guest speaker or activity leader.
- See if anyone wants to lead or support an activity or meeting.

Award Connection

- In this session, girls begin activities toward earning the Home Scientist badge.
- They will earn their badge after completing activities at the end of the second Home Scientist meeting.

Meeting Length

90 minutes

The times given for each activity will be different, depending on how many girls are in the troop.

Plus, girls may really enjoy a particular activity and want to continue past the allotted time. As much as possible, let them! That's part of keeping Girl Scouting girl-led!

Materials

Activity 1: As Girls Arrive

- Sheets of paper
- Markers, crayons

Activity 2: Opening Ceremony

- **Girl Scout Promise and Law**

Activity 3: Salt and Pepper Dance

Enough for each girl:

- Paper plates
- Salt, enough for one teaspoon
- Pepper, enough for one teaspoon
- Balloons

Activity 4: Take Action Pause

- None

Activity 5: Kitchen Chemistry

Enough for each girl:

- 1 teaspoon mustard
- 1 tablespoon vinegar
- ½ cup oil (olive, sunflower, canola, or any form of oil for dressing)
- Salt and pepper
- Small bowls to stir mixture
- Plastic spoon to stir
- 1 clear plastic cup or glass
- Jars with lids (optional, if girls want to take dressing home)
- Herbs and spices (optional, if girls want to add to their dressing)

Activity 6: Snack and Dive into Density

- Healthy snack items: fruit (strawberries, blueberries, cherries, apples, oranges, bananas), granola bars, crackers, carrot sticks, graham crackers, sliced cucumber and yogurt dip, juice, goldfish
- 1 small box of raisins
- 1 can of lemon-lime soda (like Sprite or 7Up)
- Tall, clear glass or empty plastic water bottle

Activity 7: Closing Ceremony

- None

Detailed activity plan

Activity 1: As Girls Arrive

Time Allotment

10 minutes

Materials

- Sheets of paper
- Markers, crayons

Steps

- Have girls draw a picture of what they think a scientist at work looks like.

Activity 2 : Opening Ceremony

Time Allotment

15 minutes

Materials

- **Girl Scout Promise and Law**

Steps

- Girls gather in a circle. Welcome them to the first Home Scientist badge meeting.
- Girls say the Girl Scout Promise and the Girl Scout Law together.

SAY:

- *What do you think scientists do?*
- If girls need a prompt, **SAY:** *Work in a lab? Conduct experiments? Invent new things?*
- *All that is true, but there's more! Scientists help people. They can investigate crimes by looking at evidence to help catch criminals. They can find cures for diseases. They can invent better ways for us to travel, like safer cars, trains, and planes. They can even design and build bridges so girls in poor countries can get to a nearby school.*

- *In the next two meetings, you'll find out what it's like to be a scientist by doing fun experiments. At the end of the second meeting, you'll earn your Home Scientist badge. The best part about science is that it's everywhere, even hiding in your own home!*

Activity 3 : Salt and Pepper Dance

Time Allotment

10 minutes

Materials (for each girl)

- Paper plates
- Salt, enough for one teaspoon
- Pepper, enough for one teaspoon
- Balloons

Steps

Have each girl inflate a balloon and tie the end. Then have them mix a small amount (approximately one teaspoon) of pepper and salt on a plate.

SAY:

- *Ever wonder why your clothes sometimes cling to you? Or why you feel a shock when you touch a doorknob? It's because of static electricity.*

- *Static electricity is created when objects get an electrical charge. They get this charge when two objects are rubbed together. Rubbing causes tiny particles called electrons to move from one object to another. The object that loses electrons gets a positive charge, and the one that gains them gets a negative charge.*

- *Let's try it now…rub the balloon and put it on your hair. What do you think is happening here?*

- Pause to let girls observe and guess what's happening. Then **SAY:**

- *When you rub the balloon against your hair, you give it a negative charge. The balloon takes some of the electrons from your hair, which leaves your hair positively charged. Your positively charged hair is now attracted to the negatively charged balloon so it rises up to meet it.*

- *Now rub the balloon on your hair again and hold it over the salt and pepper. What happens?*

- Pause to let girls observe and guess what's happening. Then **SAY**:

- *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.*

- *What happens if you rub the balloon on your hair and touch other objects? Like the wall? Your clothes?*

Activity 4 : Take Action Pause

Time allotment

10 minutes

Materials

- None

Steps

SAY:

- *As you do the activities to earn the Home Scientist badge, you're learning how to be a scientist. What kind of things do scientists do? (possible answers: work in a lab invent new things, discover new stars, learn about animals or nature, etc.).*

- *You're right, scientists discover new things about the world. They also help others. How do you think they do that? (possible answers: make new medicines, figure out ways to grow more food or find clean water, use the sun to make electricity, etc.)*

- *Scientists help make the world better, just like Girl Scouts. As you earn badges this year, we're going to think about how you can use the skills you're learning to take action. Then we're going to come up with a small Take Action Project that you can do in a meeting later in the year.*

Note to volunteer: Write down girls' Take Action ideas throughout the year as they work on badges. You'll use this list later to remind them of their ideas and help them choose one to do.

Activity 5 : Kitchen Chemistry

Time Allotment

20 minutes

Materials (for each girl)

- 1 teaspoon mustard
- 1 tablespoon vinegar
- 1/2 cup oil (olive, sunflower, canola, or any form of oil for dressing)
- Salt and pepper
- Small bowls to stir mixture
- Plastic spoon to stir
- 1 clear plastic cup or glass
- Jars with lids (optional, if girls want to take dressing home)
- Herbs and spices (optional, if girls want to add to their dressing)

Steps

SAY:

- *Where is one place you can do some of the coolest science experiments? Your kitchen! Science is responsible for making lots of different foods, from ice cream to bread.*

- *In this experiment, you'll be making a vinaigrette salad dressing. This is science is action!*

- Pour 1/2 cup of oil and 1 tablespoon vinegar into a clear cup. Then **SAY:**

- *Do you see how the oil and vinegar are separate here? This vinaigrette is made with two liquids that don't want to blend. They need the help of an emulsifier, like mustard, to get the vinegar and oil to mix into something yummy for your salad.*

- *Now you will be kitchen scientists. First, put one teaspoon of mustard in your bowl. Add one tablespoon vinegar and stir, stir, stir, with the spoon. Slowly add the ½ cup oil while continuing to stir.*

- *What's happening here? Is your dressing getting smooth?*

- *Look closely at your dressing. What do you see? Are there tiny oil bubbles floating in the vinegar with the hold of mustard? That's an emulsion!*

- *If you want, you can add a dash of salt and pepper, whatever you think will taste good.*

- *What else do you do in a kitchen that is like a science experiment? Boiling water? Making toast? What else?*

Note to volunteer: If girls want, they can save their dressing in a mason jar and take it home.

Keep It Girl-Led Tip

Let girls experiment with their mixture by adding water or some other herbs and spices (if available) to test different results.

Activity 6 : Snacks and Dive Into Density

Time Allotment

20 minutes

Materials

- Healthy snack items: fruit (strawberries, blueberries, cherries, apples, oranges, bananas), granola bars, crackers, carrot sticks, graham crackers, sliced cucumber and yogurt dip, juice, goldfish
- 1 small box of raisins
- 1 can of lemon-lime soda (like Sprite or 7Up)
- Tall clear glass or empty plastic water bottle

Steps

Note to volunteer: If girls have veggie slices, like carrots or cucumber, they might want to dip them into their vinaigrette mixtures for a taste test!

- While girls are enjoying their healthy snacks, **SAY:**

- *How come some things float while others don't? Do you remember what our oil and vinegar mixture looked like before we added the mustard? That's right, the vinegar was floating on the oil!*

- *It's all about density. Density is not weight, but it's related. For example, if you swim in the pool with blow-up floaties or a raft, what happens? That's right, you don't sink because the air inside the floaties is holding you up. Why? Because the air inside the floaties is less dense than the water around you. So the air helps hold you up!*

- *Let's take this clear glass (or water bottle) and pour some 7Up into it. Next we'll drop 6 or 7 raisins into it. What happens?*

- *At first the raisins drop to the bottom because they are denser than the soda. But then the bubbles from the soda fill the wrinkles in the raisins and lift them up. When the bubbles reach the top of the glass, they pop, and the raisins sink again.*

- *Can you think of other things that float on water?* (Sample responses: ice in water, paper sailboat on a pond, rubber duck in a bathtub)

Activity 7 : Closing Ceremony

Time allotment

5 minutes

Materials

- None

Steps:

Girls form a friendship circle and share their scientist drawings from when they arrived.

SAY:

- *Now that you understand more about what scientists do, would your change your picture? If so, how?*
- *Would your scientist be doing something different? Helping people?*
- *Can you see yourself as a scientist? In what way?*

Keep It Girl-Led Tip

Invite girls to choose a closing ceremony song to sing.