



Junior Product Designer Badge Activity Plan 2

Purpose: When girls have earned this badge, they will know how to think like a product designer.

Planning Guides Link: STEM (Science Technology Engineering and Math)

Fun Patch Link: Problem Solving or S2104 Bright Idea

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 Junior 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 Junior 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 Junior Skill-Building Badge set for *It's Your Story-Tell It!*, 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 have identified tools, machines, or innovations that are successful
- They have researched common needs and proposed solutions
- They have put their plans into action, tested the results, and made new plans or revisions

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.

Resources

- This lesson plan has been adapted from the Junior Product Designer Badge in the Junior Skill-Building Badge set for *It's Your Story-Tell It!*, which can be used for additional information and activities.

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. Do the action song Button Factory/My Name is Joe

This song is chanted rather than sung, and since each verse is the same one with an added action, you can have people join in after the first verse.

Hi
My name is Joe
And I work
In a button factory
One day
The boss says to me, he says, "Joe?"
Are you busy?" I said, "no"
He said "turn the button with your right hand"
(make a turning motion with your right hand, continuing the action through the next verse)

Hi
My name is Joe
And I work
In a button factory
One day
The boss says to me, he says, "Joe?"
Are you busy?" I said, "no"
He said "turn the button with your left hand"
(add the left hand action while continuing with the right)

Continue with: right foot, left foot, right hip, left hip, head, chin, etc. until you get to the verse where you want to stop – at that point, when the boss asks "Are you busy", you shout, "YES!"

Activity #1: Observe and Record

Badge Connection: Step 2 – be an innovation detective

Time Allotment: 15 minutes

Prep Needed:

- Let the girls know in advance that they can bring one common household item from home – it should be small enough to easily carry, used on a regular basis, and durable enough to be unlikely to break (they should still get permission first.)
- Bring an assortment of extra items – hand tools for kitchen or shop, small appliances or electronics (not valuable), toys

Materials Needed:

- Materials collected, as listed above
- Pens
- Paper

Steps:

1. Make sure everyone has an item to demonstrate or present. Girls who did not bring an item can pick one out from the collection of extras.
2. Divide girls into small teams (2-4 girls).
3. Have the girl with the first name closest to the front of the alphabet start first. She will take about two minutes to describe (or demonstrate, if appropriate) how this item is typically used in her family. She should mention as many of its different features and uses as possible. Keep an eye on the time, so everyone will have a chance to present.
4. The other girls will take notes on how the item is used, based only on the presenter's experience (if it's used differently in the recorder's household, that's a separate question.) Then they should ask: what does the item do best? What do you wish could change? What other items could do something similar? Again, the others are only recording the presenter's experience.
5. Switch and repeat until every girl has a chance to present.
6. Compare notes. What did the recorders write that was different, interesting, or surprising to the presenter?

Activity #2: Design a Prototype

Badge Connection: Step 5 –mess up so you can try again

Time Allotment: 25 Minutes

Prep Needed:

- Gather materials and supplies.
- Make large poster with the SCAMPER acronym, or save the poster from the previous session:
- SCAMPER
- S - substitute
- C - Combine
- A - Adapt
- M - Magnify
- P - Put to other uses
- E - Eliminate or minimize
- R - Rearrange or reverse

Materials Needed:

- Big paper/markers, or whiteboard
- Graph paper
- Modeling clay or thick play dough
- Cardstock, index cards, tagboard, and/or cereal boxes
- Scissors
- Glue, tape

- Coloring and drawing supplies

Steps:

1. Explain that a prototype is a model or example of a finished product, which can be used to explain the use of the product and advertise, and to test a design for errors or possible improvements.
2. Review the SCAMPER acronym to remind girls of the ways that an existing product can be changed.
3. Have the girls share the household items they brought with them, or choose one from the items you brought. What is their item used for? Why did someone choose to make it out of that material? Can you use it? What's the best thing about it? What would you change if you could?
4. Each girl should choose one item for which they are making a prototype of a new version. They can also choose anything from the last session if they have some ideas they want to work on. They can also choose from a variety of building materials.
5. They are to create a new and improved version of the item. Remember to try to keep the things that were good about the project, while still improving the things that you think need work.
6. Give the girls set time limits. Let them know when time is running up at ten minutes remaining and three minutes remaining.
7. Have the girls document their thoughts about what worked and what didn't.

Activity #3: Invention Fair

Badge Connection: Step 5 – Mess up so you can try again

Time Allotment: 10 minutes

Prep Needed:

- Gather materials and supplies.

Materials Needed:

- Prototypes from last activity
- Pens, paper/small cards
- Space to set out the prototypes

Steps:

1. As girls or groups finish, have them find a spot for their completed prototypes. They should also make a tag that says what the item is and what it's used for, as well as their names and any other fun info they want to include.
2. Assign everyone to either group A or group B. Group A will share their prototypes first, while group B starts rotating between the examples, asking questions and admiring their fellow inventors' work.
3. Have them ask the designer – what made you choose this? What was most important aspect to leave unchanged, and what need the most work?
4. After group B has had a chance to see each prototype, have the groups switch roles.

Activity #4: Snack Chat

Badge Connection: Questions link to multiple badge steps

Time Allotment: 10 minutes

Steps:

1. While enjoying snack, here are some things for girls to talk about:
 - What are some inventions that you wish could be made right now?
 - If you could be in charge of any company or kind of company, what would it be, and what would be the coolest thing that your company would make?
 - Talk about a time you are proud of when you changed something or made something new.
 - Which do you like better: coming up with lots of new ideas (and let someone else make them work), or being the person to figure out how to make a dream idea actually work in the real world?
 - Imagine you could build yourself a new house, from scratch, without worrying about budget. What kinds of things would you make sure were in your dream house?

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 one 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 a place that uses reclaimed or recycled items and find out more about what happens to the new products.
 - Attend a science or inventors fair.
- Speaker Ideas:
 - Invite a graphic designer or someone who uses computers to make models and/or prototypes.
 - Ask someone whose job requires working in teams to talk about how groups solve problems together.

Suggestions

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

Family Follow-Up Email

Use the email on the next page 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 inventing and design and have earned the Product Designer Badge.

We had fun:

- Learning what to look for in a successful design
- Creating a prototype for an invention
- Sharing new inventions with others

Continue the fun at home:

- Revisit an old toy or game and think of a new way to use it – for example, if that jigsaw puzzle is missing some pieces, how else could you use those left in a project or game?
- Build something with a material you haven't used before – a new recipe of play dough, plastic bottles from the recycling, or start with origami cubes or domes made from drinking straws as a building block.
- Choose one commonly repeated task, like taking out the trash or watering all the plants, and complete it in the usual way while timing how long it takes. Was there any wasted movement or obstacle to getting it done? Change the system or method, and try timing yourselves again to see if you can become more efficient.

Thank you for bringing your Junior to Girl Scouts!