

## Think Like an Programmer pt. 4

### Overview

Juniors use computational thinking to design their Take Action project.

### Notes for Volunteers:

**Use The Talking Points (But Make Them Your Own):** In each session, you'll find suggested talking points under the heading "SAY." Some volunteers, especially new ones, find it helpful to follow the script. Others use the talking points as a guide and deliver the information in their own words. Either way is just fine.

**Be Prepared (It's What Girl Scouts Do!):** Each meeting includes a "Prepare Ahead" section that includes a materials list and what kind of set-up is required. Read it in advance so you have enough time to gather supplies and enlist help, if needed.

**Use Girl Scouts' Three Processes:** Girl-led, learning by doing, cooperative learning — these three processes are the key to making sure Juniors have fun in Girl Scouts and keep coming back.

"Learning by doing" and "cooperative learning" are built into this Journey, thanks to the hands-on activities and tips. You'll also find specific "keep it girl-led" tips in the meeting plans. They'll help you create an experience where Juniors know they can make choices and have their voices heard.

**Solve Big Problems Step By Step:** On this Journey, Juniors will do hands-on activities to learn how computer programmers think through problems. They'll learn to follow and create algorithms, break big problems down into smaller ones, and persist when faced with challenges.

You can help Juniors think this way! Encourage them to keep trying when their first few approaches to solving a problem don't work. Tell them that they can solve any problem if they break it down in smaller ones. And remind them that they can use those skills in their daily lives as well.

**Leave Time For The Closing Ceremony:** If Juniors are having fun doing an activity, you may be tempted to skip the Closing Ceremony so they can keep going — but the Closing Ceremony is absolutely key to their learning. Here's why:

When Juniors leave a meeting, they'll remember how much fun it was to plant a seed, make a suncatcher or play a game of "Programmer Says." However, they may not realize that they just learned how algorithms work — unless you tell them. When you do that, you turn a *hands-on* activity into a *minds-on* activity. During the Closing Ceremony, you can connect the dots for girls by:

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- Pointing out how they acted as programmers. (For example: They used an algorithm to plant a seed or they created an algorithm to teach a skill to others. They struggled a bit with a challenging activity — but they persisted. Now they know that they can solve hard problems if they keep trying. They worked together to solve problems.)
- Reminding Juniors that they are *already* programmers — and that it's fun to solve problems using programming.
- Letting them know that they have what it takes to continue exploring STEM.

These simple messages can boost girls' confidence and interest in STEM — and end the meeting on an upbeat note!

**Tell Your Troop Story:** As a Girl Scout leader, you're designing experiences that girls will remember their whole lives. Try to capture those memories with photos or videos. Girls love remembering all they did — and it's a great way for parents to see how Girl Scouting helps their girls.

And please share your photos and videos with GSUSA by emailing them to [STEM@girlscouts.org](mailto:STEM@girlscouts.org) (with photo releases if at all possible!).

**Program Pairing:** The Junior Digital Photographer and Entertainment Technology badges go well with this Journey!

### Prepare Ahead (Roughly 50 minutes)

#### 1. Review vocabulary (2 minutes)

This meeting includes the following vocabulary:

- **Algorithm** — a list of steps that you can follow to finish a task.
- **Innovation** — a new or improved idea, device, product, etc.
- **Prototype** — a sketch of an idea or model for something new. It's the original drawing from which something real might be built or created.
- **Computational Thinking** — the thought processes involved in formulating a problem and expressing its solution(s) in such a way that a computer—human or machine—can effectively carry out.
- **Debugging** — finding and fixing problems in your algorithm or program

See the **Junior Think Like a Programmer Journey Glossary** for more vocabulary and examples.

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### 2. Read through this guide and its Meeting Aids (15 minutes)

This will help you get familiar with the flow of the meeting.

Read the following handouts (found in the **Meeting Aids** section):

**Junior Think Like a Programmer Journey Materials List:** Each meeting has its own materials list, but you can use this handout if you like to do all your supply shopping at one time. It includes all materials needed for the entire Journey.

**Junior Think Like a Programmer Journey Glossary:** This is a list of words that Juniors may not know and how to define them.

**Think, Pair, Share:** These facilitation tips will help you to make sure that every girl's voice is heard during brainstorming activities.

**Take Action Guide:** This handout explains the difference between Take Action and Community Service. It also includes tips to make a project sustainable and Take Action project ideas that you and your troop can use as inspiration.

### 3. Gather materials (30 minutes)

Gather materials using the Materials List for this meeting. If your meeting location doesn't have a flag, bring a small one that Juniors can take turns holding or hang in the room.

## Get Help from Your Family and Friends Network

### Your Friends and Family Network can include:

- Juniors' parents, aunts, uncles, older siblings, cousins, and friends
- Other volunteers who have offered to help with the meeting.

### Ask your Network to help:

- Bring art supplies.
- Assist with helping Juniors create their Take Action project.

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### Award Connection

Juniors will earn two awards:

- Think Like a Programmer award
- Take Action award

Juniors will earn both awards following the completion of the Take Action project and Journey in **Think Like a Programmer PT. 6.**

**(Note to Volunteers:** You can buy these awards from your council shop or on the Girl Scouts' website.)

### Meeting Length

90 minutes

- The times given for each activity will be different depending on how many Juniors are in your troop.
- There is no snack time scheduled in these meetings, but there are 15 minutes of “wobble room” built in for snacks or activities that run long.
- Give Juniors 10- and 5-minute warnings before they need to wrap up the last activity so you'll have time for the Closing Ceremony.

Juniors use computational thinking to design their Take Action project.

### Materials List

#### Activity 1: As Girls Arrive: Innovate Your Take Action!

- Paper
- Pencils, crayons and markers

#### Activity 2: Opening Ceremony: Programming for a Better World

- Flag
- Optional: Poster Board with the Girl Scout Promise and Law

#### Activity 3: Designing Our Take Action Project

- Large pieces of paper or poster boards
- Markers

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- Post-It notes
- Pens/pencils

### Activity 4: Closing Ceremony: Ready to Take Action!

- None

### Awards

Juniors do not receive any awards in this meeting.

### Detailed Activity Plan

#### Activity 1: As Girls Arrive: Innovate Your Take Action Project!

#### Time Allotment

10 Minutes

#### Materials

- Paper
- Pencils, crayons and markers

#### Steps

Welcome Juniors, and have them draw quick prototypes of how they can innovate their Take Action project.

#### SAY:

*Now that you've decided on your Take Action project, you're going to start making a plan to carry it out.*

*At our last meeting, you created prototypes for ways to make different ideas or products better. When you did that, you were innovative!*

*How could you do the same thing for your Take Action project? How could you use innovation to make your project even better?*

*Why don't you try sketching a few ideas before the meeting starts? We can share them as part of our opening ceremony.*

## Think Like an Programmer pt. 4

### Activity 2: Opening Ceremony: Programming for a Better World

#### Time Allotment

20 Minutes

#### Materials

- Flag
- Optional: Poster Board with the Girl Scout Promise and Law

#### Steps

Recite the Pledge of Allegiance and the Promise and Law.

Conduct any troop business.

Have Juniors talk about how they prototyped innovative ways to design the Take Action project.

#### SAY:

*What did you draw? How would you design your Take Action project to be more innovative?*

Give each girl a chance to share her idea.

Remind Juniors how programmers create algorithms that solve problems.

#### SAY:

*Programmers use computational thinking to create algorithms that solve problems. They have to make sure to include every step necessary. That's important because when they put their algorithm in a machine, their program will only work if they've included every single step.*

*And when it does work, all kinds of problems can be solve in brand-new ways!*

*Today, you're going to work in teams to design your Take Action project! Think about the steps you'll need to take to solve your problem in an innovative and brand-new way.*

Have Juniors connect the steps of computational thinking to the steps they'll be using to design their Take Action project.

#### SAY:

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*What computational thinking skills are you going to use in your Take Action project?*

**Girls may say:** Decomposition to create a plan, abstraction so we don't get too lost in what may only work for one person, etc.

*You're going to work in teams to design your Take Action project! Think about how you can use innovation in the Take Action project and how others can use their ideas for innovation, too!*

*Today, you'll plan the details of your Take Action project using all of the steps of computational thinking!*

*What's the first step programmers take when they want to create a new code?*  
**(Answer: Define a need or problem.)**

*What is the need you've decided you want to solve through your Take Action project?*

*What's the next step? (Answer: Decompose the problem into smaller piece.)*

*Even though you have an idea of what you want to do, you need to brainstorm how you're going to do it. By decomposing the project, it's easier to manage.*

Remind Juniors how programmers work together to debug and persist as a team.

### **SAY:**

*Programmers test their programs to make sure they run successfully. Sometimes, the program won't run correctly, so programmers work in teams to debug the code.*

*Programmers try again and again to make their program run without problems.*

*They work in teams to make it easier to find solutions and test each other's programs.*

*Just like you, programmers persist through the challenges to make solutions that work for everyone!*

*Next week, you'll create what you need to carry out your Take Action plan out. By the end of today's meeting, make sure you have a list of supplies you need.*

## Activity 3: Designing Our Take Action Project

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## Think Like an Programmer pt. 4

### Time Allotment

35 Minutes

### Materials

- Large pieces of paper or poster boards
- Markers
- Post-It notes
- Pens/pencils

### Steps

**(Note to Volunteers:** Stay on schedule so you can hold your Closing Ceremony. Give Juniors 10 and 5-minute warnings before they need to wrap up.)

#### Set Up. (5 minutes)

Divide Juniors into small design teams of 3 – 4 to design their Take Action project.

#### SAY:

*Last meeting, you decided on a Take Action project. What is it?*

Give Juniors a chance to respond and describe the project.

#### SAY:

*What are the first steps programmers take when they want to create a new program?*

**(Answer: They define a need, brainstorm and design ideas that they test and debug.)**

*That's exactly what you're doing today. You came up with the need for your Take Action project.*

*Now, you'll work in teams to brainstorm ideas about how you want to do your Take Action project. Write or draw your designs down.*

*Remember, you can use algorithms and programs to teach others something you know a lot about as part of your Take Action project.*

*Next meeting, you'll create your Take Action project.*

#### Brainstorm and Design. (25 minutes)

Offer things for Juniors to think about, depending on what they want to do. For example:

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### If Juniors want to make a video, how will they film it?

- What do they want to say?
- Do they want to wear costumes?
- Do they want to use music?
- How will they show it to people – at a school assembly, at a gathering of their families, by having an adult post it (safely) online?

### If Juniors want to create posters for their school, what materials will they need?

- Who can they ask for permission to put the posters on the walls?
- How should they ask for permission – if they want to make a presentation to the principal, what should they say?
- Once they get permission, what should the posters say?
- What will they look like? When do they want to hang up the posters?
- Do they want to get other students to join them?

The ideas are endless! **Keep It Girl-Led** by giving just one or two examples and then seeing where the Juniors take it.

Remind them that good teamwork is important. Encourage Juniors to take turns, and make sure each girl has a role.

Encourage Juniors to write or draw their ideas. Remind them they're designing their Take Action plan. At the next meeting they will create it.

### **SAY:**

*Is there anything you need to make in order to carry out your project? Is there someone you need to ask for help?*

*How could you do that? What would you say?*

You may need to pave the way for Juniors to Take Action by calling the school or town officials to get permission for what they want to do or set up a time for Juniors to meet the officials to make their Take Action proposal. If possible, guide the conversation so Juniors come up with ideas about how you can help them so they have the experience of connecting with others to Take Action.

Keep a list of the “to do” items Juniors are suggesting, for example: materials they need, people they need to talk to, etc.

### **Share and Reflect. (5 minutes)**

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**SAY:**

*Does anyone remember what programmers do after they've coded a new program?*  
**(Answer: Share it with others and test it to see if it runs without bugs.)**

*Let's take turns telling the group what you designed for the Take Action project.*

Give Juniors time to share their ideas.

**SAY:**

*Who else could you share your plan with after this meeting?*

**Girls may say:** family, friends, teachers, neighbors, or classmates.

*Be sure to listen to what they say – they may have some ideas to make your plan even better!*

### Activity 4: Closing Ceremony: Ready to Take Action!

**Time Allotment**

10 minutes

**Materials**

- None

**Steps**

Have Juniors form a Friendship Circle and share something about their Take Action project design.

**SAY:**

*Let's go around the circle and each shout out one word about how you felt today as you designed your Take Action project.*

Give each Junior a chance to say something.

Go over the list of “to dos” that you have for Juniors to create their Take Action project at the next meeting. (This might be a list of materials Juniors need, a reminder to bring props if they're performing a skit, names of people they need to talk to, etc.)

**SAY:**

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*Now, let's go around the circle in the other direction. Shout out one word about how you think you'll feel next week when you're taking action and making the world a better place!*

End the meeting with a Friendship Squeeze.

On your honor!

## **The Girl Scout Promise**

**On my honor, I will try:**

**To serve God and my country,**

**To help people at all times,**

**And to live by the Girl Scout Law.**

## **The Girl Scout Law**

**I will do my best to be**

**honest and fair,**

**friendly and helpful,**

**considerate and caring,**

**courageous and strong, and**

**responsible for what I say and do,**

**and to**

**respect myself and others,**

**respect authority,**

**use resources wisely,**

**make the world a better place, and**

**be a sister to every Girl Scout.**

## Think Like a Programmer Journey

# Take Action Guide

## What's the difference between a community service project and a Take Action project?

**Community Service** makes the world better by addressing a problem “right now.” For example, collecting cans of food for a food pantry feeds people “right now.” Gathering toys for a homeless family shelter makes kids happy “right now.” Providing clothing and toiletries to people after a fire or flood helps them “right now.” These acts of kindness are important ways to help people — right now.

**Take Action** encourages girls to develop a project that is sustainable. That means that the problem continues to be addressed, even after the project is over. Sustainability simply means coming up with a solution that lasts.

For example, girls might want to do something about trash in a local park. If they go to the park and pick up trash, they've solved the problem for today — but there will be more trash to pick up tomorrow.

### Instead, girls could explore why there's so much trash. Here's what they might discover:

1. There aren't enough trash cans in the park.
2. The trash cans are hard to find.
3. People have to walk out of their way to throw away trash because of where the cans are placed.
4. People don't realize the importance of putting trash in the trash cans.

### Here's how girls might address these issues:

- **Issues 1 – 3:** Make a presentation to the city council to report on their findings and suggest adding more trash cans or moving them to more visible or convenient positions.
- **Issue 4:** Create a public awareness campaign that encourages people to use the trash cans instead of littering.
- **Variation:** Older girls may want to design interactive garbage cans that make tossing your trash fun. Do an online search for “the fun theory” or “the world's deepest bin” to see this in action.

## What are the steps of a Take Action project?

Girls team up to:

- Identify a problem
- Come up with a sustainable solution
- Develop a team plan
- Put the plan into action
- Reflect on what they learned

**Keep It Girl-Led:** Girls should actively participate in each step in order for this to be girl-led. Younger girls will need more guidance, but they can and should decide as a team what problem they want to address.

## How do girls make their project sustainable?

Here are three ways to create sustainable change:

1. Make your solution permanent.
2. Educate and inspire others to be part of the change.
3. Change a rule, regulation or law.

## How can I help girls come up with Take Action Ideas?

Next are some specific examples you can use to help girls understand what sustainable Take Action projects look like.

**Keep It Girl-Led:** These examples are intended to give a sense of what a Take Action project could look like. **Please do not choose a project from this list for girls to do!** Instead, guide them to brainstorm ideas, get feedback, and come up with a plan. Girls will learn key leadership skills, such as decision-making, compromise, conflict resolution, and teamwork, when their Take Action project is girl-led.

## Computer Science/STEM Take Action Ideas

**Issue:** Some girls think computer science is hard or boring or just for boys.

- **Solution: Educate and inspire others.** Create a girls' coding club that meets at lunch-time or recess. Teach other girls how to play with tangrams or learn algorithms by making functional suncatchers.

**Issue:** Some kids think computer science is too hard to understand.

- **Solution: Educate and inspire others.** Make a video to explain algorithms, using fun examples like baking a cake, planting a flower or giving directions. Show it to your class at school or to a group of friends.

**Issue:** More kids need to know that how computer programmers can help others and make the world a better place

- **Solution: Educate and inspire others.** Do some research about people who used code to help others, and then create a video or slideshow to show at your school.

**Issue:** Not everyone knows about women who changed the world using their knowledge of computer science.

- **Solution: Educate and inspire others.** Research the “hidden figures” in your community. They might be women who have helped shape history, like those portrayed in the movie Hidden Figures. Or you might want to profile computer science teachers who have made a difference by mentoring and encouraging girls. You could create a display about their accomplishments for a library or community center or make a video about them and show it at school.

**Issue:** More people need to know how exciting and fun STEM can be.

- **Solution 1: Educate and inspire others.** Create a list of great books, movies and documentaries that focus on STEM. Make copies for teachers to hand out or make posters for the school library.
- **Solution 2: Educate and inspire others.** Create a short play based on one of the books and perform it for your class or school.

## Other Ideas for Take Action

**Issue:** More kids need to know that engineering is a fun, creative way to help others.

- **Solution 1: Educate and inspire others.** For show-and-tell, explain what you've learned about how engineers help others, then lead a design challenge activity with your class.
- **Solution 2: Make it permanent.** Partner with a teacher or principal to create an "engineering space" at school where kids can make prototypes and share ideas for new inventions. Put out a call for donations of recyclable materials or cheap prototyping supplies (cardboard boxes, tape, string, paper towel tubes, etc.) to stock the space.

**Issue:** It's hard for new students to meet people and make friends at school.

- **Solution: Make it permanent.** Design and build "buddy benches." Partner with the school to have the benches installed on the playground so kids who want to make new friends can find each other.

**Issue:** Parents often run their engines outside the school as they wait to pick up or drop off their children, which pollutes the air.

- **Solution: Change a rule, regulation or law.** Make a presentation to the school board or administrators about why this is a problem and suggest a new rule that makes the pick-up/drop-off area a "no idling" zone.

**Issue:** We could conserve water if more people collected rain water and used it to water plants.

- **Solution 1: Make it permanent.** Make rain collection devices for family or friends that can be installed in their yards. Give them a list of different ways to use rain water and how they're helping the Earth.
- **Solution 2: Educate and inspire others.** Create a handout, video tutorial, or show-and-tell presentation about how to make a rain collection device, how to use rain water and how that helps the Earth.

**Issue:** The local park doesn't have a swing for children with disabilities.

- **Solution: Make it permanent.** Make a presentation to the city council explaining the problem and offering to use troop money from the cookie sale to help pay for the swing.
- **Extra Inspiration:** Do an online search for "How One Brownie Troop Became Social Entrepreneurs.")

**Issue:** There's no sidewalk along a street near the elementary school, which makes it dangerous for children to walk home.

- **Solution: Make it permanent.** Make a presentation to the city council about the problem and suggest that they build a sidewalk. (Note: Even if the council doesn't vote to create a sidewalk, the girls have earned their Take Action award because they came up with a sustainable solution and took action through their presentation.)
- **Extra Inspiration:** Do an online search for "Girl Scout Brownies Convince City Hall to Build Sidewalk."

**Issue:** There have been several accidents at a busy intersection that doesn't have a stoplight.

- **Solution: Make it permanent.** Research the number of accidents and make a presentation to the city council, asking that they have a stoplight installed.

**Issue:** The local shelter is having a hard time getting rescue animals adopted.

- **Solution: Educate and inspire others.** Use your photography skills to create pet portraits for the shelter's web site. Use your writing skills to craft heart-warming bios for each portrait.

## Need more ideas?

Check out [Girls Changing the World](#) on the GSUSA web site. Girls post their Take Action and Bronze/Silver/Gold Award projects on this site. You can search by project topic or grade level. (And after the troop has done their project, please post it so they can inspire other girls!)

## 33 Ways to Take Action!

### Make your solution permanent.

1. Make and install something outside (benches, bird houses, dog run, ropes course, sensory trail for children with disabilities, Little Library, etc.)
2. Plant something (butterfly garden, tree, wind chime garden, etc.)
3. Make something inside (Maker Space, reading room, etc.)
4. Create a collection (children's books children's hospital or family shelter, oral histories for town museum, etc.)
5. Advocate for building a permanent community improvement (sidewalk, bridge, park, streetlights, stoplight, etc.)

### Educate and inspire others to be part of the change.

6. Do a show-and-tell
7. Create a poster campaign
8. Perform a skit
9. Make a "how to" handout
10. Draw a comic
11. Give a speech
12. Write and perform a song
13. Make an animated movie
14. Make a live-action movie
15. Make a presentation
16. Create a workshop (perhaps in partnership with a local business or organization) to teach a skill such as coding, camping, canoeing, robotics, sewing, car care, healthy eating, gardening, home repair, budgeting, etc.
17. Create a workshop to teach others about healthy living (exercise, nutrition, mental health, etc.)
18. Create a social media campaign
19. Make video tutorials to teach a skill
20. Organize an email campaign
21. Organize a petition
22. Organize an event (concert, play, poetry slam, art exhibit, sporting event, field day) to raise awareness about an issue
23. Make a "playbook" to help others follow your lead (how to mentor robotics teams, organize a workshop or event, advocate to city council, create an online petition, change a law, etc.)
24. Make an app that helps people take action on an issue
25. Create a web site
26. Write an op-ed or letter to the editor of a newspaper or magazine
27. Start a blog

### Change a rule, regulation or law.

28. Make a presentation to your school principal
29. Make a presentation to your school board
30. Make a presentation to your city council
31. Speak up at your representative's town hall meeting
32. Create an online petition
33. Advocate for a law with your state government

## Think Like a Programmer Journey

### Glossary for Juniors

Juniors may not know some of the words used on this Journey. Here are definitions you can share with them:

**Computational thinking** is the thought process involved in solving a problem and expressing its solution(s) in a way that a computer—human or machine—can effectively carry it out.

An **algorithm** is a list of steps that you can follow to finish a task. A recipe is an example of an algorithm; it tells you how to cook a dish by following step-by-step instructions.

A **program** is an algorithm that has been coded into something that can be run by a machine.

**Debugging** is finding and fixing problems in your algorithm or program.

A **function** is a piece of code that you can easily call over and over again.

A **variable** is a placeholder for a piece of information that can change.

**Decomposition** is when you break a hard problem up into smaller, easier ones.

A **pattern** is a theme that is repeated many times.

**Abstraction** is removing the details from a solution so that it can work for many problems.

**Innovation** is a new or improved idea, device, product, etc.

A **prototype** is a sketch of an idea or model for something new. It's the original drawing from which something real might be built or created.

In computer science, a **conditional** is a statement that tells a computer how to act in specific situations., i.e. IF this happens, THEN the computer does this.

## Think Like a Programmer Journey

# Materials List

### Think Like a Programmer 1

#### Activity 1: As Girls Arrive: Create Your Own Code

- Paper
- Pens or pencils

#### Activity 2: Opening Ceremony: Jump Into Computational Thinking!

- Flag
- Optional: Poster Board with the Girl Scout Promise and Law

#### Activity 3: Tangram Algorithms

- **Tangram Set & Algorithm Card Images Pack** (one for each girl)
- Scratch paper for writing algorithms or building images
- Markers, pens, or pencils
- Scissors
- Optional: Sets of tangrams to use as example
- Optional: Computer, tablet or other device with ability to show girls the [Unplugged – Tangram Algorithms](#) video
- Optional: If your troop has never used Tangram pieces, you can choose to do an example for them or even have an entire Tangram activity. Search the internet for activities that girls can play in reality (using real tangrams) or play online.
- Optional: **Worksheet: Tangram Algorithms** (one for each girl)  
An “assessment worksheet” sounds a lot like school, but girls will probably see this as a fun puzzle page. If there’s time, girls could do the activities in the meeting or you could give each girl a copy to take home. Perhaps they’d like to show their families what they learned about programs, debugging, functions, and variables by doing the worksheet together.

#### Activity 4: Closing Ceremony: Programmers, Awards & Take Action

- Take Action Guide

### Think Like a Programmer 2

#### Activity 1: As Girls Arrive: Snack Algorithms

(**Note to Volunteers:** For this activity, girls will create algorithms for snacks. We’ve provided several options, so please choose one or another alternative that works for your girls’ dietary restrictions.)

- Bowls or cups
- Option 1: Various small snacks like crackers, pretzels, marshmallows, chocolate chips, dried fruit, etc. that could go into trail mix.
- Option 2: Crackers, spreads, and toppings to create cracker bite snacks.
- Option 3: Celery, spreads, and topping to create Ants on a Log.
- Paper
- Pencils

#### Activity 2: Opening Ceremony: Programmers to the Rescue!

- Flag
- Optional: Poster Board with the Girl Scout Promise and Law

## Think Like a Programmer Journey

# Materials List

### Think Like a Programmer 2 (continued)

#### Activity 3: Solving Challenges with Computational Thinking

- **Mad Glibs Abstraction Worksheet** (one for each girl)
- Markers, pens, or pencils
- Pens, Pencils, & Scissors
- **Functional Suncatchers Skills Sheet** (one for each group)
- Create a suncatcher to use as an example for the activity
- Prepare a program and two skills with blank steps on a large paper or blackboard for the girls to help you fill in. (Sample can be found on the **Functional Suncatchers Skills Sheet**)
- Optional: Computer, tablet or other device with ability to show girls the [Unplugged: Mad Glibs activity](#) and [Unplugged – Functional Suncatchers](#) videos
- Optional: **Worksheet: Mad Glibs Assessment** (one for each girl)  
An “assessment worksheet” sounds a lot like school, but girls will probably see this as a fun puzzle page. If there’s time, girls could do the activities in the meeting or you could give each girl a copy to take home. Perhaps they’d like to show their families what they learned about programs, debugging, functions, and variables by doing the worksheet together.
- Optional: **Worksheet: Functional Suncatchers** (one for each girl)  
An “assessment worksheet” sounds a lot like school, but girls will probably see this as a fun puzzle page. If there’s time, girls could do the activities in the meeting or you could give each girl a copy to take home. Perhaps they’d like to show their families what they learned about programs, debugging, functions, and variables by doing the worksheet together.

For each functional suncatcher:

- One foot of string, thread, or fishing line
- 2-4 beads
- 2-4 other accessories (buttons, hoops, spacers)
- One special bead, prism, button, or girl-made sun charm

#### Activity 4: Closing Ceremony: Brainstorming Our Take Action Project

- List of Juniors’ Take Action ideas from Think Like a Programmer 1
- **Take Action Guide**

### Think Like a Programmer 3

#### Activity 1: As Girls Arrive: Tech Collages

- Magazines and catalogs, tech or regular
- Scissors
- Glue sticks
- Construction paper
- Optional: Stickers, other things to add into the collages

#### Activity 2: Opening Ceremony: Reviewing Our Take Action Ideas

- Flag
- List of Take Action ideas from last meeting

## Think Like a Programmer Journey

# Materials List

### Think Like a Programmer 3 (continued)

#### Activity 2: Opening Ceremony: Reviewing Our Take Action Ideas (continued)

- Index Cards (Slips of paper, post-its, or a whiteboard and marker)
- Pens
- Tape
- Optional: Poster Board with the Girl Scout Promise and Law

#### Activity 3: Personal Innovations

- Post-its or slips of paper and tape (at least one for each girl)
- Markers, pens, or pencils
- Poster paper for sharing innovations (one for each girl)
- **Personal Innovations Activity Guide** (one for each girl)
- Markers, pens, or pencils
- Tape to hang posters

#### Activity 4: Closing Ceremony: Time to Decide on Take Action!

- Juniors' Take Action ideas on index cards.
- Optional: Computer/tablet or other device with ability to show girls the [Computer Science is Changing Everything](#) video

### Think Like a Programmer 4

#### Activity 1: As Girls Arrive: Innovate Your Take Action!

- Paper
- Pencils, crayons and markers

#### Activity 2: Opening Ceremony: Programming for a Better World

- Flag
- Optional: Poster Board with the Girl Scout Promise and Law

#### Activity 3: Designing Our Take Action Project

- Large pieces of paper or poster boards
- Markers
- Post-It notes
- Pens/pencils

### Think Like a Programmer 5

#### Activity 1: As Girls Arrive: Improv with Conditionals

- Notecards with different statements written on them from the **Conditional Examples Sheet** (at least two for each pair of girls)

## Think Like a Programmer Journey

# Materials List

### Think Like a Programmer 5 (continued)

#### Activity 2: Opening Ceremony: If We Take Action, Then We Make a Difference!

- Flag
- Optional: Poster Board with the Girl Scout Promise and Law

#### Activity 3: Creating Our Take Action Project

- Any materials Juniors need for their Take Action project

### Think Like a Programmer 6

#### Activity 1: As Girls Arrive: Get Ready to Celebrate!

- Girl Scout Promise and Law poster(s)
- Any items Juniors want to display (such as photos or videos from their Take Action project)
- Photos and videos from the Journey meetings
- Music system
- Decorations
- Snacks

#### Activity 2: Opening Ceremony: Welcome!

- Flag
- Optional: Poster Board with the Girl Scout Promise and Law

#### Activity 3: Awards Ceremony and Celebration

- Think Like a Programmer award
- Take Action award

(Note to Volunteers: You can buy these awards from your council shop or on the Girl Scouts' website.)

#### Activity 4: Girl Survey

- If girls are taking the survey online: Laptop/tablet
- If girls are filling out the survey on paper: Copies of Girl Survey (pdf available in Meeting Aids) and pen or pencil

## Brainstorming Tips: Think, Pair, Share

### How to Run a Think, Pair, Share Activity:

Tell girls that they're going to brainstorm answers to your question using "Think, Pair, Share."

Lead girls through the basic steps by telling them they will:

#### 1. Break into small groups.

#### 2. Listen to the question or prompt.

#### 3. Think about their answers.

- Girls may want to write their answers down.
- Twenty seconds should be enough time, since girls will need to sit quietly.

#### 4. Pair with other girls.

- Girls talk with one to three other girls (depending on group size), making sure everyone has a chance to share their answers. If there's time, it's OK for girls to ask questions about each other's answers.
- For pairs, 20 seconds should be enough time. If your troop enjoys discussion, consider extending this to 1 to 2 minutes.

#### 5. Share with the group.

- Girls share their answers with the larger group.
- This can be completed in 20 – 30 seconds, but will run longer based on group size and how the group sharing is done.

### There are two ways to set up group sharing:

- **Strongly Recommended:** One girl shares the best/most interesting/summary answer for the group. This approach is great if you're running short on time. It also helps develop conflict resolution and compromise skills.
- **Optional:** Each girl shares her partner's answer. This helps girls develop active listening skills, but will run longer because all girls are sharing.