SENIOR
Coding For Good Badges

NOTES TO VOLUNTEERS

To earn the Coding Basics badge, Seniors explore how computer programming can make a positive difference in the world. They learn some of the fundamental ideas in coding, like JavaScript syntax, functions and arguments, x-y coordinates, and how to use them to create images. They also learn how computers make decisions using Boolean logic, if statements, and control flow.

To earn the Digital Game Design badge, Seniors learn about narrative video game design and how games can make a positive change in the world. They create game characters, scenarios, decision trees, and conditional statements to design the elements and mechanics of a game. They also consider how video games can help people understand the world and its issues.

To earn the App Development badge, Seniors collect and analyze data for community engagement. They learn how to use JavaScript syntax, how to create data objects to store data, and how to visualize their data to use it in an app. They create a prototype for an app that supports their community using community and social data.
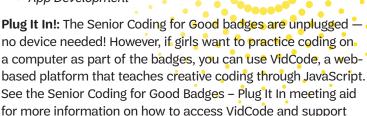
About the Badges:

Follow the Badge Progression:
The Coding for Good badges were designed to be earned in a specific order. The badge progression is:

- *Coding Basics*
- *Digital Game Design*
- *App Development*

Plug It In!: The Senior Coding for Good badges are unplugged — no device needed! However, if girls want to practice coding on a computer as part of the badges, you can use VidCode, a web-based platform that teaches creative coding through JavaScript. See the Senior Coding for Good Badges – Plug It In meeting aid for more information on how to access VidCode and support girls through the plugged activities.

Girl Leaders: At this point, your girls might be ready to lead the meetings, and that's fantastic! To help, you might decide as a troop on girl leaders for each of the badge meetings. Share the meeting plan and meeting aids with your girl leaders with plenty of time before the meeting to give time to prepare to lead. If they have any ideas or ways to improve the activities for their Girl Scout sisters, give them the opportunity to try it out!

Use the Talking Points (But Make Them Your Own): In each meeting, you'll find suggested talking points under the heading "Things to Know." 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 Seniors have fun in Girl Scouts and keep coming back.

"Learning by doing" and "cooperative learning" are built into this badge, thanks to the hands-on activities and tips. Remember to keep the meetings girl-led so you can help create an experience where girls know they can make choices and have their voices heard.

Leave Time for the Closing Ceremony: If Seniors are having fun with 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 Seniors leave a meeting, they'll remember how much fun it was to do an activity, but they may not realize what its relationship to coding was, unless you tell them.

That's why the Closing Ceremony is so important. It's where you can connect the dots for Seniors by:

- Pointing out how they acted as programmers. (For example: They created an app to solve a problem or a game to build awareness. They struggled a bit with a challenging activity — but they persisted. Now they know that they can solve hard problems if they keep trying.)
- Reminding girls that they are already programmers — and that it's fun to solve problems using coding.
- 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 Seniors will remember their whole lives. Try to capture those memories with photos or videos. Seniors love remembering all they did, and it's a great way for parents to see how Girl Scouting helps their Seniors!

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

To Prepare for the Meetings:

Before each meeting, you'll find an Overview, notes to Prepare Ahead, and a Materials List, all specific to that meeting.

Before each meeting, read through this guide and any meeting aids. This will help you become familiar with the flow of the meeting. As you prepare, it's important to understand the activity steps and Things to Know, but feel free to adapt the activities to fit your troop, meeting time allotment, and available materials.

Handouts specific to the meetings are listed in the Prepare Ahead section of each meeting. In addition, the following handouts are available in the Meeting Aids for every meeting:

- **Senior Coding for Good Badges Materials List:** Each meeting has its own materials list. However, if you like to do all your supply shopping at one time, use this handout. It includes the materials needed for all three Senior Coding for Good badges.

- **Senior Coding for Good Badges Glossary:** This is a list of words introduced in the Senior Coding for Good badges with definitions.

- **Senior Coding for Good Badges – Plug It In:** If girls want to practice coding on a computer as part of the Coding for Good badges, you can use VidCode. This toolkit has for more information on how to access VidCode and support girls through the plugged activities.

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

Go over new words Seniors can learn.

In the Prepare Ahead section for each meeting, you'll see a list of words Seniors may or may not know and how to define them. You can find a full list of vocabulary for the badges in the Senior Coding for Good Badges – Glossary.

Gather materials.

Before each meeting, gather materials for the meeting's activities. If your meeting location doesn't have a flag, bring a small one that you can take turns holding or hang in the room.

Each meeting includes its own materials list. However, if you like to do all your supply shopping at one time, use the **Senior Coding for Good Badges – Materials List** handout. It includes the materials needed for all of the badges.

Badge Series and Meeting Length

- This series of badges has been designed to fit into six 90 minute troop meetings.

- The times given for each activity may be different depending on how many girls are in your troop. Before each meeting, review the activities and time allotment to determine how much time your troop will need to complete the activities. You can adjust times for each activity as needed.

- Give girls 10- and 5-minute warnings before they need to wrap up the last activity so you'll have time for the Closing Ceremony.

Get Help from Your Family and Friends Network

Your Friends and Family Network can include:

- Seniors' parents, aunts, uncles, older siblings, cousins, friends, etc.

- Other volunteers who have offered to help with the meeting.

Ask your Network to help:

- Bring supplies or other materials for the meetings.

Award Connection

Girls earn three badges:

- *Coding Basics*

- *Digital Game Design*

- *App Development*

Note to Volunteers: *You can purchase the awards from the Girl Scouts Shop or from your council.*

Coding for good BADGE BREAKDOWN

CODING BASICS 1

1: As Everyone Arrives: Count the "F's"

2: Opening Ceremony: Think Like a Computer

3: Use Functions to Create a Self-Portrai

4: Write Code to Create a Portrait

5. Closing Ceremony: Coding Basics Flash Chat

- Seniors learn some of the basics of coding and how they can be used to create images.
- They code a self-portrait by writing an algorithm with functions.
- They code a portrait of a coding role model using arguments.
- They add symbols to their portrait to include character traits or accomplishments for their role model.
- They reflect on the process of working in a team to write and compute code.

CODING BASICS 2

1: As Everyone Arrives: Learn about Coding Role Models

2: Opening Ceremony: Explore How Computers Make Decisions

3: Learn About Computer Logic

4: Explore "IF" Statements

5. Use Computer Logic to Create a Quiz Show

6. Closing Ceremony: Which Role Model are You Like & Coding Basics Awards

- Seniors learn about computer logic.
- They're introduced to control flow and Boolean expressions by playing games.
- They practice writing True/False statements in JavaScript using Boolean logic and translate the Boolean expressions into IF statements.
- They use what they've learned about computer logic to create a quiz show about women in coding.
- They earn their Coding Basics badge at the end of this meeting.

DIGITAL GAME DESIGN 1

1: As Everyone Arrives: What Makes a Good Game?

2: Opening Ceremony: Learn About Video Game Design

3: Brainstorm Your Game "for Good" Scenario

4: Create a Character for Your Game

5. Learn About Decision Trees in Game Design

6. Closing Ceremony: Digital Game Design Flash Chat

- Seniors begin to explore narrative video game design and how games can make a positive change in the world.
- They design game scenarios that can have a positive impact.
- They develop video game characters for their games.
- They learn how game design uses decision trees and IF-ELSE statements by playing a game and converting it into code.
- They reflect on what video games can tell and teach players about the world.

DIGITAL GAME DESIGN 2

1: As Everyone Arrives: Make a Group Decision Tree

2: Opening Ceremony: The Games We've Played

3: Design Your Game

4: Playtest and Iterate Your Game

5. Closing Ceremony: Digital Game Design Awards

- Seniors design, playtest, and iterate their games.
- They create a decision tree for their game based on the scenario they developed in Step One.
- They playtest their games and provide feedback to other game developers.
- They reflect on how role-playing games can give people ways to address real issues they face and how computer games can be positive influences in people's lives.
- They earn their Digital Game Design badge at the end of this meeting.

APP DEVELOPMENT 1

1: As Everyone Arrives: Brainstorm Community Issues

2: Opening Ceremony: Apps for Social Good

3: Learn to Collect and Visualize Community Data

4: Write Objects to Organize and Store Data

5. Design a Community Data Collection Plan

6. Closing Ceremony: App Development Flash Chat

- Seniors explore how to collect and visualize community data.
- They practice collecting data, creating a visualization with it, and analyzing it to better understand the troop's sentiments on a community issue.
- They look at group data and how data can be stored as a coded data object in JavaScript.
- They make a plan and survey for collecting data from their community before App Development 2.
- They reflect on how social data is stored and how it could be used "for good."

APP DEVELOPMENT 2

1: As Everyone Arrives: Reflect on Collecting Community Data

2: Opening Ceremony: Data-Driven Social Apps

3: Analyze Your Community Data

4: Develop a Prototype for a Social App

5. Closing Ceremony: App Development Awards

- Seniors continue to explore app design and how apps and social data can be used to support a community.
- They use the community data they've collected with their surveys since App Development 1 to create pie charts and analyze their data.
- They use what they learned from their data to inform their own prototype for a social app that's focused on making a positive change in their community.
- They reflect on how collecting data about a community could be used to motivate community members to get involved and make positive changes.
- They earn their App Development badge at the end of this meeting.