LT. GOVERNOR'S COMPUTING CHALLENGE

This standards document is aligned with the Girl Scout's "Coding for Good" badge sequence and arranged to match the individual steps outlined in the How To Guide for the Prototype & Development Challenges. To view the associated How To Guide, please visit the Resources page on Lt. Governor's Computing Challenge website.

Step 1: Selecting a Challenge	
Prototype & Development Challenges	***Coding for Good Badges***
During this process, students will have age-appropriate opportunities to have a say in their learning goal and make choices on how to meet them. They will also recognize and evaluate the steps they need to take to meet their learning goals in order to improve their learning outcomes.	N/A
The process of determining which challenge they want to enter may require the use of multiple sources (for example, digital, online, print, etc.), using library databases and catalogs, using advanced tools and criteria for online searches, CRAAP test, using online bookmarking tools, using online note-taking tools.	N/A
Students can organize a team of up to 5 students who are from a variety of backgrounds and cultures. During this process, they should choose digital tools to connect them and help them learn. These tools may include video conferencing, chats, virtual field trips, multiplayer online games, email, and social media, to connect with their teammates. Students will learn how to respectfully reach out and work with others from different cultures to meet their team's specific learning objectives.	N/A
While determining which challenge to enter, students may use applications which facilitate teamwork and collaboration with their peers (for example knowledge sharing tools, videoconferencing, digital project spaces/sites, chats, and collaborative schedulers. These tools should help them engage in conversations and debate through the lens of different cultural, geographic, demographic and personal perspectives, such as online debates, discussion forums, tele mentoring and personal learning networks.	N/A

Step 2 & 3: Registering Team & Reviewing Launchpad	
Prototype & Development Challenges	***Coding for Good Badges***
Register for the Development Challenge	N/A
Review Launchpad interface and view submission “how to” videos available in Launchpad.	N/A

Step 4: Identifying a Problem	
Prototype & Development Challenges	***Coding for Good Badges***
Consider the Challenge theme Coding for Good	**Brownie** *Badge 2*: *Digital Game Design* • Discover how a game can used for "good." *Badge 3: App Development* • Discover how apps can be used for "good." **Junior** *Badge 2: Digital Game Design* • Discover how game design can be used “for good.” *Badge 3: App Development* • Discover the needs of others. **Senior** *Badge 2: Digital Game Design* • Brainstorm your game "for good" scenario. **Ambassador** *Badge 2: Digital Game Design* • Brainstorm game “for good” scenarios.
Discuss what the theme means	**Brownie** *Badge 3: App Development* • Discover how apps can be used for "good." **Senior** *Badge 2: Digital Game Design* • Brainstorm your game "for good" scenario.
Brainstorm a societal problems that your team would like to	**Brownie**

address in this challenge	*Badge 2: Digital Game Design* • Discover how a game can used for "good." *Badge 3: App Development* • Discover how apps can be used for "good." **Junior** *Badge 3: App Development* • Discover the needs of others. **Senior** *Badge 2: Digital Game Design* • Brainstorm your game "for good" scenario.
Consider what aspects of these problems your team finds interesting.	N/A
Identify what group(s) of people need(s) help with this problem.	**Brownie** *Badge 3: App Development* • Decompose the needs of your app user. **Junior** *Badge 3: App Development* • Decompose the needs of your app user.
Decide what your team wants to change in its school, town, state, or the world.	N/A

Step 5: Brainstorming	
Prototype & Development Challenges	***Coding for Good Badges***
Use brainstorming sessions to identify a societal problem your team wants to address in this challenge and to identify a computing solution to solve this problem.	**Brownie** *Badge 2: Digital Game Design* • Explore tools to develop digital games. *Badge 3: App Development* • Decompose the needs of your app user. **Junior** *Badge 2: Digital Game Design* • Explore tools used to develop digital games.

	Senior *Badge 2*: *Digital Game Design* • Brainstorm your game "for good" scenario.
View resources to understand the power and the process of brainstorming.	N/A

Step 6: Identifying a Computing Solution	
Prototype & Development Challenges	***Coding for Good Badges***
With a problem clearly identified, consider the best possible computing solution tool to solve this problem.	**Brownie** *Badge 2: Digital Game Design* • Explore tools to develop digital games. **Junior** *Badge 2: Digital Game Design* • Explore tools used to develop digital games. **Cadette** *Badge 1: Coding for Basics* • Write shareable code.
Brainstorm what features or functions will help solve the problem. Consider user interaction and user experience.	**Brownie** *Badge 2: Digital Game Design* • Explore tools to develop digital games. **Junior** *Badge 2: Digital Game Design* • Explore tools used to develop digital games. **Cadette** *Badge 1: Coding for Basics* • Learn about functions (what to do) and arguments (makes a function more specific). *Badge 2: Digital Game Design* Learn how to use arrays to create images. *Badge 3: App Development* • Learn about data collection and visualization.

	• Learn how to correlate data. **Senior** *Badge 1: Coding for Basics* • Learn about computer logic. • Explore "if" statements. *Badge 3: App Development* • Learn to collect and visualize community data. **Ambassador** *Badge 1: Coding for Basics* • Learn about functions through song lyrics. • Learn about loops through song patterns. *Badge 2: Digital Game Design* • Learn about decision trees in game design.
Research your solution to broaden and enhance your ideas.	**Brownie** *Badge 2: Digital Game Design* • Explore tools to develop digital games. **Junior** *Badge 2: Digital Game Design* • Explore tools used to develop digital games. **Cadette** *Badge 1: Coding for Basics* • Learn about functions (what to do) and arguments (makes a function more specific). **Senior** *Badge 3: App Development* • Learn to collect and visualize community data. **Ambassador** *Badge 3: App Development* • Create a data visualization.

Step 7: Making a Plan

Prototype & Development Challenges	*Coding for Good Badges*

Determine the best method for planning out your computing solution. [storyboard, flowchart, wireframe]	**Brownie** *Badge 2: Digital Game Design* • Explore tools to develop digital games. **Junior** *Badge 2: Digital Game Design* • Explore tools used to develop digital games. • Plan a maze game. **Cadette** *Badge 3: App Development* • Create a personal data collection plan. **Senior** *Badge 2: Digital Game Design* • Learn about decision trees in game design. • Design your game. *Badge 3: App Development* • Design a community data collection plan. **Ambassador** *Badge 2: Digital Game Design* • Learn about decision trees in game design. *Badge 3: App Development* • Create a data visualization. • Design a data collection plan.
Sketch or mock up the user interface (what the computing solution will look like to the user).	**Brownie** *Badge 2: Digital Game Design* • Explore tools to develop digital games. *Badge 3: App Development* • Design your app screens. **Junior** *Badge 2: Digital Game Design* • Explore tools used to develop digital games. • Plan a maze game. *Badge 3: App Development*

	• Design your app screens. **Senior** *Badge 2: Digital Game Design* • Learn about decision trees in game design. • Design your game.
Further develop your plan to include how the computing solution will work or function.	**Brownie** *Badge 2: Digital Game Design* • Explore tools to develop digital games. *Badge 3: App Development* • Create algorithms for your app that includes events. **Junior** *Badge 2: Digital Game Design* • Explore tools used to develop digital games. • Plan a maze game. *Badge 3: App Development* • Include conditionals in your app design. **Senior** *Badge 2: Digital Game Design* • Design your game. *Badge 3: App Development* • Analyze your community data. **Ambassador** *Badge 3: App Development* • Analyze your leadership data.
Create a timeline for carrying out your plan. This can be in any form that you find most helpful.	**Brownie** *Badge 2: Digital Game Design* • Explore tools to develop digital games. **Junior** *Badge 2: Digital Game Design* • Explore tools used to develop digital games. • Plan a maze game. **Senior**

	Badge 2: Digital Game Design • Design your game.

STEP 8: Documenting Your Plan	
Prototype & Development Challenges	***Coding for Good Badges***
Use your timeline to guide your work as you go and to help you finish on time.	N/A
Create a document to list any websites, images or sounds you use from the Internet. You need to give credit to the source/creator.	N/A
Access images and sounds that are okay to use for this project.	N/A

STEP 9: Developing the User Interface	
Prototype & Development Challenges	***Coding for Good Badges***
When developing the user interface, keep the following basic rules in mind: ▪ Keep the UI simple. ▪ Create consistent-looking elements (all buttons should look the same, text should match, etc…) ▪ Choose colors carefully ensuring that elements and text are easy to see. Determine location of elements. Consider where the user may expect particular elements to be located. ▪ The interface should be easy to use without instructions.	**Brownie** *Badge 2: Digital Game Design* • Plan a maze game. *Badge 3: App Development* • Create algorithms for your app that includes events. **Junior** *Badge 3: App Development* • Design your app screens. **Senior** *Badge 2: Digital Game Design* • Learn about decision trees in game design. • Design your game.

STEP 10: Coding Your Solution	
Prototype & Development Challenges	***Coding for Good Badges***

Use any programming language, block-based or text-based to code your solution.	**Brownie** *Badge 1: Coding Basics* • Create algorithms for a computer that follow a sequence. • Use loops to improve your algorithm. • Use events to make things happen. • Create your own set of commands that use events. *Badge 2: Digital Game Design* • Plan a maze game. *Badge 3: App Development* • Create algorithms for your app that includes events. **Junior** *Badge 1: Coding Basics* • Create algorithms for a computer that follow a sequence. • Use loops to improve your algorithm. • Keep your code interesting with conditionals. • Create your own set of commands that use conditionals. *Badge 2: Digital Game Design* • Build and test your maze game. • Share and improve your maze game. *Badge 3: App Development* • Include conditionals in your app design. • Share and improve your app with user feedback. **Cadette** *Badge 1: Coding for Basics* • Write pseudocode for a meme *(replace with another type of project, not a meme)* • Write shareable code. *Badge 2: Digital Game Design* • Write an array to create an icon. • Develop a game scenario. *Badge 3: App Development* • Write an array to store personal data. • Develop a prototype for a habit-tracking app.

	Senior *Badge 1: Coding for Basics* • Use functions to create a self-portrait. • Write code to create a portrait. • Use computer logic to create a quiz show. *Badge 2: Digital Game Design* • Create a character for your game. • Design your game. *Badge 3: App Development* • Write objects to organize and store data. • Develop a prototype for a social app. **Ambassador** *Badge 1: Coding for Basics* • Write an algorithm duet. • Code a performance routine. *Badge 2: Digital Game Design* • Create a G.I.R.L. avatar for your game. • Design your game. *Badge 3: App Development* • Learn to code data objects. • Develop an app based on your data.
Troubleshoot your code as problems arise.	**Brownie** *Badge 1: Coding Basics* • Create algorithms for a computer that follow a sequence. • Use loops to improve your algorithm. • Use events to make things happen. • Create your own set of commands that use events. *Badge 2: Digital Game Design* • Use iterations to improve your game. *Badge 3: App Development* • Share and improve your app with user feedback. **Junior**

	Badge 2: Digital Game Design • Build and test your maze game. • Share and improve your maze game. *Badge 3: App Development* • Include conditionals in your app design. • Share and improve your app with user feedback. **Cadette** *Badge 1: Coding for Basics* • Write shareable code. *Badge 3: App Development* • Develop a prototype for a habit-tracking app. **Senior** *Badge 2: Digital Game Design* • Playtest and iterate your game. **Ambassador** *Badge 2: Digital Game Design* • Playtest and iterate your game.
Constantly test and evaluate the functionality of your code and make changes and improvements based on these tests.	**Brownie** *Badge 1: Coding Basics* • Create algorithms for a computer that follow a sequence. • Use loops to improve your algorithm. • Use events to make things happen. • Create your own set of commands that use events. *Badge 2: Digital Game Design* • Use iterations to improve your game. *Badge 3: App Development* • Share and improve your app with user feedback. **Junior** *Badge 2: Digital Game Design* • Build and test your maze game. • Share and improve your maze game. *Badge 3: App Development*

	• Include conditionals in your app design. • Share and improve your app with user feedback. **Cadette** *Badge 1: Coding for Basics* • Write shareable code. *Badge 3: App Development* • Develop a prototype for a habit-tracking app. **Senior** *Badge 2: Digital Game Design* • Playtest and iterate your game. **Ambassador** *Badge 1: Coding for Basics* • Share your coded routine with others. *Badge 2: Digital Game Design* • Playtest and iterate your game.

STEP11: Creating Video | Animation	
Prototype & Development Challenges	***Coding for Good Badges***
Research tools to create an audio-visual explanation of your project.	N/A
Create an outline for your audio-visual project.	N/A
Keep in mind copyright laws and create original concepts.	N/A
Attribute any images properly.	N/A
Create the audio-visual explanation of your project.	N/A
Upload your audio-visual to YouTube or Google Drive.	N/A

STEP 12: Branding Your Solution	
Prototype & Development Challenges	***Coding for Good Badges***
Define your target audience (the primary group of people you think will use your computing solution).	N/A
Consider the desired goals of the computing solution.	N/A
Create visuals that will reach the target audience. Ask yourself, What colors, fonts, and graphics will appeal to the user?.	N/A
Design a logo or mascot that is representative of the concept and color scheme. Simple designs are best.	N/A
Keep in mind copyright laws and be sure to create original concepts. If you use images from the Internet, they should be Creative Commons images so you know the images are approved for sharing.	N/A

STEP 13: Submitting Your Work & Completing Your Launchpad Profile	
Prototype & Development Challenges	***Coding for Good Badges***
All work will be submitted on Launchpad.	**Brownie** *Badge 2: Digital Game Design* • Share your game with others. **Ambassador** *Badge 1: Coding for Basics* • Share your coded routine with others.
Review the video and written instructions as needed.	**Brownie** *Badge 2: Digital Game Design* • Share your game with others. **Ambassador** *Badge 1: Coding for Basics* • Share your coded routine with others.

STEP 14: Evaluating the Computing Solution	
Prototype & Development Challenges	***Coding for Good Badges***
Review the scoring criteria to learn more about how your computing solution will be evaluated.	N/A