LT. GOVERNOR'S COMPUTING CHALLENGE - CODING FOR GOOD

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Connecticut students in grades 3 through 12 are challenged to identify an issue and propose a computing solution that embraces the theme of Coding For Good. There are three different challenges from which you can choose.

The Concept Challenge | The Prototype Challenge | The Development Challenge

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"HOW TO" - PROTOTYPE & DEVELOPMENT CHALLENGE
A Guide To A Successful Submission For The Lt. Governor's Computing Challenge

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STANDARDS ALIGNMENT: *Prototype Challenge*

CSTA STANDARDS K-5 | CSTA STANDARDS 6-12 | ISTE STANDARDS | AASL STANDARDS

STANDARDS ALIGNMENT: *Development Challenge*

CSTA STANDARDS K-5 | CSTA STANDARDS 6-12 | ISTE STANDARDS | AASL STANDARDS

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STEP 1: SELECTING A CHALLENGE

1. Organize a team up to 5 students or decide to work independently
2. Determine which challenge you want to enter.
3. Not sure which challenge? Use these tools to help you decide:
     - Overview of the Challenges
     - Flowchart Infographic
     - Detailed Explanation of Each Challenge
4. **If you decide the Concept Challenge is the right challenge for your team, go to the Resource Page to access the "How To" Guide for the Concept Challenge**.
5. If you decide to join the Prototype or Development Challenge, keep reading.

STEP 2: REGISTERING YOUR TEAM

To participate in the Prototype or Development Challenge, your team of 1-5 people will need to register on Launchpad–the submission platform for these challenges.

1. CLICK HERE to register for the Prototype or Development Challenge
2. Watch the brief video
3. Click NEW USER and sign in with your Google account
4. Complete the fields and click Submit. Please note, you can always change your project name at a later date.

STEP 3: REVIEWING LAUNCHPAD

1. Log into Launchpad
2. Watch the Submission video to learn how to successfully submit to the challenge
3. Click See Activities
4. Click each of the links below Activities to:
     - View the explanation video
     - Read the instructions
5. When your team is ready, you will complete and submit the various activities

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STEP 4: IDENTIFYING A PROBLEM

1. Consider the Challenge theme *"Coding for Good."*
2. Discuss what it means to Inspire Health & Wellness for All.
3. Identify a societal problem that your team would like to address in this challenge.
4. To help with this:
    a. Use Sidekick in the Optional Brainstorming Activity on Launchpad
5. Brainstorm ideas to identify a problem your team wants to solve.

STEP 5: BRAINSTORMING

Brainstorming is an effective process to generate ideas. 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.

1. View these resources to understand the power and the process of brainstorming.
    *   Why Brainstorm?
    *   A Better Way to Brainstorm: How to Get Students to Generate Original Ideas
    *   4 Ways to Improve your Brainstorming
    *   Six Creative Ways To Brainstorm Ideas
    *   10 Effective Brainstorming Techniques
2. Use these tools to track and guide your brainstorming sessions.
    *   Google Docs
    *   Mind Meister
    *   Canva Mind Map
    *   FigJam
    *   Padlet
3. View additional guidance and resources from our archived webinars.

STEP 6: IDENTIFYING A COMPUTING SOLUTION

1. With a problem clearly identified, brainstorm possible computing solutions.
2. To help with this, ask yourself:
    a. What would be the best tool to solve this problem? [mobile app, website, wearable, video game…]
    b. What features or functions will help solve the problem?
    c. Will the user interact with the computing solution?
    d. How can I make an enjoyable experience for the users of my computing solution?
3. Research your solution to broaden and enhance your ideas.
4. Additional Tip: Use Apple's App Design Journal to help guide the ideation process.

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STEP 7: MAKING A PLAN

1. Before you jump into designing or coding on the computer, PLAN. This will save time in the future.
2. Determine the best method for planning out your computing solution. [storyboard, flowchart, wireframe]
3. Check out these resources to help choose the best tool for your plan.
    - Storyboard: What is a Storyboard Video
        - Storyboard That
        - Padlet
        - Google Slides
        - Basic App Template
    - Flowchart: What is a Flowchart Video
        - Lucid Chart
        - Creately
        - FigJam
    - Wireframe: What is a Wireframe Video
        - Mock Flow
        - Wireframe Tutorial

4. Using one of these tools or another, sketch or mock up the User Interface (what the computing solution will look like to the user).
5. Further develop your plan to include how the computing solution will work or function.
6. Create a timeline for carrying out your plan. This can be in any form that you find most helpful.

STEP 8: DOCUMENTING YOUR PLAN

1. Use your timeline to guide your work as you go and to help you finish on time.
2. Create a document to list any websites, images or sounds you use from the Internet. You need to give credit to the source/creator.
3. Use the sites listed below to access images and sounds that are okay to use for this project.
    - Creative Commons: Watch this video to see how to use content from Creative Commons.
    - Wikimedia Commons:Images: Search for Image, Click to Enlarge, Click "More Details", Download the image, click the "show me how" link to cite the image.
    - Google Images Advanced Search: Select "Creative Commons licenses" under "usage rights" dropdown. Click the blue Advanced Search button and then type in your search terms.

STEP 9: DEVELOPING THE USER INTERFACE

1. In the previous step you sketched or mocked up the User Interface (UI). The UI is what the user sees and interacts with.
2. There are some rules you should follow when developing the User Interface. Below is a quick list of basic rules to keep in mind when developing the UI
   - Identify your user before getting started.
   - 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.
3. Below are some resources to help you better understand User Interface purpose and design
   - User Interface Design Overview
   - User Interface Elements List
   - Figma UI Design Tutorial

STEP 10: CODING YOUR SOLUTION

> **REMINDER**: the *Prototype Challenge* only requires *one* feature to be programmed and functioning while the **Development Challenge** requires a **fully functioning program.**

1. This challenge is language-neutral, so you can use any programming language, block-based or text-based.
2. Below is a small selection of online resources that offer free coding instruction. You may want to step through a course or some of the lessons to learn a programming language.
   - Grok Academy
   - Code.org
   - Khan Academy
   - Code Academy
   - CodeHS
3. Below is a selection of online programming tools that you can use to build your program. Many of these offer tutorials you can use to learn as you develop.
   - Vidcode
   - Pencil Code
   - Bitsbox
   - Scratch
   - App Inventor
   - App Lab
   - Code HS
   - Makecode
   - Swift Playgrounds
   - Repl.It
4. As you code your program, you will run into some problems and will need to figure out how to fix them. This is called troubleshooting. This Troubleshooting Video has several good tips and examples on how to avoid making errors and what to do when you have a problem in your code.
5. As you build your computer solution, you will need to constantly test and evaluate the functionality and make changes and improvements based on these tests. This is a critical part of the design process.

Have questions? Visit the Resources Page or Email info@ltgovcc.org

STEP 11: CREATING VIDEO | ANIMATION

1. Both challenges require a video to be submitted. While the requirements differ, below are some online tools you can use to create your video.
    - Animaker: make animated videos online
    - Animoto: make videos with still images and text
    - PowToon: make animated videos online
    - Loom: record screen activity
        - Loom Tutorial
    - Screencastify: record screen activity (Screencastify Tutorial 1) (Screencastify Tutorial 2)
2. Keep in mind copyright laws. Refer to Step 8 to properly obtain and cite content taken from the Internet.

STEP 12: BRANDING YOUR SOLUTION

1. Define your target audience which is the primary group of people you think will use your computing solution.
2. Consider the desired goals of the computing solution.
3. Create visuals that will reach the target audience. Ask yourself, "What colors, fonts, and graphics will appeal to the user?".
4. Design a logo or mascot that is representative of the concept and color scheme. Simple designs are best.
    - Logo Design: 5 Key Elements for Reaching Your Target Audience
5. Develop a hashtag using a motto that will appeal to your targeted audience.
    - 5 Tips for Coming Up with a Winning Brand Hashtag
6. 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. Here are some sources you could use to access images that are okay to use for this purpose:
    - Wikimedia Commons:Images: When you download the image, click the "show me how" link to properly cite the image.
    - Google Images Advanced Search: Select "Creative Commons licenses" under "usage rights" dropdown. Click the blue Advanced Search button and then type in your search terms.

STEP 13: SUBMITTING YOUR WORK & COMPLETING YOUR LAUNCHPAD PROFILE

1. All work will be submitted on Launchpad.
2. **Use** the documents below to help plan and complete the team profile.
    - Prototype Challenge Template (Google doc)
    - Development Challenge Template (Google doc)
3. When you have completed an activity and want to submit it to Launchpad, simply log into Launchpad and select the activity you want to submit.
4. Review the video and written instructions as needed.
5. Click Submit and upload the file, add a brief summary and relevant image.

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STEP 14: EVALUATING THE COMPUTER SOLUTION

1. After the closing date, your submission will be evaluated by educators and industry professionals.
2. Review the following criteria to learn more about how your computing solution will be evaluated.
   - Prototype Challenge Scoring Criteria
   - Development Challenge Scoring Criteria

?   Have questions? Visit the Resources Page or Email info@ltgovcc.org