girls who code

SUMMER IMMERSION PROGRAM

FINAL PROJECTS WORKBOOK

This workbook belongs to: _____

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FINAL PROJECTS PROMPT

Goal:
This summer, you have seen how technology can be used to solve problems and influence the world around us. Now, it's your turn! Your task is to work as a team to build, code or create a technical project that interests you, fills a gap that you see, and where you believe technology can be helpful..

Role:
Each member of your Final Project Group will act as a member of an engineering team. You will have to determine the best way to collaborate with one another to **plan**, **document**, **create**, and **pitch** your idea in the next 10 days.

Audience:

Just like a real designer, you must be able to communicate your product and its purpose to the world! By the end of the project, should be able to "pitch" your project to the larger Girls Who Code Community, which includes the intended users of your product, as well as your classmates, teachers, families, and others. A successful pitch will include an overview of the gap you are trying to fill, your solution, the target user for your product, and the process you used to develop your product.

Output:
Your Final Project will consist of three parts:

- **A product** that you will create using technology for a specific group of users that you identify.
- **A presentation or pitch** that will tell the GWC community about your project.
- **This workbook** that documents how you planned your project and worked with your team.

Together, these three parts are your opportunity to showcase how you believe Computer Science can best impact the world around you.

Criteria for Success:
Your final project will be a way for you to measure how your understanding of computer science has developed over the course of the summer. Regardless of functionality, successful projects will show that you have developed answers to the following questions:

- Who are computer scientists?
- What is computer science?
- How and why do we use computer science to solve problems?
- How and why do we work with people to solve problems?
- In what ways can technology impact your community and society at large?

More details can be found in the Final Project Rubric. Your workbook will guide you as you think through your project and the questions above!

FINAL PROJECTS RUBRIC

You will create three artifacts for your final project:

- ➔ Product
  - ◆ Your product is the app, web page, script or other coded solution to your identified problem.
- ➔ Presentation
  - ◆ You will create a poster in order to present your product and process to the class, parents and partners at graduation.
- ➔ Workbook
  - ◆ You will track your progress, explain your decision making, and reflect on your work in this workbook.

The rubrics that follow are to help guide you in creating these artifacts. They will help you focus your ideas and facilitate collaborative discussions. Each rubric relates to one of the Essential Questions we have been discussing all summer. In addition to the rubric are short examples of how understanding can be demonstrated in each of the three artifacts.

When working with teams, remember to...

- ➔ Respect your team members' opinions.
- ➔ Reflect on your own learning.
- ➔ Communicate clearly.

1. Who are Computer Scientists?	Demonstrates Understanding	Demonstrates Some Understanding	Does Not Demonstrate Understanding
GWC girls are computer scientists!	Girls can name multiple examples of work they did on their final project that make them a "computer scientist." All of these examples are relevant to computer science, rather than computer literacy.	Girls can name at least one example of work they did on their final project that shows they are a computer scientist.	Girls do not identify as computer scientists. Girls cannot cite any proof from work they did on their final projects that shows they are computer scientists. Girls proofs that they are computer scientists have more to do with computer literacy than computer science.
Computer scientists come from all different backgrounds. Diversity is important in CS because a diverse set of voices and perspectives improve us as people, as well as the products we create.	Girls can name: ➔ At least one person on their final project team whose background is different from their own ➔ Multiple things they learned about themselves working with this person	Girls can name: ➔ At least one person on their final project team whose background is different from their own ➔ One thing they learned about themselves working with this person	Girls do not see value in diverse teams in their own personal development.

2. What is Computer Science?	Demonstrates Understanding	Demonstrates Some Understanding	Does Not Demonstrate Understanding
Computer science is the study of solving problems using computational thinking.	Girls can accurately describe how they planned and debugged their project, and there is ample evidence of computational thinking in their planning.	Girls can describe their process, but it does not contain computational thinking.	Girls cannot explain their process in creating or debugging their project. OR Girls have a weak description for their process.
Computer science is more than building programs - "doing" computer science requires problem solving.	Girls explain how they used problem-solving skills throughout the design, development, and testing of their project.	Girls explain how they used problem-solving in their process, but do not make distinctions between design, development, or testing stages.	Girls only discuss problem-solving within the context of their program.

3. How and why do we use Computer Science to solve problems?	Demonstrates Understanding	Demonstrates Some Understanding	Does Not Demonstrate Understanding
Computer scientists evaluate the tools at their disposal and choose the best one based on their current needs.	Girls convincingly explain why the tool they chose was the best tool for their project, including the process they used to exclude other solutions.	Girls explain why they chose a given tool for their project, but do not have a clear rationale for why their solution was best or why other tools were excluded.	Girls are unable to explain why they chose a given tool, and do not exhibit an awareness that other tools may have existed.
Automating tasks with a computer allows humans to do more creative and adaptive thinking.	Girls convincingly explain how their product benefits users by automating a task.	Girls explain how their product benefits the user but the product does not seem to make the task easier or more efficient.	Girls are unable to explain how their product benefits a user.

4. How and why do we work with people to solve problems?	Demonstrates Understanding	Demonstrates Some Understanding	Does Not Demonstrate Understanding
Girls trust the other people in their group to do good work. Girls can build trust by being responsible for their workload and communicating clearly.	Girls can convincingly explain how their team made it clear who was responsible for what tasks in their final project. This includes what they themselves were responsible for, and how they were able to complete it.	Girls were able to explain how they did what they were responsible for but NOT how they communicated OR Girls are able to explain how their team communicated but NOT how they completed the items they were responsible for.	Girls neither did what they were responsible for nor were able to describe group communication.
Working with different kinds of people can be hard, but it pushes girls to think outside of their comfort zone, create better projects, and become better people.	Girls can name: ➔ At least one person on their final project team whose background is different from their own ➔ Multiple ways that having that background mixed with their own made their final project better	Girls can name: ➔ At least one person on their final project team whose background is different from their own ➔ One way that having that background mixed with their own made their final project better	Girls do not see value in diverse teams in creation of products

5. In what ways can Computer Science and technology impact your community and society at large?	Demonstrates Understanding	Demonstrates Some Understanding	Does Not Demonstrate Understanding
CS and technology will not improve the world on its own. We need people who are committed to positive change to use CS as a tool to make an impact.	Girls convincingly explain the best use of their product, can identify potential pitfalls of their solution, and explain how they built their project to minimize misuse or pitfalls.	Girls explain the best use of their project and can identify potential pitfalls of their solution, but have not determined ways to minimize misuse or pitfalls.	Girls cannot explain how to best use their project OR Girls cannot identify pitfalls of their product.
Girls have the power to effect change in their community and the world.	Girls can identify ➔ Who the users for their project will be ➔ How their project will improve their users' lives, or help their users improve others' lives. (this can include pure entertainment value)	Girls are either clear about who their users will be or how their project will be used, but not both.	Girls do not think their project will have any effect on their community or world.

DAY 1: DESIGN THE PRODUCT

Research Inspiration for Final Projects

Use the space below to take notes on the projects you saw on the Girls Who Code Project Gallery. What's good about these products? What could be improved?

In the space below, brainstorm potential topics for your own final project:

If you need help brainstorming topics, look through one or more of the following websites for ideas:

- **Do Something** (*http://dosomething.org*) Explore campaigns by cause, time commitment, or project type.
- **TakingITGlobal** (*http://tigweb.org/global-issues*) Learn more about different issues related to technology, media, health, human rights, and more.
- **Youth Service America blog** (*http://ysa.org/blog*): Read stories about young people who take action to address issues in their communities.

Affinity Mapping and Team Assignment

Use the space below to take notes during your Gallery Walk. As you walk, consider the following questions:

- ➔ Which topics are you most interested in working on?
- ➔ Which of these topics has the most impact on the community?
- ➔ Which of these topics has the best chance of success?
- ➔ Which of these topics will help you learn the most?

Once you've formed your team, fill in the following:

My teammates are:

Our project topic is:

Decide on Project Product and Audience

With your team, answer the following questions about your project's product:

- ➔ What will your team build?
- ➔ What problem will your product solve? Why do you believe it is best solved with technology?

With your team, answer the following questions about your project's audience:

- ➔ For whom are you creating your product?
- ➔ How will they use it?

Crazy 8's and Solution Sketches

In the space below, insert a picture of your sketches from Crazy 8's:

Use the space below to jot down any other notes or ideas you have from the activity:

In the space below, insert a picture of your solution sketch:

Present Solution Sketches

Use the space below to take notes on your teammates' solution sketches:

Develop Product Storyboard

In the space below, insert a picture of your team's product storyboard:

Present Storyboards

Use the space below to take notes on other team's storyboard presentations:

DAY 2: PLAN PROJECT + DEVELOP PRODUCT

Choose a Woman-in-Tech Inspiration

Use the space below to take notes while you look through the Women in Tech spreadsheet with your teammates. You may want to do some additional research on women whose work sounds interesting or applicable to your final project.

Once you have chosen a woman in tech to be an inspiration for your final project, take some time to do more detailed research to learn about that woman. With your teammates, start a document that lists important information about your woman in tech. This may include:

- ➔ A photo or portrait
- ➔ Birthday
- ➔ Hometown
- ➔ Achievements and/or awards
- ➔ Problems she solved using tech
- ➔ How her work relates to your final project

Scrum and Kanban Overviews

Use the space below to take notes while you read about Scrum:

Use the space below to take notes while you read about Kanban:

How will your team use Scrum and Kanban during your final project?

Develop Final Project Product

After your scrum meeting, use the space below to write down what you plan to accomplish today:

At the end of the day, use the space below to recap what you actually got done today. Does this match what you set out to accomplish today? If not, what can you do differently tomorrow?

DAY 3: DEVELOP

Develop Final Project Product

After your scrum meeting, use the space below to write down what you plan to accomplish today:

At the end of the day, use the space below to recap what you actually got done today. Does this match what you set out to accomplish today? If not, what can you do differently tomorrow?

DAY 4: DEVELOP

Develop Final Project Product

After your scrum meeting, use the space below to write down what you plan to accomplish today:

At the end of the day, use the space below to recap what you actually got done today. Does this match what you set out to accomplish today? If not, what can you do differently tomorrow?

DAY 5: DEVELOP + SPRINT RETROSPECTIVE

After your scrum meeting, use the space below to write down what you plan to accomplish today:

At the end of the day, use the space below to recap what you actually got done today. Does this match what you set out to accomplish today? If not, what can you do differently tomorrow?

Sprint Retrospective

Use the space below to reflect on the following questions, as they relate to your final project teams:

What should we start doing as a team?

What should we stop doing?

What should we continue doing?

Use the space below to take notes on your discussion with your teammates and with the class.

DAY 6: ROUND ROBIN TESTING + DEVELOP

Round-Robin Testing

Use the space below to take notes on other teams' projects.

Use the space below to take notes on the feedback your project received. Draw a star next to the pieces of feedback you think are worth incorporating into your project. Don't forget to include feedback you received on Loop

What are the next steps for taking this feedback into account?

Develop Final Project Product

After your scrum meeting, use the space below to write down what you plan to accomplish today:

At the end of the day, use the space below to recap what you actually got done today. Does this match what you set out to accomplish today? If not, what can you do differently tomorrow?

DAY 7: DEVELOP + CODE FREEZE

After your scrum meeting, use the space below to write down what you plan to accomplish today. **REMEMBER, today is the LAST day you have to make changes to your code.** Be sure to set your goals for the day accordingly.

At the end of the day, use the space below to recap what you actually got done today. Does this match what you set out to accomplish today? If not, what can you do differently tomorrow?

DAY 8: CREATE PRESENTATION

Use the space below to take notes while you brainstorm with your team on the content for your poster:

Use the space below to write down some takeaways from practicing your presentation.

What was challenging about presenting?

What's something you're going to work on before your actual presentation at graduation?

What was something great that you saw someone do during their presentation?

DAY 9: PROJECT POSTMORTEM

Practice Presentations

Use the space below to keep track of your discussion appointments:

Use the space below to keep track of the feedback you receive after you present in your discussion appointments:

Project Postmortem

In the space below, write significant events that occurred over the course of your final project. What were your personal emotions during each of these events?

What were the low points for the team? What were the high points for the team?

What was the most gratifying or satisfying part of the project?

What could you do next time to relieve some of the team's frustrations?

In the space below, write significant events that occurred over the course of the entire Summer Immersion Program. What were your personal emotions during each of these events?

What were the low points for the class? What were the high points for the class?

What was the most gratifying or satisfying part of the summer?

What would you differently if you were to go back in time and start the summer over?

What's a favorite memory from this summer? It could be an activity, a field trip, a guest speaker, etc.

What's something you learned about yourself in the past 7 weeks?

Use the space below to reflect on your future goals: