Science | Technology | Engineering | Mathematics
SAN FRANCISCO UNIFIED SCHOOL DISTRICT

MyCS Final Project

Hackathon!

Overview

Show off everything you have learned this semester by producing a project that is useful, interesting, and challenging to you. Aim for something that will produce a social impact, whether it's an interactive presentation that showcases a problem (teaches an audience something you care about), or an application that directly solves that problem.

You will have about seven class periods to create your project, including two periods for brainstorming and planning. At the end, you will present your project to the class.

Basic Requirements

Work with a partner to create an original project that is both challenging and fun. Be as creative as possible; it is entirely up to you and your partner what you design. Create something you care about! (And keep it appropriate for school.) Aim for a difficulty level slightly above what you're comfortable with, but not impossible to finish. You will need to get your teacher's approval before you begin to code.

Requirements for your project:

1. Include at least 2 sprites.
2. Give a clear way to start your program, such as using the green flag.
    - Include directions in your project description.
3. Make it interactive.
    - Other people should be able to do something with your project other than just clicking the green button for it to start.
4. Use variables at least once.
5. Avoid repetitive code.
    - Create your own blocks.
    - Use loops (repeat) and conditionals (if/else) blocks.
6. Comment your code to show what it's doing (describing what a block of code does).

Project Ideas

- Game
- Animation
- Interactive story
- Public service announcement
- Music/Drawing/Art program
- Algorithm that solves a problem
- Using Finch as a controller or robot
- Anything else you can think of!

Example Projects

- Math Maze: https://scratch.mit.edu/projects/40258896/
- Global Warming Simulation: https://scratch.mit.edu/projects/106120225/
- Recycle, Compost, or Waste Sort: https://scratch.mit.edu/projects/107281832/
- Healthy Food: https://scratch.mit.edu/projects/44292514/
- Help the Homeless: https://scratch.mit.edu/projects/87277746/
- The Pico Show: https://scratch.mit.edu/projects/10015060/
- Don't Text and Drive: https://scratch.mit.edu/projects/87279802/
- Dungeon Role Playing Game: https://scratch.mit.edu/projects/82920634/
- Starter Projects: https://scratch.mit.edu/starter_projects/

Day by Day Breakdown

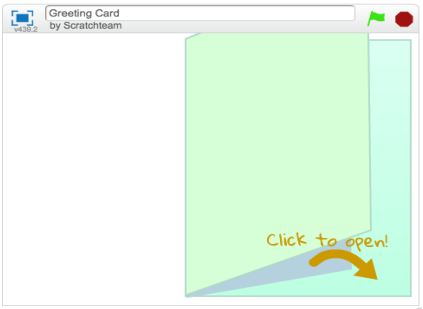
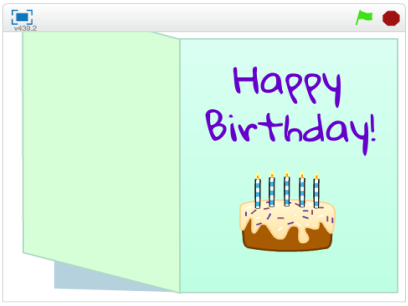
Day 1

- **Review the Hackathon Project Guide** (15 minutes).
- **Brainstorm** by yourself (10 minutes): Use *Appendix A*, or make your own: On a piece of paper, make 3 columns. In the first column, write a down a list of social topics that interests you. In the second column, a list of things you want to make, as many as you can think of. Then, in the third column, how you can tie a social topic to something from the second column. Generate as many ideas as you can!
- **Form groups** (10 minutes): Go around the room and talk about your ideas with others, and find someone who are interested in working on the same thing as you. Discuss your ideas for the project.
- **Complete project proposal** (15 minutes): This template is *Appendix B* in the back of the Hackathon Project Guide. Complete it by the end of class (just one per group).

Day 2

- **Review teacher feedback**: Your teacher will return your project proposal along with approval and feedback. Revise your proposal using your teacher's suggestions.
    - If project was not approved, turn in another project proposal and review it with your teacher in class until it is approved.

- **Sketching and planning:** Use *Appendix C*, or fold a piece of paper into six sections (2x3). In the left column, sketch out what your project will look like. In the right column, describe the important parts of each screen and what it will do. Use as much paper as you need.

	can click on the 'click to open' sprite, when clicked, stage will change to show card opening
	show this stage for 0.2 seconds, then automatically change into the next stage
	play happy birthday music cake sprite and 'happy birthday' sprite will slide in from bottom and top candles will move slightly from side-to-side to seem animated

- **Project timeline** (5 minutes)**:** In *Appendix D*, plan out what you will complete during each class period. Use this to keep yourself on track, so that you can finish on time.
- **Start coding** in Scratch when you're done planning. You can change your sketches and plans anytime, but not the basic idea of your project proposal.

Day 3

- **Code!**

Day 4

- **Keep coding!**

Day 5

- **Project check-in** (15 minutes): Complete the check-in template (*Appendix E)* at the end of the Hackathon Project Guide. Each group will turn in one piece of paper.
- **Keep coding!**

Day 6

- **Partner project feedback** (20 minutes): Meet with two other groups to review each other's projects and give feedback. Use *Appendix F.*
    - Spend 10 minutes with each group to play around with their project and fill out one column on their feedback form.
    - By the end, you should have also received feedback from two other groups.
- **Review feedback and revise your projects,** if needed.
    - Depending on how much you have left to do, discuss with your partner if you should add more elements to your program or take out something that you were planning to do.
    - Remember to create something that is complete and working. This is more important than having a project that does a lot, but is broken or incomplete.

Day 7

- **Finish coding.** Add final touches.
    - Review the project requirements (p. 1), checklist (p. 5), and rubric (*Appendix H*) to make sure you have done everything that is expected.
    - Add a description and instructions your project page in Scratch.
- **Rehearse presentation** (15 minutes): Save time at the end of class to prepare for your presentation tomorrow. Use *Appendix G.*
    - Discuss how you want to present your project: tell a story, walk through your program, etc.
    - Consider writing a script.
    - Assign who will say what. Make sure that every person is involved.

Day 8

- **Projects due:** Your teacher will ask you to turn in your project so that he/she can grade it. You will be graded using the rubric (see *Appendix H*).
- **Final presentations**! Your hardwork has paid off! Showcase what you have made by presenting your project to the class.
    - Each presentation should be around 2 minutes (no more than 3). Every group member should be involved in the presentation. Remember to use a strong voice and face the class.
    - Please be respectful and attentive as other groups present.

Grading Rubric: See *Appendix H* for more details.

Project Proposal	10%
Project Check-in	10%
Basic Requirements (8 x 5% each)	40%
Social Impact	10%
Creativity	10%
Collaboration and Respect	10%
Presentation	10%
Total	***100%***

Tips

- As you work through your project, comment your code to make it easier to grade, and also to make it easier for any person who wants to know how your code works.
    - Add comments by right-clicking a script and select “add comment.”
- Plan ahead and set goals early on to make sure you’re on track.
    - Discuss how you will work with your partner to divide up the tasks.
    - If you are not on-track, revise your timeline.
    - If you are worried or need help, ask your teacher.
- Look at other projects for ideas, but make sure to make an original project.
- Have fun!

Checklist

- ❏ Project Proposal (Addendum B)
- ❏ Project Check in (Addendum E)
- ❏ Project Feedback (Addendum F)
- ❏ Basic Requirements:
    - ❏ Project is complete
    - ❏ Project is interactive
    - ❏ Project can be easily started
    - ❏ Use at least one variable
    - ❏ Use at least one loop *(repeat)* or conditional *(if/then/else)* block
    - ❏ Create at least one block
    - ❏ Include comments explaining what code does
    - ❏ Include directions and information on the project page

Names of Group Members: _____ Period: _____

A) Brainstorm

Issues that I Care About *Consider social issues and community challenges.*	**Things I Could Create** *Add types of projects you could make. Circle those you are excited about.*	**Project Ideas** *Combine social issues with project ideas.*
	animation artwork game interactive story public service announcement music drawing use a robot as controller or output _____ _____ _____ _____	

Circle the idea(s) in column three that you like best. Share these ideas with your teammates. Feel free to add more ideas. Put a star next to the idea you choose.

B) Project Proposal

1. **Description & Purpose:** Describe your project. What is the value of your project? What are you trying to accomplish? How will it have a social impact?

2. **Scope:** Who is your user? What type of things will the user be able to do within your project? What will the user know after interacting with your project?

3. **Design:** How will you create your project? What will it look like? What are you going to use (sprites, stages, robot)?

4. **Programming:** What are some of the programming concepts you will apply and challenges you may face? What blocks do you think you will need?

Teacher's Approval:	Teachers' Feedback:

Names of Group Members: _____ Period: _____

C) Sketching and Planning -- Part 1

Sketch what the scene will look like.	**Describe** the important parts of the scene.

Names of Group Members: _____ Period: _____

C) Sketching and Planning -- Part 2

Sketch what the scene will look like.	**Describe** the important parts of the scene.

Names of Group Members: _____ Period: _____

D) Project Timeline

Day #	Date	Tasks to Complete	Person(s) Responsible	Done?
1		**Project Proposal** (Appendix B)		
2		**Project Timeline** (Appendix D)		
3				
4				
5		**Complete Project Check-in** (Appendix E)		
6		**Partner Project Feedback** (Appendix F)		
7		**Prepare for Presentation**		
8		**Final Projects Due!** **Presentations**		

Names of Group Members: _____ Period: _____

E) Project Check-in

1. **What has been your favorite part of the project so far?** (one answer per person)

2. **What are some of the successes you have faced this far?**

3. **What are some of the challenges you have faced this far?**

4. **What is left to be done?**

5. **What parts of your project will each group member be working on next?**
   Revise your project timeline (Appendix D) as needed.

Names of Group Members: _____ Period: _____

F) Partner Project Feedback

	Group 1	Group 2
Names of group members		
What works well? What is really great about the project?		
What is something that doesn't yet work or could be improved?		
What is something that is confusing or could be done differently? **Do you have other ideas or suggestions?**		

G) Presentation Preparation

1. **How will you present your project tomorrow?** You only have ~2 minutes.

2. **Who will do and say what?** All group members must be involved.

3. **Create a script for your presentation below. Practice this.**

H) Project Rubric

	😩 Needs improve-ment	😐 Nears standard	😀 Meets or exceeds standard
Project Proposal	5	8	10
Project Check-in	5	8	10
Basic Requirements (8 x 5 points each)			
Project is complete.	1	3	5
Project is interactive.	1	3	5
Project can be easily started.	1	3	5
Uses at least one variable correctly.	1	3	5
Uses at least one loop or conditional block correctly.	1	3	5
Created at least one block.	1	3	5
Includes comments explaining what the code does.	1	3	5
Includes directions and information on the project page.	1	3	5
Social Impact	5	8	10
Creativity	5	8	10
Collaboration and Respect	5	8	10
Presentation	5	8	10
Total (100 points possible)			

Points: _____/100 **Final Grade: _____**

Teachers' Feedback: