











Develop a Plan and Create a Game

7-8th grade Computer Science Sample

<p>Notes & Preparation</p> 	<ul style="list-style-type: none"> • Project length - 3 classes • Instructor note - Assess student levels and adjust lesson accordingly. Lesson is designed for student creativity. • Files to load - Orange Coding Book
<p>Engage</p> 	<p><u>Unit Theme Introduction</u></p> <p>Remind the students they have been learning about responsibility this year. They have explored digital responsibility, personal responsibility, and financial responsibility. In this unit we will discuss the responsibility we have in presenting ourselves online with a healthy digital footprint. Ask students the question “how can I be responsible online in how I present myself?” Watch: Teen Voices: Presenting Yourself Online. Discuss why or why not it matters how we present ourselves online? Discuss the reasons people have for putting up a false self online and what are those results.</p> <p><u>Make Code Introduction</u></p> <p>Students will be using Microsoft’s Make Code Arcade platform write a game. Make Code Arcade is a web-based coding editor that allows people to code their own video game. It allows users to use either block code (similar to Scratch) or JavaScript (computer language) to learn the basics of programming code. Students will apply their knowledge of algorithms, decomposition, debugging, loops, events, conditionals, and variables to create a program.</p> <p><u>Project Description</u></p> <p>In this project students will apply the coding skills they have been learning to design and develop a game that solves a problem. The problem will focus on how to show responsibility towards your environment, community, or people. For instance, a game that has the user try to pick up as much trash as possible before the timer runs out exhibits showing responsibility towards your environment. Students may remix an existing game or develop their own game using the coding platform Make Code Arcade. Lastly, students will reflect on and describe the process program of development.</p>

<p>Exploration</p> 	<ul style="list-style-type: none"> Navigate to the following website to aid in Make Code Arcade instruction: https://arcade.makecode.com/courses/csintro1
<p>Additional Emphasis</p> 	<ul style="list-style-type: none"> Use the Orange Coding Book file to help with reviewing coding concepts. Demonstrate each coding concept as needed for student comprehension. Demonstrate how to remix existing projects. Allow for pair programming.
<p>Learning Outcomes</p> 	<p>Students will:</p> <ul style="list-style-type: none"> Design a game that exhibits showing responsibility towards others. Create a game that involves variables, events, loops, and conditionals. Test and debug their program to ensure it accomplishes the intended task. Describe the program development process.
<p>Project</p> 	<p>Have the students:</p> <p style="text-align: center;">Making Connections: Developing a Plan</p> <ol style="list-style-type: none"> Launch a Multimedia Program Open file named Orange Coding Book Switch to slide 11 Answer the questions Format the font color of the answers Save file <p style="text-align: center;">Make Code Arcade References</p> <ol style="list-style-type: none"> Navigate to https://arcade.makecode.com/reference to review the specific coding blocks and their purpose in Make Code Arcade Navigate to https://arcade.makecode.com/docs for further exploration <p style="text-align: center;">Beginning Users: Game Creation</p> <ol style="list-style-type: none"> Launch an Internet browser Navigate to https://arcade.makecode.com/tutorials Explore the tutorials for writing a game Choose a game tutorial or existing project Open a game tutorial and follow the step by step tutorial on how to build the game Be sure to include the following coding in the algorithm: <ol style="list-style-type: none"> Loops

	<ul style="list-style-type: none"> b. Events c. Conditionals d. Variables <p>15. Test and debug steps to ensure the game is successful</p> <p>16. Ask a classmate to play the game to ensure the steps work correctly</p> <p style="text-align: center;">Advanced Users: Game Design</p> <p>17. Launch an Internet browser</p> <p>18. Navigate to https://arcade.makecode.com/concepts</p> <p>19. Explore topics to help with building a game</p> <p>20. Open a new tab</p> <p>21. Navigate to https://arcade.makecode.com/#editor</p> <p>22. Use the coding blocks to create a game</p> <p>23. Be sure to include the following coding in the algorithm:</p> <ul style="list-style-type: none"> a. Loops b. Events c. Conditionals d. Variables <p>24. Test and debug steps to ensure the game is successful</p> <p>25. Ask a classmate to play the game to ensure the steps work correctly</p> <p style="text-align: center;">Making Connections: Reflecting</p> <p>26. Launch a Multimedia Program</p> <p>27. Open file named <i>Orange Coding Book</i></p> <p>28. Switch to slide 12</p> <p>29. Answer the questions</p> <p>30. Format the font color of the answers</p> <p>31. Save file</p>
<p>Reflection</p> 	<p>As each class comes to a close, discuss the specific steps that have been taught that day. Ask students to share the games they have developed. Ask students how their game shows responsibility toward others.</p> <p>Have students check off the learning objectives they focused on</p>
<p>Extend</p> 	<p>For differentiated learning or early finishers, students may complete the following optional steps:</p> <ol style="list-style-type: none"> 1. Continue to build algorithms for your game. 2. Explore the Make Code Arcade platform.

Template

Make Code Arcade

After watching the mini tutorial and exploring Make Code Arcade answer the following questions.

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●	Q. How do you think the game console simulator will help you when you start your game?
	A.
	Q. Name 3 code menus that you think you will use the most in your game.
●	A.
	Q. Using your imagination, share a few details of what you envision your game to look like?
	A.
●	

Developing a Plan to Solve a Problem

Develop your own plan (program) to solve a problem and create a program.

●	
	Q. What is the problem?
	A.
	Q. Will you remix or start from scratch?
	A.
●	Q. Have you considered others?
	A.
●	

