Code Your Story

Name of Project: Code Your Story		Duration: 4-5 days
Grade Level(s): 4	Teacher:	Subject/Course/Unit: Math, Coding, Writing
Big Idea:	Bring together coding, math (coordinate points), and writing (story telling)	
Authentic Purpose: (Why does this matter to your students?)	My students often have difficulty with finding a topic for their story writing. This brings together ELA, Math, and the Computer Science and Digital Fluency standards.	
Future-Ready Competencies: Collaboration Communication Critical thinking/Problem Solving Creativity & Innovation	Objectives: My students will be able to: 1. use block coding to plan their route on the coding City mat. 2. collaborate with a partner to establish the coordinate points. 3. use problem solving skills to build the code to get them to each point on the City map mat. 4. compose a story from the places they pass in their route through the city.	
Project Statement: (Include: issue, problem or challenge; student role, purpose, beneficiary, and desired outcomes)	The challenge will be for students to code the Sphero correctly to come up with the correct path to hit all the coordinate points that were decided upon. The students will be creating the entire process, from choosing the coordinate points in a collaborative process to carrying out the coding and movement of the Sphero robot, to writing their story. Those students that find success in their coding and the process will then mentor the students who are having trouble with the coding and work on debugging their code.	
Empathy Anchor: (How will students develop empathy and care about this problem)	Students that are successful in their coding and process will begin to think about how they can guide others in their class or even think about how they might begin teaching this coding process to a younger grade level.	
Public Audience & Reveal: (Experts, audiences, or product users students will engage with during and at the end of project)	Students will engage with their classmates during the coding portion of the project. They will share their stories to the class when they are completed.	

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<tr><td colspan="2">Knowledge Construction:
(How are students going to construct content knowledge and practice it)
Students will begin learning how to use block coding to code in Scratch Jr. The students will then turn key this learned skill to using it in the Sphero app.
Students will also be using what they have learned in math about coordinate points and also what they have learned about writing and practice those skills in this activity.</td><td>Student Assessment:
Can students correctly code the Sphero to hit each of the coordinate points on the City map mat?
Did students use the City map mat to help create their story?</td></tr>
<tr><td>Design Process:
1. Discover
2. Research & Empathize
3. Brainstorm
4. Choose
5. Build
6. Test
7. Communicate
8. Redesign</td><td colspan="2">Describe what (& how) students are going to do in each step:
Discover: Students will discover how to code using Scratch Jr. They will be given time to explore the program to become familiar with the platform. This will allow them to explore and learn about how coding works and doesn't work.
Research and Empathize: Students will work together to figure out how to code the cat in Scratch Jr. to make the cat go to the correct letters on the keyboard to form a three letter word. They will work with a partner so that they can help each other if needed. They will then take what they learned about coding to use it in the Sphero coding platform.
Choose: Students will be choosing coordinate points for their partner to use when coding. Students will need to create a code within Sphero to code the Sphero to go to each of the three coordinate points chosen by their partner.
Build: Students will build the code they need to make sure the Sphero goes to each of the coordinate points.
Test: Students will then test their code using the Sphero on the mat. Communicate: Students will work together with their partner to work on debugging their programs if need be and they will redesign the code based on their debugging.
Students will then use the places on the Sphero City mat that their Sphero goes to to create a story about their Sphero traveling through the city.</td></tr>
<tr><td>Resources needed:
(On-site people, facilities, tools, technology, materials, community connections)
iPads with Scratch Jr and Sphero apps on them
Sphero robots: enough for each student to have their own robot.
Sphero City Mat: 2</td><td>NYS Standards (content + CS & DF): 4-6.CT.4 Decompose a problem into smaller named tasks, some of which can themselves be decomposed into smaller steps.
4-6.CT.5 Identify and name a task within a problem that gets performed multiple times while solving that problem, but with slightly different concrete details each time
4-6.CT.10 Describe the steps taken and choices made to design and develop a solution using an iterative design process.</td><td>Student Reflection:
Students will reflect on their ability to write the correct code and their ability to write their stories based on the places on the city mat that their Sphero went to based on their coding.</td></tr>
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