Coding Kiosks For Ellis Island

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Unit Overview

In this unit, fifth grade students learn social studies and computer science standards simultaneously. First, in partners, students research a 19th century immigrant group of their choice. Then, using their research and coding knowledge, partners code a kiosk with information about the immigrant group that could be displayed at the Ellis Island museum.

Standards Addressed

1. **ELAGSE5R19:** Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.
2. **ELAGSE5W8:** Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
3. **ISTE1:** Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
4. **ISTE2:** Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.
5. **ISTE3:** Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
    - **ISTE3a:** Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits
6. **ISTE4:** Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
    - **ISTE4d:** Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.
7. **ISTE6:** Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
    - **ISTE6c:** Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
8. **ISTE7:** Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

9. **SS5H1:** Describe how life changed in America at the turn of the century.
    - **SS5H1d:** Describe the reasons people immigrated to the United States, from where they emigrated, and where they settled.

Day 1 & 2 – Learning How to Code, Part I

Standards Addressed: ISTE1, ISTE2, ISTE4, ISTE6

Essential Question: How do I learn how to code?

> **A NOTE FROM THE TEACHER**
>
> *Instruct students sign up for a free account on Hour of Code. Signing up for an account will ensure that their work is saved each time they log in.*

1. Introduce the class to the unit by sharing the following video called *Anybody Can Learn*: https://youtu.be/qYZF6oIZtfc.

2. Next, pass out laptops. Instruct students to go to http://tynker.com/hour-of-code/dragon-blast. Instruct students to move at their own pace to complete the Dragon Blast activity that uses block coding. Tell students that upon completion, they should take a screenshot of their completion certificate and send it to you via the method of your choice.

3. Most students will need a day and a half to complete the Dragon Blast activity. As students complete Dragon Blast, instruct them to move onto another block coding activity of their choice.

Day 3-5 – Kiosks at Ellis Island Introduction, Part I & Part II

Standards Addressed: SS5H1d, ELAGSE5R19, ELAGSE5W8, ISTE2, ISTE3a, ISTE4d, ISTE6c

Essential Question: How do I code a kiosk for European immigrants coming through Ellis Island?

> **A NOTE FROM THE TEACHER**
>
> *Prior to beginning the unit, make sure that you align the unit with the fifth grade social studies class (unless you are the social studies teacher). Ensure that the social studies class has already covered the unit on 20th century European immigration.*

1. Engage the class in a discussion about their experience with the coding over the last two days. Probe them about some challenges they faced.

2. Next, ask the class the following question: How do all computers communicate? The answer is through various types of code, depending on the computer and the programs.

3. Use the **Kiosks at Ellis Island Project Slideshow** and the **Kiosks at Ellis Island Handout** to introduce students to the project. Tell them that they will become computer programmers and create a kiosk with a learning tool about a specific group of immigrants for the museum visitors to use. Instruct students to use the research they conducted in their social studies class to complete the assignment.

4. Instruct the students to select a partner and begin working on collecting the data and creating a script. First, they will need to choose a European immigrant of their choice. They will need to explain why they left their country, and then infer what their experience at Ellis Island may have been like, based on their notes and reflections. Next, they will create the script for their kiosk. After they create the script, they will create a character to move and talk in order to teach the viewer about an Immigrant's experience at Ellis Island.

5. Circulate the room and conference with groups as they finish up the script. Have them edit scripts as needed and then begin coding the learning tool on tynker.com.

6. By the end of day five, groups should be done with the script and with coding. Once groups finish, ensure that they click "Publish" to save the project. They will need to do the following steps to publish the project:

    a. Go to "Projects."
    b. Click "Publish."
    c. Click the tab "Connected to me."
    d. Click "Share with my class."

7. Tell the class that they will be sharing this work with the class on the following day.

Day 6-7 – Sharing the Project

Standards Addressed: SS5H1d, ELAGSE5R19, ELAGSE5W8, ISTE2, ISTE3a, ISTE4d, ISTE6c

Essential Question: How do I incorporate peer and teacher feedback?

1. Begin the class by giving the groups about 10 minutes to prepare their presentations for the class. Provide students with the **Immigration Coding Project Peer Reflection**.

2. As each group presents, instruct each students to individually evaluate the first draft of each project.

3. After each group presents, compile all the evaluations and provide them to each group. On day seven, instruct each group to read through each evaluation, reflect, and make improvements on their project.

Day 8 – Coding the Sphero, Part I

Standards Addressed: ISTE1, ISTE2, ISTE4, ISTE6, ISTE7

Essential Question: How do I code the Sphero?

1. Begin the class by having students sit together and discuss what they learned about block coding earlier in the unit:
    a. What is easy about it?
    b. What is challenging? Describe when you had a challenging moment. How did you solve the problem?

2. Next, inform the students that they will now code Spheros to travel the same route that their immigrant group traveled when they came to the United States.

3. Before they code for the route, though, they will first learn how to code the Sphero to move in a square.

4. Use the following video to show students how to use the Sphero: https://youtu.be/ZfpPvnEsbto. Stop the video at 0:44 and have them create a program and name it with the names of the students in the group (Ex. "JohnSuzyMary").

5. Continue the video and stop at 1:08 and allow the groups to explore the blocks for three minutes.

6. Continue the video and stop at 1:38. Explain that the Sphero moves in degrees:
    a. 0 degrees – straight ahead
    b. 90 degrees – to the right
    c. 180 degrees – reverse
    d. 270 degrees – to the left.

7. Explain that Sphero has a gyroscope – a blue light – and wherever the gyroscope is facing is always zero degrees or straight ahead (it is similar to a compass which always points north).

8. Continue the video until it ends. After the video, allow them time to practice coding the Sphero to move in a square.

9. Regroup and engage the class in a discussion about the challenges they had and what they learned about coding.

Day 9 – Coding the Sphero, Part II

Standards Addressed: ISTE1, ISTE2, ISTE4, ISTE6, ISTE7

Essential Question: How do I code the Sphero?

1. Prior to the start of class, create several mazes on the floor using tape.

2. Explain to students that today's challenge is for them to code their Spheros through the various mazes on the floor. This task will help students practice coding a Sphero.

Day 10-11 – Coding the Sphero to Cross the Ocean, Part I & Part II

Standards Addressed: SS5H1d, ISTE1, ISTE2, ISTE4, ISTE6, ISTE7

Essential Question: How do I code the Sphero to take the route from the home country to Ellis Island?

1. Now that students have had time to practice coding the Sphero, they will simulate the voyage that their featured immigrant group in their Ellis Island Kiosk took to come to America (through Ellis Island).

2. Instruct students to use a large piece of chart paper to draw a map. Students will use the map found on the Library of Congress website. Groups only need to include Europe (label European country that the group's immigrant came from and the country they sailed from, if different), the Atlantic Ocean, and the Eastern half of the United States (labeling New York and Ellis Island).

3. After drawing the maps, instruct students to plot the route that the Spheros will take. Make sure that they consider whether the immigrant group left from their home country or if they had to travel to another country to board the ship to America? What country did they go to first?

4. Once students have drawn their maps, they may begin coding the emigration for their Spheros until class is over.

5. As students work, circulate the room and assess the accuracy of each group's map. Specifically, ensure that they have drawn it accurately and they have the countries labeled correctly. In addition, ensure that the students successfully code their Sphero to emigrate from the country of origin to the port in Europe (if necessary) and finally to Ellis Island in New York.