



Code Week Learning Scenario

TITLE: Science Expedition Video Game

RECOMMENDED GRADE: 5

TIME NEEDED: 5 50-minute periods

OBJECTIVES - Students will:

- make observations of a real-world science expedition;
- adapt an educational video game by applying concepts and citing evidence from research about a real-world science expedition.

MATERIALS - Students will need:

- access to computers/smartphones with Internet connection to conduct online research (<https://codeweek2019atcngl.weebly.com/>);
- access to computers with Internet connection to use Scratch (<https://scratch.mit.edu>);
- pens to fill in 3 worksheets, individually or in groups.

DIRECTIONS:

Day 1 – Entry event

- Explain the video game challenge to students, telling them that they have 5 days to research a real-world science expedition and create a working educational video game using Scratch.
- Provide an example. Have students analyse the video clip “Islands of the Bahamas Blue Hole” (<http://natgeotv.com/ca/diving-the-labyrinth/videos/islands-of-bahamas-blue-hole>). Ask students to explain what the scientists were trying to do. Also, ask them to notice details about the physical location of the expedition.
- Provide the video game based on the information. Explain that this is a side-scrolling game – a video game in which the gameplay action is viewed from a side-view camera angle and the characters move from one side of the screen to the other to meet a goal. Have students play and explore the online video game “Blue Hole Explorer” (<https://scratch.mit.edu/projects/135756342/>). Ask students what connections they noticed from the video clip and the game.
- Provide students a handful of video clips of scientific expeditions to watch.
- Distribute copies of “Scratch Science Expedition Video Game Brainstorm Guide” (Worksheet 1: <https://codeweek2019atcngl.weebly.com/brainstorm-guide.html>) to the students. Review the document as a class, highlighting how the students will use research from a science expedition to plan elements of their own video game: the main character, goal, enemies/obstacles, the setting.
- Allow students to begin exploring the video clips and get into teams according to their preferences.

Day 2 – Research/Planning

- Provide an example of how to fill out Worksheet 1. Revisit the Blue Hole example. Address student questions about this research and planning phase.
- The majority of Day 2 should be work time in groups for students to research their science expedition and begin planning their game, which should be based on the example provided. By using the Remix button, students can make changes to physical appearance of the main character, the game setting etc., while keeping the programming backbone in place. Students who complete the worksheet should begin coding. During this time, teacher assists teams/individuals as necessary.

Day 3 – Video game development/Coding

- The focus of Day 3 should be on coding the educational video game in Scratch.
- During this time, teacher should assist teams/individuals as necessary.

Days 4 and 5 – Sharing, reflecting and celebrating/Culminating event

- Each student reflects on their work (Worksheet 2: <https://codeweek2019atcngl.weebly.com/video-game-reflection.html>).
- The students share their science expedition and the video game with others in the class.
- The students play each other's video games and provide feedback to each other about the games they play (Worksheet 3: <https://codeweek2019atcngl.weebly.com/video-game-review.html>).
- The class celebrates the success of the activity.

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