Lesson 6: Programming with Rey and BB-8

60 minutes

Overview

In this **skill-building** lesson, students will use their newfound programming skills in more complicated ways to navigate a tricky course with *BB-8*.

Purpose

With transfer of knowledge in mind, this lesson gives students a new environment to practice the skills that they have been cultivating. *Star Wars* fans will jump for joy when they see these puzzles. Each puzzle in this series has been added to provide a deeper understanding of the basic concepts that they will be using throughout the rest of this course.

Standards

Full Course Alignment

CSTA K-12 Computer Science Standards (2017)

▶ **AP** - Algorithms & Programming

Agenda

Warm Up (15 minutes)
Introduction

Main Activity (30 minutes)
Programming with Rey and BB-8

Wrap Up (15 minutes)
Reflection

Objectives

Students will be able to:

- Recognize problems or "bugs" in a program and develop a plan to resolve the issues.
- Sequence commands in a logical order.

Preparation

- Play through the puzzles corresponding with this lesson to find any potential problem areas for your class.
- Review ***CS Fundamentals Main Activity Tips - Lesson Recommendations**.
- Make sure every student has a Reflection Journal.

Links

Heads Up! Please make a copy of any documents you plan to share with students.

For the teachers

- **CSF Course A Lesson Slides** - Slides (**Download**) ▾ Make a Copy

For the students

- **Feeling Faces - Emotion Image** - Resource ▾ Make a Copy
- **Pair Programming** - Student Video

Vocabulary

- **Algorithm** - A list of steps to finish a task.

- **Bug** - Part of a program that does not work correctly.
- **Debugging** - Finding and fixing problems in an algorithm or program.
- **Program** - An algorithm that has been coded into something that can be run by a machine.
- **Programming** - The art of creating a program.

Teaching Guide

Warm Up (15 minutes)

Introduction

Display: Show "Think back to last lesson…" slide

Ask the students how they felt about the last lesson.

- *Which puzzles were too hard or too easy?*
- *Which puzzles were frustrating or a lot of fun?*
- If they were to teach the lesson to a friend, which part of the lesson would they want to review?

Use these questions to form a brief review of programming and debugging. If you think the class could benefit from it, you can go over the vocabulary words and definitions from the last lesson.

Display: Show "Vocabulary" slide

Say:

- **Algorithm** - A list of steps to finish a task.
- **Bug** - Part of a program that does not work correctly.
- **Debugging** - Finding and fixing problems in an algorithm or program.
- **Program** - An algorithm that has been coded into something that can be run by a machine.
- **Programming** - The art of creating a program.

Display: Show "BB-8" slide

If you feel comfortable, also give a brief introduction to *BB-8* from *Star Wars*. Many students may already be familiar with the lovable robot, but the introduction will surely build excitement.

Main Activity (30 minutes)

Programming with Rey and BB-8

Display: Show "Decompose it!" slide

Remind students to try coding one block at a time. Make sure they press "Run" frequently in order to break the following challenges down into small steps.

Display: Show "Video: Programming with Rey and BB-8" slide

1 **Video: Programming with Rey and BB-8**

Display: Show “Level 2-8: Skill Building” slide

2-8 **Skill Building**

2 3 4 5 6 7 8

Display: Show “Level 9: Challenge” slide

9 **Challenge**

Display: Show “Level 10-12: Practice” slide

10-12 **Practice**

10 11 12

As we mentioned in the last lesson, we highly recommend viewing and using ***Pair Programming** - student video as a class. Pair programming stimulates a discussion that can answer questions, review basic concepts, and build confidence with the subject.

Wrap Up (15 minutes)

Reflection

Prompts:

Display: Show "Reflection” slide

- What was today’s lesson about?
- Draw a face that shows how you felt about today's lesson in the corner of your journal page.
- Draw a picture of how you guided *BB-8* through the maze today and add a list of the commands that you used.

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