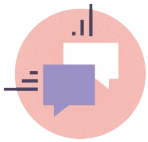
Back to sumo code

Robotics



OVERVIEW

In this lesson, students use their new programming techniques to upgrade their robots and have another sumo battle.

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OBJECTIVES

Students will be able to

- Implement event handlers and loops
- Iterate on robot design

AGENDA

Length: 45 minutes

1. Review - Review what students know about coding the EV3 robots.
2. Explain - Have a group discussion about how the code the event handlers and loops can make their robots better sumo bots.
3. Engage -Students program their sumo bots using the new concepts.

VOCAB

Iterate - a procedure in which repetition of a sequence of operations yields results successively closer to a desired result

MATERIALS

- Sumo worksheet
- EV3 robots
- Computer

REVIEW

Length: 10 minutes

Review what students know about coding the EV3 robots.

Teacher Actions	Student Actions
1 Start by asking students questions to review concepts from previous lessons. 1. What is an event handler? ◦ An event handler is code that runs after a specific event or input (such as a sensor being activated). 2. What does a loop do? ◦ A loop repeats a section of code. 3. Which sensor is used to measure distance? ◦ The ultrasonic sensor measures distances.	1 Students raise their hands to provide answers to these questions.

EXPLAIN

Length: 10 minutes

Have a group discussion about how the code the event handlers and loops can make their robots better sumo bots.

Teacher Actions	Student Actions
1 Explain that now when the sumo competition starts, the robots will be faced a way from each other.	
2 Guided Discussion: How can you use these new concepts to make a better sumo bot? What are the steps of the program? • Target: The simplest version of the sumo robot program is: 1. Spin around in a circle forever. 2. Wait for the ultrasonic sensor to measure an object closer than 18 inches. 3. Move toward that object to ram it. 4. Repeat.	2 Students raise their hands to provide answers.

ENGAGE

Length: 25 minutes

Students program their sumo bots using the new concepts.

Teacher Actions	Student Actions
1 Tell students that now it is time for them to work on the code for their sumo bots. The new code should include loops and event handlers.	1 Students work on creating new sumo programs for their robots.
2 Remind students that this is an iterative process. This means that students should code, test their code, and then try to improve on it.	
3 Once students have the basic code working, give the students [coding worksheet] [worksheet1].	3 Students use the worksheet to develop code that goes beyond the basic programming.