

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

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Students will be able to

- Implement event handlers and loops
- Iterate on robot design



### AGENDA

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**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

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



### MATERIALS

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- [Sumo worksheet](#)
- EV3 robots
- Computer



# REVIEW



Length: 10 minutes

Review what students know about coding the EV3 robots.

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



# 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
<div>1</div> <p>Explain that now when the sumo competition starts, the robots will be faced a way from each other.</p>	
<div>2</div> <p>Guided Discussion: How can you use these new concepts to make a better sumo bot? What are the steps of the program?</p> <ul style="list-style-type: none"><li>Target: The simplest version of the sumo robot program is:<ol style="list-style-type: none"><li>Spin around in a circle forever.</li><li>Wait for the ultrasonic sensor to measure an object closer than 18 inches.</li><li>Move toward that object to ram it.</li><li>Repeat.</li></ol></li></ul>	<div>2</div> <p>Students raise their hands to provide answers.</p>



# ENGAGE



Length: 25 minutes

Students program their sumo bots using the new concepts.

Teacher Actions	Student Actions
<div>1</div> <p>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.</p>	<div>1</div> <p>Students work on creating new sumo programs for their robots.</p>
<div>2</div> <p>Remind students that this is an iterative process. This means that students should code, test their code, and then try to improve on it.</p>	
<div>3</div> <p>Once students have the basic code working, give the students <a href="#">coding worksheet</a>.</p>	<div>3</div> <p>Students use the worksheet to develop code that goes beyond the basic programming.</p>