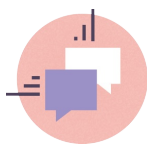
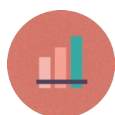


Coding arguments  
Unplugged



## OVERVIEW

Introduce arguments by having kids do a very repetitive task.



### OBJECTIVES

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1. Students will be able to explain the advantage of using arguments
2. Students will be able to call functions with an argument



### AGENDA

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**Length: 45 minutes**

1. Warm-up - Large pixel bot grid
2. Arguments Analogies - Explore arguments using golf swing and drill bit analogies.
3. Pixel bot challenge - Solve pixel bot challenges with arguments



### VOCAB

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Argument - Specific value supplied to a function call



### MATERIALS

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1. Lesson 10 | Warm-up worksheet
2. Lesson 10 | Worksheet 1

3. Lesson 10 | Worksheet 2
4. Laptops/Computers
5. Scratch paper grids
6. Small turtle cutout for each student
7. Magnetic turtle
8. Scratch paper grids
9. Pencils
10. Whiteboard



## WARM-UP



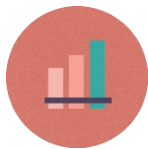
Length: 10 minutes

Students solve a puzzle in a large pixelbot grid.

Prep:

- Draw the Pixel Bot image from Lesson 10 | Warm-up worksheet on the whiteboard
- Distribute Lesson 10 | Warm-up worksheet

Teacher Actions	Student Actions
<p><b>1</b> Individual work: Ask students to write code to create the image from Lesson 10   Warm-up worksheet. Remind students that this exercise is using the icon language that they learned in Lesson 1.</p>	<p><b>1</b> Students individually fill out the Lesson 10   Warm-up worksheet</p>
<p><b>2</b> Randomly call on one student at a time to provide each next line of code.</p>	<p><b>2</b> If called on, students provide the next line of code.</p>
<p><b>3</b> Discuss what made this particular picture difficult or frustrating to code?</p> <div>Possible answer: It required a lot of code because of the size of the grid.</div>	<p><b>3</b> Students raise their hands to provide an answer.</p>



# GOLF SWING AND DRILL BITS



Length: 20 minutes

Explore golf swing and drill bit analogies that help students arrive at concept of parameters/arguments.

Prep: Distribute Lesson 10 | Worksheet 1

Teacher Actions	Student Actions
<div>1</div> <p>Model a golf swing for students. Show how the same golf swing is used for different clubs. Show the Lesson 10   Worksheet 1 golf diagram on the board and walk students through it.</p>	
<div>2</div> <p>Model using a drill for students. Show how the same drill motion is used for different drill bits. Show the Lesson 10   Worksheet 1 drill bit diagram on the board and walk students through it.</p>	

<p><b>3</b> Point students' attention to Lesson 10   Worksheet 1. Ask students to find what is similar about the two situations depicted.</p>	<p><b>3</b> Students look at Lesson 10   Worksheet 1</p>
<p><b>4</b> Individual work: Ask students to write down an answer.</p>	<p><b>4</b> Students individually write down their answers on the worksheet.</p>
<p><b>5</b> With a partner, students discuss their findings.</p>	<p><b>5</b> Students get with a partner and discuss their answers.</p>
<p><b>6</b> As a whole class, discuss the similarities between the two situations.</p> <p>Answer: The process is exactly the same (the golf swing never changes; the drill and the drill motion never change), but we can customize the output by changing the inputs (golf club, drill bit).</p>	<p><b>6</b> Students raise their hands to offer answers.</p>



# ARGUMENTS



Length: 5 minutes

Explain how to use arguments through observation.

Prep: None

Teacher Actions	Student Actions
<div>1</div> <p>Point students back to the problem on the whiteboard from Lesson 1   Warm-up worksheet.</p>	
<div>2</div> <p>Tell students that the elements can use an argument. An argument is extra information to customize the output of a function. The argument goes into the space to the right of the element</p> <div>Example: → 5</div>	
<div>3</div> <p>Ask students what they think the argument will do in</p>	<div>3</div> <p>Students raise their hand to provide an answer.</p>



<p>the case of the arrows?</p> <p>Answer: The number controls how many spaces to move in that direction.</p>	
<p><b>6</b> Ask students how adding a number next to the arrow icon relates to changing clubs in the golf swing?</p> <p>Answer: In both examples, the action is the same (swing the golf club, paint the square) but the input can be changed to customize the output.</p>	<p><b>6</b> Students raise their hand to provide an answer.</p>
<p><b>7</b> Solve the warm up problem while narrating the steps out loud.</p>	<p><b>7</b> Students observe as the teacher demonstrates how to solve the problem using arguments.</p>



# CODING WITH ARGUMENTS



Length: 10 minutes

Students use arguments to solve coding challenges.

Prep:

- Distribute Lesson 10 | Worksheet 2

Teacher Actions	Student Actions
<div>1</div> <div>Individual work: Students work on the problems on Lesson 10   Worksheet 2. Remind students to use arguments to solve the problems more efficiently.</div>	<div>1</div> <div>Students individually fill in their worksheet.</div>