

Lesson Breakdown- AP Java

Instructional Days	1 to 2	Lesson Title	1.9 For Loops
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Standards Addressed	CR1: Teaches students to design and implement computer-based solutions to problems. CR6: Includes a structured-lab component composed of a minimum of 20 hours of hands-on lab experiences.
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Description	<p>This lesson teaches students how to use for loops using our Karel Program. The for loop allows you to repeat a specific part of code a fixed number of times.</p> <p>We write for loops like this:</p> <pre>for(int i = 0; i < <u>4</u> ; i++) { turn left; move; turn right; move; }</pre>
Prior Knowledge	In the past lessons, students have been working on their programming style, or how their programs look. We want programs to be easy to read, and for loops simplify the code needed.
Planning Notes	<ul style="list-style-type: none">• Review the slides for the lesson before the start of class• Familiarize yourself with the key terms below.
Teaching Learning Strategies	<ul style="list-style-type: none">• Open class with the beginning of class discussion questions below. Give students time to brainstorm. Have them write down answers and share them with the class.• Students learn best by doing. Make sure students have enough at bats to get it right. Allot at least 30 minutes for students to work individually or in pairs through the course.• If there is time at the end of class, have students reflect and discuss their responses to the end of class discussion questions.
Activities	<ul style="list-style-type: none">• 1.9.1 For Loops• 1.9.2 For Loops• 1.9.3 Repeated Move• 1.9.4 Put Down Tennis Balls• 1.9.5 Marathon Karel• 1.9.6 Take 'em All• 1.9.7 Dizzy Karel

	<ul style="list-style-type: none"> • 1.9.8 For Loop Square • 1.9.9 Lots of Hurdles
Discussion Questions	<ul style="list-style-type: none"> • Beginning of class: <ul style="list-style-type: none"> ○ What have we been working on in our course lately? ○ How does this make us better programmers? • End of class: <ul style="list-style-type: none"> ○ When do we use for loops? ○ Why do for loops improve the style of our code?

Handouts & Resources	Student Teacher	CodeHS Exercises	1.9.5 Marathon Karel 1.9.6 Take 'em All 1.9.7 Dizzy Karel 1.9.8 For Loop Square 1.9.9 Lots of Hurdles
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Vocabulary	For Loops- allows you to repeat code a fixed number of times.
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Modifications

Advanced Students	Special Edu Students	Struggling Readers/English Language Learners
	<ul style="list-style-type: none"> • Pair programming with another student • Print out video slides for students to reference 	<ul style="list-style-type: none"> • Print out video slides and have students use dictionary to translate unknown vocabulary • Pair programming with another student