

Junior Coder

Lesson plan - 3

Looping Racetrack

Pattern recognition and looping

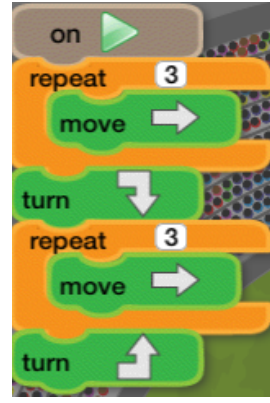
Lesson # 3 - Pattern recognition and loop

Time:	60-75 mins	
Objective:	Understanding and recognizing repetitive patterns.	
Learning	<p>What is a Loop?</p> <p>In computer programming the term loop means set of instructions that is repeated over and over again.</p>	
Computer Vocabulary:	<p>Pattern recognition - The process of identifying similarities between things. This is also called pattern matching. When patterns are recognized in a program you can use loops to repeat them instead of specifying them again and again.</p>	
Materials required:	<p>iPad with Junior Coder downloaded. Crayons (2 or 3), pencil and activity sheet for unplugged activity.</p>	
Common Core compliance:	CCSS.MATH.PRACTICE.MP1	<i>Make sense of problems and persevere in solving them.</i>
	CCSS.MATH.PRACTICE.MP5	<i>Use appropriate tools strategically.</i>
	CCSS.MATH.PRACTICE.MP6	<i>Attend to precision.</i>
	CCSS.MATH.PRACTICE.MP8	<i>Look for and express regularity in repeated reasoning.</i>
Activity:	<p>Solve levels 1 to 5 in Looping Racetrack. (Students can work in pair.)</p> <p>Step 1 - Understand the problem. Step 2 - Recognize the repetitive patterns. Step 3 - Use looping code blocks for repeating patterns. Step 4 - Check your work.</p>	
Creativity:	<p>Click on "Create your own" button. Students can create race tracks and challenge each other to a programming racing game. Drag the tracks to any grid. Use different kinds of grid to layout the racing track using repetitive patterns. Add a car at the start of the track (one block before the first track). Add a flag as the finish line (one block after the end of the track). Save your game and challenge your partner to program it.</p>	
Discussion:	<p>As a group discuss the following questions:</p> <ol style="list-style-type: none"> 1. What is a loop? Give everyday examples of looping activity. 2. Let the students come up with the steps for making pancakes. Discuss which steps get repeated. 	

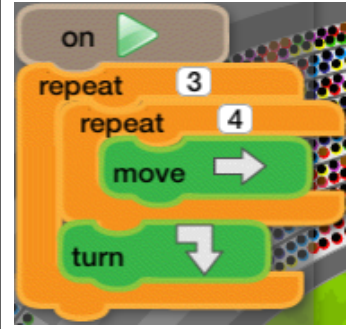
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Solutions:

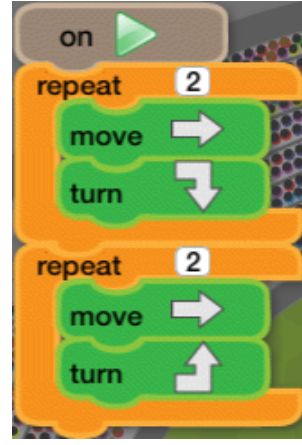
Level 1



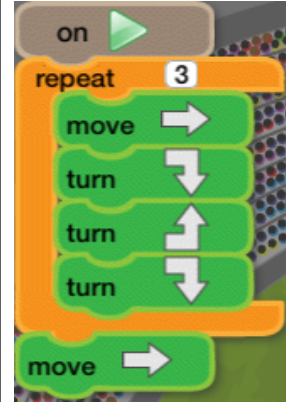
Level 2



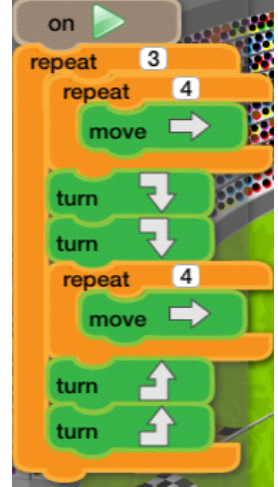
Level 3



Level 4



Level 5



Lesson # 3 - Pattern recognition and loop

Unplugged Activity	Hand out the activity sheet for Lesson #3. Let students follow the instruction and recognize patterns.
Unplugged activity discussion	What are patterns? Discuss how patterns are used in music and dance.

Activity# 1

Find the below pattern 5 times. (Patterns can be found in horizontal, vertical or diagonal lines)



Activity #2

Use 2 or 3 different crayons to create a pattern in one row.
Repeat the pattern in every row to complete the quilt.
You can also use multiple colors in the same grid.

