

Junior Coder

Lesson plan - 4

Artist Corner

More on patterns and looping

Lesson # 4 - More Looping and sequencing

Time:	90 -120 mins	
Objective:	Understanding and recognizing repetitive patterns.	
Learning	How are loops programmed? Computer instructions are either repeated a specific number of times or until a condition is met.	
Computer Vocabulary:	<p>Looping with counter - When a computer is instructed to repeat a command, you can specify the number of times the command will be repeated. This number is called loop counter.</p> <p>Looping with condition - Sometimes instead of repeating a fixed number of times you can also specify a condition when the repetition should stop. So the computer will keep repeating the command till the condition is true.</p> <p>Nested Loop - Sometimes loops are created inside other loops, this is called nested loops.</p>	
Materials required:	iPad with Junior Coder downloaded. Crayons, pencil and activity sheet for unplugged activity.	
Common Core compliance:	CCSS.MATH.PRACTICE.MP1	<i>Make sense of problems and persevere in solving them.</i>
	CCSS.MATH.PRACTICE.MP4	<i>Model with mathematics.</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:	Solve levels 1 to 5 in Artist Corner. (Students can work in pairs.) Step 1 - Understand the problem. Step 2 - Recognize the repetitive patterns. Step 3 - Use loop blocks where possible. Step 4 - Check your work.	
Creativity:	Click on "Create your own" button. Students can create grid art or graph art. Choose a color from the panel and draw along the grid lines. You can draw only along grid lines or diagonal lines. No other lines are allowed. Try to draw without overlapping lines and without lifting your finger. The erase button can be used to erase the lines.	

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Discussion:

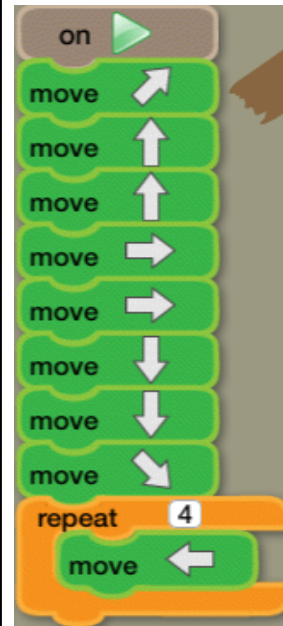
As a group discuss the activity of making pancakes again. Let students write down the steps of making pancakes again or use the steps from the previous lesson. Modify the steps to use repetition with counter and then repetition with condition.
Repetition with counter - Make 5 pancakes.
Repetition with condition - Make pancakes till there is no more batter.

Solutions:

Level 1



Level 2

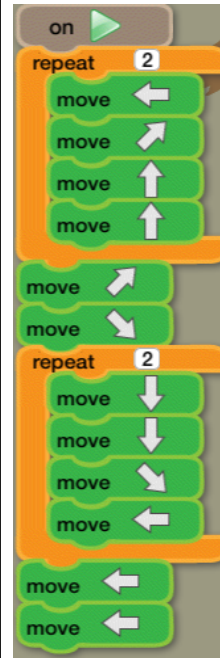


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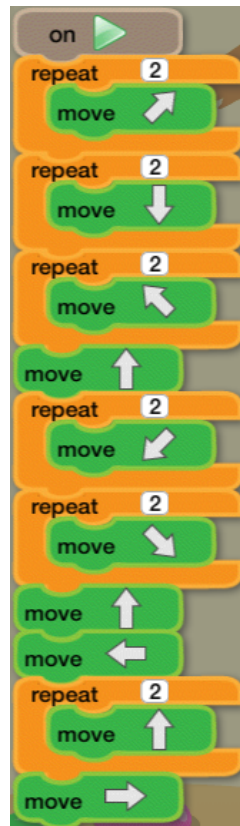
Level 3



Level 4



Level 5

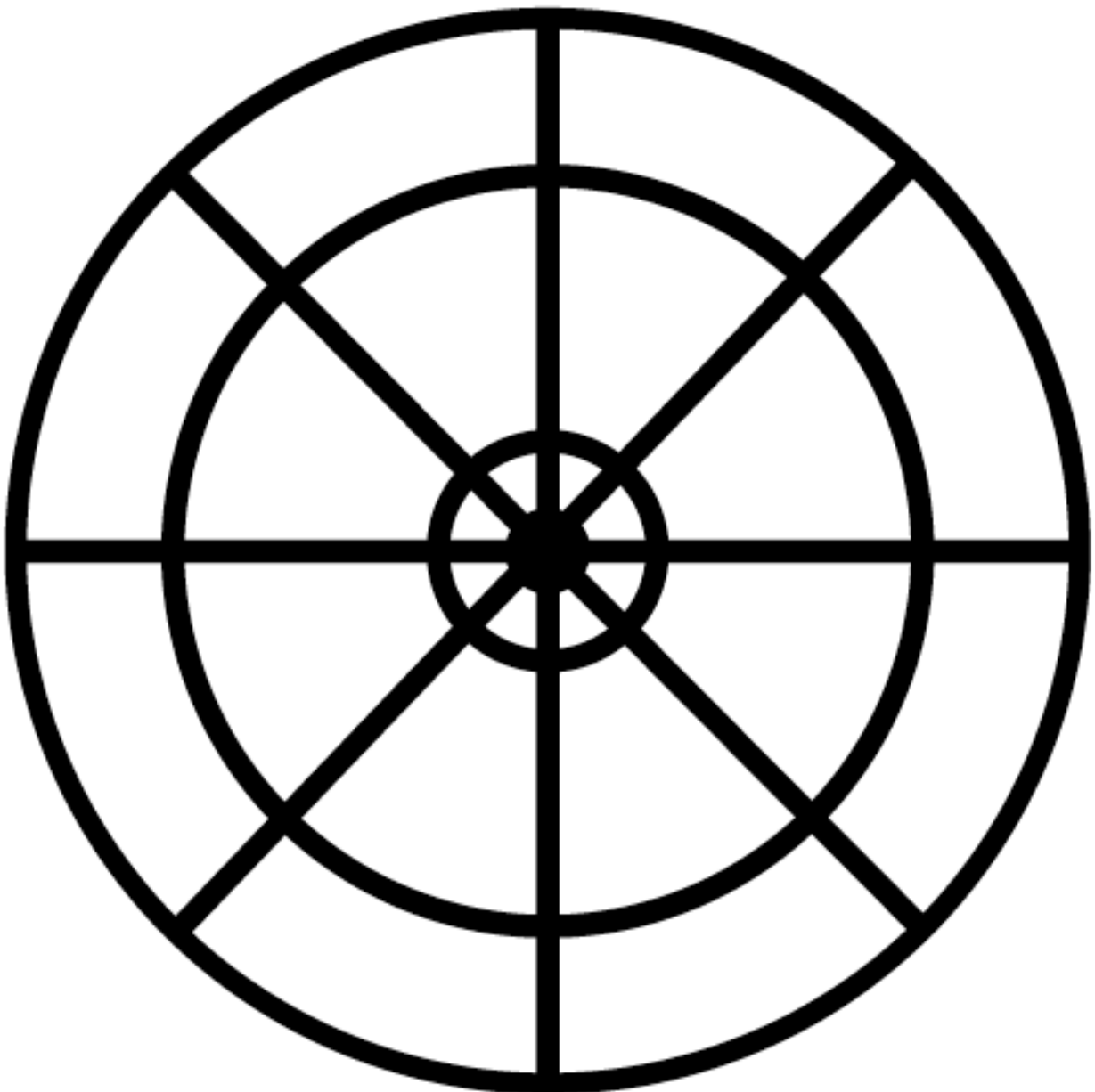


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Unplugged Activity	Hand out the activity sheet for Lesson #4. Students should follow the instructions on the sheet.
Unplugged activity discussion	How many colors did the students use to color the sheet.

Activity# 1

Color the below picture with as few colors as possible. No two sections which share a border can have the same color. Corner sharing is allowed.



Activity #2

Tic Tac Toe is a game of pattern recognition. Here you can play a variation of tic tac toe to recognize a pattern of 3 consecutive dots of same color.

Each player takes turn to color a dot. If a player has 3 dots of the same color either in a line or in an arc, then the player wins.

