Junior Coder
Lesson plan - 1

Algo Jungle

Basic computational thinking
and algorithm

Lesson # 1 - Algorithmic Thinking

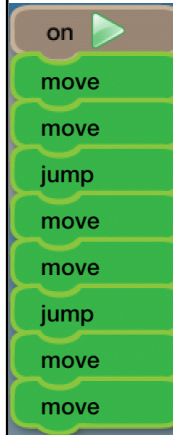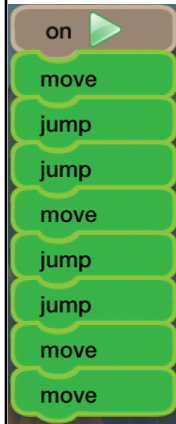|	
Time:	60-75 mins
Objective:	Analyze a problem and break up bigger task to smaller units.
Learning	What is Programming ? Programming is a way to instruct the computer to do certain job or solve a specific problem. Instructions are written such that the computer can understand them.
Computer Vocabulary:	Algorithm - specific set of instruction given to the computer to complete a task.
Materials required:	iPad with Junior Coder downloaded. Pen and paper for unplugged activity.
Common Core compliance:	CCSS.MATH.PRACTICE.MP1	*Make sense of problems and persevere in solving them.*
	CCSS.MATH.PRACTICE.MP6	*Attend to precision.*
Activity:	Solve the levels 1 to 5 in Algo Jungle. (Students can work in pairs.) Step 1 - Understand the problem. Step 2 - Break up the problem into smaller steps. Step 3 - Make a plan. Step 4 - Solve each step. Step 5 - Check your work.
Creativity:	Click on "Create your own" button. Students can challenge each other by creating their own puzzles and handing over the ipad to their partner (if pair programming) or to the next student.
Discussion:	As a group discuss the following questions: 1. What is computer programming all about? 2. Are computers smart? 3. Are computers fast? 4. Do computers follow instructions?

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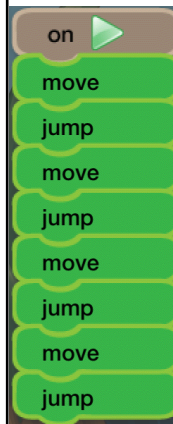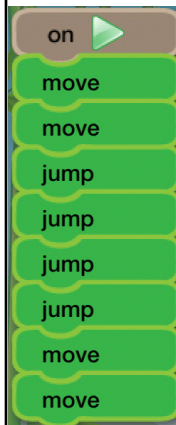Solutions:

Level 1

on ▶
- move
- move
- jump
- move
- move
- move
- move
- move

Level 2

on ▶
- move
- move
- jump
- move
- move
- jump
- move
- move

Level 3

on ▶
- move
- jump
- jump
- move
- jump
- jump
- move
- move

Level 4

on ▶
- move
- jump
- move
- jump
- move
- jump
- move
- jump

Level 5

on ▶
- move
- move
- jump
- jump
- jump
- jump
- move
- move

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Unplugged Activity	**Programmer and the sneaky computer** Divide the class into 2 groups. Let each group choose a simple activity for which they can write detailed instructions. Examples of activity are - a) getting a book from the bookshelf b) walking to the board c) walking and saying hello to a friend. Keep the activity simple so it can be done in no more than 10 steps. Decide on a spot where the activity will start and the starting position of the volunteer (standing facing the groups or sitting). Only one volunteer will execute the instructions. Let each group write the steps on a piece of paper. Steps should include detailed instructions. Example - 1) Walk 5 steps forward 2) Turn right 3) Walk 3 steps. 4) Get the book from the top of the shelf. 5) Turn around 6) Walk 3 steps 7) Turn left 8) Walk 5 steps 9) Turn around Each group writes the steps for their activity. Choose one group and make them the programmer and let the other group be the computer. A volunteer from programmer group can read the steps they have written while the volunteer from the computer group will follow the instructions. See if they can complete their task. Computer group will have to follow instructions exactly as directed, they cannot do anything that is not told to them. Let the programmer group correct the instructions till they can get the other team to accomplish the job. Now let the other group be the programmer and follow the same.
Unplugged activity discussion	What was the challenging part of the game? The computer doesn't think, it can just execute the instruction that are told to it. The job of a computer programmer is to get the computer to solve a problem. They need to think through every situation and have proper instructions. Computer programmer sometimes makes mistakes. They test their programs and correct the mistakes.