

## Lesson 2 - Intro to the Agent II (Simple Tasks)

### Objectives

I can understand the concept of decomposition by breaking problems down into codable solutions for the Agent.

I can begin to see the importance of sequencing so that the agent can complete its tasks.

### Standards

- 4-6.CT.4 Decompose a problem into smaller named tasks, some of which can themselves be decomposed into smaller steps.
- 4-6.CT.5 Identify and name a task within a problem that gets performed multiple times while solving that problem, but with slightly different concrete details each time.
- 4-6.CT.8 Develop algorithms or programs that use repetition and conditionals for creative expression or to solve a problem.

### Gradual Release of Responsibility (I do/We do/You do)

#### I Do

Lead-in: Explain to students that they have come to the Animal Research Center to learn more about different animals and the habitats (biomes) they live in. Before they can venture into the field to visit the animals, they must learn about the basic tools they have at their disposal.

#### You Do: Coding Activities

Activity 1: The students start at the front gates of the building (ARC). Students learn that before they may enter the facility that they need to pass a basic fitness test. They will see a gold block appear; so they'll need to move the mouse in Minecraft to look at the gold block. This will repeat 3 or 4 times until the system confirms their identity and opens the gate in front of them, instructing them to continue the rest of the fitness test.

Activity 2: Past the gate, the students will have to navigate past a row of walls and into the facility itself. Inside the facility, the students will notice there is construction going on and will need to get past some construction materials. The students must make their way through the corridor to the maximum-security area at the end of the hall. During this

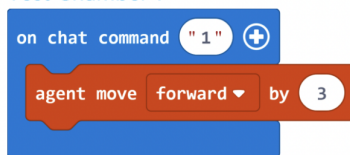
process they become more familiar with using the WASD keys to move forward, back, left and right. Along the way there are various obstacles the student must navigate around. [Hints like "Climb ladders by holding W", "Jump by pressing <spacebar>" or "Press A or D to walk Left or Right" will help guide new students who may get stuck.] At the end of the hall they must press a button to enter maximum-security area.

Activity 3: The students enter the science lab, where a researcher will explain that they'll be given a tool that will allow them to control their very own research Agent. They'll be instructed to press C to open the Code Builder (At the same time the "Press C to code" message will appear on their action bar. They'll also be instructed to hit the X in the top right corner of the device, or the <esc> button to close the coding interface) and look at Testing Chamber A (this is a platform where the Agent will appear).

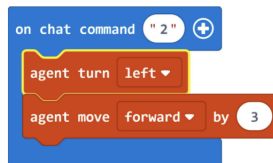
Activity 4: The students will be subjected to some challenges where they must move the Agent in different directions to reach a gold pressure plate ( Agent move and Agent turn). Once they complete all the tests the researcher will congratulate them and move them onto the next challenge.

Test Chamber 1

Test Chamber 1



Test Chamber 2



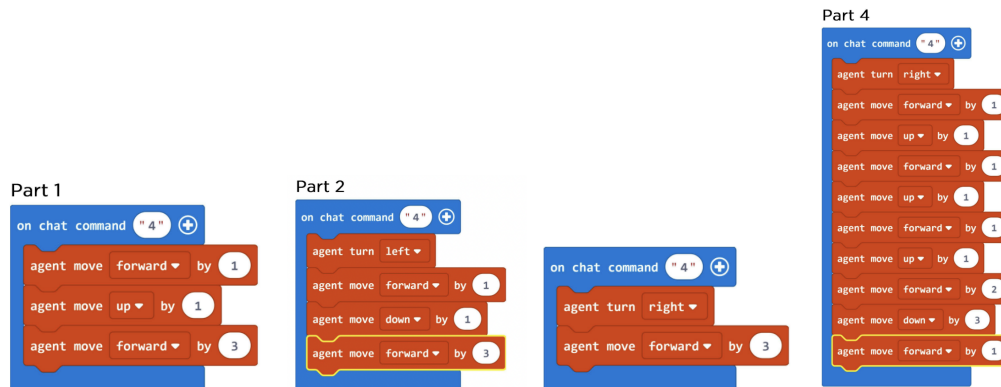
Test Chamber 3

Test Chamber 3:



Activity 5: The students are instructed to get their Agent to the gold pressure plate. Utilizing the On Chat Command block, Agent Move and Agent Turn blocks the student must navigate the obstacle using the commands from the drop-down menus in the command blocks. This is a multi-stage challenge with increasing difficulty that requires the Agent to move up and down. Once the challenge is successfully completed, the final room with the Bonus challenge will open.

#### Test Chamber 4



Bonus: After the student's complete activity 5, the student and the Agent gain access to the bonus challenge room. The researcher will congratulate and inform them they have learned what they need, to head out to the field, but there is an additional activity that they can try to complete. Using the commands learned so far, the student will have to cooperatively work with their Agent to complete the task. The student must code the Agent to reach a gold pressure plate again, but now they must get to their plate by traversing across a bridge. If the student falls off the bridge they will be teleported back to the beginning of the bridge.

#### Exit Ticket

1. How many steps of pseudo code did it take to solve the Bonus Activity?
2. What did 'learning the directions the Agent moves in' help you accomplish in the lesson?