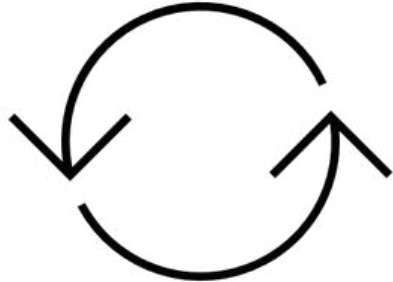
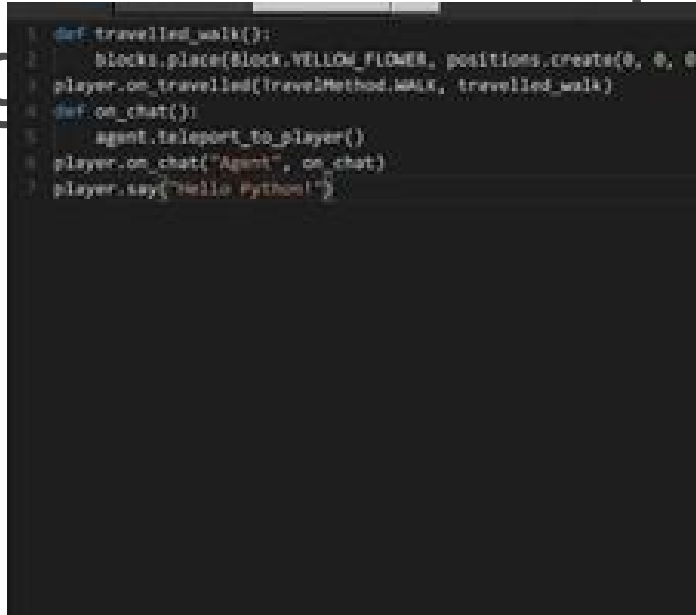


# WHAT WE WILL LEARN TODAY?

- I will learn and apply the coding concept of loops.
- I will create, test, and debug my Python code.
- I will embrace and demonstrate a coding mindset.

# IMPORTANT VOCABULARY

There are some important things for us to understand before we begin playing– let's review some concepts first!

Loops	Python	Syntax
<p>A loop repeats part of a code either continuously or for a certain number of times</p> 	<p>a text-based computer programming language</p> 	<p>a set of rules that are used to create the programming language structure</p> <p><code>player.say("hi")</code></p>

# GOAL FOR THE DAY



Welcome!

Today, you will be working on a top-secret project called the Agent. The Agent is a robot that can be controlled with code to complete a wide range of actions. You will code the Agent to complete different jobs around the house in this lesson.

You will use different commands to control the Agent: `agent move`, `agent place`, `agent collect all`, and `agent drop all`.

# CODING CONCEPTS

Loops	Nested Loops
<p>A loop repeats part of a code either continuously or for a certain number of times. Looping a part of code is efficient as it saves time from having to type out the same part of code many times. You will be using a <b>for</b> loop today to repeat part of a code, a certain number of times. Every loop is written with a colon at the end of the first line and then the code that should be repeated should be repeated is indented.</p> <p>When using multiple loops, they should each have a unique name for their variable. By default, the <b>for</b> loops are named i or index.</p>	<p>When coding, a loop can be placed inside a loop, which is called a <b>nested loop</b>. The number of nested loops can be more than two. When coding, nested loops are a great way to accomplish more complicated tasks.</p>

# SYNTAX FOR PYTHON

## Colon

:

A colon is a symbol used at the end of a command declaration. After the colon, the code precedes it is indented as it acts as a part of that command.

```
Name_list = [John, Mary, Chad, Isabella]
```

## Indentation

Indentation in Python are used when we want to declare that a piece of code belongs to the command above. To indent a piece of code, use the tab

```
for i in range(2):  
    button.  
agent.move(FORWARD, 1)
```



# WELCOME

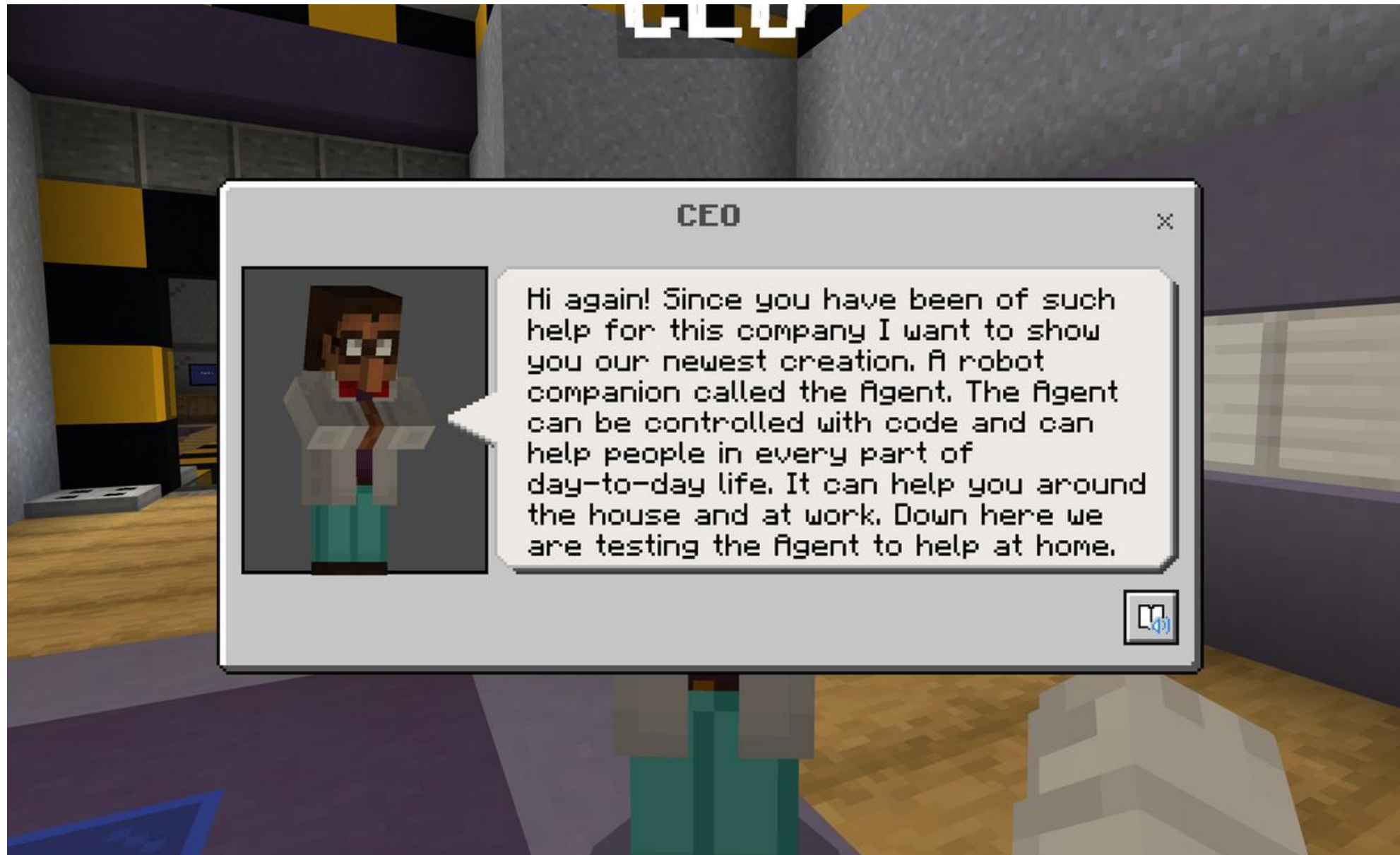


This is your spawn point, the location where you begin game play.

# TALK TO THE CEO



# TALK TO THE CEO



This is the pop-up screen we will see on our screen.

After you have read the message, click on the “X” in the top right corner to continue game play.



# THE AGENT



Pull the lever to have the Agent appear.

# TALK TO THE AGENT



This is the pop-up screen we will see on our screen.

After you have read the message, click on the "X" in the top right corner to continue game play.



# MOVE TO THE NEXT AREA



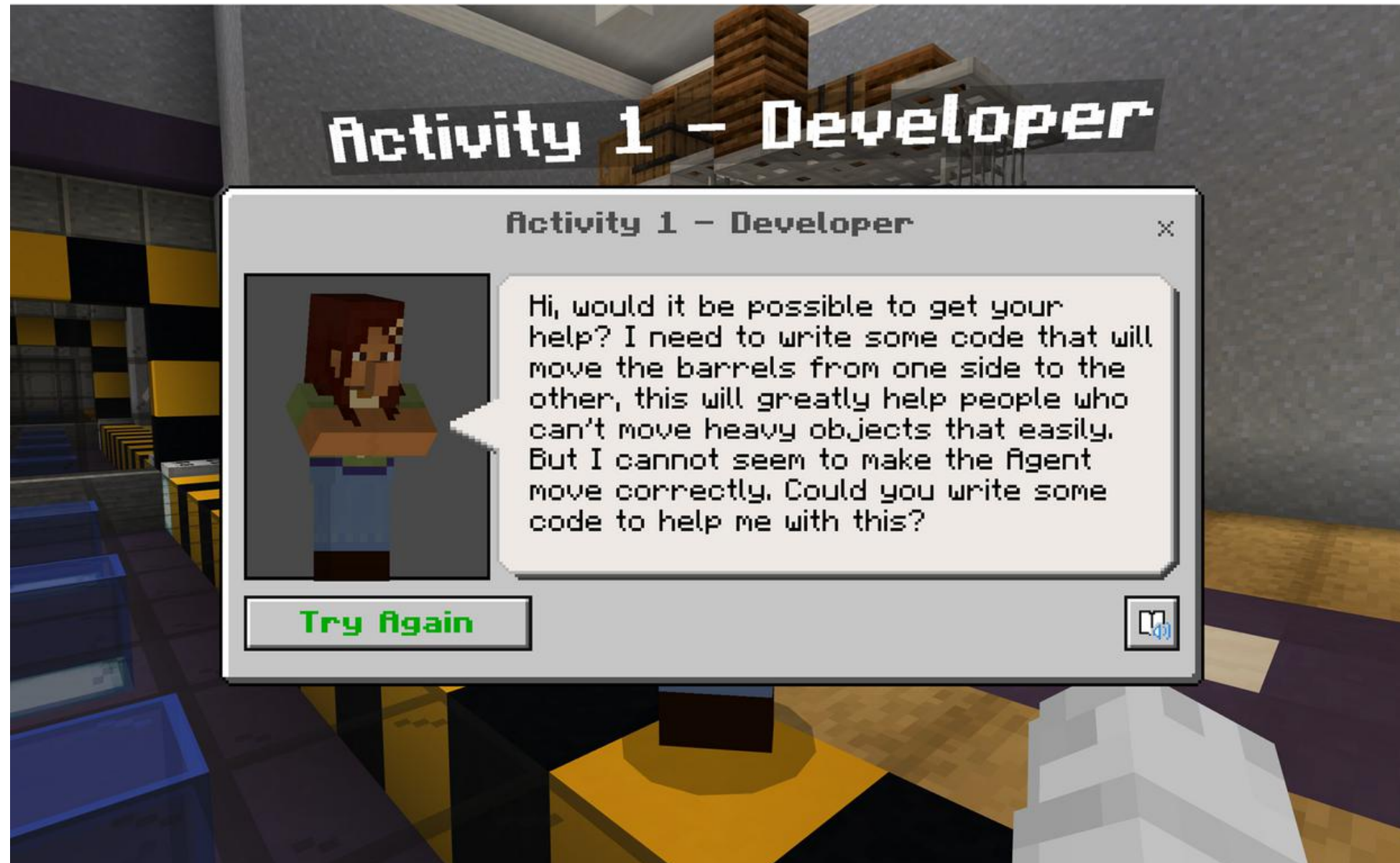
# ACTIVITY #1



Our first activity requires us to code the Agent to lift heavy objects around the house. This activity will be completed in 2 parts.



# TALK TO THE DEVELOPER



This is the pop-up screen we will see on our screen.

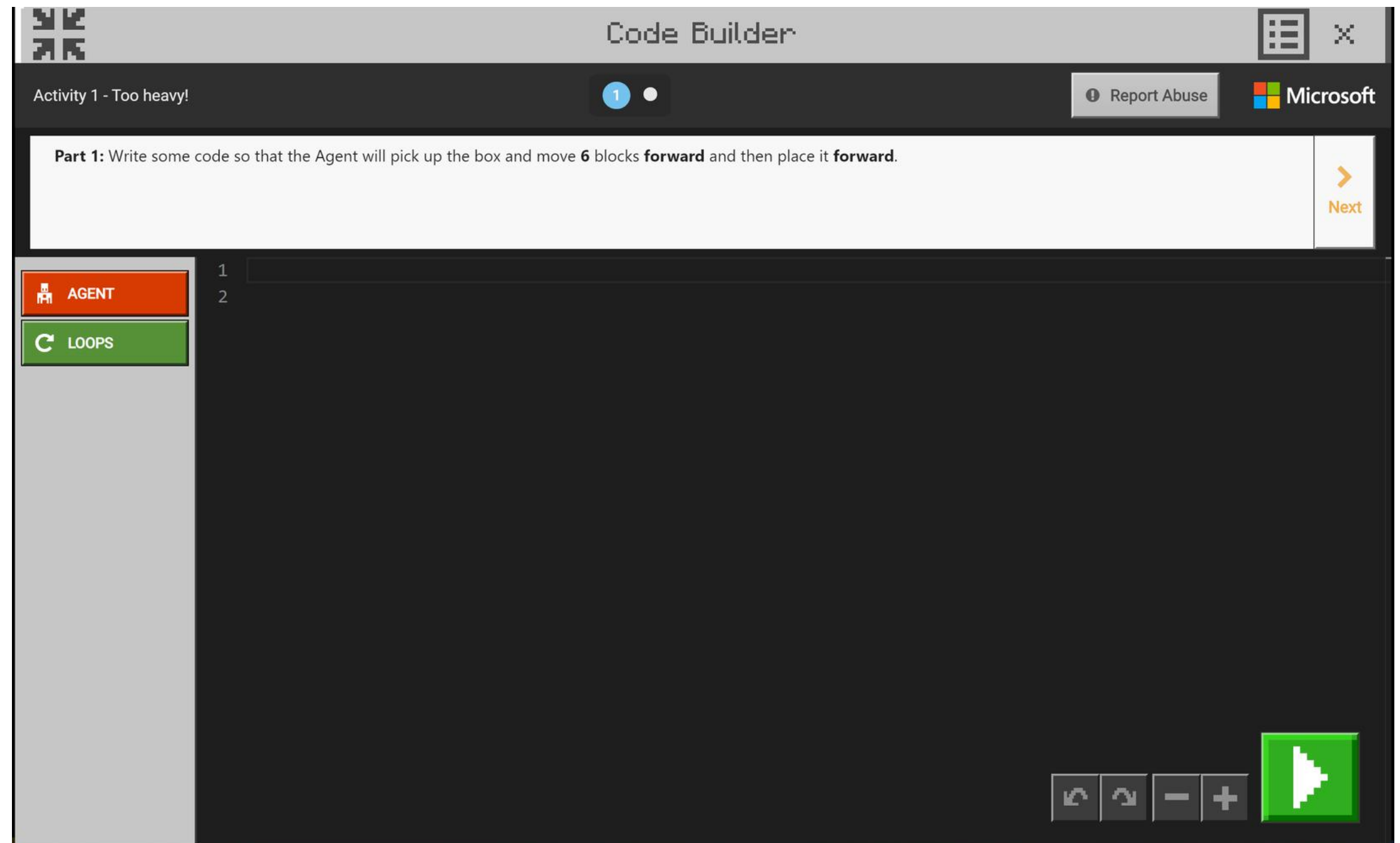
After you have read the message, click on the "X" in the top right corner to continue game play.

# ACTIVITY #1: PART 1

## Part 1

Code the Agent to collect the box and then place it in the marked area. When you run the code, the Agent should pick up the box, move forward, and place it.

NOTE: The Agent does not have to face the item to collect it.





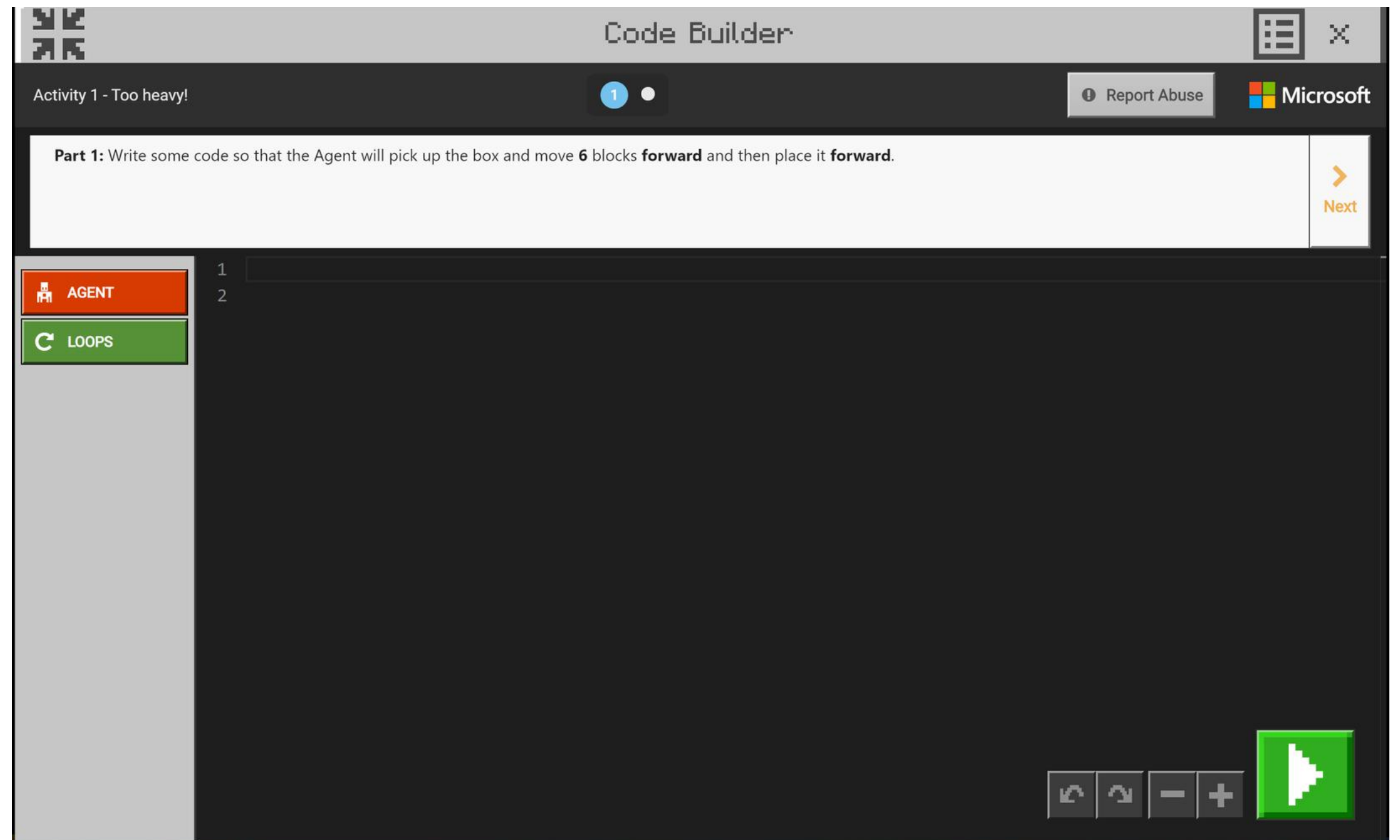
# TEST YOUR CODE



# ACTIVITY #1: PART 2

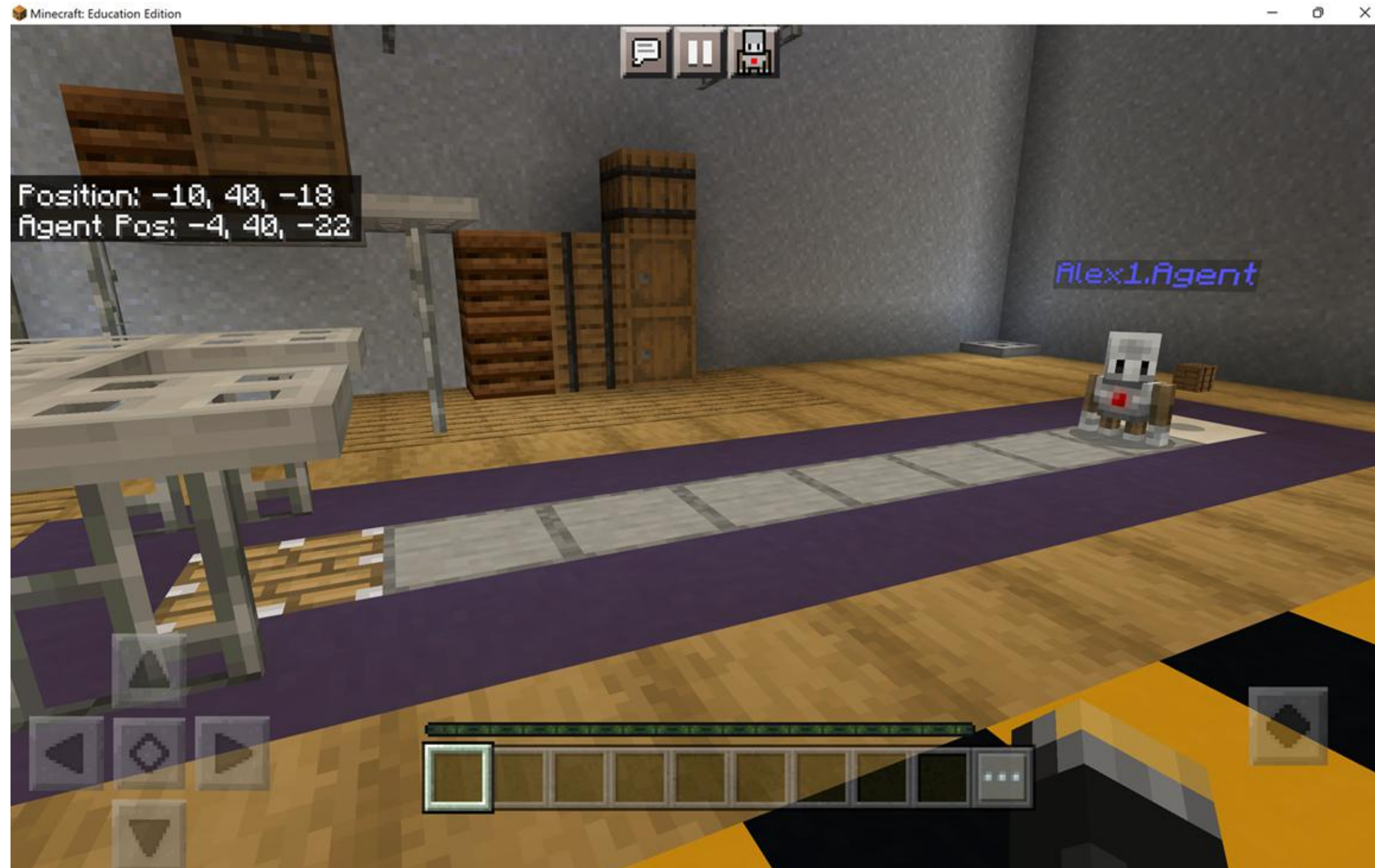
## Part 2

Now, the Agent must complete the same thing for multiple boxes. (HINT: Make sure the code you want repeated is indented.) When you run the code, the Agent will pick up and move four boxes that will then be stacked on top of each other individually.





# TEST YOUR CODE



# MOVE TO THE NEXT AREA



Continue on to the next area and begin Activity #2.

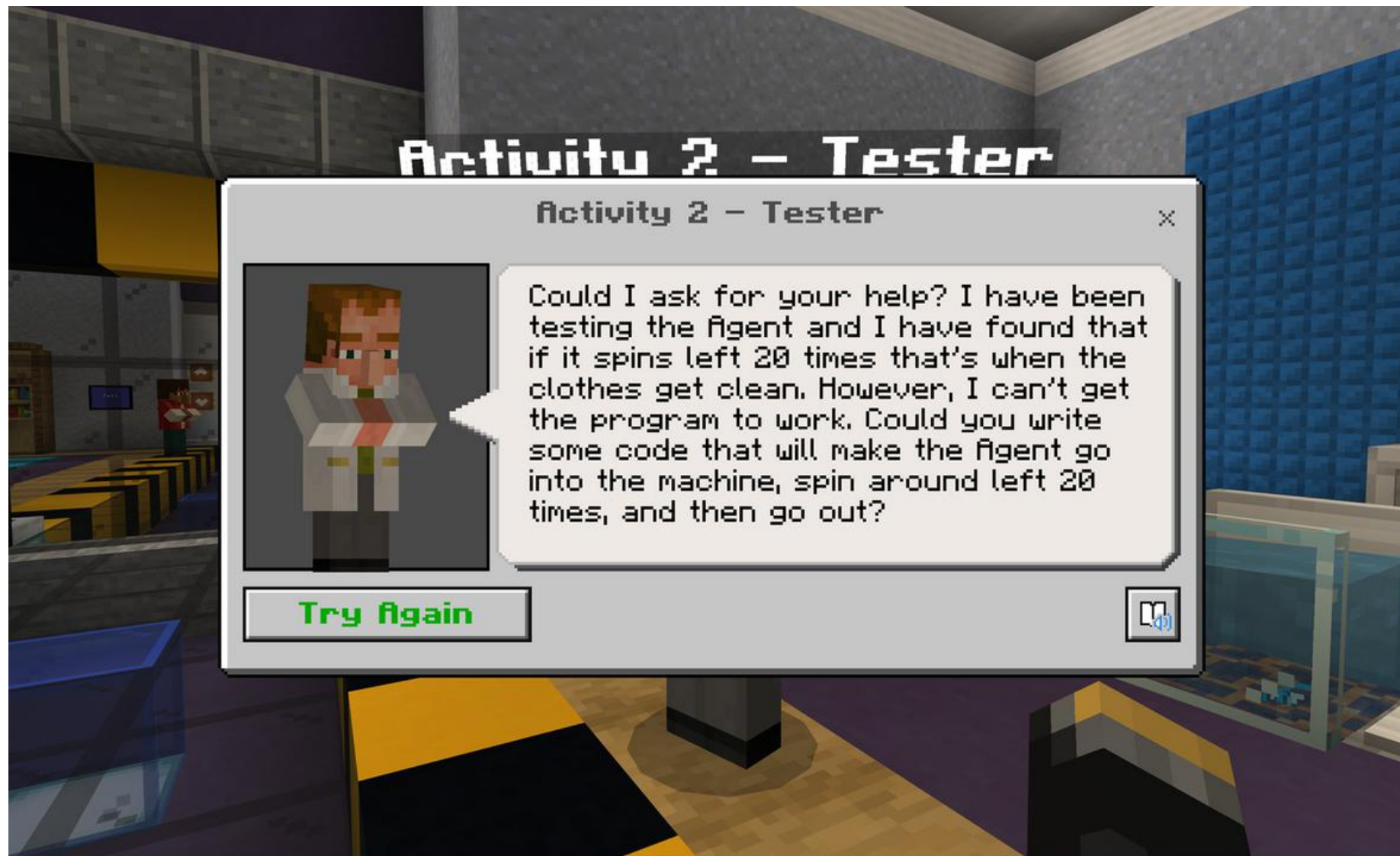


# ACTIVITY #2



Move towards the tester to find out about your next activity.

# TALK TO THE TESTER



This is the pop-up screen we will see on our screen.

After you have read the message, click on the "X" in the top right corner to continue game play.



# ACTIVITY #2: PART 1

## Part 1

Code the Agent to complete one load of laundry. When you run the code, the Agent will take the dirty laundry, go to the washing machine, wash it, go back out, and then place it in the clean area.

Code Builder

Activity 2 - Spin cycle.

Report Abuse Microsoft

Part 1: Write some code so that the Agent will pick up the dirty laundry, move **forward** into the machine, spin left **20** times and then get out of the machine to place the clean laundry on the other side of where the dirty laundry was.

Next

AGENT

LOOPS

```
1 # Replace the lines below with your code #
2 # loop number 2 set to 3 | Part 2
3 agent.collect_all()
4 agent.move(FORWARD, 7)
5 agent.drop_all(FORWARD)
6 # loop number 1 | Part 1
7 # make the Agent turn left 20 times | Part 1
8 # end of loop 1
9 # make the Agent collect all | Part 1
10 # make the Agent move back | Part 1
11 # make the Agent drop everything to the left | Part 1
12 # end of loop 2
```

# TEST YOUR CODE





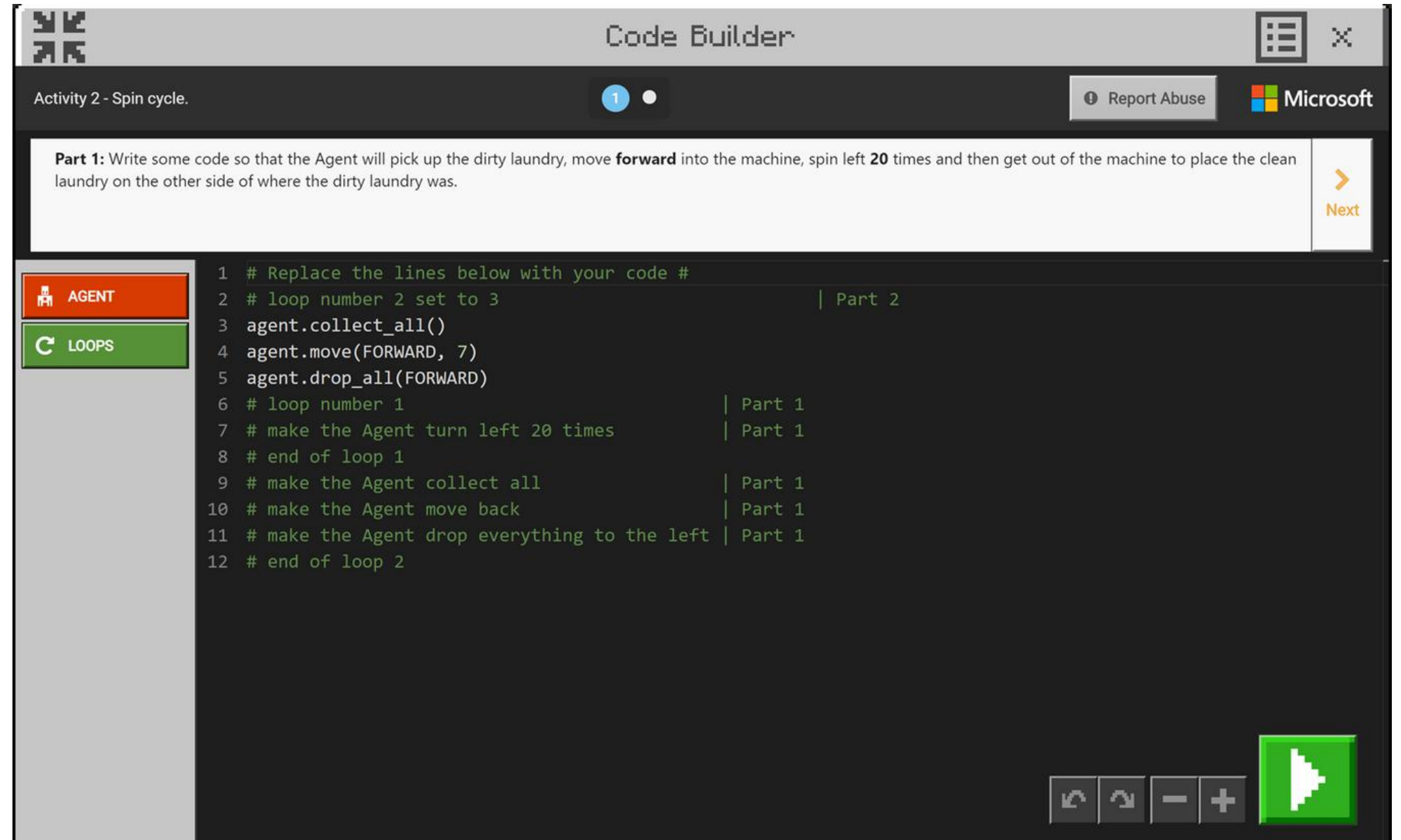
# ACTIVITY #2: PART 2

## Part 2

Now, the Agent needs to do the same thing, but for multiple loads of laundry.

(HINT: You can rename a loop to anything you want, but the name cannot be the same as another loop).

When you run your code, the Agent will complete 3 loads of dirty laundry.



```
1 # Replace the lines below with your code #
2 # loop number 2 set to 3 | Part 2
3 agent.collect_all()
4 agent.move(FORWARD, 7)
5 agent.drop_all(FORWARD)
6 # loop number 1 | Part 1
7 # make the Agent turn left 20 times | Part 1
8 # end of loop 1
9 # make the Agent collect all | Part 1
10 # make the Agent move back | Part 1
11 # make the Agent drop everything to the left | Part 1
12 # end of loop 2
```

# TEST YOUR CODE



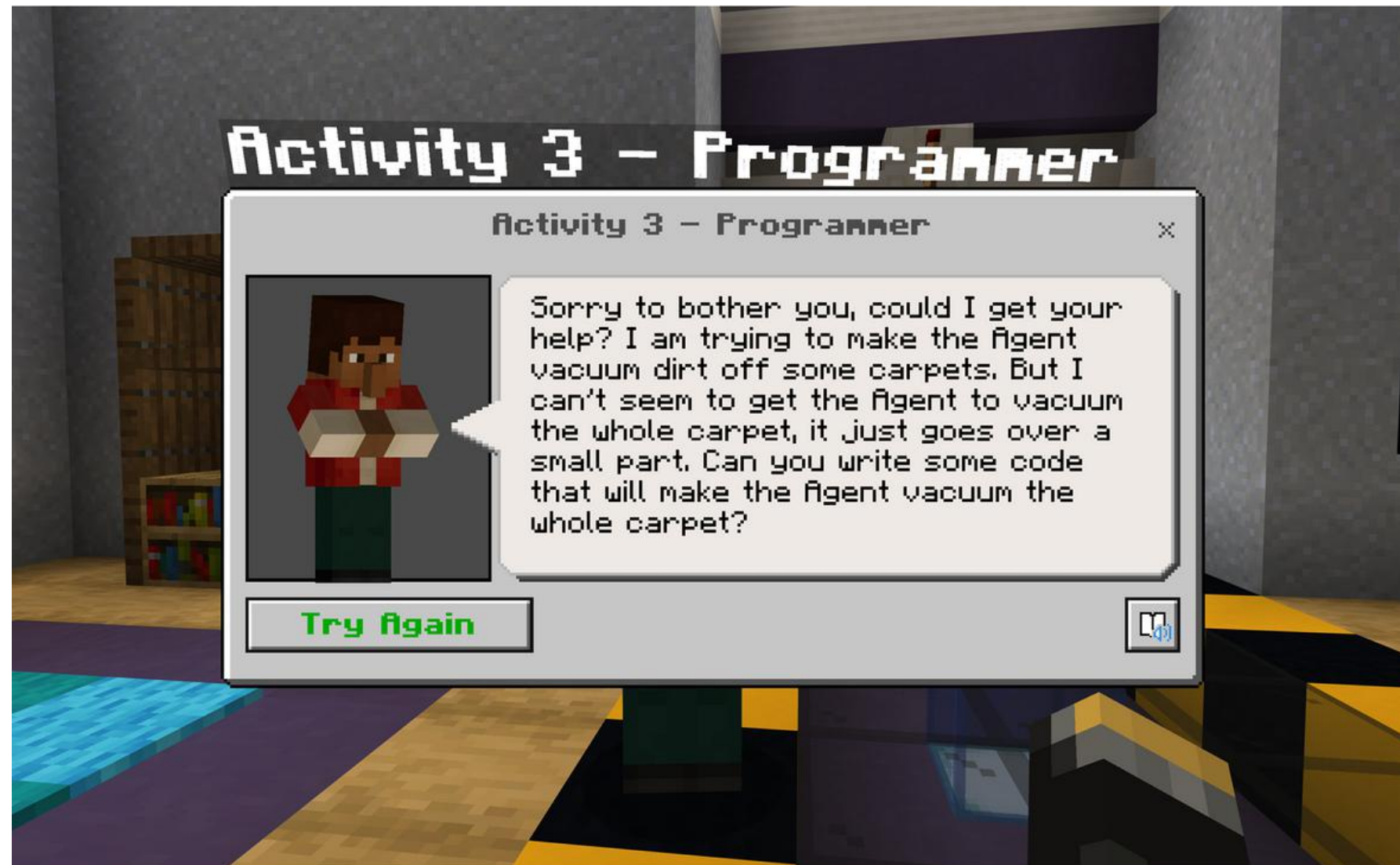


# ACTIVITY #3



Walk over to the next area and talk to the Programmer!

# TALK TO THE PROGRAMMER



This is the pop-up screen we will see on our screen.


After you have read the message, click on the "X" in the top right corner to continue game play.



# ACTIVITY #3: PART 1

## Part 1

Code the Agent to vacuum the smaller carpet. When you run the code, the Agent will move across the carpet and vacuum.

Code Builder

Activity 3 - Cleaning up. 1

Report Abuse Microsoft


Part 1: Write some code so that the Agent will go over every block of the small carpet and pick up the dirt.

Next

AGENT

LOOPS

```
1 # Replace the lines below with your code #
2 # loop number 3 | Part 2
3 # loop number 1 | Part 1
4 agent.collect_all()
5 agent.move(FORWARD, 1)
6 # end of loop 1
7 agent.move(RIGHT, 1)
8 # loop number 2 | Part 1
9 # make the Agent collect all | Part 1
10 # make the Agent move back | Part 1
11 # end of loop 2
12 # make the Agent move right | Part 2
13 # end of loop 3
14 # make the Agent drop all to the right | Part 2
```





# TEST YOUR CODE



# ACTIVITY #3: PART 2

## Part 2

Now, the Agent will complete the same task, but for the larger carpet. When the Agent has finished cleaning the carpet and drops all the dirt in the trash, the lesson is complete!

```
1 # Replace the lines below with your code #
2 # loop number 3 | Part 2
3 # loop number 1 | Part 1
4 agent.collect_all()
5 agent.move(FORWARD, 1)
6 # end of loop 1
7 agent.move(RIGHT, 1)
8 # loop number 2 | Part 1
9 # make the Agent collect all | Part 1
10 # make the Agent move back | Part 1
11 # end of loop 2
12 # make the Agent move right | Part 2
13 # end of loop 3
14 # make the Agent drop all to the right | Part 2
```



# SUCCESS!



# Recap

What you've done today:

- Learned and applied the coding concept of loops.
- Created, tested, and debugged my Python code.
- Embraced a coding mindset.





# REFLECTION

- What is a **for** loop?
- What do you use indentations with loops for?
- How do we make the agent move in a certain direction?
- What is a nested loop?

