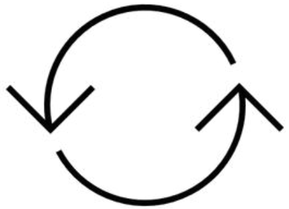
WHAT WE WILL LEARN TODAY?

- I will learn and apply the coding concept of conditionals.
- 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
a piece of code that repeats continuously or for a set number of times 	a text-based computer prog uage 	a set of rules that are used to create the programming language structure `player.say("hi")`

GOAL FOR THE DAY

Welcome!

Today, you will continue to develop the Agent. CodingMine wants to code the Agent to help in emergency situations. The Agent will learn to build structures like water barriers, firebreaks, and new house foundations.
The Agent will be used in situations when it is unsafe for humans. During these simulations, the Agent will use the guidelines that have been created using Redstone dust for the structures.

CODING CONCEPTS

While Loops	Sequences
The while loops is a conditional loop, meaning it only repeats a piece of code when a condition is met (true). If the condition is true, the while loop will continue to repeat the code, but if it is false, it will stop.	A **sequence** is the order in which we want the computer to execute a set of instructions that we provide, as programmers. The order of the commands in the sequence is extremely important as if you used the same commands in a different order, the outcome would not be the same. When programming, making a sequence for a specific task (e.g., placing a block) and then repeating the sequence is a great way to shorten the code and make it more understandable.

WELCOME

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

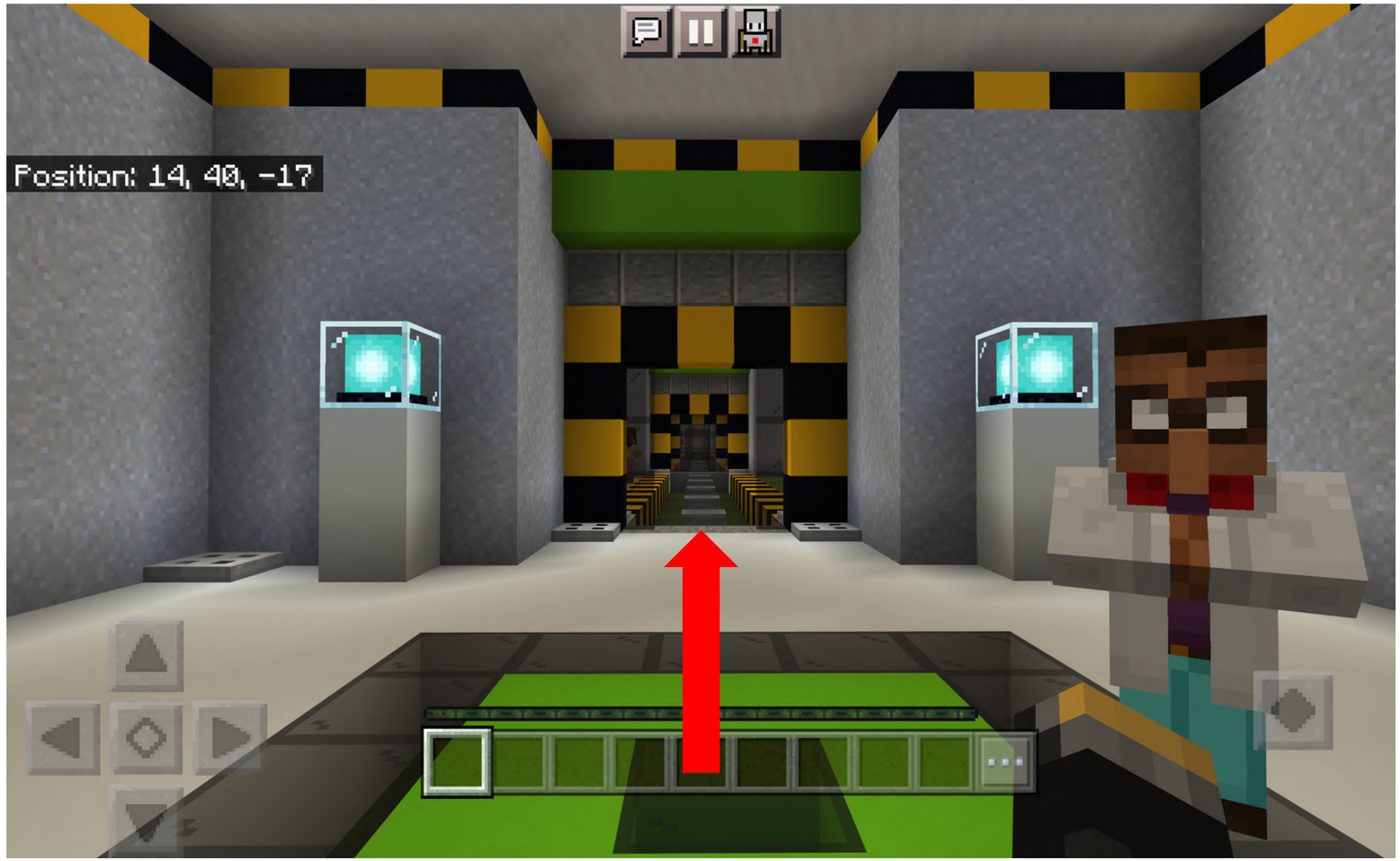
TALK TO THE CEO

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.

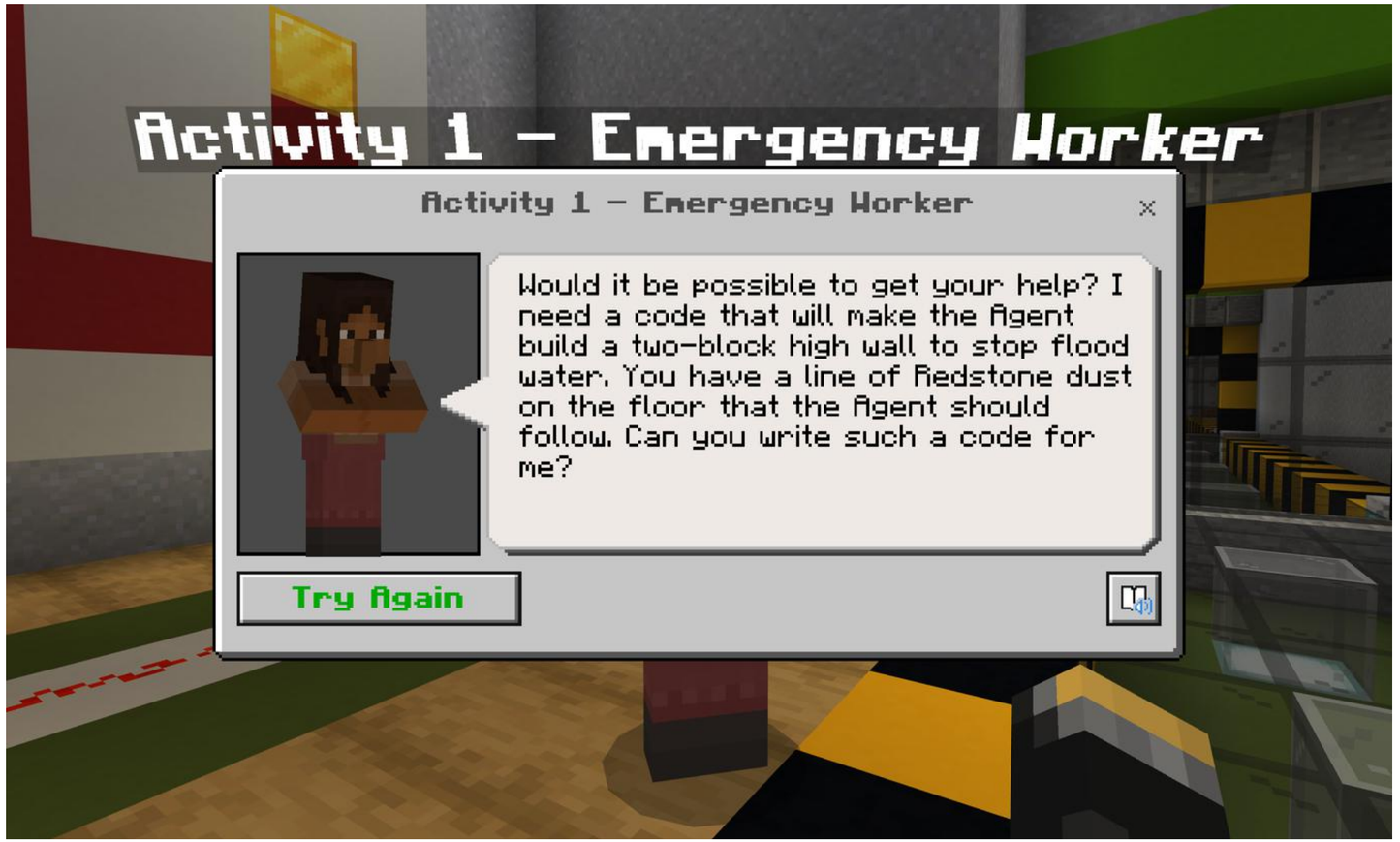
WALK INTO THE ROOM TO BEGIN



ACTIVITY #1: PART 1

Our first activity requires us to write code to make the Agent build a barrier to stop water damage from the floods. This activity has 2 parts.

TALK TO THE EMERGENCY WORKER



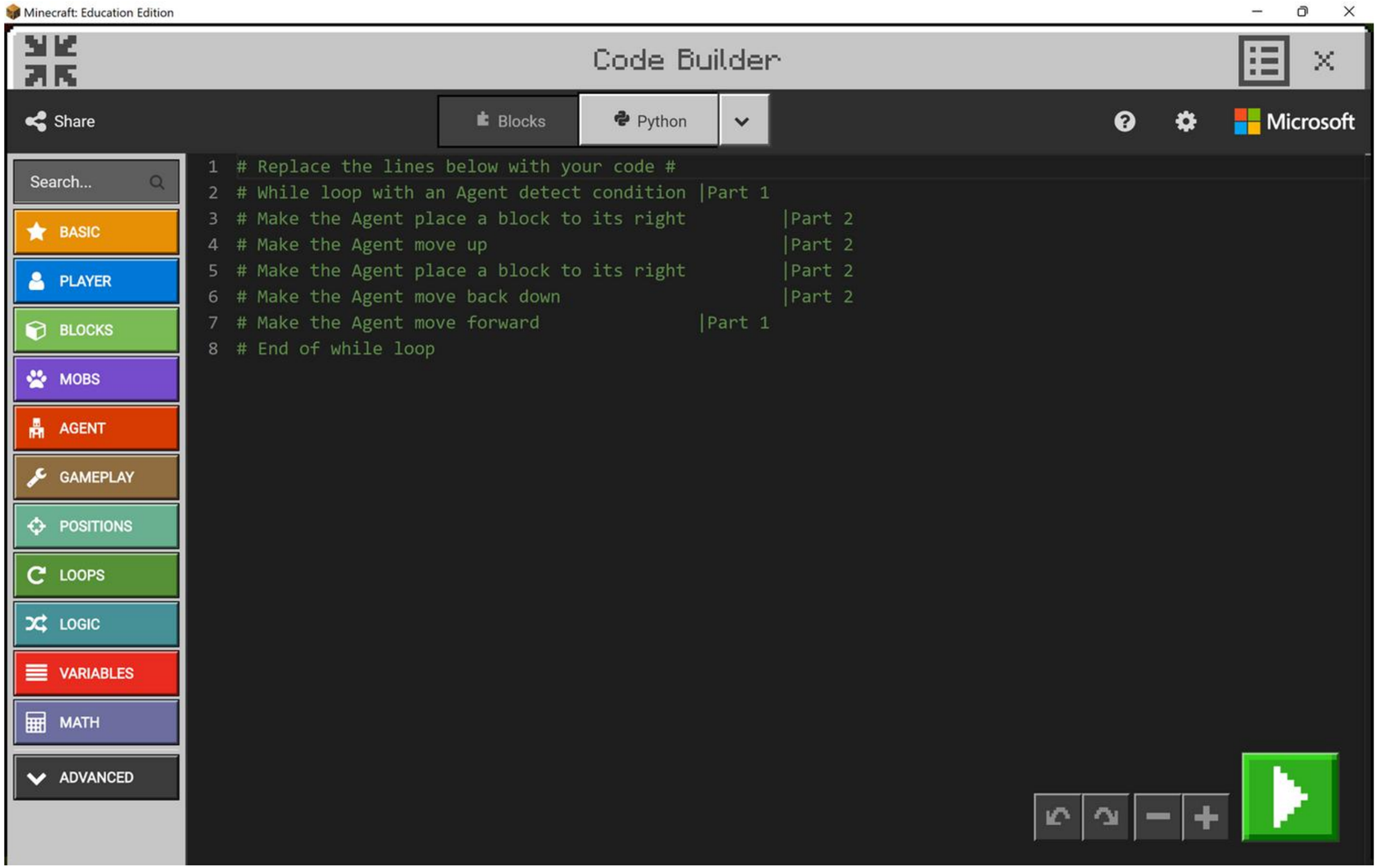
This is the pop-up screen we will see on our screen.

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

CREATE YOUR CODE: PART 1

Part 1

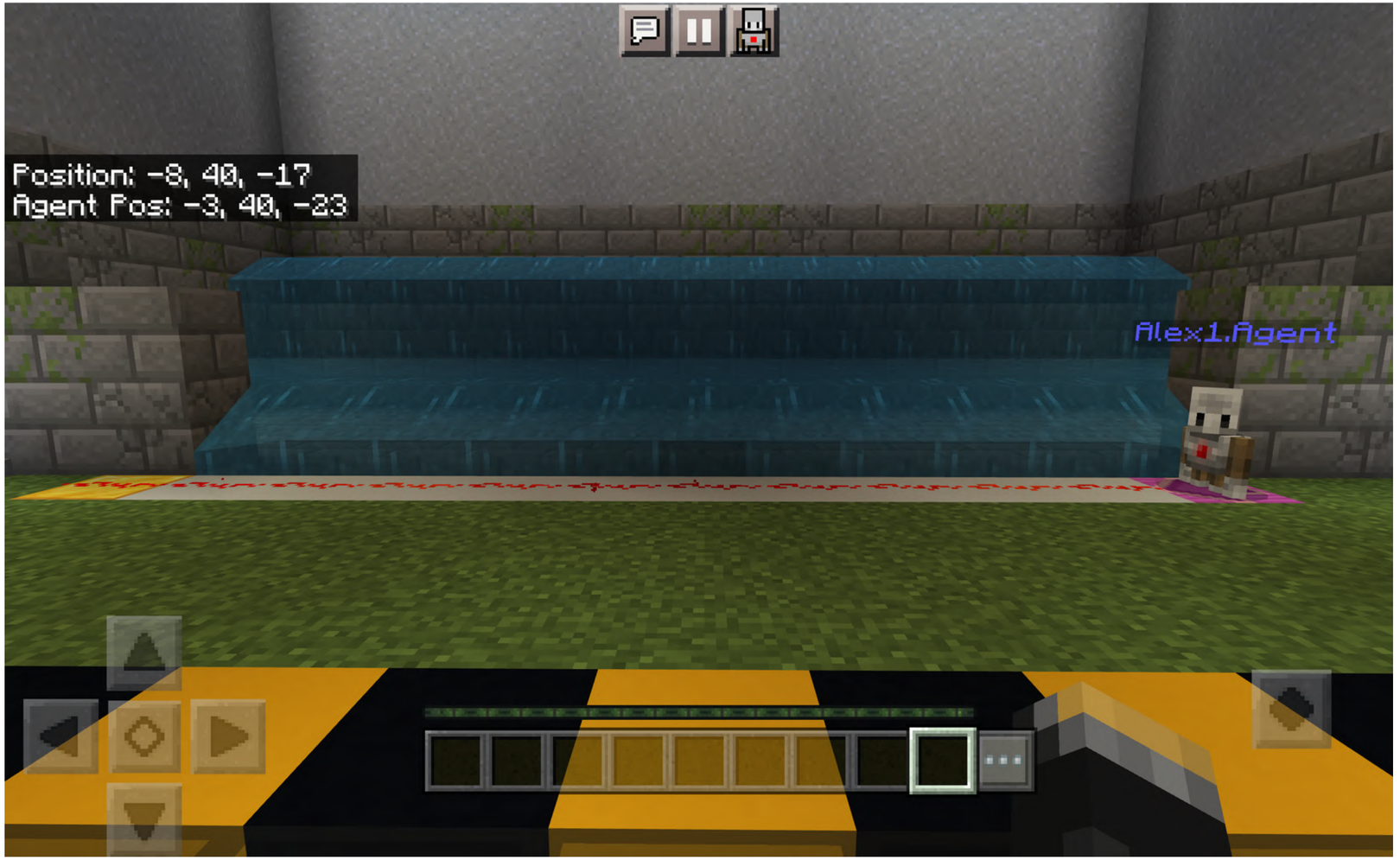
You need to write some code to make the Agent move forward as long as there is Redstone dust in front of it. Because we do not know how long the Redstone dust line may be, we cannot use a for loop. However, we can use a while loop with a condition that detects Redstone dust in front of the Agent. Once you run your code for Part 1, the Agent should move forward until it reaches the gold block.



TEST YOUR CODE

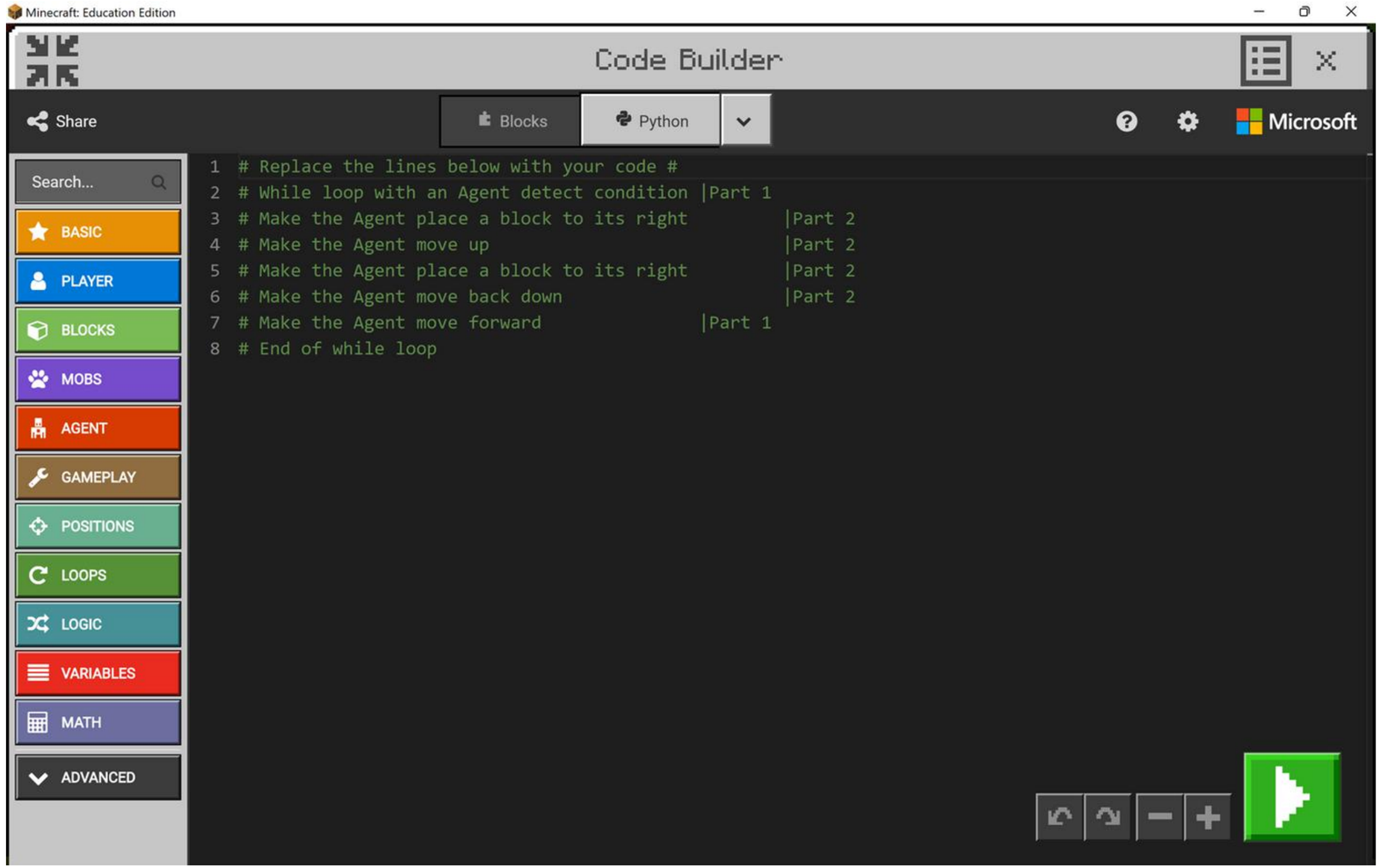
You need to run your code after each part. This activity will be completed in 2 parts. The activity is complete when the Agent reaches the gold block.

ACTIVITY #1: PART 2



CREATE YOUR CODE: PART 2

Part 2
Now, the Agent needs to make a two-block high water barrier. You need to write a sequence that will have the Agent place two blocks to its right. Then, you will need to loop the sequence using a while loop, following the line of Redstone dust. When the is code is run, the Agent will build the two-block high barrier sealing off the water. When the Agent reaches the gold block, Activity #1 is complete.



TEST YOUR CODE

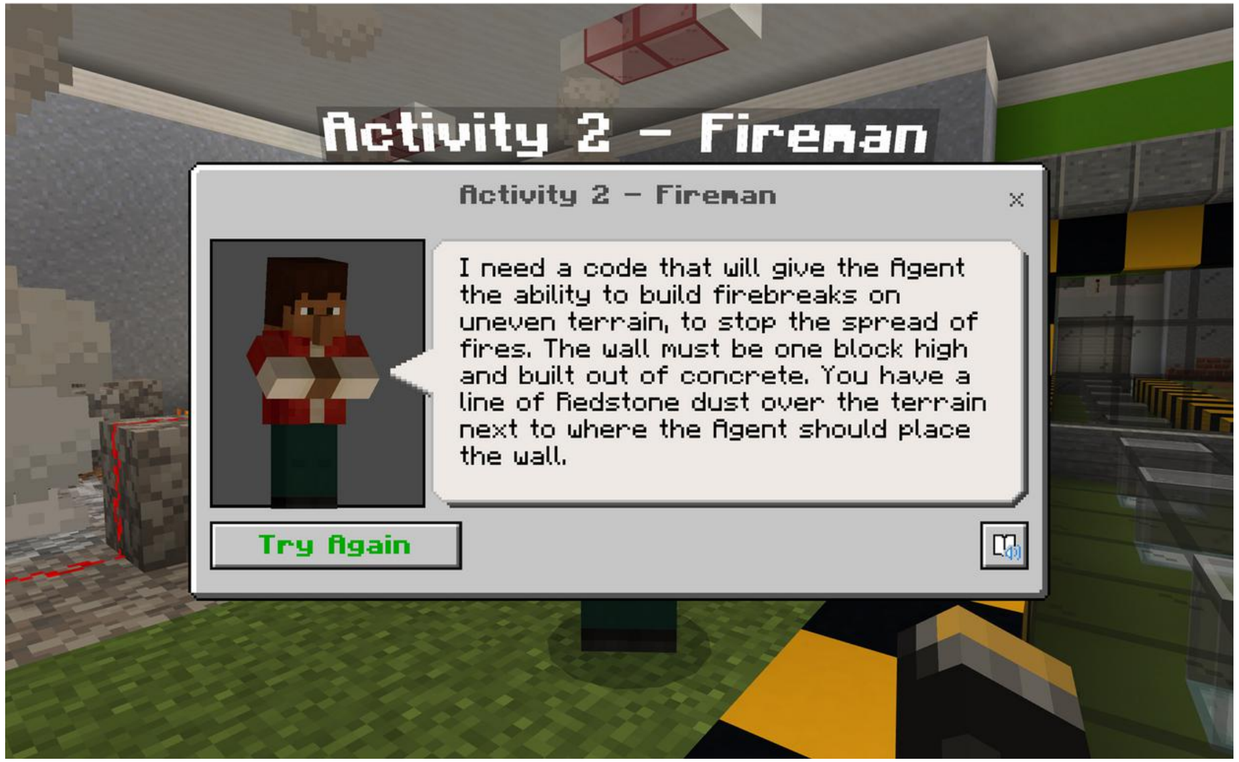
MOVE TO THE NEXT AREA

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

ACTIVITY #2

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

TALK TO THE FIREMAN



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

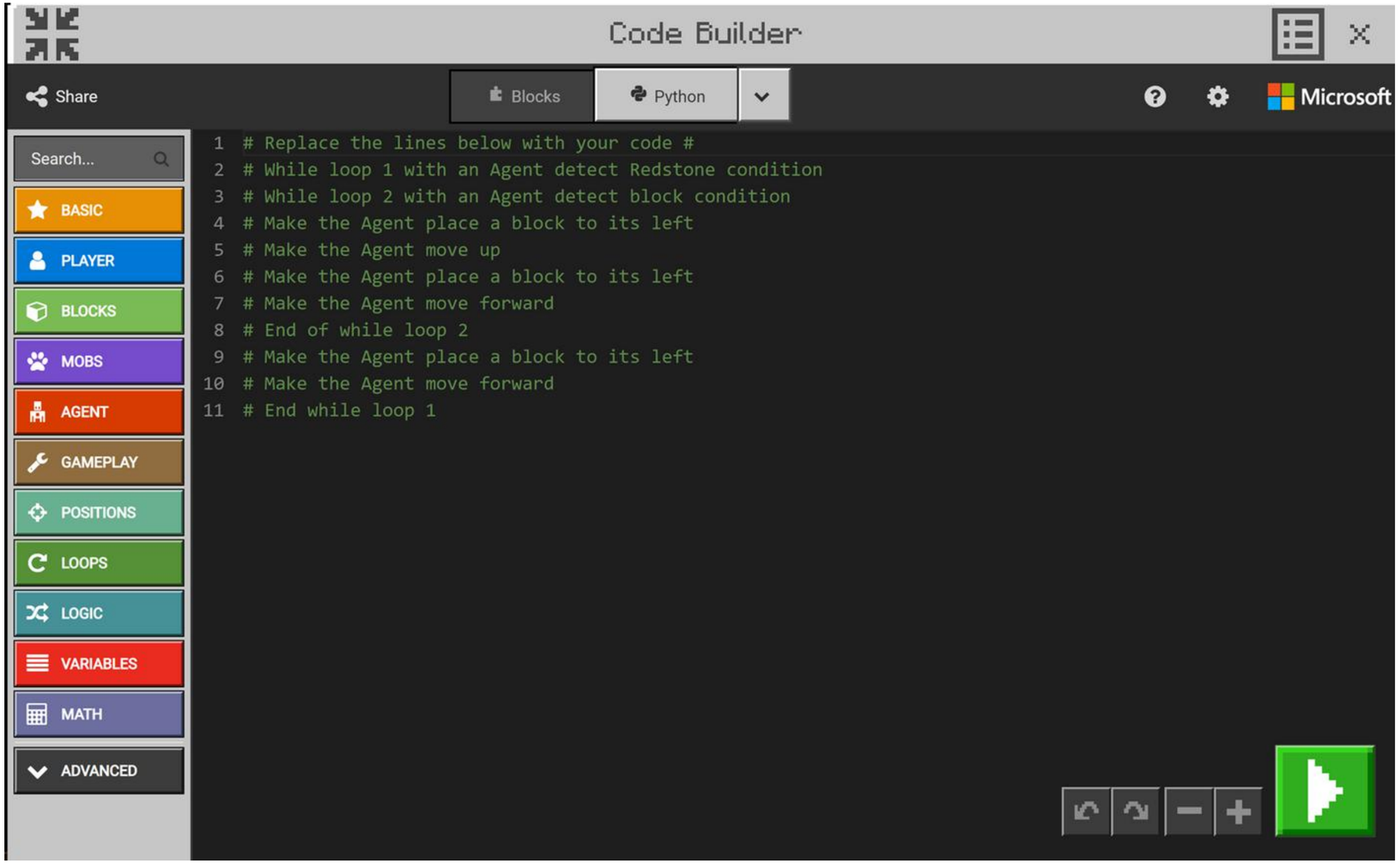
After you have read the message, click on the “X” in the top right corner to continue game play.

ACTIVITY #2

We are going to need to write some code to have the Agent build a firebreak to stop the spread of the fire in the simulated area.

ACTIVITY #2

To make this wall, you will need to use two while loops, one to make the Agent follow the Redstone dust and another to make the Agent check the elevation of the ground. Write teo sequences in the code, one where the Agent will place a block to its left and move forward, and another where the Agent will place a block to its left, move up, then place one more block, and then move forward. The second sequence is needed when there is a change in terrain elevation.
When you run this code, the Agent will move forward placing blocks to the left as it moves.



MINECRAFT EDUCATION EDITION

TEST YOUR CODE

ACTIVITY #3

Walk over to the next area and talk to the Emergency Worker!

TALK TO THE EMERGENCY WORKER

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.

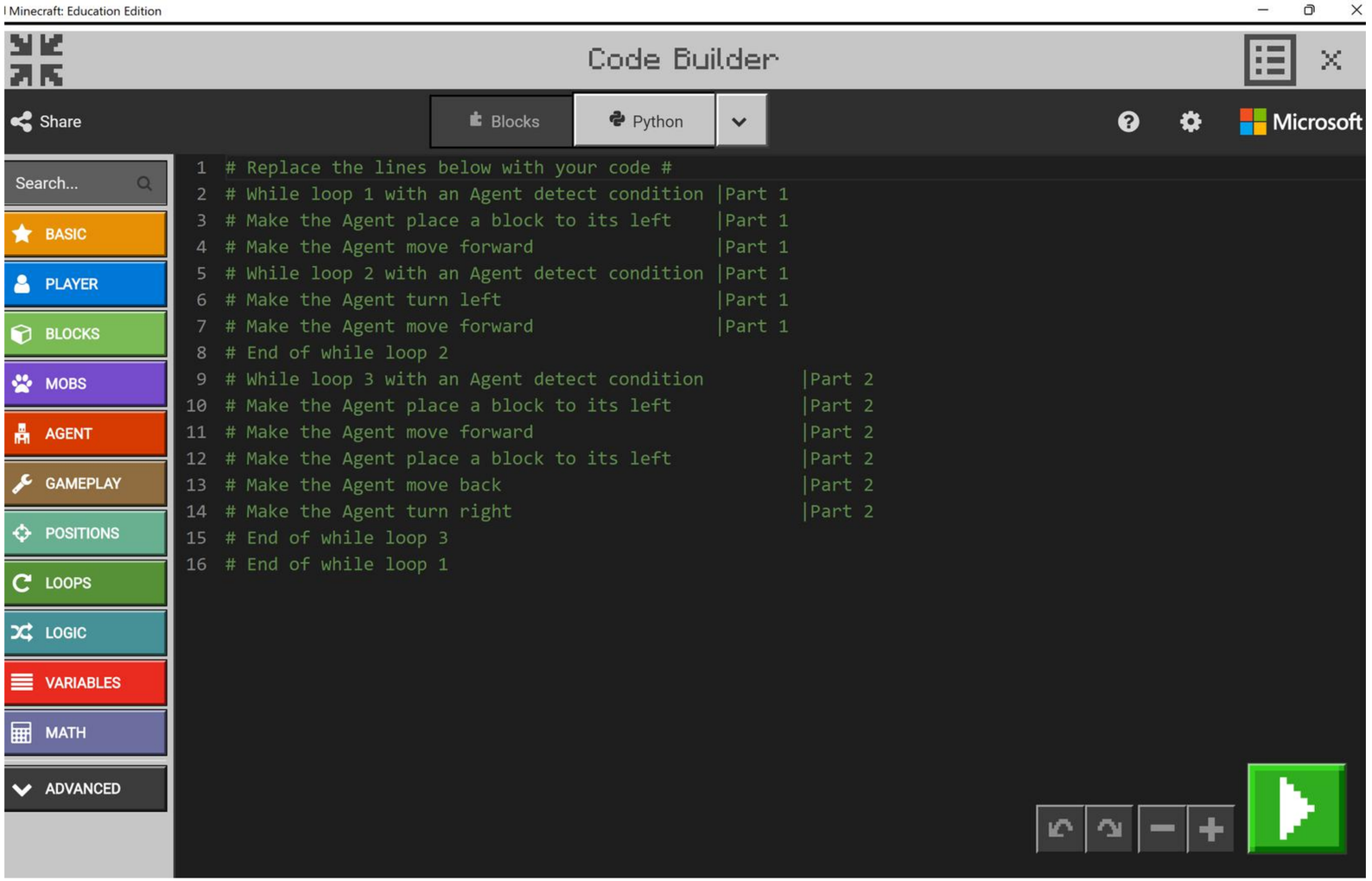
ACTIVITY #3

In this activity, you need to help the Emergency Worker develop the Agent's ability to build foundations for homes. The Agent will need to follow the foundation plan laid out on the floor made from the Redstone dust.

CREATE YOUR CODE

Part 1
The Agent needs to build the foundation for this small wooden house. The house needs to be built within the outline of Redstone dust. This code requires two sequences: one for the straight pieces of the wall, and the other is for outside corners of the house.

Part 2
The Agent will now need to build the foundation for the large brick house. The code requires as additional sequence to be added– one for the inside corners. When building an inside corner, the Agent will have to detect Redstone dust to its right, place a block, move forward, place another block, and then continue on.



MINECRAFT EDUCATION EDITION

SUCCESS!


Minecraft: Education Edition
Congratulations!
Position: -52, 40, -16
Agent Pos: -52, 40, -22
Lesson complete.
Alex1.Agent
End of Lesson.
H
Show Controls

Recap

What you’ve done today:

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

REFLECTION

- When does a while loop repeat code?
- What is a sequence?
- What happens if the condition in a while loop is false?
- When would you use a while loop instead of a for loop to make the Agent move forward?