

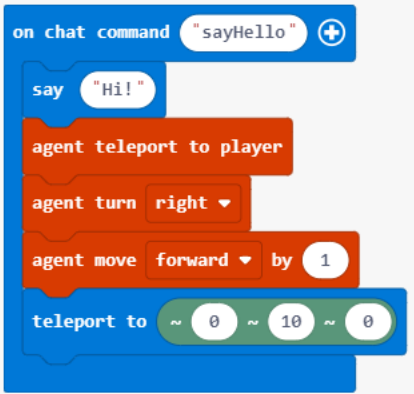
## Coding in Minecraft – Advanced Coding Using JavaScript

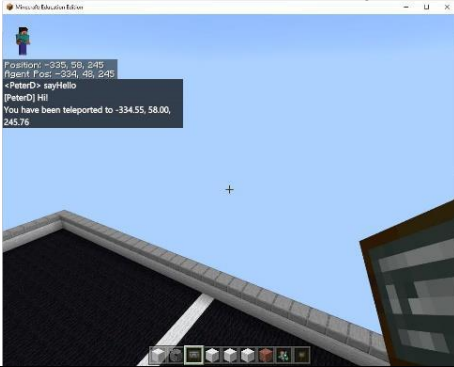
### Lesson 3 – JavaScript – Modifying JavaScript code

#### Activity

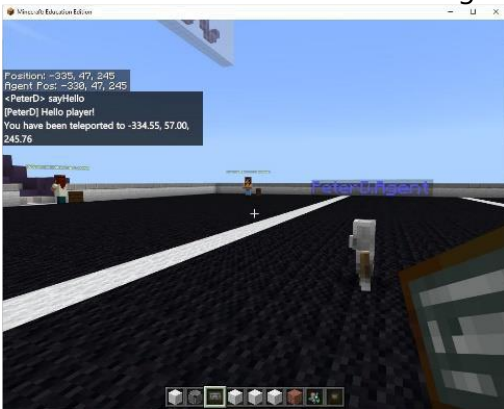
##### Instructions


This worksheet is copy of the steps detailed in the Activity in the game to make it easier for you to follow along and try yourself.

Step	Instructions
1	<p>We have already started to see how JavaScript code compares to block-based coding.</p> <p>Previously we have looked at how JavaScript code compares to block-based coding but we haven't changed any of the JavaScript.</p> <p>We will now start to make changes to JavaScript to and see how this affects our Minecraft world.</p>
2	<p>We will create a sample program with some simple blocks as detailed below to learn more.</p> <p>The below sample program in JavaScript is the equivalent of the below in MakeCode blocks</p> <pre>player.onChat("sayHello", function () {   player.say("Hi!")   agent.teleportToPlayer()   agent.turn(RIGHT_TURN)   agent.move(FORWARD, 1)   player.teleport(pos(0, 10, 0)) })</pre> 
3	<p>Notice that the 5 lines of code inside the event handler all call on functions of the player or agent and 4 of these take parameters (the only one not taking a parameter being the agent.teleportToPlayer()).</p>

	<pre>player.onChat("sayHello", function () { player.say("Hi!") agent.teleportToPlayer() agent.turn(RIGHT_TURN) agent.move(FORWARD, 1) player.teleport(pos(0, 10, 0)) })</pre>
4	<p>Return to the Minecraft world to run your code by clicking the Green play button and entering the text sayHello in the chat window.</p> <p>Return to the tutorial by pressing the C key on your keyboard or tapping the Agent icon on your screen when finished.</p>
5	<p>You should have noticed that a message saying hi appears, your agent appears and turns right and moves one block forward and you then teleport to 10 blocks above your current position.</p> 
6	<p>Change the parameter being passed to the player.say function to "Hello player!" (note: keep the double quotes as this is a string variable).</p> <pre>player.onChat("sayHello", function () { player.say("Hello player!!") agent.teleportToPlayer() agent.turn(RIGHT_TURN) agent.move(FORWARD, 1) player.teleport(pos(0, 10, 0)) })</pre>
7	<p>Return to the Minecraft world and open the chat window and issue the sayHello command.</p> <p>Notice that a chat message reflecting the change you made in JavaScript is now displayed (Hello Player!).</p>

	<p>Return to the tutorial by pressing the C key on your keyboard or tapping the Agent icon on your screen when finished.</p>
8	<p>On line 4 delete the word RIGHT_TURN from the agent.turn(RIGHT_TURN). Replace it with LEFT_TURN. These are the 2 directions the Agent can turn (Left and Right).</p> <pre>player.onChat("sayHello", function () {   player.say("Hello player!!")   agent.teleportToPlayer()   agent.turn(LEFT_TURN)   agent.move(FORWARD, 1)   player.teleport(pos(0, 10, 0)) })</pre>
9	<p>Return to your Minecraft world and run the sayHello command again and notice this time your agent will turn left rather than right.</p> <p>Return to the tutorial by pressing the C key on your keyboard or tapping the Agent icon on your screen when finished.</p>
10	<p>Take a look at line 5</p> <pre>agent.move(FORWARD, 1)</pre> <p>This line of JavaScript is the code which will move the agent in a certain direction by a number of blocks.</p> <p>The move method takes 2 parameters - the first one being the direction to move and the second one the number of blocks to move.</p>
11	<p>Firstly lets look at the first parameter the FORWARD</p> <p>This is one of 6 directions the agent can move in - FORWARD, BACK, DOWN, LEFT, RIGHT, UP.</p> <p>Delete the word FORWARD and enter the text RIGHT.</p> <pre>player.onChat("sayHello", function () {   player.say("Hi!")   agent.teleportToPlayer()   agent.turn(RIGHT_TURN)   agent.move(RIGHT, 1)   player.teleport(pos(0, 10, 0)) })</pre>

12	<p>The second parameter (the one after the comma) is how many blocks to move and is a number type.</p> <p>Change this number to 5 to move the agent 5 blocks to the right.</p> <pre>player.onChat("sayHello", function () {   player.say("Hi!")   agent.teleportToPlayer()   agent.turn(RIGHT_TURN)   agent.move(RIGHT, 5)   player.teleport(pos(0, 10, 0)) })</pre>
13	<p>Return to your Minecraft world and run the sayHello command again and check that the Agent now moves 5 blocks to the right.</p> <p>Return to the tutorial by pressing the C key on your keyboard or tapping the Agent icon on your screen when finished.</p>
14	<p>You should have noticed that the Agent now moves 5 blocks to the right.</p> 
15	<p>The final line of code teleports the player to a position defined by a set of relative coordinates.</p> <p>The teleport function of the player takes a position variable to tell it where to teleport the player to.</p> <p>This coordinate is created using the pos function which takes 3 parameters - the X, Y and Z coordinates.</p>
16	<p>Change the coordinates to be the relative coordinates of 1 20 -1 by changing the 3 number parameters in the pos function to 1, 20, -1.</p> <pre>player.onChat("sayHello", function () {   player.say("Hi!")   agent.teleportToPlayer()   agent.turn(RIGHT_TURN)   agent.move(RIGHT, 1)   player.teleport(pos(1, 20, -1)) })</pre>

	<pre>player.teleport(pos(1, 20, -1)) })</pre>
17	<p>Return to your Minecraft world and run the sayHello command again and take note of what happens.</p> <p>Return to the tutorial by pressing the C key on your keyboard or tapping the Agent icon on your screen when finished.</p>
18	<p>Notice this time that you are teleported to a position 1 block to your left, 1 block backwards and 20 blocks above your position (depending on what way you are looking!)</p> 
19	<p>Return to the game and move onto the next Non Player Character</p>