Coding with Lua - Hello World

Required Previous Lessons/Knowledge: *General knowledge of Studio as covered in Intro to Building. Specifically, inserting parts, navigating Explorer, game testing*
Lesson Running Time: *10 - 15 minutes*
Optional Handouts: *Coding w/ Lua Handout*
Learning Objectives and Outcomes: *Students will discuss what they think coding is. They will then be introduced to Lua by creating a script with their own version of Hello World.*

What is Coding

Discussion Topic
Either away, or facing away from the computers, grab the students attention by asking what they know about coding. • Have a volunteer explain how they think code works. • Follow up by asking for examples of the students favorite things that were made using code. • Tell them your favorite things made with code

Coding is how people create instructions for computer programs to follow. Just like people speak different languages, so do programs. Roblox uses the coding language **Lua**.

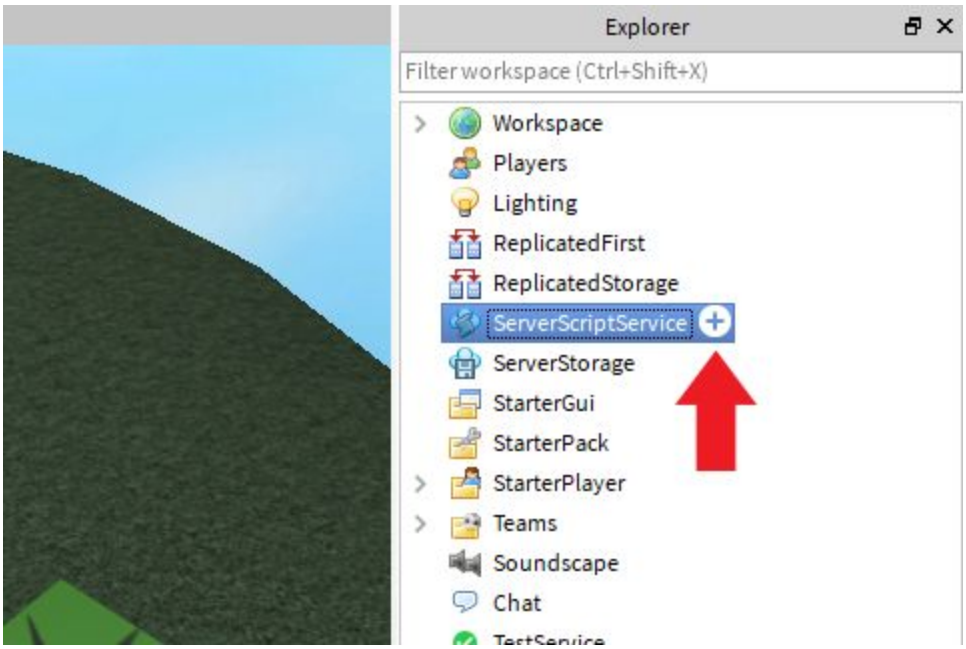
In Roblox, with coding you can create scripts for health points, stores to purchase items, new characters, and anything else you can imagine.

Making a New Script

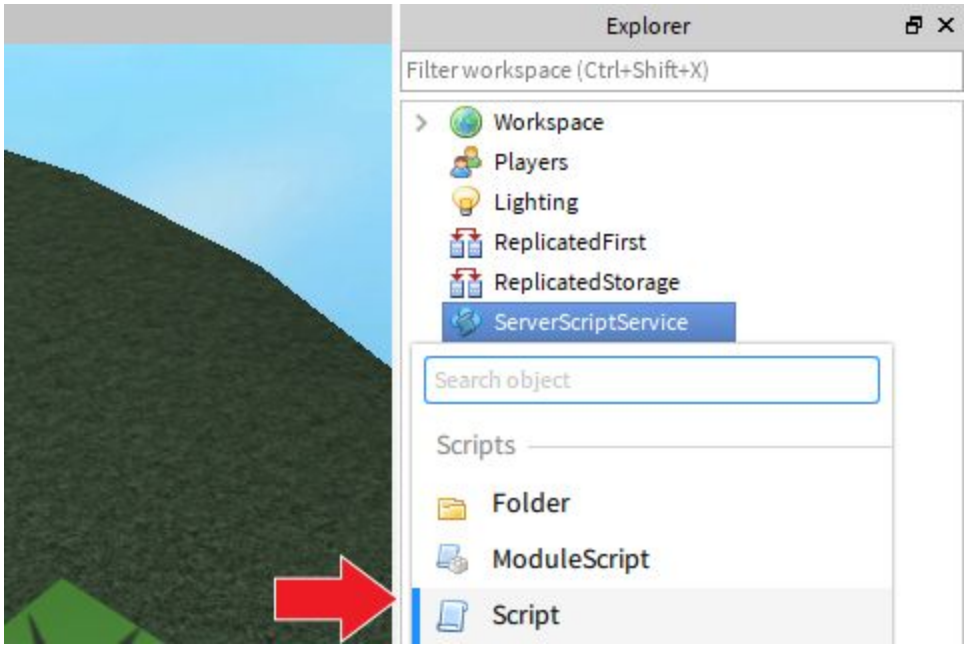
Scripts contain pieces of code used inside of Roblox. Scripts can be as simple as a single line of code, or as long as your favorite book. As a game designer you will be creating a lot of scripts, so it's really important to remember to name each script so you don't mix them up.

Create a Script

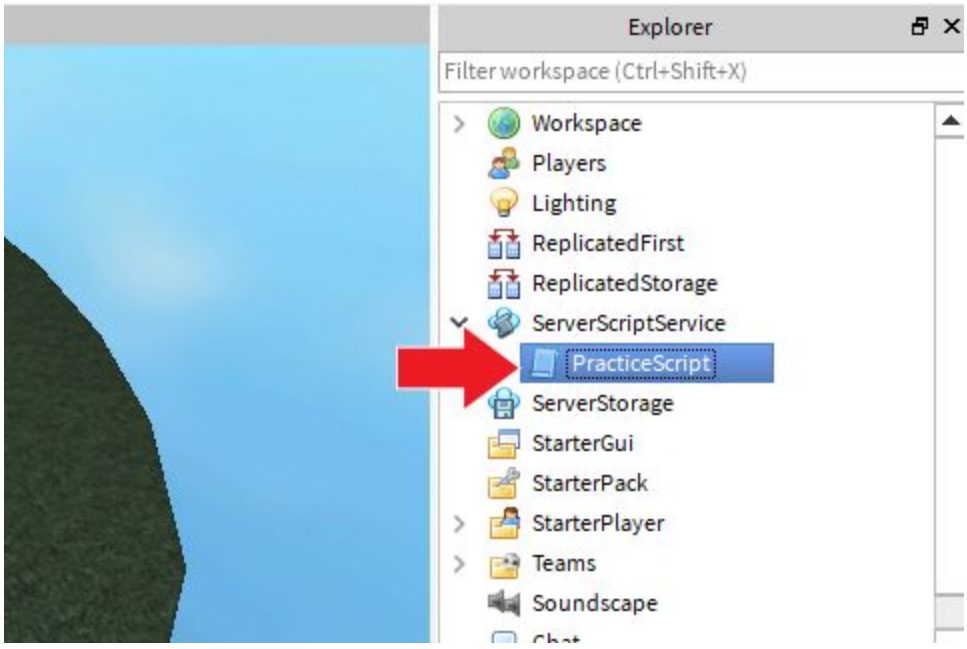
1. In the Explorer, hover over **ServerScriptService** to see the **+**



2. Click the + and select **Script.** The **Script Editor** will open.

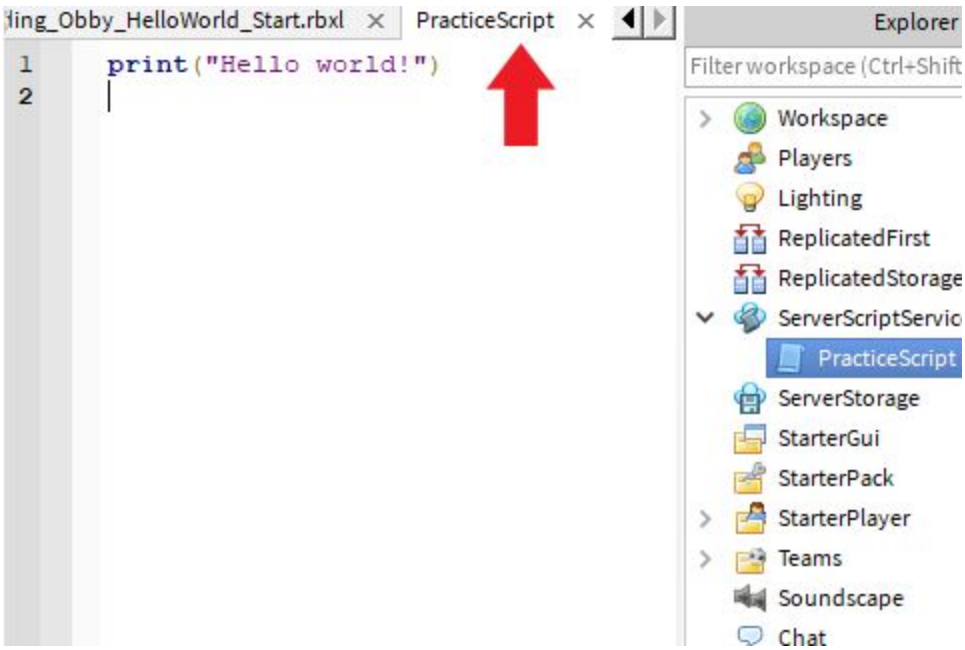


3. Rename the Script *PracticeScript* (Select the Script > Right-click>Rename).



The Script Editor

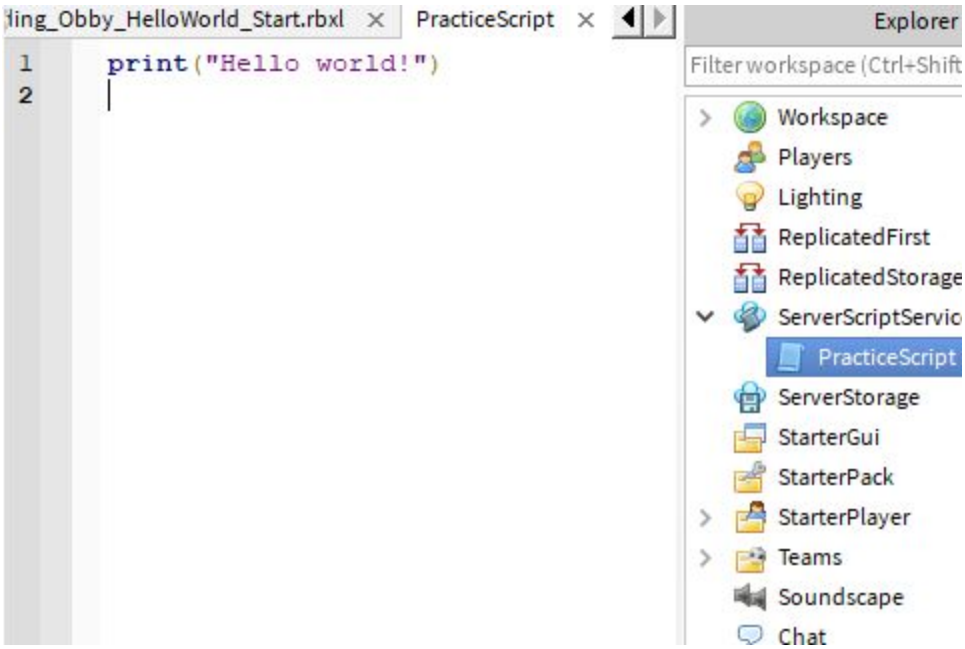
The **Script Editor** is where you write your code. To find the script next time you open up Roblox, you can click on the name of the editor, or double-click the script's name in the Explorer.



Using String Variables

Print Functions - Hello World

At the top of the tab is `print("Hello world!")` This is an example of a **print function**. The print function is one of the most famous pieces of code ever written, it displays text on the screen. Any time your phone sends you a notification, you're seeing a print function in action!



String Variable Types

`"Hello World"` is an example of a **string variable type**.

Variables are placeholders for information the program will use later. The coolest thing about variables is they can change. They can be added to, subtracted from, or completely replaced. Examples of variables in games are player names, points, and health.

Strings are a type of variable which hold groups of characters such as letters or numbers. You can identify strings by the quotation marks.

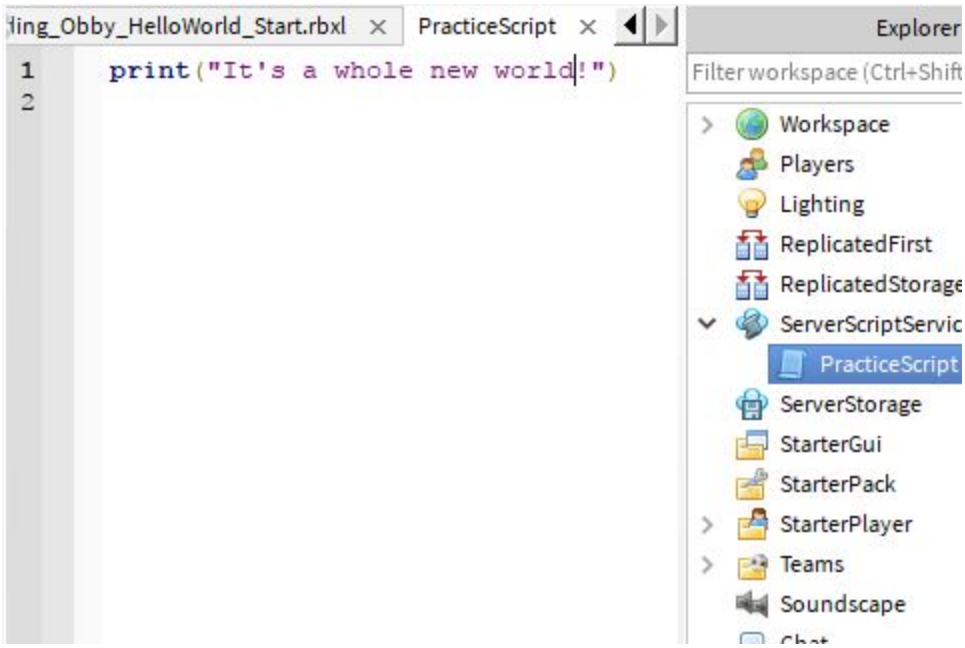
These are all strings:

- `"I am 100 years old"`
- `"42"`
- `"Woot woot"`

Notice the "quotation marks"?

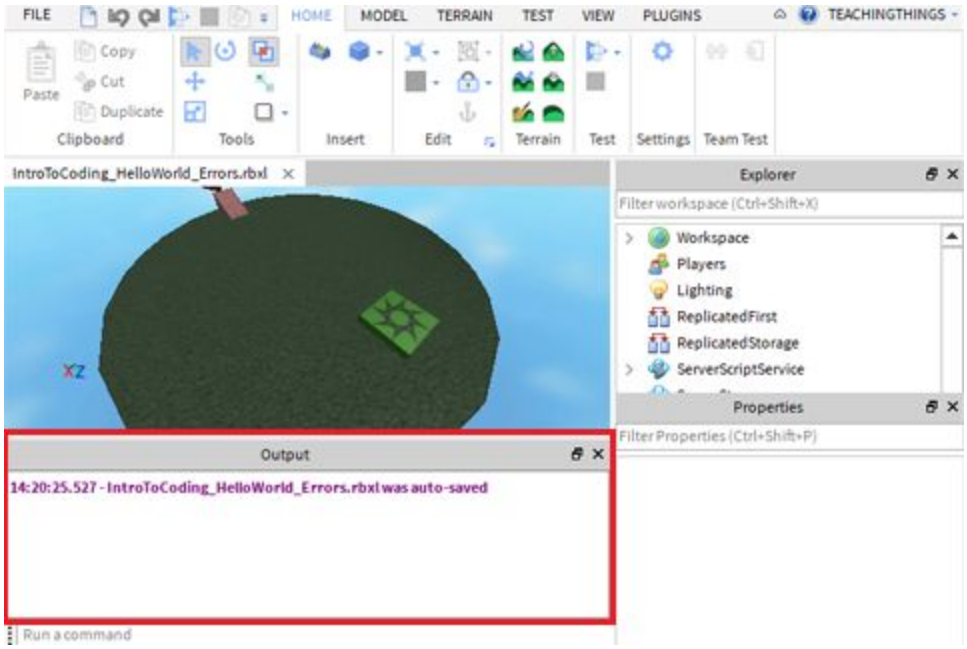
Create Your Own Message

- In the script editor, type your own by message changing the string inside of the parentheses()
    - Examples:
        - `print ("Hello")`
        - `print ("It's a lovely day to be a computer")`



Testing the Output

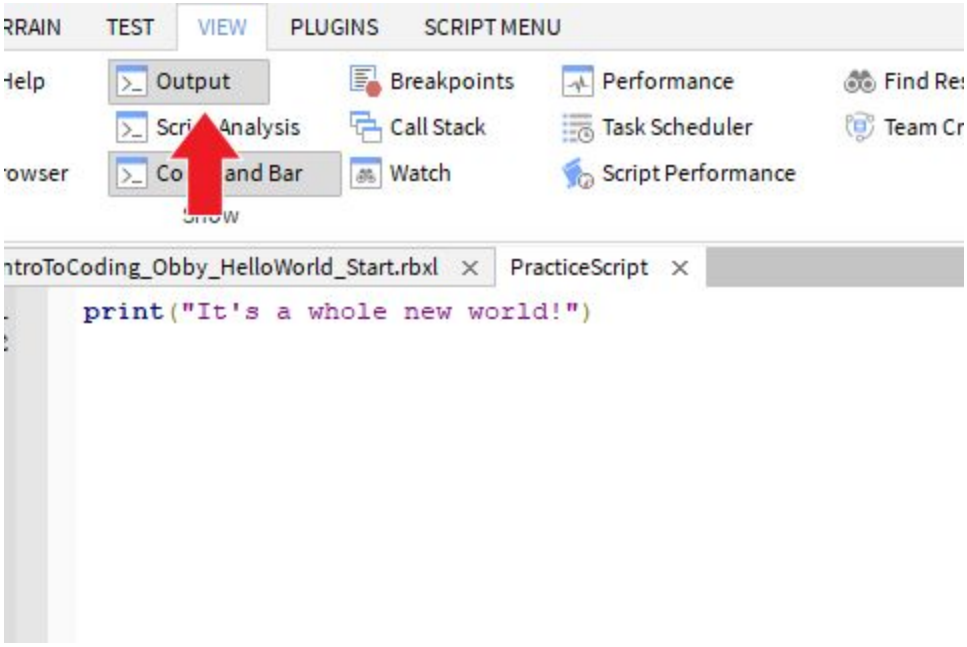
To test your first script, you'll need to make sure your Output window is on open. The **Output window** displays messages and helpful error codes when the code is run.



Open the Output Window

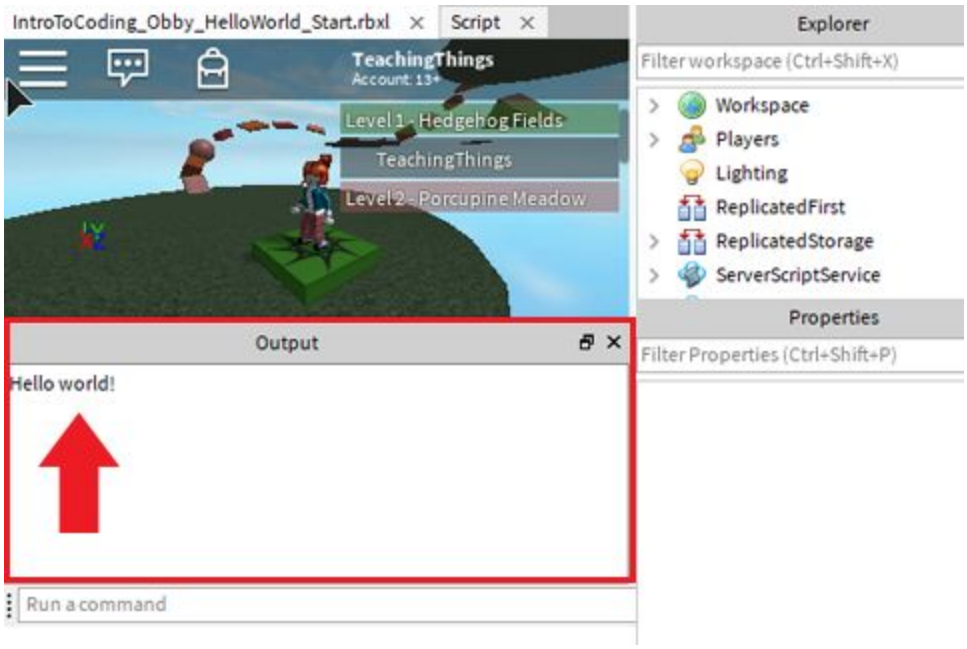
If you don't see the output window, bring it up now.

1. Select the **View menu tab**
2. Select **Output**



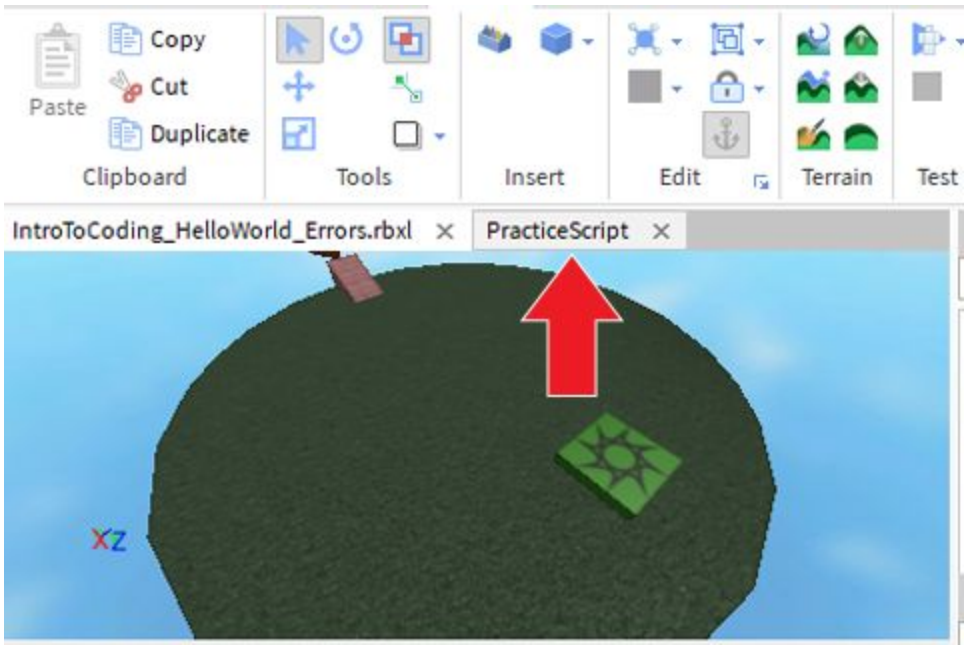
Test Your Script

- Check that you typed everything correctly by pressing **Play.** The results will show up within the output window.



Returning to the Script

1. Make sure you have stopped the playtest.
2. Get back to your script by clicking on the script editor tab.



Tab Missing
If you don't see the script editor tab, double-click the name of the script in th explorer to reopen the script.

Troubleshooting Your Code

Code didn't work? Here are some things to check:

- `print` should be all lowercase
- Make sure the string is surrounded by quotation marks, `"like this"`
- The string needs *inside* of the the parentheses, `("like this")`

Error Messages

If you make a mistake as you code, error messages will show up as red lines in the script editor and in the output window. To demonstrate:

1. Click in the Script editor.
2. Delete a quotation mark from the print statement.
3. Hover over the red line to see an error message.

Error messages will also appear in the output window as you run your code.

1. Press Play to run your code.
2. Click the red message in the Output window to be taken to the code.