

Rock Paper Scissors

micro:bit



Consortium:



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GOAL

In this workshop
you will use the
BBC micro:bit
to create a game of
Rock Paper Scissors

What will you learn

Using the micro:bit
Basic programming principles
Using the MakeCode interface

Getting started

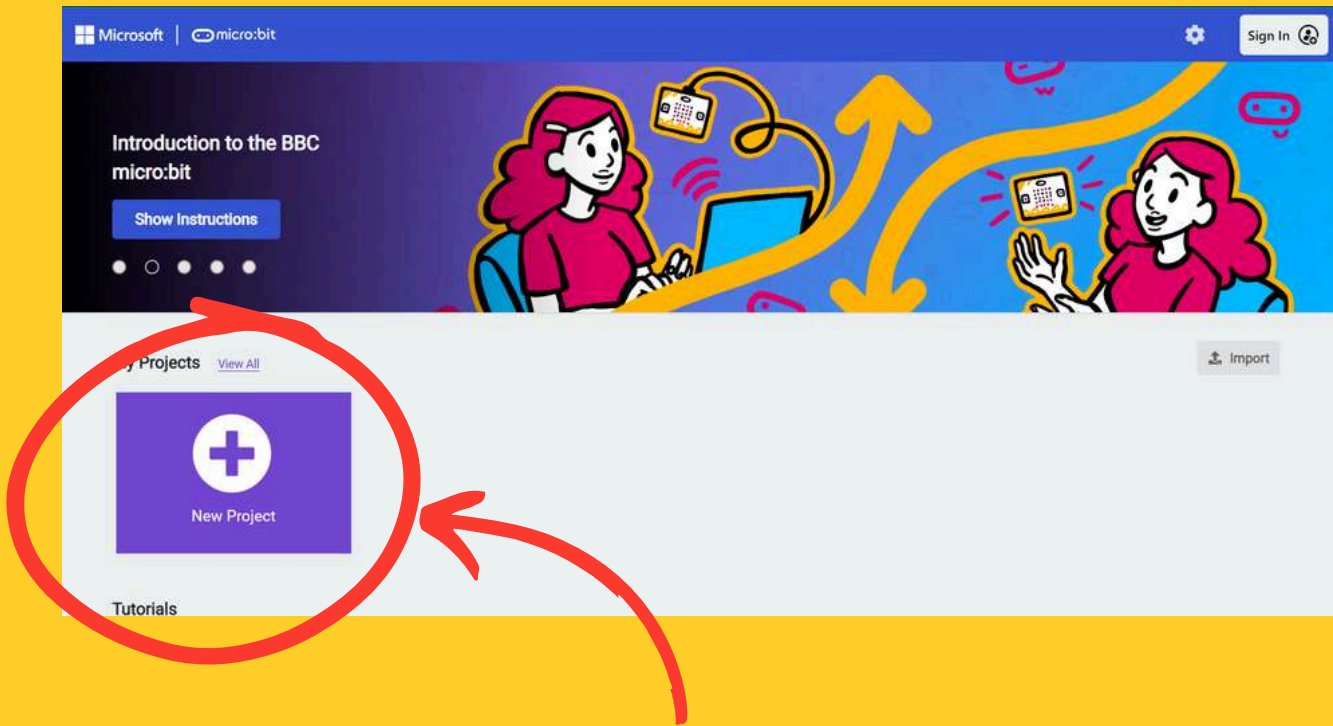
What will you need

- A computer
- Access to the internet
- BBC micro:bit
- USB to micro-USB cable

Time to go on your
browser and visit
makecode.microbit.org

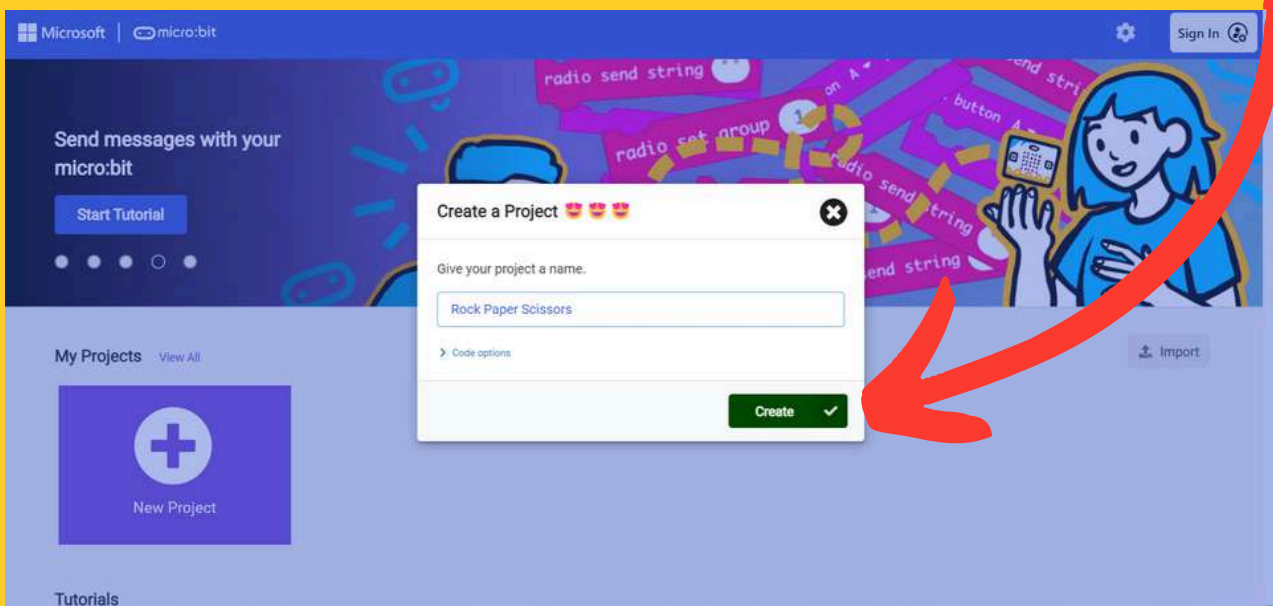


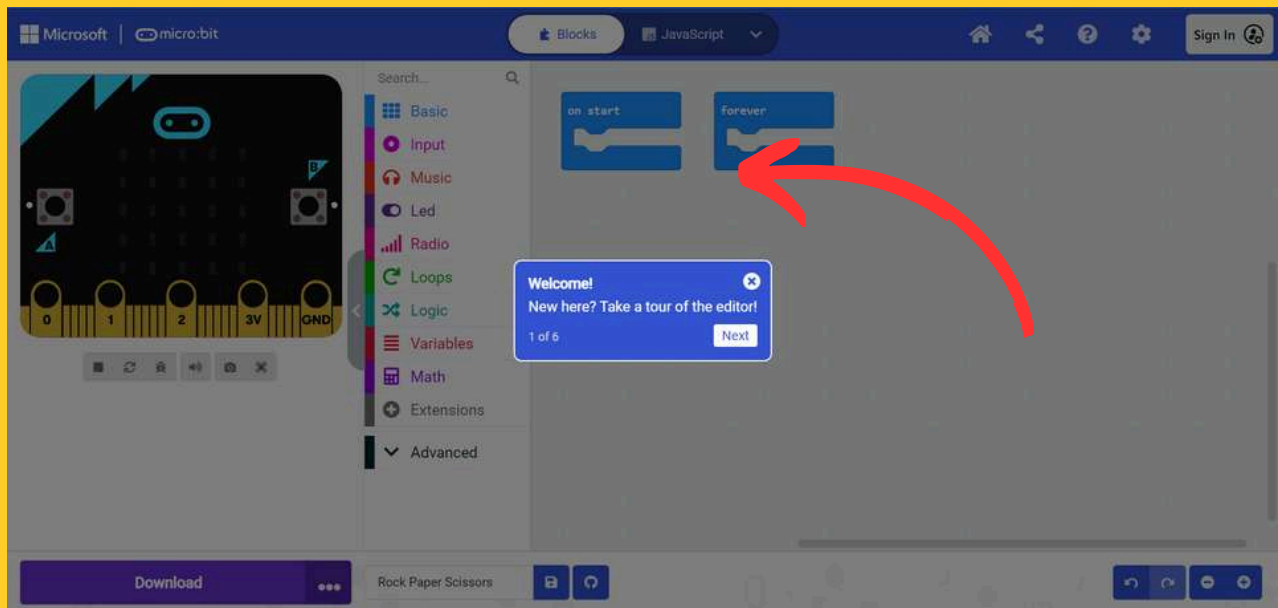
Now, your screen should look like the screenshot below



step 1: Press on the + icon to create a new project

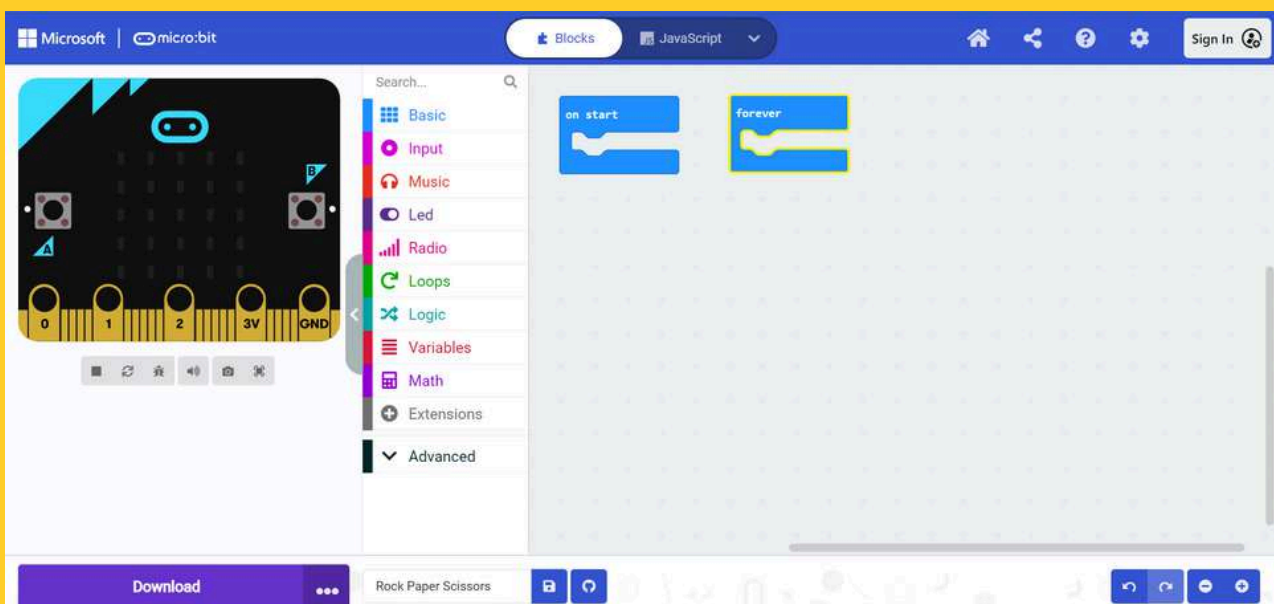
step 2: Name the project Rock Paper Scissors and press **create**

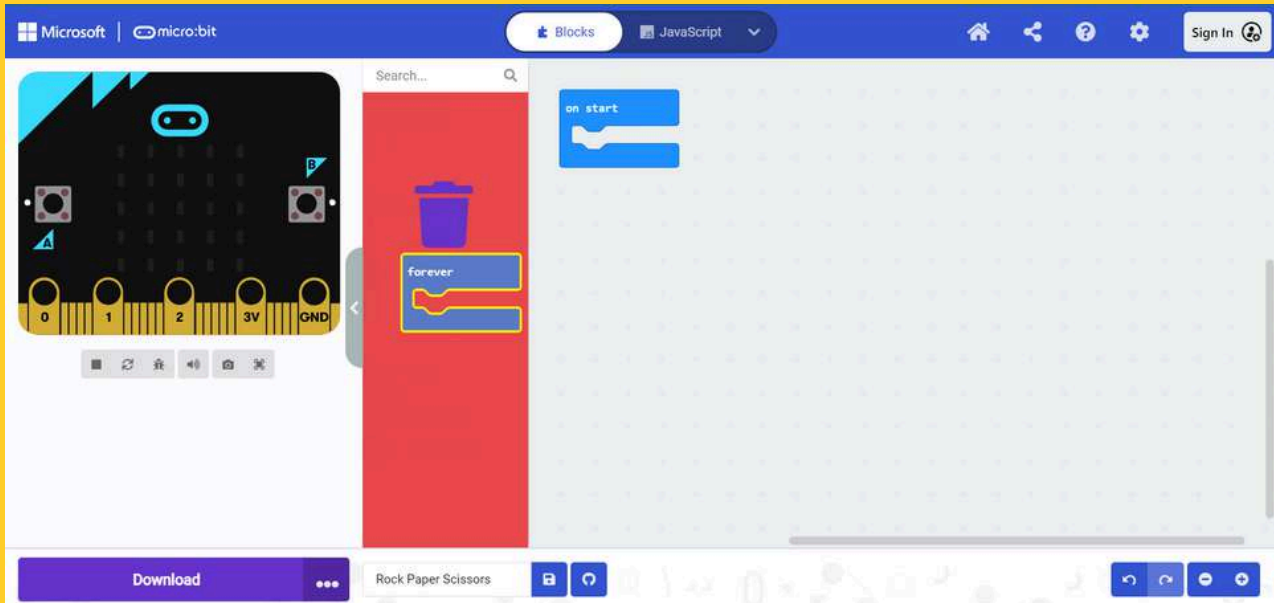




step 3: Your screen should look like this. Now, lose the **Welcome message**, by pressing on the  icon.

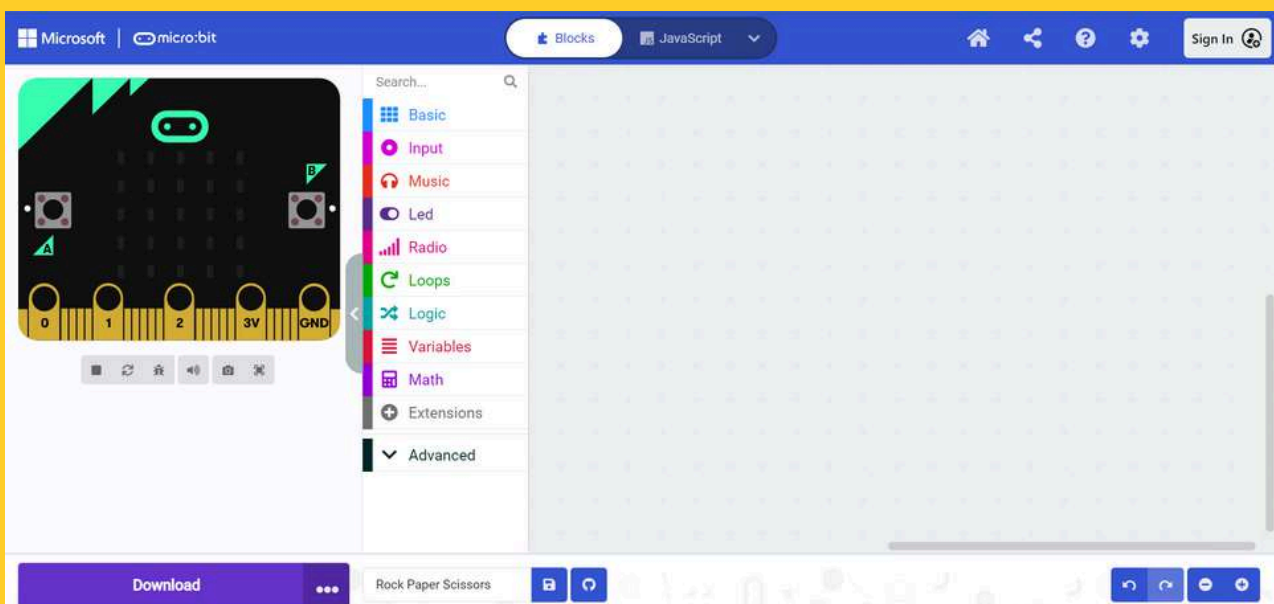
Now, your screen should look like the screenshot below



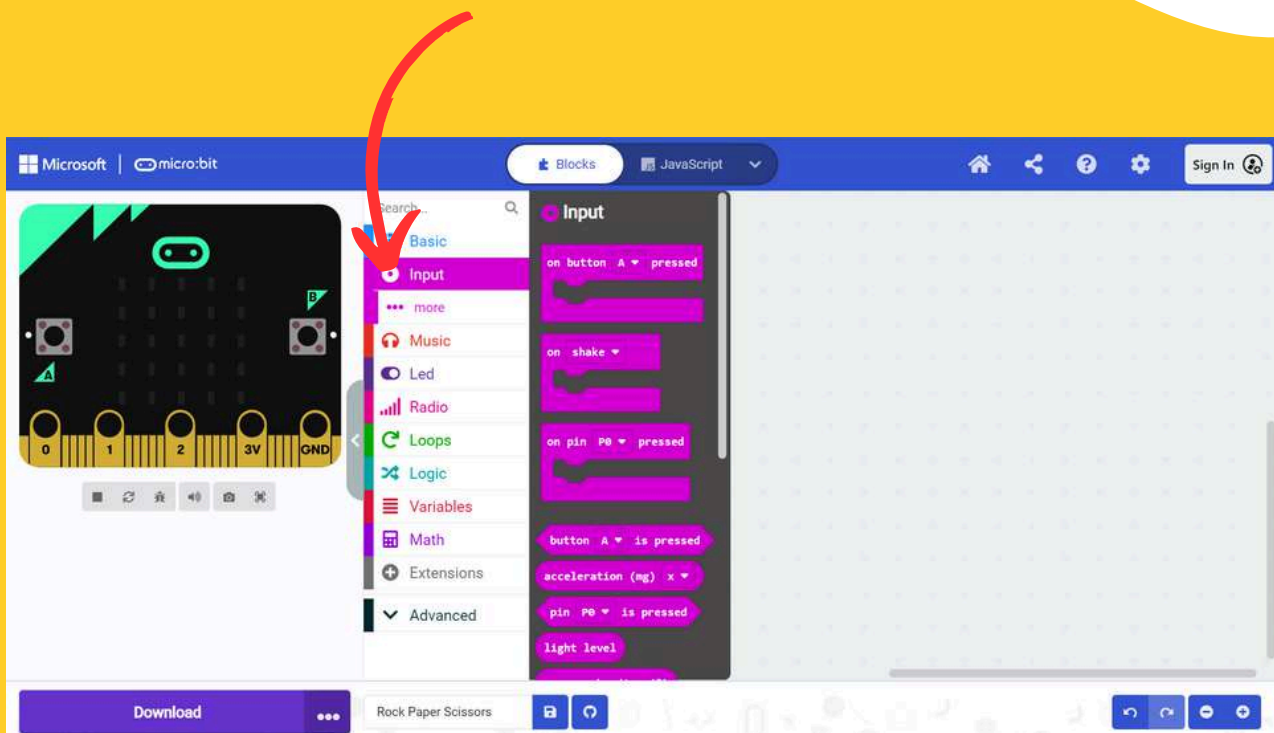


step 4: Delete the “**on start**” and “**forever**” blocks by dragging and dropping them over the menu as seen in the picture above.

Now, your screen should look like the screenshot below. We are ready to work on the project



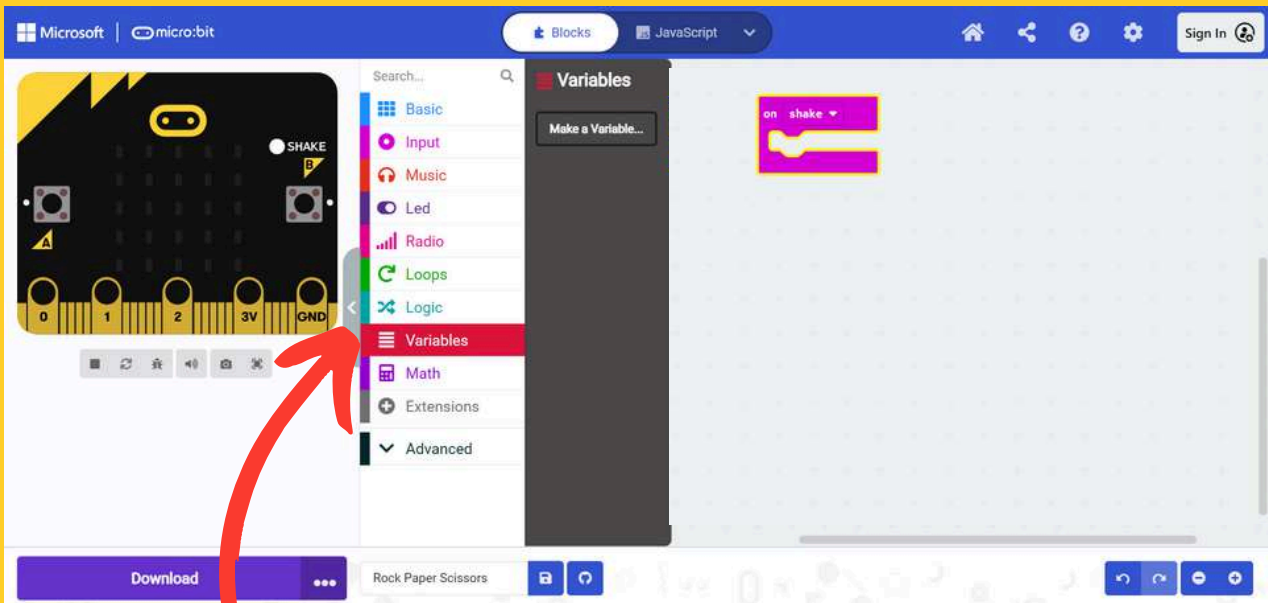
Creating the game



step 5: Navigate to the “Input” tab on the menu and select the “on [shake]” block.

Drag and drop it in the canvas on the right side of the screen





step 6: Time to create a variable. Navigate to the **“Variables”** tab on your menu.

step 7: Create a new Variable by pressing on the button that says **“ Make a Variable...”**



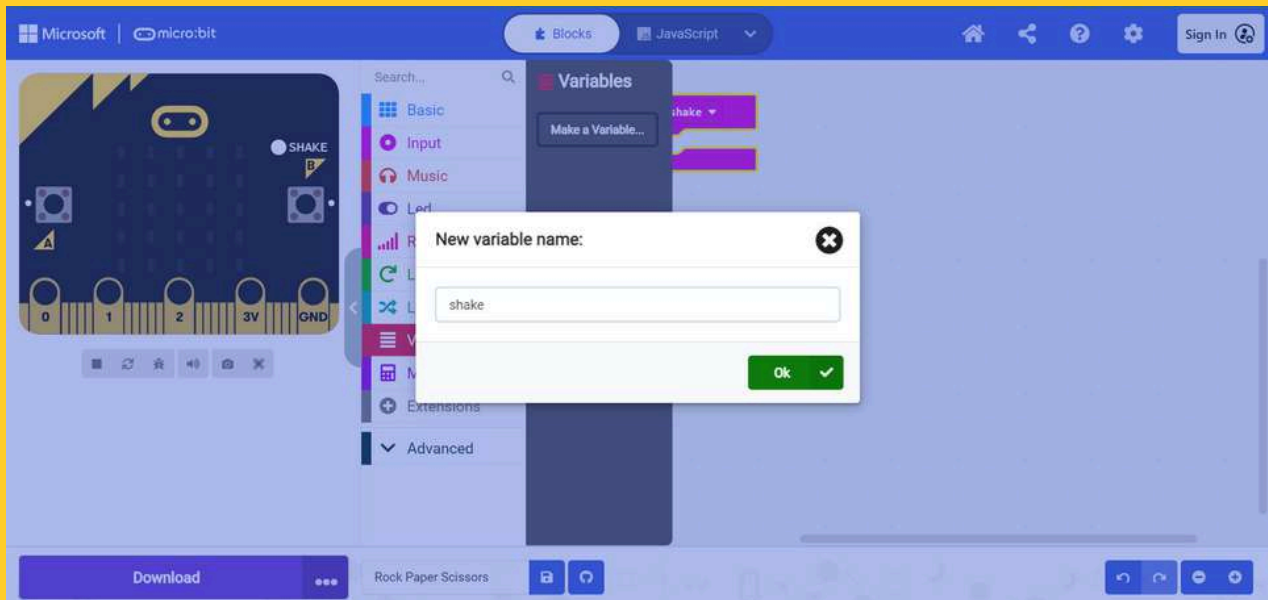
Make a Variable...

Knowledge time

What is a Variable?

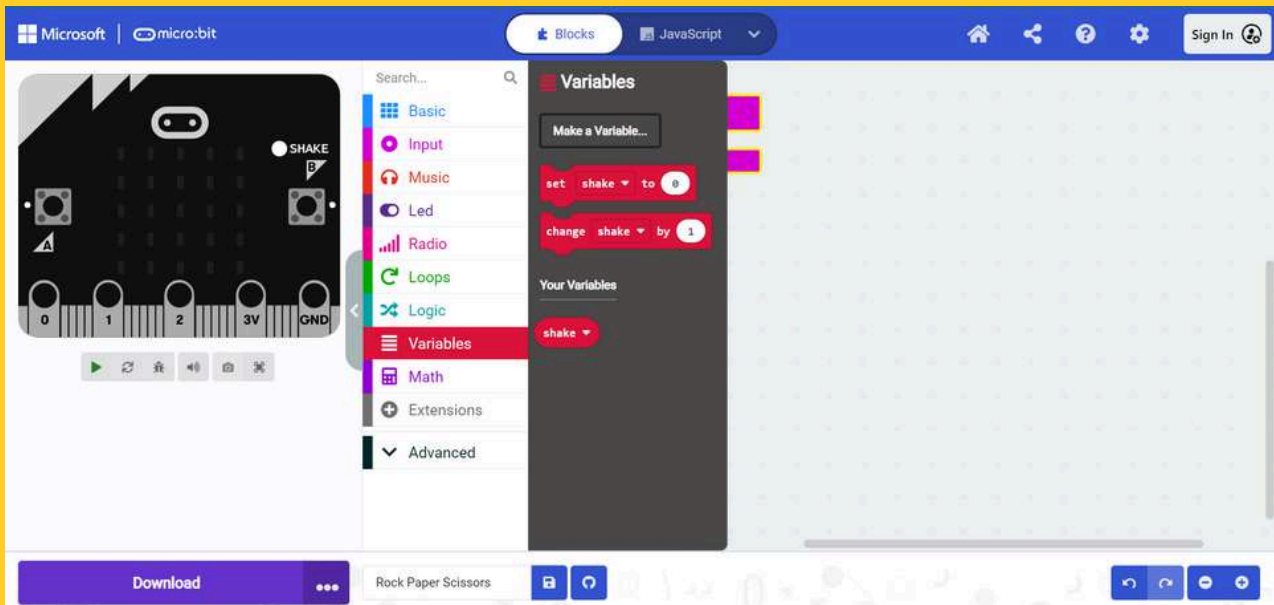
A variable in programming is like a box where you can store a piece of information. You can give the box a name and put different things in it, like numbers or words.



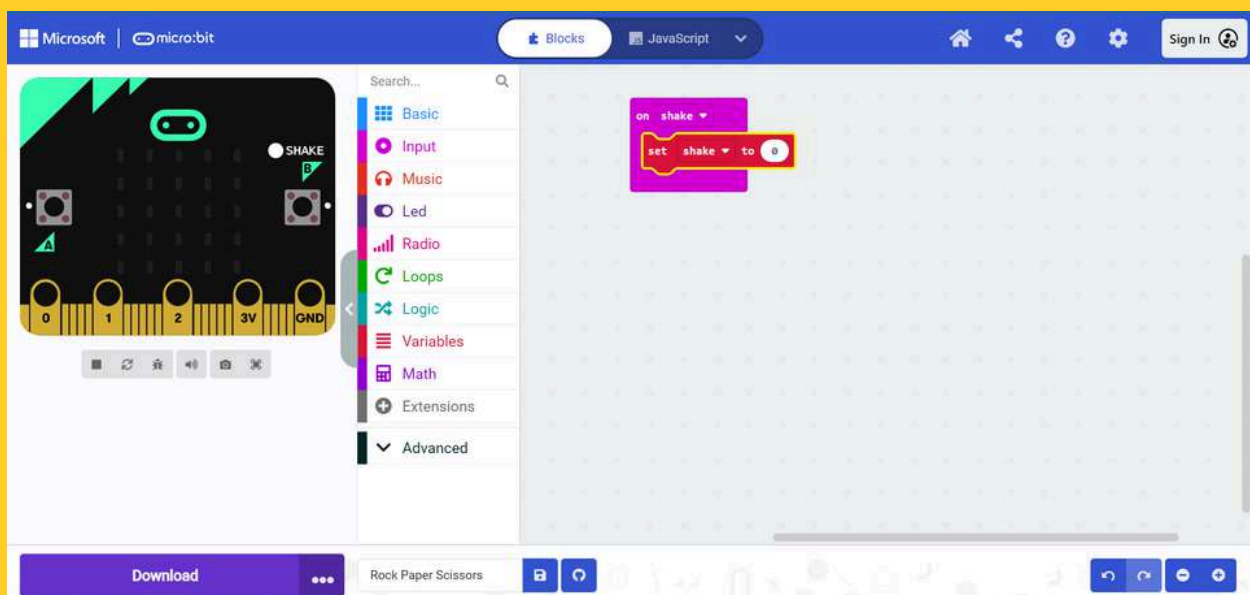


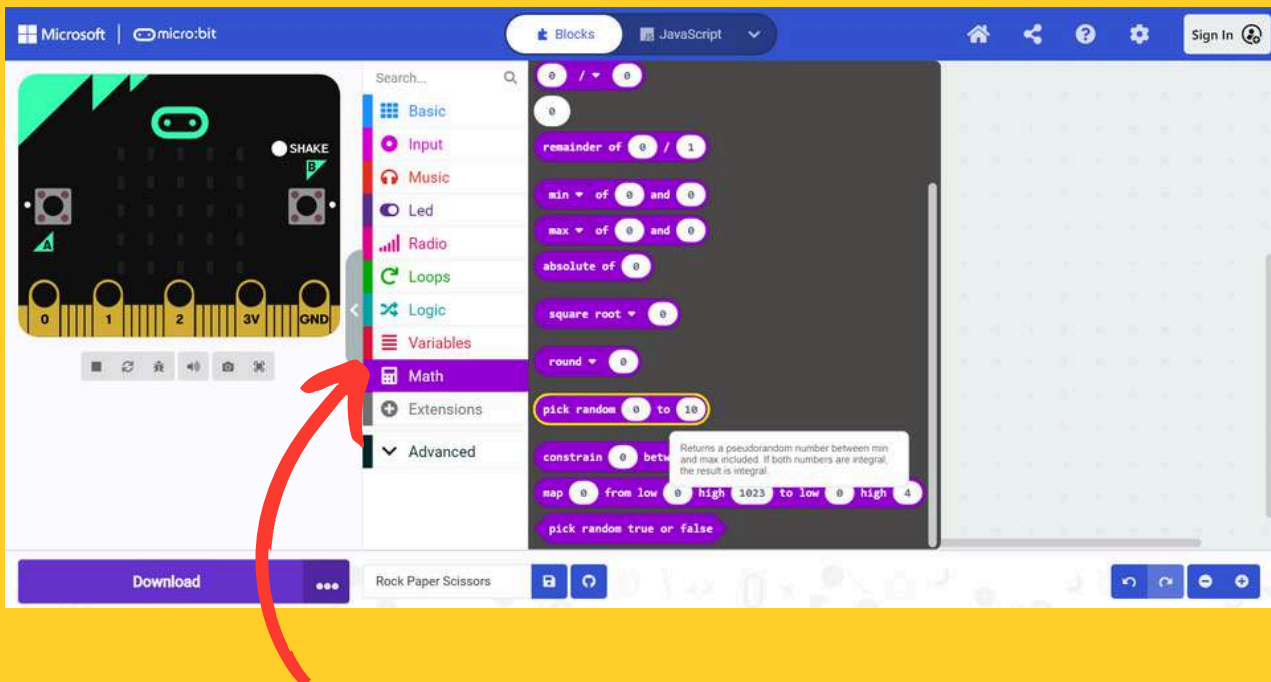
step 7: Give your variable any name you want, i named mine **“shake”** because we will be shaking the microbit to give us Rock, Paper or scissors randomly

Press  once you have typed in the name of your variable



step 8: From the **“Variable”** tab, select the block  drag and drop it in the screen, as shown in the picture below.

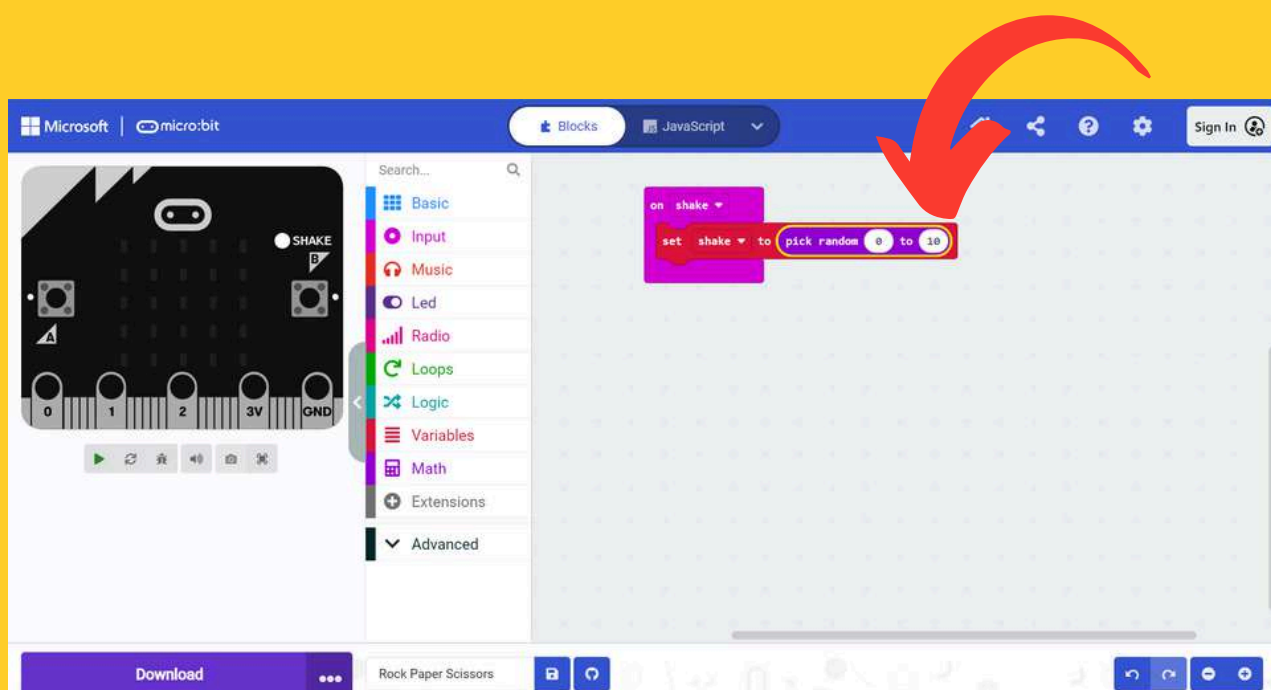




step 9: Navigate to the “**Math**” tab, select the pick random block, drag and drop it in the screen, as shown in the picture below.

Change the values from the default “0 to 10” to “0 to 2”

change this to “0 to 2”



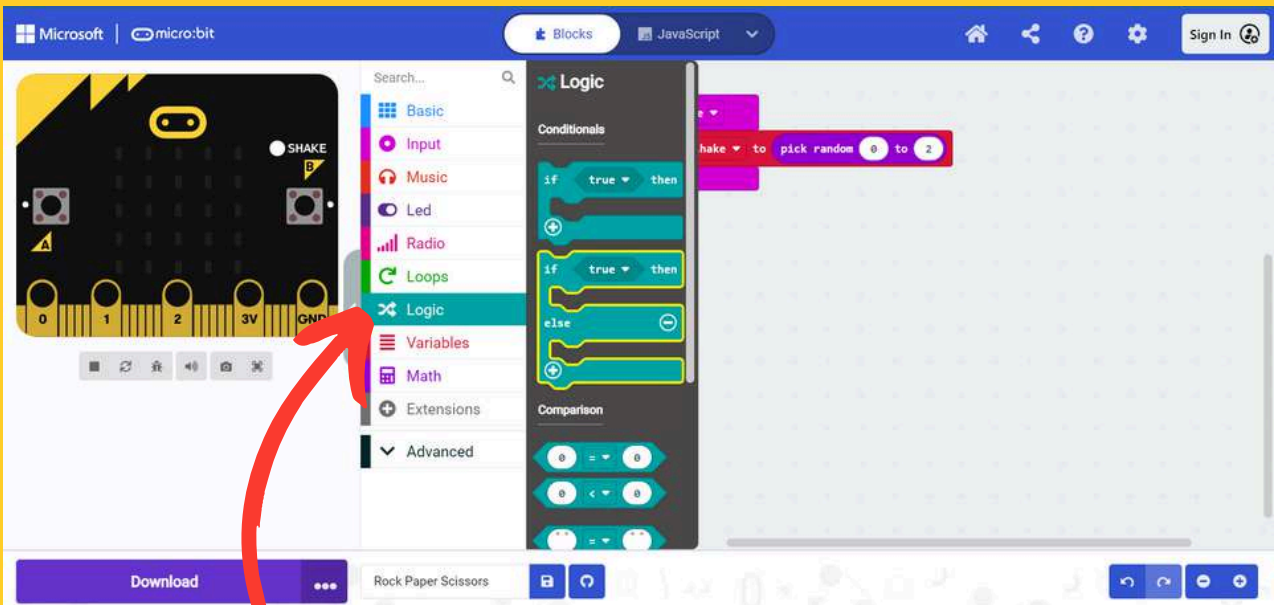
Knowledge time

Why 0 to 2?

An array in programming is like a row of numbered boxes, where each box can hold a piece of information. The boxes are lined up one after another.

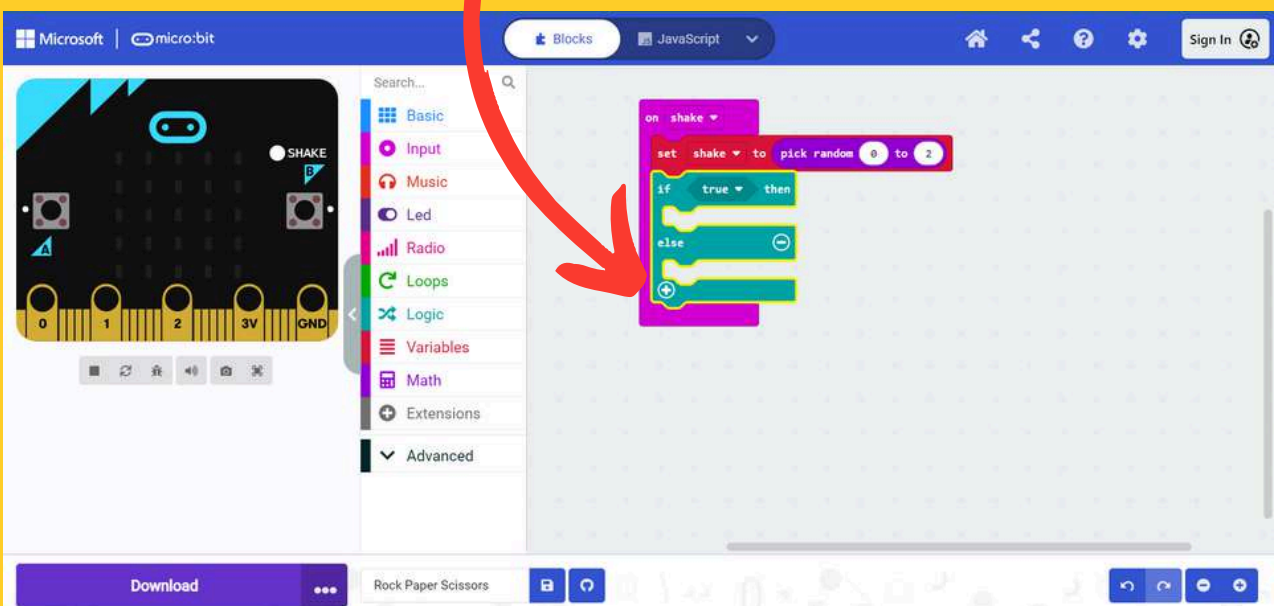
When counting these boxes, we start from 0 because that's how computers count. So, if you have three boxes in an array, they are numbered 0, 1, and 2. This helps us keep track of each box and find things easily.





step 10: Time to add a loop! Navigate to the **“Logic”** tab, select the **“if else”** block, drag and drop it in the canvas as shown in the picture below.

Press on the  icon to add another argument to our loop.



Knowledge time

What is a loop ?

Loops in programming are like doing something over and over again automatically.


Imagine you have a list of chores to do. Instead of doing each chore one by one, a loop lets you do them all without having to think about each one individually.

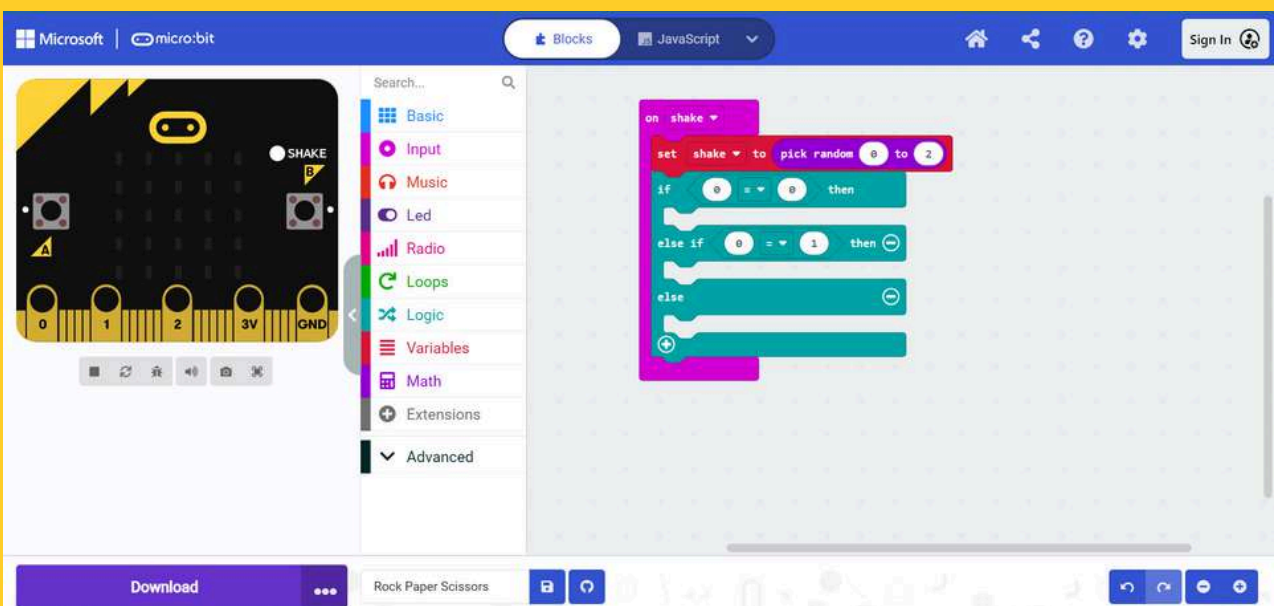
In programming, loops help you repeat tasks without writing the same code over and over again. They save time and make programs more efficient.

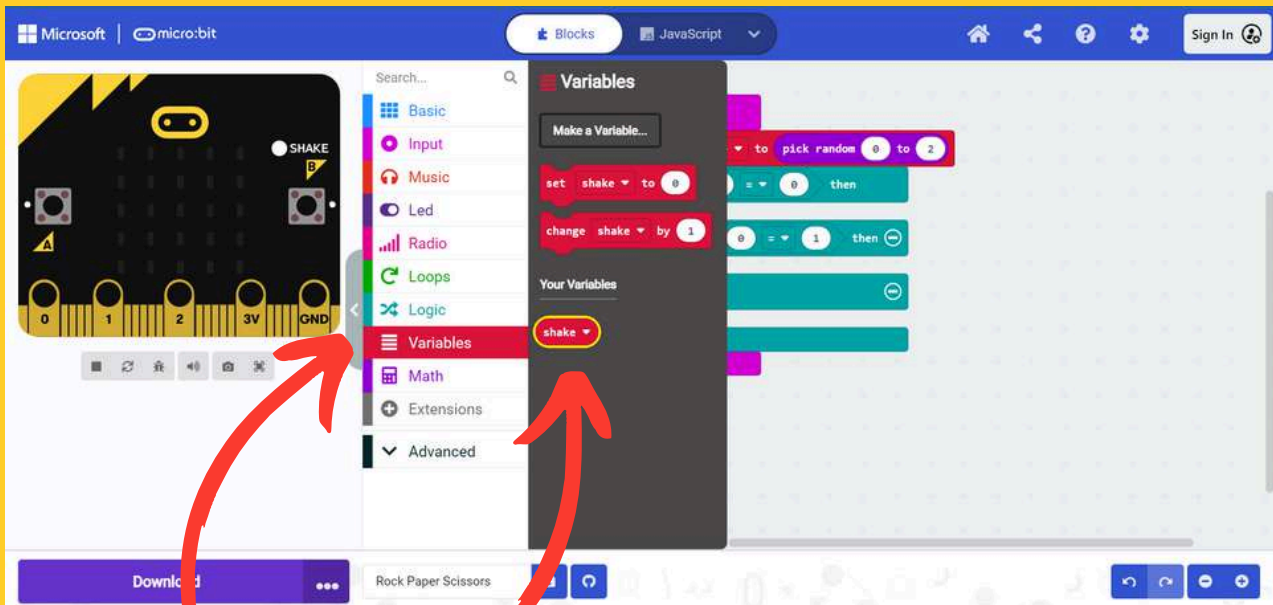




After you have added another argument, it is time to add the conditions.

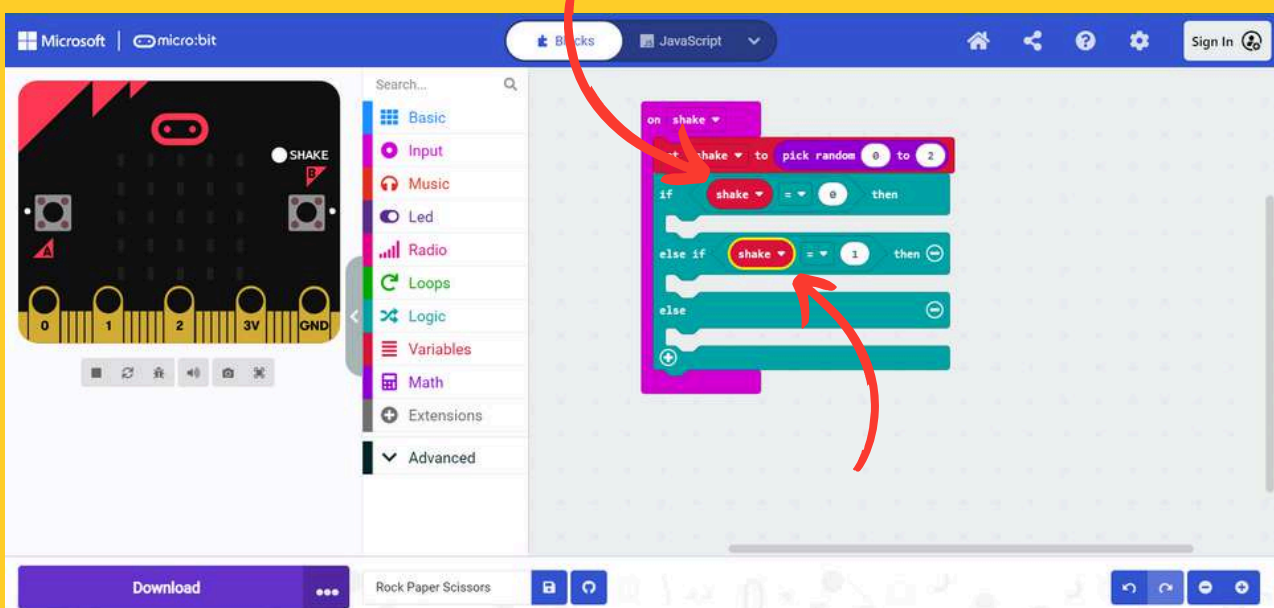
step 11: From the “**Logic**” tab, select the first comparison block  Drag and drop it in the canvas and change the values in one of the two from “**0 = 0**” to “**0 = 1**” as shown in the picture below.

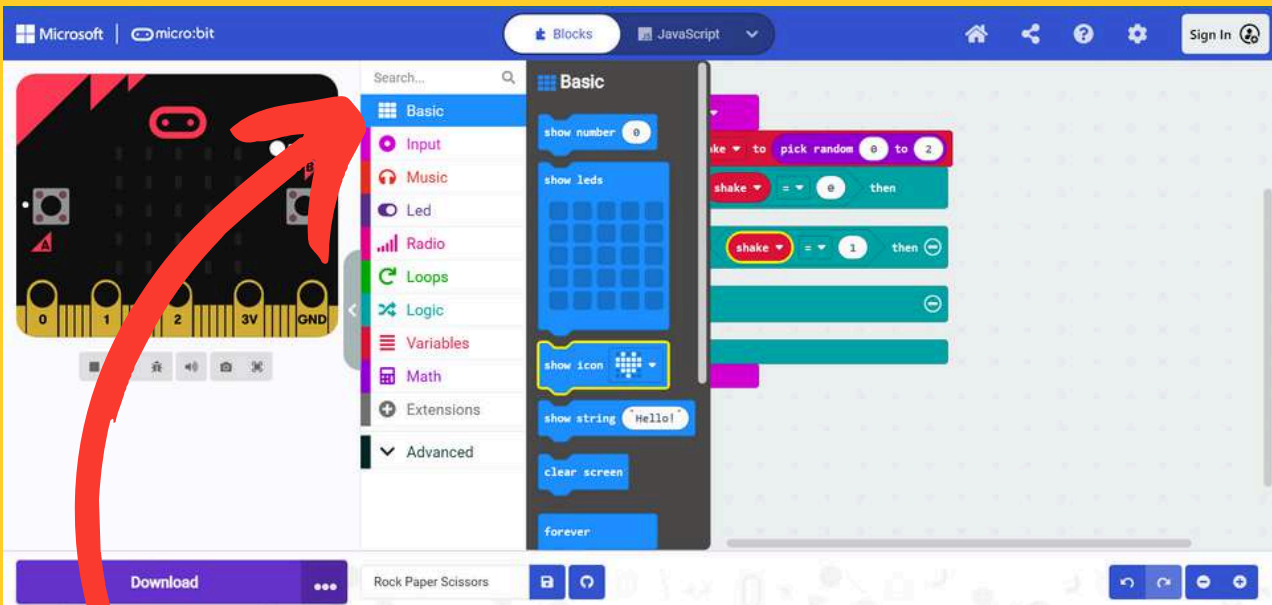




step 12: Now, let's add our variable in the argument. Navigate to the **“Variables”** tab and select the variable we created earlier.

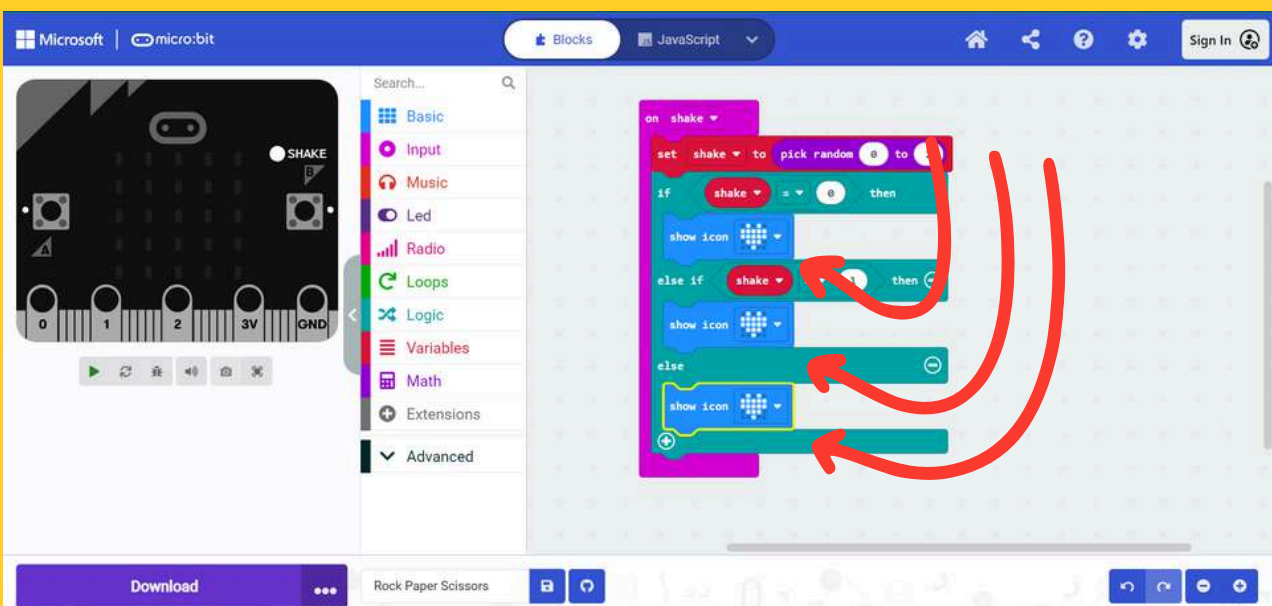
step 13: Drag the variable and drop it in the argument replacing the first 0 from **“if”** and **“else if”** as shown in the picture below.

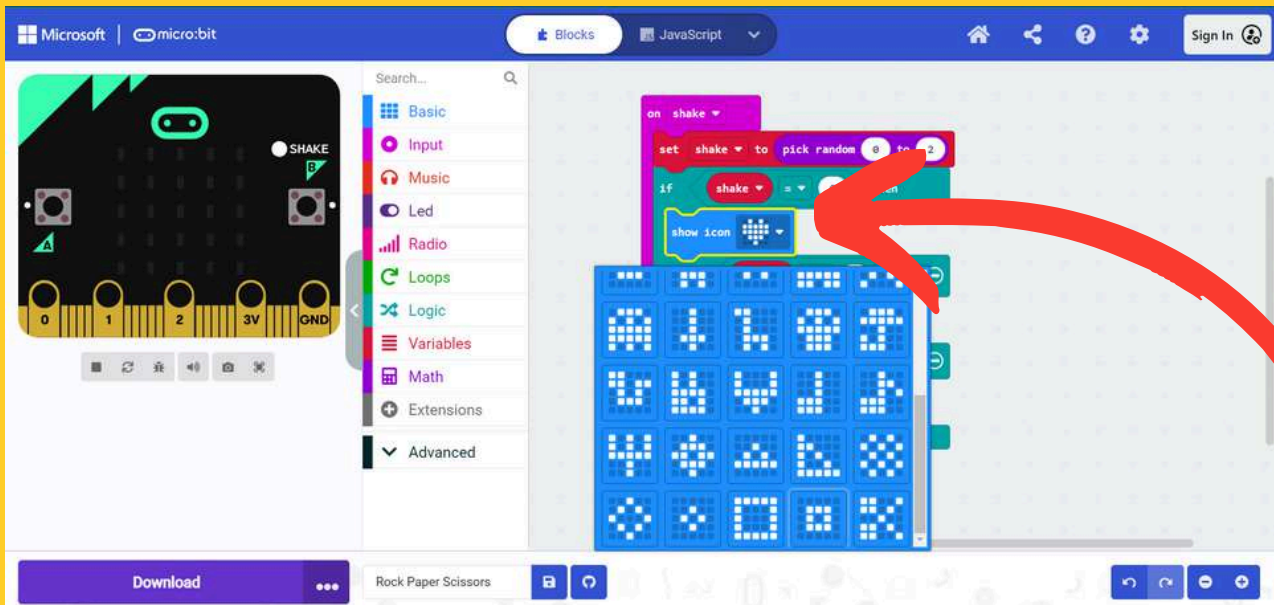




step 14: Now, in order to be able to display Rock, Paper or Scissors, we have to navigate to the “**Basic**” tab and select the set icon block.

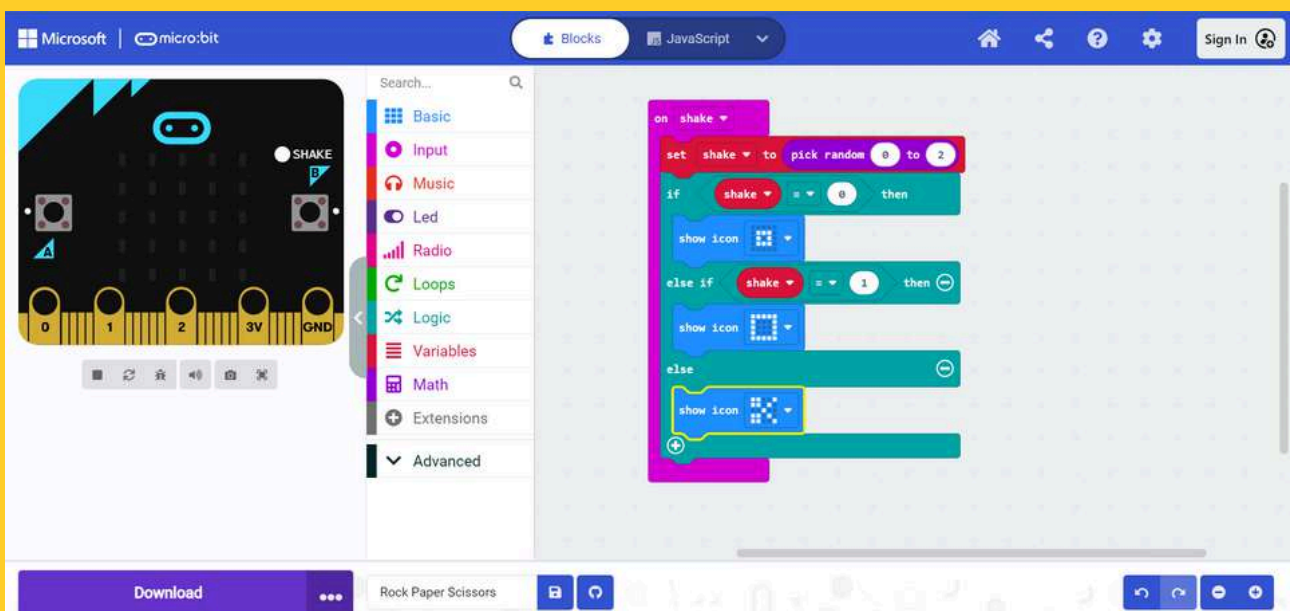
step 15: Drag and drop the block in the canvas 3 times as shown in the picture below. The icon display will be the result of our arguments.





step 16: Finally, select different icons for Rock, Paper and Scissors from the icon menu that appears when you press on the arrow in the “show icon” block.

Now, your screen should look like the screenshot below, we are ready to simulate.



Time to play

step 16: For the fun part!

Navigate to the micro:bit simulation that is located in the left side of your screen. To simulate the program, either press on the shake button, or shake your mouse on top of the micro:bit.

