Countdown Timer

Within this tutorial we are going to create a countdown timer using a micro:bit and the Make-Code editor.

You Will Need

- 1 x micro:bit
- 1 x micro USB cable
- 1 x computer with internet connection

Open Google Chrome on your computer by clicking this icon

Once Chrome has opened type: https://make-code.microbit.org/ into the search bar and press enter and click on new preoject once the pages has loaded.

Code

Click and drag the forever block to the left until you see a bin icon. Now drop it, this has deleted that block as we don't need it.

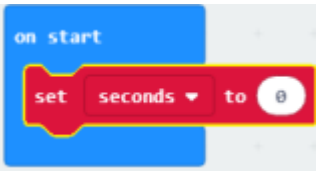
Create a variable

1. Click on **Variables**.
2. Click on **Make a Variable**.
3. Type **seconds** into the text box and click Ok.

Setting seconds to 0 on start

Click and drag a **set seconds to 0** block to within the **on start** block.

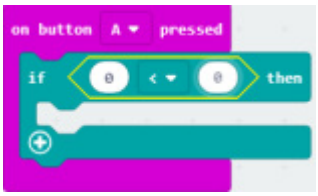
Your code should now look like this:



Increasing the timer by 1 when button A is pressed

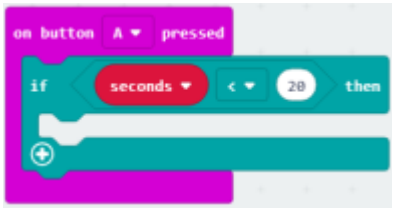
1. Click on **Input**.
2. Click and drag an **on button A pressed** block to the coding area.
3. Click on **Logic**.
4. Click and drag an **if true then** block into the coding area and attach within **on button A pressed**.
5. Click on **Logic**.
6. Click and drag a **0 < 0** block and drop it where it says **true** within the **if then** code block.

Your code should now look like this:



7. Click on **Variables**.
8. Click and drag a **seconds** block and attach it within the first 0 of the **if then** code block.
9. Where the second **0** is type **20**.

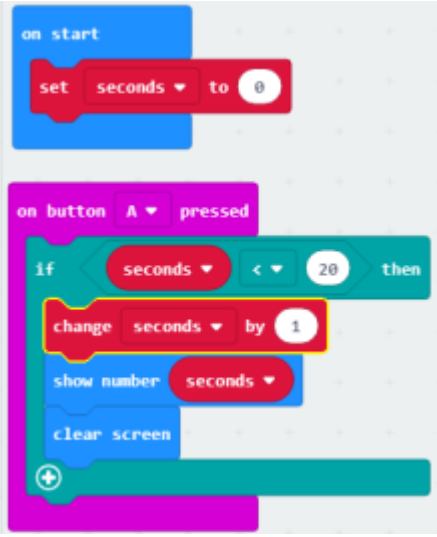
Your code should now look like this:



10. Click on **Variables**.
11. Click and drag a **change seconds by 1** block to the coding area and attach it within the **if then** block.
12. Click on **Basic**.
13. Click and drag a **show number** and attach it under the **change seconds by** block.
14. Click on **Variables**.
15. Click and drag a **seconds** block and attach it into the **0** of the **show number** block.

16. Click on **Basic**.
17. Click on **more**.
18. Click and drag a **clear screen** block and attach it under the **show number** block.

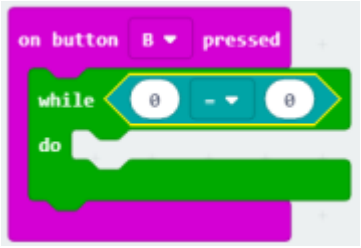
Your code should now look like this:



Start the timer when B is pressed

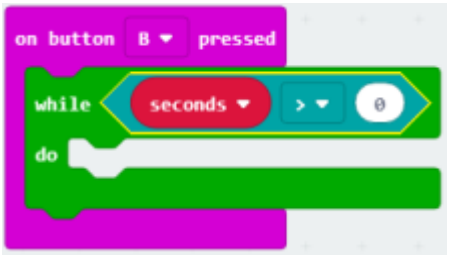
1. Click on **Input**.
2. Click and drag an **on button A pressed** and drag it to the coding area.
3. Click on the small arrow next to **A** and click on **B**.
4. Click on **Loops**.
5. Click and drag a **while true do** block to the coding area and attach it to **on button B pressed**.
6. Click on **Logic**.
7. Click and drag a **0 = 0** block to the code area and attach it to where it says **true** within the **while do** block.

Your code should look like this:



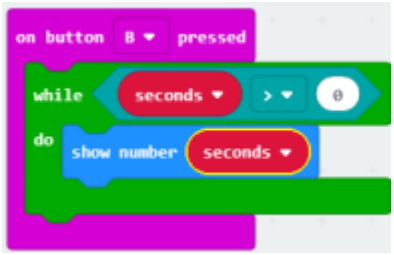
8. Click on **Variables**.
9. Click and drag a **seconds** block and attach it to the first **0** in the **while do** block.
10. Click on the small arrow next to the **=** sign and click on the **>** sign.

Your code should now look like this:



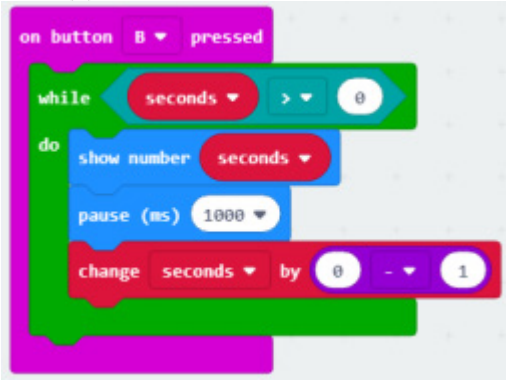
11. Click on **Basic**.
12. Click and drag a **Show nmumber** block to the code area and attach it within the **while do** block.
13. Click on **Variables**.
14. Click and drag the **seconds** block and attach it within the **0** of the **show number** block.

Your code should look like this:



15. Click on **Basic**.
16. Click and drag a **pause (ms) 100** block and attach it under **show number**.
17. Click on the small arrow next to **100** and click on **1 second**.
18. Click on **Variables**.
19. Click and drag a **change seconds by 1** block and attach it under the **pause** block.
20. Click on **Math**.
21. Click and drag a **0 - 0** block to the coding area and attach it within the **1** of the **change seconds by** block. Change the second **0** to **1**.

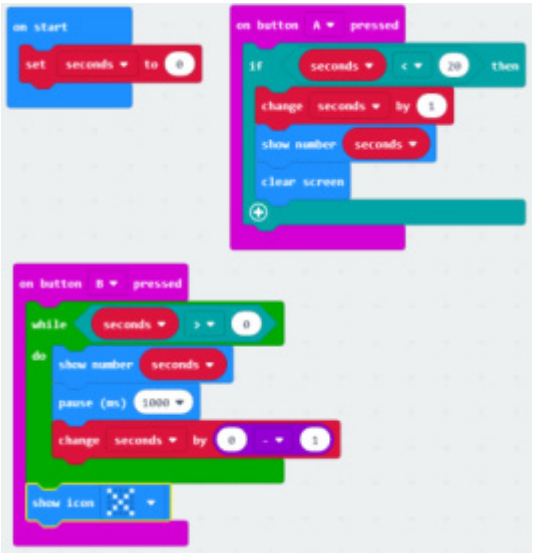
Your code should look like this:



22. Click on **Basic**.
23. Click and drag a **show icon** block to the code area and attach it under the **while do** block.
24. Click on the little arrow next to the **heart** and click on the **X** image.

Well done you have completed the code!

Completed Code



Testing

Let's grab a micro:bit and test our code. If you don't have a micro:bit use the virtual micro:bit within the MakeCode editor.

Downloading Your Code

1. Click on the **Download** button.
2. Save your code to the Downloads folder on your computer.
3. Connect the micro:bit to your computer using the micro USB cable.
4. Drag the **.hex** file from the Downloads folder to your micro:bit drive.

Running The Code

Press button A on your micro:bit to count up to 20 seconds. or anywhere in-between.

When you are ready to start your timer press button B and watch your micro:bit count down to 0 and display the X.

Challenges

1. Try to increase your timer to 60 seconds.
2. Look up how long it takes to boil an egg.
3. Try and adapt your code to time a boiling egg.