For this project you will need:

- Nothing except your micro:bit!

To start with, you are going to tell the micro:bit to display the current temperature when you press button A. Check the Inputs/Outputs worksheet if you can't remember how to do this.

`temperature()` gives an **integer** (whole number) in degrees Celsius – the micro:bit cannot display integers, so you need to convert the temperature into a **string** (words).

Type the following code into your **if button A** statement:

```
temp = str(temperature())
```

(pay attention to the number of brackets!)

You have created a **variable** called temp, and set it equal to the **current** temperature – this will update whenever the temperature changes, and always be equal to the current temperature.

Underneath this line, type the following code:

```
display.scroll(temp)
```

Test your code – does the temperature show when you press button A?

Now you can expand your program to make it more user friendly!

You can slow down the speed of the scrolling message to make it easier to read. Try:

```
display.scroll(temp, delay=200)
```

The **default** value is 150, so by changing the delay to 200, it will change more slowly.

Try increasing the delay even further, or making it scroll by really fast!

You can make it even more user friendly by making use of **button B**.

You could use button B to give instructions to the user.

Or you could allow the user to press **either button** to get the temperature:

```
if button_a.was_pressed() or button_b.was_pressed():
```

You now have a working thermometer!

Note: The temperature that the micro:bit is showing is the temperature of its processor chip. This means that it will be a little warmer than the room.

To get the real temperature, you could do some **scientific testing** to work out the difference!

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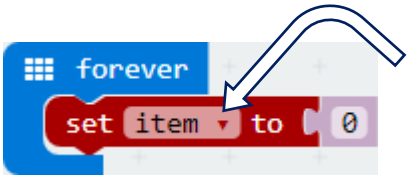
To start with, you will create a **variable**, and set it equal to the **current** temperature – this will update whenever the temperature changes, and always be equal to the current temperature.

The variable blocks can be found in the Variables option in the middle menu.

Click Make a Variable and name your new variable *temp*.

The next thing you need to do, is set your variable equal to the current temperature!

Drag a *set item* block into a *forever* block, like this:



Next, click this arrow, and select **temp** – this chooses your new variable *temp*, instead of *item*!

Go to Input and connect the *temperature* block to your *set temp* block, in place of the *0*.

Your finished block should look like this:

You are now going to tell the micro:bit to display the temperature when you press button A. Check the Inputs/Outputs worksheet if you can't remember how to do this.

Go to Basic and connect the *show number* block inside your *on button* block.

Find temp and connect it to your show number block, in place of the *0*.

Test your code – does the temperature show when you press button A?

Now you can expand your program to make it more user friendly!

Try adding a pause (ms) 100 after the temperature has been displayed, this will make it easier to see the difference between each temperature reading.

You can make it even more user friendly by making use of **button B** - you could use it to give instructions to the user, or you could allow them to press **either button** to get the temperature!

You now have a working thermometer!

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To get the real temperature, you could do some **scientific testing** to work out the difference!