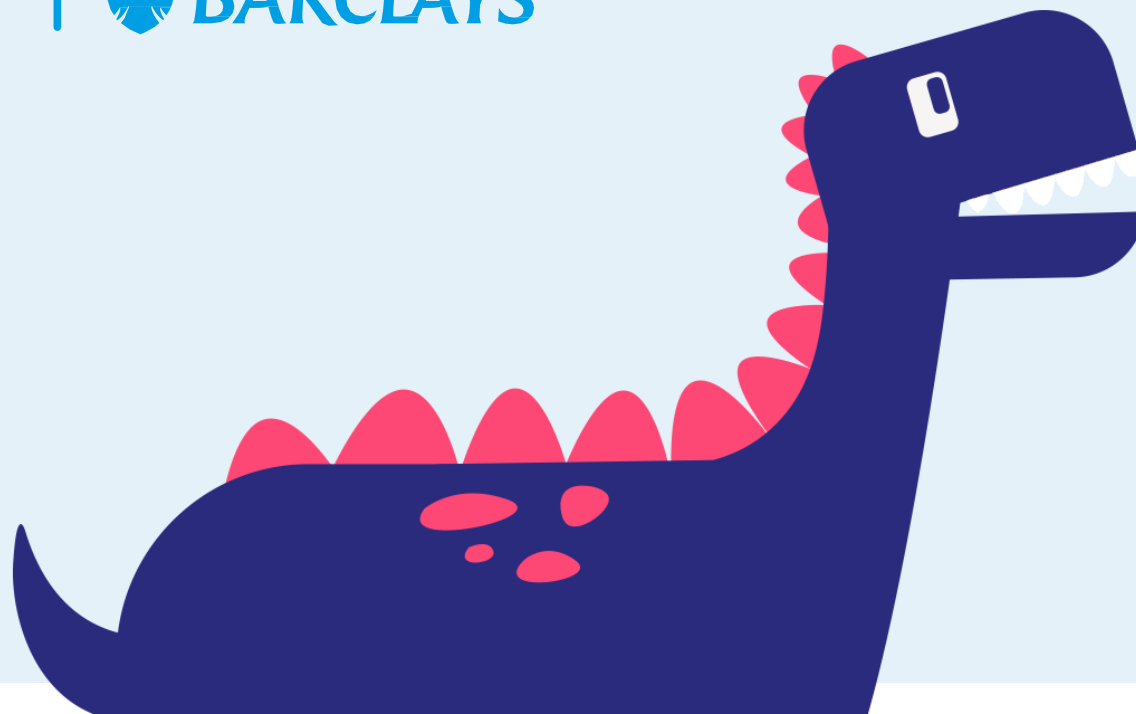


Student workbook

Introduction to the BBC micro:bit

Code Playground



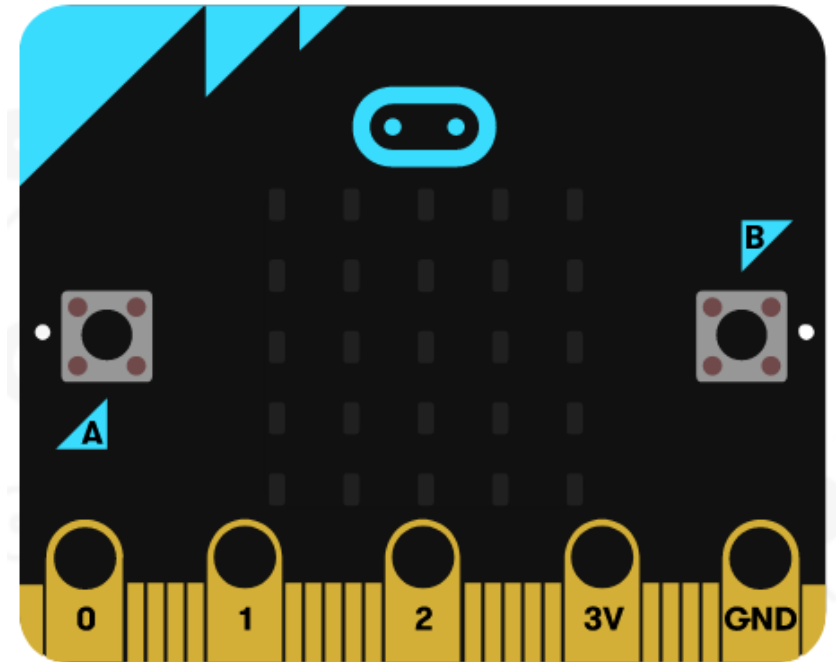
Micro:bit tools

Micro:bit projects

Learn the basics of using the BBC micro:bit in your projects and start learning about physical computing. Don't have a micro:bit? That's ok you can use the emulator on the micro:bit coding editor. Visit the 'Let's code' page to choose your editor:

<https://microbit.org/code/>

Hope you enjoy the workbook!



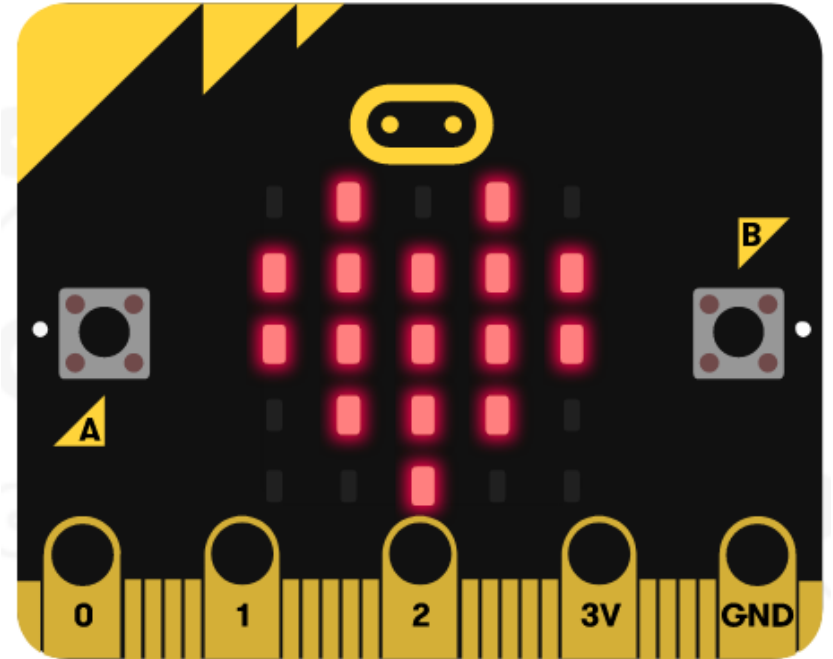
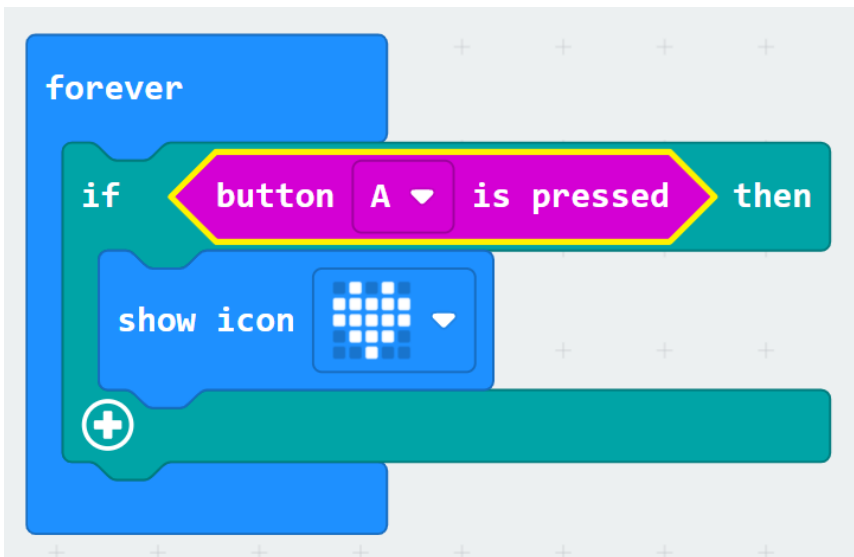
Micro:bit tools

Micro:bit projects

Step 1

Here we use simple selection to make the micro:bit flash your name or an icon using the LED display. This means, 'if' the A button is pressed, 'then' show the heart icon. Add this code to your micro:bit.

**Top tip – you might want to use the buttons to activate your code.



Micro:bit tools

Micro:bit projects

Step 2

You can add more conditions to your code which will trigger different actions. Add this code to your micro:bit to allow you to show your mood using the if/then block. Use the different buttons to show different icons on the micro:bit.

Try the Python coding below for more of a challenge.

```
1 basic.forever(function () {
2     if (input.buttonIsPressed(Button.A)) {
3         basic.showIcon(IconNames.Heart)
4     } else if (input.buttonIsPressed(Button.B)) {
5         basic.showIcon(IconNames.Happy)
6     } else if (input.pinIsPressed(TouchPin.P0)) {
7         basic.showIcon(IconNames.Ghost)
8     }
9 })
10
```

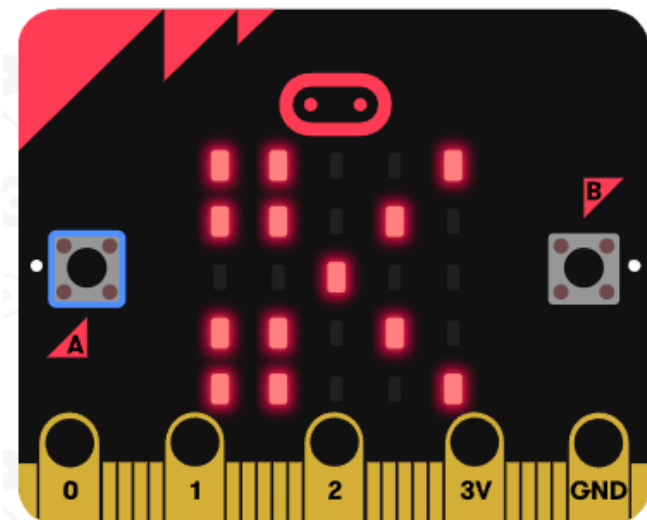


Micro:bit tools

Micro:bit projects

Step 3

Want to create a game you can play against your micro:bit? Let's turn your micro:bit into a Rock, Paper, Scissors game so you can have some fun.



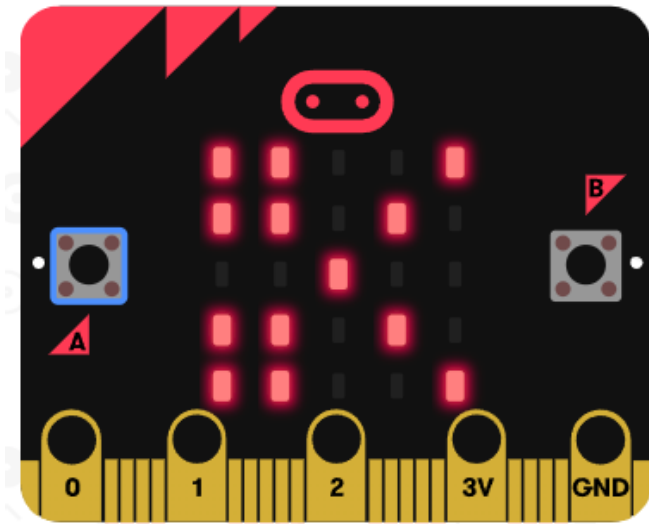
```
on button A pressed
  set random_number to pick random 1 to 3
  if random_number = 1 then
    show icon [Rock]
    pause (ms) 1000
  else if random_number = 2 then
    show icon [Paper]
    pause (ms) 1000
  else if random_number = 3 then
    show icon [Scissors]
    pause (ms) 1000
  clear screen
```

Micro:bit tools

Micro:bit projects

Step 3 cont.

Here's the Python code for this project too.



```
1 let Random_Number = 0
2 input.onButtonPressed(Button.A, function () {
3     Random_Number = randint(1, 3)
4     if (Random_Number == 1) {
5         basic.showIcon(IconNames.SmallSquare)
6         basic.pause(1000)
7     } else if (Random_Number == 2) {
8         basic.showIcon(IconNames.Square)
9         basic.pause(1000)
10    } else if (Random_Number == 3) {
11        basic.showIcon(IconNames.Scissors)
12        basic.pause(1000)
13    }
14    basic.clearScreen()
```


Micro:bit tools

Micro:bit projects

Step 4

Now lets see what we can do with Button B. Do you ever get stuck with what to do when you are bored. Lets create a random activity picker. Think of 6 activities that you can set on your micro:bit. by pressing button B you can randomly select an activity for you to complete.

Then use this code to add your activities to your micro:bit and never be bored again.



```
on button B pressed
  set random_number to pick random 1 to 6
  if random_number = 1 then
    show string "go for a walk"
  else if random_number = 2 then
    show string "learn a song"
  else if random_number = 3 then
    show string "play a board game"
  else if random_number = 4 then
    show string "tidy our rooms"
  else if random_number = 5 then
    show string "play rock, paper, scissors"
  else
    show string "code playground"
```

The image shows a Scratch-style code editor with a purple background. The code is written in a block-based language. It starts with an 'on button B pressed' event block. This is followed by a 'set random_number to pick random 1 to 6' block. Then, there are five 'if random_number = [number] then' blocks, each followed by a 'show string' block with a specific activity: 'go for a walk', 'learn a song', 'play a board game', 'tidy our rooms', and 'play rock, paper, scissors'. Finally, there is an 'else' block followed by a 'show string' block with the activity 'code playground'. The code blocks are color-coded: purple for the event, red for the set block, teal for the if blocks, and blue for the show string blocks.

Micro:bit tools

Micro:bit projects

Step 4 cont.

Here's the Python code for you to use too.

```
16 input.onButtonPressed(Button.B, function () {
17     Random_Number = randint(1, 6)
18     if (Random_Number == 1) {
19         basic.showString("Clean the Classroom")
20     } else if (Random_Number == 2) {
21         basic.showString("Clean your bedroom")
22     } else if (Random_Number == 3) {
23         basic.showString("Clean the Toilet")
24     } else if (Random_Number == 4) {
25         basic.showString("Sweep the house")
26     } else if (Random_Number == 5) {
27         basic.showString("Mop the living room")
28     } else {
29         basic.showString("Make a device")
```


Notes

Code Playground

Barclays Bank UK PLC is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority (Financial Services Register No. 759676). Registered in England, Registered No. 9740322. Registered Office 1 Churchill Place, London E14 5HP.