

# Programming the micro:bit using Python

## Beginner

### Before you begin

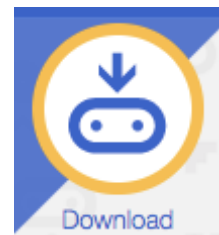
- Take time to read the safety guidance sheet
- Visit [python.microbit.org](https://python.microbit.org) using your web browser (preferably Google Chrome)
- Plug the micro:bit into your computer using the USB cable

### Scrolling messages

- We're first going to start my scrolling messages across the micro:bit's LEDs
- Enter the following code into the Python editor:

```
from microbit import *  
display.scroll('Hello World!')
```

- Press the “Download” button to get the program on to your computer
- Copy the downloaded file on to your micro:bit



### Displaying images

- We're now going to display some images on the micro:bit's LEDs
- Enter the following code into the Python editor:

```
from microbit import *  
display.show(Image.HEART)
```

- Press the “Download” button to get the program on your device
- Try adding further images from the list overleaf. For example:

```
from microbit import *  
while True:  
    display.show(Image.SMILE)  
    sleep(1000)  
    display.show(Image.HEART)  
    sleep(1000)
```

`display.show(Image.HEART)`

Image.HEART  
Image.HEART\_SMALL  
Image.HAPPY  
Image.SMILE  
Image.SAD  
Image.CONFUSED  
Image.ANGRY  
Image.ASLEEP  
Image.SURPRISED  
Image.SILLY  
Image.FABULOUS  
Image.MEH  
Image.YES  
Image.NO  
Image.TRIANGLE

Image.TRIANGLE\_LEFT  
Image.CHESSBOARD  
Image.DIAMOND  
Image.DIAMOND\_SMALL  
Image.SQUARE  
Image.SQUARE\_SMALL  
Image.RABBIT  
Image.COW  
Image.MUSIC\_CROTCHET  
Image.MUSIC\_QUAVER  
Image.MUSIC\_QUAVERS  
Image.PITCHFORK  
Image.XMAS  
Image.PACMAN

Image.TARGET  
Image.TSHIRT  
Image.ROLLERSKATE  
Image.DUCK  
Image.HOUSE  
Image.TORTOISE  
Image.BUTTERFLY  
Image.STICKFIGURE  
Image.GHOST  
Image.SWORD  
Image.GIRAFFE  
Image.SKULL  
Image.UMBRELLA  
Image.SNAKE

Image.CLOCK12 # clock at 12 o' clock  
Image.ARROW\_N  
... # arrows pointing N, NE, E, SE, S, SW, W, NW (microbit.Image.ARROW\_direction)

Image adapted from Alexander Hadwen-Bennett's "micro:bit SoW for Micro Python" -  
<http://community.computingschool.org.uk/resources/4488>

- *Challenge* – can you make a clock hand move around the micro:bit's LEDs?  
Hint: start with – `display.show(Image.CLOCK12)`

## Reacting to buttons

- The buttons on the micro:bit can be used to trigger events, such as displaying text or images
- Enter the following code into the Python editor:

```
from microbit import *  
while True:  
    if button_a.is_pressed():  
        display.scroll('I am A')  
    if button_b.is_pressed():  
        display.scroll('I am B')
```

- *Challenge* – can you get more than one event to take place when a button is pressed?
- *Challenge* – can you make a different image display when you shake the micro:bit? Hint: try adding - `if accelerometer.was_gesture('shake')`: