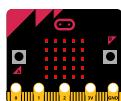


FUZE BASIC

BBC micro:bit "LIGHTS"



Worksheet:

2

The BBC micro:bit is a tiny computer designed to interact with other electronic components. It can light up LEDs to display messages, it has movement sensors and buttons that can be used to control other devices. It has input and output connections so it can connect to electronic circuits and it can even be used as a joystick!

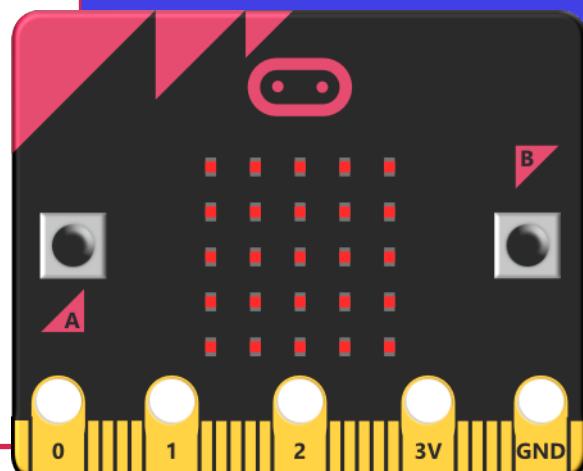


First of all lets see if we can get it to display something on its tiny little LED matrix.

Before we get started please make sure you have a micro:bit connected to one of your USB ports. Then, if it is not already loaded, start FUZE BASIC by clicking the desktop icon.



Set FUZE BASIC in immediate mode, not the editor. The editor has a simple screen with a "█" cursor prompt.



MBPRINT ("Hello World", 1)

Type in the command to the left and then press the ENTER key.

Remember to watch the micro:bit as this is where it will display the text. The 1 changes the speed. Try changing it to anything between 0 to 10. **NOTE:** If left alone the connection to the micro:bit can close. If you don't see any results then type, in immediate mode; 'PRINT DETECTDEVICES' to wake it up!

```
CLS
INPUT "Enter some text ", text$
MBPRINT (text$, 1)
END
```

Now go to the **EDITOR (F2)** and type in the code to the left then **RUN** the program with **F3**. Remember, the first time you **RUN** a new program it will ask you to save it. Just enter your initials and click OK or press **ENTER**.

```
FOR counter = 0 TO 500 LOOP
    MBPLOT(RND (5), RND (5), RND (255))
    REPEAT
FOR counter = 1 TO 5 LOOP
    FOR size = 1 TO 5 LOOP
        MBRECT (0, 0, size, size, 255, 1)
        WAIT (.05)
    MBCLS
    REPEAT
    REPEAT
FOR Y = 0 TO 4 LOOP
    MBLINE (0, Y, 4, Y, 255)
    WAIT (.1)
    REPEAT
FOR Y = 4 TO 0 STEP -1 LOOP
    MBLINE (0, Y, 4, Y, 0)
    WAIT (.03)
    REPEAT
END
```

Let's try out a few more micro:bit commands. Enter this new program:

The **FOR counter = 0 to 500 LOOP** initiates a loop that lights a random LED 500 times. The **MBPLOT** command takes three numbers, the X position (0 to 4), the Y position (0 to 4) and finally the brightness (0 to 255).

Next we're using the **RECT** statement to draw rectangles increasing in size. There are two main **LOOPS** for this, the **counter** one repeats 5 times and the **size** one draws the rectangle in 5 different sizes.

Finally two more **LOOPS** draw a line going down the display and then back up again using **STEP - 1**

ADVANCED CHALLENGE:

Can you add more **LOOPS** to create different effects using the commands above?