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Activity 1

Review

Microsoft MakeCode editing software for BBC micro:bit -

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

Start the lesson by reviewing the parts of the micro:bit with students or giving a short quiz on the vocabulary and parts of the micro:bit from the previous lesson.

Review the default blocks of code that are in every program they create for the micro:bit, that is, the on **[start]** and **[forever]** blocks. Also remind the students that these blocks can be deleted if they are not used.

Review the **[show string]** block and the **[show icon]** block. Demonstrate the display of the heart (used in "Hello World" lesson) and look at some of the other images that are built in to the MakeCode programming language. Specifically look at **chess board**, **house**, and **giraffe** as students will be recreating these images later in the lesson.



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Activity 2

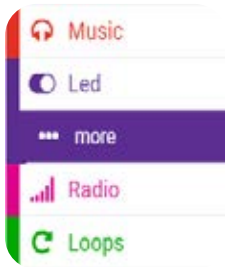
Customizing Displays on the LED array

This lesson focuses on the [\[show leds\]](#) block and the [\[plot x _ y _ brightness\]](#) block.

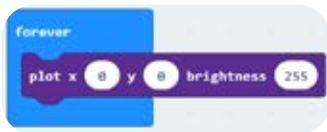
The [\[show leds\]](#) block is a quick way to create custom images. However, it does not let you control the brightness of each led. This block is found under the [\[Basic\]](#) block type. The image at right shows one way of lighting only the top left LED.



The [\[plot x _ y _ brightness\]](#) block is used to change the light levels of individual pixels. When using [\[plot x _ y _ brightness\]](#) you must specify three arguments: the *x-coordinate*, the *y-coordinate*, and the *brightness level*. The x and y coordinates range from 0 to 4, starting with 0,0 in the top left corner of the micro:bit display. The brightness levels range from 0 to 255. The standard for each LED is **0** which means that it is *off*. This block is found under the [\[Led\]](#) block type and then clicking [\[... more\]](#).



To turn the top left LED on with full brightness using the [\[plot x _ y _ brightness\]](#) block would look like this:



After you become familiar with the command and the use of coordinates, try recreating the following images with your own code: **chess board**, **house**, and **giraffe**. The code for each of the images is included on the following pages.

Try to create your own images using varying light levels.

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