BOT WORKSHOPS

Setup guide

REUSE, RECYCLE... ROBOTS!

Before beginning, check that you have everything you need for the workshop.

Each kit contains:

- A BBC **micro:bit** screwed to a Kitronic **servo:lite** board
- For *Bobbing Bots*: A strip of 6 **NeoPixel** lights in a transparent tube
- For *Blooming Bots*: A single HS-422 **180° servo** motor with an attached arm
- For *Buzzing Bots*: A pair of GS-3360BB **continuous servo** motors with bottle-top wheels

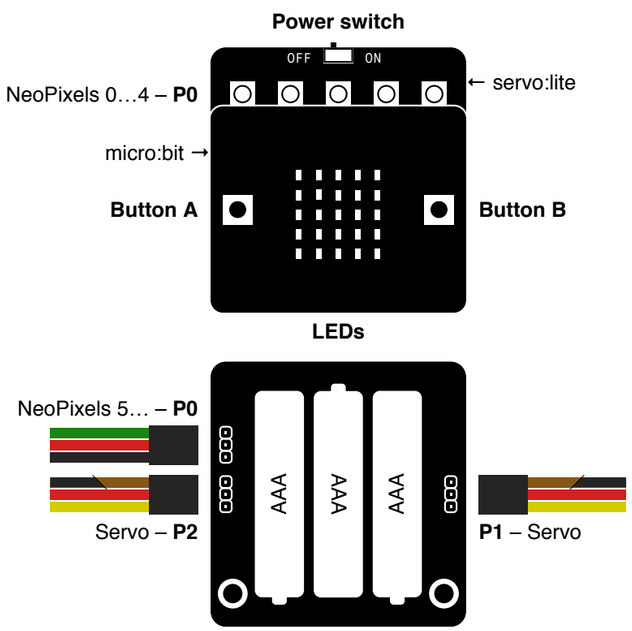
You will also need three AAA rechargeable batteries, plus the materials and tools listed on the making worksheet.

The **micro:bit** is a small computer containing some basic sensors, buttons and LEDs, plus pins that allow attachment of other devices. The attached **servo:lite** board provides power to the micro:bit and has 5 NeoPixel lights connected to the micro:bit P0 pin. It also has three connectors on the reverse: two for attaching servo motors, connected to the micro:bit P1 and P2 pins; and one for adding additional NeoPixel lights chained to the built-in ones on the P0 pin.

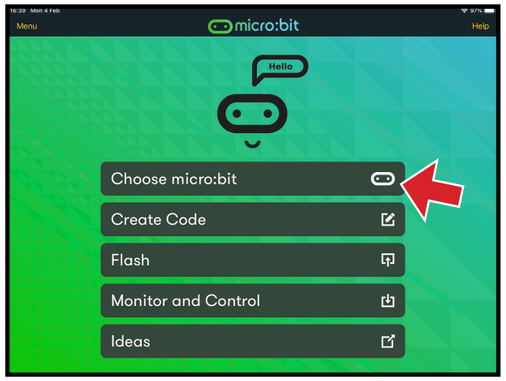
The **NeoPixel** lights can be programmed to shine different colours, as they are made up of separate red, green and blue LEDs. The **180° servo** can be turned to point in a specific direction and the **continuous servos** can be instructed to turn forwards or backwards at different speeds.

Ensure that the servo:lite board is OFF and then insert the batteries before beginning the setup steps. Keep the board switched off until instructed to switch it on.

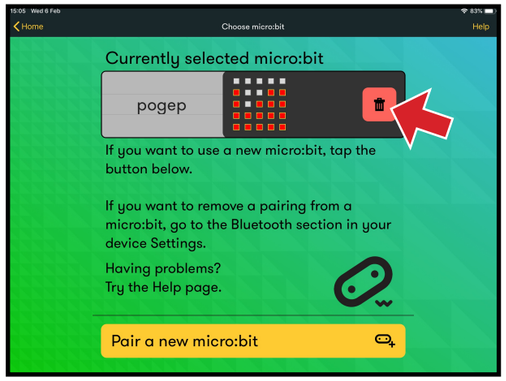
Quick reference guide for the micro:bit and servo:lite



1 Go to the iPad home screen and open the **micro:bit** app.

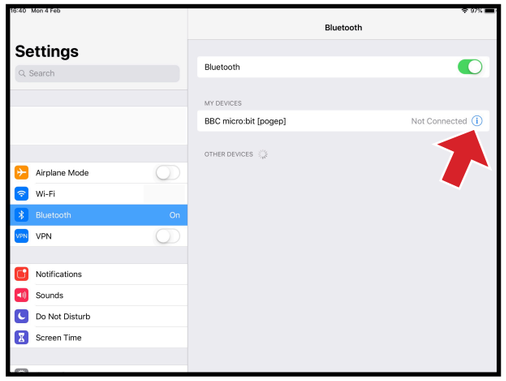


2 Tap the **Choose micro:bit** button.

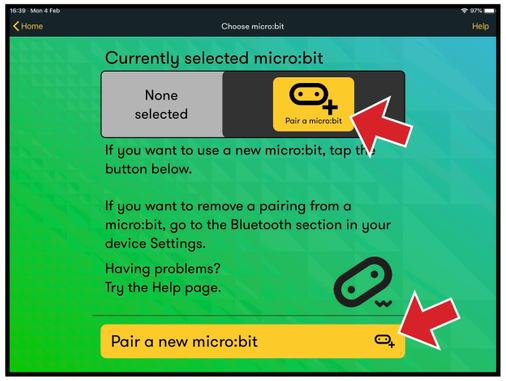


3a Unpair any currently selected micro:bits by tapping the red wastebasket and doing steps **3b** and **3c**, if **None selected** continue at **4**.

3b To finish unpairing a micro:bit, return to the iPad home screen, open the **Settings** app and tap on **Bluetooth**.



3c Tap the ⓘ icon next to each **BBC micro:bit**, then **Forget This Device**. Return to the home screen and re-open **micro:bit** app.



4 Once this screen shows **None selected**, tap either of the **Pair a new micro:bit** buttons.

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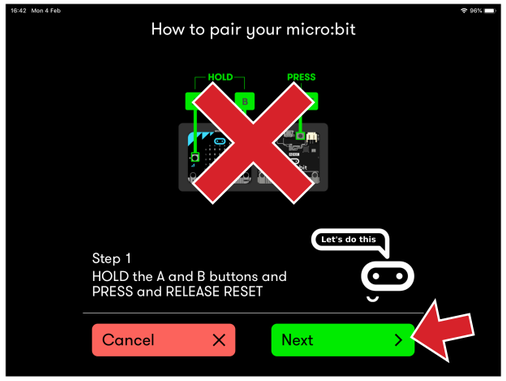
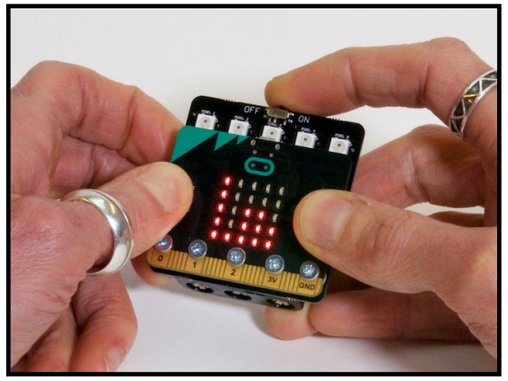
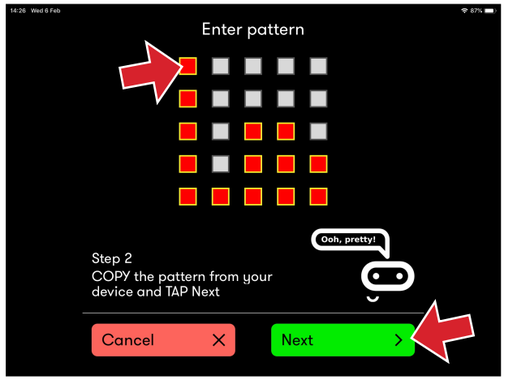


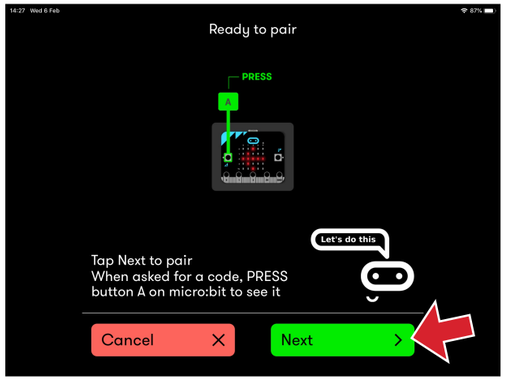
5 *Ignore the instructions on this screen!* Ensure the servo:lite board is switched **OFF** at the tiny black switch on the top, then tap **Next**.



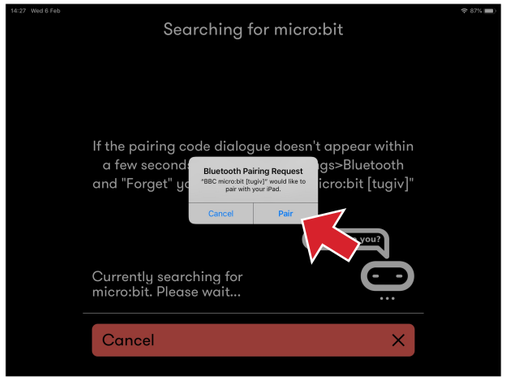
6 Hold down the micro:bit **A** and **B** buttons while switching the board **ON** – *hold both buttons until the LEDs show a pattern of columns*.



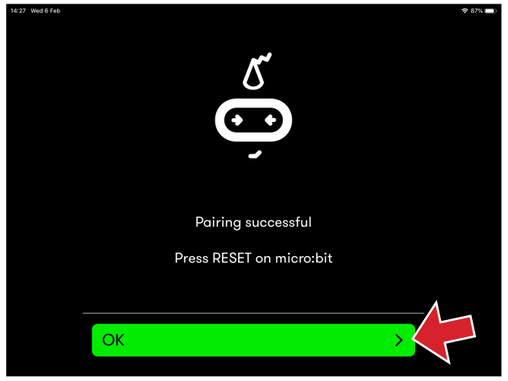
7 Copy the pattern from the micro:bit LEDs onto the iPad by tapping the highest square in each column, then tap **Next**.



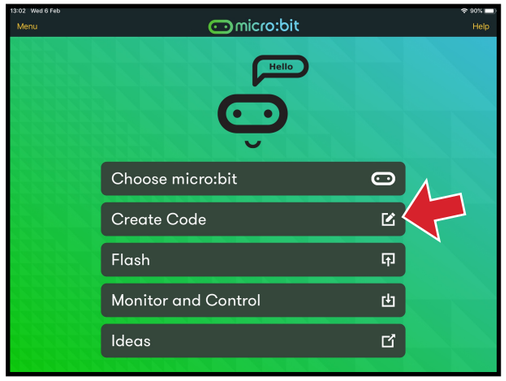
8 You will *not* normally be asked for a code, but be ready to press the **A** button on the micro:bit and enter the code if asked. Tap **Next**.



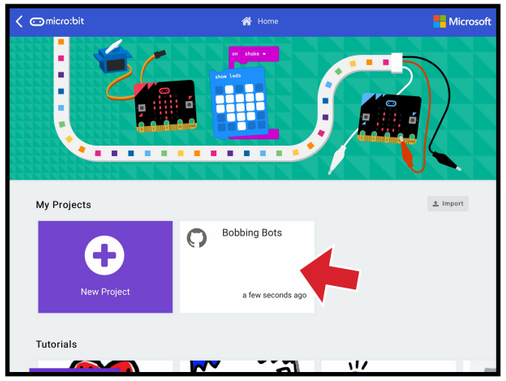
9 When the **Bluetooth Pairing Request** box is shown, tap the **Pair** button.



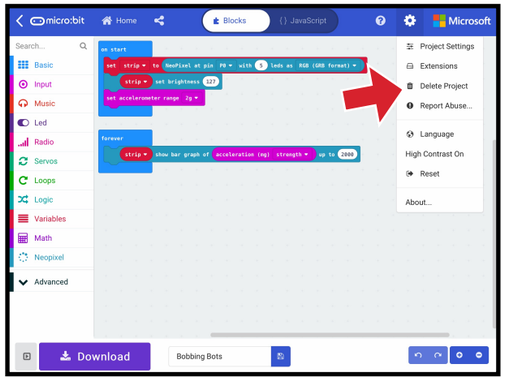
10 The micro:bit will show a tick on the LEDs when paired, you should now switch it off. Tap **OK** and then tap **Home** in the top left corner.



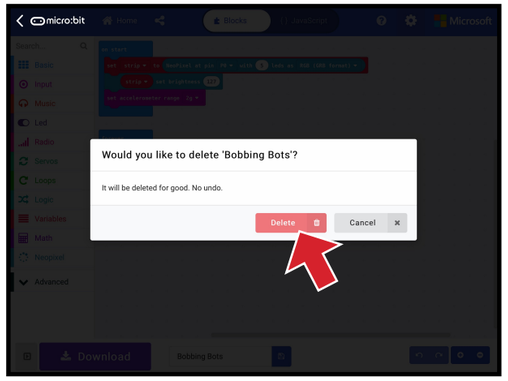
11 Tap **Create Code** to open the code editor.



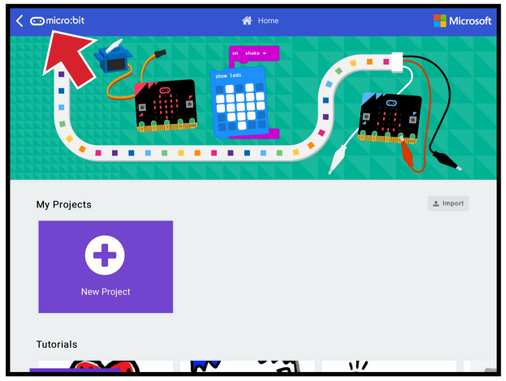
12a If there is a project shown in the **My Projects** list, tap on it and follow steps **12b** and **12c** to delete it. Otherwise continue at **13**.



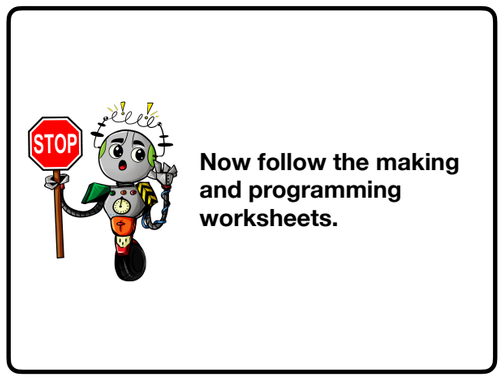
12b Tap on the gear wheel in the upper right of the screen to open the project menu, then tap **Delete Project**.



12c Tap **Delete** to confirm.



13 If there are no projects shown, then the iPad is ready to use – tap the **micro:bit** button to return to the main menu.



Now follow the making and programming worksheets.

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