

# CodeBug™ GlowBugs

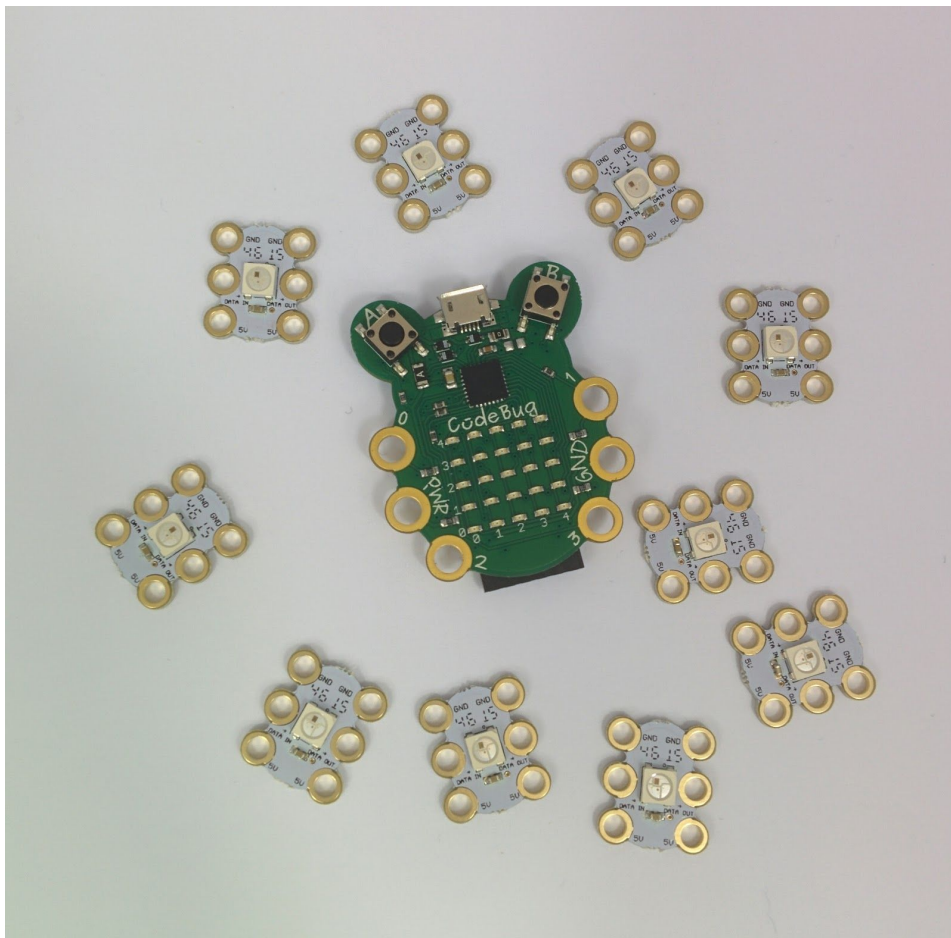
<http://www.codebug.org.uk>

Express your mood in lights, with the CodeBug™ GlowBugs, a fun and addictive colourful addon for CodeBug™.

Want to turbo-charge your next project? GlowBugs are the easiest way to make your projects stand out in glorious rainbow colours. These super bright LEDs simply croclip straight to CodeBug, they're chainable too!

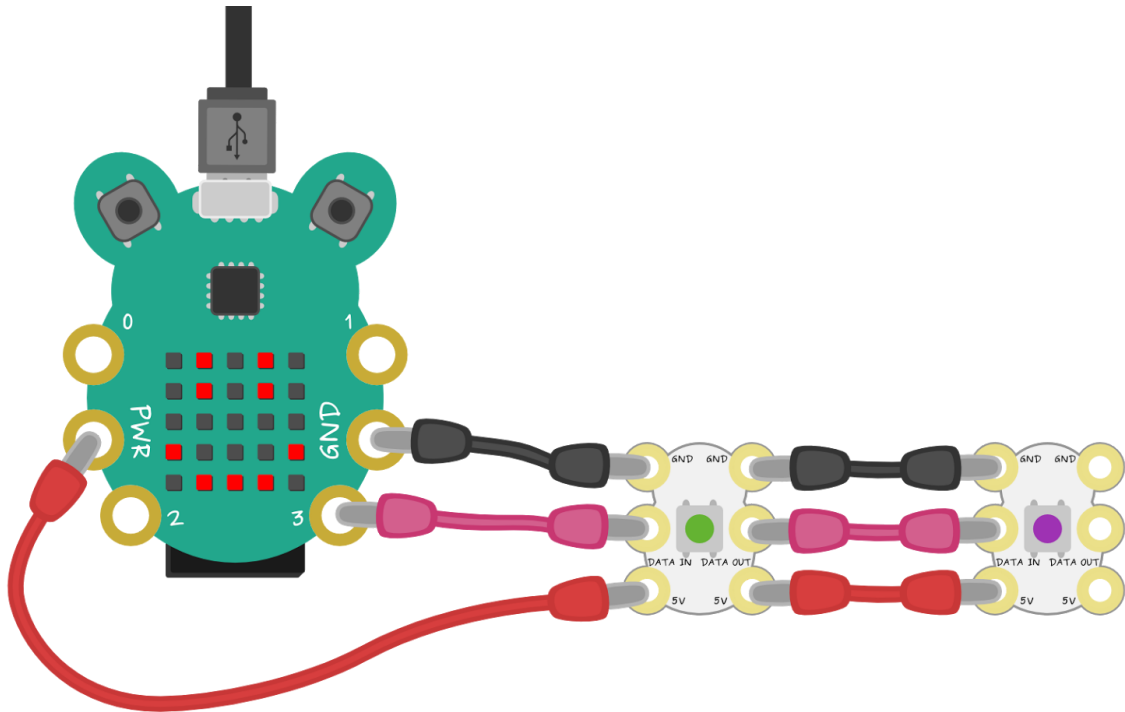
## Quick Start Guide

Learn to create simple programs for CodeBug™ to make GlowBugs' clever lights shine any colour of the rainbow.



## Connecting your GlowBugs

To attach GlowBugs to CodeBug™, attach a crocclip from GND on CodeBug™ to GND on the left side of the GlowBug, repeat this for PWR from CodeBug™ to the 5V on the left side of the GlowBug. Then connect a crocclip from leg 3 on CodeBug™ to the DATA IN leg on the GlowBug. You can connect more GlowBugs by connecting the right side of the previous GlowBug to the left side of the next GlowBug, as shown in the picture below.



GlowBugs connected to CodeBug™ with croc-clips

## Programming CodeBug™ GlowBugs

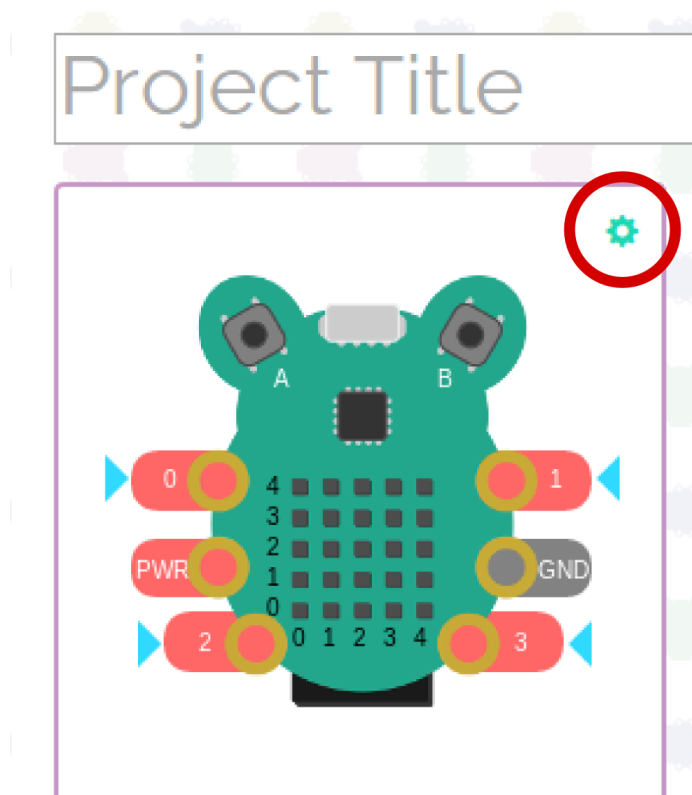
GlowBugs are controlled using CodeBug™, which means to turn a light on a GlowBug, you need to create a program for CodeBug™. It's easy to program CodeBug™ through the website <http://www.codebug.org.uk/create>. If you've never programmed CodeBug™ before, visit the getting started tutorial on the website to learn more.

On the 'create page', you'll also find an emulator, which shows on screen what will happen before you run your program on the physical CodeBug™.

### Show the GlowBugs emulator

To show the emulated GlowBugs:

- Create a new program <http://www.codebug.org.uk/create/codebug/new/>
- Click the Green cog in the top right corner of the CodeBug™ emulator box



Show the CodeBug™ emulator setting by clicking the cog (circled in red)

- On the pop up that appears, tick the **Colour Tail** check box and then click the **GlowBugs x 5** or **GlowBugs x 10** radio buttons
- Click the Apply button

## Emulator Settings



### CONNECTED HARDWARE PER PROJECT

Colour Tail

[Order Colour Star and GlowBugs here](#)

Star  GlowBugs x 5  GlowBugs x 10

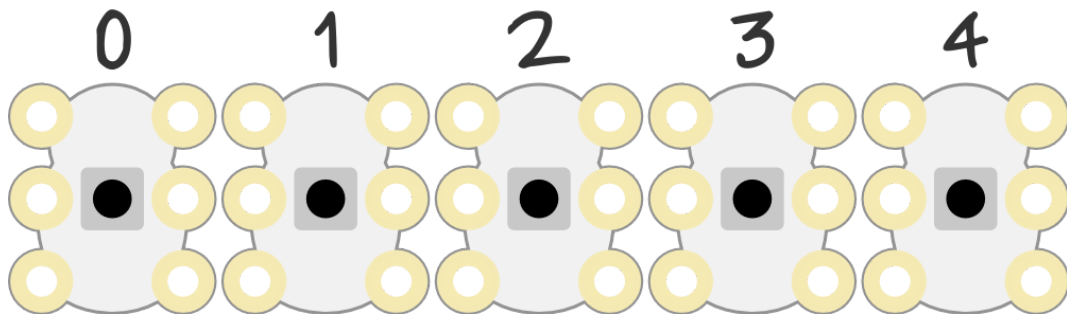
### EMULATOR OPTIONS PER USER

Show leg controls

CLOSE

APPLY

Enable GlowBugs hardware

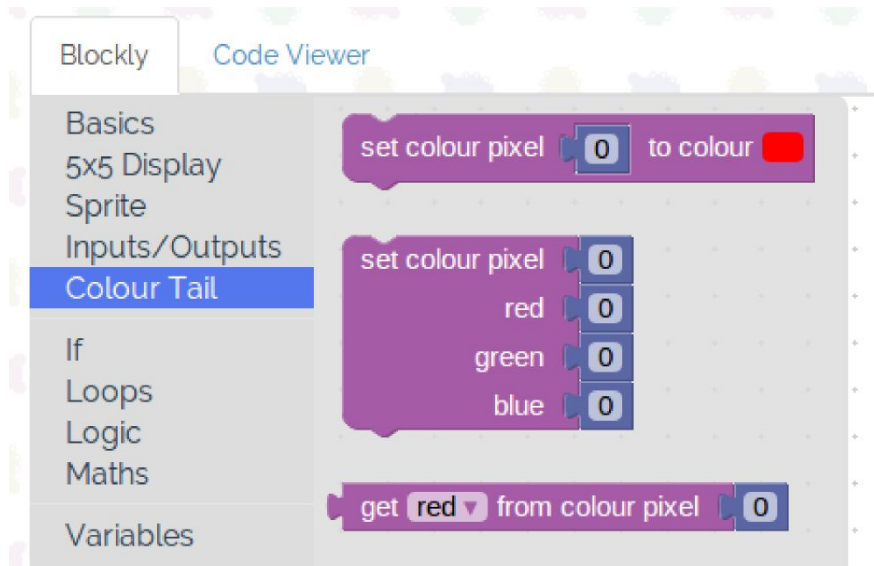


**GlowBugs x 5** emulator; shows the colour each of the 5 lights will shine

## Creating your first program

Now you have emulated GlowBugs displayed you are ready to create your CodeBug™ program to control the lights.

To turn a light on you need to add a block from the Colour Tail menu. These blocks need to know the number of the light (or pixel) you want to control and the colour you want to set it. The GlowBugs are numbered with the one connected directly to CodeBug™ starting at zero<sup>1</sup>.



Colour Tail block menu opened

To set the colour of one of the GlowBug pixels, you can use one of two blocks:

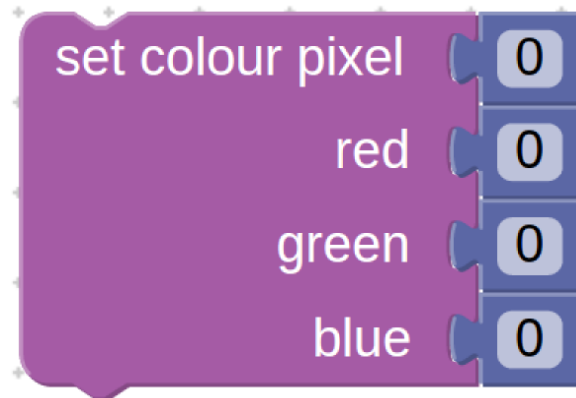
The **set colour pixel to colour** block allows you to specify the colour of a GlowBug, from a palette of common colours.



<sup>1</sup><http://www.howtogeek.com/149225/why-do-computers-count-from-zero/> or [https://en.wikipedia.org/wiki/Zero-based\\_numbering](https://en.wikipedia.org/wiki/Zero-based_numbering)

**set colour pixel to colour** block with palette open

The **set colour pixel block** allows you to specify how red, green and blue are mixed together. You can get more colours than those shown in the palette and it also makes it easy for you to use **number** or **variable** blocks for each of the 3 component colours.



**set colour pixel** block

## Sample Program

Here's a sample program that changes 5 GlowBugs between red and lime green in sequence.

The screenshot shows the CodeBug IDE interface. On the left, there is a visual representation of the CodeBug hardware with a 5x5 display showing 5 red bugs and 5 green bugs. Below the hardware is a 'DOWNLOAD' button. On the right, the 'Code Viewer' tab is active, showing a Blockly script. The script starts with a 'start' block, followed by 'direction up', 'sleep after 3 minutes', and 'enable Buglet (on leg 3)'. It then enters a 'repeat while true' loop. Inside the loop, there are two 'do' blocks. The first 'do' block contains a 'count with i from 0 to 4 by 1' block, followed by a 'set colour pixel i to colour red' block, and a 'pause for time (ms) 200' block. The second 'do' block contains a 'count with i from 0 to 4 by 1' block, followed by a 'set colour pixel i' block with 'red' selected, '0' for the first parameter, '200' for the second, and '100' for the third, and a 'pause for time (ms) 200' block.

Sample GlowBugs program with the emulator showing what will happen

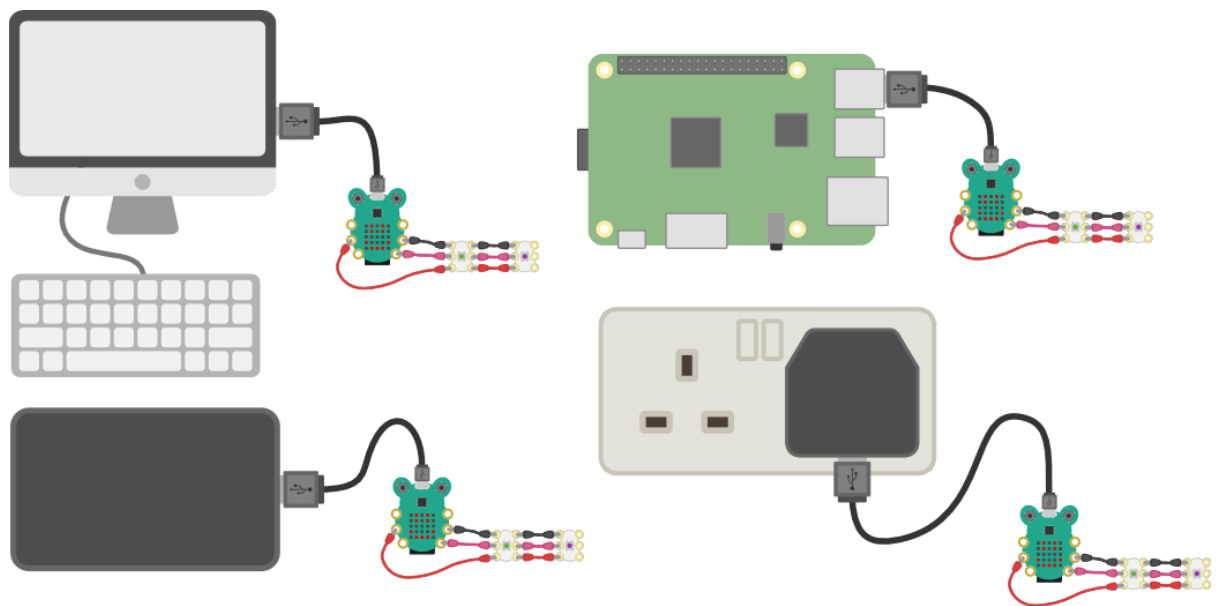
Transfer your program for controlling GlowBugs onto your CodeBug™ just as you would any other onto your CodeBug™ program. Refer to the Download instructions.

When reloading programs, to avoid having to unplug the Micro USB from CodeBug™, unplug the end of the Micro USB cable that plugs into your computer.

## Powering GlowBugs by USB

CodeBug™ and GlowBugs can be powered from most 5V USB power supplies, e.g. computer USB ports, phone chargers, USB battery packs etc.

The bright full-colour LEDs on GlowBugs require more power than CodeBug™ (up to 540mA on full white brightness). Always make sure you are delivering enough power to CodeBug™ for the GlowBugs. Coin batteries will not work with GlowBugs; instead we recommend USB charger packs for portable use.

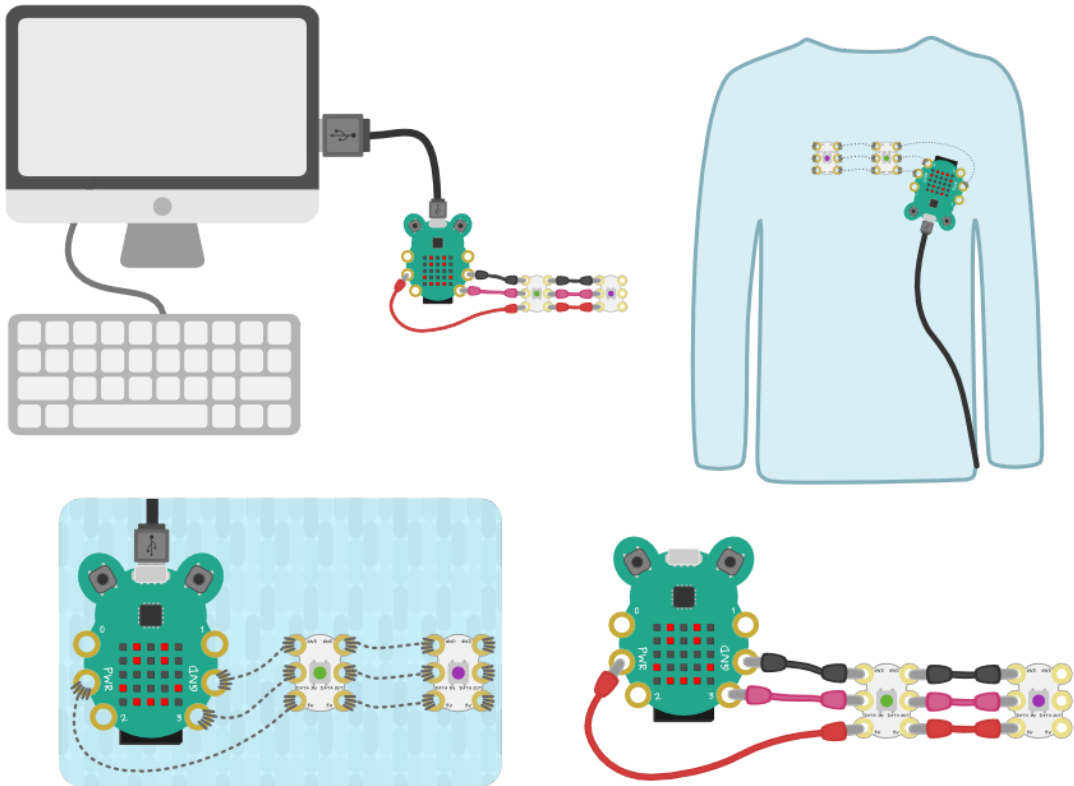


Different ways of powering CodeBug™ and GlowBugs



## Activities

For fun things to make and do for all skill levels, check out the vast number of engaging CodeBug™ GlowBugs activities and walkthrough guides on the CodeBug™ website. Visit <http://codebug.co.uk/learn/> for ideas and easy to follow step by step instructions.



Examples of GlowBugs activities available from <http://www.codebug.org.uk>