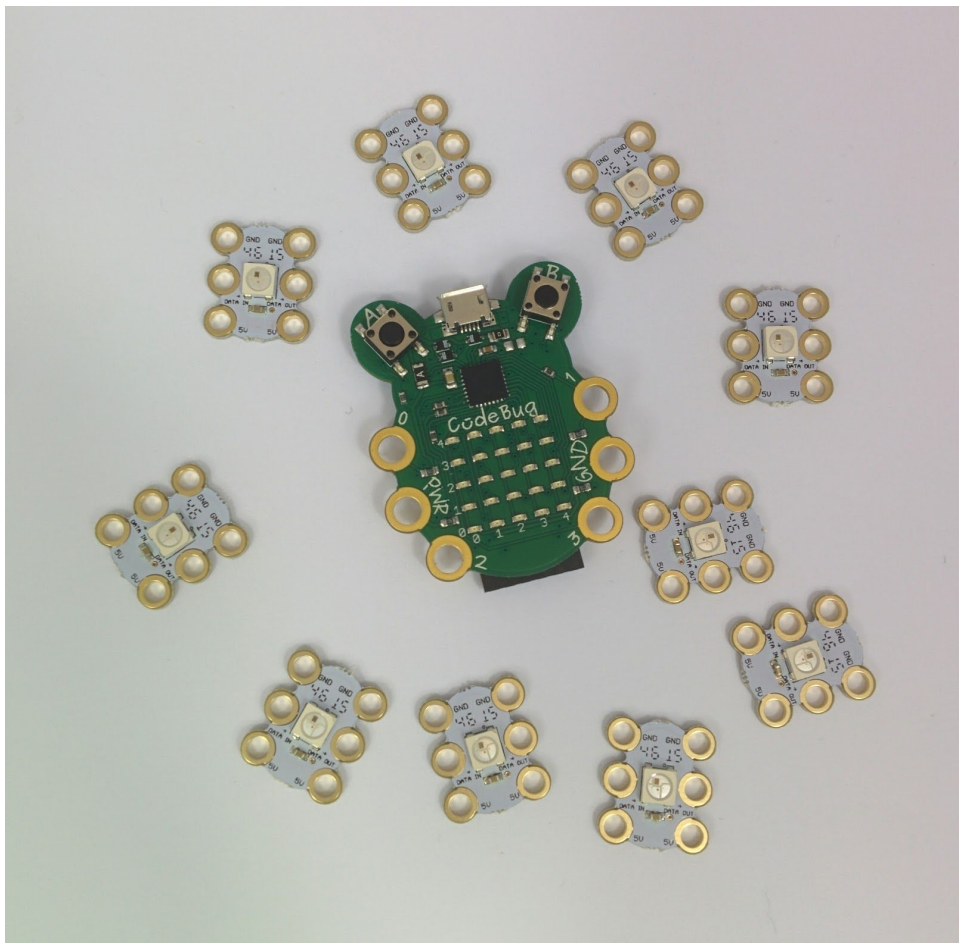
CodeBug™ GlowBugs



http://www.codebug.org.uk

Create your own personal pattern and sequence by creating simple programs online.
Learn the essentials of computer science while creating mesmerising light shows.
Ideal for bringing eye-catching colour to any CodeBug craft project.

Before using any CodeBug™ device always read the instructions and precautions carefully.

Product Highlights

Uses:

- Introductory platform for learning programming and electronics
- Wearables projects

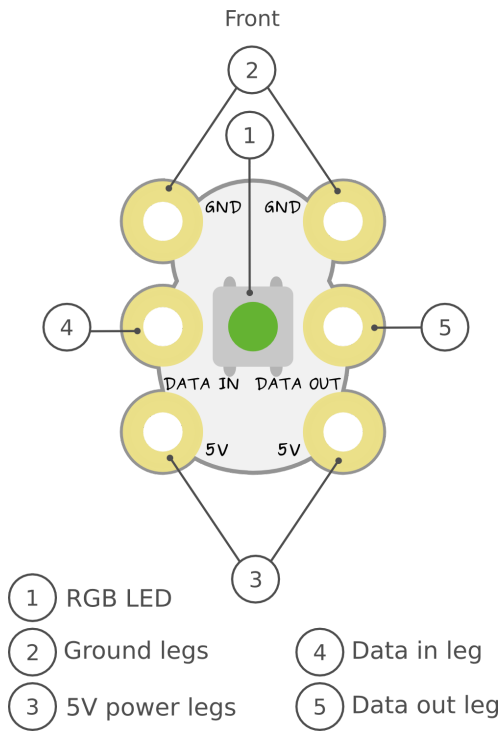
- Decorations
- Ideal for Twitter, Facebook and Minecraft etc. notifications
- Digital crafts – create interactive greetings cards, decoractions, board games and more

Features:

- Simple and quick to get started – just plug in and program!
- 1 RGB (Red Green Blue) LED per GlowBug
- Each LED has 256 brightness levels for Red, Green and Blue allowing for 16777216 different colours
- 6 croc-clippable & sewable legs for connecting to CodeBug™ and other GlowBugs
- Drag and drop programming from web browser
- Online support, community and educational tutorials
- Windows, Mac and Linux compatible
- Can be tethered with CodeBug™ to be controlled from a computer or tablet

Technical Specifications:

- Power: 5V through power leg (from CodeBug™ powered by USB)
- Approx 39mm wide x 47mm high
- PCB thickness 1.7mm

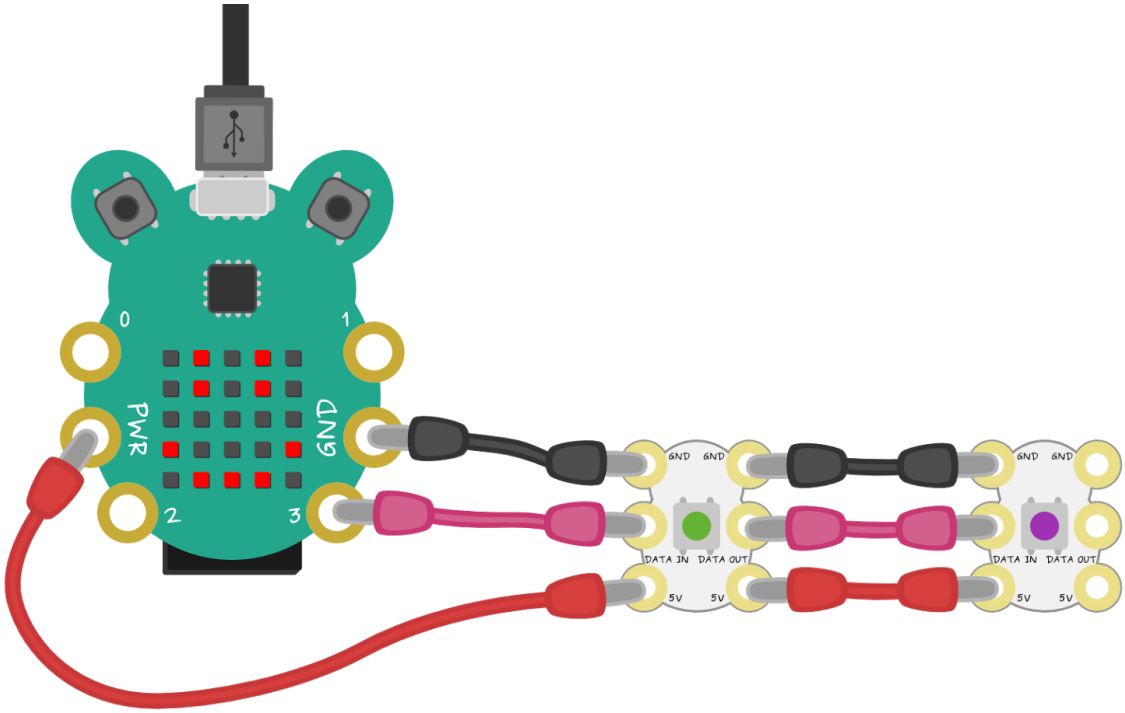


GlowBugs technical diagram

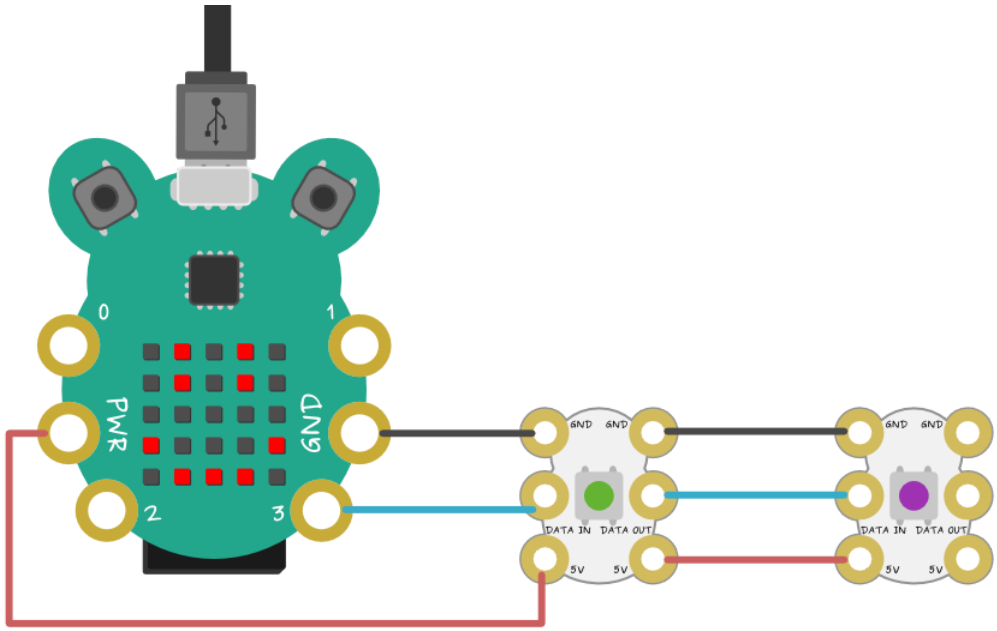
Connecting GlowBugs

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



Simplified GlowBugs connection diagram

Programming CodeBug™ GlowBugs

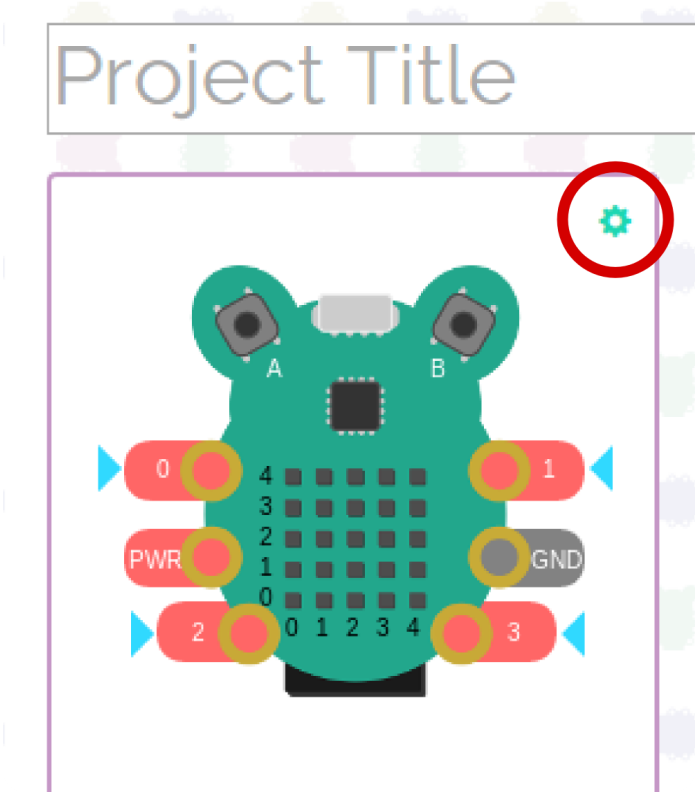
GlowBugs are controlled using CodeBug™, which means to turn a light on a GlowBug, you need to create a program for CodeBug™. It's easy to program CodeBug™ through the website http://www.codebug.org.uk/create. If you've never programmed CodeBug™ before, visit the getting started tutorial on the website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

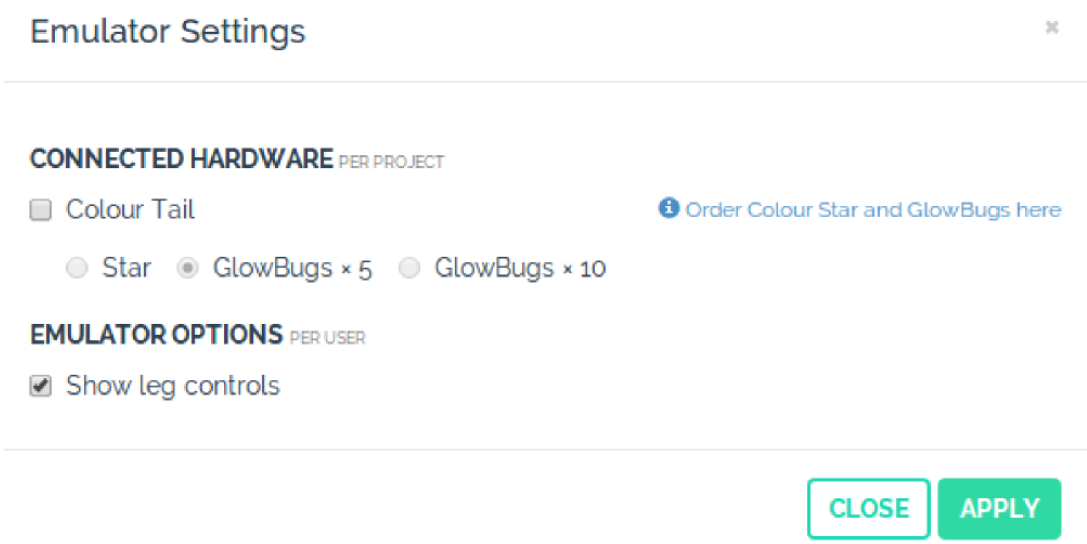
To show the emulated GlowBugs:

- 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

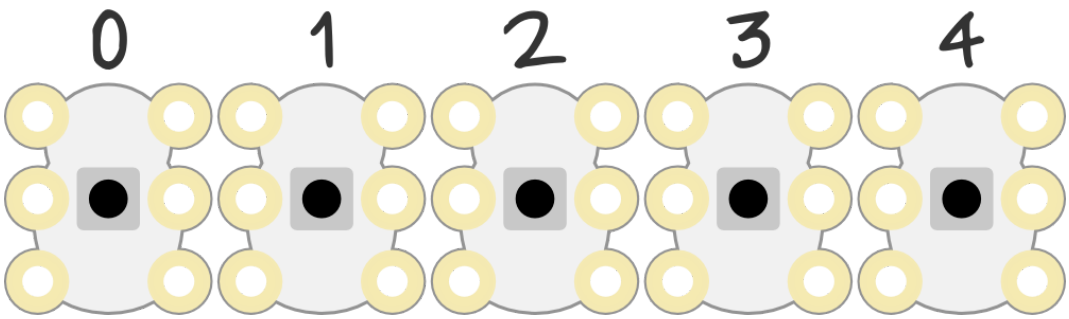


Show the CodeBug™ emulator setting by clicking the cog (circled in red)

- 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



Enable GlowBugs hardware

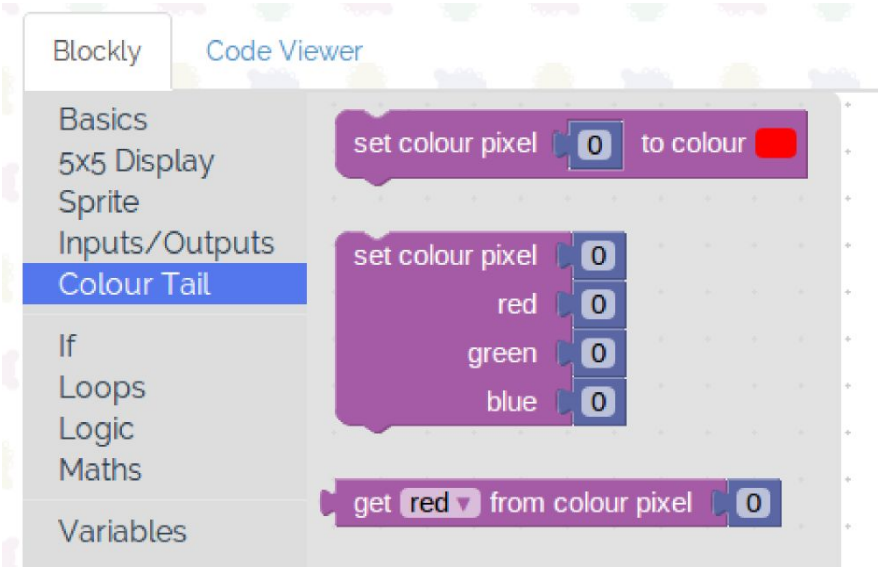


GlowBugs x 5 emulator; shows the colour each of the 5 lights will shine

Creating your first program

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

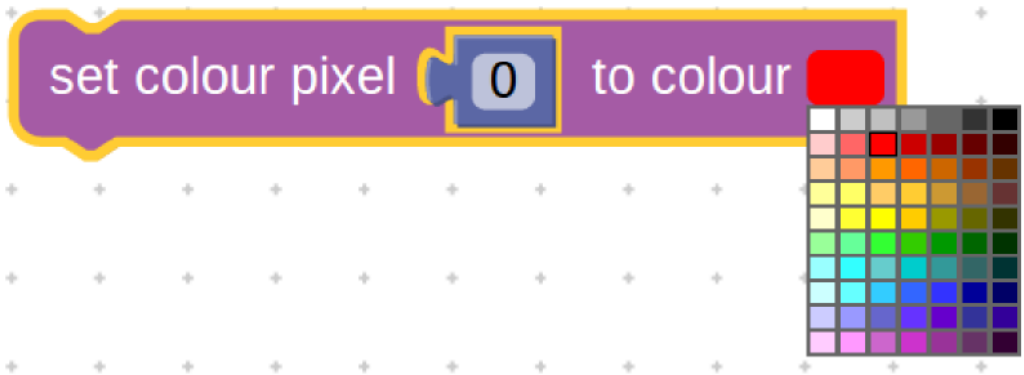
To turn a light on you need to to add a block from the Colour Tail menu. These blocks need to know the number of the light (or pixel) you you want to control and the colour you want to set it. The GlowBugs are numbered with the one connected directly to CodeBug™ starting at zero[1].



Colour Tail block menu opened

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

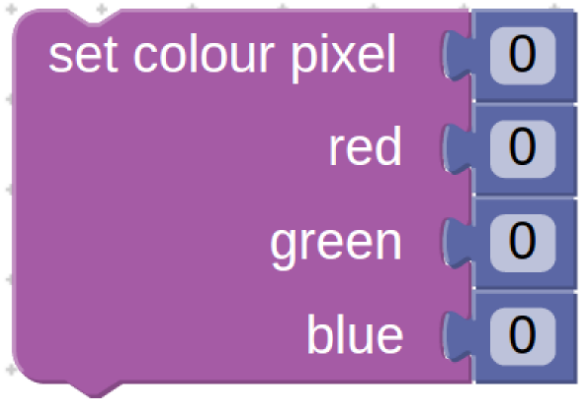
The **set colour pixel to colour** block allows you to specify the colour of a GlowBug, from a palette of common colours.



set colour pixel to colour block with palette open

[1] http://www.howtogeek.com/149225/why-do-computers-count-from-zero/ or https://en.wikipedia.org/wiki/Zero-based_numbering

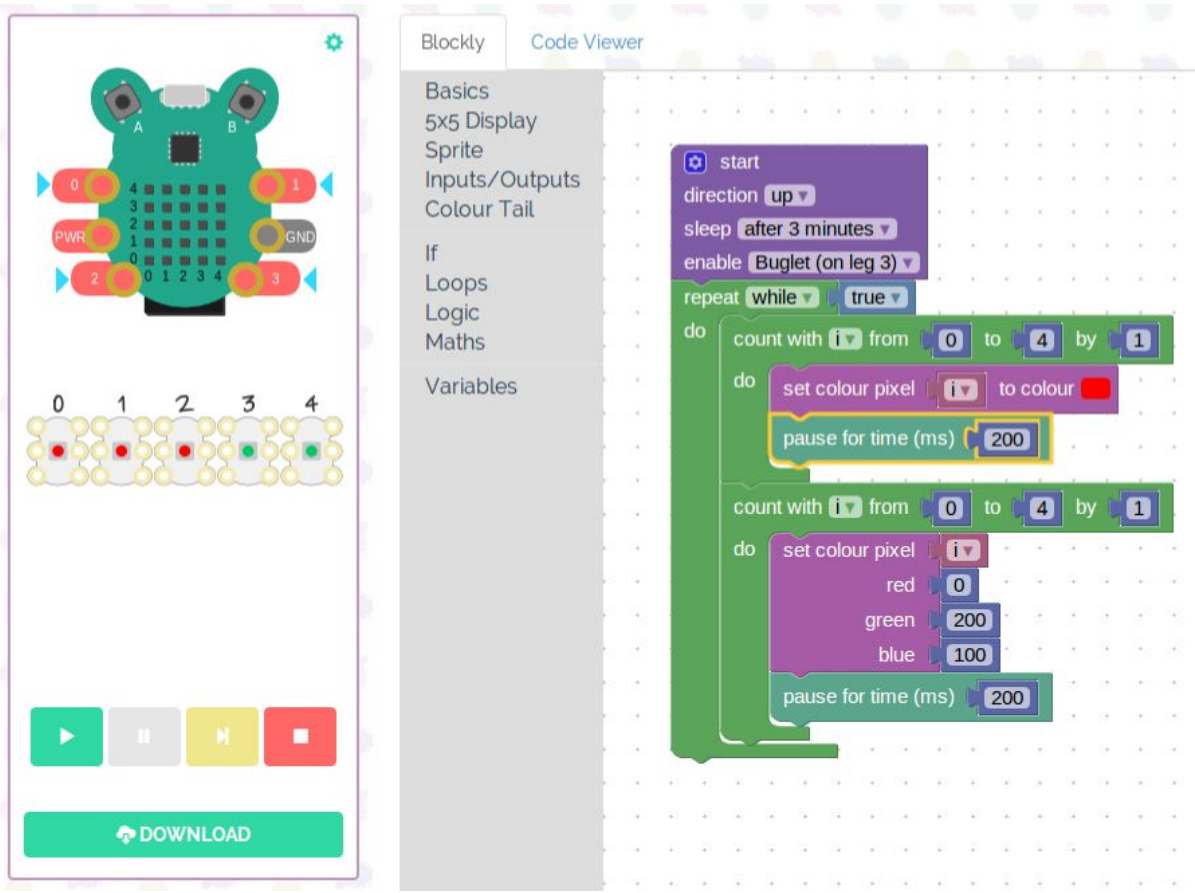
The **set colour pixel block** allows you to specify how red, green and blue are mixed together. You can get more colours than those shown in the palette and it also makes it easy for you to use **number** or **variable** blocks for each of the 3 component colours.



set colour pixel block

Sample Program

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



Sample GlowBugs program with the emulator showing what will happen

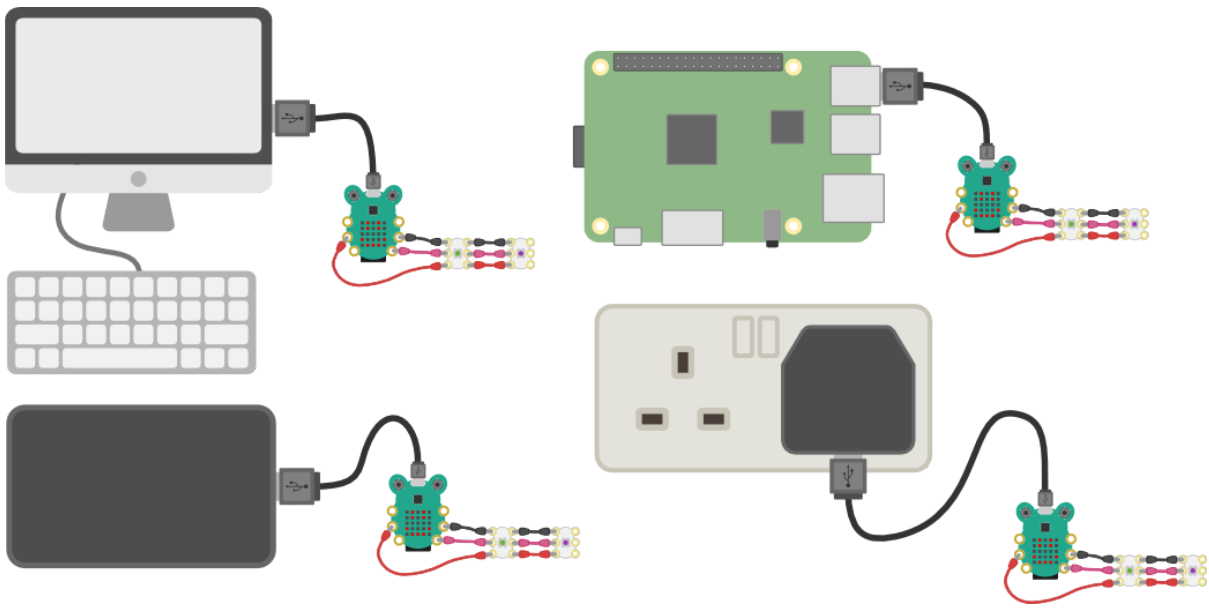
Transfer your program for controlling GlowBugs onto your CodeBug™ just as you would any other onto your CodeBug™ program. Refer to the Download instructions.

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.

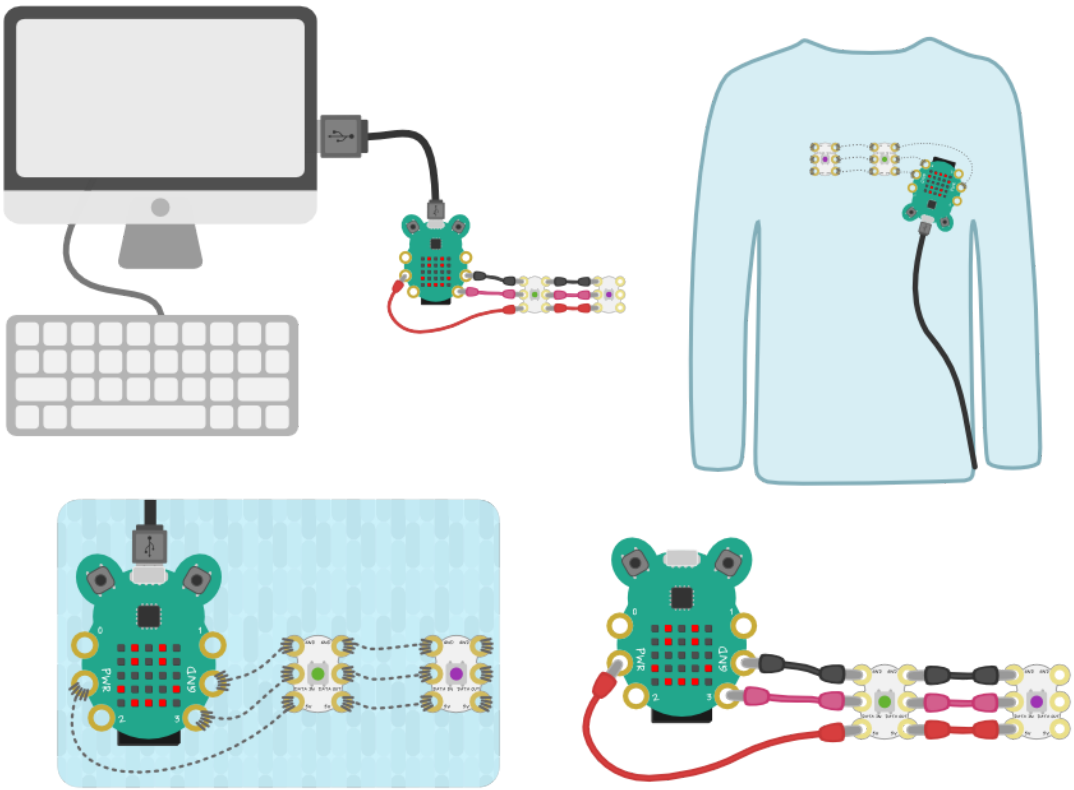
The bright full-colour LEDs on GlowBugs require more power than CodeBug™ (up to 540mA on full white brightness). Always make sure you are delivering enough power to CodeBug™ for the GlowBugs. Coin batteries will not work with GlowBugs; instead we recommend USB charger packs for portable use.



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

Warnings

- Choking hazard.
- Children should not use CodeBug™ GlowBugs without adult supervision.
- Do not power CodeBug™ using its legs, USB and/or battery at the same time.
- CodeBug™ GlowBugs are not intended for use in life critical systems.
- Do not expose to water, moisture or extremes of temperature.
- Take care whilst handling to avoid mechanical and electrical damage to the device and connectors.
- Take suitable precautions to minimise risk of causing damage by electrostatic discharge.
- Connection to unapproved devices may affect compliance or result in damage to the device and invalidate any warranty.
- Connections to CodeBug™ extensions should only be made with the power supply disconnected.
- Ensure that CodeBug™ devices are powered by a suitably rated power supply that complies with the relevant regulations and standards applicable to the country of intended use.
- It is the user's responsibility to ensure if the device is fitted in a suitable enclosure that it offers appropriate protection to ensure safe and proper operation.

Compliance Information

- This CodeBug™ GlowBug device complies with the relevant provision of the RoHS Directive for the European Union. In common with all Electronic and Electrical Equipment the CodeBug™ device should not be disposed of in household waste. Alternative arrangements may apply in other jurisdictions.
- It is a class B product. EMC emission tests were performed with CodeBug™ powered by battery, and USB. ESD handling precautions should be observed. CodeBug™ may be considered a component if integrated into another product. Any person designing or developing a product that uses one or more CodeBug™ devices is responsible for ensuring compliance and that any modification to the CodeBug™ device or inter-connection of other elements and devices does not change compliance.
- This Class B digital apparatus complies with CAN ICES-3 (B). Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.
- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

http://www.codebug.co.uk

CodeBug™ GlowBug is designed in the UK by OpenLX SP Ltd. Registered Office Unit 7 Salmon Fields, Royton, Oldham OL2 6HT.
CodeBug™ is distributed by Premier Farnell UK, 150 Armley Road, Leeds LS12 2QQ, UK

Manufactured in the UK and PRC.
Designed in the UK.

Documentation Revision 1.0 August 2015