



## International Year of Lights Demonstration

### Category: Interactive workshop

*Note electronic versions of all supporting documents are found on the memory stick in this tray.*

### Overview



This interactive workshop covers microcontroller programming and colour mixing. Participants are given a printed circuit board and a programming board, which they then use to vary the colour of the RGB LED on the board.

### Contents

For each group ensure you have the following:

|   |  |
|---|--|
| Year of light circuit board                 | <p>C1 – Capacitor across the terminals of the battery. Helps to stabilise the current flowing from the battery to the microchip</p> <p>R1 – 47kΩ resistor Holds the MSP430 reset pin at the correct voltage to avoid resetting the microchip</p> <p>MSP430 – Microcontroller Contains CPU, timers and memory</p> <p>R2 – 400 Resistor Reduces the current flowing through the red portion of the LED, to avoid damaging it and ensure all 3 colours are the same brightness</p> <p>LED RGB – miniature tricolour LED with red, green and blue LED sources in a single package</p> <p>Push Button – when depressed, short circuits a pin on the MSP430 to ground to trigger an interrupt</p> <p>Programmer – pins to connect to computer for uploading new code to the MSP430</p> |
| MSP430 Programming Board                    |  |
| 4 Female-Female Jumper Wires (Bring spares) |  |



|   |   |
|---|---|
| Mini USB Cable                                    |   |
| Laptop/Computer for Coding with Energia Installed |   |
| USB Stick with sample code and teaching documents |   |
| Coin cell batteries Type CR2032                   |  |

The boards are programmed using the Energia IDE. More information on downloading it is given in the following link.

[http://energia.nu/Guide\\_Windows.html](http://energia.nu/Guide_Windows.html)