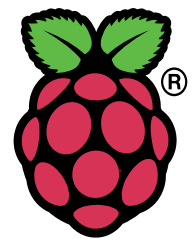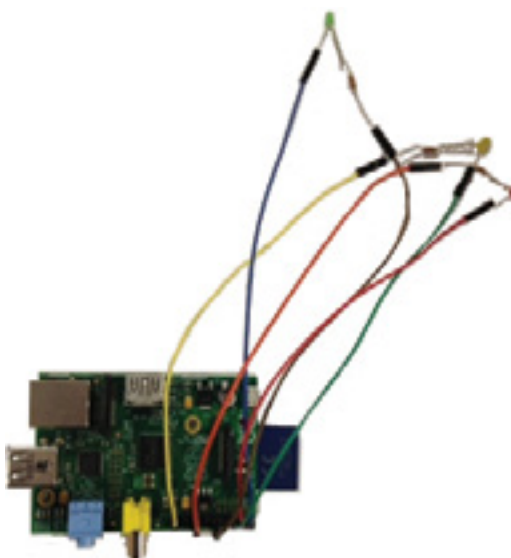# TRAFFIC LIGHTS LED RECIPE

A PHYSICAL COMPUTING PROJECT FOR THE RASPBERRY PI – NO SOLDERING, TOOLS OR INTERNET ACCESS REQUIRED!

Difficulty: Basic

This recipe will allow you to create a set of traffic lights by turning LEDs into output devices for your Raspberry Pi – we will guide you through writing a program to get them to light in the correct sequence.

Ingredients needed in addition to your Raspberry Pi:

3 x LEDs (red, yellow, green)

3 x 220Ω Resistors

6 x Jumper Wires (female to female)

A small rectangular piece of black card – with three holes for the LEDs

Method:

Turn the 3 x LEDs into outputs for your program

1. Take one end of the resistor and twist it around the cathode of the LED (nearest flat edge and the shorter lead) so that it forms a strong connection.

2. Push both the anode (longer lead) of the LED and the other end of the resistor into each of the jumper wires. Repeat this for all 3 LEDs.

3. For each LED take the end of the jumper lead connected to the cathode of the LED (flat edge, shorter wire) and push onto pins 17, 20 and 25 of the GPIO headers which are connected to ground.
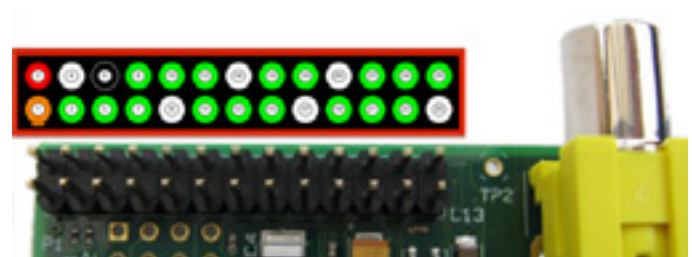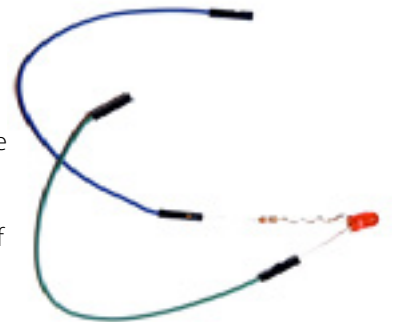
*Raspberry Pi GPIO header pins. The diagram above the pins shows the pin numbers. You will be using pins 3, 5, 7, 17, 20 and 25. **Warning! You can damage your Raspberry Pi if you do not use the GPIO pins correctly!***

4. Then take the end of the other jumper lead and push onto pin 3 for the red LED, pin 5 for the yellow LED and pin 7 for the green LED of the General Purpose Input-Output (GPIO) header which is connected to the GPIO channels.

5. Push the LEDs through your black card in the correct order for traffic lights.

Congratulations! You have now attached the LEDs to your Raspberry Pi which can be used as an output in your programs.