

Puzzle 2

Adjust voltages to blend colors with RGB LED

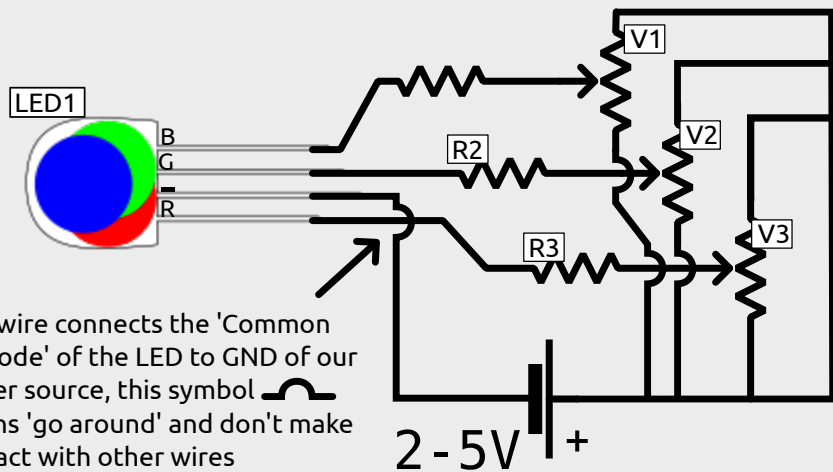
To have control over a circuit, whether its making light or sound or sending data to another computer -- we need an input device. A common volume knob is one way circuits can be made adjustable.

This schematic has you hooking up Power and GND to each side of 3 separate volume knobs. Use lengths of wire to jump from one 'power' input to the next as in the breadboard diagram on right. Black wire is typically used to show what is connected to GND, and red wire is used to show what's hooked to the supply voltage (this isn't always the case - it's just a clue !)

The middle pin of each knob is connected through the resistors from puzzle 1 (we still want to protect each color from too much power!)

It's this middle pin whose voltage is adjusted by turning the knob.

Turn the knobs until you find a color you like and use your multimeter to check what voltage exists on each side of each LED.



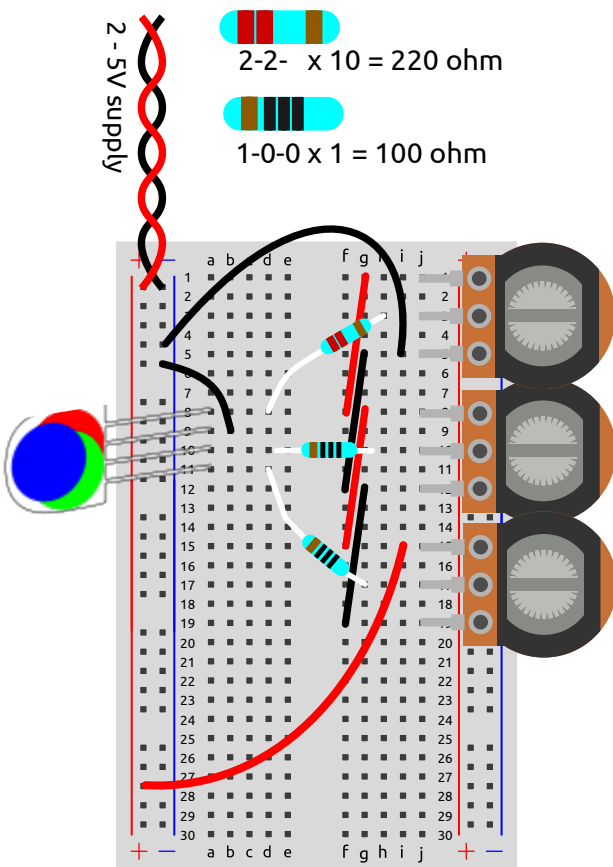
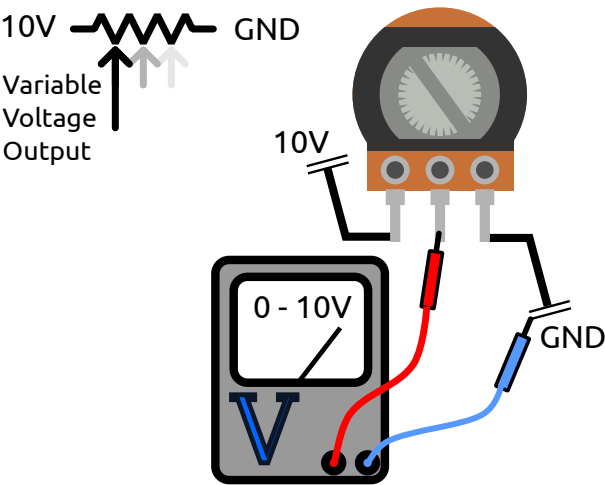
This wire connects the 'Common Cathode' of the LED to GND of our power source, this symbol means 'go around' and don't make contact with other wires

LED1	Common Cathode RGB LED
R1	220Ω
R2	100Ω
R3	100Ω
V1	10kΩ
V2	10kΩ
V3	10kΩ

A 'potentiometer', 'varistor', 'pot', or, 'knob' acts as a pair of resistors, allowing you to adjust the voltage between 0 and your input voltage.

The outside pins of the knob are the input -- connect one side to your power source and one side to ground.

The symbol for this part is an arrow pointing towards a resistor output because you can change how much resistance is on either side of the arrow, but remember, this is the output !



2-2- x 10 = 220 ohm
1-0-0 x 1 = 100 ohm