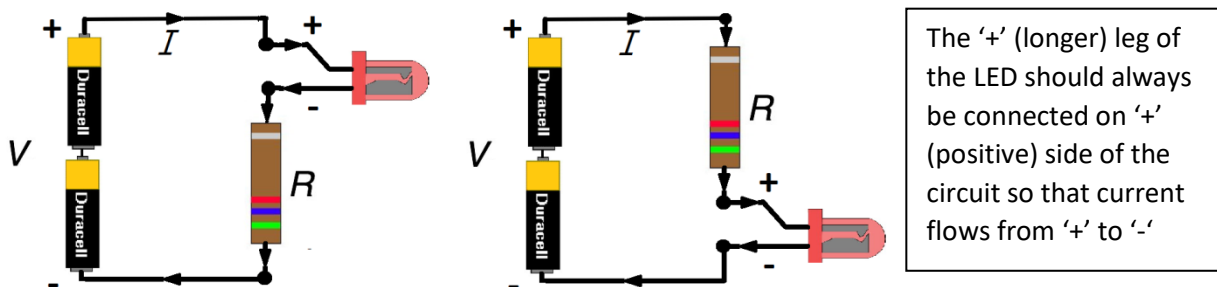


TechResort Cheat Sheet

Basic LED Usage

- An LED (a Light Emitting Diode) is nothing more than a small light bulb use to bring a visual effect to our projects.
- You can use LEDs of different types and colours in your project but you need to obey a few simple rules to make sure you use them properly.
- Your LED will only work One way round. If it has legs one of them will be longer – this is the positive (+) terminal. The other leg is the negative (-) terminal.
- When connected up correctly, current will flow from the positive side to the negative side making the LED light up
- In an LED circuit too much current will destroy the LED (and possibly the rest of our circuit!). Too little current and there will be no light. We must always use a resistor to ensure that just the right amount of current flows to light up the LED.
- We connect the resistor to the LED like this in our circuit. It can go either before or after the LED – it doesn't matter which.



- All LEDs have a particular current and voltage. If you know this you can calculate which resistor to use yourself. However, we've also created a 'rule of thumb' table to use when experimenting.

'Rule of Thumb' Resistor Values to use with your LED if you're not sure		Colour and Voltage of LED		
		Infra-Red	Red, Orange, Yellow, Green	Blue, White
Circuit Voltage	e.g.	1V	2V	3V
3.3V	Raspberry Pi GPIO, 2 AA Batteries	220Ω	120Ω	68Ω
5V	Most Arduinos, 3 AA Batteries	390Ω	270Ω	180Ω
6V	4 AA Batteries	470Ω	390Ω	270Ω
9V	PP9 Battery	820Ω	680Ω	560Ω

- *If you can't find exactly the value of resistor you need, use the next largest one*