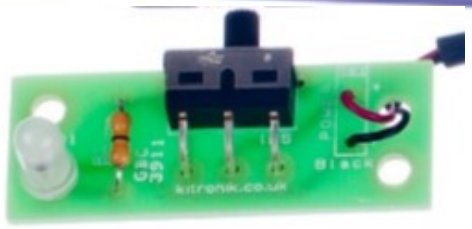
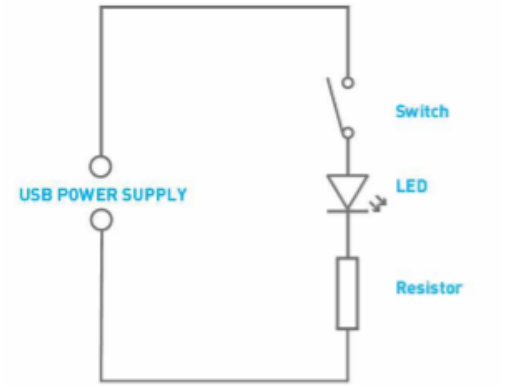
Believe, Achieve, Succeed

Knowledge Organiser—Engineering unit 2 & 3 (low voltage lamp)





Ohms Law The current flowing **through** a *resistor* at a constant temperature is directly proportional to the voltage **across** the resistor. So, if you double the voltage, the current also doubles.

$$I = \frac{V}{R}$$

Key Skills

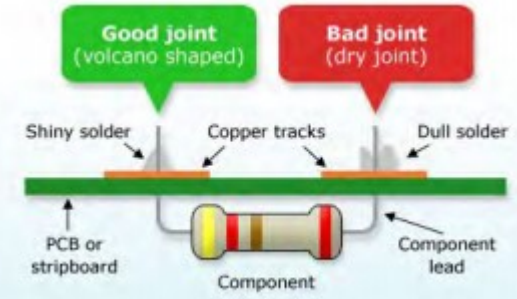
⇒ **Soldering**

⇒ **Fault finding**

⇒ **CAD/CAM**

Tools - Circuit construction

PRECISION DRILL UNIT	
SOLDERING IRON	
SOLDERING IRON HOLDER	
SIDE CUTTERS	
WIRE STRIPPERS	
SOLDER (LEADED)	



Circuit diagrams are special drawings that use symbols and other conventions (rules) to describe circuits.

LED's (Light Emitting Diode)	
Advantages	Disadvantages
Power efficient Long life Low temperature Hard to break Small Fast turn on	Cost Drive circuit Directional

RESISTOR COLOUR CODE

1st BAND	2nd BAND	3rd BAND (NUMBER OF ZEROS)	TOLERANCE (ACCURACY RANGE)
			GOLD - 5%
0	0	0	
1	1	1	
2	2	2	
3	3	3	
4	4	4	
5	5	5	
6	6	6	
7	7	7	
8	8	8	
9	9	9	

EXAMPLES: RED, RED, RED = 2200 OHMS (R or Ω)
YELLOW, VIOLET, BROWN = 470 OHMS (R or Ω)

Key Vocabulary

Input	**The part of a system or circuit that takes something in, e.g. a sensor, switch or input socket**
Process	**The central part of a system or circuit that changes the input(s) in some way, e.g. amplifies it**
Output	**The end of the system or circuit that could be the generation of light, sound or movement**
Current	**The flow of electricity, measured in AMPs. This can be likened to the flow of water.**
Voltage	**The amount of energy (push) behind the flow of electricity. Measured in VOLTs.**
Power	**The voltage multiplied by the current, measured in WATTs**
Resistance	**The opposite to flow. A reduction in the flow of electricity through part of a circuit or component. Measured in OHMS (Ω).**