

Topic 5C: Electric Circuits

Skill 42: Circuit symbols

Circuits require — A closed conducting path
 — A source of potential difference
 — A resistance (lamp, resistor etc) [Something for electrons to do]

Sources of potential difference

cell

battery

Meters

to measure potential

"In parallel"

to measure current

"In series"

Resistor

resistor

Variable resistor

lamp

Switch

Simple — a circuit with a single component

Series — a single path for multiple components

parallel — alternate path for current

Complex — mixture of parallel & series

Skill 43: Series Circuits "AND"

The current follows a single path.

So the current is the same throughout

$$I_T = I_1 = I_2 = I_3$$

The potential difference is split between each component

$$V_T = V_1 + V_2 + V_3$$

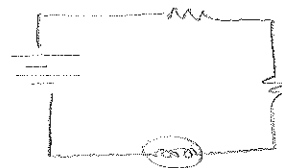
The total Resistance (R_{eq}) is the sum of each resistor

$$R_{eq} = R_1 + R_2 + R_3$$

Ohm's Law, applies to each component and the total circuit

Adding a resistor adds to the overall Resistance and reduces the current.

Series bulbs are dim compared to parallel. If you remove a component you open the circuit.



	V	I	R
1			
2			
Total			