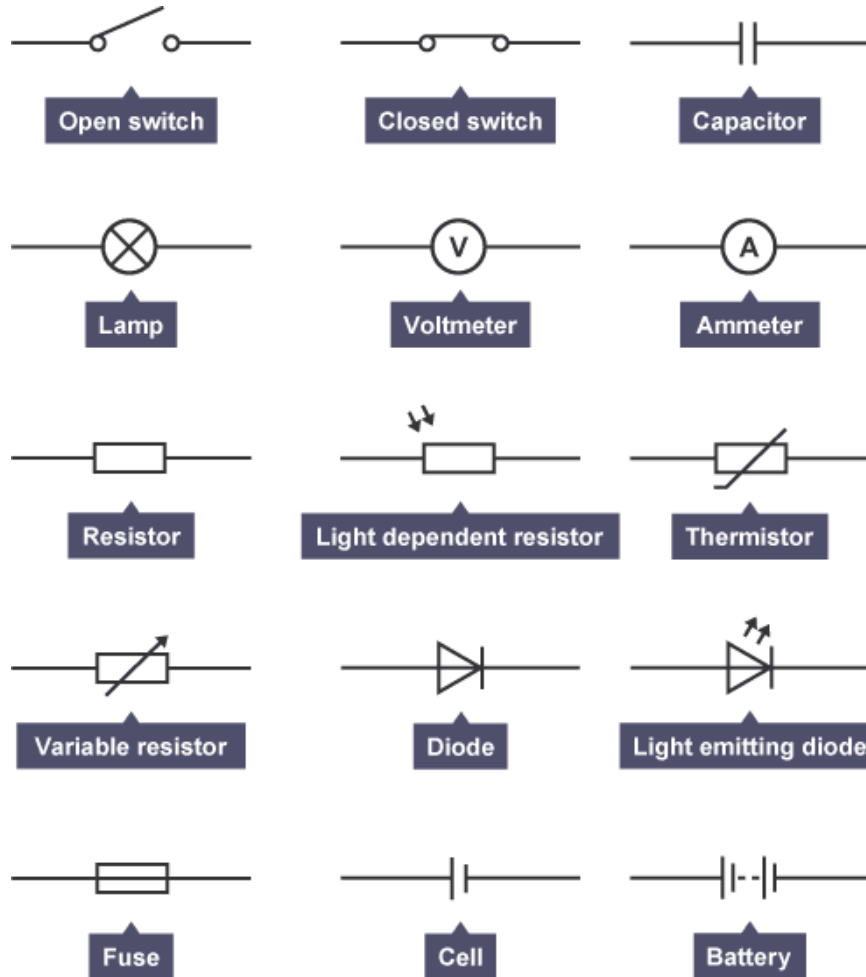




Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.

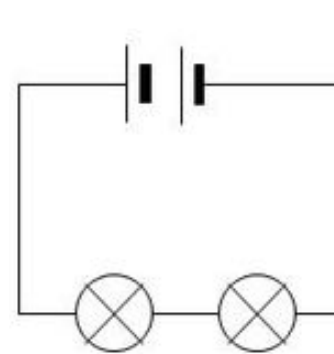
Topic 1: Series and parallel circuits



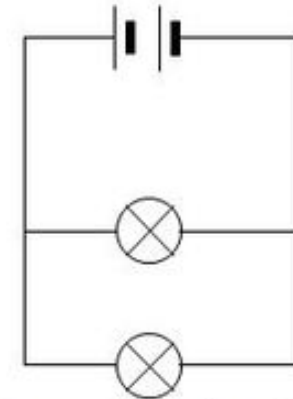
The two main types of circuit are known as series and parallel.

A series circuit has one continuous loop.

A parallel circuit can have 2 or more loops added together.



A series circuit



A parallel circuit

Current is the flow of energy known as electrons.

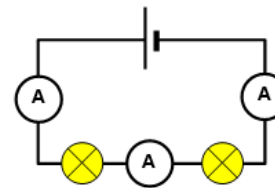


Figure 2(a)

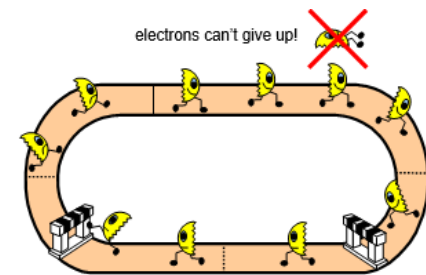


Figure 2(b)



Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.

### Topic 2: Explaining and calculating resistance

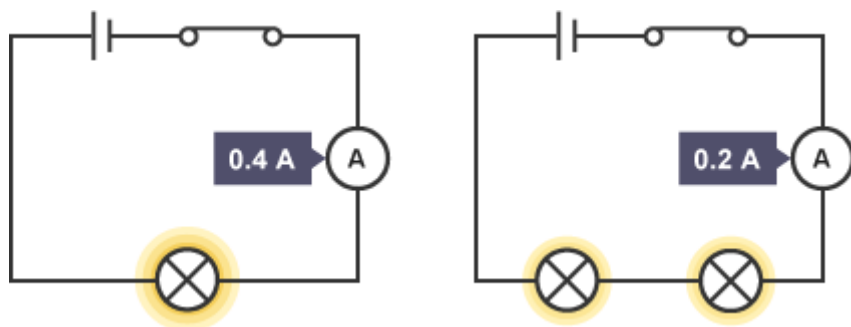
#### Resistance

The wires and the other components in a circuit reduces the flow of charge through them. This is called resistance.

The unit of resistance is the ohm, and it has the symbol  $\Omega$  (an uppercase Greek letter omega). For example, a  $2 \Omega$  component has a greater resistance than a  $1 \Omega$  component and will reduce the flow of charge through it more effectively.

#### Adding components

The resistance increases when you add more components in series. For example, the resistance of two lamps is greater than the resistance of one lamp, so less current will flow through them.



#### Calculating resistance

To find the resistance of a component, you need to measure:

- the potential difference across it
- the current flowing through it

The resistance is the ratio of potential difference to current. We use this equation to calculate resistance:

$$\text{resistance} = \text{potential difference} \div \text{current}$$

For example, 3 A flows through a 240 V lamp. What is the resistance of the lamp?

$$\text{resistance} = 240 \div 3 = 80 \Omega$$

If you plot a graph of current against potential difference for a wire, you get a straight line.



Vocabulary	Wider Research	Apply
<ol style="list-style-type: none"><li>1) Circuit</li><li>2) Series</li><li>3) Parallel</li><li>4) Battery</li><li>5) Cell</li><li>6) Lamp</li><li>7) Ammeter</li><li>8) Voltmeter</li><li>9) Resistor</li><li>10) Switch</li><li>11) Fuse</li><li>12) Energy</li><li>13) Flow</li><li>14) Electrons</li><li>15) Resistance</li><li>16) Calculation</li><li>17) Current</li><li>18) Potential</li><li>19) Difference</li><li>20) Justify</li><li>21) Terminology</li><li>22) Ohm</li><li>23) Science</li><li>24) Measure</li><li>25) Calculate</li></ol>	<p>An introduction to circuits <a href="https://www.bbc.co.uk/bitesize/topics/zgy39j6/articles/zjm8kty">https://www.bbc.co.uk/bitesize/topics/zgy39j6/articles/zjm8kty</a></p> <p>Series Circuits <a href="https://www.bbc.co.uk/bitesize/guides/zsfgr82/revision/4">https://www.bbc.co.uk/bitesize/guides/zsfgr82/revision/4</a></p> <p>Parallel circuits <a href="https://www.bbc.co.uk/bitesize/topics/zgy39j6/articles/z34yf82">https://www.bbc.co.uk/bitesize/topics/zgy39j6/articles/z34yf82</a></p> <p>Electric current and potential difference <a href="https://www.bbc.co.uk/bitesize/guides/zsfgr82/revision/6">https://www.bbc.co.uk/bitesize/guides/zsfgr82/revision/6</a></p>	<p><b>Series and Parallel Circuits</b></p> <p>Research series and parallel circuits.</p> <ol style="list-style-type: none"><li>1) Where would you find a series circuit in everyday life?</li><li>2) Where would you find a parallel circuit used in everyday life?</li><li>3) Would a series circuit be used in the ceiling lighting of a classroom at Greenacre? Justify your answer using key terminology.</li></ol> <p><b>Resistance</b></p> <ol style="list-style-type: none"><li>1) Who invented Ohms Law?</li><li>2) Why is it still important in science today?</li><li>3) Are there any other ways to measure resistance?</li></ol>