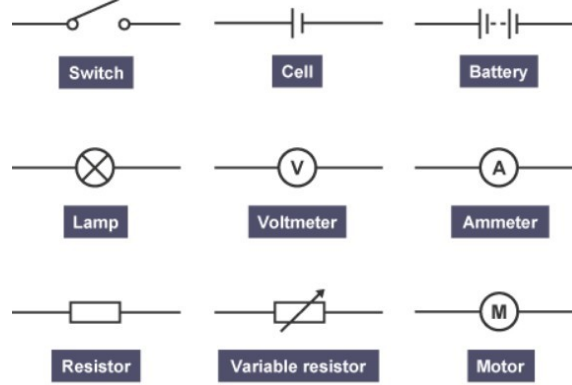


# Energy and Electricity

Keyword	Definition
<b>Energy Transfer</b>	Changes from one form of energy to another form of energy.
<b>Conservation of Energy</b>	Energy cannot be created or destroyed
<b>Kinetic Energy</b>	Energy which an object possesses by being in motion.
<b>Elastic Potential Energy</b>	Energy stored in squashed, stretched or twisted materials.
<b>Gravitational Potential Energy</b>	The energy stored by an object lifted up against the force of gravity.
<b>Vibrational Energy</b>	When a sound is made as particles vibrate
<b>Thermal Energy Store</b>	Energy store filled when an object is warmed up.
<b>Power</b>	The rate of work done. Or The energy transferred per second.



## Circuit Symbols



## Electric Current

In electric wires particles called electrons flow from the negative to the positive side of a battery.

For an electric current to flow we need:

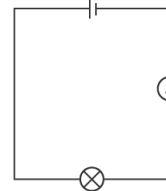
- Something to transfer the energy to the electrons, such as a cell, battery or power pack.
- A complete path for the electrons to flow through (a complete circuit).

## Current

Current is measured in amperes (A).

An ammeter is used to measure the current.

The ammeter must be connected as part of the circuit



## Equations To Use

$$\text{Power} = \text{energy} / \text{time}$$

Power is measured in Watts (W)

Energy is measured in Joules (J)

Time is measured in seconds (s)

## Cost of electricity

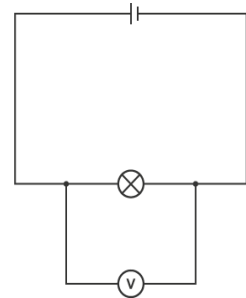
$$\text{Cost} = \text{number of kilowatt hours} \times \text{cost per kilowatt hour}$$

## Potential Difference

Potential difference is a measure of the difference in energy between two parts of a circuit.

Potential difference is measured in volts. (V)

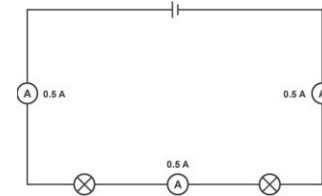
A voltmeter is used to measure the potential difference, and must be connected either side of a component.



## Series Circuit

In series circuits:

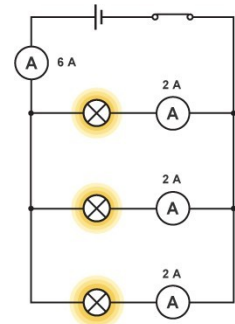
- There is only way around the circuit.
- The current is the same everywhere in a series circuit.
- The potential difference is shared between each component in the circuit.



## Parallel Circuit

In parallel circuits:

- Different components are connected on different branches.
- Current is shared between the components.
- The potential difference is the same for each of the branches.



## Resistance

The wires and other components in a circuit reduce the flow of current through them – this is called resistance.

The resistance increases when you add more components in series.

The resistance of two lamps is greater than the resistance of one lamp, so less current will flow through them.

