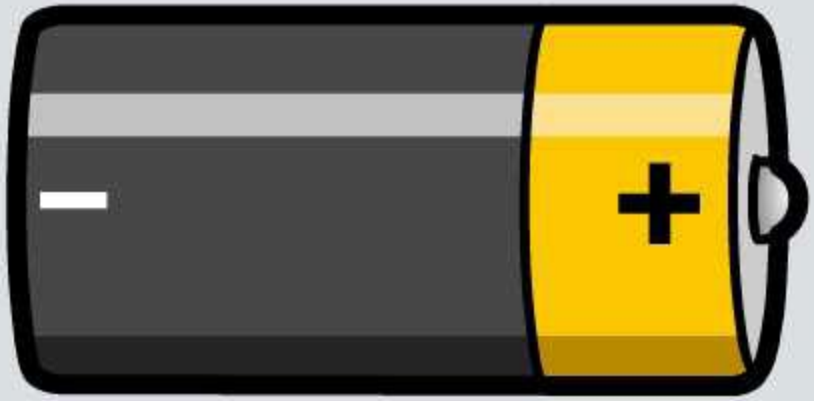
Energy Transfer in Circuits

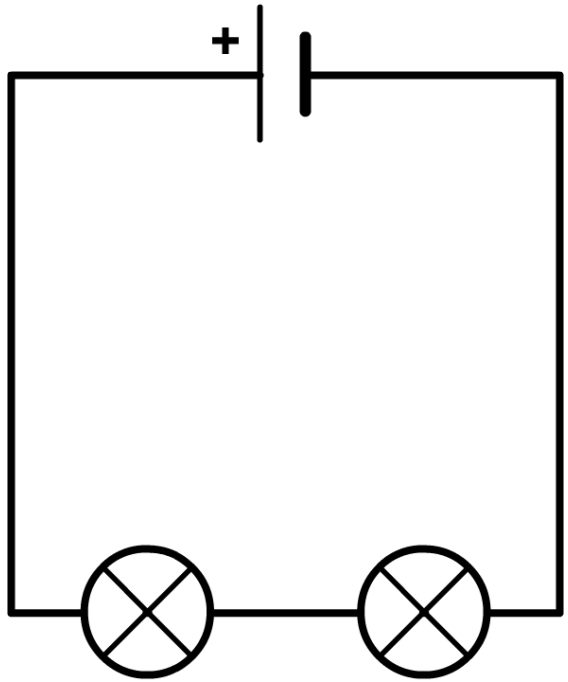


Energy transformations in circuits

Energy cannot be created or destroyed.

In all devices and machines, energy is transformed from one type to another.

Batteries supply energy to a circuit. When the circuit is connected, the chemical energy stored in the battery is transformed, via electrical energy, to heat and light energy in the bulbs.



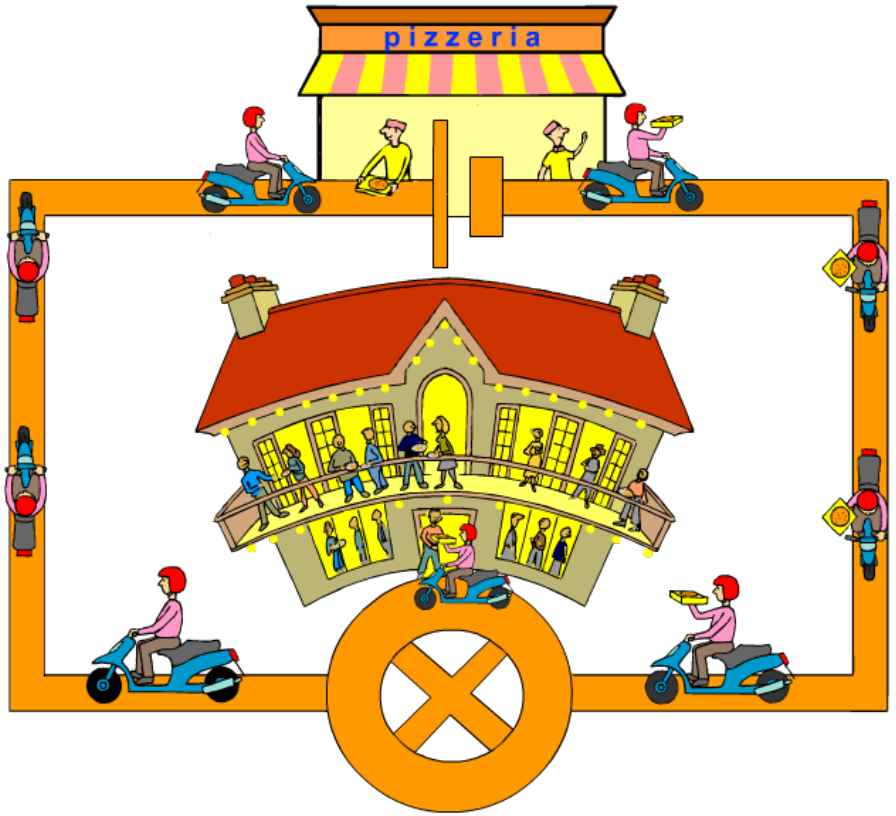
The total amount of heat and light energy is the same as the amount of chemical energy lost from the battery.

Explaining energy transfers in circuits

A model can help us to understand how current works in an electric circuit. In this model, the moped riders represent the flow of charge and the pizzas represent the electrical energy carried around the circuit.

When the pizzas are eaten, they are transformed into other useful nutrients in peoples' bodies.

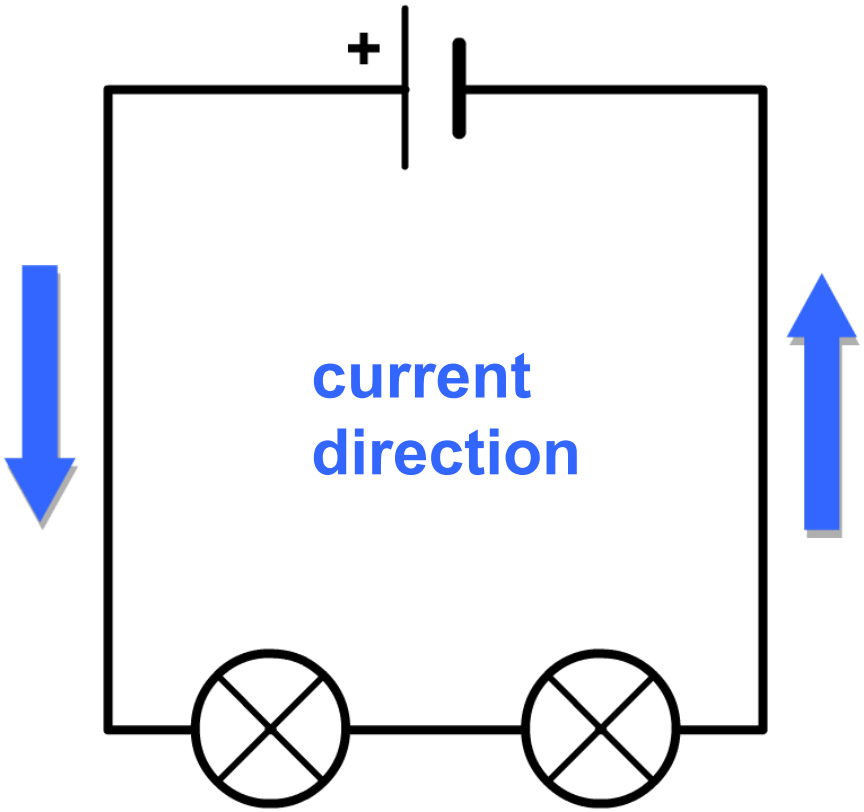
In a similar way, electrical energy is transformed into light and heat energy by the lamp.



Conventional current

When electricity was first discovered it was believed that the particles moving around circuits had a positive charge.

Scientists thought that the particles must be moving from the positive to the negative terminal of a battery, since the particles were positive.

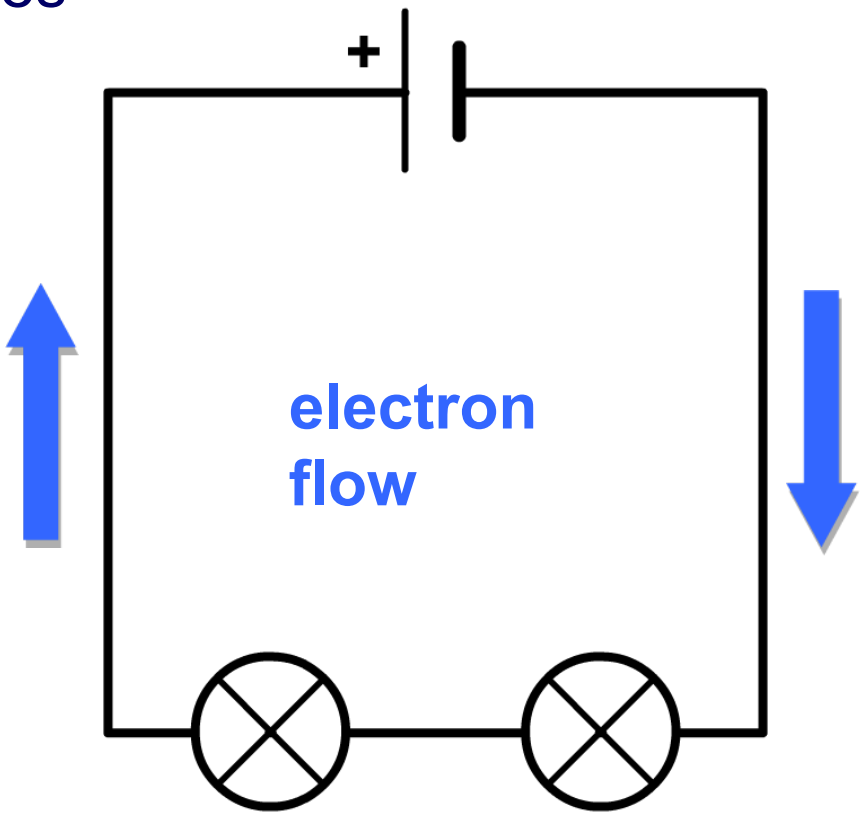


Movement of electric charge in this direction is called **conventional current**.

Electron flow

We now know what these particles are – they are called **electrons**.

They are negative so they move away from the negative and towards the positive terminal of a battery. This movement is called **electron flow**.



Some people still think of electricity in terms of conventional current, not electron flow. This can be confusing, so it's important to understand the difference between the two.

Energy transfer in circuits summary

Are these statements about energy transfer true or false?

1.	Electrons flow around electrical circuits.	
2.	Energy can be destroyed in electrical circuits.	
3.	Batteries supply electrical energy to circuits.	
4.	We use electrical circuits in order to understand the pizza delivery model of electricity.	
5.	Electrical energy can be transformed into different types of energy in a circuit.	
6.	Physicists used to think that the particles in a circuit travel from positive to negative battery terminals.	

true false

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solve