

5.2 CHEMICAL CELLS AND FUEL CELLS (chemistry only)

Batteries

A battery is at least two cells connected in series

Rechargeable

Non-rechargeable

Alkaline batteries

Reactions stop when one of the reactants is used up

The reactions are reversed when an external electrical current is supplied

Provide larger voltage than cells

Voltage = sum of the voltage of the individual cells

Voltage depends on...
Type of electrodes
Electrolyte

Cells

Chemical reactions take place in cells, producing electricity

Electrochemical cell made up of two different metal electrodes in contact with an electrolyte

Voltmeter connected to the circuit to measure the voltage

The bigger the difference in reactivity of the electrodes, the larger the voltage

Voltage is the amount of energy carried by the charge

AQA

Fuel cells

Use fuel and oxygen to produce electricity

The fuel is oxidised in the cell, producing a potential difference

Hydrogen-oxygen fuel cell

Hydrogen and oxygen react together to produce electricity

Carbon electrodes

Electrolyte is an acid

Phosphoric acid

Current fuels are finite

No pollutants

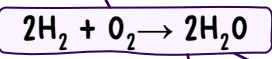
Potential to be used in cars

Drawbacks

Energy required to obtain hydrogen

Hydrogen is explosive

Hard to store



Water by-product

Half equations

KEY
'Higher only' written in yellow.