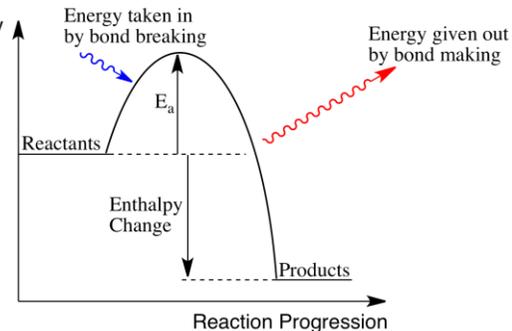


Endothermic reaction

Reaction profiles show energy changes

Exothermic reaction



Activation energy

Reaction profiles

The energy needed to break existing bonds is greater than the energy released from forming new bonds

Chemical reactions take place when the reacting particles collide with sufficient energy

Explain in terms of endothermic and exothermic reactions

The energy released from forming new bonds is greater than the energy needed to break existing bonds

# 5.1 EXOTHERMIC AND ENDOTHERMIC REACTIONS

Energy change of reactions

During a reaction...

Energy must be supplied to break reactant bonds

Energy is released when products' bonds are formed

Overall energy change is the difference between the sum of the energy needed to break reactant bonds and the sum of the energy released when products' bonds are formed

Overall amount of energy does not change

Conservation of energy

Thermal decomposition

Citric acid and sodium hydrogencarbonate

Examples

Endothermic reaction

Everyday uses

Sports injury packs

Energy is taken in from the surroundings

Temperature of the surroundings decreases

Examples

Many oxidation reactions

Combustion

Neutralisation

Exothermic reaction

Everyday uses

Hand warmers

Energy is transferred to the surroundings

Temperature of the surroundings increases

**KEY**  
'Higher only' written in yellow.

**AQA**