

AQA Trilogy-Chemistry key terms - Energy Changes

Exothermic and Endothermic reactions	
<p>When chemical reactions occur, energy is transferred to or from the surroundings –(so they get hot or cold). Energy is conserved. The amount of energy at the end of a chemical reaction is the same as before.</p>	<p>Exothermic reactions transfer energy to the surroundings – (so <u>give out heat</u>). The product molecules must have less energy than the reactants.</p>
<p>Examples of exothermic reactions include combustion, many oxidation reactions and neutralisation. Everyday uses of exothermic reactions include self-heating cans (e.g. for coffee) and hand warmers.</p>	<p>Endothermic reactions <u>take in energy</u> from the surroundings – (so feel cold).</p>
<p>Examples of endothermic reactions include thermal decompositions and some sports injury packs that get cold.</p>	<p>Reaction profiles can be used to show the relative energies of reactants and products, the activation energy and the overall energy change of a reaction.</p>
<p>Chemical reactions can occur only when reacting particles collide with each other and with sufficient energy. The minimum amount of energy that particles must have to react is called the activation energy.</p>	<div style="display: flex; justify-content: space-around; text-align: center;"> <div> <p>Exothermic reaction</p> </div> <div> <p>Endothermic reaction</p> </div> </div>
<p>HT ONLY: Energy must be supplied to break bonds in the reactants</p> <p>Energy is released when bonds in the products are formed.</p> <p>The energy needed to break bonds and the energy released when bonds are formed can be calculated from bond energies.</p>	<p>HT ONLY: The difference between the sum of the energy needed to break bonds in the reactants and the sum of the energy released when bonds in the products are formed is the overall energy change of the reaction.</p> <p>In an exothermic reaction, the energy released from forming new bonds is greater than the energy needed to break existing bonds.</p> <p>In an endothermic reaction, the energy needed to break existing bonds is greater than the energy released from forming new bonds.</p>