

ENERGY- Exo and Endothermic reactions

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<p>Energy is conserved in chemical reactions. The amount of energy in the universe at the end of a chemical reaction is the same as before the reaction takes place. If a reaction transfers energy to the surroundings the product molecules must have less energy than the reactants, by the amount transferred.</p> <p>An exothermic reaction is one that transfers energy to the surroundings so the temperature of the surroundings increases.</p> <p>Exothermic reactions include combustion, many oxidation reactions and neutralisation.</p> <p>Everyday uses of exothermic reactions include self-heating cans and hand warmers.</p> <p>An endothermic reaction is one that takes in energy from the surroundings so the temperature of the surroundings decreases.</p> <p>Endothermic reactions include thermal decompositions and the reaction of citric acid and sodium hydrogencarbonate. Some sports injury packs are based on endothermic reactions.</p>	134-136	138-141	61-63	1
<p>Chemical reactions can occur only when reacting particles collide with each other with sufficient energy. The minimum amount of energy that particles must have to react is called the activation energy.</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>	134-136	138-141	61-63	1
<p>During a chemical reaction:</p> <ul style="list-style-type: none"> • energy must be supplied to break bonds in the reactants • energy is released when bonds in the products are formed. <p>The energy needed to break bonds and the energy released when bonds are formed can be calculated from bond energies.</p> <p>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. In an endothermic reaction, the energy needed to break existing bonds is greater than the energy released from forming new bonds.</p>	134-136	138-141	61-63	1