

Reactions of acids

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Acids react with some metals to produce salts and hydrogen.	128-130	129-131	53	1
Acids are neutralised by alkalis (eg soluble metal hydroxides) and bases (eg insoluble metal hydroxides and metal oxides) to produce salts and water, and by metal carbonates to produce salts, water and carbon dioxide. The particular salt produced in any reaction between an acid and a base or alkali depends on: <ul style="list-style-type: none"> • the acid used (hydrochloric acid produces chlorides, nitric acid produces nitrates, sulfuric acid produces sulfates) • the positive ions in the base, alkali or carbonate. • 	128-130	129-131	51	1
Soluble salts can be made from acids by reacting them with solid insoluble substances, such as metals, metal oxides, hydroxides or carbonates. The solid is added to the acid until it no more reacts and the excess solid is filtered off to produce a solution of the salt. Salt solutions can be crystallised to produce solid salts.	128-130	129-131	54	1
Acids produce hydrogen ions (H ⁺) in aqueous solutions. Aqueous solutions of alkalis contain hydroxide ions (OH ⁻). The pH scale, from 0 to 14, is a measure of the acidity or alkalinity of a solution, and can be measured using universal indicator or a pH probe. A solution with pH 7 is neutral. Aqueous solutions of acids have pH values of less than 7 and aqueous solutions of alkalis have pH values greater than 7. In neutralisation reactions between an acid and an alkali, hydrogen ions react with hydroxide ions to produce water. This reaction can be represented by the equation: H ⁺ (aq) + OH ⁻ (aq) → H ₂ O (l)	128-130	129-131	53	1

A strong acid is completely ionised in aqueous solution. Examples of strong acids are hydrochloric, nitric and sulfuric acids.	N/A	130	53	1
A weak acid is only partially ionised in aqueous solution. Examples of weak acids are ethanoic, citric and carbonic acids.				
For a given concentration of aqueous solutions, the stronger an acid, the lower the pH.				
As the pH decreases by one unit, the hydrogen ion concentration of the solution increases by a factor of 10.				