

Elements, compounds and mixtures

Atoms and molecules

Key term	Definition
Atom	the smallest possible particle of an element; atoms are made up of protons, neutrons and electrons
Molecule	two or more atoms connected by chemical bonds

Properties of elements and compounds

Key term	Definition
Chemical property	describes something about how a substance reacts, such as its reactivity with water
Compound	a pure substance made of the atoms of two or more different elements joined by chemical bonds; the atoms are in a fixed ratio
Element	a pure substance made of only one type of atom
Impurity	a substance that is not wanted, which is mixed in with another substance
Mixture	two or more substances added together in any proportion; they are not chemically bonded, so they keep their own properties
Physical property	describes something about the behaviour of a substance that does not involve a chemical reaction, such as its melting point
Pure substance	a substance that is just one compound or element with nothing else mixed in

Separating mixtures

Key term	Definition
Chromatography	a method of separation based on how easily each substance is carried by a liquid that is moving through a porous solid, like paper
Condenser	a glass tube used in distillation to condense a gas into liquid, by surrounding the tube with a continuous flow of cold water
Crystal	a piece of a solid that has formed in a regular shape
Crystallisation	a method of separation used to get crystals of a solid by very slowly evaporating the solvent from a solution
Evaporation	a method of separation used to form solids by heating to remove the solvent from a solution
Filter paper	a porous type of paper that is used in filtration to prevent insoluble solids from passing through
Filtrate	in filtration, this is the liquid that passes through the filter paper

Filtration	a method of separation used to remove an insoluble solid from a liquid
Porous	describes a substance that allows liquid to pass through
Residue	in filtration, this is the solid that does not pass through the filter paper
Simple distillation	a method of separation involving evaporation and condensation that is used to separate the solvent from a solute that does not evaporate

Solutions

Key term	Definition
Dissolve	when a solute is added to a solvent and the solute breaks into much smaller particles and spreads out
Insoluble	describes a substance which does not dissolve in a particular solvent
Miscible	when two liquids can mix and do not separate out into layers
Soluble	describes a substance which dissolves in a particular solvent
Solute	a substance that dissolves in a solvent to make a solution
Solution	the mixture produced when a solute dissolves in a solvent
Solvent	a substance that dissolves the solute to make a solution

Symbols and formulas

Key term	Definition
Aqueous	when a substance is dissolved in water; shown by the state symbol (aq)
Chemical formula	uses chemical symbols to show the relative number of the atoms of each element in a substance, such as H ₂ O for water or NaCl for sodium chloride
Chemical symbol	a single letter or two letters that is used to represent an element, such as C for carbon, Na for sodium
State symbol	used sometimes to show the states of substances, where (s) is solid, (l) is liquid, (g) is gas and (aq) is aqueous