

Year 7 Matter - Separating Mixtures

Name of unit	
Expected Outcomes • Students will identify mixtures and understand the difference between pure substances and mixtures. • Students will describe and apply different methods of separation, including filtration, evaporation, distillation, and chromatography. • Students will carry out practicals using separation techniques. • Students will interpret data from chromatograms. • Students will understand how physical properties determine the method used to separate substances.	
Developmental Focus Opportunities • Practical science: Developing confidence with basic lab equipment and safety in separation experiments. • Observation and analysis: Making detailed observations and recording results. • Scientific reasoning: Explaining why certain methods are suitable for different mixtures. • Data interpretation: Understanding chromatograms and linking them to substance identification.	
Key Learning Points	Powerful Knowledge
• Mixtures can be separated by physical methods. • Filtration is used to separate insoluble solids from liquids. • Evaporation and distillation are used to separate solutes from solutions. • Chromatography is used to separate and identify dissolved substances. • The method chosen depends on the properties of the substances involved.	• Recognising the importance of separation techniques in real life (e.g., water purification, forensic science, food testing). • Applying knowledge of particle behaviour to understand separation processes. • Understanding how scientific techniques underpin quality control and safety in industries. • Developing investigative and analytical skills useful in later chemical studies.
Subject-Specific Vocabulary	Reading Opportunities
• Mixture • Pure substance • Filtration • Evaporation • Distillation • Chromatography • Solute	• Case studies on real-world separation techniques (e.g., desalination, chromatography in crime labs). • Science articles explaining how clean water is produced or how medicines are tested. • Lab instructions and write-ups to support scientific writing skills.

Year 7 Matter - Separating Mixtures

• Solvent • Residue • Filtrate	
Possible Misconceptions	Cross-Curricular Links
• Believing that separation creates new substances. • Thinking filtration can separate dissolved solids. • Misunderstanding how chromatography works (e.g., that colours in ink are added separately). • Confusing evaporation with boiling.	• Geography: Water purification and access to clean water globally. • Maths: Reading scales, calculating mass or temperature changes. • Art: Colour mixing and pigment separation in chromatography.