



## Learning Journey – C8 Chemical Analysis

*Ad Astra*

What have I done previously in my learning journey?	
<b>Previously....</b>	<p><b>You have learnt previously about pure and impure substances. This has involved learning about:</b></p> <ul style="list-style-type: none"> <li>The concept of pure substances</li> <li>Mixtures, including dissolving</li> <li>Diffusion in terms of the particle model</li> <li>Simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography</li> </ul>
<b>In this topic...</b>	<p>You will learn more about pure substance and the concept of formulations. You will learn how to identify a substance as being pure or impure and use the technique of chromatography to separate out a mixture of coloured pigments.</p>

We will develop our learning by studying the following each lesson:	RAG	Skills in Science checklist
<p><b>C8.01 Purity and Formulations</b></p> <ul style="list-style-type: none"> <li>Define the terms pure and compound.</li> <li>Use melting point data to distinguish pure and impure substances.</li> </ul>		<input type="checkbox"/> Scientific Methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication
<p><b>C8.02 Chromatography</b></p> <ul style="list-style-type: none"> <li>Explain how paper chromatography separates mixtures.</li> <li>Suggest how chromatography can be used to separate pure substances.</li> <li>Interpret chromatograms and determine R<sub>f</sub> values from chromatograms.</li> </ul>		<input type="checkbox"/> Scientific Methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication
<p><b>C8.03 Gas Tests</b></p> <ul style="list-style-type: none"> <li>Describe the tests used to detect hydrogen, chlorine, oxygen and carbon dioxide.</li> </ul>		<input type="checkbox"/> Scientific Methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication

### Key Vocabulary

Pure	Impure	Compound	Melting point	Chomatography	Chromatogram	R <sub>f</sub> value	Mobile phase	Stationary phase
Chlorine	Hydrogen	Oxygen	Carbon dioxide	Litmus	Splint	Limewater		

<b>Future Learning</b>	<p>In AS level chemistry you will learn more about how crude oil and ethanol, that is produced industrially by fermentation, can be separated by the process of fractional distillation. This topic also links to study of proteins at A Level where amino acids can be separated and identified by thin-layer chromatography. Other types of chromatography will be studied which include column chromatography and gas chromatography.</p>
<b>In careers</b>	<p>Analysts have developed a range of qualitative tests to detect specific chemicals. The tests are based on reactions that produce a gas with distinctive properties, or a colour change or an insoluble solid that appears as a precipitate.</p> <p>Instrumental methods provide fast, sensitive and accurate means of analysing chemicals, and are particularly useful when the amount of chemical being analysed is small. Forensic scientists and drug control scientists rely on such instrumental methods in their work.</p>