

SC25: **Qualitative Analysis: Tests for Ions (Paper 2)**SC26: **Bulk and Surface Properties of Matter Including Nanoparticles (Paper 2)**

Lesson	Objectives Tracker Sheet	Date covered	I know this well	I need to do more work on this
SC25a Flame tests and photometry	C9.2 Describe flame tests to identify the following ions in solids: lithium ion, Li ⁺ (red) sodium ion, Na ⁺ (yellow) potassium ion, K ⁺ (lilac) calcium ion, Ca ²⁺ (orange-red) copper ion, Cu ²⁺ (blue-green).			
	C9.6 Core Practical (part): Identify the ions in unknown salts, using the tests for the specified cations and anions.			
	C9.7 Identify the ions in unknown salts, using results of the tests above.			
	C9.8 Describe that instrumental methods of analysis are available and that these may improve sensitivity, accuracy and speed of tests.			
	C9.9 Evaluate data from a flame photometer: to determine the concentration of ions in dilute solution using a calibration curve to identify metal ions by comparing the data with reference data. (no knowledge of the instrument or how it works is required)			
SC25b Tests for positive ions	C9.1 Explain why the test for any ion must be unique.			
	C9.3 Describe tests to identify the following ions in solids or solutions as appropriate: aluminium ion, Al ³⁺ calcium ion, Ca ²⁺ copper ion, Cu ²⁺ iron(II) ion, Fe ²⁺ iron(III) ion, Fe ³⁺ ammonium ion, NH ₄ ⁺ using sodium hydroxide solution.			
SC25c Tests for negative ions	C9.5 Describe tests to identify the following ions in solids or solutions as appropriate:			

	carbonate ion, CO_3^{2-} , using dilute acid and identifying the carbon dioxide evolved sulfate ion, SO_4^{2-} , using dilute hydrochloric acid and barium chloride solution chloride ion, Cl^- , bromide ion, Br^- , iodide ion, I^- , using dilute nitric acid and silver nitrate solution.			
	C9.6 Core Practical (part): Identify the ions in unknown salts, using the tests for the specified cations and anions.			
	C9.7 Identify the ions in unknown salts, using results of the tests above.			
SC25c Identifying ions – Core Practical	C9.6 Core Practical (part): Identify the ions in unknown salts, using the tests for the specified cations and anions.			
	C9.6 Core Practical (part): Identify the ions in unknown salts, using the tests for the specified cations and anions.			
SC26a Choosing materials	C9.38 Compare, using data, the physical properties of glass and clay ceramics, polymers, composites and metals.			
	C9.39 Explain why the properties of a material make it suitable for a given use and use data to select materials appropriate for specific uses.			
SC26b Composite materials	C 9.38 Compare, using data, the physical properties of glass and clay ceramics, polymers, composites and metals.			
	C 9.39 Explain why the properties of a material make it suitable for a given use and use data to select materials appropriate for specific uses.			
SC26c Nanoparticles	9.35C Compare the size of nanoparticles with the sizes of atoms and molecules.			
	9.36C Describe how the properties of nanoparticulate materials are related to their uses including surface area to volume ratio of the particles they contain, including sunscreens.			
	9.37C Explain the possible risks associated with some nanoparticulate materials.			