

Revision summary

Use the following summary of syllabus dot points and key knowledge within Module 8 to ensure that you have thoroughly reviewed the content. Provide a brief definition or comment for each item to demonstrate your understanding or code them using the traffic light system – green (all good); amber (needs some review); red (priority area to review). Alternatively, write a follow-up strategy.

Analysis of inorganic substances	
Discuss the reasons chemists need to monitor our environment.	
Explain how flame tests work.	
Compare precipitation reactions with complexation reactions.	
Describe a test you could use to positively identify the barium (Ba^{2+}) cation in a solution.	
Describe a test you could use to positively identify the calcium (Ca^{2+}) cation in a solution.	
Describe a test you could use to positively identify the magnesium (Mg^{2+}) cation in a solution.	
Describe a test you could use to positively identify the lead(II) (Pb^{2+}) cation in a solution.	
Describe a test you could use to positively identify the silver (Ag^+) cation in a solution.	
Describe a test you could use to positively identify the copper(II) (Cu^{2+}) cation from a solution.	
Describe a test you could use to positively identify the iron(II) (Fe^{2+}) cation in a solution.	
Describe a test you could use to positively identify the iron(III) (Fe^{3+}) cation in a solution.	

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»	Describe a test you could use to positively identify the chloride (Cl^-) anion in a solution.	
	Describe a test you could use to positively identify the bromide (Br^-) anion in a solution.	
	Describe a test you could use to positively identify the iodide (I^-) anion in a solution.	
	Describe a test you could use to positively identify the hydroxide (OH^-) anion in a solution.	
	Describe a test you could use to positively identify the acetate (CH_3COO^-) anion in a solution.	
	Describe a test you could use to positively identify the carbonate (CO_3^{2-}) anion in a solution.	
	Describe a test you could use to positively identify the sulfate (SO_4^{2-}) anion in a solution.	
	Describe a test you could use to positively identify the phosphate (PO_4^{3-}) anion in a solution.	
	Explain the process of gravimetric analysis, using a specific example.	
	Describe how a precipitation titration could be used to quantitatively analyse a named ion in solution.	
	Discuss how you would determine the concentration of ions in a solution using colourimetry.	
	Discuss how you would determine the concentration of ions in a solution using UV-vis spectroscopy.	
	Discuss how you would determine the concentration of ions in a solution using atomic absorption spectroscopy (AAS).	»

»» Analysis of organic substances	
Discuss how you would experimentally distinguish between a saturated and an unsaturated hydrocarbon.	
Discuss how you would experimentally determine the position of hydroxyl groups in different alcohols.	
Discuss how you would experimentally distinguish the presence of the carboxylic acid group in a substance.	
Discuss how carbon-13 NMR spectroscopy can be used to analyse the structure of an organic compound.	
Discuss how proton NMR spectroscopy can be used to analyse the structure of an organic compound.	
Discuss how mass spectroscopy can be used to analyse the structure of an organic compound.	
Discuss how infrared spectroscopy can be used to analyse the structure of an organic compound.	
Chemical synthesis and design	
Evaluate the importance of the availability of reagents to a specific chemical synthesis process.	
Evaluate the importance of the reaction conditions to a specific chemical synthesis process.	
Evaluate the importance of yield and purity in a specific chemical synthesis process.	
Evaluate the importance of the industrial uses of a specific chemical synthesis process.	
Discuss the environmental, economic and social issues that need to be considered for a specific chemical synthesis process.	