SC8: **Acids and Alkalis** (Paper 1)

Lesson	Objectives Tracker Sheet	Date covered	I know this well	I need to do more work on this
SC8a Acids, alkalis and indicators	C0.5 Describe the use of hazard symbols on containers (a) to indicate the dangers associated with the contents (b) to inform people about safe-working precautions with these substances in the laboratory.			
	C3.1 Recall that acids in solution are sources of hydrogen ions and alkalis in solution are sources of hydroxide ions.			
	C3.2 Recall that a neutral solution has a pH of 7 and that acidic solutions have lower pH values and alkaline solutions higher pH values.			
	C3.3 Recall the effect of acids and alkalis on indicators, including litmus, methyl orange and phenolphthalein.			
	C3.4 **H** Recall that the higher the concentration of hydrogen ions in an acidic solution, the lower the pH; and the higher the concentration of hydroxide ions in an alkaline solution, the higher the pH.			
SC8b Looking at acids	C3.5 **H** Recall that as hydrogen ion concentration in a solution increases by a factor of 10, the pH of the solution decreases by 1..			
	C3.7 **H** Explain the terms dilute and concentrated, with respect to amount of substances in solution.			
	C3.8 **H** Explain the terms weak and strong acids, with respect to the degree of dissociation into ions.			
SC8c Bases and salts	C0.3 Write balanced equations, including the use of the state symbols (s), (l), (g) and (aq).			
	C3.9 Recall that a base is any substance that reacts with an acid to form a salt and water only.			

	C3.11b Explain the general reactions of aqueous solutions of acids with metal oxides to produce salts.			
	C3.13 Describe a neutralisation reaction as a reaction between an acid and a base.			
	C3.15 Explain why, if soluble salts are prepared from an acid and an insoluble reactant: excess of the reactant is added the excess reactant is removed the solution remaining is only salt and water.			
SC8c Preparing copper sulfate – Core Practical	Core practical.			
SC8d Alkalis and balancing equations	C0.1 Recall the formulae of elements, simple compounds and ions.			
	C0.2 Write word equations.			
	C0.3 Write balanced chemical equations, including the use of the state symbols (s), (l), (g) and (aq).			
	3.10 Recall that alkalis are soluble bases.			
	3.11c Explain the general reactions of aqueous solutions of acids with metal hydroxides to produce salts.			
SC8d Investigating neutralisation – Core Practical	C3.6 Investigate the change in pH on adding powdered calcium hydroxide or calcium oxide to a fixed volume of dilute hydrochloric acid.			
SC8e Alkalis and neutralisation	3.14 Explain an acid–alkali neutralisation as a reaction in which hydrogen ions (H+) from the acid react with hydroxide ions (OH–) from the alkali to form water.			
	3.16 Explain why, if soluble salts are prepared from an acid and a soluble reactant: titration must be used the acid and the soluble reactant are then mixed in the correct proportions			

	the solution remaining, after reaction, is only salt and water.			
	3.18 Describe how to carry out an acid–alkali titration, using burette, pipette and a suitable indicator, to prepare a pure, dry salt.			
SC8f Reactions of acids with metals and carbonates	C0.4 **H** Write balanced ionic equations.			
	3.11 Explain the general reactions of aqueous solutions of acids with (a) metals and (d) metal carbonates to produce salts.			
	3.12 Describe the chemical test for (a) hydrogen and (b) carbon dioxide (using limewater).			
SC8g Solubility	C3.19 Recall the general rules which describe the solubility of common types of substances in water: a all common sodium, potassium and ammonium salts are soluble b all nitrates are soluble c common chlorides are soluble except those of silver and lead d common sulfates are soluble except those of lead, barium and calcium e common carbonates and hydroxides are insoluble except those of sodium, potassium and ammonium.			
	C3.20 Predict, using solubility rules, whether or not a precipitate will be formed when named solutions are mixed together, naming the precipitate if any.			
	C3.21 Describe the method used to prepare a pure, dry sample of an insoluble salt.			