AQA GCSE Combined Science: Trilogy
Topic Checklists

5.4 Chemical Changes

5.4.1 Reactivity of Metals				
Topic	**Success Criteria**	**Progress**		
Metal Oxides	I can state the product of reactions between metals and oxygen.			
	I can explain reduction and oxidation in terms of loss and gain of oxygen.			
The Reactivity Series	I can explain how the reactivity of a metal is determined.			
	I can recall the order of reactivity of the metals potassium, sodium, lithium, calcium, magnesium, zinc, iron and copper.			
	I can recall the position of the non-metals hydrogen and carbon in the reactivity series.			
	I can describe the reactions, if any, of potassium, sodium, lithium, calcium, magnesium, zinc, iron and copper with water or dilute acids.			
	I can explain how the reactivity of metals with water or dilute acids is related to the tendency of the metal to form its positive ion.			
	I can deduce an order of reactivity of metals based on experimental results.			
Extraction of Metals and Reduction	I can explain how unreactive metals such as gold are usually found.			
	I can explain why most metals require chemical reactions to extract them.			
	I can describe how metals less reactive than carbon can be extracted from their oxides.			
	I can interpret or evaluate specific metal extraction processes when given appropriate information.			
	I can identify the substances which are oxidised or reduced in terms of gain or loss of oxygen.			
Oxidation and Reduction in Terms of Electrons (HT Only)	I can describe oxidation in terms of electrons.			
	I can describe reduction in terms of electrons.			
	I can write ionic equations for displacement reactions.			
	I can identify which species are oxidised and which are reduced in a given reaction, symbol equation or half equation.			

5.4.2 Reactions of Acids				
Topic	**Success Criteria**	**Progress**		
Reactions of Acids with Metals	I can state the products of reactions between metals and acids.			
	(HT only) I can explain in terms of gain or loss of electrons, that the reactions between metals and acids are redox reactions.			
	(HT only) I can identify which species are oxidised and which are reduced in given chemical equations.			
Neutralisation of Acids and Salt Production	I can state the products of neutralisation of acids by alkalis and bases.			
	I can state the products of neutralisation of acids by metal carbonates.			
	I can name the salt produced by a neutralisation reaction from the name of the acid used and the positive ions in the base, alkali or carbonate.			
	I can predict products from given reactants.			
	I can use formulae of common ions to deduce the formulae of salts.			
Soluble Salts	I can describe how soluble salts can be made from acids.			
	I can describe how solid salts can be obtained from salt solutions.			
	I can describe how to make pure, dry samples of named soluble salts from information provided (required practical activity 8).			

Topic	Success Criteria	Progress		
The pH Scale and Neutralisation	I can state the type of ion produced by acids in aqueous solutions.			
	I can state the type of ion found in aqueous solutions of alkalis.			
	I can describe what the pH scale shows.			
	I can describe how the pH of a solution can be measured.			
	I can state the pH of neutral solutions.			
	I can describe where acidic solutions are found on the pH scale.			
	I can describe where alkaline solutions are found on the pH scale.			
	I can use the pH scale to identify acidic or alkaline solutions.			
Strong and Weak Acids (HT Only)	I can give some examples of strong and weak acids.			
	I can describe how the hydrogen ion concentration of a solution changes when the pH decreases by one unit.			
	I can explain the terms dilute and concentrated in relation to acids in terms of amount of substance.			
	I can explain the terms strong and weak in relation to acids in terms of the degree of ionisation in aqueous solution.			
	I can describe neutrality and relative acidity in terms of the effect on hydrogen ion concentration and the numerical value of pH.			

5.4.3 Electrolysis				
Topic	**Success Criteria**	**Progress**		
The Process of Electrolysis	I can explain why ionic compounds are able to conduct electricity when melted or dissolved in water.			
	I can describe the direction of movement of ions when an electric current is passed through an electrolyte.			
	I can describe how elements are produced from ions by electrolysis.			
	(HT only) I can write half equations for the reactions occurring at the electrodes during electrolysis.			
	(HT only) I can complete and balance supplied half equations.			
Electrolysis of Molten Ionic Compounds	I can predict the products of electrolysis of a simple ionic compound in its molten state.			
Using Electrolysis to Extract Metals	I can describe how electrolysis can be used to extract metals more reactive than carbon.			
	I can explain why large amounts of energy are required for electrolysis.			
	I can explain why a mixture of aluminium oxide and cryolite is used as the electrolyte in the extraction of aluminium.			
	I can explain why the positive electrode must be continually replaced in the extraction of aluminium.			
Electrolysis of Aqueous Solutions	I can state the product formed at the negative electrode in the electrolysis of an aqueous solution if the metal is more reactive than hydrogen.			
	I can state the product formed at the positive electrode in the electrolysis of an aqueous solution if the solution does not contain halide ions.			
	I can state the product formed at the positive electrode in the electrolysis of an aqueous solution if the solution contains halide ions.			
	I can explain why these products are formed in the electrolysis of aqueous solutions.			
	I can predict the products of the electrolysis of aqueous solutions containing a single ionic compound.			
	I can describe a method to investigate what happens when aqueous solutions are electrolysed using inert electrodes (required practical activity 9).			

Topic	Success Criteria	Progress		
Representation of Reactions at Electrodes as Half Equations (HT Only)	I can describe the reactions at the cathode and anode in terms of oxidation and reduction.			
	I can write half equations to represent reactions at electrodes.			