Exam Board: AQA (8462)

Year 10

Year Group	Term	Topic	Content (4 lessons a fortnight)	Assessment Content
10	1	Chemical changes	• Metal oxides • The reactivity series • Extraction of metals and reduction • Oxidation and reduction in terms of electrons • Reactions of acids and metals • Neutralisation of acids and salt production • Soluble salts • **Required practical 1: preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate using a Bunsen burner to heat dilute acid and a water bath or electric heater to evaporate the solution.** • Strong and weak acids	Standard Mid-point assessments with whole class feedback followed by end-of unit tests that test acquisition of knowledge and application. DTT applied.
	2	Chemical changes Quantitative chemistry	• The process of electrolysis • Electrolysis of molten ionic compounds • Using electrolysis to extract metals • Electrolysis of aqueous solutions • **Required practical 3: investigate what happens when aqueous solutions are electrolysed using inert electrodes. This should be an investigation involving developing a hypothesis.** • Representation of reactions at electrodes as half equations <u>Quantitative chemistry</u> • Conservation of mass and chemical equations • Relative formula mass • Mass changes when a reactant or product is a gas • Chemical measurements • Moles	Standard Mid-point assessments with whole class feedback followed by end-of unit tests that test acquisition of knowledge and application. DTT applied.

	3	Quantitative chemistry	• Amounts of substances in equations • Using moles to balance equations • Limiting reactants • Concentration • **Required practical 2: (chemistry only) determination of the reacting volumes of solutions of a strong acid and a strong alkali by titration.** • Using concentrations of solutions in mol/dm3	Standard Mid-point assessments with whole class feedback followed by end-of unit tests that test acquisition of knowledge and application. DTT applied.
	4	Energy changes The rate and extent of chemical change	• Energy transfer during exothermic and endothermic reactions • Reaction profiles • The energy change of reactions • **Required practical 4: investigate the variables that affect temperature changes in reacting solutions such as, eg acid plus metals, acid plus carbonates, neutralisations, displacement of metals** • Cells and batteries • Fuel cells <u>The rate and extent of chemical change</u> • Calculating rates of reaction • Factors which affect the rate of reaction • Collision theory and activation energy	Standard Mid-point assessments with whole class feedback followed by end-of unit tests that test acquisition of knowledge and application. DTT applied.
	5	The rate and extent of chemical change	• **Required practical 5: investigate how changes in concentration affect the rates of reactions by a method involving measuring the volume of a gas produced and a method involving a change in colour or turbidity** • Catalysts • Reversible reactions • Energy changes and reversible reactions • Equilibrium • The effect of changing conditions on equilibrium (concentration, temperature and pressure)	Standard Mid-point assessments with whole class feedback followed by end-of unit tests that test acquisition of knowledge and application. DTT applied.

	6	Chemical analysis	• Pure substances • Formulations • Chromatography • **Required practical 6: investigate how paper chromatography can be used to separate and tell the difference between coloured substances. Students should calculate Rf values.** • Identification of common gases (Hydrogen, Oxygen, Carbon dioxide and Chlorine) • Identification of ions by chemicals and spectroscopic means -Flame tests -Testing for metal hydroxides, halides, carbonates and sulfates • **Required practical 7: use of chemical tests to identify the ions in unknown single ionic compounds covering the ions from sections** • Instrumental methods such as flame emission spectroscopy	Standard Mid-point assessments with whole class feedback followed by end-of unit tests that test acquisition of knowledge and application. DTT applied.

Year 11

Year Group	Term	Module/Topic/Theme/	Content	Assessment Content
11	1	Organic chemistry	• Crude oil, hydrocarbons and alkanes • Fractional distillation and petrochemicals • Properties of hydrocarbons • Cracking of alkenes • Structure and formula of alkenes • Reactions of alkenes • Alcohols • Carboxylic acids	Standard Mid-point assessments with whole class feedback followed by end-of unit tests that test acquisition of knowledge and application. DTT applied.

	2	Organic chemistry Further quantitative chemistry	• Addition polymerisation • Condensation polymerisation • Amino acids • DNA <u>Further quantitative chemistry</u> • Moles recap • Percentage yield • Atom economy • Use of amount of substance in relation to the volume of gases	Standard Mid-point assessments with whole class feedback followed by end-of unit tests that test acquisition of knowledge and application. DTT applied.
	3	Chemistry of the atmosphere	• The proportion of gases in the atmosphere • The Earth's early atmosphere • How oxygen levels increased and carbon dioxide levels decreased • Greenhouse gases and human activities that increased them in the atmosphere. • Climate change • The carbon footprint and its reduction • Atmospheric pollutants from fuels and its effects	Standard Mid-point assessments with whole class feedback followed by end-of unit tests that test acquisition of knowledge and application. DTT applied.
	4	Using resources	• Using the earth's resources and sustainable development • Potable water • **Required practical 8: analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.** • Waste water management • Alternative methods of metal extraction • Life cycle assessment • Ways of reducing the use of resources • Corrosion and its prevention • Alloys as useful materials • Ceramics, polymers and composites • The Haber process and the use of NPK fertilisers	Standard Mid-point assessments with whole class feedback followed by end-of unit tests that test acquisition of knowledge and application. DTT applied.
	5	Revision	**Revision and Re teaching based on feedback from tests and PPEs**	GCSE EXAMS

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