Year 10 Chemistry	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge	**Recap particle model** **Quantitative Chemistry** • Relative mass and moles • Equations and calculations • Masses to balanced equations • Percentage yield • Atom economy • Concentration • Titration and calculations • Volume of gases **The Earth's Resources** • Potable water and treating wastewater • RP13 Purification of water x2 • HT extracting metals • Life cycle assessment x2 • Reducing the use of resources	**Chemical Analysis** • Pure substances and mixtures • Chromatography • RP6 Chromatography x2 • Identifying gasses x2 • Tests for positive ions • Tests of negative ions • Instrumental analysis • RP7 Unknown chemicals test x2 **Structure and Bonding** • States of matter • Atoms into ions • Ionic bonding • Giant ionic structures • Covalent bonding • Structure of simple molecules • Giant covalent structures • Fullerenes and graphene • Giant metallic structures • Nanoparticles and application	**Periodic Table** • Periodic table • Electron structure • Groups 1,7, and 0 • Transition metals **Crude oil and fuels** • Crude oil, Hydrocarbons and Alkanes • Fractional distillation • Properties of hydrocarbons • Cracking and Alkenes **Organic reactions** • Reactions of Alkenes • Structures of alcohols, • Reactions and uses of alcohols • Carboxylic acids and esters	**Polymerisation** • Addition polymerisation • Condensation polymerisation • Natural polymers • DNA **Chemical Changes** • Oxidation and Reactivity Series • Displacement • Extracting metals x2 • HT Oxidation and reduction	**Chemical Changes Continued** • Acids and metals (Zn, Fe and Mg with HCl + H2SO4) • Neutralisation and salt production x2 • Soluble salts • RP1 Making a soluble salt x2 • HT Strong and weak acids **Electrolysis** • Electrolysis of molten ionic compounds • Extracting metals • Electrolysis of aqueous solutions x2 • RP3 Electrolysis x2 • HT Half equations	**Energy Changes** • Exothermic and endothermic reactions • RP4 Temperature change x2 • Reaction Profiles x2 • HT Bond energy calculations • Chemical cells and batteries • Fuel cells
Working Scientifically Skills	• safe use of a range of equipment to purify and/or separate chemical mixtures including evaporation, distillation		• safe use of a range of equipment to purify and/or separate chemical mixtures including chromatography • safe use of appropriate heating devices and techniques including use of a Bunsen burner • use of appropriate qualitative reagents and techniques to analyse and identify unknown samples or products including gas tests, flame test and precipitation reactions	• use of appropriate apparatus to make and record a range of measurements accurately including mass • safe use of appropriate heating devices and techniques including use of a Bunsen burner and a water bath or electric heater • use of appropriate apparatus and techniques for the measurement of pH in different situations		• use of appropriate apparatus to make and record a range of measurements accurately including volume of liquids • use of appropriate qualitative reagents and techniques to analyse and identify unknown samples or products including the determination of concentrations of strong acids and strong alkalis
Core Practical	Titration Water Purification	Chromatography Identifying unknown ions	Organic reactions		Making a soluble salt Electrolysis	Temperature change
Independent Learning Link	Titrations Quantitative Chemistry Sustainability	Atomic Structure and the Periodic Table Bonding and Matter	Organic Chemistry	The Atmosphere	Electrolysis Reactions of Metals	Exothermic and Endothermic reactions

Year 11 Chemistry	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge	**Quantitative Chemistry** • Relative mass and moles • Equations and calculations • Masses to balanced equations • Percentage yield • Atom economy • Concentration • Titration and calculations • Volume of gases	**Rates of Reaction** • Collision theory • Temperature and rate • Concentration/ pressure and rate • Surface area, catalyst and rate • Catalysts	**Equilibria** • Reversible reactions • Dynamic equilibria • Changing conditions on equilibrium **Using Resources** • Corrosion • Alloys, ceramics, polymers and composites • Haber process • Fertilisers in the lab and industry	**Consolidation** **Energy Changes** • Exothermic and Endothermic reactions • RP Temperature change • Reaction profiles (Energy level diagrams) • HT Bond Energy calculations • Chemical cells and batteries • Fuel cells **Electrolysis** • Electrolysis of molten ionic compounds • Extracting metals • Electrolysis of aqueous solutions • RP Electrolysis • HT Half equations	**Consolidation** **Metals, Acids and Bases** • Oxidation and reactivity series • Displacement • Extracting metals • Redox OILRIG • Acids and metals (Zn, Fe, Mg and Cu with H_2SO_4) • Neutralisation and salt production • Soluble salts with acids and insoluble base • Strong and weak acids pH • Addition polymerisation • Condensation polymerisation • Natural polymers, DNA	
Working Scientifically Skills	• safe use of appropriate heating devices and techniques including the use of a Bunsen burner and water bath or electric heater • safe use of a range of equipment to purify and/or separate a chemical mixture including evaporation, filtration and crystallisation • safe use and careful handling of gases, liquids and solids, including careful mixing of reagents under controlled conditions, using appropriate apparatus to explore chemical changes and/or products	• appropriate observations during chemical reactions including the measurement of rates of reaction by a variety of methods such as production of gas and colour change • use of appropriate apparatus and techniques for conducting and monitoring chemical reactions including appropriate reagents and/or techniques for the measurement of pH in different situations		• use of appropriate apparatus to make and record a range of measurements accurately, including mass, temperature and volume of liquids • making and recording appropriate observations during chemical reactions including changes in temperature making and recording • use of appropriate apparatus and techniques to draw, set up and use electrochemical cells for separation and production of elements and compounds		
Core Practical	Titration	Rates of reaction		Temperature Change Electrolysis		
Independent Learning Link	Quantitative Chemistry	Electrolysis Rates of Reaction	Reversible Reactions	Exothermic and Endothermic reactions	AQA Chemistry GCSE	AQA Chemistry GCSE