

Curriculum Mapping

A Level Chemistry – KS5 Y12

Students follow AQA A - Level Chemistry (7405)

<https://filestore.aqa.org.uk/resources/chemistry/specifications/AQA-7404-7405-SP-2015.PDF>

HT1	<p><u>Section 1 Physical chemistry</u></p> <p><i>Atomic structure</i></p> <ul style="list-style-type: none">• Fundamental particles• Mass number, atomic number and isotopes• The arrangement of the electrons• The mass spectrometer• More about electron arrangements in atoms• Electron arrangements and ionisation energy <p><i>Amount of substance – part 1</i></p> <ul style="list-style-type: none">• Relative atomic and molecular masses, the Avogadro constant and the mole• Moles in solution• The ideal gas equation <p><i>Bonding</i></p> <ul style="list-style-type: none">• The nature of ionic bonding• Covalent bonding• Metallic bonding• Electronegativity – bond polarity in covalent bonds• Forces acting between molecules• The shapes of molecules and ions• Bonding and physical properties
HT2	<p><u>Section 1 Physical chemistry continued</u></p> <p><i>Amount of substance part 2</i></p> <ul style="list-style-type: none">• Empirical and molecular formulae• Balanced equations and related calculations• Balanced equations, atom economics and percentage yields <p><i>Energetics</i></p> <ul style="list-style-type: none">• Exothermic and endothermic reactions• Enthalpy• Measuring enthalpy changes• Hess's Law• Enthalpy changes of combustion• Representing thermochemical cycles• Bond Enthalpies <p><u>Section 3 Organic Chemistry 1</u></p> <p><i>Alkanes</i></p> <ul style="list-style-type: none">• Carbon compounds• Nomenclature – naming organic compounds• Isomerism• Fractional distillation of crude oil• Industrial cracking• Combustion of alkanes

	<ul style="list-style-type: none"> The formation of halogenoalkanes
HT3	<p><u>Section 1 Physical chemistry continued</u></p> <p><i>Kinetics</i></p> <ul style="list-style-type: none"> Collision theory The Maxwell-Boltzmann distribution Catalysts <p><u>Section 2 Inorganic Chemistry 1</u></p> <p><i>Periodicity</i></p> <ul style="list-style-type: none"> The Periodic table Trends in the properties of elements – period 3 More trends in the properties of the elements in period 3 A closer look at ionising energies <p><u>Section 3 Organic Chemistry 1 continued</u></p> <p><i>Haloalkanes</i></p> <ul style="list-style-type: none"> Halogenoalkanes – Introduction Nucleophilic substitution in halogenalkanes Elimination reaction in halogenoalkanes <p><i>Alkenes</i></p> <ul style="list-style-type: none"> Alkenes Reactions of alkenes Addition polymers
HT4	<p><u>Section 1 Physical chemistry continued</u></p> <p><i>Equilibria</i></p> <ul style="list-style-type: none"> The idea of equilibrium Changing the conditions of an equilibrium reaction Equilibrium reactions in Industry The Equilibrium constant, K_c Calculations using equilibrium constant expressions The effect of changing conditions on equilibria <p><i>Oxidation, reduction and redox reactions</i></p> <ul style="list-style-type: none"> Oxidation and reduction Oxidation states Redox Equations <p><u>Section 3 Organic Chemistry 1 continued</u></p> <p><i>Alcohols</i></p> <ul style="list-style-type: none"> Alcohols – Introduction Ethanol production The reactions of alcohols
HT5	<p><u>Section 2 Inorganic Chemistry 1</u></p> <p><i>Group 2, the Alkaline Earth Metals</i></p> <ul style="list-style-type: none"> The physical and chemical properties of group 2 <p><i>Group 7 (17), the Halogens</i></p> <ul style="list-style-type: none"> The halogens The chemical reactions of the Halogens Reactions of halide ions Uses of chlorine <p><u>Section 3 Organic chemistry 1 continued</u></p>

	<p><i>Organic Analysis</i></p> <ul style="list-style-type: none"> • Test-tube reactions • Mass spectrometry • Infrared spectroscopy
HT6	<p>Primary Project Practical skills Preparation for Ecton mine trip Cambridge chemistry challenge</p> <p><u>Section 2 Inorganic chemistry 2</u> <i>The Transition metals</i></p> <ul style="list-style-type: none"> • The general properties of transition metals • Complex formation and the shape of complex ions • Coloured ions • Variable oxidation states of transition elements • Catalysts