

Curriculum Mapping

A Level Chemistry – KS5 Y13

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>Thermodynamics</i></p> <ul style="list-style-type: none">• Enthalpy change• Born-Haber cycles• More enthalpy changes• Why do chemistry reactions take place <p><u>Section 2 Inorganic chemistry 2</u></p> <p><i>The Transition metals</i></p> <p>Revise / Recap / Review as this should have been taught HT6 Y12</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 <p><i>Reactions of inorganic compounds in aqueous solutions</i></p> <ul style="list-style-type: none">• The acid – base chemistry of aqueous transition metal ions• Ligand substitution reactions• A summary of acid-base and substitution reactions of some metal ions <p><u>Section 3 Organic Chemistry 2</u></p> <p><i>Compounds containing the carbonyl group</i></p> <ul style="list-style-type: none">• Introduction to aldehydes and ketones• Reactions of the carbonyl group in aldehydes and ketones <p><i>Nomenclature and isomerism</i></p> <ul style="list-style-type: none">• Naming organic compounds• Reactions of the carbonyl groups in aldehydes and ketones• Synthesis of optically active compounds
HT2	<p><u>Section 1 Physical chemistry</u></p> <p><i>Acids, bases and buffers</i></p> <ul style="list-style-type: none">• Defining an acid• The pH scale• Weak acids and bases• Acid-base titrations• Choice of indicators for titrations• Buffer solutions <p><i>Equilibrium Constant K_p</i></p> <ul style="list-style-type: none">• Equilibrium constant K_p for homogeneous systems <p><u>Section 3 organic chemistry</u></p> <p><i>Compounds containing the carbonyl group continued</i></p>

	<ul style="list-style-type: none"> • Carboxylic acids and esters • Reactions of carboxylic acids and esters • Acylation
HT3	<p><u>Section 1 Physical chemistry</u> <i>Electrode potentials and electrochemical cells</i></p> <ul style="list-style-type: none"> • The electrochemical series • Predicting the direction of redox reactions • Electrochemical cells <p><u>Section 3 Organic chemistry 2</u> <i>Aromatic chemistry</i></p> <ul style="list-style-type: none"> • Introduction to arenes • Arenes – physical properties, naming and reactivity • Reaction of arenes <p><i>Amines</i></p> <ul style="list-style-type: none"> • Introduction to amines • The properties of amines as bases • Amines as nucleophiles and their synthesis <p><i>Polymerisation</i></p> <ul style="list-style-type: none"> • Condensation polymers <p><i>Amino acids, proteins and DNA</i></p> <ul style="list-style-type: none"> • Introduction to amino acids • Peptides, polypeptides and proteins • Enzymes • DNA • The action of anticancer drugs
HT4	<p><u>Section 1 Physical Chemistry</u> <i>Kinetics</i></p> <ul style="list-style-type: none"> • The rate of chemical reactions • The rate expression and order of reaction • Determining the rate equation • The Arrhenius equation • The rate determining step <p><u>Section 2 Inorganic Chemistry 2</u> <i>Periodicity</i></p> <ul style="list-style-type: none"> • Reactions of period 3 elements • The oxides of elements in period 3 • The acid/base nature of the period 3 oxides <p><u>Section 3 Organic chemistry 2</u> <i>Structure determination</i></p> <ul style="list-style-type: none"> • Nuclear magnetic-resonance (NMR) spectroscopy • Proton NMR • Interpreting proton, ^1H, NMR spectra <p><i>Chromatography</i></p>

- Chromatography

Organic synthesis and analysis

- Synthetic routes
- Organic Analysis

HT5	Exam Preparation
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