



NEXT

Idsall School

Year 12 A Level Chemistry Learning Journey



This way to Year 13



Exam Preparation

Build a portfolio of revision material, to help remember content covered and commit key information to long term memory. Make sure you are confident on the content covered this year, so you are ready to build upon this in Year 13.



Preparation for Next Year



Exam Preparation

Revise over content covered so far. Make sure you practice exam skills and ensure you know your scientific key words. You will be tested on all the content learned over the course of the year ready to build on in Year 13.

YEAR 12 EXAMS



REVISION and EXAM

Summer Term 2



4.2.2 Haloalkanes – Define the term nucleophile as an electron pair donor. Describe the reactions of haloalkanes including drawing of mechanisms. Describe, including reactions, the production of halogen radicals by free radical substitution.

4.2.3 Organic Synthesis – Describe and carry out experimental procedures for distillation of an alcohol, heating under reflux, and the purification of an organic liquid. Be able to devise two stage synthetic routes by applying transformations between all functional groups encountered.

4.2.4 Analytical Techniques – Describe the procedure of IR and Mass spectroscopy. Be able to analyse and interpret information from the spectrums produced by both methods to identify molecules. Combine information from both methods to identify molecules.



4.2.2 Haloalkanes; 4.2.3 Organic Synthesis; 4.2.4 Analytical Techniques

Summer Term 1



3.2.2 Rate of Reaction- Understand simple collision theory, the factors that affect collisions and rate of reaction calculations using graphical analysis. Explain the role of catalysts, how they work, and their uses. Qualitatively explain the Boltzmann distribution in terms of energy of particles and the factors that effect.

4.2.1 Alcohols- Organisms are surrounded by pathogens and have evolved defences against them. Medical intervention can be used to support these natural defences. The mammalian immune system is introduced.

3.2.3 Equilibrium – Explain that when dynamic equilibrium is reached when the forward and reverse reaction occur at the same rate. Apply Le Chatelier's principle to explain how the position of equilibrium shifts to counteract changes to a system. Calculate K_c .

3.2.2 Rate of Reaction; 4.2.1 Alcohols; 3.2.3 Equilibrium

Spring Term 2

2.1.5 Redox – Understand the rules to assign oxidation numbers to elements within compounds and deduce how oxidation states of elements may change in a chemical reaction. Describe reactions in terms of Redox and electron transfer, write half equations, and full ionic equations.

3.2.1 Enthalpy – Build on knowledge of energy changes using enthalpy profiles. Define and calculate enthalpy changes of formation, combustion and neutralisation only. Determine enthalpy changes directly from appropriate experimental results, including use of the relationship: $q = mc\Delta T$. Apply Hess' law for construction of enthalpy cycles and carry out calculations.

4.1 Organic Chemistry- understanding of the important chemical ideas that underpin the study of organic chemistry. nomenclature and formula representation, functional groups, organic reactions and isomerism. Understand the properties and reactions of alkanes and alkenes including organic mechanisms.

3.2.1 Enthalpy; 2.1.5 Redox; 4.1 Organic Chemistry

Spring Term 1

THEN

2.1.3 Amount of Substance- Understanding of Avogadro and the mole. Determination of empirical and molecular formulae. Calculation of reacting masses, gas volumes, ideal gas volume and molar concentrations. Industrial applications concerning percentage yield and atom economy.

2.1.4 Acids and Bases – Understand the differences between acids and bases, and how they react together in neutralisation reactions. Carry out the techniques and procedures used when preparing a standard solution of required concentration and carrying out acid-base titrations. Also carry out structured and non-structured titration calculations, based on experimental results of familiar and non-familiar acids and bases.

3.1.2-4 - Group 2 and the halogens as typical metal and non-metal groups respectively, allowing an understanding of redox reactions to be developed further. Finally, this section looks at how unknown ionic compounds can be analysed and identified using simple test-tube tests.

2.1.3 Amount of Substance; 2.1.4 Acids and Bases; 3.1.2-4 Group 2 and 7, Qualitative

Analysis - Autumn Term 2

2.1.1-2 Atomic Structure and Compounds and Formulae - This section builds directly from GCSE Science, starting with basic atomic structure and isotopes. Important basic chemical skills are developed: writing chemical formulae, constructing equations.

2.2 Electrons Bonding and Structure - This section introduces the concept of atomic orbitals and develops a deeper understanding of electron configurations linked to the periodic table. The central role of electrons in ionic and covalent bonding is then studied. The important role of molecules is studied, including an explanation of polarity and intermolecular forces. Finally, this section looks at how bonding and structure contribute to properties of substances.

3.1.1 Periodicity – This section looks at the structure and arrangement of the periodic table. Understanding of periodic trends in electronic configuration and ionisation energies. Also a focus on the periodic trends in melting and boiling points concerning different types of bonding.



2.1.1-2 Atomic Structure and Compounds and Formulae; 2.2 Electrons Bonding and Structure; 3.1.1 Periodicity - Autumn Term 1

NOW

GCSE

Students will enter Y12 having worked through a comprehensive KS3 and KS4 Science curriculum comprising elements of: Atomic Structure, The Periodic Table, Structure and Bonding, Quantitative Chemistry, Energy Change, Chemical Change, Rate of Reaction, Organic Chemistry, and Chemistry of the Atmosphere. Key Concepts, Working and thinking scientifically underpins everything that we do.



Start here

