Glenthorne High School
Achievement for all

Chemistry Learning Journey

Skills

Knowledge

Year 11 "Becoming KS5 Ready"

Future Education, Employment & Training

KS5 Study

C10 – Earth's Resources
Sustainable development, drinking water, corrosion, phytomining, alloys, the Haber process, ceramics, fertilisers.
1, 2, 6, 7, 8, 9, 10, 12, 13, 14

C9 – Chemistry of the Atmosphere
Composition of air, earths early atmosphere, carbon footprint, pollutants, global warming, climate change.
1, 2, 6, 7, 8, 9, 10, 12, 13, 14

C8 – Chemical Analysis
Purity, formulations, chromatography, gas tests, flame tests, ion tests.
2, 8, 9, 10, 12, 13, 14

Year 10 "Developing into Independent Learners"

C6 – Rates & Equilibria
Factors affecting rate of reaction, collision theory, investigating rate of reaction, catalysts, Le Chatelier, Dynamic Equilibrium
2, 8, 9, 10, 12, 13, 14, 27

Year 11

C7 – Organic Chemistry
Crude oil, fractional distillation, cracking, alkenes, carboxylic acids,
2, 8, 9, 12, 14

C5 – Energy Changes
Endothermic, temperature changes practical, exothermic, reaction profile diagrams, bond energies, batteries, fuel cells.
2, 8, 9, 10, 12, 13, 14, 27

C4 – Chemical Changes
Displacement reactions, extraction of copper, pH, acids, alkalis and indicators, making a salt, bases and salts, electrolysis, products of electrolysis.
2, 8, 9, 10, 14, 17, 27

Year 9 "Developing Skills to Enhance Learning"

C3.2 – Extending the Mole
Calculating concentrations, empirical formulae, titration, atom economy, percentage yield, gas volumes.
2, 8, 9, 10, 14, 27

Year 10

C3.1 – Introducing the Mole
Conservation of mass, calculating moles, calculations using masses, Avogadro's constant.
2, 8, 9, 10, 14, 27

C2 – Bonding and Structure
States of matter, ionic bonding, ionic lattices, ionic compounds, covalent bonds, simple molecules, allotropes of carbon, polymers, metallic bonding, nanotechnology.
2, 8, 9, 10, 12, 13, 14, 27

C1 – Atomic Structure & the Periodic Table
Chromatography, elements, distillation, atomic number and isotopes, electron configuration, history of the atom, relative atomic mass, group 1, group 7, the modern periodic table, transition metals.
2, 8, 9, 10, 14, 27

Year 8 "Taking Responsibility for Learning"

The Earth
Atmosphere, the carbon cycle, climate change, extracting metals, recycling.
1, 2, 8, 9, 10, 12, 13, 14

Year 9

Chemical Reactions – Metals, Non-Metals & Chemical Energy
Metals & acids, metals & oxygen, metals & water, metal displacement, energy profiles, endothermic and exothermic reactions, bond energies, catalysts.
2, 8, 9, 10, 14

Year 7 "Transition to High School"

Earth
Earth structure, rock types, rock cycles, weathering.
2, 8, 9, 10, 14

Year 8

Matter – Periodic Table & Types of Reaction
Groups and periods, the atom, metals and non-metals, Group 0 – the noble gases, Group 1 – alkali metals, Group 7 – halogens, conservation of mass, equations.
2, 8, 9, 10, 12, 14

Chemical Reactions – Elements, Acids & Alkalis
Compounds, elements, neutralisation, acids and alkalis, making salts, indicators and pH.
2, 8, 9, 10, 14

Year 6 Induction

Year 7

Intro to Science
Fundamental skills, graph plotting.
1, 2, 8, 9, 10, 11, 12, 14

Matter – Particles & Separating Mixtures
States of matter, the particle model, melting & freezing, chromatography, diffusion, gas pressure.
2, 8, 9, 10, 14

Chemistry GH6 Learning Journey

Glenthorne High School
Achievement for all

Skills

Knowledge

Year 13
"Are you Fit for FEET?"

Organic Synthesis
Preparation of organic solids, functional groups, multistep synthesis
2, 8, 9, 10, 14, 27

Analysis
Carbon NMR, deuterated water, proton NMR, TLC, GC-MS
2, 8, 9, 10, 14, 27

Final A-Level Exams

Future Education, Employment & Training

Nitrogen Chem & Polymers
Amines, aromatic amines, polyamides, polyesters, hydrolysis.
2, 8, 9, 10, 14, 27

Carboxylic Acids, Esters
Esterification, acid reactions, hydrolysis, acyl chlorides.
2, 8, 9, 10, 14, 27

Carbonyls
Reduction, nucleophilic addition, carbonyl tests, hydroxy nitriles, Tollen's.
2, 8, 9, 10, 14, 27

Organic Chemistry & Analysis

Aromatic Chemistry
Benzene, delocalised model, nitration, substitution, phenol, directing groups.
2, 8, 9, 10, 14, 27

Transition Elements
Electron configuration, complex ions, stereochemistry, colours, ligand substitution, qualitative testing.
2, 8, 9, 10, 14, 27

Redox, Electrode Potentials
Redox titration, constructing redox equations, standard hydrogen electrode, cell potentials, fuel cells, batteries.
2, 8, 9, 10, 14, 27

Rates
Orders, rate-concentration graphs, rate equations, rate determining step, Arrhenius equations.
2, 8, 9, 10, 14, 27

Enthalpy, Entropy
Lattice enthalpy, charge density, Born Haber cycles, enthalpy change of solution, feasibility, entropy change, free energy change.
2, 8, 9, 10, 14, 27

Equilibrium
Calculating Kc, factors that affect Kc, equilibria experiments, Kp.
2, 8, 9, 10, 14, 27

Acids, Bases, Buffers
pH, acids, bases, pH of weak acids, Kw, buffer calculations, indicators.
2, 8, 9, 10, 14, 27

Physical Chemistry & Transition Elements

Organic Synthesis & Analytical Techniques
Purification of Organic Liquid, separation + extraction, IR spectroscopy, synthesis, elemental analysis, mass spectrometry.
2, 8, 9, 10, 14, 27

Year 13

Year 12
"Introduction to A-Level Mindset"

Hydrocarbons
Alkanes, radical substitution, combustion, alkene addition polymers, electrophilic addition.
2, 8, 9, 10, 14, 27

Alcohols & Haloalkanes
Types of alcohols, oxidation, reflux, solubility, nucleophilic substitution, ozone layer, rates of hydrolysis, organic synthesis.
2, 8, 9, 10, 14, 27

Basic Concepts
Functional groups, homologous series, isomerism, naming, types of formulae.
2, 8, 9, 10, 14, 27

Core Organic Chemistry

Enthalpy
Endothermic/Exothermic, energy profiles, calorimetry, bond energies, Hess' Law, enthalpy changes.
2, 8, 9, 10, 14, 27

Rates & Equilibria
Factors affecting rate of reaction, collision theory, catalysts, Boltzmann distribution, Le Chatelier, dynamic equilibrium.
2, 8, 9, 10, 14, 27

Group 2 & Group 7, Ion Tests
Physical properties, trends in reactivity, displacement, alkalinity, making bleach, redox, ion tests.
2, 8, 9, 10, 14, 27

Periodicity
Groups and periods, ionisation energy, melting point, trends in structure, atomic radius.
2, 8, 9, 10, 14, 27

Bonding and Structure
Ionic bonding, covalent bonding, shapes of molecules, metallic bonding, allotropes, London dispersion forces, dipoles, hydrogen bonding.
2, 8, 9, 10, 14, 27

Periodic Table & Energy

Acids & Redox
Titration, Oxidation number, redox reactions.
2, 8, 9, 10, 14, 27

Amounts of Substance
Avagadro's constant, molar mass, concentration, pV=nRT.
2, 8, 9, 10, 14, 27

Compounds, Formulae, Equations
Balanced symbol equations, ionic formulae, ionic equations, molecular formulae.
2, 8, 9, 10, 14, 27

Year 12

Foundations in Chemistry

Atoms & Electrons
Subatomic particles, models of atom, electron configuration, orbitals.
2, 8, 9, 10, 14, 27