

YEAR 10 CHEMISTRY LEARNING JOURNEY

WORKING SCIENTIFICALLY (Runs throughout the year)



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10.1 ATOMIC STRUCTURE & PERIODIC TABLE

- Content recap



**ATOMIC
SCIENTIST**

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10.2 STRUCTURE & BONDING

- States of matter
- Ion formation
- Ionic bonding
- Giant ionic lattice
- Covalent bonding
- Metallic bonding
- Simple covalent
- Giant covalent
- Comparing types of bonding



**MATERIALS
SCIENTIST**

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10.3 CALCULATIONS

- Conservation of mass
- Relative formula mass
- Changes in mass
- Uncertainty
- Concentration
- Moles (H)
- Reacting masses (H)
- Limiting reactants (H)
- Percentage yield
- Atom economy



**CHEMICAL
ENGINEER**

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10.4 CHEMICAL CHANGES

- Reactivity series
- Displacement
- Extracting metals
- Soluble salts
- Insoluble bases
- Making salts
- Neutralisation and pH
- Strong vs weak acids
- Titrations
- Titration calculations



**INDUSTRIAL
CHEMIST**

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10.5 ELECTROLYSIS & ENERGY CHANGES

- Intro to electrolysis
- Changes at electrodes (REDOX)
- Extraction of aluminium
- Electrolysis of aqueous solutions
- Exothermic and endothermic
- Energy transfers from reactions
- Reaction profiles
- Bond energy calculations (H)
- Chemical cells
- Fuel cells



ELECTROCHEMIST

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10.6 RATES & EQUILIBRIUM

- Rates of reaction
- Collision theory and surface area
- Effect of temperature
- Concentration and pressure
- Catalysts
- Reversible reactions
- Energy and reversible reactions
- Dynamic equilibrium (H)
- Altering conditions (H)



**REACTION
ENGINEER**

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10.7 ORGANIC CHEMISTRY & POLYMERS

- Hydrocarbons
- Fractional distillation
- Combustion
- Cracking
- Reactions of alkenes
- Alcohols, carboxylic acids and esters
- Addition polymers
- Condensation polymers
- Natural polymers
- DNA



**POLYMER
SCIENTIST**

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10.8 CHEMICAL ANALYSIS

- Pure and impure
- Chromatography
- Testing for gases
- Tests for cations
- Tests for anions
- Instrumental analysis
- Identifying unknown compounds



**FORENSIC
CHEMIST**

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10.9 ATMOSPHERE & EARTH'S RESOURCES

- History of the atmosphere
- Evolving atmosphere
- Greenhouse gases
- Global climate change
- Atmospheric pollution
- Finite and renewable
- Potable water
- Treating waste water
- Extraction of metals from ores
- Life cycle assessments
- Reduce, reuse, recycle



**ENVIRONMENTAL
CHEMIST**

**END OF
YEAR 10**



SKILLS DEVELOPED DURING YEAR 10



ASSESSMENT WINDOWS – YEAR 10 CHEMISTRY

TERM	YEAR GROUP	ASSESSMENT WINDOW DATES	ASSESSMENT POINT	TOPICS THAT COULD APPEAR
 AUTUMN	10	October 2026	AP1	10.1 Atomic Structure & Periodic Table 10.2 Structure & Bonding 10.3 Calculations - Working Scientifically
 SPRING	10	January 2027	AP2	10.4 Chemical Changes 10.5 Electrolysis & Energy Changes 10.6 Rates & Equilibrium - Working Scientifically
 SUMMER	10	May 2027	AP3	10.7 Organic Chemistry & Polymers 10.8 Chemical Analysis 10.9 Atmosphere & Earth's Resources - Whole-year knowledge

