CHEMISTRY LEARNING JOURNEY

Understanding and Applying Scientific Skills

Year 7 → Year 11

- Understanding variables
- Writing methods
- Assessing impact of scientific concepts
- Drawing conclusions
- Applying maths to the scientific concepts
- Describe patterns
- Evaluation of scientific concepts
- Drawing graphs and analysing graphical data
- Analysis of secondary data
- Modelling scientific concepts
- Understanding relationships between science and society
- IDEAL Identify, describe, explain, apply, link
- Risk Assessment
- Evaluating data and investigations

Final GCSE exams

Revision

Earth and Atmosphere

- Climate change
- The changing atmosphere
- Alternative fuels
- The atmosphere today
- Earths early atmosphere
- Problems with burning fuels

Fuels

- Complete and incomplete combustion of hydrocarbons
- Properties of hydrocarbons
- Fractional distillation
- Crude oil
- cracking
- Testing for saturation
- Hydrocarbons

Energy changes

- Energy profile diagrams
- Bond energies
- Heat energy changes
- Endothermic reactions

YEAR 11

Electrolysis, Extracting metals , Equilibria

- Metal extraction
- Electrolysis
- Products of electrolysis
- The Haber process
- Displacement reactions
- Biological extraction
- Reversible reactions
- Half equations

Groups in Periodic table

- Group 0 – Nobel gasses
- Group 7 – The halogens
- Group 1 – Alkali metals
- Reactions of group 7 elements

Rates of Reaction Energy changes

- Factors affecting rate of reaction
- Activation energies
- Investigating rate of reaction
- Collision theory
- Exothermic reactions
- Catalysts

YEAR 10

Calculations with masses

- Calculating concentrations
- Avogadro's constant
- Calculating moles
- Conservation of mass
- Calculations using masses
- Calculating empirical formula

Acids and Alkalis

- Solubility
- Alkalis and balancing equations
- Bases and salts
- Acids, alkalis and indicators
- Neutralisation
- Preparing copper sulfate
- Looking at acids

OH^-

$H^+ + OH^- \rightarrow H_2O$

Types of substances / Ionic Bonding Covalent bonding

- Properties of metals
- Molecular compounds
- Ionic compounds
- Bonding models
- Allotropes of carbon
- Covalent bonds
- Ionic lattices

The Periodic Table

- Ionic bonding
- The modern periodic table
- Electronic configuration
- Mendeleev

Atomic Structure

- Relative atomic mass
- Atomic theory
- Atomic number and isotopes

States of matter / Separating Methods

- Distillation
- Filtration and crystallization
- Chromatography
- Drinking water
- Pure substances
- States of matter

YEAR 9

Combustion

- Climate change
- Air pollution
- Oxidation
- Chemical reactions
- Combustion
- Fire safety

The periodic table

- Trends and properties
- Group 1 – alkali metals
- Group 7 – the halogens
- Metals and non-metals
- Group 0 – the noble gasses
- Groups and periods

Earth and Space

- Solar system
- Magnetic Fields
- Seasons
- Gathering evidence

Rocks

- Types of rock
- The rock cycle

YEAR 8

Atoms, elements molecules

- Elements
- Compounds
- Atoms

Acids and Alkalis

- Acids and alkalis
- Neutralisation
- Solubility
- Word equations
- Making salts
- Chemical formulae
- Indicators and pH

Mixtures and Separation

- Evaporation and distillation
- Solutions
- Mixtures
- Filtration
- Chromatography

YEAR 7

Particle model

- Gas pressure
- Boiling
- The particle model
- Diffusion
- Melting & Freezing
- States of matter

CROSS-CURRICULAR LINKS

Movement	Biology	Isotopes	Physics
Calculating mass	Mathematics	Balancing equations	Biology
The Earth	Geography	Climate change	Biology
Atomic models	Physics	Materials	Art & Design