BTEC Applied Science & Forensics

Chemistry
EYFS to Post 16

THE BEMROSE SCHOOL

Post 16

Unit 3 Scientific Investigative Skills: Diffusion & Energy

Unit 2 B Undertake calorimetry to study cooling curves

Unit 2 A Undertake titration and colorimetry to determine the concentration of solutions

Unit 1 A1 Structure & Bonding in Applications in Science .

Unit 4 Forensic Investigation: Preserving and Recording Evidence, Analytical Techniques to Examine Evidence and Reporting Evidence.

Unit 1 A2 Production and Uses of Substances in Relation to Properties

Unit 2 C Chromatography technique to identify component in a mixture

Unit 10 Forensic Fire Investigation

Apprenticeship
Work and get paid to learn in the chemical and engineering sectors.

Applied Science (BTEC)
Mixture of exams and coursework covering fundamentals of Chemistry.
Equivalent to A-levels.

Forensic Science & Criminal Investigations (BTEC)
Mixture of exams and coursework covering the fundamentals of crime scene investigation.
Equivalent to A-levels

GCSE Exam

Mock 3

C12 Using Resources
Ceramics, composites and Polymers, Properties of Materials, Corrosion, Finite and renewable resources, Reuse and recycling. Life cycle assessments. Potable water, water treatment.

C8 Rates and Equilibria
Rates of reaction, collision theory, the effect of temperature, concentration, catalysts, Reversible reactions, Dynamic Equilibria and conditions.

C9 Crude Oil and Fuels
Hydrocarbons, Fractional Distillation of oil, burning hydrocarbons, Cracking Hydrocarbons.

Mock 2

C11 Atmosphere
History of Atmosphere, evolving atmosphere, greenhouse gases, global climate changes, Atmospheric pollutants.

YEAR 11

EOY 10 Exam

Mock 1

C10 Chemical Analysis
Pure substances and mixtures, analysing Chromatograms, testing gases, tests for positive and negative ions, Instrumental Analysis.

C7 Energy Changes
Exo and Endothermic reactions, using energy transfers and reaction profiles, bond energy energy calculations, chemical cells

C4 Chemical Calculations
Relative masses and moles, Equations and calculations, from masses to balanced equations. Yield, atom economy, titrations and calculations. Volume of gases

C3 Structure & Bonding
States of matter, atoms into ions, Ionic bonding, giant Covalent Bonding, Covalent Bonding, fullerene and graphene, Bonding in Metals and giant metallic structures, nanoparticles and applications.

YEAR 10

EOY 9 Exam

C5 Chemical Changes
The reactivity series, Displacement reactions, Extracting Metals, Salts from Metals, Salts from Insoluble bases, more salts, Neutralisation and the pH scale, strong and weak acids.

C6 Electrolysis
Introduction, electrodes, extraction of aluminium, electrolysis of aqueous solutions.

C1 Atomic Structure
The periodic table and chemical symbols. Electronic structure. Compounds Understand and apply how to use chemical equations. Separating mixtures such as chromatography and distillation. The history of the atom.

7.3 Climate
Global warming
The carbon cycle
Climate change

6.3 Types of Reaction
Atoms in chem rxns
Combustion
Thermal decomp
Conservation of mass

YEAR 9

GCSE Starts

C2 The Periodic Table
The Main Groups, Alkali Metals, the Halogens, Explaining Trends, Transition Elements.

7.4 The Periodic Table
The Periodic Table
Group 1
Group 7
Group 0

7.4 Earth's Resources
Extracting metals
Recycling

6.4 Chemical Energy
Endo and exothermic reactions
Energy level diagrams
Bond energies

7.1 Earth and Atmosphere
The structure of the Earth.
The rock cycle and the formation of igneous, sedimentary and metamorphic rocks.

6.1 Acids and Alkalis
Defining acids and alkalis and neutralisation
The pH scale and indicators.
Reactions of acids with metals / acids with alkalis

5.1 Particle Model:
The particle model
States of matter
Melting, freezing and boiling
Diffusion
Gas pressure

YEAR 8

7.3 Elements & The PT
Elements, atoms, compounds, chemical formulae and polymers

7.2 The Universe
The night sky
The solar system
The Earth
The moon and changing ideas

6.2 Metals and Non Metals
The Periodic Table and the properties of metals and non-metals.

5.2 Separating Mixtures:
Pure substances and mixtures
Solutions and solubility
Filtration, evaporation and distillation
Chromatography

YEAR 7

Explain some changes result in the formation of new material, which is not usually reversible.

Give reasons, based on tests, for uses of everyday materials.

Compare and group materials on their properties including their hardness, solubility, transparency, conductivity and response to magnets.

Demonstrate that dissolving, mixing and changes of state are reversible changes.

Properties and changes of materials
Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.

Rocks
Describe in simple terms how fossils are formed when living things are trapped in rock

Recognise that soils are made from rocks and organic matter.

Identify that part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Observe that some materials change state when they are heated or cooled

Use knowledge of solid, liquids and gases to decide how to separate mixtures.

KS2

Find out how the shapes of solid objects made from some materials can be squashed, bent, twisted and stretched.

Compare and group different kinds of rocks based on their physical appearance and simple physical properties.

States of matter
Compare and group materials into solids, liquids or gases.

Uses of materials
Identify and compare the suitability of everyday materials.

Compare and group everyday materials on the basis of their simple physical properties.

Similarities and differences between objects and materials.

Encourage students to make sense of the world around them.

KS1

Identify and name everyday materials and describe their simple physical properties.

Everyday Materials
Distinguish between an object and the material from which it is made.

Technology
Noticing that there is a range of technology types and uses.

The World -
Observe changes in materials.

EYFS

Welcome