

Unit 3 Scientific Investigative Skills:  
Diffusion & Energy

# BTEC Applied Science & Forensics



# Chemistry EYFS to Post 16

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.

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

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

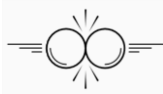
**Unit 10 Forensic Fire  
Investigation**

**Post  
16**

**GCSE  
Exam**

**Mock  
3**

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



**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.



**C9 Crude Oil and Fuels**

Hydrocarbons, Fractional Distillation of oil, burning  
hydrocarbons, Cracking Hydrocarbons.



**C11 Atmosphere**

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



**Mock  
2**

**Mock  
1**

**YEAR  
11**

**EOY 10  
Exam**

**YEAR  
10**

**EOY 9  
Exam**

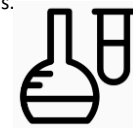
**C10 Chemical Analysis**

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



**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.



**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.



**YEAR  
7**

**GCSE  
Starts**

**6.3 Types of Reaction**

Atoms in chem rxns  
Combustion  
Thermal decomp  
Conservation of mass



**6.4 Chemical Energy**

Endo and exothermic reactions  
Energy level diagrams  
Bond energies



**6.1 Acids and Alkalis**

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



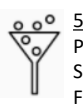
**5.1 Particle Model:**

The particle model  
States of matter  
Melting, freezing and boiling  
Diffusion  
Gas pressure



**5.2 Separating Mixtures:**

Pure substances and mixtures  
Solutions and solubility  
Filtration, evaporation and  
distillation  
Chromatography



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.



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



**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.



**EYFS**

**KS1**

**KS2**

**States of matter**

Compare and group  
materials into solids,  
liquids or gases.



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.

Encourage students to  
make sense of the  
world around them.



Similarities and  
differences  
between objects  
and materials.



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



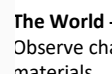
**Everyday Materials**

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.



*welcome*

**7.4 The Periodic Table**

The Periodic Table  
Group 1  
Group 7  
Group 0



**7.3 Elements & The PT**

Elements, atoms,  
compounds, chemical  
formulae and polymers



**7.3 Climate**

Global warming  
The carbon cycle  
Climate change



**7.4 Earth's Resources**

Extracting metals  
Recycling



**7.1 Earth and Atmosphere**

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



**7.2 The Universe**

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



**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.



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

**Uses of  
materials**

Identify and  
compare  
the  
suitability  
of everyday  
materials.



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