

Year 10 Chemistry Curriculum Overview – Term 3

In Term 3, Year 10 Chemistry students will focus on the topics of **Energy Changes** and **Chemical Changes**. These areas will help students understand the key concepts of reactions and energy in chemistry, and are crucial for their GCSE exams.

Topic Overviews

Energy Changes

1. **Exothermic and Endothermic Reactions:** Students will learn about exothermic reactions (which release energy) and endothermic reactions (which absorb energy), including how to identify them based on temperature changes.
2. **Energy Profiles:** Students will study energy profile diagrams to understand the energy changes during chemical reactions, including activation energy and reaction pathways.
3. **Calculating Energy Changes:** An introduction to calculating the energy changes in reactions using bond energies and understanding the relationship between bond breaking and bond forming.

Triple Science Only:

- **Hess's Law:** In Triple Science, students will explore Hess's Law, which states that the total energy change in a reaction is the same, no matter the pathway taken. They will learn how to calculate enthalpy changes using this law.
 - **Enthalpy Change:** Students will learn about enthalpy and how to calculate the enthalpy change of reactions through calorimetry experiments.
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Chemical Changes

1. **Reactivity Series:** Students will study the reactivity series of metals and how they react with water, acids, and oxygen, including how to use the series to predict the outcome of reactions.
2. **Displacement Reactions:** The concept of displacement reactions will be explored, including how more reactive metals displace less reactive metals from their compounds.
3. **Electrolysis:** Students will learn about the process of electrolysis, including the reactions that occur at the cathode and anode and how to apply this to the extraction of metals and electroplating.
4. **Acids and Bases:** Students will study the reactions of acids with metals, bases, and carbonates, and the concept of neutralization.

Triple Science Only:

- **Electrolysis of Brine:** In Triple Science, students will learn about the electrolysis of brine (sodium chloride solution) and the production of chlorine, hydrogen, and sodium hydroxide, exploring the industrial significance of these products.
- **Calculating Volume of Gas Produced in Reactions:** Students will learn to calculate

This term will focus on consolidating students' understanding of **Energy Changes** and **Chemical Changes** through topic revision, exam practice, and engaging with **Triple Science only** content. The aim is to strengthen their knowledge and refine their exam skills in preparation for the GCSE Chemistry exam.