

Units 3 and 4 Chemistry

Over this course, students will continue to improve the fundamental scientific thinking skills: developing aims and questions, formulating hypotheses, making predictions, analysing and evaluating data, and drawing evidence-based conclusions. Students will learn to communicate and explain scientific ideas.

The Chemistry Course in Year 12 asks two major questions.

How can chemical processes be designed to optimise efficiency?

To answer this question, students will compare the energy released during combustion of common fuels and compare electrochemical cells with fuel cells. They will evaluate energy resources based on energy efficiency, renewability and environmental impact. Students will apply rate and equilibrium principles to predict how the rate and extent of reactions are optimised, and explain how electrolysis is involved in the production of chemicals and in the recharging of electrochemical and fuel cells.

How are organic compounds categorised, analysed and used?

To answer this question, students will compare the general structures and reactions of the major organic families of compounds; deduce structures of organic compounds using instrumental analysis data, and design reaction pathways for the synthesis of organic molecules. They will use this knowledge to distinguish between the chemical structures of key food molecules, analyse the chemical reactions involved in the metabolism of the major components of food including the role of enzymes, and calculate the energy content of food using calorimetry.

Assessment

There is practical work, topic tests, chapter questions and other tasks that students will need to complete. Responses to these tasks will determine whether the student has demonstrated a satisfactory understanding of the course.

There are two SAC Assessment tasks for each Unit and one student designed investigation required for summative assessment and a study score.