Chemistry

Pearson Edexcel A-level Chemistry (9CH0)

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Introduction

Chemistry is a popular subject at Epsom and regularly attracts a large number of Sixth Form students. Taught in well-equipped laboratories by highly qualified subject specialists, chemistry is often seen as the central science because of its importance in understanding matter and helping us observe all aspects of the universe around us.

The A-level chemistry course helps pupils develop vital subject-specific skills, such as practical and investigative skills, but also imparts wider skills, such as creative problem solving, analytical interpretation, verbal and written communication, and teamwork, which are essential for further study and the world beyond the classroom.

In addition to timetabled lessons, the Chemistry Department holds several events throughout the year to develop wider understanding of the subject. Weekly extension classes extend students' knowledge beyond the confines of the curriculum, and our Cultural Hour talks have included distinguished speakers from a range of scientific backgrounds. Many of our students have also enjoyed success in national competitions such as the International Chemistry Olympiad and the Cambridge Chemistry Challenge.

Subject Requirements

Grade 8 or 9 in IGCSE chemistry (or equivalent). Students studying the double award science course should be aiming for 8,8 to pursue chemistry A-level.

Course Outline

The course is examined based on pupils' performances in three written papers at the end of the two-year course. The first two papers assess theoretical knowledge, and the last paper is synoptic and focused on practical work. Practical work is central to the teaching of chemistry, and skills are developed and tested over a range of 17 core practicals, challenging pieces of work designed to showcase students' abilities through practical investigation and analysis. Success in these practicals results in the practical endorsement, which is often required for acceptance on to science degree courses.

Topics covered:

- Atomic structure & periodicity
- Formulae and calculations
- Structure and bonding
- Hydrocarbons and crude oil
- Organic reaction mechanisms
- Inorganic chemistry and trends in the Periodic Table
- Organic nitrogen chemistry and amino acids
- Energetics
- Kinetics

- Chemical equilibrium
- Acid-base chemistry
- Redox and electrochemistry
- Transition metals

Higher Education and Careers

A strong background in chemistry provides students with a broad skillset in several challenging areas, including numeric disciplines, practical dexterity and abstract thinking. Chemistry is widely regarded as one of the most intellectually demanding subjects and is consequently highly respected by universities and employers alike. It is a fundamental aspect of almost all degrees in the physical and life sciences, as well as being a requirement for medicine and related areas, such as dentistry or veterinary medicine. Often to study these courses at top Russell Group universities, pupils need to study at least one other STEM A-level alongside chemistry. Students who study chemistry A-level do not only move on to science-related areas, and the wide range of skills developed also sets leavers up for success in professional sectors such as law and finance.

What should I study alongside chemistry?

Biology, maths, physics, psychology and computer science all complement chemistry.

Is there anything else I should consider?

There is a large jump in the complexity of questions from GCSE to A-level, which can prove challenging even for pupils who excelled at GCSE level. Pupils should anticipate a huge step up when they start in the Lower Sixth and be ready to be suitably resilient in the face of more complex and technical material. They will be required to complete significant amounts of work each week outside of the classroom if they aspire to an A grade or higher; often, the most crucial determinant of success at A-level is the quantity and quality of work that a student undertakes away from lessons.