Chemistry

Course Length: Studied over two years
Examination Board: AQA
Course Leader: Mr R Meecham (meecham@queenelizabeths.derbyshire.sch.uk)

Why study Chemistry? Chemistry is sometimes known as the "central science" because it helps to connect physical sciences, like maths and physics, with applied sciences, like biology, medicine and engineering.

Key skills developed on the course, such as questioning and experimentation are essential when it comes to building a whole range of skills for the workplace.

Chemistry helps you to develop research, problem solving and analytical skills. It helps to you challenge ideas and show how you worked things out through logic and step-by-step reasoning. Chemistry often requires teamwork and communication skills too, which is great for project management.

Chemistry will help you get ahead in most STEM (science, technology, engineering and maths) careers such as: medicine, environmental science, engineering, toxicology, developing consumer products, metallurgy (studying how metals behave), space exploration, developing perfumes and cosmetics, pharmaceuticals, energy, teaching, science writing, software development and research.

We highly recommend that students have a companion textbook for the duration of the two-year course. There are a variety of AQA endorsed books available from the major publishing houses, and we advise that students investigate which one suits them the best. Alternatively, QEGS Science department can provide a textbook, for a refundable deposit of £20.

Course Content

AS Level content:
Paper 1 - Physical & Inorganic Chemistry
- **Physical Chemistry:**
  - Atomic structure
  - Energetics
  - Chemical equilibria
  - Oxidation, reduction and redox equations
- **Inorganic Chemistry**

Paper 2 - Physical & Organic Chemistry
- **Physical Chemistry:**
  - Amount of substance
  - Chemical equilibria and Le Chatelier's principle
- **Organic Chemistry**

Practical work:

Students will undertake practical activities across the AS Level course, as directed by the Examination Board. These will be internally assessed and provide the opportunity to learn and use practical skills to link theory with practice, so deepening knowledge and understanding. Teachers will 'endorse' the practical work, which if passed, will be reported on the AS Level Certificate. In addition, knowledge of practical skills will be assessed in the written papers.

A Level content:
Paper 1 - Physical & Inorganic Chemistry
- **Physical Chemistry:**
  - Atomic structure
  - Energetics
  - Chemical equilibria
  - Thermodynamics
  - Equilibrium constant K_c for homogeneous systems
  - Acids and bases
- **Inorganic Chemistry**

Paper 2 - Physical & Organic Chemistry
- **Physical Chemistry:**
  - Amount of substance
  - Chemical equilibria and Le Chatelier's principle
  - Rate equations
- **Organic Chemistry**

Paper 3 - Physical, Inorganic & Organic Chemistry

Practical work:

Students will undertake at least 12 practical activities across the A-Level course, as directed by the Examination Board. These will be internally assessed and provide the opportunity to learn and use practical skills to link theory with practice, so deepening knowledge and understanding. Teachers will 'endorse' the practical work, which if passed, will be reported on the A-Level Certificate. In addition, knowledge of practical skills will be assessed in the written papers.

Assessment

Paper	Title	Assessment	A Level
1	Physical & Inorganic Chemistry	Written Exam: 2hr	35%
2	Physical & Organic Chemistry	Written Exam: 2hr	35%
3	Tests across the whole specification and includes questions on practical techniques and data analysis and multiple choice.	Written Exam: 2hr	30%