

## A-Level Chemistry at Yavneh College

Students must have achieved at least Grade AB in Dual Award Science GCSE (or grade B in Chemistry GCSE) and at least Grade B in mathematics GCSE.

### Course outline

A-Level chemistry follows the **Edexcel** specification (completing units 8CH01 and 9CH01), and suits individuals who are focussed, able to think laterally, have good mathematical skills and an ability and desire to question results and analyse data. Chemists need to be methodical – practical work often needs to be repeated numerous times until the desired results are obtained – and a student who has the drive to continue at a problem until the desired result is achieved will do well. The course is divided into six units. Students use a knowledge and understanding of fundamental chemistry concepts to explain different aspects of contemporary chemistry such as climate change, green chemistry, pharmaceuticals and chemistry research.

### AS Units

- Unit 1: The Core Principles of Chemistry  
Formulae, equations and amounts of substance; energetics; atomic structure and the Periodic Table; bonding; introductory organic chemistry. Contexts - green chemistry, industrial processes, nanotechnology, biofuels and new materials
- Unit 2: Application of Core Principles of Chemistry  
Shapes of molecules and ions; intermediate bonding and bond polarity; intermolecular forces; redox reactions; the Periodic Table groups 2 and 7; kinetics; chemical equilibria; organic chemistry; mechanisms; mass spectra and IR. Contexts - pharmaceuticals Industry, supramolecules, catalysts in biological systems, green chemistry.
- Unit 3: Chemistry Laboratory Skills I  
Four practical assessments - general practical competence, qualitative observation, quantitative measurement, and preparation

### A2 Units

- Unit 4: General Principles of Chemistry I: Rates, Equilibria and Further Organic Chemistry  
How fast? – rates; How far? – entropy; equilibria; applications of rates and equilibrium; acid/base equilibria; further organic chemistry; spectroscopy and chromatography. Contexts - green chemistry, industrial chemistry, biochemistry, food chemistry, polymers
- Unit 5: General Principles of Chemistry II: Transition Metals and Organic Nitrogen Chemistry  
Redox and the chemistry of transition metals; organic chemistry – arenes; nitrogen compounds and synthesis. Contexts- chemistry of breathalysers, fuel cells, industrial processes, biochemistry, polymers

- Unit 6: Chemistry Laboratory Skills II  
As for Unit 3 OR 3 practical assessments - general practical competence, qualitative observation and one longer practical comprising both quantitative measurement and preparation

### **Assessment**

Units 1, 2, 4 and 5 are examined by written examinations involving short answer questions, extended answer questions, contemporary context questions and data questions. Units 3 and 6 are examined by centre-assessed practicals.

### **Why study A level chemistry?**

Chemistry is essential for some careers and desirable for many others e.g. medicine, pharmacy, dentistry, biochemistry, chemical engineering, nanotechnology, alternative fuels, polymers, science teaching, nursing, occupational therapy, physiotherapy, forensics, materials design, scientific patent law, homeopathy, business, computational modelling, environmental management, homeopathy, pharmacy physiotherapy. If you have firm career intentions, then check the UCAS website to confirm if Chemistry is essential or just desirable.