

SUBJECT GUIDE: CHEMISTRY

Entry Requirement

7 in GCSE Chemistry or 7-7 in GCSE Combined Science

Specification

AQA A level Chemistry (7405)

Course Outline (modules, weighting, topics etc)

- 3.1 Physical chemistry
 - 3.1.1 Atomic structure
 - 3.1.2 Amount of substance
 - 3.1.3 Bonding
 - 3.1.4 Energetics
 - 3.1.5 Kinetics
 - 3.1.6 Chemical equilibria, Le Chatelier's principle and K_c
 - 3.1.7 Oxidation, reduction and redox equations
 - 3.1.8 Thermodynamics
 - 3.1.9 Rate equations
 - 3.1.10 Equilibrium constant K_p for homogeneous systems
 - 3.1.11 Electrode potentials and electrochemical cells
 - 3.1.12 Acids and bases
- 3.2 Inorganic chemistry
 - 3.2.1 Periodicity
 - 3.2.2 Group 2, the alkaline earth metals
 - 3.2.3 Group 7(17), the halogens
 - 3.2.4 Properties of Period 3 elements and their oxides
 - 3.2.5 Transition metals
 - 3.2.6 Reactions of ions in aqueous solution
- 3.3 Organic chemistry
 - 3.3.1 Introduction to organic chemistry
 - 3.3.2 Alkanes
 - 3.3.3 Halogenoalkanes
 - 3.3.4 Alkenes
 - 3.3.5 Alcohols
 - 3.3.6 Organic analysis
 - 3.3.7 Optical isomerism
 - 3.3.8 Aldehydes and ketones
 - 3.3.9 Carboxylic acids and derivatives
 - 3.3.10 Aromatic chemistry
 - 3.3.11 Amines
 - 3.3.12 Polymers
 - 3.3.13 Amino acids, proteins and DNA
 - 3.3.14 Organic synthesis
 - 3.3.15 Nuclear magnetic resonance spectroscopy
 - 3.3.16 Chromatography

Assessment

Students will take 3 written exams at the end of the course.

Paper 1: Relevant physical chemistry topics (sections 3.1.1 to 3.1.4, 3.1.6 to 3.1.8 and 3.1.10 to 3.1.12)

Inorganic chemistry (section 3.2)

Relevant practical skills

Paper 2: Relevant physical chemistry topics (sections 3.1.2 to 3.1.6 and 3.1.9)

Organic chemistry (section 3.3)

Relevant practical skills

Paper 3: Any content

Any practical skills

Why study Chemistry at The Swan?

The Swan is an academic and rigorous environment where lessons are well planned and contain expert explanation and time to practise concepts. Students will carry out the required practical elements of the course in our brand new laboratories, and will be guided to make clear links between their theoretical and experimental work. Studying chemistry opens doors to many desirable routes beyond A-Level and allows the study of some of the most desirable university courses, such as medicine, dentistry and veterinary science along with many other options.

At Swan, the Science department works closely with other departments in the school to ensure that the teaching of common content, for example with the other sciences and maths complement each other.

The Science department has a programme of extension opportunities in the form of science talks, where scientists from the local area and universities speak to the students about various topics to help expand your repertoire beyond the course.
