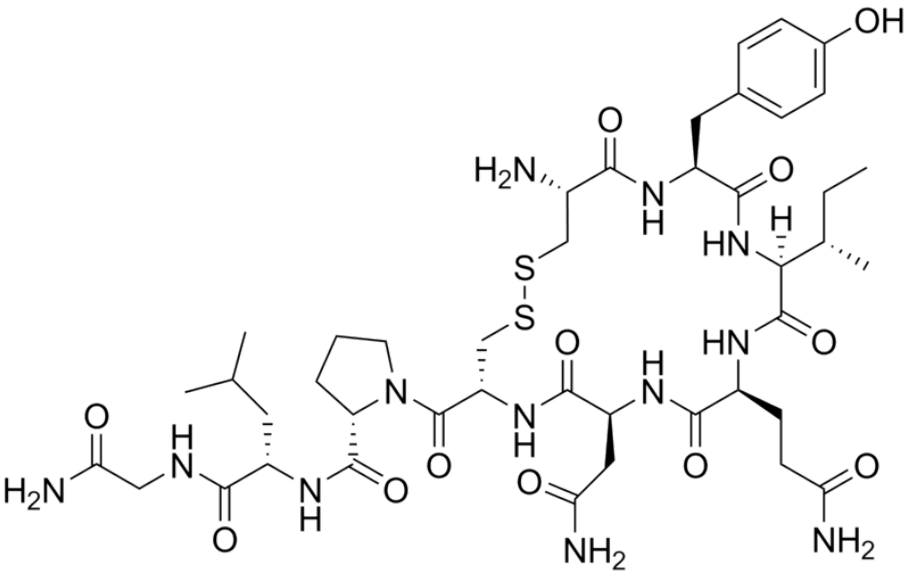
Nonsuch High School for Girls
Sixth Form

September 2026

6 C Carbon	2 He Helium	M	53 I Iodine	16 S Sulphur	T	R	39 Y Yttrium

Handbook



"Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less."

Marie Curie

Welcome to A level Chemistry

The chemistry teachers are:

Ms Arogundade
Ms Christodoulou
Ms Faerber
Ms Halliwell
Ms Lee
Mr Seneviratne
Mr Seo
Mr Williamson

Advanced learning in Chemistry encourages you to:

- develop an interest in and enthusiasm for chemistry, including an interest in further study and careers in chemistry
- develop essential knowledge and understanding of different areas of the subject and how they relate to each other
- develop and demonstrate a deep appreciation of the skills, knowledge and understanding of scientific method
- develop competence and confidence in a variety of practical, mathematical and problem-solving skills
- understand how society makes decisions about scientific issues and how chemistry contributes to the success of the economy and society

There is a large jump from the knowledge and skills required of you at GCSE level compared to that required at A-Level. Many students find the material studied very difficult, but a successful student couples this difficulty of a great sense of achievement when they do well.

To succeed in Chemistry an independent attitude is essential. Although the course will be covered in your lessons, each student is expected to consolidate their understanding outside of the classroom for an equal amount of time; for every hour in class, you must spend one hour outside of the classroom. For many students this level of independence is daunting so for each topic you will get a workbook that contains a range of activities for you to complete that will help to guide you through this time. As you progress through the course you will develop a better understanding of which activities will supplement your individual needs. The topic booklets will also contain the work that will be assessed by both the teacher and self or peer assessed.

For students who are particularly concerned about the increased level of difficulty at A level this CGP guide acts as a good bridge:
Head Start to Chemistry
CGP Head Start in A-level Chemistry

Student Advice

We asked recent students to give new students one piece of advice. Here is a selection:

“Independent Study is very important. UpLearn can guide you to the highest grades.”

“Make sure you read ahead; it makes everything so much easier to understand and you don't feel so bewildered in lessons when something new comes up.”

“Although chemistry is challenging at times, if you do put the work in and review the topics covered in class, and stay on top of it all, you will have no problem keeping up and achieving.”

“Utilise all the resources available to you and also the online textbook because they are so good.”

“Communicate with your teachers as much as possible.”

“Try to attend chemistry help club, if you have any questions. There is always a teacher nearby to help you or to explain other topics. It encourages you to work throughout the year.”

“Chemistry help club is amazing - use it!”

“Ensure you review the topic after an assessment, because it gives an opportunity to fill the gaps. It makes learning easier nearer the exam and avoids any major last-minute questions. It sticks in your brain more too.”

“You will cry, and you may think you’re going to die, but it is great fun!”

Overview of the course:

Date	Topics, assessments and extension opportunities
Year 1	
Half Term 1	**Topics:** Acids and moles; Atomic structure and bonding **Assessment:** MCQ settling in test; Moles test
Half Term 2	**Topics:** Atomic Structure and Bonding; Basic Organic **Assessment:** Atomic Structure and Bonding test
Half Term 3	**Topics:** Basic Organic; Periodicity and Redox; Enthalpy **Assessment:** Basic Organic test; Periodicity and Redox test **Extension:** RSC Olympiad
Half Term 4	**Topics:** Enthalpy; Advanced Organic; Rates and Equilibrium **Assessment:** Enthalpy test; Advanced Organic test
Half Term 5	**Topics:** Rates and Equilibrium; Aromatic compounds; Lattice Enthalpy and Entropy **Assessment:** Aromatic Compounds test; Rates and equilibrium test; End of Year exams
Half Term 6	**Topics:** Carbonyl Compounds; Lattice Enthalpy and Entropy; How Far **Assessment:** Lattice enthalpy and Entropy test; How Far test **Extension:** Cambridge Chemistry Challenge
Year 2	
Half Term 1	**Topics:** Carbonyls; Transition Metals **Assessment:** Carbonyls test; Transition Metals test
Half Term 2	**Topics:** How Fast; Analytical techniques; Amines, amino acids and polymers **Assessment:** How Fast test; Analytical techniques test
Half Term 3	**Topics:** Synthesis; Acids, bases and buffers **Assessment:** Amines, amino acids and polymers test; Acids, bases and buffers test; Y13 Mock exams **Extension:** RSC Olympiad
Half Term 4	**Topics:** Synthesis; Electrode potentials and redox **Assessment:** Electrode potentials and redox test
Half Term 5	**Topics:** Practical Endorsement completion, Synthesis **Assessment:** Synthesis test

Within each topic you will also find teacher, self and peer assessment opportunities in most lessons.

Specification Summary OCR Chemistry A: H432

For a detailed list of the content covered at A Level Chemistry please go to the following link to download the new specification.
http://www.ocr.org.uk/Images/171720-specification-accredited-a-level-gce-chemistry-a-h432.pdf

Module 1 – Development of practical skills in chemistry

Practical skills assessed in written examinations

Practical skills assessed in the practical endorsement

Module 2 – Foundations in chemistry

Atoms, compounds, molecules and equations
Amount of substance
Acid–base and redox reactions
Electrons, bonding and structure

Module 3 – Periodic table and energy

The periodic table and periodicity
Group 2 and the halogens
Qualitative analysis
Enthalpy changes
Reaction rates and equilibrium (qualitative)

Module 4 – Core organic chemistry

Basic concepts
Hydrocarbons
Alcohols and haloalkanes
Organic synthesis
Analytical techniques (IR and MS)

Module 5 – Physical chemistry and transition metals

Reaction rates and equilibrium (quantitative)
pH and buffers
Enthalpy, entropy and free energy
Redox and electrode potentials
Transition elements

Module 6 – Organic chemistry and analysis

Aromatic compounds
Carbonyl compounds
Carboxylic acids and esters
Nitrogen compounds
Polymers
Organic synthesis
Chromatography and spectroscopy (NMR)

Examination assessment

All topics are examined at the end of year 13. The break down follows:

Periodic table, elements and physical chemistry (01)
100 marks, 2h 15 minutes written paper
37% of total A level
Modules 1, 2, 3 and 5

Synthesis and analytical techniques (02)
100 marks, 2h 15 minutes written paper
37% of total A level
Modules 1, 2, 4 and 6

Unified chemistry (03)
70 marks, 1h 30 minutes written paper
26% of total A level
All modules

Practical endorsement in chemistry (04)
non-exam assessment
Reported separately

Expectations in Chemistry

In order to provide students with the most effective support, the following principles, practices and processes are to be maintained:

- **Absence**: All students should notify their teacher if they know that they will be absent from a lesson. If the absence is unforeseen, you must contact the teacher before the next lesson and ensure that any missed work is completed.
- **Absence during a practical assessment**: Practical assessments are run in class. Therefore, if you are absent on the day of a practical assessment you must speak to your teacher, as soon as possible, to arrange alternative plans.
- **Deadlines:** It is expected that all deadlines will be noted down and met. If this is not possible, you should speak to the teacher concerned to arrange a suitable alternative.
- **Learning environment:** All students should come to the lessons fully prepared, with the correct books and equipment, to include a calculator and a lab coat. You should have done all the work required, to engage meaningfully with and benefit fully from the topics covered in the lesson.
- **Study periods and independent study**. For every hour you spend in class, you should spend an hour outside of class, at home or during your study periods, consolidating the material you have covered. Guidance for how to spend this time will be provided by your teachers.
- **Health and safety protocols:** At all times students must abide by the health and safety rules clearly outlined in every laboratory. Students must not eat in a laboratory.

Student support:

A wide variety of online resources are available. These include an online textbook, access to UpLearn study resources, topic books, mark schemes, lesson guides and revision materials.

Students will be given regular and detailed feedback on their work and will be encouraged to ask questions and seek clarification on how to improve. At points throughout the year this feedback will be summarised in a learning conversation, an individual meeting with one of your subject teachers.

If required, you will be asked to attend support sessions and if we have genuine concerns about your progress you will be asked to meet with the Head of Department to discuss how we can help you to meet your target grades.

What to do when stuck…

"'By seeking and blundering we learn."
Johann Wolfgang von Goethe

Your friends can be a great help. Often, discussing the material that you find difficult and asking each other questions is the best way to develop your understanding, as if you work it out for yourself you are less likely to forget it.

If after asking your friends, you still find a concept difficult you can check queries with your teacher. To arrange a time to meet, your teacher's emails are:

MArogundade@nonsuchschool.org

EChristodoulou@nonsuchschool.org

KFaerber@nonsuchschool.org

CHalliwell@nonsuchschool.org

ELee@nonsuchschool.org

JSeo@nonsuchschool.org

SSeneviratne@nonsuchschool.org

JWilliamson@nonsuchschool.org

For queries that you think will take more than a few minutes to resolve the best place to come is to **Chemistry Drop-in**, which runs twice a week at lunchtime and is staffed by all the department. The time, day and location of help club will be clearly advertised in the department.

Bridging Unit

Chemistry is a fascinating subject that underpins much of the world around us. Over the summer we asked you to:

1. Complete a **key terminology** activity to support your learning in the first term
2. Read a **chemistry article**, summarising and referencing
3. Review **key calculations** from GCSE Chemistry, with an assessment at the beginning of the year to review these foundation skills

Further reading and extension

The Disappearing Spoon, Sam Kean, *Black Swan*
Oxygen: the molecule that made the world, Nick Lane, *OUP*
Periodic Tales, Hugh Aldersey-Williams, *Penguin*
The Periodic Table, Primo Levi, *Penguin*
Nature's Building Blocks: An A-Z guide to the elements, J. Emsley, *OUP*

We have a variety of our favourite chemistry websites, some of these include:

The Periodic Table of Videos, from the University of Nottingham:
http://www.periodicvideos.com

Chemistry World magasine:
https://www.chemistryworld.com

The Royal Society of Chemistry, www.rsc.org.uk has a wide range of resources including *LearnChemistry* student resources and *ChemNet* to provide guidance on studying chemistry.

Chemistry Review, www.hoddereducation.co.uk/magazines is a full colour magazine for post-16 chemists. The aim is to make chemistry exciting and understandable. It is an ideal resource for students.

There is also a huge range of websites that can be incredibly useful to help you understand the topics and material covered, **www.chemguide.co.uk** is particularly helpful, as is MaChemGuy on YouTube:
https://www.youtube.com/user/MaChemGuy.

You may over the summer complete a course of your interest via www.futurelearn.com Here are some suggestions below:

You may over the summer complete a course of your interest via www.futurelearn.com (last accessed 08/05/2024). Here are some suggestions:

Chemical Engineering: Shaping a Sustainable Future – University of Leeds
Learn how chemical engineering can help to solve global challenges and explore its role in delivering sustainable development.

2-week course, 2 hours a week – start now.

Last accessed 01/05/2026:
https://www.futurelearn.com/courses/chemical-engineering-shaping-a-sustainable-future

Perioperative Medicine in Action – University College London
Explore perioperative medicine and how you can improve care for the high-risk surgical patient.

4 weeks, 3 hours a week – start now

Last accessed 01/05/2026: Free, Online Perioperative Medicine Course from UCL (futurelearn.com)

We'd suggest you:
· Read one text from the reading list
· Complete one futurelearn course

Enrichment opportunities

Each year all students are invited to enter the Chemistry Olympiad and the Cambridge Chemistry Challenge. These prestigious competitions aim to stretch and challenge students interested in chemistry and will provide an excellent experience for anyone considering taking their studies further. Each year we have outstanding outcomes, with over 120 bronze, silver and gold certificates in these competitions in 2026.

We often advertise opportunities in Chemistry and associated subjects. Check email regularly for these and other relevant events in the chemistry world.

Resources and Equipment

You will be provided with an online textbook *A Level Chemistry for OCR A* (OUP), and associated resources via Kerboodle.com.

Access to UpLearn, an online learning resource, is provided for all. Most students are expected to complete 3h independent study per week in Y12, using UpLearn. This excellent tool supports the best outcomes for you.

Some students prefer a physical book to study from, and a further recommendation is any OCR Chemistry text. There are many available from publishers. Come to chemistry drop-in to view them all and then you can make your own personal choice.

In addition to these resources, you will be provided with a workbook for each topic that you study. This topic book is designed and produced by the Chemistry Department and specifically caters to help you make good progress. It contains lesson resources, homework sheets, past paper questions to practice and independent study activities to consolidate or stretch your understanding.

All students are required to bring a **lab coat** to practical lessons.

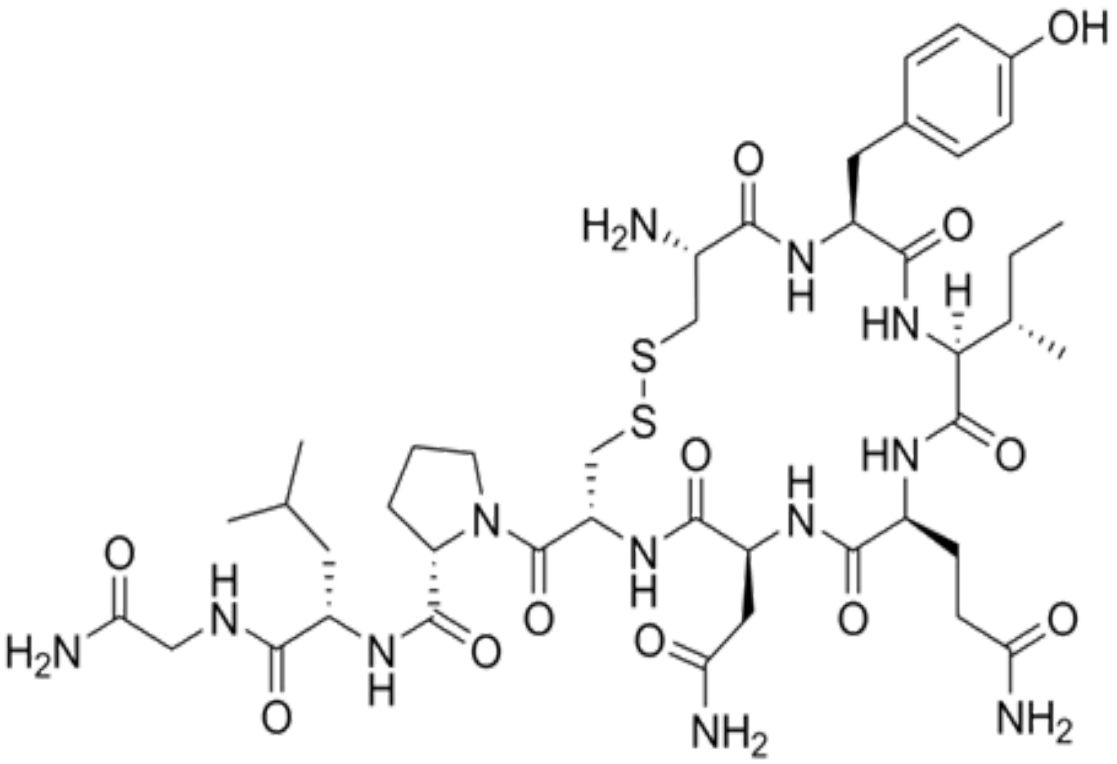
Career Progression

Completing an A-level in chemistry can open so many doors for you in the future. It is a challenging, academic and rigorous A-level that will impress a lot of universities and future employers.

Studying A-level chemistry can lead to many careers in healthcare such as medicine, pharmacy and dentistry but is also extremely useful in careers in the biological sciences, engineering, veterinary science, physics, mathematics, pharmacology and analytical chemistry. Chemistry is also taken by many law applicants as it shows you can cope with difficult concepts and finance students to show logical thinking and mathematical skills.

Chemistry students have continued to study a wide range of subjects at university and apply themselves in highly successful careers.

Notes:



Oxytocin – our favorite molecule