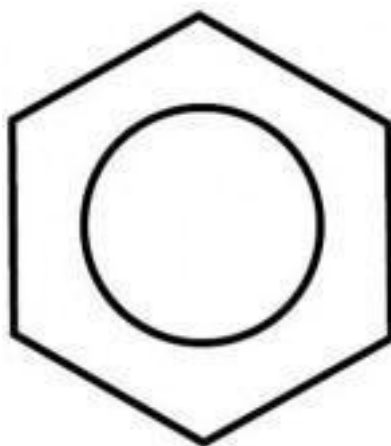




Chemistry

Induction Booklet

2026-2027



Name:

Tutor Group:

“We think there is colour, we think there is sweet, we think there is bitter, but in reality, there are atoms and a void.”

Democritus, c. 400 BC

CHEMISTRY LEARNING AGREEMENT

Expectations of Student	Expectations of Staff
<p>Maintain a notes folder organised by specification point, as outlined in the Year Plan provided to them.</p>	<p>Teach lessons, set and mark work as outlined in the Year Plan they will provide to students at the start of the course</p>
<p>To treat practical work as a core part of the course and approach it with the same significance given to theory.</p>	<p>Embed practical work wherever possible through each unit of work including, and exceeding, the endorsed CPACs</p>
<p>To write any and all practical work into your lab book, including rough work. Lab book to be maintained in accordance with department policy outlined therein. To complete any pre-lab tasks when set, including, but not limited, to research, in advance of practical work. Where this has not been completed or is unsatisfactory, students may not be allowed to conduct the relevant experiment.</p>	<p>To provide formative feedback to students, verbally or written, on how to build the skills needed to meet the CPAC. To indicate to students when practical work will take place. Student research of practical techniques and methodology is a CPAC requirement, but the teacher will provide detailed additional resources on the endorsed CPACs to prepare for the exams.</p>
<p>To correct all assessments within a week of their return. To re-sit any assessments falling below target within a fortnight of their return. To complete all personal intervention tasks, consider these assessments before resitting the assessment (if applicable), or within a fortnight (if not), and provide evidence of this.</p>	<p>To set one closed-book assessment per unit, within a week of the completion of teaching it. To mark and return all assessments to pupils within a week of them being sat. To enter fine data from all main assessments into the PLC tracker. To allocate an intervention lesson when returning assessments - to be used for setting individual tasks, covering problem areas, providing support etc.</p>
<p>To check school email at least once every 24 hours and respond within this timeframe if needed.</p>	<p>To respond to any emails within 24 hours, excluding weekends and school holidays.</p>

To maintain a dialogue regarding aspirations, destinations and course feedback with the KS5 science team.	To provide appropriate enrichment activities and opportunities to students.
To attend all lessons, on time (within 10 minutes for p2,4 where crossing sites). When absent, make all reasonable efforts to catch up on missed work. Where possible, in advance. Students who arrive late to lessons will not be allowed to join the class.	To attend all lessons, on time (as per students). To contact students in the event of an absence and provide them with work to do. To only cancel lessons under circumstances where GCSE lessons would be cancelled.
To use google classroom to access resources, and share resources with your peers	To share resources on google classroom.
To provide constructive feedback when requested on KS5 teaching	To adapt teaching, where appropriate, considering student feedback.

I AGREE TO THE ABOVE REQUIREMENTS FOR STUDYING A LEVEL CHEMISTRY AT HOLY FAMILY CATHOLIC SCHOOL

SIGNED: _____

Absences

If you will not be attending school, you must contact:
Sixth Form Admin on **0208 509 4268** by **8.40am** on the day of absence

You must also contact your teacher to catch up on any missed work - an absence on the day work was set does *not* mean you don't have to do the work.

Course Overview

Chemistry at advanced level is a very rewarding course - there is a great deal of content to cover and requires diverse talents to master; however, it is also one of the most interesting subjects to study and provides insight into how the universe works.

Chemistry is traditionally divided into three branches:

- Organic Chemistry - the study of carbon-containing compounds
- Inorganic Chemistry - the study of the rest of the periodic table
- Physical Chemistry - the study of why and how reactions happen

You will study all three of these fields in both years of the course. Much of what we study at advanced level is 'drilling down' into topics you have covered in your GCSE course, but there are other topics that will be totally new to you.

Practical work is embedded throughout the course. There are 12 'required' CPACs that **must** be completed by every student during the course, although you will do many more experiments than this. These CPACs will be the subject of questions in your exams, and form part of your *practical endorsement* (see Assessment Information below).

The A Level Chemistry course has been divided into 27 topics (see Curriculum overview below). Each topic will consist of lessons, relevant lab work, independent work, an assessment and an intervention lesson.

- All practical work is to be recorded directly into your lab books. Relevant pre-lab or follow up tasks must be completed in these as well.
- Within a week of the conclusion of a topic, your teacher will arrange for an assessment to take place. This will be based on the content of this topic.
- When you sit your assessment, you will be required to hand your self-assessed independent work and lab book in for review.
- Your teacher will mark your assessment and lab book and return both to you in an intervention lesson. This will take place within a week of you sitting the assessment.
- This intervention lesson is an opportunity to correct your assessment and ask questions of your teacher.
- If your performance on any assessment is below target, you will be expected to re-sit it within a fortnight of its return.
- At major reporting points, you will be given either full papers, or assembled papers that focus on specific topics. All tests will be synoptic, and all material covered earlier in the course is assumed knowledge and may reappear.
- Practical work will be assessed both in the lesson & upon receipt of your lab book. You are assessed against the same criteria, to the same standard, throughout the course. You are therefore not expected to meet these criteria at the start of the course.

Assessment Information

Chemistry is a fully linear qualification. You will sit three papers at the end of year 2 of the course. At least 20% of your assessment is on the course's maths content, and a minimum of 15% is on the practical content. The course is divided as follows:

Assessments

Paper 1	+	Paper 2	+	Paper 3
What's assessed <ul style="list-style-type: none">• 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		What's assessed <ul style="list-style-type: none">• Relevant Physical chemistry topics (sections 3.1.2 to 3.1.6 and 3.1.9)• Organic chemistry (Section 3.3)• Relevant practical skills		What's assessed <ul style="list-style-type: none">• Any content• Any practical skills
How it's assessed <ul style="list-style-type: none">• written exam: 2 hours• 105 marks• 35% of A-level		How it's assessed <ul style="list-style-type: none">• written exam: 2 hours• 105 marks• 35% of A-level		How it's assessed <ul style="list-style-type: none">• written exam: 2 hours• 90 marks• 30% of A-level
Questions 105 marks of short and long answer questions		Questions 105 marks of short and long answer questions		Questions 40 marks of questions on practical techniques and data analysis 20 marks of questions testing across the specification 30 marks of multiple choice questions

Visit the site below for past exam papers & mark schemes

<https://www.aqa.org.uk/subjects/science/as-and-a-level/chemistry-7404-7405/assessment-resources?f.Resource+type%7C6=Question+papers>

f

You will also be assessed against the five Common Practical Assessment Criteria (CPAC) in your practical work. If you are meeting these five standards consistently, you will be awarded a practical endorsement to your A Level. This is entirely separate from your grade, so it is possible to get an A* and fail the practical endorsement. Almost all university science courses will require the practical endorsement. The five CPAC are:

1. Follows written instructions
2. Applies investigative approaches and methods when using instruments and equipment
3. Safely uses a range of practical equipment and materials
4. Makes and records observations
5. Researches, references & reports

Useful Websites/Books

Specification

The specification is the most important resource for a subject. It clearly outlines everything that you need to know and how it will be assessed. Make sure that you become familiar with this document.

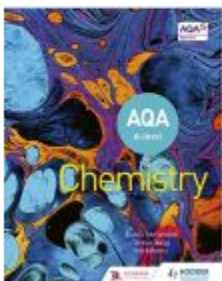
Here is a link to the AQA A level Chemistry specification.

https://cdn.sanity.io/files/p28bar15/green/9bc48d822ce0f2a5b8a6ce62de590a4c06281535.pdf?_gl=1*1d8gzk6*_gcl_au*MTEyNzM3MTAwNi4xNzgyOTkxODY5

Textbooks

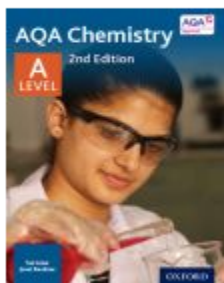
There are several textbooks available that will support you in this course. Here are a few.



AQA A Level Chemistry (Year 1 and Year 2)



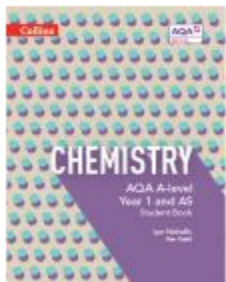
Authors: Alyn G. McFarland, Nora Henry, Teresa Quigg
Publisher: Hodder Education
ISBN-13: 9781510469839
Publication date: June 2019 - out now
Digital version - out now



AQA A Level Chemistry (2nd edition)



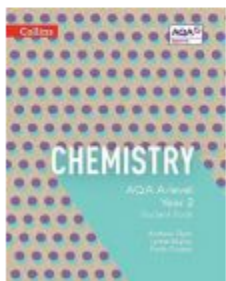
Authors: Ted Lister, Janet Renshaw
Publisher: Oxford University Press (including Nelson Thornes)
ISBN-13: 978-0-19-835182-5
Publication date: June 2015 - out now
Digital version - out now
 [Look inside \(375.2 KB\)](#) 

AQA A-level Chemistry Year 1 and AS Student Book



Authors: Lyn Nicholls
Publisher: Collins
ISBN-13: 978-0-00-759021-6
Publication date: July 2015 - out now
Digital version - out now
 [Look inside \(3.1 MB\)](#) 

AQA A-level Chemistry Year 2 Student Book



Authors: Lynne Bayley, Andrew Clarke and Paolo Coppo
Publisher: Collins
ISBN-13: 978-0-00-759763-5
Publication date: June 2016 - out now
Digital version available: TBC

The maths content of the course is significant, and you would be wise to purchase a specific book on mathematics in chemistry (even if you are studying maths at A level, especially if you aren't). Choose one that offers worked examples, and plenty of questions to do independently with solutions in the back. Suitable places to start looking include:

Calculations in AS/A Level Chemistry by Jim Clark

Essential Maths Skills for AS/A Level Chemistry by Nora Henry

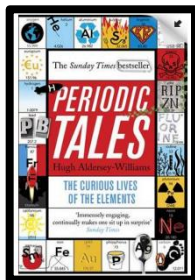
Maths for A Level Chemistry by Steven Doyle

Maths Skills for A Level Chemistry by McGowan & Poole

Revision guides, such as those produced by CGP, are of limited value, similar content can be found online for free. As they only refresh basic recall (AO1), they will only allow you to access 30% of the marks available. Avoid unless desperate!

Other book recommendations

Periodic Tales: The Curious Lives of the Elements (Paperback) Hugh Aldersey-Williams

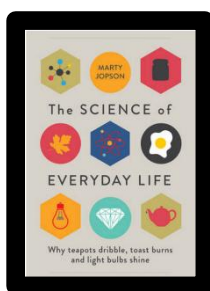


ISBN-10: 0141041455

<http://bit.ly/pixlchembook1>

This book covers the chemical elements, where they come from and how they are used. There are loads of fascinating insights into uses for chemicals you would have never even thought about.

The Science of Everyday Life: Why Teapots Dribble, Toast Burns and Light Bulbs Shine (Hardback) Marty Jopson

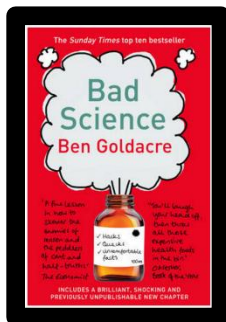


ISBN-10: 1782434186

<http://bit.ly/pixlchembook2>

The title says it all really, lots of interesting stuff about the things around your home!

Bad Science (Paperback) Ben Goldacre

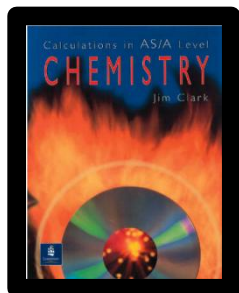


ISBN-10: 000728487X

<http://bit.ly/pixlchembook3>

Here Ben Goldacre takes apart anyone who published bad / misleading or dodgy science – this book will make you think about everything the advertising industry tries to sell you by making it sound ‘sciency’.

Calculations in AS/A Level Chemistry (Paperback) Jim Clark



ISBN-10: 0582411270

<http://bit.ly/pixlchembook4>

If you struggle with the calculations side of chemistry, this is the book for you. Covers all the possible calculations you are ever likely to come across. Brought to you by the same guy who wrote the excellent chemguide.co.uk website.

Caesar's Last Breath: The Epic Story of The Air Around Us	Sam Kean
Elephants on Acid	Alex Boese
Mauve: How one man invented a colour that changed the world	Simon Garfield
Oxygen: The molecule that made the world	Nick Lane
Napoleon's Buttons: How 17 Molecules Changed History	Penny Le Couteur
Stuff Matters: The Strange Stories of the Marvelous Materials that Shape Our Man-Made World	Mark Miodownik
The disappearing spoon	Sam Kean

Salters' Advanced Chemistry: Chemical Storylines

Do not feel you need to buy the latest edition (unless you are doing Salters chemistry!) You can pick up an old edition for a few pounds on eBay. It gives you a real insight into how chemistry is used to solve everyday problems from global pollution through feeding the world to making new medicines to treat disease.

Other exam boards

These can be a valuable source of questions and practice (including older specifications!). Chemistry is universal, so it's just as valuable to practice with OCR's questions as it is with AQA's - sometimes more so as examiners tend to 'borrow' questions from each other! Here are a few to get you started:

OCR Chemistry A

OCR Chemistry B (Salters)

Edexcel Chemistry

There are many past questions and practice questions available on the Physics and Maths tutor website. <https://www.physicsandmathstutor.com/chemistry-revision/>

More challenging papers:

Cambridge Pre-U Chemistry

C3L6 (Cambridge Chemistry Challenge Lower 6th)

RSC Chemistry Olympiad

Websites

<http://www.rsc.org/learn-chemistry>

Lots of useful material from the Royal Society of Chemistry, including some interactive experiments.

<http://chemnet.rsc.org/home>

A network of Chemists that can help provide support during your studies, advice and information about careers in chemistry.

www.chemguide.co.uk

Very well written notes around advanced level chemistry, very useful for getting a deeper understanding of topics.

www.docbrown.info

While not as good or detailed as chemguide, this provides some useful notes and can be a bit easier to understand.

www.a-levelchemistry.co.uk

Some good notes, but also question packs and answers split up by topic - very good source of independent work.

www.chemrevise.org

Revision notes to refresh your memory.

<https://www.khanacademy.org/science/chemistry>

Very useful website with video tutorials, worked examples and auto-marked work - incredibly useful for independent study.

YouTube - various channels

It can be incredibly useful to hear someone other than your teacher, explain how to tackle something you're struggling with, so if you're struggling with a topic have a look on YouTube to see if there's a tutorial on the topic.

Curriculum Overview Year 12 – Chemistry (A Level)

	Teacher 1	Teacher 2	
Half Term 1 (Sept-Oct)	3.1.1 Atomic structure This topic develops GCSE knowledge about the atom. 3.1.2 Amount of substance This is a key topic that touches on every other topic in the course. When chemists measure out an amount of a substance, they use an amount in moles. An amount in moles can be measured out by mass in grams, by volume in dm ³ of a solution of known concentration and by volume in dm ³ of a gas. Required practical 1	3.3.1 Introduction to organic chemistry Organic chemistry is the study of the millions of covalent compounds of the element carbon. 3.3.2 Alkanes Alkanes are the main constituent of crude oil, which is an important raw material for the chemical industry. Alkanes are also used as fuels and the environmental consequences of this use are considered in this section. 3.3.3 Halogenoalkanes Halogenoalkanes are much more reactive than alkanes. They have many uses, including as refrigerants, as solvents and in pharmaceuticals. The use of some halogenoalkanes has been restricted because of chlorofluorocarbons (CFCs) on the atmosphere.	Periodic Tales: The Curious Lives of the Elements by Hugh Aldersey-Williams
Half Term 2 (Nov-Dec)	3.1.3 Bonding This topic requires solid understanding of bonding from GCSE and develops it further. The physical and chemical properties of compounds depend on the ways in which the compounds are held together by chemical bonds and by intermolecular forces. Materials scientists use knowledge of structure and bonding to engineer new materials with	3.3.4 Alkenes In alkenes, the high electron density of the carbon-carbon double bond leads to attack on these molecules by electrophiles. This section also covers the mechanism of addition to the double bond and introduces addition polymers, which are commercially important and have many uses in modern society. 3.3.5 Alcohols	The Science of Everyday Life: Why Teapots Dribble, Toast Burns and Light Bulbs Shine by Marty Jopson

	<p>desirable properties. These new materials may offer new applications in a range of different modern technologies.</p>	<p>Alcohols have many scientific, medicinal and industrial uses. Ethanol is one such alcohol and it is produced using different methods, which are considered in this section. Ethanol can be used as a biofuel.</p> <p>Required practical 5</p> <p>3.3.6 Organic analysis Our understanding of organic molecules, their structure and the way they react, has been enhanced by organic analysis. This section considers some of the analytical techniques used by chemists, including test-tube reactions and spectroscopic techniques.</p> <p>Required practical 6</p>	
<p>Half Term 3 (Jan-Feb)</p>	<p>3.1.4 Energetics The enthalpy change in a chemical reaction can be measured accurately. It is important to know this value for chemical reactions that are used as a source of heat energy in applications such as domestic boilers and internal combustion engines</p> <p>Required practical 2</p>	<p>3.2.1 Periodicity The Periodic Table provides chemists with a structured organisation of the known chemical elements from which they can make sense of their physical and chemical properties. The historical development of the Periodic Table and models of atomic structure provide good examples of how scientific ideas and explanations develop over time.</p>	<p>Bad Science by Ben Goldacre</p>
<p>Half Term 4 (Feb-Mar)</p>	<p>3.1.5 Kinetics The study of kinetics enables chemists to determine how a change in conditions affects the speed of a chemical reaction.</p> <p>Required practical 3</p>	<p>3.2.2 Group 2 The elements in Group 2 are called the alkaline earth metals. The trends in the solubilities of the hydroxides and the sulphates of these elements are linked to their use. Barium sulphate, magnesium hydroxide and magnesium sulphate have applications in medicines whilst calcium hydroxide is used in</p>	<p>Caesar's Last Breath: The Epic Story of The Air Around Us by Sam Kean</p>

	<p>3.1.6 Chemical equilibria, Le Chatelier's principle and Kc</p> <p>A study of equilibria indicates how far reactions will go. Le Chatelier's principle can be used to predict the effects of changes in temperature, pressure and concentration on the yield of a reversible reaction. This has important consequences for many industrial processes</p>	<p>agriculture to change soil pH, which is essential for good crop production and maintaining the food supply.</p>	
<p>Half Term 5 (Apr-May)</p>	<p>3.1.7 Oxidation, reduction and redox equations</p> <p>Redox reactions involve a transfer of electrons from the reducing agent to the oxidising agent. This was introduced in GCSE and is developed further here.</p>	<p>3.2.3 Group 7</p> <p>The halogens in Group 7 are very reactive non-metals. Trends in their physical properties are examined and explained. Fluorine is too dangerous to be used in a school laboratory, but the reactions of chlorine are studied. Challenges in studying the properties of elements in this group include explaining the trends in ability of the halogens to behave as oxidising agents and the halide ions to behave as reducing agents.</p>	<p>Elephants on Acid by Alex Boese</p>
<p>Half Term 6 (Jun-Jul)</p>	<p>End of year exams Enrichment opportunities Start year 13 content</p>	<p>End of year exams Enrichment opportunities Start year 13 content</p>	

<p>Examples of Home Learning Tasks</p>	<p>Completion of all classwork CPAC lab reports Exam style questions Online learning platforms Pixl Knowledge and Independence Completion of Lab book for required CPACs</p>
<p>Assessment Tasks, Methods & Frequency</p>	<p>Formal assessments every half term in line with the assessment weeks in the school calendar. Questions will be synoptic of the topics they have been studying up to that point. Students' lab books will be marked and assessed against the CPAC skills after every required practical. End of topic tests</p>

	Mock exams
Equipment that Students Need	Folders and dividers for each teacher and topic. Pen, pencil, ruler, rubber, scientific calculator, sharpener.

Parent / Carers can help their child by:	Students will require a quiet space to study with no distractions. Encourage them to stay away from social media when studying. Encourage them to create a study timetable to organise their time. Joining the 'Google Classroom' to enable discussion about their learning and homework requirements.
Useful Websites	https://www.physicsandmathstutor.com/ https://www.khanacademy.org/ https://www.scisheets.co.uk/
Extra-Curricular Activities & Career Opportunities	Careers talks and podcasts. Join Eco-council

Who Can I Contact?	Head of Science	Mr Thrasivoulou
	KS5 Science Coordinator	Mr Yohannes
	Teachers of Year 12 Chemistry	Mr Mensah Mrs Paschalides

Curriculum Overview Year 13 – Chemistry (A Level)

	Curriculum Content (Teacher 1)	Curriculum Content (Teacher 2)	Suggested Reading or Extension Activities
Half Term 1 (Sept-Oct)	<p>3.1.8 Thermodynamics This topic builds on the year 12 topic Energetics.</p> <p>3.1.9 Rates This topic builds upon Kinetics from year 12 and looks at how the mathematical relationship between rate of reaction and concentration gives information about the mechanism of a reaction that may occur in several steps.</p> <p>Required practical 7</p>	<p>3.3.7 Optical Isomerism Compounds that contain an asymmetric carbon atom form stereoisomers that differ in their effect on plane polarised light. This type of isomerism is called optical isomerism.</p> <p>3.3.8 Aldehydes and ketones Aldehydes, ketones, carboxylic acids and their derivatives all contain the carbonyl group which is attacked by nucleophiles. This section includes addition reactions of aldehydes and ketones.</p> <p>3.3.9 Carboxylic acids Carboxylic acids are weak acids but strong enough to liberate carbon dioxide from carbonates. Esters occur naturally in vegetable oils and animal fats. Important products obtained from esters include biodiesel, soap and glycerol.</p> <p>Acylation The structures of:</p> <ul style="list-style-type: none"> ● acid anhydrides ● acyl chlorides ● amides. <p>Required practical 10</p>	Mauve: How one man invented a colour that changed the world by Simon Garfield
Half Term 2 (Nov-Dec)	<p>3.1.10 Equilibrium constant K_p for homogenous solutions The further study of equilibria considers how K_p enables us to calculate how an equilibrium yield will be influenced by the partial</p>	<p>3.3.10 Aromatic chemistry Aromatic chemistry takes benzene as an example of this type of molecule and looks at the structure of the benzene ring and its substitution reactions.</p>	Oxygen: The molecule that made the world by Nick Lane

	<p>pressures of reactants and products. This has important consequences for many industrial processes</p> <p>3.1.11 Electrochemistry This topic requires a good understanding of Redox reactions</p> <p>Electrochemical cells have very important commercial applications as a portable supply of electricity to power electronic devices such as mobile phones, tablets and laptops. On a larger scale, they can provide energy to power a vehicle.</p> <p>Required practical 8</p>	<p>3.3.11 Amines</p> <p>Amines are compounds based on ammonia where hydrogen atoms have been replaced by alkyl or aryl groups. This section includes their reactions as nucleophiles.</p> <p>3.3.12 Polymers The study of polymers is extended to include condensation polymers. The ways in which condensation polymers are formed are studied, together with their properties and typical uses. Problems associated with the reuse or disposal of both addition and condensation polymers are considered.</p>	
<p>Half Term 3 (Jan-Feb)</p>	<p>3.1.12 Acids and bases Acids and bases are important in domestic, environmental and industrial contexts. Acidity in aqueous solutions is caused by hydrogen ions and a logarithmic scale, pH, has been devised to measure acidity. Buffer solutions, which can be made from partially neutralised weak acids, resist changes in pH and find many important industrial and biological applications</p> <p>Required practical 10</p>	<p>3.3.13 Amino acids, proteins and DNA Amino acids, proteins and DNA are the molecules of life. In this section, the structure and bonding in these molecules and the way they interact is studied. Drug action is also considered. Proteins are sequences of amino acids joined by peptide links. The action of enzymes as catalysts, including the concept of a stereospecific active site that binds to a substrate molecule.</p> <p>3.3.14 Organic synthesis The formation of new organic compounds by multi-step syntheses using reactions included in the specification is covered in this section.</p>	<p>The Manga guide to Biochemistry</p> <p>The Double Helix by James Watson</p>
<p>Half Term 4 (Feb-Mar)</p>	<p>3.2.4 Transition metals The 3d block contains 10 elements, all of which are metals. Unlike the metals in</p>	<p>3.3.15 NMR Chemists use a variety of techniques to deduce the structure of compounds. In this</p>	<p>Napoleon's Buttons: How 17 Molecules Changed History by Penny LeCouteur</p>

	<p>Groups 1 and 2, the transition metals Ti to Cu form coloured compounds and compounds where the transition metal exists in different oxidation states. Some of these metals are familiar as catalysts. The properties of these elements are studied in this section with opportunities for a wide range of practical investigations</p> <p>3.2.5 Reactions of inorganic compounds in aqueous solutions</p> <p>The reactions of transition metal ions in aqueous solution provide a practical opportunity for students to show and to understand how transition metal ions can be identified by test-tube reactions in the laboratory.</p> <p>Required practical 11</p>	<p>section, nuclear magnetic resonance spectroscopy is added to mass spectrometry and infrared spectroscopy as an analytical technique. The emphasis is on the use of analytical data to solve problems rather than on spectroscopic theory.</p> <p>3.3.16 Chromatography</p> <p>Chromatography provides an important method of separating and identifying components in a mixture. Different types of chromatography are used depending on the composition of the mixture to be separated.</p> <p>Required practical 12</p>	
Half Term 5 (Apr-May)	Revision and Exam practice	Practice of exam style questions.	
Half Term 6 (Jun-Jul)	A level Exams	A level Exams	

Examples of Home Learning Tasks	End of chapter questions, Booklet practice questions, Examination questions, Experiment write-ups, AS Revision tasks,
Assessment Tasks, Methods & Frequency	End of topic tests (EOTT) some are peer/self-marked, CPAC reports, teacher marked. Half-termly assessments, teacher marked.
Equipment that Students Need	Ring binders for notes, paper, pen, pencil, rubber, ruler, scientific calculator. Required practical lab report book is provided by the school.

Parent / Carers can help their child by:	Students will require a quiet space to study with no distractions. Encourage them to stay away from social media when studying. Encourage them to create a study timetable to organise their time.
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Useful Websites	https://www.physicsandmathstutor.com/chemistry-revision/ https://www.scisheets.co.uk/ https://www.youtube.com/user/MrERintoul
Extra-Curricular Activities & Career Opportunities	Careers talks and podcasts. Join Eco-council

Who Can I Contact?	Head of Science	Mr. Thrasivoulou
	KS5 Science Coordinator	Mr Yohannes
	Teachers of Year 13 Chemistry	Mr Mensah Mrs Paschalides

Data Sheet

Table A

Infrared absorption data

Bond	Wavenumber /cm ⁻¹
N-H (amines)	3300-3500
O-H (alcohols)	3230-3550
C-H	2850-3300
O-H (acids)	2500-3000
C≡N	2220-2260
C=O	1680-1750
C=C	1620-1680
C-O	1000-1300
C-C	750-1100

Table B

¹H NMR chemical shift data

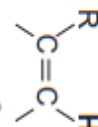


Type of proton	δ/ppm
ROH	0.5-5.0
RCH ₃	0.7-1.2
RNH ₂	1.0-4.5
R ₂ CH ₂	1.2-1.4
R ₃ CH	1.4-1.6
R-C-C- O	2.1-2.6
R-O-C- H	3.1-3.9
RCH ₂ Cl or Br	3.1-4.2
R-C-O-C- O	3.7-4.1
	4.5-6.0
R-C- O	9.0-10.0
R-C- O O-H	10.0-12.0

Table C

¹³C NMR chemical shift data

Type of carbon	δ/ppm
-C-C- 	5-40
R-C-Cl or Br	10-70
R-C-C- O	20-50
R-C-N 	25-60
-C-O- 	50-90
	90-150
R-C≡N	110-125
	110-160
R-C- O	160-185
R-C- O O	190-220

