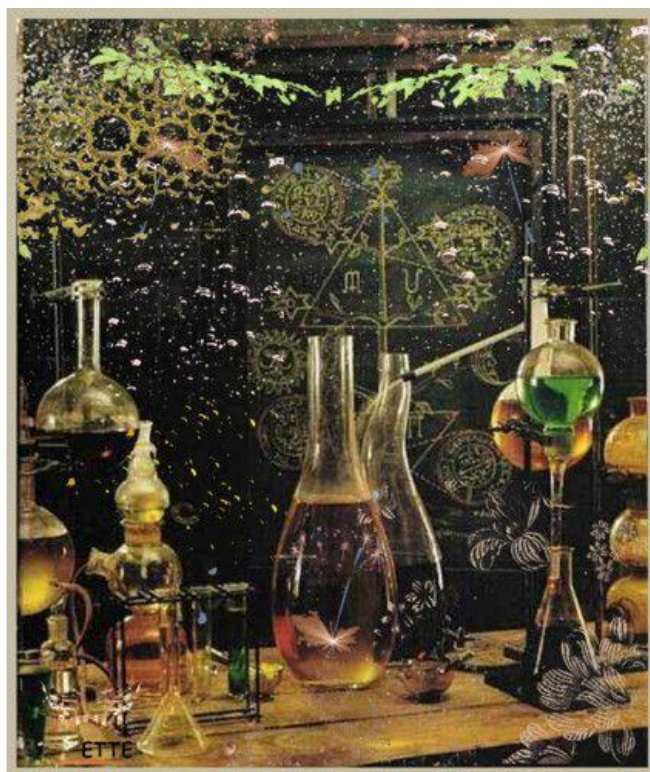


A guide to help you get ready for  
**A-level CHEMISTRY**

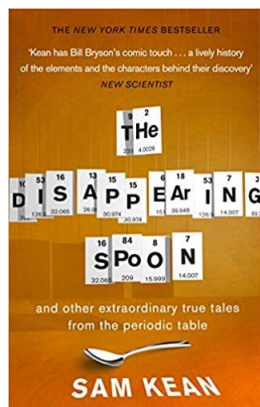
## What is Chemistry?

This pack contains a programme of activities and resources to prepare you to start an A-level in Chemistry in September. It is designed to be used now, throughout the remainder of the summer term and then into the summer holidays, to ensure you are ready to start your course in September. The suggested activities will begin your journey into the fascinating world of chemistry! It's a magical subject to study, and will allow you to see the world in a way that others cannot.



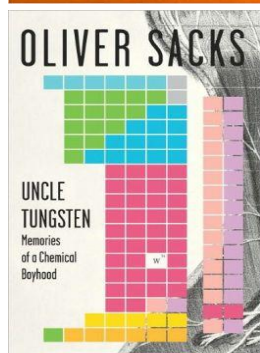
## Suggested Chemistry Books

I love these books. They remind me why Chemistry is my favourite subject at college! Please, find a peaceful and calm space to sit down this summer and read. It will inspire you and make you want to find out more and more about Chemistry.



Why did Gandhi hate iodine (I, 53)? Why did the Japanese kill Godzilla with missiles made of cadmium (Cd, 48)? How did radium (Ra, 88) nearly ruin Marie Curie's reputation? And why did tellurium (Te, 52) lead to the most bizarre gold rush in history?

The periodic table is one of our crowning scientific achievements, but it's also a treasure trove of passion, adventure, betrayal and obsession. The fascinating tales in *The Disappearing Spoon* follow carbon, neon, silicon, gold and every single element on the table as they play out their parts in human history, finance, mythology, conflict, the arts, medicine and the lives of the (frequently) mad scientists who discovered them.

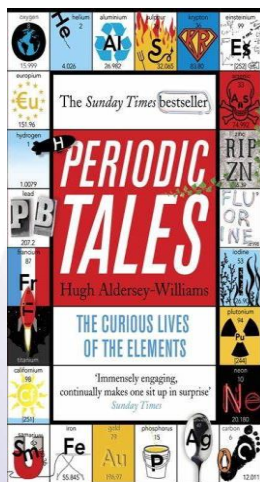


Uncle Tungsten radiates all the delight and wonder of a boy's adventures, and is an unforgettable portrait of an extraordinary young mind.

'If you did not think that gallium and iridium could move you, this superb book will change your mind' *The Times*

'The amalgamation of personal recollection and scientific history makes a luminous, inspiring book' *Sunday Telegraph*

'Uncle Tungsten is really about the raw joy of scientific understanding; what it is like to be a precocious child discovering the alchemical secrets of reality for the first time; the sheer thrill of finding intelligible patterns in nature' *Guardian*



Everything is made of them, from the furthest reaches of the universe to this book that you hold in your hands, including you. Like you, the elements have lives: personalities and attitudes, talents and shortcomings, stories rich with meaning. You may think of them as the inscrutable letters of the periodic table but you know them much better than you realise. Welcome to a dazzling tour through history and literature, science and art. Here you'll meet iron that rains from the heavens and noble gases that light the way to vice. You'll learn how lead can tell your future while zinc may one day line your coffin. You'll discover what connects the bones in your body with the Whitehouse in Washington, the glow of a streetlamp with the salt on your dinner table. From ancient civilisations to contemporary culture, from the oxygen of publicity to the phosphorus in your pee, the elements are near and far and all around us. Unlocking their astonishing secrets and colourful pasts, *Periodic Tales* will take you on a voyage of wonder and discovery, excitement and novelty, beauty and truth. Along the way, you'll find that their stories are our stories, and their lives are inextricable from our own.

These are numerous books you could read. There are great books available on audible, kindle too. Choose anyone that takes your fancy! Write a book review on it and hand this to your teacher in September.

## TED Talks

Download the TED talk app to your device. Have a look at these suggested clips...

[https://www.ted.com/talks/triona\\_mcgrath\\_how\\_pollution\\_is\\_changing\\_the\\_ocean\\_s\\_chemistry](https://www.ted.com/talks/triona_mcgrath_how_pollution_is_changing_the_ocean_s_chemistry)

As we keep pumping carbon dioxide into the atmosphere, more of it is dissolving in the oceans, leading to drastic changes in the water's chemistry. Triona McGrath researches this process, known as ocean acidification, and in this talk she takes us for a dive into an oceanographer's world. Learn more about how the "evil twin of climate change" is impacting the ocean -- and the life that depends on it.

[https://www.ted.com/talks/daniel\\_dulek\\_how\\_big\\_is\\_a\\_mole\\_not\\_the\\_animal\\_the\\_other\\_one](https://www.ted.com/talks/daniel_dulek_how_big_is_a_mole_not_the_animal_the_other_one)

The word "mole" suggests a small, furry burrowing animal to many. But in this lesson, we look at the concept of the mole in chemistry. Learn the incredible magnitude of the mole-- and how something so big can help us calculate the tiniest particles in the world.

[https://www.ted.com/talks/stephanie\\_warren\\_the\\_chemistry\\_of\\_cookies](https://www.ted.com/talks/stephanie_warren_the_chemistry_of_cookies)

You stick cookie dough into an oven, and magically, you get a plate of warm, gooey cookies. Except it's not magic; it's science. Stephanie Warren explains via basic chemistry principles how the dough spreads out, at what temperature we can kill salmonella, and why that intoxicating smell wafting from your oven indicates that the cookies are ready for eating.

[https://www.ted.com/talks/clarice\\_phelps\\_how\\_i\\_claimed\\_a\\_seat\\_at\\_the\\_periodic\\_table](https://www.ted.com/talks/clarice_phelps_how_i_claimed_a_seat_at_the_periodic_table)

In this personal talk, nuclear chemist Clarice Phelps -- the first African-American woman involved in the discovery of a chemical element -- debunks the myth of solitary genius and challenges institutional elitism by sharing stories of women of colour making their way in science.

[https://www.ted.com/talks/jakob\\_magolan\\_a\\_crash\\_course\\_in\\_organic\\_chemistry](https://www.ted.com/talks/jakob_magolan_a_crash_course_in_organic_chemistry)

Jakob Magolan is here to change your perception of organic chemistry. In an accessible talk packed with striking graphics, he teaches us the basics while breaking the stereotype that organic chemistry is something to be afraid of.

If these links don't work (they should), you will find these easily with a google search using TED talk and the name of the speaker.

Complete a summary of each talk by answering 3 questions for each one you watch.

- What was it all about?
- What did you find out that you didn't know before?
- How will watching this clip influence your future learning in chemistry?



## Topics to Research

### The Required Practicals

Over the 2-year course, you will carry out 12 core practicals which are set by the exam board. You will of course do lots of other practical activities but these 12 are those that you will be assessed on. Below I have found a YouTube clip which takes you through each of the Year 1 practicals (you will do 6 in Year 1 and 6 more in Year 2). For each one, create a mind map which you can revisit when we do the task in class which will help you to remember what to do and what to look out for.

#### Prac 1 – Standard Solution and Titration

<https://www.youtube.com/watch?v=9vTwzNuydeg&list=PLxkbSWenXKXp3i8gRXvpM3FMC36yTe1U1&index=2>

<https://www.youtube.com/watch?v=LSYXOa38OgE&list=PLxkbSWenXKXp3i8gRXvpM3FMC36yTe1U1&index=1>

#### Prac 2 – Measuring an Enthalpy Change

<https://www.youtube.com/watch?v=GgfrIX-TmQk>

#### Prac 3 – Measuring Rate of Reaction

<https://www.youtube.com/watch?v=FdBqD4yIOdw>

#### Prac 4 – Testing for Anions and Cations

<https://www.youtube.com/watch?v=KY8g0mt0W0o&list=PLPzwPyIK2THuxZV3UBEOkU6O2jG2oB8c&index=5>

<https://www.youtube.com/watch?v=soOmx4lgsWE&list=PLPzwPyIK2THuxZV3UBEOkU6O2jG2oB8c&index=6>

<https://www.youtube.com/watch?v=9GIh9bYkwe8&list=PLPzwPyIK2THuxZV3UBEOkU6O2jG2oB8c&index=7>

<https://www.youtube.com/watch?v=hqSJICyMtAE&list=PLPzwPyIK2THuxZV3UBEOkU6O2jG2oB8c&index=8>

#### Prac 5 – Organic Preparation

<https://www.youtube.com/watch?v=kwuu0Bep4QU>

#### Prac 6 – Organic Identification

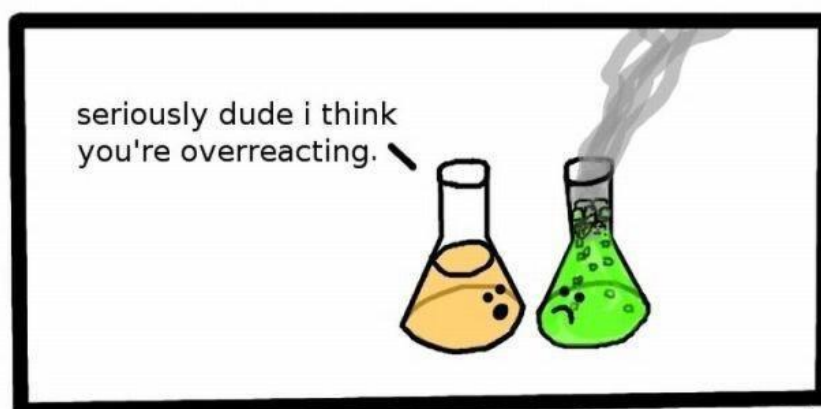
<https://www.youtube.com/watch?v=miMqKFRas-g>

## Online Learning Courses

The Royal Society for Chemistry has a wealth of excellent resources. Please visit the area and see what you find;

[https://edu.rsc.org/?\\_ga=2.14256503.1541523202.1589810154-259144438.1589277912](https://edu.rsc.org/?_ga=2.14256503.1541523202.1589810154-259144438.1589277912)

In the futures section, can you please find 3 job profiles and create a summary of what each job involves and how chemistry is used.



I look forward to getting to know you in September and working with you on 3 objectives;

- achieving a grade for A-level Chemistry that both you and I are proud of
- enjoying 2 sessions a week together and the learning that takes place in between
- feeding your hunger for chemistry so that when you leave Chichester College you love the subject even more than when you arrived