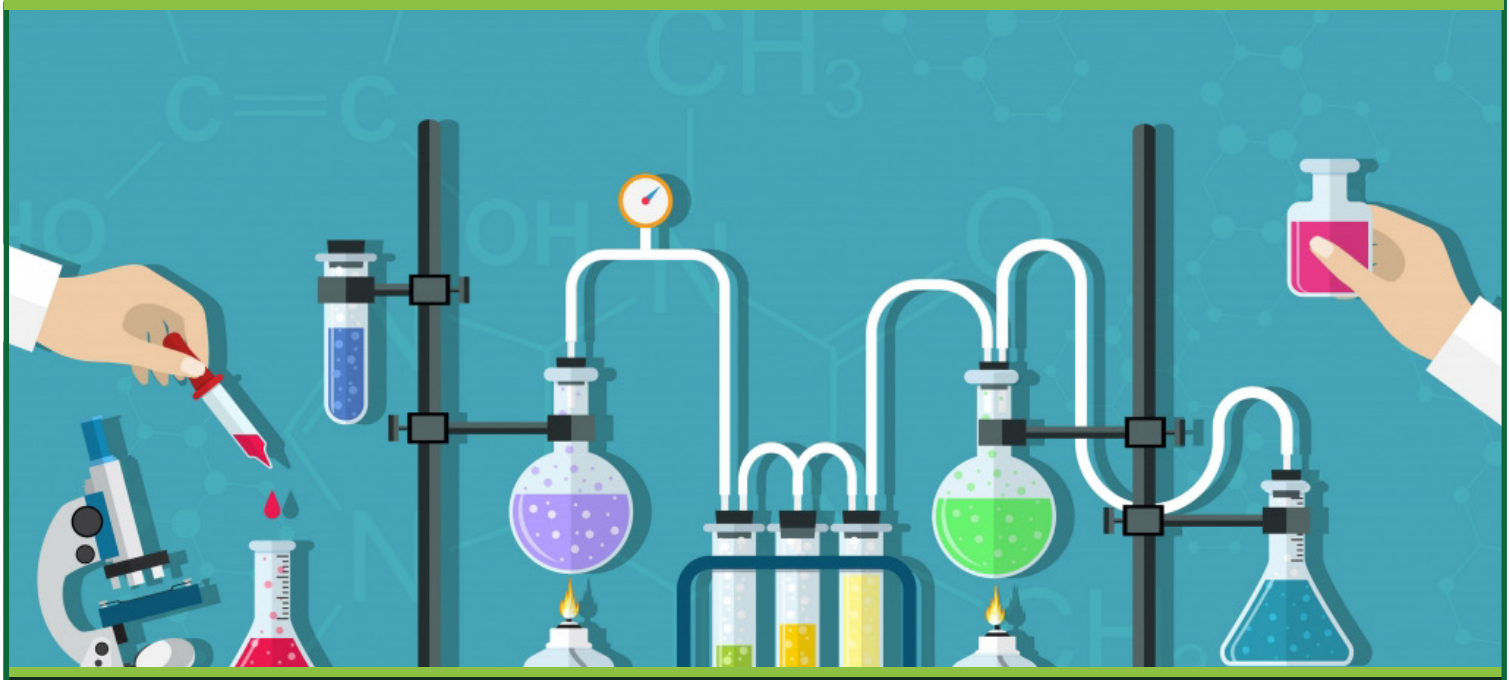
Bentley Wood
High School for Girls

Chemistry Bridging Work

Year 10 into 11 for 2022/23



Name: _____

Tutor Group: _____

Teacher: _____

Year 10 into 11 Chemistry Bridging Work

2022

Chemistry at Bentley Wood!

Studying Chemistry provides you with a privileged insight to the processes that define our everyday world. The skills you will develop as a chemist are highly transferable enabling you to continue your academic trajectory in a multitude of different fields.

Course content

The course allows you to develop a myriad of skills in the classroom by seamlessly integrating these throughout the course topics. These can be in the form of practical work as well as presentational skills. The innovative nature of Chemistry means that this field is constantly evolving, and you are encouraged to complement your learning with wider, up-to-date research in order to expand your contextual appreciation of the subject.

What is bridging work?

This bridging work has been designed to help you bridge the gap between your studies from Year 10 to Year 11. This work will be essential for you to complete prior to your studies with us in September.

Why is bridging work important?

Bridging work for Year 10 into 11 Chemistry is crucial to help you continue approaching scientific problems creatively and innovatively as scientists do in everyday life!

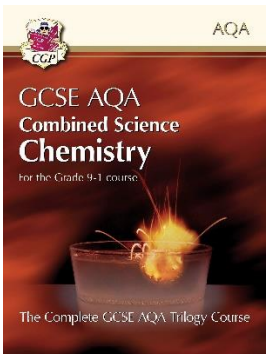
Is the bridging work assessed?

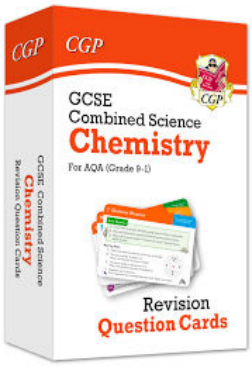
In short – yes! This will be the first assessed piece of work in Year 11, so make it count. It will enable us to further understand your strengths and your areas for improvement. It will also provide us with the opportunity to gauge your work ethic and your aspirations for yourself in your GCSE examination year.

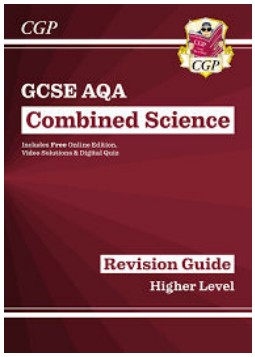
This booklet is separated into the following sections:

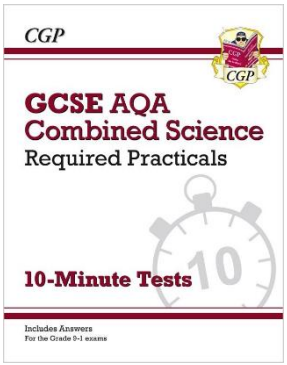
1. Revision Resources
2. Further and Wider Reading
3. Summer Task 1: Research Task
4. Summer Task 2: Recap

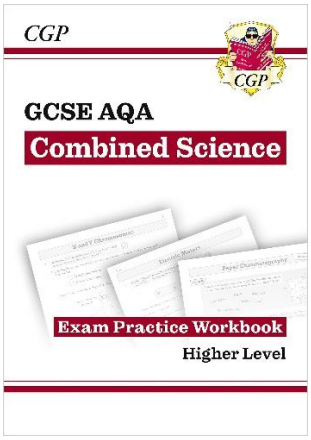
1. Revision Resources

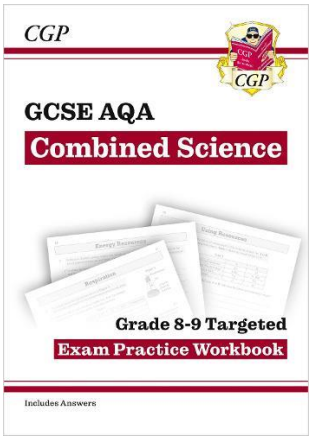


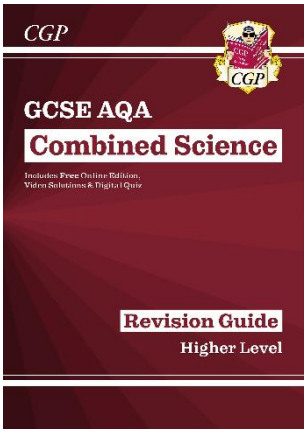


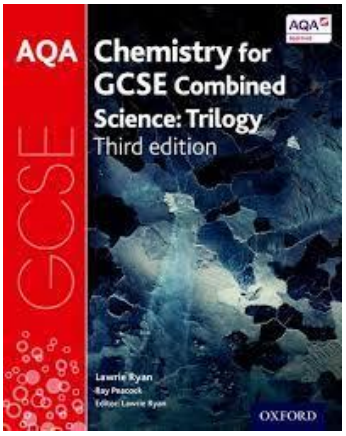












Please note: Triple Science, Chemistry versions are available for all of the above.

Useful websites:

- My GCSE Science. **Username**: school e-mail address. **Password:** bw

https://www.my-gcsescience.com/

- A Hammond Biology. No login required. *Useful tip, click ctrl + f to search through the exam question booklet to find relevant questions*

http://ahammondbiology.weebly.com/

- Kerboodle. **Username:** school e-mail address. **Password:** (click forgot login to reset). **Institution code:** Pro9

https://www.kerboodle.com/users/login

- Savemyexams. **Free version enables you to access many different revision notes and exam past paper questions.**

https://www.savemyexams.co.uk/gcse-chemistry-aqa-new/

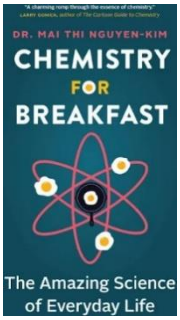
2. Further and Wider Reading

- Chemistry Review Magazine

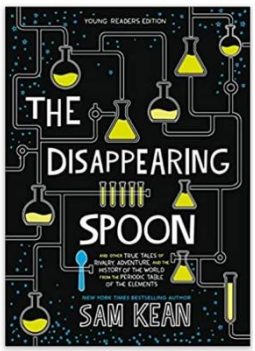
Chemistry Review Magazine aims to offer secondary school students with an insight in novel work and research in chemistry pitched towards an undergraduate level. As well as having cutting-edge research, these magazines also include expert exam advice!

- Chemistry for Breakfast: The Amazing Science of Everyday Life by Mai Thi Nguyen-Kim

This book highlights the amazing chemistry behind everyday things that we often take for granted such as the chemistry behind baking, how toothpaste works as well as the extraordinary chemical wonders like space travel! Over the course of a single day, Mai shows us that chemistry is everywhere: we just have to look for it.

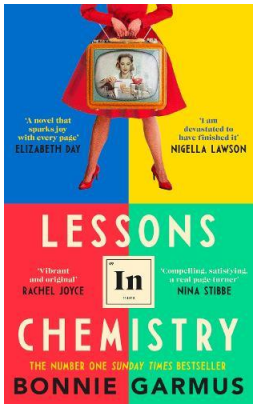


- The Disappearing Spoon: And Other True Tales of Rivalry, Adventure, and the History of the World from the Periodic Table of the Elements



The book focuses on the history of the Periodic Table in the format of short stories showing how a number of chemical elements affected their discoverers, for either good or bad.

- Lessons in Chemistry by Bonnie Garmus



Set in the 1960s, this novel focuses on an unconventional female scientist who revolutionises the perception of women in chemistry, challenging the status duo!

3. Summer Task 1: Research project

The final topics you will encounter in Year 11 chemistry are fundamental to us as chemists and are really interesting to learn as they readily apply to science in everyday life. To prepare for the next stage in your learning, you must **choose one research project below and create a presentation about it.** This presentation could be in the form of a PowerPoint, a poster or a written essay but you **must include the success criteria outlined below**. You will be presenting this to your class in September and you will be **assessed by your teacher**. This assessed mark will go on your first report so, make sure it is excellent and to a high standard.

1. **The use of catalysts.** What is a catalyst? Name a catalyst used in chemical / agricultural / biochemical industry. What reaction does it catalyse? Why is this important? *Go Further: What is the mechanism of the reaction of the catalysis of your researched reaction.*

2. **Chromatography.** Explain how chromatography works in the one of the following industries:
   - sport science
   - food science
   - forensic science
   - *Go Further: What is gas chromatography / column chromatography and how do they work?*

3. **Formulations.** What is a formulation? Give examples in your presentation and explain why they contain other compounds. Why do medicinal drug formulations only contain 5 and 10% of the active drug? *Go Further: Choose a medicinal formulation and research how it is synthesised.*

4. **Fractional Distillation.** Explain the process of fractional distillation and how fractions are separated. Describe the use of each fraction. *Go Further: What is the future of the petrochemical industry and why is this the case?*

5. **It's Cracking!** Explain the process of cracking and the two different types of cracking. Give examples of where cracking is used in everyday life. *Go Further: Explain the environmental considerations in the raw materials and the products produced in cracking.*

Success criteria:

- Able to present for 3 minutes about your chosen topic
- Included relevant and correct chemical information
- Used correct scientific vocabulary
- Included the key dates and notable scientists involved

4. Summer Task 2: Recap

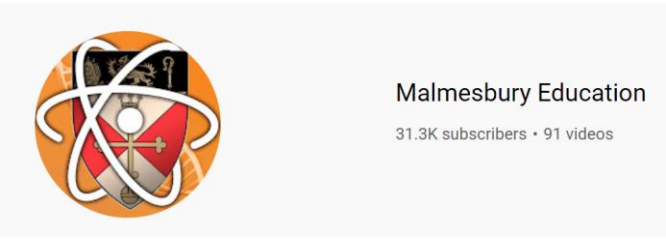
From the Year 10 exams we have identified the following gaps in knowledge across the year group: Bonding, Quantitative Chemistry, Core Practicals. The Core Practicals that could be tested on are:

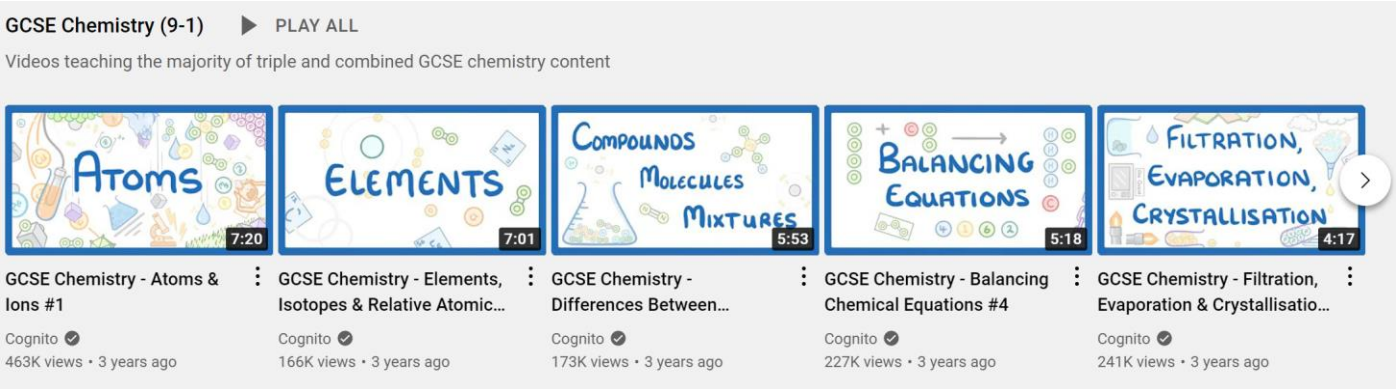
- Preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate, using a Bunsen burner to heat dilute acid and a water bath or electric heater to evaporate the solution.

- Investigate what happens when aqueous solutions are electrolysed using inert electrodes. This should be an investigation involving developing a hypothesis.

- Investigate the variables that affect temperature changes in reacting solutions such as, e.g. acid plus metals, acid plus carbonates, neutralisations, displacement of metals.

For all the above topics, please use your CGP textbooks and watch *Cognito* and *Malmesbury Science* Youtube videos:





You will be set baseline exams in September to check that you have revised these topics thoroughly so make sure you take the time over the summer to review this material!

*Get ahead: review **Organic Chemistry** material / resources/ exam questions / videos as we will be starting with this module when you return in September.*

Remember you don't have to complete this all in one go - spend an hour each week on it!