

# SUMMER PREPARATORY WORK

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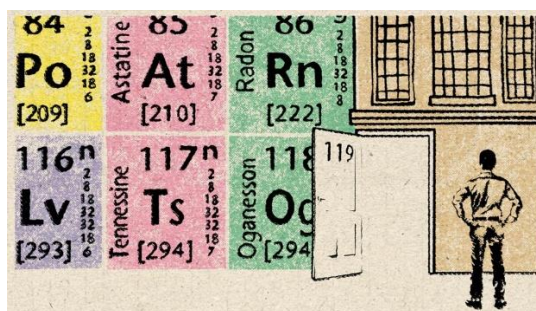
AS LEVEL CHEMISTRY

Central  
Saint Michael's  
Sixth Form

A UNIVERSITY STYLE SIXTH FORM

# Central Saint Michael's Sixth Form

A UNIVERSITY-STYLE SIXTH FORM



## ***Welcome to A level Chemistry***

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### ***Why should I study Chemistry?***

Chemistry is all around us. Every time we light a gas cooker, boil an egg or simply breathe in and out we perform a chemical reaction. Our bodies grow, develop and function due to chemical processes going on within them. Our clothes and nearly all the objects of our everyday life are manufactured by the chemical transformation of raw materials like oil or iron ore, or by the chemical treatment of natural materials such as wood or wool.

Fertilizers are used to assist with the growth of our food and chemical preservatives prevent it from spoiling. If we are to protect the planet from the harmful effects of human activity, we need to understand as clearly as possible the complex chemical systems that make up our environment.

Chemistry is a fundamental subject in science. It overlaps with biology in medicine, with physics in engineering and with geology in earth science. Thus while it might be unusual for someone to take a degree in geology and follow a career in biology, it is commonplace for a chemistry graduate to move into these or many other areas of science. As a result, many doors are open to chemistry graduates, and career opportunities are diverse.

Some of the areas where chemists are to be found include:

- All areas of industry, from the oil, chemical and pharmaceutical companies, to smaller enterprises producing new and specialised products
- In public health and environmental protection
- In research in universities, government institutions, industry and private agencies
- In all levels of teaching
- In patent agencies and scientific journalism
- In forensic science
- In numerous other occupations that make direct use of their knowledge

## **Formal Entry Requirements**

To study Chemistry, you will need five GCSEs A\*-C in academic subjects including GCSE Double Science at BB/66 or above or GCSE Chemistry at B/6 or above and GCSE Mathematics at B/6 or above, plus an average of five B/6 grades for your best 5 subjects. In order to progress to A2 students will need a D grade at AS level.

## **What does the course involve?**

Chemistry can be studied in either your first or second year as an AS Level qualification or over two years as a full A Level.

**AS Chemistry:** The AS level course has four modules of study:

Module 1 – Development of practical skills in chemistry

Module 2 – Foundations in chemistry including atomic structure and bonding

Module 3 – Periodic table and energy including elements of group 2 and group 7

Module 4 – Core organic chemistry including basic principles, hydrocarbons and spectroscopy

**A level Chemistry:** The full A level course has six modules of study:

Module 1 – Development of practical skills in chemistry

Module 2 – Foundations in chemistry

Module 3 – Periodic table and energy

Module 4 – Core organic chemistry

Module 5 – Physical chemistry and transition elements including rates of reaction and equilibrium

Module 6 – Organic chemistry and analysis including aromatic compounds, polymers and spectroscopy

## **How will I be assessed?**

Both AS and A Level Chemistry are assessed through a series of written examinations. There are two written exams for AS level and three written examinations for A2 level. The content assessed in the AS and A level examinations can cover content from several or all modules studied. Practical skills are not examined but activities are carried out during the year and are endorsed by the examining board through the college.

## **How can I be a successful Chemistry student?**

Your level of personal organisation is key to your success. This means that you should:

- Meet all deadlines
- Keep your notes and other resources in a clear and logical fashion
- Bring the resources in for the day that are needed for that area of study or topic, including questions

Your level of engagement with the work is crucial even when the going is tough. You should:

- Engage fully in your class activities, including practical work
- Keep up to date with homework tasks
- Revise effectively for tests
- Keep your practical endorsement book up to date
- Attend all workshops offered if you are struggling

## **What equipment do I need?**

The college provides you with all chemical resources and personal protective equipment for practical work. You will also receive a CGP revision guide for the level you are studying at (AS or A level).

You will need the following items for each class throughout the year:

- Pens (black preferably)
- Pencils (you often draw graphs and diagrams)
- Ruler (see through 12 inch is best)
- Scientific calculator (a must as calculations are regular and functions such as “log” will be used)
- Lined paper
- A “daily” folder (if you have a larger folder there is no need to bring that in)

## Summer work for 2020

### Task (1)

Select **two** of the following assignments to complete.

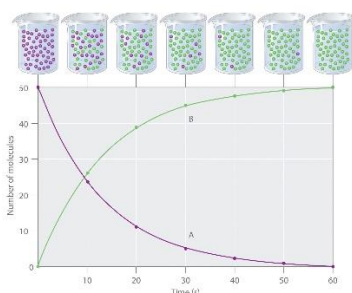
Prepare a short essay (approximately 300 words) after you have carried out some suitable research.

These are all part of the GCSE specification so a starting point might be “bite-size” or other useful sources you know.

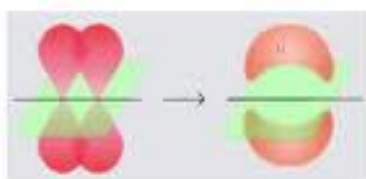
- Describe the different ways of making salts. Suggest how the salts can be purified in these preparations and give examples of salts made in each case, including balanced equations for reactions. Describe some important uses of salts.



- Give examples of experimental methods that can be used to find the rate of a chemical reaction. Give an outline of equipment that you would need, how you would obtain data and how you would use the data to find a reaction rate.



- Alkenes are very important industrial chemicals. They have a special type of bond present, which gives them highly useful reactions. Describe how this bond forms and identify important reactions that alkenes can undergo as a result. Where possible include balanced equations.



- Describe the bonding and structure present in the following chemical substances:

sodium metal; fluorine gas; sodium fluoride

Use your findings to explain why the melting point of sodium metal is **98°C**, the melting point of fluorine is **-220°C** and the melting point of sodium fluoride is **1695°C**.



### Task (2)

The West Midlands, and in particular the Black Country, has a great industrial heritage, and in particular for the manufacture of chemicals.

Below are some links to local chemical manufacturer's websites.

From these choose **one** manufacturer, research into what they make and where possible, how they make chemicals (don't be frustrated if they are a bit vague as their processes can be a secret to discourage competitors!) and what happens to the products.

- Robinson Brothers (West Bromwich)

**RobinsonBrothers** 150  
*Excellence in Chemistry*

<http://www.robinsonbrothers.co.uk/>

- B.I.P. (Oldbury)



<http://www.bip.co.uk/>

- Hammond Chemicals



<http://www.hammondchemicals.co.uk/>

- B.O.C (West Bromwich)



<https://www.boconline.co.uk/>

- Alcohols Ltd (what do they do in Langley?)



<http://www.alcohols.co.uk/>

Summarise your research into a report of approximately 300 words.

### Task (3)

The folder with this assignment contains a selection of GCSE Higher Chemistry questions. Complete them and submit your answers.

#### **How should you complete your tasks and submit?**

You can complete in the following ways:

- Prepare your tasks as word documents (including answers to the GCSE questions) and submit as directed.
- If you cannot complete a word document then:
  - ❖ prepare as a pdf
  - ❖ prepare on paper and photo the answers but ensure that the task can be read (usually jpeg)
  - ❖ if you use another method check that it is compatible with the college's systems (can we open it and read it?)

You can submit by using:

- Upload to moodle
- Email the completed tasks as attachments
- A recognised courier (only kidding)
- Attach to a carrier pigeon (seriously only kidding!)

Good luck

