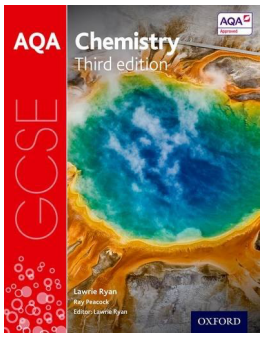
Chemistry Overview



Term: Autumn
Year: 10
Teacher: Mrs Aziza Helaly & Mr Alamgir Islam
Textbook title: AQA GCSE Chemistry Oxford

What will we be covering this term?

1st Half Term:
Structure and bonding - In this chapter, students will develop their understanding of the states of matter from KS3. They will build upon their understanding of the particle model, using this to explain the energy transfers involved when substances change state. Students will also learn about the different types of bonding in substances. Students will also learn how the bonding of a substance affects its bulk properties.

2nd Half Term:
Chemical calculations - In this chapter, students will build upon their understanding of the structure of atoms and sub-atomic particles to understand relative atomic mass and relative formula mass. Students will be able to use relative atomic masses to calculate relative formula masses of compounds. This was then related to the mole and Avogadro's constant, and the relevant calculations introduced. Students should be able to use the equation number of moles = mass (g) / *Ar* and use moles to balance symbol equations and calculate reacting masses.

Electrolysis: In this chapter, students are introduced to electrolysis. They will build upon their knowledge from *Chapter C3* to explain why ionic compounds can undergo electrolysis when molten or in solution. They should also be able to explain the movement of particles during electrolysis, and the reactions that occur at the electrodes.

Teacher's Marking Key:

Mark code	**Means …….**
SP	Spelling error
//	New paragraph needed
Work underlined	Indicate a word or phrase does not make sense
?	Not clear. Rewrite this section again to improve the expression.
FS	Write in full sentences
EX	Develop your explanation further using scientific keywords.
D	You need to add more detail.
EBI	Even better if
WWW	What went well
GR	Grammar error
P	Punctuation error

How will my child be assessed this term?

There will be at least 2 assessed pieces this term.
In more detail;
1st Assessment: Structure and bonding
2nd Assessment: Chemical calculations
At the end of the term there will summative exam that will test their knowledge for what they've covered during the course of the entire term.

How can I help my child in this subject?

- Ensure homework is complete; you can track students' homework assignments at https://www.showmyhomework.co.uk
- Encouragement, praise, ensuring that they do their homework; and checking their student planner.
- Encouraging them to read around the subject.
- Their notes must be in order; discipline is essential.

Resources

Useful Websites

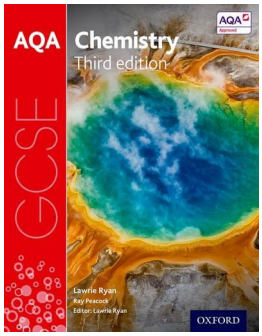
For independent study the following websites are recommended:

- Decimal places and significant figures: https://www.my-gcsescience.com/decimal-places-significant-figures/
- Describing, explaining and comparing graphs https://www.my-gcsescience.com/describing-explaining-comparing-graphs/
- AQA specification: https://filestore.aqa.org.uk/resources/chemistry/specifications/AQA-8462-SP-2016.PDF
- BBC Bitesize: http://www.bbc.co.uk/schools/gcsebitesize/science/add_aqa/
- Revision GCSE chemistry: http://www.gcsescience.com/pe.htm
- Assessment resources: https://www.aqa.org.uk/subjects/science/gcse/chemistry-8462/assessment-resources
- GCSE exam questions organised by Topics & difficulty: https://www.savemyexams.co.uk/gcse-chemistry-aqa/

Communications

Who do I contact if I have concerns about my child's progress in this subject?
Please feel free to contact us at the school from 9.00-15:00 if you have any questions or concerns or contact me by email aziza.helaly@alkhairschool.org.uk, alamgir.islam@alkhairschool.org.uk.

Chemistry Overview



Term: Spring
Year: 10
Teacher: Mrs Aziza Helaly & Mr Alamgir Islam
Textbook title: AQA GCSE Chemistry Oxford

What will we be covering this term?

1st Half Term:

Energy Change: In this chapter, students will learn about the energy transfers that occur during chemical reactions. Students will further develop their qualitative understanding of the energy transfers in a reaction into a quantitative understanding. They should be confident with sketching and interpreting reaction profile diagrams and higher-tier students should be able to use bond energies to calculate overall energy changes for a reaction, identifying if it is exothermic or endothermic. Students will also apply their understanding of the reactivity series and electrolysis to chemical cells and fuel cells.

Rates and equilibrium: In this chapter, students will learn the factors that affect the rate of a reaction, including temperature, surface area, concentration, and pressure. Students should be able to explain the effect of each factor on the rate of reaction using collision theory – understanding that each factor increases the *frequency* of effective collisions, **not** just the number of collisions. They should also be able to explain the effect of catalysts on the rate of a reaction in terms of providing an alternative reaction pathway with a lower activation energy

2nd Half Term:

Rates and equilibrium (cont.): Students will learn about reversible reactions and dynamic equilibrium. Students should apply their knowledge on endothermic and exothermic reactions to equilibrium reactions to be able to predict the effect of temperature changes on the reversible reactions and the position of the equilibrium. Higher-tier students should also be able to use Le Châtelier's principle to explain the effect of temperature and pressure on the position of equilibrium.

Crude oil and fuels: In this chapter, students will learn about hydrocarbons and be introduced to the alkanes. They should be able to identify alkanes from their formulae, and be able to name and draw the displayed formula of the first four alkanes.

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How will my child be assessed this term?

There will be at least 2 assessed pieces this term.
In more detail;
1st Assessment: Energy Change:
2nd Assessment: Rates and equilibrium
At the end of the term there will summative exam that will test their knowledge for what they've covered during the course of the entire term.

How can I help my child in this subject?

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- Revision GCSE chemistry: http://www.gcsescience.com/pe.htm

- Assessment resources: https://www.aqa.org.uk/subjects/science/gcse/chemistry-8462/assessment-resources
- GCSE exam questions organised by Topics & difficulty: https://www.savemyexams.co.uk/gcse-chemistry-aqa/

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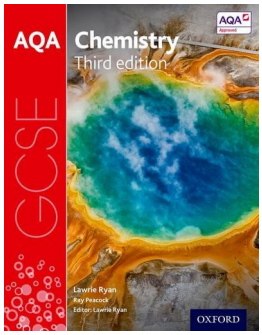
Chemistry Overview

Term: Summer
Year: 10
Teacher: Mr Alamgir Islam
Textbook title: AQA GCSE Chemistry Oxford



What will we be covering this term?

1st Half Term:
Crude oil and fuels: Students will learn about some of the reactions of hydrocarbons, including combustion (both complete and incomplete) and cracking.

Chemical analysis: In this chapter, students will learn about various techniques for analyzing substances. All students should understand the difference between a pure substance, a mixture, and a formulation, and what is meant by purity. Students should also have built upon their understanding of chromatography experiments from *Chapter C1* and be able to analyse a chromatogram, both qualitatively and quantitatively using *R*f values.

2nd Half Term:
Chemical analysis (Cont.): Students should be able to describe the different experimental tests for gases, including both the procedure and positive result.

The Earth's resources: In this chapter, students will be learnt about the difference between finite and renewable resources. It is important that students understand that renewable resources are not an infinite supply, but are replaceable at a rate similar to the rate they are used up, whereas finite resources are used up faster than they can be replenished.
Students should be able to describe the different ways that water is treated, both to create potable water and to remove waste products so it is safe to release into the environment.

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In more detail;
1st Assessment: Crude oil and fuels
2nd Assessment: Chemical analysis
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2021-22