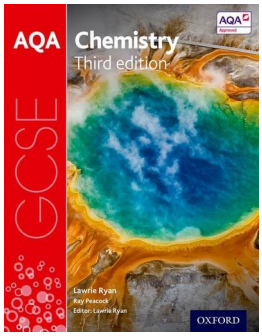
GCSE Chemistry Overview



Term: Autumn
Year: 11
Teacher: Mrs Aziza Helaly
Textbook title: AQA GCSE Chemistry Oxford

What will we be covering this term?

1st Half Term:

Chemical change - This topic is a fundamental concept that students should be confident with. It has significant contents between key stage 3 and key stage 4 which will be cover this term. Students will revise and develop their understanding of the reactivity series. Students will learn about salts and how they are prepared, including from metals and acids, acids and bases, and acids and carbonates. Students should be able to prepare a pure, dry sample of a salt from an insoluble metal oxide or carbonate as part of the required practical.

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.

2nd Half Term:

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. Students will also learn about some of the reactions of hydrocarbons, including combustion (both complete and incomplete) and cracking.

Organic Reactions: In this chapter, students have learnt about more organic functional groups – alkenes, alcohols, carboxylic acids, and esters. Students should be able to identify, name, and draw the structural formula of the first four alkenes, alcohols, and carboxylic acids, and should be able to identify, name, and draw the ester ethyl ethanoate.

Polymers: In this chapter, students will learn about different types of manufactured polymers, including addition polymers and condensation polymers. Students should be able to identify an addition polymer from polymer and monomer diagrams – drawing the monomer from the polymer and the polymer from the monomer.

Teacher's Marking Key:

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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.
Assessment 1: Energy Change
Assessment 2: Crude oil

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:

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Communications

Who do I contact if I have concerns about my child's progress in this subject?

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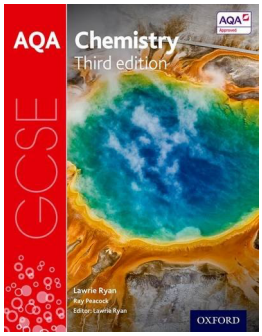
Comb. Science Chemistry Overview



Term: Autumn
Year: 11
Teacher: Mr Alamgir Islam
Textbook title: AQA GCSE Chemistry Oxford

What will we be covering this term?

1st Half Term:
Chemical change - This topic is a fundamental concept that students should be confident with. It has significant contents between key stage 3 and key stage 4 which will be cover this term. Students will revise and develop their understanding of the reactivity series. Students will learn about salts and how they are prepared, including from metals and acids, acids and bases, and acids and carbonates. Students should be able to prepare a pure, dry sample of a salt from an insoluble metal oxide or carbonate as part of the required practical.

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2nd Half Term:
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. Students will also 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. Students will 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. Students should also be able to describe the different experimental tests for gases, including both the procedure and positive result.

The Earth's resources II: Students understanding of finite and renewable resources will be applied to the need to reuse and recycle, and they should be able to describe and evaluate ways of reducing the use of finite resources and carry out life cycle assessments on products. Students will look at specific resources that we use e.g. metals (in particular copper). Students have already met metal-ore extraction and electrolysis, and higher-tier students should have applied that knowledge to the extraction of copper, as well as understanding alternative biological methods used to extract copper.

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Assessment 2: Crude oil

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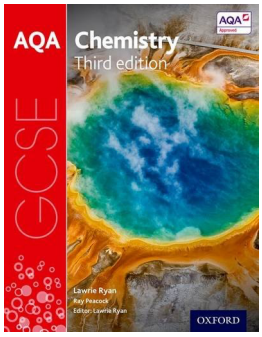

Term: Spring
Year: 11
Teacher: Mrs Aziza Helaly
Textbook title: AQA GCSE Chemistry Oxford

What will we be covering this term?

1st Half Term:
Chemical analysis: In this chapter, students will learn about various techniques for analyzing substances. Students will 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. Students should also be able to describe the different experimental tests for gases, including both the procedure and positive result.

The Earth's resources II: Students understanding of finite and renewable resources will be applied to the need to reuse and recycle, and they should be able to describe and evaluate ways of reducing the use of finite resources and carry out life cycle assessments on products. Students will look at specific resources that we use e.g. metals (in particular copper). Students have already met metal-ore extraction and electrolysis, and higher-tier students should have applied that knowledge to the extraction of copper, as well as understanding alternative biological methods used to extract copper.

Using our resources: In this chapter, students will develop their understanding of rusting from KS3 to understand how both water and air are required for iron to corrode. They should be able to explain how the two methods for preventing rusting – barrier methods and sacrificial methods – disrupt the oxidation of iron and prevent corrosion. Students will also study the Haber process and how it is carried out economically on an industrial scale. This builds extensively upon knowledge of equilibrium conditions in *Chapter C8* and students should be able to explain why the industrial conditions for the Haber process are described as a compromise.

2nd Half Term:
The periodic table II– The students will study the properties and reactions of the transition elements. Students should be able to compare these with the elements of Group 1, identify that some transition elements can form many different ions, and recognise that they are used as catalysts.

The bonding and structure ii: Students should have learnt about nanoparticles, their properties, and be able to explain how the surface area to volume ratio of nanoparticles is different to bulk material, and how this affects their uses.

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 calculate the percentage yield and percentage atom economy of a reaction.

Students will apply their understanding of relative atomic mass, relative formula mass, and moles to concentrations. They will be able to carry out calculations with concentrations in g/dm^3. In addition, they will also carry out a titration as part of the required practical, with higher-tier students using their results to calculate the concentration of an unknown solution.

Chemical analysis II: students will learn about various techniques for analyzing substances. Students should be able to describe experimental tests for positive and negative ions, and be able to write balanced symbol equations for them. Students will also study flame emission spectroscopy, and should be able to interpret instrumental results.

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How will my child be assessed this term?

There will be mock exams, these will include;

Chemistry Paper 1 – 1 hour 45 minutes
Chemistry Paper 2 – 1 hour 45 minutes

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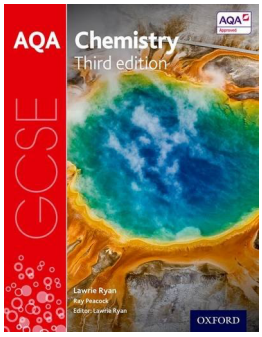

Term: Spring
Year: 11
Teacher: Mr Alamgir
Textbook title: AQA GCSE Chemistry Oxford

What will we be covering this term?

1st Half Term:

- *C1 Atomic structure revision*
- C2 The periodic table revision
- C3 The structure and bonding

2nd Half Term:

- C4 Chemical calculations (Recap)
- C5 Chemical changes (Recap)
- C6 Electrolysis (Recap)
- C8 Rates, equilibrium, and organic chemistry (Recap)

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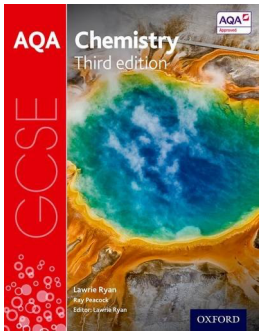
Chemistry Overview



Term: Summer
Year: 11
Teacher: Mrs Aziza Helaly & Mr Alamgir Islam
Textbook title: AQA GCSE Chemistry Oxford:

What will we be covering this term?

During this term, pupils would be revising for their GCSE exams and practising past paper questions.

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