


Year 10 Science Curriculum (Chemistry)

Course Title: GCSE Science Trilogy

Exam Board: AQA

Learning Activities:

This course involves covering four of the ten chemistry topics in Year 10 (some would have already been covered in year 9). This qualification is linear, meaning that students will sit all their exams at the end of the three year course. Pupils will, however, be assessed during the year via topic tests and mock examinations.

|  Holly Lodge 11-19 Science College | | | | | | |
|---|--|---|--|---|---|----------------------|
| Term | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Focus | Chemistry Topic 3: Quantitative Chemistry | Chemistry Topic 3: Quantitative Chemistry | Chemistry Topic 4a: Chemical Changes | Chemistry Topic 4b: Electrolysis Chemistry Topic 5: Energy Changes | Chemistry Topic 5: Energy Changes | Mock revision |
| Key Tasks | 1. Conservation of mass & Mass changes when gases are in reactions 2. Balancing equations 3. Chemical measurements and uncertainty 4. Relative masses 5. Moles (<i>Higher Tier Only</i>) | 6. Amount of substances in equations (<i>Higher Tier Only</i>) 7. Using moles to balance equations (<i>Higher Tier Only</i>) 8. Limiting reactants (<i>Higher Tier Only</i>) 9. Concentration of solutions | 1. Metal oxides 2. The reactivity series 3. Extraction of metals and reduction 4. Oxidation and reduction (<i>Higher Tier Only</i>) 5. Reactions of metals and acids 6. Neutralisation of acids and salt production | 1. The process of electrolysis 2. Using electrolysis to extract metals 3. Electrolysis of aqueous solutions 4. Required Practical: Carrying out electrolysis of an aqueous solutions | 1. Energy transfer during exothermic and endothermic reactions 2. Required Practical: Temperature changes 3. Reaction profiles 4. The energy change of reactions (<i>Higher Tier Only</i>) | |

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| | | 10. Percentage yield <i>(separate science only)</i> 11. Atom economy <i>(separate science only)</i> 12. Using concentration of solutions 13. Amount of substance in volume of gases <i>(separate science only)</i> | 7. Soluble salts 8. Required Practical: Making salts 9. pH and neutralisation 10. Required Practical: Titrations <i>(separate science only)</i> 11. Strong and weak acids <i>(Higher Tier Only)</i> | End of Topic Assessments for Chemistry 4b 1. Energy transfer during exothermic and endothermic reactions 2. Required Practical: Temperature changes 3. Reaction profiles 4. The energy change of reactions <i>(Higher Tier Only)</i> 5. Cells and batteries <i>(separate science only)</i> 6. Fuel Cells <i>(separate science only)</i> | 5. Cells and batteries <i>(separate science only)</i> 6. Fuel Cells <i>(separate science only)</i> | |
| Assessment | | End of Topic Assessments for Chemistry 3 | Mid Topic assessments for Chemistry 4a | End of Topic Assessments for Chemistry 4b End of Topic Assessments for Chemistry 5 | End of Topic Assessments for Chemistry 5 | Internal mocks |

Examinations:

Trilogy: The four topic covered (plus six other covered in year 9 & 11) will be examined in June of Year 11. Pupils have 2 chemistry exams, both 1 hour 15 minutes each. Each exam will be 70 marks and will count as 16.7% of the total GCSE.

Chemistry: Pupils sitting the separate science GCSE will also be examined in June of Year 11. Pupils have 2 chemistry exams, both 1 hour 45 minutes each. Each exam will be 100 marks and will count as 50% of the total GCSE Chemistry.

Required Practicals:

Trilogy: Pupils will also complete 21 required practicals (6 of which are chemistry) which tests their scientific enquiry skills. As part of this, pupils firstly carry out a practical and collect the results. They then analyse the procedure.

Chemistry: Pupils sitting the separate science GCSE will complete 21 required practicals in chemistry which tests their scientific enquiry skills. As part of this, pupils firstly carry out a practical and collect the results. They then analyse the procedure.

Further Information:

Successful completion of this course allows pupils to move onto A-level science courses.

Who you can talk to:

Mr J. Sangha or Miss S. Shafaq


Year 11 Science Curriculum (Chemistry)

Course Title: GCSE Science Trilogy

Exam Board: AQA

Learning Activities:

This course involves covering the remaining four and half of the ten chemistry topics in Year 11 (the rest have already been covered in year 9 and 10). This qualification is linear, meaning that students will sit all their exams at the end of this year.

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| Term | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Focus | Chemistry Topic 7: Organic Chemistry Chemistry Topic 8: Chemical Analysis | Chemistry Topic 9: Chemistry of the atmosphere Chemistry Topic 10: Using resources | Revision | Revision | Revision | Year 11 Exams |
| Key Tasks | 1. Crude oil, hydrocarbons and alkanes 2. Fractional distillation and petrochemicals 3. Properties of hydrocarbons 4. Burning hydrocarbon fuels | 1. The atmosphere 2. How the atmosphere changed 3. Greenhouse gases 4. Global climate change 5. The carbon footprint and its reduction 6. Atmospheric pollutants | | | | |

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| | <p>5. Cracking and alkenes</p> <p>6. Structure and formulae of alkenes <i>(separate science only)</i></p> <p>7. Reactions of alkenes <i>(separate science only)</i></p> <p>8. Alcohols <i>(separate science only)</i></p> <p>9. Carboxylic acids <i>(separate science only)</i></p> <p>10. Addition polymerisation <i>(separate science only)</i></p> <p>11. Condensation polymerisation <i>(separate science only)</i> Amino acids <i>(separate science only)</i></p> <p>12. Naturally occurring polymers <i>(separate science only)</i></p> <p>13. DNA <i>(separate science only)</i></p> <p>14. Pure substances</p> <p>15. Formulations</p> <p>16. Chromatography</p> | <p>7. Using the Earth's resources and sustainable development</p> <p>8. Potable water</p> <p>9. Required Practical: Potable water</p> <p>10. Alternative methods of extracting metals <i>(Higher Tier Only)</i></p> <p>11. Life cycle assessment</p> <p>12. Ways of reducing the use of resources</p> <p>13. Corrosion and its prevention <i>(separate science only)</i></p> <p>14. Alloys and useful materials <i>(separate science only)</i></p> <p>15. Ceramics, Polymers and composites <i>(separate science only)</i></p> <p>16. Haber process <i>(separate science only)</i></p> <p>17. Production and use on NPK fertilisers <i>(separate science only)</i></p> | | | | |
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| | 17. Required Practical: Chromatography 18. Test for gases 19. Tests for positive ions <i>(separate science only)</i> 20. Tests for negative ions <i>(separate science only)</i> 21. Required Practical: Identifying ions <i>(separate science only)</i> 22. Instrumental methods <i>(separate science only)</i> 23. Flame emission spectrometry <i>(separate science only)</i> | | | | | |
| Assessment | Mid and End of Topic Assessments for Chemistry 7 & 8 | End of Topic Assessments for Chemistry 9 & 10 | Internal Moks | | | External Exams |

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Chemistry: Pupils sitting the separate science GCSE will also be examined in June of Year 11. Pupils have 2 chemistry exams, both 1 hour 45 minutes each. Each exam will be 100 marks and will count as 50% of the total GCSE Chemistry.

Required Practicals:

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Further Information:

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Who you can talk to:

Mr J. Sangha or Miss S. Shafaq