ORMISTON DENES ACADEMY

# Curriculum Overview – Chemistry (Year 7 – 11)

| Year | Overview | Autumn 1 (Weeks 1 – 7) | Autumn 2 (Weeks 8 – 14) | Spring 1 (Weeks 15 - 20) | Spring 2 (Weeks 21 - 26) | Summer 1 (Weeks 27 - 32) | Summer 2 (Weeks 33 - 38) | Student Resources |
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| 7 | Year 7 will be covering a range of topics in biology, chemistry, and physics. The aim is to give the students a broad understanding of the sciences and develop practical skills. Topics are split into 6 lesson teaching blocks; each block provides opportunities for students to develop their scientific literacy and numeracy. | Matter - why substances have different properties in their solid, liquid and gas states. Considering what happens when a substance changes from one state to another. | | Reactions - chemical reactions of metals and acids, how to use patterns in properties to predict products, and discover how to make salts. | | Earth - what the earth is made from and its structure. Students will discover how materials are recycled in the rock cycle. Students will also learn about the size and scale of our solar system and galaxy, and how the movement of the Earth and moon explains the observations that we make of the sun and night sky. | | |
| | | Assessment through end of topic test. | | | | | Assessment through end of topic test and end of year exam. | |
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| 8 | Year 8 will be covering a range of topics in biology, chemistry and physics. The aim is to give the students a broad understanding of the sciences and develop practical skills. Topics are split into 6 lesson teaching blocks; each block provides opportunities for students to develop their scientific literacy and numeracy. | Matter - the elements that make up everything in the universe. Students will explore ways of classifying elements and find out about the patterns in their physical and chemical properties. | | Reactions - what happens to atoms in chemical reactions, how chemical reactions transfer energy and why chemical reactions are important. | | Earth - how to extract metals from the Earth and what we can do to prevent vital resources running out. Students will also find out about the atmosphere and consider the causes and effects of global warming. | | |
| | | Assessment through end of topic test. | | | | | Assessment through end of topic test and end of year exam. | |
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| 9 | Year 9 students begin following the AQA Chemistry GCSE course. They will cover all aspects of the course relating to paper 1 of their GCSEs. | Atomic structure - students will learn the definition of an element, that each type of atom has a chemical symbol, and the basic structure of the periodic table. | The periodic table - how the periodic table was developed over time and how testing a prediction can support or refute a new scientific idea. | Structure and bonding - students will learn that the melting and boiling points of substance depend on the nature of its particle and the forces between particles. | Chemical calculations - what is meant by the relative atomic mass of an element and how to calculate the mass of a compound. | Chemical changes - how some common metals react with water and with dilute acid, and how to deduce an order of reactivity of metals based on experimental results. | Electrolysis - what happens in electrolysis, the type of substances that can be electrolysed and the products of electrolysis. | |
| | | Assessment through end of topic test. | | | | | Assessment through end of topic test and end of year exam. | |
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| 10 | Year 10 students begin following the AQA Chemistry GCSE course. They will cover all aspects of the course relating to paper 2 of their GCSEs. | Energy changes - energy cannot be created or destroyed in a chemical reaction. That energy is transferred to or from the surroundings in chemical reactions and some examples of exothermic and endothermic reactions. | Rates and equilibrium - what is meant by the rate of chemical reactions, how to collect data, and how to calculate the mean rate of a reaction. | Crude oil and fuels - what crude oil is made up of, what alkanes are and how to represent alkanes by their chemical formula or displayed formula. | The earth's atmosphere - a theory about how our atmosphere developed and how to interpret evidence and evaluate different theories about the Earth's early atmosphere given appropriate information. | Chemical analysis - use melting point data to distinguish pure from impure substances, and identify examples of useful mixtures called formulations given appropriate information. | Using our resources - how experimental results can be used to show the conditions necessary for rusting, and how to protect iron from rusting. | |

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| | | Assessment through end of topic test. | | | | | Assessment through end of topic test and end of year exam. | |
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| **11** | Year 11 students begin continue the AQA Chemistry GCSE course. They will complete and review all aspects of the course relating to papers 1 and 2 of their GCSEs. | Organic reactions - the name of alkanes ethene, propene, butene, and pentene. How alkanes react with oxygen in air. | Polymers - recognise addition polymers and monomers from their displayed formulae. Draw diagrams to represents the formation of a polymer from a given alkene monomer. | Review - atoms, bonding, moles, chemical reactions, and energy changes. | Review - rates, equilibrium, organic chemistry, analysis, and earth's resources. | Exam preparation paper 1 and 2. | N/A | |
| | | | Mock examinations. | Mock examinations. | Mock examinations. | | GCSE examination. | |
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| **Notes:** | **Examination Specification:** AQA GCSE in Chemistry. | **Homework Portal:** Go4Schools and Kerboodle. |
| | | **Further resources:** |