

## Year 9 Chemistry Curriculum

Students follow the Ark Curriculum + Science Mastery Scheme which is a 5 year programme of study commencing in year 7 and aligns to the AQA Exam board for final assessment in year 11. This is the first year that the course has been run, therefore some of the content for the Science Mastery topics has been covered previously. The content currently taught is identified in the sequence column. The switch to Science Mastery took place after the half term break in October.

Unit:	Core knowledge/skill development:	Sequence:	Assessment:	Literacy, numeracy, PSHE, FBV, other links	Key areas of ACP and VAA development:	Home learning and enrichment
9F Reactivity	This topic builds on previous knowledge of chemical reactions covered in Y7 & 8. Different types of reaction are studied such as exothermic, endothermic and displacement. Particle theory and rates of reaction are discussed. Quantitative ideas are introduced such as percentage loss or gain during reactions	9Fa Types of explosions 9Fb Reactivity 9Fc Energy and reactions 9Fc Percentage loss or gain 9Fd Displacement 9Fe Extracting metals.	Starter questions  Exam-type questions  Hinge questions  Use of web-based applications to assess knowledge in lesson (e.g. Educake, Seneca, Active Learn etc.)  There is a Working Scientifically opportunity looking at decimal places and significant figures.  End-of-topic tests.	Literacy: 9Fa Active and passive  Numeracy: 9Fc Percentage loss of gain	<b>Connection finding (linking)</b> to use connections, to generalise the abstract concept of particle theory, energy released in reactions and reactivity  <b>Analysing</b>  Determining whether a reaction would go ahead based on the reactivity of the reactants, whether a reaction would be exothermic or endothermic <b>Linking: abstract thinking</b>  Being able to understand the sub-	Homework typically set via online platforms such as Educake, Seneca, Active Learn. Worksheets.  Exam preparation via exam / test papers.

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					microscopic models of particles in the 3 phases of matter	
Switch to Ark Curriculum+ Science Mastery Course. Pearsons Active Learn and Science Mastery course were cross referenced to ensure all curriculum content was covered. This resulted in some Science Mastery topics being slightly shorter in length as the content may have already been covered.						
<p><b>C3.1 The Periodic Table</b></p>	<p>In this unit, students will learn about atomic structure, including the nuclear model of the atom and key scientific discoveries. They'll understand that our knowledge of atoms is still growing. Students will also study isotopes, relative atomic mass, and the periodic table, exploring how the arrangement of elements relates to their properties. The unit will highlight Mendeleev's role in developing the periodic table. Overall, students will connect atomic</p>	<p>They will know how to use the particle model to explain the properties of solids, liquids, and gases and be familiar with physical and chemical changes. They'll also understand the Periodic Table's layout, chemical symbols, and balancing equations. Students will learn about isotopes and how atoms of the same element can differ. They'll explore the history of atomic theory and its development</p>	<p>Starter questions  Exam-type questions  Hinge questions  Use of web-based applications to assess knowledge in lesson (e.g. Educake, Seneca, Active Learn etc.)  There is a Working Scientifically opportunity looking at decimal places and significant figures.  End-of-topic tests.</p>	<p>Literacy: key words, definitions, summary notes.  Numeracy: summary notes, equation practice,  General maths skills (e.g. rearranging equations, graph plotting, standards form, SI prefixes)  Equations students are required to recall and apply and which</p>	<p><b>Connection finding (linking)</b> to use connections, to generalise the abstract concept of particle theory, energy released in reactions and reactivity  <b>Analysing</b>  Determining whether a reaction would go ahead based on the reactivity of the reactants, whether a reaction would be exothermic or endothermic <b>Linking: abstract thinking</b> <b>Complex and multi-step problem solving</b></p>	<p>Homework typically set via online platforms such as Educake, Seneca, Active Learn. Worksheets.</p>

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	structure to the chemical properties of elements.	through key experiments and scientists.  3.1.1 Prior Knowledge Review 3.1.2 Atoms 3.1.3 Electronic Configuration 3.1.4 The Periodic Table 3.1.7 The Noble gases 3.1.8 The Alkali metals 3.1.9 The Halogens 3.1.10 Reactions of the halogens 3.1.11 Transition Metals		they are required to select from a list and apply.	to break down a task (e.g., equations), decide on a suitable approach, and then act. Start with a compound and break it down into its atoms.  <b>Risk-taking</b> Being brave enough to work in unfamiliar contexts.	
3.2 Introduction into quantitative chemistry	In this unit, students will learn about quantitative chemistry. They will start by using state symbols in chemical equations. Next, they'll learn how to calculate relative	Before this unit, students learned about conservation of mass and how to balance chemical equations. In this unit, they'll start by using state symbols in reactions. They'll	Starter questions  Exam-type questions	Literacy: key words, definitions, summary notes.	<b>Connection finding (linking)</b> to use connections, to generalise the abstract concept of particle theory, energy released in reactions and reactivity	Homework typically set via online platforms such as Educake, Seneca, Active Learn. Worksheets.

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	<p>atomic mass and formula mass, and understand the concept of the mole. Students will also learn how to calculate concentration using mass and volume, and how to convert between <math>\text{cm}^3</math> and <math>\text{dm}^3</math>. The idea of uncertainty in measurements will be introduced, and they will study how to prepare a soluble salt. The main theme of the unit is that chemical reactions rearrange matter, helping students understand how quantitative chemistry relates to chemical reactions and their products.</p>	<p>review relative atomic mass and formula mass and then learn how to calculate these. The mole will be introduced as a way to count small particles, and students will practice basic calculations using mass and formula mass. They'll also learn about concentration, focusing on what it means and how to calculate it. Then, they'll apply this knowledge in a practical activity to make a soluble salt, linking everything they've learned so far. This unit is important for understanding key chemistry concepts, like volume,</p>	<p>Hinge questions</p> <p>Use of web-based applications to assess knowledge in lesson (e.g. Educake, Seneca, Active Learn etc.)</p> <p>There is a Working Scientifically opportunity looking at decimal places and significant figures.</p> <p>End-of-topic tests.</p>	<p>Numeracy: summary notes, equation practice,</p> <p>General maths skills (e.g. rearranging equations, graph plotting, standards form, SI prefixes)</p> <p>Equations students are required to recall and apply and which they are required to select from a list and apply.</p>	<p><b>Analysing</b></p> <p>Determining whether a reaction would go ahead based on the reactivity of the reactants, whether a reaction would be exothermic or endothermic</p> <p><b>Linking: abstract thinking</b></p> <p><b>Complex and multi-step problem solving</b></p> <p>to break down a task (e.g., equations), decide on a suitable approach, and then act. Start with a compound and break it down into its atoms.</p> <p><b>Risk-taking</b></p> <p>Being brave enough to work in unfamiliar contexts.</p>	

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		<p>concentration, and molarity, which will be used in later topics like gases, electrolysis, and other quantitative chemistry lessons in future years.</p> <p>3.2.1 Prior Knowledge Review 3.2.2 Relative formula mass 3.2.3 Percentage by mass 3.2.4 Conservation of water 3.2.5 Balancing Equations 3.2.6 Uncertainty 3.2.7 Introducing Concentration 3.2.8 Concentration Calculations 3.2.9 Salts 3.2.10 Making Soluble Salts 3.2.11 Making Soluble Salts 2</p>				

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<p>3.3 Using Resources</p>	<p>This unit focuses on how humans use Earth's resources, such as metals, materials, and water. It explains the importance of water, how we make it safe to drink, and how we test it. The second part of the unit looks at how we get these resources and stresses the need to use them sustainably. Students will learn to assess the environmental impact of products and consider the pros and cons of different waste disposal methods. The main idea of the unit is that human actions, like waste disposal and</p>	<p>In this unit, students will build on what they've learned about separation techniques and how human actions impact the environment. They will start by reviewing metal reactions and how metals are separated from ores. Then, they will focus on water treatment, learning how clean water is obtained, which is essential for survival. The unit also explores how we get other resources and use them sustainably, including using life cycle assessments to study the environmental</p>	<p>Starter questions</p> <p>Exam-type questions</p> <p>Hinge questions</p> <p>Use of web-based applications to assess knowledge in lesson (e.g. Educake, Seneca, Active Learn etc.)</p> <p>There is a Working Scientifically opportunity looking at decimal places</p>	<p>Literacy: key words, definitions, summary notes.</p> <p>Numeracy: summary notes, equation practice,</p> <p>General maths skills (e.g. rearranging equations, graph plotting, standards form, SI prefixes)</p>	<p><b>Connection finding (linking)</b> to use connections, to generalise the abstract concept of particle theory, energy released in reactions and reactivity</p> <p><b>Analysing</b> Determining whether a reaction would go ahead based on the reactivity of the reactants, whether a reaction would be exothermic or endothermic</p> <p><b>Linking: abstract thinking</b> <b>Complex and multi-step problem solving</b> to break down a task (e.g., equations), decide on a suitable approach, and then act. Start with</p>	<p>Homework typically set via online platforms such as Educake, Seneca, Active Learn. Worksheets.</p>

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	<p>production, affect Earth's systems.</p>	<p>impact of products. Finally, students will learn about responsibly disposing of materials. This unit connects to future topics like the greenhouse effect and the use of metals and polymers, helping students understand the link between a material's structure and its properties. Additionally, students will develop skills in evaluating the reliability of information, which will be useful in science and daily life.</p> <p><b>3.3.1 Prior Knowledge Review</b> <b>3.3.2 Treating Water</b> <b>3.3.3 Testing Water</b></p>	<p>and significant figures.</p> <p>End-of-topic tests.</p>	<p>Equations students are required to recall and apply and which they are required to select from a list and apply.</p>	<p>a compound and break it down into its atoms.</p> <p><b>Risk-taking</b> Being brave enough to work in unfamiliar contexts.</p>	

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		3.3.4 Using Materials 3.3.5 Life Cycle Assessments 3.3.6 Reduce, Reuse & Recycle 3.3.7 Evaluating Impact 3.3.8 Sources of Information				