



Intent for the Year 9 Curriculum 2021-2022

'All children will experience a well-balanced and comprehensive curriculum that enhances informed, intellectual, developmental and moral character. As a result, this will improve life chances, inter-personal relationships, social mobility and preparedness for employment. Our curriculum will encourage everyone to have a positive impact on society.'

We aim to provide an engaging curriculum that helps students understand key concepts of Biology, Chemistry and Physics that will give them a wider understanding of the world around them. We want to challenge all pupils to the full realisation of their potential and to help them acquire attitudes and skills relevant for their futures and working life, especially those related to problem solving and independent thinking. The Year 9 curriculum should inform the students' decision to opt for Triple Award Science or take the Combined Science route at GCSE level as they make their decision later in the academic year.

Implementation:

We aim to build on the knowledge acquired from Year 7 and Year 8 teaching and learning in Science. Year 9 bridges the gap and helps the transition between Key Stage 3 and Key stage 4. Specialist Biology, Chemistry and Physics teams have used understanding of common misconceptions within their disciplines to inform the learning that should occur during the transition to the students' GCSE work and to ensure progress of all students. With general enquiry questions at the beginning of each topic and start of most lessons students can hopefully see the "bigger picture" with their learning.

Curriculum adaptations as a result of the pandemic:

Some students will have covered different sciences remotely. The year 8 topics that were affected were 8.3 – Elements, compounds and mixtures, and 8.4 – Electricity. During teaching of topic 8.5 – Chemical reactions, teachers have worked to interleave concepts taught remotely, but there will still be gaps in knowledge and understanding.

Term	Enquiry/Topic/Unit:	Key Outcomes:	Character Education and Careers links.	Assessment:	Vocabulary:	Home-Learning:?



Topic 1a (atomic structure and the periodic table) and 1b part 1 (ionic compounds)	<p>Topic 1a + 1b (part 1) Atomic structure and Ionic Bonding</p> <p>Skills</p> <ul style="list-style-type: none"> - Calculations of subatomic particles. - Calculation using a formula to deduce the Ar of an element. <p>Prior learning to interleave: Year 7 – 7.1 Matter</p> <p>Year 8 – 8.3 Elements, mixtures and compounds</p> <p>Year 8 – 8.5 Chemical Reactions</p>	<p>Spec points 1.1 – 1.32</p> <p>Overview of the content:</p> <ul style="list-style-type: none"> • Describe the structure of the atom including the 3 sub atomic particles. • Define and give examples of isotopes, calculating the number of subatomic particles. • Describe how Mendeleev developed the Periodic table. • Explain how the periodic table is arranged. • Draw or give the electron configuration of the first 20 elements. • Explain the formation of ions in terms of transfers of electrons. • Draw and give examples of ionic bonding and ionic lattices. • Describe and explain the properties of ionic compounds • Deduce ionic formula for compounds containing ions from groups 1, 2, 6 and 7, as well as with compound ions. <p>Describe metallic bonding and explain the general properties of metals.</p>	<p>Research – Analytical Chemist</p> <p>Curious</p> <p>History of the periodic table. Mendeleev was curious about how the elements should be arranged.</p> <p>Research – Analytical Chemist</p> <p>Modern day equivalent to Mendeleev.</p> <p>Creative</p> <p>Create your own 'periodic table' for another category e.g. types of sweets</p>	<p>Summative: End of Topic Assessment.</p> <p>Homework or class activities</p> <ul style="list-style-type: none"> • Proton neutron and electron calculations for ions and atoms. • Drawing ions and atoms <p>June assessment.</p> <p>Formative:</p> <ul style="list-style-type: none"> • Carried out in line with feedback policy – homework tasks and/or in class tasks per topic. • Use of questioning techniques and/or mini-whiteboards for AFL 	<p>Proton, neutron, electron, atom, element, Mendeleev, group, period, ion, isotope, transfer, electrostatic, ionic, metallic,</p> <p>Revision homework for the end of topic assessment including a range of sources for use e.g. bite size, Seneca to encourage students to be independent in their learning.</p> <p>Practice of writing ionic formula.</p>
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Topic 1b part 2 -	<p>Topic 1b (remaining) Covalent bonding and comparing types of substance</p> <p>Skills</p> <ul style="list-style-type: none"> • Calculation of the number of electrons in an ion. <p>Prior learning to interleave: Year 7 – 7.1 Matter – gases Year 8 – 8.3 Elements, mixtures and compounds</p>	<p>Spec points 1.32 – 1.42 Overview of the content</p> <ul style="list-style-type: none"> • Describe bonding between non-metals where both atoms need to gain electrons so they need to share at least one from their outer shell. • Comparing the properties and structures of different compounds based on the type of bonding which holds them together. 		<p>Summative: End of Topic Assessment</p> <p>Homework or class activities</p> <ul style="list-style-type: none"> • Drawing covalent Molecules • Properties of all bonding types. <p>Formative: Carried out in line with feedback policy – homework tasks and/or in class tasks per topic.</p>	<p>Proton, neutron, electron, atom, element, share, covalent, intermolecular forces, pair.</p> <p>Solid, liquid, gas, melting, boiling, condensing, freezing, sublimation, state, particle, energy, latent heat</p>	<p>Revision homework for the end of topic assessment including a range of sources for use e.g. bite size, Seneca to encourage students to be independent in their learning.</p> <p>Interleaving homework for previous topic.</p> <p>Revision homework for the end of topic assessment including a range of sources for use e.g. bite size, Seneca to encourage students to be independent in their learning.</p>
	<p>Topic 2 States of matter/methods of separating and purifying substances</p> <p>Skills</p> <ul style="list-style-type: none"> • Plotting a graph of a cooling curve. • Measuring a distance between two points with a ruler (chromatography) • Rf value calculation – use of ratio. <p>Prior learning to interleave: Year 7 – 7.1 Matter Year 8 – 8.3 Elements, mixtures and compounds</p>	<p>Spec points 2.1 – 2.12 Overview of the content</p> <ul style="list-style-type: none"> • Describe the structure of solids, liquids and gases as well as the names of the state changes between each state. • Investigate the temperature change of a substance as it changes state and plot results on a cooling curve. • Carry out filtration and crystallisation as a practical, as well as explaining the reasoning behind. • 2.11 Investigate the composition of inks using simple distillation and paper chromatography 	<p>Forensic Science Forensic scientists use chromatography to identify inks and liquids.</p> <p>Responsible Practicals, such as chromatography, require a good following of instructions to collect usable data.</p> <p>Chocolatier Chocolatiers use melting and boiling points to work out what blend of chocolate to use.</p>	<p>Summative: End of Topic Assessment</p> <p>Homework or class activities</p> <ul style="list-style-type: none"> • Exam questions or similar for the chromatography and distillation practicals <p>Formative: Carried out in line with feedback policy – homework tasks and/or in class tasks per topic.</p> <ul style="list-style-type: none"> • Use of questioning techniques and/or mini-whiteboards for AFL 		



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| | | <ul style="list-style-type: none">• Calculate the rf value of different soluble substances. | | | | |
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Impact:

Year 9 is an important year to finish Key stage 3 but also prepare them for GCSE level work. In this phase they will develop the necessary skills and fundamental principles of Chemistry that they can apply in handling more challenging problems during their GCSEs. Students will acquire resilience that enable them to take their place in society and make positive contributions accordingly. Throughout this course we will be showing the links between the science topics they are studying and skills that link to potential employment/career opportunities that are on offer. Good outcomes in End of Year assessments will provide us with useful information on Year 10 GCSE setting and the uptake for triple award science in Year 10