

Subject: Science

Intent –KS3	Implementation –KS3	Impact –KS3
<p>Our main aim is to capture student’s curiosity of the world around them and provide them with the skills they need to explore and understand it.</p> <p>We want students at Dene Magna to be able to have a well thought out opinion about what is going on in the world. It is our hope that many students, regardless of gender or socioeconomic status, will want to pursue science at post 16, to become scientists of the future. In order to make this happen we believe students should enjoy lessons that are well planned by teachers with expert knowledge.</p> <p>Our KS3 intent is to ensure students have a solid foundation of knowledge that is free from misconceptions. As such, our engaging curriculum is centred around developing thinking, investigative and practical skills that will allow them to reach their maximum potential at GCSE.</p> <p>We were able to deliver live lessons during lockdown and year 7 remained in the lab for practical lessons. As such, KS3 have missed little science. However, we have streamlined the curriculum to concentrate on developing a deep understanding of topics that feed into GCSE, whilst retaining topics that students enjoy.</p> <p>We intend to close the gap in attainment between pp and non-pp students</p>	<p>Our SOLs spiral around the key concepts in science, gradually increasing in complexity. Students are taught in mixed ability classes. We challenge students through Q&A and give them opportunities to respond to feedback</p> <p>Each topic has a core practical and several recommended practical activities to ensure experiments and demonstration are central to teaching.</p> <p>We use BEST resources throughout our SoL. These are used to understand student’s pre & misconceptions to inform our planning and teaching</p> <p>Each topic uses misconception sheets and progress questions to inform planning and teaching</p> <p>The department is split into a Head of department and three Lead Teachers; Physics, Biology and Chemistry. These are responsible for SoL development and delivering bi-weekly cpd sessions to non-specialists. Ongoing coaching conversations to develop teaching and learning.</p> <p>Action research into engaging ILT that is accessible to all.</p> <p>We use retrieval at the beginning of every lesson to ensure that content gets into student’s long term memory.</p> <p>Students have knowledge organisers and glossaries to help them to understand and use keywords. These are referred to in lessons.</p> <p>Students are invited to a lunchtime science club and ILT club</p>	<p>Students will develop a solid foundation in science on which to build at KS4.</p> <p>As we do not set in science students are given time to develop their key skills before deciding at the end of year 9 whether triple science is right for them. This is over subscribed.</p> <p>Students enjoy doing experiments. By the end of KS3 they have developed a love of the subject and a thorough understanding of the practical, thinking and investigative skills needed to access GCSE questions.</p> <p>Students develop their subject specific vocabulary in order to access KS4 texts.</p> <p>Progress is assessed through end of topic tests, two written assessments and teacher assessment.</p>

Intent –KS4	Implementation –KS4	Impact –KS4
<p>We offer an ambitious curriculum for all students, we want students to be aspirational to develop a secure;</p> <p>Scientific knowledge and conceptual understanding of Biology, Chemistry and Physics</p> <p>Understanding of the nature, processes and methods of science, through different types of scientific enquiries that help them to answer scientific questions about the world around them</p> <p>Observational, practical, modelling, enquiry and problem-solving skills in the laboratory, in the field and in other learning environments</p> <p>Ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively.</p> <p>We intend for students to enjoy science so that they want to undertake further studies with us in science, regardless of gender or socioeconomic status.</p> <p>We realise many students have missed out on learning due to Covid, we aim to reduce the impact of this.</p> <p>We intend for students to have the language and skills necessary to access GCSE texts and answer GCSE questions.</p> <p>We intend to close the gap between pp and non-pp students</p>	<p>The Combined Science groups are taught in mixed ability groups. We also offer the Entry Level Certificate, which allows students with low attainment at KS3 an easier transition to KS4. We offer challenge in year 10 to students wanting to follow the Separate Science route.</p> <p>All teachers maintain Google classrooms, where work for each lesson, ILT, revision aids, videos and past papers are posted to support those missing lessons and in preparation for their examinations.</p> <p>We use recall in all our lessons. We link year 10 and 11 content to ensure that there are no gaps in understanding that may prevent learning.</p> <p>We offer period 6 science once a fortnight. We have intervention tutors that work with students to bridge gaps in knowledge.</p> <p>We run FameLab where students have the opportunity to present an area of their scientific interest on a national platform.</p> <p>Students have knowledge organisers and glossaries that are referred to and used in lesson.</p> <p>We have bi-weekly cpd to ensure all teachers have excellent pedagogical content knowledge and teaching.</p> <p>All students have three subject specialist teachers across their nine science lessons. We have a specialist HLTA to support in lessons.</p> <p>All courses are Edexcel, which was selected due to the breadth of its resources and the balance of the topics covered.</p>	<p>We aim for students to reach their aspirational target grades and achieve above the national average</p> <p>We have increasing numbers of students staying with us to do A level sciences.</p>

KS5 – Intent	KS5 – Implementation	KS5 - Impact
<p>We offer three Edexcel courses and qualifications: A Level Biology A Level Chemistry A Level Physics We intend all students, regardless of their entry grades develop;</p> <ul style="list-style-type: none"> • Essential knowledge and understanding of different areas of each subject and how they relate to each other • Demonstrate a deep appreciation of the skills, knowledge and understanding of scientific methods • Competence and confidence in a variety of practical, mathematical and problem solving skills • Their interest in and enthusiasm for the subject, including developing an interest in further study and careers associated with the subject • Understanding of how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society. <p>We want as many girls as boys, pp as non-pp students to pursue STEM subjects at degree level</p> <p>We realise that Covid has meant students have no previous experience of exams, and that there are higher than usual issues relating to exam stress. We aim to reduce this.</p>	<p>In all A levels we follow the Edexcel specification, it follows on from GCSE well. The resources and core practical lessons are familiar to Dene Magna staff and students.</p> <p>All teachers are subject specialists, in addition we have experienced Lead Teachers for each subject. These are all members of RSB, RSC and IoP respectively and are in the process of becoming chartered. These teachers support other teachers in A level delivery to ensure high quality teaching and learning.</p> <p>Google Classrooms store all lessons, revision materials and online support to ensure students who are isolating do not fall behind.</p> <p>We run field trips, since Covid this is an area we are developing</p> <p>We have post 16 Science Ambassadors who support science at the main site. In doing so they review their KS4 knowledge that was disrupted due to Covid.</p> <p>We have an experienced technician capable of creating innovative equipment and experiments to support teaching and learning.</p> <p>We hold lunchtime support sessions with an open door policy for all students.</p> <p>We use Dene Magna’s teaching and learning policy to ensure students are exam ready.</p>	<p>We have a high number of students pursuing STEM subjects at degree and higher apprenticeship level.</p> <p>Exam success in line with student targets, our first cohort achieved ALPS 2 (Biology and Chemistry) and ALPS 1 (Physics)</p>