

The Priory Belvoir Academy: Curriculum Overview

"Opportunity and Achievement for All"

SUBJECT	Science	CURRICULUM LEADER	Dr Pennington	YEAR	10 and 11
ORGANISATION OF THE SUBJECT	<p>We currently offer our students two pathways through Key Stage 4 Science. The core students study the GCSE Combined Science: Trilogy qualification which will give them two GCSEs from across all 3 disciplines (Biology, Chemistry and Physics). The alternative pathway is GCSE Triple Science. Students can study this as one of their options from the start of year 10. The Triple science course will give students three separate GCSEs in Biology, Chemistry and Physics.</p> <p>The Combined Science course is timetabled for 4 hours of Science lessons per week. The separate Science students will have 3 additional hours a week with their Biology, Chemistry and Physics teachers. Students will complete a number of required practical's throughout the course.</p>				
Key Concepts (The big ideas underpinning this subject)			Key Skills in this subject		
<p>Ideas of science</p> <ol style="list-style-type: none"> 1. All material in the Universe is made of very small particles. 2. Objects can affect other objects at a distance. 3. Changing the movement of an object requires a net force to be acting on it. 4. The total amount of energy in the Universe is always the same but energy can be transformed when things change or are made to happen. 5. The composition of the Earth and its atmosphere and the processes occurring within them shape the Earth's surface and its climate. 6. The solar system is a very small part of one of millions of galaxies in the Universe. 7. Organisms are organised on a cellular basis. 8. Organisms require a supply of energy and materials for which they are often dependent on or in competition with other organisms. 9. Genetic information is passed down from one generation of organisms to another. 10. The diversity of organisms, living and extinct, is the result of evolution. <p>Ideas about science</p>			<ul style="list-style-type: none"> • Scientific knowledge and understanding. • Application of Science. • Working scientifically. • Practical skills and techniques. • Mathematics for Science. 		

<ol style="list-style-type: none"> 1. Science assumes that for every effect there is one or more causes. 2. Scientific explanations, theories and models are those that best fit the facts known at a particular time. 3. The knowledge produced by science is used in some technologies to create products to serve human ends. 4. Applications of science often have ethical, social, economic and political implications. 	
What will be learnt in this subject?	How will learning take place in this subject?
<p>Biology</p> <ul style="list-style-type: none"> • Cell biology – Year 10 and 11 • Organisation – tissues, organs and organ systems – Year 10 • Infection and response – Year 10 • Bioenergetics – Photosynthesis and Respiration – Year 10 • Homeostasis – Year 10 • Inheritance, variation and evolution – Year 11 • Ecology – Year 11 Triple <p>Chemistry</p> <ul style="list-style-type: none"> • Atomic structure and the periodic table – Year 10 • Bonding, structure and the properties of matter – Year 10 and 11 • Quantitative chemistry – Year 11 • Chemical changes – Year 10 • Energy changes – Year 10 • Rate and extent of chemical change – Year 10 and 11 • Organic chemistry – Year 10 and Year 11 Triple only • Chemical analysis – Year 11 • Chemistry of the atmosphere – Year 10 • Using resources – Year 10 and Year 11 Triple only. <p>Physics</p> <ul style="list-style-type: none"> • Energy – Year 10 • Electricity – Year 10 and 11 • Particle model of matter – Year 10 • Atomic structure – Year 11 • Forces – Year 10 and 11 	<ul style="list-style-type: none"> • Verbal assessment in lessons • Low stakes high challenge quizzes • Practical investigations • Peer and self-assessment • Progress Assessments • End of unit test • End year examinations

<ul style="list-style-type: none"> • Waves – Year 10 and 11 • Magnetism and electromagnetism – Year 10 and 11 • Space – Year 11 Triple only. 	
<p>What methods of assessment will be used?</p> <ul style="list-style-type: none"> • Written assessment tasks • End of unit tests • Homework assessments • Practical technique and skill • Mock examination <p>Formal assessment of the course will take place in the summer of Year 11. For both Combined Science and Triple Science, 40% of the marks in all exam papers will be for demonstrating knowledge and understanding of scientific ideas, techniques and procedures. 40% will be for application of knowledge and understanding of scientific ideas, scientific enquiry, techniques and procedures. The final 20% is for analysing information and ideas to interpret and evaluate, make judgments and draw conclusions, and, develop and improving experimental procedures.</p> <p>Combined Science students will sit a total of 6 exams, all of which are written papers, will last 1 hour 15 minutes and are 70 marks. Each exam has an equal weighting of 16.6% of the final GCSE grade.</p> <p>Students studying the separate Science course will sit a total of 6 exams, all of which are written papers, but will last 1 hour 45 minutes and are 100 marks. Each exam is worth 50% of the Biology, Chemistry or Physics GCSE.</p>	<p>How can you support learning and progress in this subject?</p> <ul style="list-style-type: none"> • Support students at home, encouraging them to complete homework and discussing their grades and progress. • Ensure you are aware of the different resources your child can access when they are not in school. • Support your child with effective time management. • Support the school by allowing your child to attend extra-curricular clubs and intervention sessions.
<p>Equipment needed for this subject.</p>	<p>Learning outside the classroom: enrichment opportunities in this subject.</p>
<p>Black pen, pencil, rubber, 30cm ruler and scientific calculator</p>	