



Department/subject: Science

Through the study of science the central aim of the department is to learn about yourself, the world around you and your position within the world. We strive to understand how everything interacts and works together in harmony, from within an atom to ecosystems and the universe.

Exam board

AQA Combined Trilogy

Key Stage 3

The students will follow the AQA KS3 curriculum, which is specifically designed to build on their knowledge from KS2, and ensure a solid foundation of knowledge and understanding of the main biology, chemistry and physics topics, including scientific technique and thinking, to effectively prepare the students for their KS4 qualifications.

Current course content:		
Year 7 topics	Year 8 topics	Year 9 topics
Cycle 1		
<ol style="list-style-type: none">1. Starting science: safety in the lab, basic science practical skills.2. Energy transfer.3. Cells & growth.	<ol style="list-style-type: none">1. Healthy eating and digestion.2. Periodic table & elements.3. Contact forces & pressure.	<ol style="list-style-type: none">1. Reviewing lab safety & skills.2. Cells & growth: Bioenergetics.3. Elements and the periodic table; metal and non-metals.4. Energy transfer: forces and motion.
Cycle 2		
<ol style="list-style-type: none">1. Particle model.2. Speed & gravity.3. Human reproduction.	<ol style="list-style-type: none">1. Acids & alkalis.2. Bioenergetics.	<ol style="list-style-type: none">1. Biological systems; plants.2. Particle model: separating mixtures: reactions.
Cycle 3		
<ol style="list-style-type: none">1. Earths structure.2. Universe.3. Movement and fitness.	<ol style="list-style-type: none">1. Photosynthesis and plant reproduction.2. Universe.3. Classification and interdependence.	<ol style="list-style-type: none">1. Acids & alkalis: rates of reaction.2. Waves.3. Classification of ecology.

Key Stage 4

Course Content Assessment details:		
Biology:	Chemistry:	Physics:
<p>Paper 1:</p> <p>What's assessed: Biology topics 1-4: Cell biology; Organisation; Infection and response; Bioenergetics.</p> <p>How's it assessed?</p> <ol style="list-style-type: none"> 1. Written exam: 1hr 15minutes. 2. Foundation and higher tier. 3. 70 marks. 4. 16.7% of GCSE. 	<p>Paper 1:</p> <p>What's assessed: Chemistry topics 8-12: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry; Chemical changes; Energy changes.</p> <p>How's it assessed?</p> <ol style="list-style-type: none"> 1. Written exam: 1hr 15minutes. 2. Foundation and higher tier. 3. 70 marks. 4. 16.7% of GCSE. 	<p>Paper 1:</p> <p>What's assessed: Physics topics 18-21: Energy; Electricity; Particle model of matter; Atomic structure.</p> <p>How's it assessed?</p> <ol style="list-style-type: none"> 1. Written exam: 1hr 15minutes. 2. Foundation and higher tier. 3. 70 marks. 4. 16.7% of GCSE.
<p>Paper 2:</p> <p>What's assessed? Biology topics 5-7: Homeostasis and response; Inheritance, variation and evolution; Ecology.</p> <p>How's it assessed?</p> <ol style="list-style-type: none"> 1. Written exam: 1hr 15minutes. 2. Foundation and higher tier. 3. 70 marks. 4. 16.7% of GCSE. 	<p>Paper 2:</p> <p>What's assessed? Chemistry topics 13-17: The rate and extent of chemical change; Organic chemistry; Chemical analysis; Chemistry of the atmosphere; Using resources.</p> <p>How's it assessed?</p> <ol style="list-style-type: none"> 1. Written exam: 1hr 15minutes. 2. Foundation and higher tier. 3. 70 marks. 4. 16.7% of GCSE. 	<p>Paper 2:</p> <p>What's assessed? Physics topics 22-24: Forces; Waves; Magnetism and electromagnetism.</p> <p>How's it assessed?</p> <ol style="list-style-type: none"> 1. Written exam: 1hr 15minutes. 2. Foundation and higher tier. 3. 70 marks. 4. 16.7% of GCSE.

Curriculum Enrichment Opportunities

We will hold the Avanti Science Expo annually, with KS3 students contributing individual

and small group projects based on the theme for the year e.g. enquiry or environment. Students from other year groups will also contribute examples of work. We aim to invite local professionals within the scientific community to come and see the projects and give feedback to the students.

We will plan to take students to the **Big Bang Fair** at Westpoint, Exeter to experience hands-on activities, interactive workshops, exciting theatre shows and opportunities to talk to scientists and engineers from local and national companies all over the UK.

We will also combine scientific activities to trips run by other subjects e.g. Geography, where possible.

We have the benefit of being able to use our beautiful site to study ecology, and can make great use of the outdoor space for investigations into other topics such as sound, effect of exercise on heart & breathing rates and terminal velocity.

We will plan to initiate a STEM programme and club and give participants the option to enter the national Big Bang UK Young Scientists and Engineers competition, where they could end up presenting their projects at the Big Bang Fair, locally and nationally. As part of the programme, club members will act as ambassadors for Science within school, encouraging and supporting younger students to access and engage in science and enquiry-related projects.

Careers

Studying science and the skills developed by doing so opens the doors to a wide range of career paths.

Depending on which discipline is most of interest, this could include:

- Biology-related careers: biomedical scientists, nurse, vet .
- Chemistry-related careers: chemical engineer, forensic scientist, lab technician .
- Physics-related careers: astronomer, nuclear engineer, electrician .
- Research

Online resources

Explore websites for more detail:

<https://www.khanacademy.org/science/>

<https://www.bbc.com/education/subjects/zng4d2p>

<http://www.docbrown.info/ks3science.htm>

<https://app.senecalearning.com/>