



THE CURRICULUM OFFER

Introduction

A high quality education in Science is essential to understand our world, the organisms that inhabit it and the processes that take place within it.

Here at the Bulwell Academy, students will develop a sense of excitement and curiosity through all aspects of scientific enquiry. This will aid students to build up the knowledge and skills needed to become our scientists of the future.

Students will study Biology, Chemistry and Physics across all the year groups providing a balanced and focused curriculum. This allows for students to understand and explain how the science they learn in lessons is applicable to the world in which they live.

We encourage our students to engage with science beyond the classroom through attending Science Club (KS3), educational visits to local higher educational establishments and taking part in British Science Week. To support our GCSE students, we offer an extensive support network within school hours and beyond.

The Science department strongly believes that all students learn best by 'doing' and we work hard to develop the employability skills of our students, such as team work, communication and problem solving.

Key Stage 3 Curriculum (Years 7 & 8)

Year 7 and 8 are studying the **Exploring Science** scheme of work that supports the Edexcel three-year Scheme of Work for GCSE (9-1) Sciences. Within the scheme, students will build the required skills they need in literacy, mathematics and practical science, by following evidence-based approaches. Progression is built in to the course and formative assessments are used alongside end-of-unit and end-of-year assessments to track and report student's progression, across a range of topics in Biology, Chemistry and Physics.

Topics covered in Year 7		
Cycle 1	Cycle 2	Cycle 3
Cells Mixtures Energy Sexual Reproduction	Acids Current Muscles Particles	Forces Ecosystems Atoms Sound

Topics covered in Year 8		
Cycle 1	Cycle 2	Cycle 3
Food Combustion Fluids Plants	Periodic Table Light Breathing Metals	Energy Unicellular Rocks Earth and Space

Key Stage 4 Curriculum (Years 9, 10 & 11)



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Year 9: Edexcel GCSE (9-1) Combined Science

Students in Year 9 will begin with the new GCSE qualification: Combined Science 9-1 Double Award and this will cover key aspects of Biology, Chemistry and Physics. The new GCSE does not have a controlled assessment component and so, students will be assessed by a series of terminal exams at the end of Year 11.

The new GCSE has a new grading system 9-1 which replaces the current A*-G grade, in which the foundation tier will cover grades 1-5 and the higher tier will cover grades 4-9. To support investigative skills, during their KS4 studies, students will carry out 18 Core practical's, to which 15% of marks are allocated within the terminal exams.

Topics covered in Year 9		
Biology	Chemistry	Physics
Microscopes Plant Structures Natural Selection Exchange and transport	Atomic Structure and the Periodic Table States of Matter Bonding	Waves Light and Electromagnetic Spectrum Electricity Conservation of Energy

Year 10: Edexcel GCSE (9-1) Combined Science

Students in Year 10 will continue with the new 9-1 Combined GCSE as outlined in Year 9.

Topics covered in Year 10		
Biology	Chemistry	Physics
Ecosystems Genetics Cells and Control Health and Disease Animal Co-ordination	Fuels and The Earth's Atmosphere Acids and Alkalis Rates of Reactions Calculations	Magnetism Forces and motion Radioactivity Forces Doing work Particle Model

Year 11: Edexcel GCSE (9-1) Combined Science

Most students in Year 11 will continue consolidating the content taught in Year 10 and continue with the additional curriculum. Selective students will study the Triple 9-1 GCSE Curriculum and will build on old concepts taught and develop a knowledge and understanding of new ones.

Topics covered in Year 12 Triple		
Biology	Chemistry	Physics
Testing Foods The Brain Spinal Cord Problems The Eye Phenotypes Alleles	Alcohol Polymers Carboxylic Acids Nanoparticles Equilibria Qualitative Analysis	Breaking Distance and Energy Using Radioactivity Nuclear Energy Static Electricity



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Key Stage 5 Curriculum (Years 12 & 13 – Sixth Form)

AQA Level 3 Certificate and Extended Certificate in Applied Science

Students in Year 12 will begin with the new AQA Level 3 Applied Science Certificate. This is an AS Level equivalent and will cover Biology, Chemistry and Physics. The assessment is 66% external examinations and 33% internal assessment comprising of 1 piece of coursework. The coursework element involves independent research and 6 practical assignments. The practical element to the coursework encompasses scientific skills in Biology, Chemistry and Physics. The new AQA Applied Science has a grading of Pass, Merit and Distinction.

Topics covered in Year 12		
Biology	Chemistry	Physics
Cells Transport Mechanisms The Heart Homeostasis Breathing and Cellular Respiration Photosynthesis and food chain productivity	Atomic Structure Periodic Table States of Matter Amount of Substance Bonding and structure Enthalpy Changes	Useful energy and efficiency Electricity and circuits Dynamics

Students will be studying the AQA Applied Science Level 3 course over two years. There will be two qualifications: a Certificate of 180 guided learning hours (equivalent to an AS Level) and an Extended Certificate of 360 guided learning hours (equivalent to an A-level).

This qualification will cover Biology, Chemistry and Physics. The assessment is 66% external examinations and 33% internal assessment comprising of 1 piece of coursework. The coursework element involves independent research and 6 practical assignments. The practical element to the coursework encompasses scientific skills in Biology, Chemistry and Physics. The new AQA Applied Science has a grading of Pass, Merit and Distinction.

The nested units will ensure that students can move from the Certificate (three units) to the Extended Certificate (six units). Both qualifications will count towards performance tables and UCAS points. They will contain a broad balance of biology, chemistry and physics, with a wide range of practical activities. The Extended Certificate qualification will have optional units.

Certificate – units 1, 2, 3	Extended Certificate – units 1, 2, 3, 4, 5, 6
Unit 1 Key Concepts in Science (Written exam) Unit 2 Applied Experimental Techniques (Portfolio) Unit 3 Science in the Modern World (Written exam –pre-release material)	Unit 4 The Human Body (Written exam) Unit 5 Investigating Science (Portfolio) Unit 6 Option – choose one from; Unit 6a-Microbiology, Unit 6b-Medical Physics or Unit 6c-Organic Chemistry.

The opportunities for broader skills development afforded by this qualification means that it has a significant edge over A-level in that regard, and will produce well-rounded scientific thinkers who will be able to progress to scientific careers via a range of HE pathways.



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Science Staff Team

Job Title	Name	Specialism
Vice Principal	Mr Michael Cook	Chemistry / Physics
Head of Science	Mrs Anita Chawda	Chemistry
2 nd in Department	Mrs Dina Mistry	Chemistry
	Mrs Ann Needham	Biology / Applied Science
Teacher of Science	Mr Ashik Choudhury	Chemistry
	Mr Jonathan Simmons	Biology / Physics
	Mr Marco Rodriguez	
	Mr Gary Watts	
Senior Science Technician	Ms Kate Simpson	
Science Technician	Mr Samuel Simpson	



Contact Us

To contact a member of Science, please email:

firstname.surname@bulwellacademy.org.uk

Or telephone the school's reception on 0115 964 7640. Our Receptionist will take a message and ask the staff member to contact you when they are able. It is likely that your call will not be returned until after the end of the teaching day.

Links for Learning

<http://qualifications.pearson.com/en/support/support-topics/exams/past-papers.html>

[BBC Bitesize](#) for revision and helpful videos

[New Scientist Student Zone](#) for current news and careers ideas

[Royal Society of Chemistry](#)

[Institute for Physics](#)

[Society of Biology](#)