Science Policy – The Albany Academy

Engage Springboard Pathway

Origins of the Curriculum

Our Key Stage 4 Science programme of study is rooted in the National Curriculum and reflects our commitment to delivering a high-quality, inclusive education within our Alternative Provision setting. It is designed to ensure that all students have access to a broad, challenging curriculum that mirrors the standards and expectations of mainstream education. The curriculum aims to complement the learning provided by students' home schools while preparing them for successful progression into post-16 education, training, or employment. The curriculum develops understanding of both substantive knowledge and disciplinary knowledge carried forward from the KS3 national curriculum and guides them towards content to support exam success, college options and future career possibilities. The science curriculum is organised into engaging themed units, containing biology, chemistry and physics topics that have been consciously selected to develop core knowledge and skills to build a solid foundation and support wider access to science within mainstream settings. We expect most students to be working towards a GCSE-level qualification in science, as determined by their home school.

Our pupils come from a variety of home schools, resulting in them being entered for examinations across a wide range of exam boards. In recognition of this diversity, we have carefully designed our curriculum with reference to the National Curriculum, rather than aligning with any single exam board. This approach allows us to deliver a broad and balanced programme that focuses on developing key knowledge and skills essential for success across all specifications. Our curriculum is intentionally structured to identify and address gaps in learning, ensuring that pupils are well-prepared and equipped with the foundational understanding needed to achieve their best possible outcomes in their GCSE examinations.

Given the possibility of short-term pupil placements, it is essential to carefully sequence the delivery of the National Curriculum. To support the development of core scientific knowledge across all disciplines we take a thematic approach, that allows for the revisiting and reinforcement of key scientific skills throughout the units of study. Learners engage with both theoretical concepts and practical investigations, where appropriate, to deepen their understanding of fundamental scientific principles. The skill of working scientifically is embedded within each unit, ensuring that pupils develop a strong grasp of the scientific method. Mathematical skills are also integrated and applied contextually across the curriculum.

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Through the study of science, pupils will develop the ability to observe and interpret the world around them. They will consolidate core knowledge while enhancing their skills in assessment, evaluation, and drawing conclusions. This foundation will support their ability to make informed decisions and to anticipate the consequences of actions—both their own and those of society at large.

The curriculum has been thoughtfully designed to meet the specific needs of our Alternative Provision (AP) setting. It is purposefully adapted from the National Curriculum, with careful consideration given to the potentially limited duration of each pupil's placement. The focus is on delivering key content that will support pupils in successfully reintegrating into their mainstream settings. Practical skills are prioritised wherever possible, as we recognise that many of our pupils have had limited opportunities to engage in hands-on learning. We also understand the critical role of prior knowledge in building new understanding and skills. However, due to inconsistent attendance or engagement in previous educational settings, gaps in prior knowledge are a common barrier for our learners. To address this, the curriculum has been designed with built-in flexibility, allowing for responsive adjustments to accommodate individual learning needs and to bridge gaps in understanding effectively.

Content and Sequencing

The curriculum is designed to cover the breadth of the rigorous GCSE Science specification, while being thoughtfully adapted to accommodate the unique and often time-limited nature of placements of our pathways. Our curriculum is structured to begin with the most fundamental concepts in Biology, Chemistry, and Physics, progressing in a carefully sequenced manner within thematic topics. It incorporates concentric elements to ensure regular opportunities for revisiting and reinforcing key knowledge, supporting long-term retention and understanding. This approach provides a balanced representation of all three scientific disciplines and aligns with the structure and expectations of mainstream science education. It ensures continuity with the scientific knowledge and skills developed at Key Stage 3, offering a logical and coherent progression that prepares pupils for reintegration into their mainstream settings. The fundamental areas covered are:

- Living cells
- Atomic structure

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- Forces and energy
- The Human Body
- The Periodic Table
- Structure and Bonding
- Waves and Electromagnetism
- Health and Communicable diseases
- Acids and Alkalis
- Rates of reaction
- Energy Resources
- Circuits and electricity
- Genetics
- Variation and Evolution
- Ecology

We have organised our curriculum to begin with the most fundamental topics of Biology, Chemistry and Physics, presented in one unit of work. Learning builds through themes, with concentric elements which provide opportunity for regular recapping and revisiting to aid knowledge retention. This represents a balance of all sciences and reflects the reality of science learning they have received and is a logical continuation of the scientific knowledge and skills gained at KS3; the themed units are organised so that they link to the fundamental knowledge which all science topics build on. This will support pupils upon returning to mainstream as the topics are complementary.

Learning objectives are derived from the National Curriculum and while our intent is to deliver full coverage of the National Curriculum, adaptations are made where necessary to meet the individual needs of pupils, particularly those on fractional placements. Instruction is tailored using scaffolding, modelling, and effective task design, drawing on principles from cognitive science (e.g., Rosenshine; Fiorella & Mayer), to ensure that all lessons are accessible, stimulating, and appropriately challenging for every learner.

Overview of units of study: Table

	Autumn	Spring	Summer

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Year 1	Origins	Cuisine	CSI	Fort versus Port
Year 2	Gladiators	Mechanics		NHS

Assessment and Outcomes

Formative assessment is embedded throughout all aspects of science teaching. Teachers continuously monitor students' progress through a range of classroom activities, discussions, and observations. These ongoing assessments provide immediate feedback and inform responsive teaching. In addition, termly summative assessments can be implemented using bespoke tasks that are closely aligned with the term's learning objectives. These assessments not only inform future planning but also help identify areas for targeted intervention or extension. Progress is tracked systematically, and assessment data is used diagnostically to support reintegration, personalised support, and sustained progression. To support progress monitoring and skill development, pupils will complete a formative assessment within the lesson which will be scaffolded to the pupils needs. This provides a firm foundation to develop exam technique and emotional resilience to support students to then take a more formal end of topic summative assessment. These summative assessments will consist of a series of exam-style questions aligned with the content and skills taught. The summative assessment provides pupils with valuable exposure to exam-style questioning and helps them build the confidence and skills necessary for future exam success. This combination of formative and summative assessment is designed to reduce anxiety and pressure yet robustly prepare pupils for the reality of GCSE examinations. Assessment data is used both to evaluate individual student progress and to inform broader curriculum development and instructional practice.

Science and the Wider Curriculum

Science is deeply embedded in modern culture, and our curriculum reflects this by recognising and celebrating its global, moral, and social dimensions. Through science teaching and learning, we aim to broaden pupils' understanding of the world and their place within it, while actively supporting their spiritual, moral, social, and cultural (SMSC) development.

We explore and celebrate scientific research and innovation from a wide range of cultures, highlighting the contributions of both contemporary and historical scientists from diverse backgrounds. This approach not only enhances Cultural Capital but also challenges Eurocentric narratives, encouraging pupils to appreciate science as a truly global endeavour. Where appropriate,

we critically examine outdated or controversial scientific theories, promoting thoughtful discussion and reflection.

British Values are embedded through the promotion of respect for evidence, tolerance of differing viewpoints, and understanding the role of science in shaping democratic decision-making and public policy. Pupils are encouraged to engage in ethical debates—such as those surrounding genetic engineering, climate change, and medical advancements—developing their ability to make informed moral decisions and strengthening their moral compass.

Collaboration is a cornerstone of the scientific method. Pupils work together on investigations, learning to share ideas, analyse data, and improve experimental methods. This fosters social development, teamwork, and mutual respect—key aspects of both SMSC and British Values.

We also ensure that science is a gateway to future opportunities. Through explicit links to STEM careers, pupils learn about a wide range of professions, from biomedical science and engineering to environmental conservation and forensic analysis. Career pathways are highlighted through contextualised learning withing the thematic units, guest speakers, and real-world applications, helping pupils see the relevance of science to their aspirations.

Reading and literacy are integral to science learning. Pupils develop skills in reading scientific texts, interpreting data, summarising information, and constructing evidence-based arguments. Teachers support this through structured reading activities, explicit vocabulary instruction, and opportunities for spoken language development. Scientific terminology is introduced and reinforced in every lesson, helping pupils build confidence in both written and verbal communication.

In all of this, we aim to create a science curriculum that not only builds knowledge and skills but also nurtures curiosity, critical thinking, and a deeper understanding of the world—preparing pupils for life beyond the classroom.