



The Cornerstone Academy
Science Curriculum
Reviewed 28th June 2024

Curriculum Intention	Curriculum Implementation
<p>Students will leave The Cornerstone Academy with a secure understanding of how to achieve validity within Science. Students will understand the world around them and have the skills to be able to question information and data that is presented to them.</p> <p>Students will understand key concepts and issues under units related to waves, energy, forces, electricity, particles, space, magnetism, cells, ecology, biological reactions, inheritance, health, body systems, atoms, the Earth, reactions, chemical quantities and separating techniques.</p> <p>Our curriculum aims to show students that scientists are needed in every walk of life and are not just confined to a laboratory. Our curriculum is inclusive and aims to challenge preconceptions about science qualifications and foster positive attitudes within our students.</p> <p>Science education at The Cornerstone Academy forms an important entitlement for all young people within the academy, therefore our progressive curriculum is inclusive to all to ensure every student throughout all key stages is provided with the opportunity to develop mastery in both substantive and disciplinary Science</p>	<ol style="list-style-type: none"> 1. How.do.you.ensure.consistent.delivery.of.the.subject.across.all.key.stages? Full schemes of learning are produced for all key stages these are fully resource to allow teachers to focus on subject knowledge and pedagogy. Teachers have regular CPD focusing on subject knowledge and pedagogy, including Rosenshine's Principles and TLAC strategies, in science. The curriculum is mapped to ensure progression from EYFS all the way through to Y13, even though we do not teach these key stages. 2. How.does.the.curriculum.cater.for.disadvantaged?SEND.and.other.minority.group.students? Best practice is shared amongst the department and across the academy chain focusing on scaffolding and modelling. All students receive the same content with the scaffolding needed to reach mastery. 3. How.does.the.curriculum.embed.prior.knowledge.and.aid.long-.term.retention.of.knowledge? Knowledge organisers and SENECA are consistently used for homework tasks to review previous topics throughout the year, to exclusively focus on previous topics. Spaced starters have now been further developed to take into account Ebbinghaus's forgetting curve to review the previous lesson, previous topic and previous year's learning.


From September this academic year, The Cornerstone Academy are working alongside United Learning to rollout an updated curriculum across the three sciences, based on the latest educational research from Best Evidence Science Teaching alongside information from recent Ofsted reports.

We are beginning to roll out this model beginning with our Year 7 cohort in September 2024, and the new curriculum will follow them throughout The Cornerstone Academy and be implemented for all future year groups. All previous cohorts will continue to follow our previous curriculum.

In Science, there is not necessarily a clear line between Key Stage 3 and Key Stage 4. Science is a hierarchical subject. Like mathematics or MFL, there are foundational concepts that must be mastered before the next thing can be understood. To succeed at GCSE, students need to have mastered and then build upon concepts that were first introduced in Key Stage 3, and even Key Stage 2.

Therefore, our new curriculum will be sequenced across units and across Years 7 to Year 11 to enable students to build a deeper understanding of scientific themes. These themes provide the basis for conceptual frameworks that students can develop over time. They can integrate new knowledge into the frameworks and make increasingly sophisticated connections between them. These


Substantive Themes




Cells and Life




Ecological Relationships




Health




Particles




Substances




Chemical Reactions




Motion and Forces




Matter




Waves




Inheritance and Reproduction



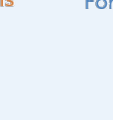
Variation and Evolution




Physical Earth



Earth Science



Electricity and Electromagnetism



Space Physics

Disciplinary Themes



Scientific Attitudes and Ways of Thinking



Enquiry and Fieldwork



Analytical and Evaluative Approaches



Applications of Science and Its Implications



Protocols for Measurement

changes have been reflected in the units of our Year 7 Curriculum, which can be seen on the next page of the document.

Science Curriculum – Years 7, 8, and 9

	September 2024 – January 2025	January 2025 – July 2025
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7	<ul style="list-style-type: none"> • Particles, Substances and Mixtures • Fundamentals of Physics • Cells and Organisation • Chemical Changes <p>Our mid-year assessments are to be confirmed.</p>	<ul style="list-style-type: none"> • Organ systems • Sound and Light • Life Cycles • Materials of the Earth • Plants and Photosynthesis <p>There are three end of year assessments in science covering biology, chemistry, and physics respectively. Each assessment will be 40 minutes long and will all take place over the course of a week. The content of the assessment will be based on all units covered in Year 7.</p>
8	<ul style="list-style-type: none"> • Light and Space • The Periodic table • Digestion and Nutrition • Electricity and Magnetism <p>Our mid-year assessments are to be confirmed.</p>	<ul style="list-style-type: none"> • Sound Waves • Reactivity and Rates • Biological Systems and Processes • Ecology <p>There are three end of year assessments in science covering biology, chemistry, and physics respectively. Each assessment will be 40 minutes long and will all take place over the course of a week. The content of the assessment will be based on all units covered in Year 8 and previous content learned in Year 7.</p>
9	<ul style="list-style-type: none"> • Biological systems and processes • Forces in Action • Energetics <p>Our mid-year assessments are to be confirmed.</p>	<ul style="list-style-type: none"> • Cell Biology • Atomic Structure & Bonding • Organisation • Periodic table • Changes in Energy Stores <p>There are three end of year assessments in science covering biology, chemistry, and physics respectively. Each assessment will be 40 minutes long and will all take place over a week. The content of the assessment will be based on all units covered in Year 9 and previous content learned in year 8 and year 7.</p>

Science Curriculum – Years 10 and 11 (Combined Science)

	September 2024 – January 2025	January 2025 – July 2025
10	<ul style="list-style-type: none"> Electricity Particle model Infection and Response Quantitative Chemistry Chemical Changes <p>There are three mid-year assessments in science covering biology, chemistry, and physics respectively. Each assessment will be 75 minutes long, reflecting the length of a GCSE paper. The assessment's content will be based on the first three units of each science for their respective papers.</p>	<ul style="list-style-type: none"> Bioenergetics Radiation Energy Changes Rate of reaction Homeostasis Organic Chemistry Ecology Atmosphere <p>There are three mock exams in science at the end of Year 10 covering biology, chemistry, and physics respectively. Each exam will be 75 minutes long for combined science, and 105 minutes long for triple science, reflecting the length of the GCSE papers. The assessment's content will be based on the paper one units of each science for their respective papers.</p>
11	<ul style="list-style-type: none"> Forces Chemical Analysis Waves Magnetism <p>There are three mock exams in science in November of Year 11 covering biology, chemistry, and physics respectively. Each exam will be 75 minutes long for combined science, and 105 minutes long for triple science, reflecting the length of the GCSE papers. The exam content will be based on the paper one units of each science for their respective papers.</p>	<ul style="list-style-type: none"> Atmosphere Using resources Revision for final exams <p>There are three mock exams in science in March of Year 11 covering biology, chemistry, and physics respectively. Each exam will be 75 minutes long for combined science, and 105 minutes long for triple science, reflecting the length of the GCSE papers. The exam content will be based on the paper two units of each science for their respective papers.</p>
ACTUAL GCSE EXAMS. 6 papers (75 mins for combined science, 105 minutes for separate science)		