



# The Cornerstone Academy

## Science Curriculum

Reviewed 1<sup>st</sup> July 2026

## **Science Curriculum Overview**

At The Cornerstone Academy, our Science curriculum is built on the **United Learning Framework for Excellence**, ensuring every student receives a rich, ambitious, and empowering scientific education. Science is a subject that helps young people make sense of the world, question information critically, and develop the disciplinary habits that underpin genuine scientific thinking. Our curriculum is deliberately sequenced from Year 7 to Year 11 so that students build secure conceptual frameworks over time, revisiting and deepening their understanding as they progress.

### **Our Principles**

- **Entitlement**

Every pupil has the right to experience the full breadth of our Science curriculum. We ensure that all students—regardless of background, need, or starting point—access the complete body of knowledge that prepares them for further study and life beyond school.

- **Coherence**

Our curriculum is carefully mapped so that powerful scientific knowledge builds term by term and year by year. Concepts connect within and across biology, chemistry, and physics, helping students recognise patterns, transfer ideas, and understand how scientific thinking works as a whole.

- **Mastery**

Foundational ideas such as particles, forces, energy, cells, and ecosystems are secured before students move on. Prior learning is revisited frequently, and students apply their understanding in new contexts to strengthen long-term retention and deepen mastery.

- **Adaptability**

While the core content remains stable and research informed, teachers adapt delivery to meet the needs of their classes. Lessons are brought to life through local context, purposeful modelling, scaffolding, and high-quality explanations.

- **Representation**

Our curriculum ensures that all pupils see themselves reflected in the stories, examples, and scientific contributions explored in lessons. At the same time, it broadens horizons by introducing students to diverse scientists, global challenges, and scientific ideas beyond their immediate experience.

- **Education with character**

Science at The Cornerstone Academy nurtures curiosity, resilience, and critical thinking. Through practical work, co-curricular opportunities, and our wider ethos, students develop not only scientific understanding but also the character to use it responsibly and creatively.



### **What Students Learn**

Across Key Stages 3 and 4, students study a broad and rigorous programme including waves, energy, forces, electricity, particles, space, magnetism, cells, ecology, biological reactions, inheritance, health, body systems, atoms, Earth science, reactions, chemical quantities, and separation techniques. These units are sequenced to reflect the hierarchical nature of science: students master foundational concepts before building towards more complex GCSE content.



### **How We Support All Learners**

Our curriculum is inclusive by design. All students learn the same ambitious content, supported through high-quality scaffolding, modelling, and shared best practice across the department. Spaced retrieval, and platforms such as SPARX which is used for home learning and consolidation of knowledge, help embed prior learning and strengthen long-term memory. Regular CPD ensures teachers deliver science consistently and expertly across all key stages.



### **Stretch and Challenge**

Grammar stream students are provided with an enhanced and academically demanding Science curriculum that extends beyond the expectations of the standard programme of study. Students follow the Triple Science GCSE pathway, allowing them

to develop a deeper understanding of Biology, Chemistry and Physics through the study of additional subject content and more complex scientific concepts.

To further promote challenge and academic progression, students begin the GCSE course during Year 9, enabling them to engage with GCSE-level scientific knowledge and skills at an earlier stage. This accelerated curriculum encourages students to develop greater independence, resilience and confidence when approaching demanding scientific ideas and problems.

Students are exposed to an increasingly sophisticated range of scientific terminology and concepts, supporting the development of disciplinary literacy and enabling them to communicate scientific understanding with precision and accuracy. They are encouraged to evaluate evidence critically, apply knowledge to unfamiliar contexts and construct well-reasoned scientific explanations.

The curriculum provides frequent opportunities for students to develop their disciplinary knowledge and scientific thinking through a series of practical investigations. These investigations allow students to design procedures, analyse data, evaluate methodologies and draw evidence-based conclusions, deepening their understanding of how scientific knowledge is generated and refined.

Lessons are designed to foster higher-order thinking through problem-solving, data analysis and the exploration of contemporary scientific developments. Students are encouraged to make connections between the different scientific disciplines, consider the wider implications of scientific discoveries and engage with complex questions that extend beyond the GCSE specification.

Challenge is further enhanced through wider reading, independent research and opportunities to explore scientific concepts in greater depth. This approach develops inquisitive, reflective learners who are well prepared for further study in Science and related disciplines.

## Science Curriculum – Years 7, 8, and 9

|   | September 2026 – January 2027                                                                                                                                                                                                                                                                                                            | January 2027 – July 2027                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7 | <ul style="list-style-type: none"> <li>• Particles, Substances and Mixtures</li> <li>• Fundamentals of Physics</li> <li>• Cells and Organisation</li> <li>• Chemical Changes</li> </ul> <p>The mid-year assessment will cover the first 3 topics from Year 7 and will be 60 minutes in length</p>                                        | <ul style="list-style-type: none"> <li>• Organ Systems</li> <li>• Sound and Light</li> <li>• Life Cycles</li> <li>• Materials of the Earth</li> </ul> <p>There are three end of year assessments in science covering biology, chemistry, and physics respectively. Each assessment will be 30 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"> <li>• Heating and Cooling</li> <li>• Earth and the Atmosphere</li> <li>• Forces and Motion</li> <li>• Plants and their processes</li> </ul> <p>The mid-year assessment will cover Life Cycles from Year 7 and the first 4 topics in Year 8 and will be 60 minutes in length</p>                       | <ul style="list-style-type: none"> <li>• Electricity</li> <li>• Interactions and interdependence</li> <li>• Force and Work</li> <li>• Acids and Alkalis</li> <li>• Nutrition and Digestion</li> <li>• Space</li> </ul> <p>There are three end of year assessments in science covering biology, chemistry, and physics respectively. Each assessment will be 30 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"> <li>• Cellular Respiration</li> <li>• Magnetic Fields and Electromagnets</li> <li>• Atoms and Elements</li> <li>• Waves</li> <li>• Health and Disease</li> </ul> <p>The mid-year assessment will cover: Nutrition and Digestion, and Space – both from Year 8. Plus, the first 4 topics in Year 9</p> | <ul style="list-style-type: none"> <li>• Atomic Structure and the Periodic Table</li> </ul> <p>There are three end of year assessments in science covering biology, chemistry, and physics respectively. Each assessment will be 30 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 & Triple Science)

|           | September 2026 – January 2027                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | January 2027 – July 2027                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10</b> | <ul style="list-style-type: none"> <li>• P1 Energy</li> <li>• C2 Bonding and the periodic table</li> <li>• P2 Electricity</li> <li>• P3 Particle Model</li> <li>• B3 Infection and Response</li> <li>• C3 Quantitative Chemistry</li> <li>• C4 Chemical Change</li> </ul> <p>There is one mid-year assessment covering biology, chemistry, and physics respectively. The assessment is 60 minutes long. 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"> <li>• B4 Bioenergetics</li> <li>• P4 Radiation</li> <li>• C5 Energy Changes</li> <li>• C6 Rate of reaction</li> <li>• B5 Homeostasis</li> <li>• C7 Organic Chemistry</li> <li>• B7 Ecology</li> <li>• C9 Atmosphere</li> </ul> <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> |
| <b>11</b> | <ul style="list-style-type: none"> <li>• B7 Ecology</li> <li>• P5 Forces</li> <li>• B6 Inheritance</li> <li>• C8 Chemical Analysis</li> <li>• P6 Waves</li> </ul> <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"> <li>• C10 Using resources</li> <li>• P7 Magnetism</li> <li>• P8 Space (Triple only)</li> <li>• Revision for final exams</li> </ul> <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>                                                                                                       |
|           | <b>ACTUAL GCSE EXAMS. 6 papers (75 mins for combined science, 105 minutes for separate science)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |