The Curriculum > Science

Why do we learn science?

'Science is a way of thinking much more than it is a body of knowledge'. Carl Sagan

Science is not only a body of knowledge which allows understanding of the world around us. It is also a way of thinking which allows us to question and deepen our understanding of any new concept or idea.

Pupils learn key scientific knowledge; how current scientific theories have developed over time and how their scientific knowledge can prepare them for the future. By helping our pupils to understand the scientific way of thinking, we instil curiosity in them and encourage them to analytically question the world around them. This sets them on their journey to being self-sufficient in our ever-changing world.

Our aim is that pupils realise the impact of science and scientific thinking upon their lives through the lens of their local context. Furthermore, through learning about new scientific developments, scientific research on a local, national and international level, and the enormous career opportunities before them, we aim to ensure that they are aspirational and ambitious about their future.

How do we learn in science lessons?

The learning journey our pupils undertake is designed to have clear progression from KS2 to KS5.

At KS3, pupils follow the National Curriculum. We continue to develop our curriculum offer at KS3 to ensure that we are delivering a spiral curriculum that progressively deepens students' knowledge, allowing them to connect their learning across each discipline and year group.

By the end of Year 9, pupils will have visited all of the big ideas of science and had regular opportunities to develop their skills in working scientifically and reflect on them as they progress. Our aim is that the transition to GCSE will be unrecognisable to pupils as they will be secure in their foundational knowledge and will be confident in applying this to new or unfamiliar scenarios.

In Key Stage 4, our pupils follow our curriculum which is based on the AQA learning programmes.

Pupils are offered the opportunity to study either the combined science or the triple science course. Our developing KS4 curriculum adopts a block-teaching approach rather than running the three disciplines concurrently. This focused method significantly enhances knowledge retention as students immerse themselves in one subject area at a time. Additionally, the extended contact periods foster stronger relationships between students and teaching staff, creating a more supportive and personalised learning environment.

The variety of pathways that our Science curriculum offers is designed to address the diverse learning needs of every student. Our aim is to prioritise inclusivity, ensuring meaningful engagement for all learners, including those with Special Educational Needs and Disabilities (SEND) and students from disadvantaged backgrounds. This tailored approach empowers students to access challenging content while receiving appropriate support to achieve their full potential in scientific understanding.

We value the importance of practical work throughout both KS3 and KS4, and regular practical sessions are carefully interwoven into our learning programmes; allowing time to both practise and reflect on specific key skills.

The key knowledge from each sequence of learning is outlined in our PLCs and pupils are regularly directed to our subject site for support in strengthening this knowledge. We use Educake as a tool for systematic retrieval practice across all year groups and, where this highlights gaps in knowledge, to inform our teaching.

What do we learn in science lessons?

	Autumn	**Spring**	**Summer**
Year 7	- Cells -Solids, Liquids and Gases -Space -Reproduction	-Mixtures and Purity -Forces and Springs -Variation -Acids and Alkalis	-Magnets and Simple Circuits -Interdependence -Rocks -Energy
Year 8	-Movement and Health -Atoms and Catalysts -Waves -Digestion	-Periodic Table -Light -Gas Exchange -Reactivity Series	- Energy -Inheritance -Fuels -Motion and Speed
Year 9	-Natural Selection and Evolution -Chemical Reactions	-Electricity -Photosynthesis	-KS3+
Year 10 Biology	-Cell Structure -Cell Division -Cell Transport -Principles of Organisation -Animal Organs -Communicable Disease -Photosynthesis -Respiration		
Year 10 Chemistry	-Atomic Structure -Bonding -Quantitative Chemistry -Chemical Change -Energy Change		
Year 10 Physics	-Energy -Electricity -Particle Model -Atomic Structure		
Year 11 Biology	-Homeostasis -Nervous System -Hormones -Reproduction		

	-Genetics and Evolution - Classification -Adaptations -Biodiversity -Exam revision
Year 11 Chemistry	-Rates of Reaction -Reversible Reactions -Electrolysis -Organic Chemistry -Chemical Analysis -Atmosphere - Earth's Resources -Exam revision
Year 11 Physics	-Forces -Waves -Magnetism -Space (triple only) -Exam Revision