



Lotus
Academy

Science Curriculum Learning for Life



Subject Overview

Intent

At Lotus Academy, we aim for all pupils to leave school with a broad understanding of Biology, Chemistry, and Physics, alongside the scientific knowledge and practical skills needed to navigate the modern world. Pupils will be confident in carrying out investigations, interpreting evidence, and communicating scientific ideas effectively. Depending on their individual pathway, pupils will either develop the functional scientific skills needed for everyday life or achieve qualifications that support progression to their next stage of education or employment.

Through Science, pupils develop their communication skills by asking questions, sharing ideas, and explaining scientific concepts. They learn to work collaboratively during practical investigations, building positive relationships while developing respect for living things and the wider environment. Science also promotes independence through enquiry, exploration, and informed decision-making. Resilience is nurtured as pupils solve problems, test ideas, evaluate outcomes, and learn from mistakes as part of the scientific process.

Our science curriculum is designed around developing a deep and secure understanding of key scientific concepts. We believe that all pupils, regardless of ability, should have access to meaningful practical investigations that bring learning to life and provide opportunities to gather evidence, think critically, and apply their knowledge. Through a carefully sequenced curriculum and hands-on learning experiences, pupils build the confidence, curiosity, and scientific understanding needed for the next stage of their education and beyond. While the curriculum is aligned with National Curriculum expectations, content is carefully adapted, sequenced and personalised to ensure that learning is accessible, appropriately challenging and aspirational for every pupil.

Implementation

The Science curriculum is designed to be cumulatively sufficient, enabling pupils to develop the knowledge, understanding and skills required to access subsequent stages of learning. Careful sequencing ensures that foundational concepts are securely embedded before pupils encounter more complex scientific ideas, allowing them to build confidence and competence over time.

The Key Stage 2 curriculum is designed with a strong emphasis on developing core scientific enquiry skills, including observation, measurement, recording and investigation. Recognising that many pupils joining Lotus Academy have experienced interruptions to their education and may have significant gaps in prior learning, the curriculum is designed to address these gaps and establish secure foundational knowledge. Pupils are supported to develop an understanding of key concepts across all three scientific disciplines through a balanced programme of practical and theoretical learning.

The Key Stage 3, core scientific knowledge is introduced and revisited through a coherent sequence of learning, ensuring pupils develop a secure understanding of key concepts across Biology, Chemistry and Physics. Practical enquiry and investigative work are central to the curriculum, enabling pupils to develop scientific thinking, observation, measurement and evaluation skills. Regular practical activities help pupils to apply their knowledge and deepen their understanding of scientific concepts through first-hand experiences. This approach supports the diverse learning needs of pupils at Lotus Academy, including those who access learning in different ways or who require flexible provision due to therapeutic interventions and alternative learning pathways.

At Key Stage 4, the curriculum is structured to support pupils in working towards a GCSE qualification in Biology. To facilitate this, curriculum time for Science is increased in KS4. Pupils are taught within a mixed Year 10 and Year 11 cohort following a two-year curriculum cycle. Teaching is carefully differentiated to provide an appropriate level of challenge for each learner, ensuring that pupils receive the support they need while maintaining high expectations and avoiding any limitations on future attainment. The curriculum covers the GCSE Foundation content, with built-in flexibility for targeted revision, consolidation of challenging concepts and extension opportunities where appropriate.

Gap analysis and personalised learning are integral features of the Science curriculum at Lotus Academy. Ongoing assessment enables staff to identify and address gaps in understanding, ensuring that pupils develop the secure foundation of knowledge and skills necessary to access future learning. Through a carefully sequenced, inclusive and ambitious curriculum, pupils are supported to make sustained progress and achieve their full potential in Science.

Science lesson structure

The Science lesson structure follows the Lotus Academy lesson structure. Each lesson is split into small chunks of learning, with pupils aware of where they are at during each stage of the lesson. This structure enables pupils to remain focused and engaged and receive high quality lessons. The predictability and routine lowers pupil anxiety, enabling them to effectively access their learning. The 'Learn It, Use It, Apply It' approach operates within the modelling, collaborative and independent phases of the Lotus Academy lesson structure.

- **Settler / starter** – lesson starters include a settler with some element of choice to support the SEMH needs and self-regulation of pupils. Some pupils may choose to access this if they need it and others may go straight on to the main starter if they feel ready to learn straight away. The starter consists of retrieval practise to support the commitment of key learning to the long term memory
- **Modelling** – new learning is introduced and modelled to the pupils.
- **Collaborative activity** – pupils will work together to practise the new skill as a pair / group. For science, this will often include practical learning.
- **Independent learning** – pupils complete independent learning at their individual level of challenge
- **Reflection** – pupils have an opportunity to reflect on their learning and also their emotions to support them to be ready for their next transition

	Autumn		Spring		Summer	
Year 3/4 – Cycle A	Marvellous Materials	Human Senses	Seasonal Changes	Roots, Shoots and Fruits	Animal Parts	Planet Protectors
Year 3/4 – Cycle B	Healthy Humans	Habitats	Use of Materials	Grow, Thrive and Survive	Animal Survival	Mangrove Mission
Year 5/6 – Cycle A	Sunlight and Shadow	Animal Nutrition and the Skeletal System	Forces	Feel the Force – Magnets (Expected release before spring term)	Plant Nutrition and Reproduction	Sustainable Earth – Rocks and Soils (Expected release before summer term)
Year 5/6 – Cycle B	Food and the Digestive System	Sound	States of Matter	Grouping and Classifying	Electrical Circuits and Conductors	Oceans Alive (Expected release before summer term)
Year 7/8 – Cycle A	Forces and Mechanisms	Properties and Changes of Materials (moved from HT6)	Earth and Space - Stargazers	Materials Matter (Expected release before spring term) If not arrived use extended objectives from HT2 unit)	Growing Wild (Expected release before summer term)	Growing, Changing, Living (Expected release before spring term)
Year 7/8 – Cycle B	Circulatory System	Evolution and Inheritance	Electrical Circuits and Components	Ice, Life and Survival (Expected release before summer term)	Light Theory	Human Reproduction and Ageing
Year 9	Cells and Systems (Biology)	Particles & the Periodic Table (Chemistry)	Forces & Motion (Physics)	Chemical Reactions & Energy (Chemistry)	Electricity & Energy Transfers (Physics)	Genetics & Inheritance (Biology)
Year 10/11 – Cycle A GCSE	Cells and Organism	Organisation and Immune System	Bioenergetics and Homeostasis	Inheritance and Evolution	Ecology + exam prep	Exam prep + cells
Year 10/11 – Cycle B GCSE						