

Mandeville Primary School

Science Progression Map (Nursery–Year 6)



Curriculum Intent

At Mandeville Primary School, we recognise the importance of Science in every aspect of daily life. Our Science curriculum fosters the natural curiosity of every child and encourages respect for living organisms and the physical environment. Through the study of biology, chemistry and physics, pupils develop the knowledge, understanding and skills required to make sense of the world around them.

Our curriculum is carefully sequenced from Nursery to Year 6, following the Herts for Learning Science progression, enabling pupils to build scientific knowledge progressively whilst revisiting and deepening key concepts over time. Pupils develop as scientists through practical enquiry, observation, investigation and discussion, making links between scientific ideas and the real world.

Working Scientifically is at the heart of every unit of learning. Pupils progressively develop the skills to ask questions, make predictions, plan enquiries, use scientific equipment accurately, observe closely, gather and record evidence, identify patterns, draw conclusions and evaluate investigations. Through regular practical experiences, pupils become increasingly independent and confident in applying these skills across biology, chemistry and physics.

Scientific vocabulary is explicitly taught and revisited throughout the curriculum. Pupils apply mathematical knowledge during investigations and understand that science has changed our lives and is vital to the world's future prosperity.

Knowledge and disciplinary skills are revisited and developed progressively to deepen pupils' understanding over time, ensuring they leave Mandeville Primary School as curious, knowledgeable and reflective scientists.

Scientific Concepts and Threads

Scientific Thread	How understanding develops across the curriculum
Working Scientifically	Pupils begin by exploring, observing and asking simple questions in EYFS before progressing to planning investigations, selecting appropriate equipment, analysing evidence and evaluating conclusions independently in KS2.
Living Things	Pupils develop understanding of plants, animals, humans, habitats, life cycles, classification, evolution and inheritance through increasingly sophisticated scientific study.
Materials	Pupils explore, compare and investigate materials, progressing from identifying everyday materials to understanding states of matter, material properties and reversible and irreversible changes.
Forces, Energy and Earth	Pupils investigate forces, light, sound, electricity and Earth and Space through practical enquiry and scientific investigation.
Scientific Vocabulary	Pupils progressively acquire and confidently use precise scientific vocabulary to explain observations, communicate findings and justify conclusions.

Science in Everyday Life	Pupils understand how science influences everyday life, the environment, technological development and society.
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Substantive Knowledge Progression

Phase	Biology	Chemistry	Physics	Earth & Space
Nursery	Explore plants, animals and living things through play and first-hand experiences. Begin to identify similarities and differences between living things and recognise basic body parts.	Explore natural and everyday materials through sensory experiences.	Explore pushes, pulls, movement, light and sound through play.	Observe weather, seasonal changes and the natural environment.
Reception	Identify common plants and animals, describe basic needs of living things and recognise growth and change.	Explore everyday materials and simple changes through investigation.	Explore light, dark, sound and simple forces.	Observe seasonal changes and patterns in weather.
Year 1	Plants – In the Garden; Animals including Humans – Different Animals	Everyday Materials	Observe seasonal change through enquiry.	Seasonal Changes
Year 2	Growing Plants; Growth and Survival; Habitats	Uses of Everyday Materials	Investigate pushes and pulls.	Compare habitats and environments.
Year 3	Investigating Plants; Healthy Eating and Healthy Bodies	Rocks, Fossils and Soil	Light and Shadows; Forces and Magnets	Understand fossils as evidence of Earth's past.
Year 4	Teeth and Digestion; Classification and Interdependence	Solids, Liquids and Gases	Sound and Vibrations; Circuits and Components	Observe environmental change affecting habitats.
Year 5	Human Life Cycles; Life Cycles	Changes of Materials	Earth and Space; Forces	Explain movement of Earth, Moon and planets.

Year 6	Human Health; Classification; Evolution and Inheritance	Investigate separating and changing materials.	Light; Electricity	Understand sustainability and scientific impact.
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Disciplinary Knowledge Progression

Phase	Scientific Enquiry	Observing & Measuring	Recording & Presenting	Interpreting & Evaluating
Nursery	Explore through play and ask simple questions.	Observe using senses and simple equipment.	Talk and draw what they notice.	Identify similarities and differences.
Reception	Ask questions and carry out simple investigations.	Observe changes carefully.	Record with drawings and simple charts.	Use observations to answer questions.
Year 1	Ask simple questions and test ideas.	Observe closely with simple equipment.	Record in tables and pictures.	Identify simple patterns.
Year 2	Carry out comparative tests.	Measure and classify.	Use charts and tables.	Use evidence to answer questions.
Year 3	Plan fair tests with support.	Use scientific equipment accurately.	Present diagrams, tables and charts.	Draw conclusions from evidence.
Year 4	Select enquiry types and make predictions.	Take accurate measurements.	Present charts and classification keys.	Explain findings and suggest improvements.
Year 5	Plan independent investigations.	Select suitable equipment.	Present graphs and scientific diagrams.	Evaluate evidence and explain patterns.
Year 6	Independently plan and carry out enquiries.	Use equipment precisely.	Communicate conclusions scientifically.	Justify conclusions and evaluate reliability.