



Science LTP



Intent	Implementation
We understand that our pupils are naturally curious and we encourage this inquisitive nature by helping them to frame questions within scientific topics so they can test and evaluate ideas. Pupils are given the opportunities through topics and investigation to progressively deepen their knowledge of scientific concepts and build up the skills to access that knowledge. We believe Science should excite pupils’ interests, build on their prior knowledge and build their confidence, enabling them to take risks, work out problems and raise further questions. It should encourage positive attitudes and shape articulate learners who are able to explain what has been learnt and how. Our aim is to build science capital for all our children, regardless of their background and starting point so that they are inspired to continue to use science in their everyday life, future education and careers. Enquiry is woven throughout the curriculum, focusing on research, identifying, observing over time and spotting patterns. 	Our knowledge-rich curriculum equip pupils with the knowledge and vocabulary needed to explain and analyse their understanding. This includes knowledge of scientific content and the scientific process. We take an evidence-informed approach to our curriculum design, as well as our pedagogy so that our pupils can remember and apply what they have learnt. The medium-term planning and unit sequencing is provided by the subject lead, teachers use this to create their lessons. Using the expected knowledge, teachers devise their exposition around key principles such as retrieval practice, teaching subject-specific vocabulary, and using direct instruction to teach the core knowledge in the most efficient way. Teachers use questioning to elicit pupil understanding, expecting answers from all through talk partners, cold-calling and targeted questioning. They clearly model the enquiry process and plan when to use and remove scaffolds to provide support and challenge for individual learners. They provide clear feedback on how to improve when circulating to obtain a high success rate and use daily review checkpoints to consolidate knowledge, identify misconceptions and teach responsively. 
Impact	
The impact of our science curriculum is measured by triangulating lesson observations, work scrutinies, pupil discussions and planning to gauge what pupils have learned and how well they remember this. Sampling retrieval practise to see how much prior content pupils have retained and using low-stake knowledge recalls at the start of a unit to identify any gaps in the required prior knowledge which also acts as effective formative assessment. There are termly summative standardised assessments, to benchmark pupil performance against a national sample. These are moderated across the primary academies, and we liaise with the secondary academies to evaluate pupil performance. 	
Progression	
There is clear progression from reception to year 6 mapped out for each ‘Working Scientifically’ strand of the National Curriculum, for the expected knowledge and skills at each stage, the vocabulary and types of enquiry. Units are carefully mapped out over both each key stage and the whole of the primary science curriculum so that key concepts and core knowledge is regularly revisited. Knowledge is centred around a Big Question for the unit to help support children’s schemas and the various types of enquiry become progressively more challenging over the primary phase. Vocabulary is carefully mapped from Reception to Y6 to ensure progression in key terms are taught and learnt. 	
Enrichment	
Our engagement with the local environment ensures that pupil learn through varied and first-hand experiences of the world around them. Through various workshops, trips and interactions with experts, pupils have the understanding that Science has changed our lives and that it is vital to the world’s future prosperity; our Science Week plays a large part in the academy's enrichment offer. Pupils learn the possibilities for careers in science as a result of our community links and connection with national agencies such as the STEM association and learn from, and work with, professionals from a range of different scientific backgrounds. 	

Science Year Group Map



Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Biology Animals including humans <i>What can my body do?</i>	Chemistry Changing states Melting, freezing and dissolving	Physics: Flight	Physics Seasonal Change Plants	Biology Animals including humans Mini beasts	Biology Animals including humans Habitats
Year 1	Biology Animals including Humans <i>The Human Body</i>	Biology Animals including Humans <i>Looking after my body</i>	Physics Earth and Space <i>Stars and Space</i>	Biology Animals including Humans <i>Life Cycle of Birds</i>	Chemistry: Everyday Materials: <i>Making Planes</i>	Biology Living Things and their Habitats <i>Beasts: Mini & Massive</i>
Year 2	Biology Living things and their habitats <i>Microhabitats, Food & Adaptations.</i>	Chemistry Use of everyday materials <i>Changing materials & their usefulness.</i>	Biology Plants <i>What Plants need to grow.</i>	Biology Animals including humans <i>Life Cycles & Hygiene</i>	Consolidation KS1 SATs	Physics Electricity <i>Where Electricity comes from</i>
Year 3	Biology Animals including humans <i>Vertebrates</i>	Physics Light <i>Light and Shadow</i>	Chemistry Rocks and Soils	Physics Electricity <i>Making Circuits</i>	Biology Plants <i>How parts function</i>	Physics Magnets Forces <i>Movements</i>
Year 4	Biology Animals including humans <i>Digestive System</i>	Physics Sound <i>Vibrations & Patterns</i>	Chemistry States of Matter <i>Solids, Liquids & Gases</i>	Biology Living things and their habitats <i>Environmental Changes</i>	Consolidation	Chemistry Properties of change and materials (Y5, Part 1) <i>Uses of Materials</i>
Year 5	Biology Living things and their habitats <i>Life Cycles & Reproduction</i>	Physics Earth and Space <i>The Milky Way</i>	Physics Forces <i>Gravity, Friction, Air & Water Resistance Gear, Levers & Pulleys</i>		Biology Animals including humans <i>From Cradle to Grave</i>	Chemistry Properties of change and materials <i>Separating Mixtures & Solutions</i>
Year 6	Biology Animals including humans <i>The Circulatory System</i>	Physics Light <i>Reflection & Refraction</i>	Biology Living things and their habitats <i>Micro-organisms & Classification</i>	Biology Evolution and Inheritance <i>Adaptation, Mutation & Inheritance</i>	KS2 SATs Physics Electricity <i>Circuits and Symbols</i>	Consolidation & <i>Life skills e.g. first aid</i>