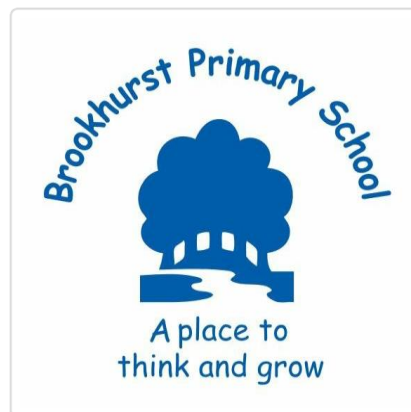


Brookhurst Primary School

Science Statement of Intent

September 2022



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Approved :

SCIENCE

At Brookhurst Primary School we recognise that all pupils are entitled to a quality of provision that that create effective learners and enables them to achieve greater success and reach their full academic and personal potential. As subject leaders we strive to adopt and construct a curriculum that is ambitious and aspirational; designed to give all learners and groups of learners, including the most disadvantaged and those with SEND and higher levels of needs, the knowledge and cultural capital they need to succeed in their future lives. We strive continually to make adaptations and reasonable adjustments to enable all our pupils to access our school curriculum and we aim to provide a range of enhancement opportunities to engage all children in their learning. Our children are excited, enthused and active learners which results in them being able to confidently see purpose in their learning. Through our Science curriculum, children are equipped with the knowledge and transferable skills they need to become enthusiastic scientists. We firmly believe that childhood should be a happy, investigative and enquiring time in our lives where there are no limits to curiosity and where all children are exposed to new experiences and knowledge through a varied curriculum regardless of barriers to learning.

INTENT

The 2014 national curriculum for Science aims to ensure that all pupils:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of the **nature, processes and methods of Science** through different types of Science enquiries that help them to answer scientific questions about the world around them
- are equipped with the **scientific skills** required to understand the **uses and implications of Science**, today and for the future

The provision of high-quality teaching and learning for pupils at Brookhurst Primary School will enable them to discover that the three Science disciplines (biology, chemistry and physics) are not only great fun but also enhances their sense of curiosity.

By following the 2014 National Curriculum for Science, pupils of all abilities will develop scientific knowledge through exciting and real-life experiments, giving them a clear conceptual understanding in the five areas of Science enquiry:

- Observation over time
- Pattern seeking
- Identifying, classifying and grouping
- Comparative and fair testing
- Research using secondary sources

Through teaching science we aim to build on children's natural curiosity and stimulate them to investigate and question the world around them and develop the skills to analyse and interpret their discoveries.

The practical enrichment to their education can also be taught in our outdoor environmental area - The Spinney - giving a unique opportunity to incorporate cross-curricular themes into Science teaching. Our Forest School curriculum allows us to take science outside and learn through first hand experiences such as observing mini-beasts in their natural habitat, identifying different types of living things and investigating the environment. Please see our Forest School Policy for more information.

Their understanding of life on earth will be enhanced through teaching different types of Science enquiries, acquiring key knowledge of each unit through a variety of exciting topics thus equipping them to better understand what is happening now and in the future. Pupils will be encouraged to be inquisitive about our universe whilst promoting a respect for the living and non-living; giving them a link to the wider world and creating life-long learners.

IMPLEMENTATION

'The important thing is not to stop questioning. Curiosity has its own reason for existing..... (Quote Albert Einstein)

Teachers create a positive attitude to Science learning within their classrooms and in the outdoor environment and reinforce an expectation that all pupils are capable of achieving high standards in this exciting subject. Our whole school approach to the teaching and learning of Science involves the following:

- Science will be taught in planned and arranged topic blocks by the class teacher linking to other topics where appropriate.
- Through our planning, there will be problem solving opportunities that allow children to apply their knowledge and find out answers for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers; curiosity is celebrated within the classroom.
- Planning involves teachers creating engaging lessons, involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test the levels of conceptual knowledge and skills and assess pupils regularly to identify any gaps in learning, to make sure that all pupils keep up.
- We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases and they become more proficient in selecting, using scientific equipment, collating and interpreting results; they become increasingly confident in their growing ability to come to conclusions based on real evidence.
- Working scientifically, embeds skills into lessons ensuring that these skills are developed throughout the child's school career. New vocabulary and challenging concepts are introduced through direct teaching which is further developed over the key stages, inkeeping with the topics.
- Teachers demonstrate how to use scientific equipment and the various skills that embed scientific understanding. Opportunities are planned to develop children's understanding of their surroundings by accessing outdoor learning and workshops facilitated by experts.

- A wide range of extra-curricular activities are offered, including visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.
- Regular events, such as Science Week, provide broader provision and the acquisition and application of knowledge and skills through independent learning. These events often involve families and the wider community.

The implementation of Science teaching aims for children to be skilled in: **Knowledge**

and Understanding

- Be curious about things they observe, experience and explore the world about them with all of their senses.
- Use this experience to develop their understanding of key scientific ideas and make links between different phenomena and experiences.
- Begin to think about models to represent things they cannot directly experience.
- Try to make sense of phenomena, seeking explanations and thinking critically about claims and ideas.

Processes and Skills

- Acquire and refine the practical skills needed to investigate questions safely.
- Develop skills of predicting, asking questions, making inferences, concluding and evaluating based on evidence and understanding and use these skills in investigative work.
- Practical mathematical skills in real contexts.
- Learn why numerical and mathematical skills are useful and helpful to understanding.

Language and Communication

- Think creatively about Science and enjoy trying to make sense of phenomena.
- Develop language skills through talking about their work and presenting their own ideas using sustained and systematic writing of different kinds.
- Use scientific and mathematical language including technical vocabulary and conventions and draw diagrams and charts to communicate scientific ideas.
- Read non-fiction and extract information from sources such as reference books or the internet.

Values and Attitudes

- Work with others, listening to their ideas and treating these with respect.
- Develop respect for evidence and evaluate critically ideas, which may not fit evidence available.
- Develop a respect for the environment and living things and for their own health and safety.

Planning

Effective planning is essential in order to:

- set clear, achievable goals
- ensure that work is matched to pupils' abilities, experience and interests
- ensure that there is continuity within each year group ensure progression, continuity and subject coverage throughout the school
- provide criteria for assessment and evaluation of teaching and learning
- provide real experiences through which pupils can learn

As the class teacher plans the teaching of Science, he/she will consider how the curriculum will be differentiated. Consideration will be given to:

- pupil groupings, e.g. ability or mixed ability groups; or group, paired or individual activities
- resources, e.g. different equipment for different levels of ability; pupil activity, e.g. different group tasks, different pupil roles and responsibilities, different allocations of time and variation of pace within the lesson to meet the needs of different levels of ability
- other opportunities, e.g. extra-curricular / cross curricular activities, club links and interest groups, for the development of excellence

Cross Curricular Links

At Brookhurst we are fortunate to have access to great outdoor spaces. Our large field and Forest School areas provide great opportunities to take our learning outside and create exciting, first hand experiences and possibilities for cross curricula learning.

Literacy

Science actively promotes the skills of reading, writing, speaking and listening. The children develop oral skills in Science through discussions and through reporting their observations of scientific investigations. They develop their writing skills through writing reports and projects and recording information.

Mathematics

Science can contribute to the teaching of maths in several ways. They use numbers to record answers and findings in investigations. Through investigations children learn to predict and estimate. Investigations also promote the skills necessary to solve problems. They use weights and measures and develop accurate observational and recording skills.

Computing

Children develop their ICT skills by

- researching information on the internet
- using the computer to analyse information
- use ICT to record, present and interpret data and to review and evaluate findings.

PSHE

Science can make a significant contribution to the teaching of personal, social and health education. Children can consider and debate how society's attitude to recycling affects theirs and the global environment by discussing the pros and cons of energy efficiency e.g. Are wind turbines good for all aspects of the environment? Science can enlighten youngsters and encourage positive citizenship.

IMPACT

At Brookhurst Primary School, the Science curriculum results in a fun, engaging, high-quality Science education, that provides children with the foundations and knowledge for understanding the universe. Our engagement with the local environment ensures that children learn through varied and firsthand experiences of the world around them. Frequent, continuous and progressive learning outside the classroom is embedded throughout the Science curriculum. Through various workshops, trips and interactions with experts and local charities, children have the understanding that Science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in Science, as a result of our community links and connection with national agencies such as the STEM (in full?) association, local engineering firm Ricardo and the University of Warwick. This ensures that children have access to positive role models within the field of Science from the immediate and wider local community. This exposure to a range of different scientists from various backgrounds, gives all children the feeling that they can be scientists and capable of achieving. Children at Brookhurst Primary School overwhelmingly enjoy Science and this results in motivated learners with sound scientific understanding.

' The most exciting phrase I hear in Science, the one that heralds new discoveries, is not 'Eureka!' (I found it!) but 'That's funny....' Isaac Asimov'