**Science 2021/22**

**Intent**

At King Street Primary School, we recognise the importance of Science in daily life and we aspire to provide a science curriculum which enables pupils to explore and discover the world around them, so that they have a deeper understanding of the world we live in. Scientific learning will encompass expanding the children’s knowledge and understanding of our world, and development of skills associated with Science as a process of enquiry. It will develop the natural curiosity of every child, encourage respect for living organisms and the physical environment and provide opportunities to develop a passion to pursue science in future years to come.

At King Street Primary School, and in conjunction with the aims of the National Curriculum, the teaching of science across the Key Stages intends to offers and array of opportunities for children to:

* 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;
* be equipped with the scientific knowledge required to understand the uses and implications of Science, today and for the future.
* develop the essential scientific enquiry skills to deepen their scientific knowledge.
* use a range of methods to communicate their scientific information and present it in a systematic, scientific manner, including I.C.T., diagrams, graphs and charts.
* develop a respect for the materials and equipment they handle with regard to their own, and other children’s safety.
* develop an enthusiasm and enjoyment of scientific learning and discovery.

Overall, we endeavour to ensure that the Science curriculum we provide will give all children the confidence and motivation to continue to further develop their skills into the next stage of their education and life experiences.

**Implementation**

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science. Our whole school approach to the teaching and learning is founded upon the following *four key principles* of learning which were developed with both staff and children alike:

\* Giving children opportunities to explore, ask and find the answers to their own questions.

\* Giving children opportunities to express themselves, their thoughts and their discoveries using scientific words and ideas.

\* Giving children opportunities to be challenged and use their scientific knowledge and understanding in school and the wider world.

\* Giving children opportunities to work as, and with scientists, to carry out practical experiments and investigations.

Through implementing and embedding these principles from an early stage, we provide our pupils with improved opportunities to partake in a more exciting, challenging and hands on scientific experience, which encourages curiosity and fosters learning.

Teaching and learning of science involves the following;

* Through our planning, we provide ample opportunities for children to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. Planning involves teachers creating engaging and thought-provoking lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning and make judgements against the criteria of the National Curriculum, in order to formatively assess theoretical knowledge and skills, which enables gaps in learning and understanding to be identified and addressed.
* Science is taught in topic blocks which are planned and organised by class teachers, working collaboratively. This strategy enables the achievement of a greater depth of knowledge (through the sharing of staff expertise) and the assurance of a clear and progressive scientific journey through the key stages. We build upon the learning and skill development of the previous years and as the children’s knowledge and understanding increases, they become more proficient and confident expressing their thoughts and discoveries, as they develop into more independent scientists. Children are encouraged to work scientifically through targeted enquiry-led investigations. The importance of these skills is reinforced by the use of ‘working scientifically’ stickers, with which the children identify which of the five enquiry types they have used.
* Teachers collaboratively use National Curriculum key indicators to effectively differentiate and provide various levels of challenge, which can be accessed by all children at their individualised level of need. All children are provided with the opportunity to apply their learning, both in school via events such as Science Week, and on educational trips linked to the curriculum. Collaboration with external agencies such as ‘Scout.ed’ and ‘Real Adventure through Sport’ promote the shared ethos and vision that children should experience an array of scientific opportunities, both in and out of school.
* Links with other educational establishments, such as Whitworth Park Academy, Durham University and CPI (Netpark) emphasise the wealth of potential future opportunities available to our children. Children work with scientists, via a plethora of options such as: ‘Science Week’, topic days, educational trips, visitors, aspiring student scientists and STEM-related initiatives.

**Impact**

\* Giving children opportunities to explore, ask and find the answers to their own questions.

* Children develop a curious and independent mind-set and the confidence and resilience to question and consider aspects of the world around them.
* Teachers have more clarity on teaching and assessing science across the curriculum and key stages. As a result, the school has a shared vision for how science should be taught and learnt.

\* Giving children opportunities to express themselves, their thoughts and their discoveries using scientific words and ideas.

* Children make better progress as teachers have a greater understanding of the science curriculum as a whole, and how this can be adapted and individualised to the children in their class, making it relevant and engaging.
* Children become more proficient in: selecting and using scientific equipment; collating and interpreting results; using scientific vocabulary appropriately, both verbally and in writing; and drawing/evaluating conclusions based on evidence.
* Children demonstrate their understanding of the definition and importance of the need for a variety of scientific skills, in order to be a successful scientist, via the ‘Working Scientifically’ stickers.
* Teachers are more adept at ensuring the 5 types of enquiry are taught effectively.

\* Giving children opportunities to be challenged and use their scientific knowledge and understanding in school and the wider world.

* The integrated, topic-based provision offered at King Street Primary, incorporating cross-curricular aspects, firmly cements that science is relevant, not only in school, but in life in general, which better prepares our children for the challenges of the future.
* Well-differentiated lessons ensure all children receive a science education that is not only accessible, but challenging.

\* Giving children opportunities to work as, and with scientists, to carry out practical experiments and investigations.

* Children have a clearer understanding of the variety of scientists, challenging the ‘white coat’ perspective of science.
* Children know that anyone can be scientist, regardless of ethnicity, gender or sexual orientation.
* Children’s aspirations are raised, as they see science as a potential and rewarding future career path.
* Children are more engaged within a curriculum which provides a variety of opportunities, both in the present and in the future.

This successful approach at King Street Primary results in a fun, engaging, high-quality science education, that provides children with the foundations and building-blocks for understanding the world from and early age. Our engagement with external providers who access the local environment ensures that children learn through varied and first-hand experiences of the world around them. So much of science lends itself to outdoor learning and so we provide children with opportunities to experience this. Through various workshops, trips and interactions with experts, 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 association. Finally, pupil voice is used to further develop the Science curriculum, through questioning of pupil’s views and attitudes to science to support the children’s enjoyment of science and to motivate learners.