**Science Curriculum Statement**
**2021 - 2022**

## Intent

The 2014 National Curriculum for Science aims to ensure that all children:

- 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. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this.

At Alverton School, we encourage children to be inquisitive throughout their time here and beyond. The Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the Working Scientifically skills are built on and developed throughout children's time at the school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

Following Covid-19, we have increased our focus on basic skills and meeting any learning "gaps" as well as having a whole-school priority of children's mental and physical health and wellbeing.

## 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 of science involves the following;

- Science will be taught in planned and arranged topic blocks by the class teacher using a project-based approach. This is a strategy to enable the achievement of a greater depth of knowledge.
- Through our planning, we involve problem solving opportunities that allow children to find out 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. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge and teachers use precise questioning in class to test conceptual knowledge and skills.
- We build upon the learning 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 skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in keeping with the topics.
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.

- Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.
- Events such as Science Week allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events may involve families and the wider community.
- In the EYFS, children are encouraged to explore the world around them, experiment with resources and materials and ask questions and offer suggestions as to why something has happened or what might happen. The learning environment provides children with rich opportunities both inside and out to follow their own lines of inquiry and curiosity and interested, supportive adults engage children in sustained shared thinking about the world around them.

Our curriculum is fully inclusive and we ensure all children have the same entitlement to a broad curriculum by making adaptations where needed. In Science we ensure that all children regardless of ability are able to engage in activities and practical aspects of the subject. In KS1, brightly coloured pictures and diagrams are used to help explain more complex topics and throughout the school key scientific vocabulary is displayed in classrooms. Where practical experiments and fieldwork are set outside, every consideration is taken to ensure the activities can be accessed by children with physical disabilities. For example, when investigating and studying microhabitats and the animals that live around them, photos can be taken and a selection of mini beasts collected for all children to observe.

**Impact**

The successful approach at Alverton School results in a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world. Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. Frequent, continuous and progressive learning outside the classroom is embedded throughout the science curriculum.

Some examples of our Science-based projects are:

**One Planet, One Future** - a Key Stage 1 science-based project focusing on habitats, particularly how we can support pollinating insects. Key Stage 1 created a wildlife garden using materials that could be reused and recycled.

**Are we Polluters or Protectors?** - a Lower Key Stage 2 project about environmental issues, exploring the effects of pollution on our local coastline. The children studied rocks as part of this and also looked at states of matter and the effect of pollution on our seas and the cause and effect of our water cycle.

**What have the Railways done for us?** - this Upper Key Stage 2 project looked at forces and the effect of friction and air resistance, experimenting, recording, drawing conclusions and working in a scientific way. Children tested different surfaces for train tracks and explored the strength of a different sized magnets.

Children learn the possibilities for careers in science and we try to ensure that the children have access to positive role models within the field of science from the immediate and wider local community. Children at Alverton enjoy science and this results in motivated learners with sound scientific understanding who feel they are scientists and are capable of achieving.