

# ALDER COPPICE PRIMARY SCHOOL

*Achievement through Commitment*

## Science Rationale

### Intent

Science is key to children understanding the world around them, how this world came to be and their place within it. For this reason, Science at Alder Coppice is knowledge driven to create a sense of awe and wonder and a natural curiosity and respect for their world, both locally and globally.

Science knowledge is taught in blocks of the specific disciplines of Biology, Chemistry and Physics and each of these are built upon within each year group. The skills of Scientific Enquiry are embedded within each of these blocks. All children are encouraged to develop and use a range of skills including asking questions, predicting, making careful observations in a variety of different ways, conducting experiments, building arguments and explaining concepts using the scientific language they will be immersed in.

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

### Implementation

At Alder Coppice we include a range of teaching strategies and techniques aimed at enhancing long term retention of substantive knowledge, including regular retrieval practice. The full details of these can be found in our *Curriculum Policy*. We plan to ensure pupils revisit key themes and concepts and retrieve key knowledge to support long term memory, which will drive student progress and raise standards across the curriculum.

In **Key Stage 1** Science, there is heavy focus upon understanding the variance in plants and animals and the conditions they require to survive and flourish. They study materials and their properties in the world around them and use this knowledge to help them make informed decisions about which would be fit for specific purposes. They make careful observations about the seasons, their effect on the environment and investigate simple food chains found in local habitats.

In **Key Stage 2** Science, the children's understanding of these topics both widens and deepens. Expanding upon materials, they explore rocks, their formation and uses. They witness and explore different states of matter and develop a secure understanding of space and the solar system. Each year group further explores the development of the human body focusing upon a different part of the anatomy. Some topics, such as Light and Electricity are re-visited in order to develop an in-depth understanding of these fundamental areas before the transition into Secondary School. The demands of Working Scientifically increase, with children taking greater responsibility in making choices about what they need to do in order to conduct a fair investigation with measurable results, from which they can develop a clear conclusion. Throughout their blocks of learning they will also be introduced to key scientists of the past and modern day, and how their work has influenced the Science they are learning about today. Children will be immersed in scientific language and through regular use of their knowledge organisers, set themselves high aspirations about what they can achieve in their Science learning.

Children's achievements and progress in Science will be continuously and progressively monitored throughout the sequenced Unit Blocks. This is done through the regular retrieval practice, quizzing and end of unit assessment quizzes which are recorded to enable staff to make informed decisions about Science achievement and progress by the end of Key Stage 2, in line with the 2018 Exemplification Guidance for Science. Pupils in Year 6 will also have the opportunity to showcase their Science learning from across School during the Year 6 Science Fair in which they plan and then showcase their own investigation.

Where possible, learning in the classroom will be supported by enrichment opportunities such as outside visits or visiting speakers.

For additional details, refer to our Long Term Plan.

## **Impact**

As a Scientist, children will have retained key knowledge that is pertinent to the subject with real life contexts and enjoy learning about Science. They will be able to transfer their knowledge between different strands of both Science and other subjects in the curriculum i.e. Geography and the water cycle or use of materials in Design Technology and understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes. Pupils will have developed into reflective learners who carefully consider what they hear and see, and who are keen to drive their own learning further. They will have developed the ability to work collaboratively and be keen to discuss, argue and debate using the knowledge they have gained and their opportunities for disciplinary thinking. Children will gain an understanding about how Science continues to shape the world around us and how it is vital to the world's future prosperity. From this they will understand the role they have to play in this, possibly as a future Scientist themselves.