

Aycliffe Drive Primary School



SCIENCE POLICY

**Updated February 2023
To be reviewed 2025**

Staff Responsible

**Mrs M Green Head Teacher
Mr H Channa Science Leader**

INTENT

Our science curriculum is designed with the intent that each child at Aycliffe Drive Primary School will become competent scientific thinkers and investigators who will encounter awe and wonder through first-hand scientific investigative experiences and approaches, which activate learning for all children. With great emphasis on providing children with a high-quality science education that offers the foundations for understanding the world through the specific disciplines of biology, chemistry and physics, our curriculum design for Science across primary school promotes specific competences including knowledge, enquiry and the working scientifically based skills. Lessons are planned so that children can make links to prior learning and develop depth in key skills within Science that are rich, stimulating, challenging and real life with the aim of enabling children to master learning with skills, knowledge and experiences that will remain with them for the rest of their lives. We should all champion primary science and our intent is to make sure that every child has a positive experience of science throughout their primary school education.

**We should not teach
children the sciences; but
give them a taste for them.**
- Jean Jacques Rousseau

Our Science curriculum is designed to allow each pupil to

- ✓ Achieves the best possible standards and achievements, whatever their starting point.
- ✓ Has high levels of engagement, enjoyment and personal development in Science
- ✓ Accesses a rich, broad and wondrous science curriculum that allows high levels of personalisation that plays to their strengths and develops specialisms.
- ✓ Connects and builds on prior knowledge leading to progression and depth
- ✓ Feel confident and successful in their Science learning
- ✓ Have the attitude that learning is 'hard' and mistakes are necessary for learning to happen.
- ✓ Enjoy learning and experience 'the BUZZ of Science'
- ✓ Have a voice and be able to choose how they wish to learn and think like a scientist—the resources and maths they feel are most appropriate.
- ✓ Understand that Science is relevant to everyday living and a lifelong skill, by solving problems that are, where possible, set in a real life context.
- ✓ To develop critical thinking and the confidence to question ideas in order to deepen their understanding.
- ✓ To become interdependent as well as independent learners.
- ✓ To become metacognitive learners, understanding their own abilities, what they need to do that will enable them to develop their abilities and the skill to review their learning accurately.



IMPLEMENTATION

- The schools Medium term planning and coverage of key scientific skills produced by Herts for Learning will be used by teachers to plan, this will drive the journey of Science for every year group, building on from prior learning and develop progressively key skills and developing depth.
- Provide opportunities for children to develop the process skills associated with science education as well as develop a greater knowledge and understanding of life processes and living things, materials and their properties and physical processes as described in the National Curriculum for science.
- Promoting enjoyment and enthusiasm for learning through real, first –hand and rich science experiences so that all children explore, question, predict, plan, carry out and make observations and conclusions about their scientific tests.
- Allowing children to discuss and present their work using scientific language, observations, diagrams, jottings and charts
- To foster positive attitudes such as curiosity, perseverance, willingness to use and appraise evidence, willingness to tolerate uncertainty, critical reflection and enthusiasm.
- Developing an understanding of the importance of Science in everyday life.

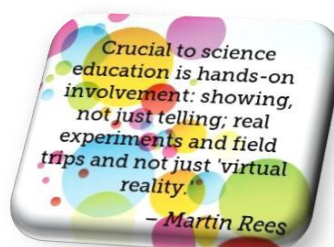
Each class in both Key Stage 1 and Key Stage 2 will provide children a weekly science lesson, which will be 2 hours in duration.

Good science teaching builds progressively on pupils existing ideas. In order for effective delivery of science education, across weekly lessons there should develop opportunities for:

- ✓ Finding out children's ideas using a variety of elicitation opportunities.
- ✓ Analysing children's ideas.
- ✓ Providing opportunities for testing ideas, thereby possibly changing them.
- ✓ Providing opportunities for developing process skills so that testing is scientific.

Learning opportunities for all children will be matched to ability, this will be achieved through a range of adaptive learning and scaffolding methods, when necessary. There are often group learning opportunities throughout all lessons, matched to the children's relative starting points, working interdependently to support each other through peer learning and challenging children with open-ended investigative opportunities. We use classroom assistants to support children across all ability groups and to ensure that learning is supported to the needs of individuals.

In addition, other subjects may play a part across lessons where children will be able to develop and apply their mathematical, English and computing skills. For example using mathematical skills for repeated testing of results calculate averages in science.



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CONTINUITY AND PROGRESSION

In foundation stage pupils will work from the Knowledge and Understanding of the world planning from the Early Years scheme of work. This planning aims to develop in pupils the crucial knowledge, skills and understanding that help them make sense of the world. It provides opportunities for pupils to carry out activities based on first hand experiences that encourage exploration, observation, problem solving, prediction, critical thinking, decision making and discussion. It provides the foundations for the science KS 1 and then the KS 2 curriculum.

The HFL scheme of work for KS 1 and 2 continues building on concepts and process skills in a spiral way, ensuring that all knowledge and understanding programmes of study are covered at least once in Key Stage 1 and at least twice at Key Stage 2, and that all the process skills programmes of study are constantly being visited and developed as each science unit of work is taught.

The contribution of science to teaching in other curriculum areas

English

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. The children develop oral skills in science lessons through discussions (for example of the environment) and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

Mathematics

Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many of their answers and conclusions.

Computing

Children use computing in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the Internet. Children can use computing to record, present and interpret data and to review, modify and evaluate their work and improve its presentation. They also use digital equipment to make measurements when necessary.

Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. They organize campaigns on matters of concern to them, such as helping the poor or homeless. Science promotes the concept of positive citizenship.

Spiritual, moral, social and cultural development

Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of smoking and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

Science Assessment in Aycliffe Drive School

The introduction of the 'Working Scientifically wheels' have been embraced by children in Key Stages 1 and 2. Children are, with the support of teachers, able to better understand and self-assess their learning of the various elements related to working scientifically.

These wheels are attached to the inside of each child's science book. Children will, with teacher support, if needed, identify the sections of the wheel which show the appropriate skills that have been learned during each lesson.

These wheels along with other forms of formative and summative assessments, allow both the teacher and child to gage his/her progress and attainment throughout the year.

TYPES OF ASSESSEMENT

- Each child at the beginning of each topic will complete a baseline of their initial understanding. This is often carried out in a variety of ways best linked to the topic objectives. At the end of the topic, this assessment (with variation) will again be carried out to inform teachers of how much progress individual pupils have made. This type of assessment is often knowledge based but can have elements of WS incorporated within it.
- Within each topic area, a compulsory assessment enquiry is carried out (child- led as possible) to attain children's attainment in WS skills. There may well be a number of other enquiries within each topic planned by the teacher which will also support the assessment process.
- Children's oral responses as well as their written or practical work are also taken into account to form a final assessment grade.
- Planned whole school activities during each of the three Science Days also help to inform teachers. As the same enquiry is implemented throughout the school, this also allows the Science Leader to assure that WS skills taught are age appropriate and progressive.
- Teachers can also use assessment activities that can obtained from our purchased website services.

CLASS ASSESSMENT FOLDERS (these are provided to each teacher)

At the end of each topic, teachers will highlight the **NC knowledge and understanding** objectives that have been achieved by each child for each of the topics taught.

In July, all these assessments are used to make a final judgement to the overall grade achieved.

RESOURCES

HEALTH AND SAFETY

Monitoring and Review

It is the responsibility of the science subject leader and Senior Management Team to monitor the standards of children's work and the quality of teaching in science. The science subject leader is also responsible for supporting colleagues in the teaching of science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school. The science subject leader has specially-allocated time for fulfilling the vital task of reviewing samples of children's work and visiting classes to observe teaching in the subject.



IMPACT

At Aycliffe Drive Primary School, through our rich and broad curriculum we are enabling children to gain the knowledge, skills and understanding they need for their future. Each of our children is individual and unique and each has a potential that we need to unlock. Our school motto is 'Find your wings and fly' and through our curriculum we enable this to happen.

Our curriculum design will lead to outstanding progress for all pupils, regardless of their starting points, over time. Planned learning will progressively build on prior knowledge and understanding and support children in producing outcomes of the highest quality.

The impact of the curriculum design will lead to outstanding progress over time at all key stages, from the children's starting points. Children will leave school aiming to have at least achieved Age Related Expectations. The rich and broad curriculum and units of work will enable teachers to consistently plan lessons progressively building on prior knowledge and the development of key skills in order to deliver lessons over the highest standard and children's outcomes to be of the highest quality. Children will be confident, resilient, self-motivated, independent learners, with a thirst for challenge and depth of understanding of scientific skills and concepts.

REVIEW

This policy will be reviewed by governors