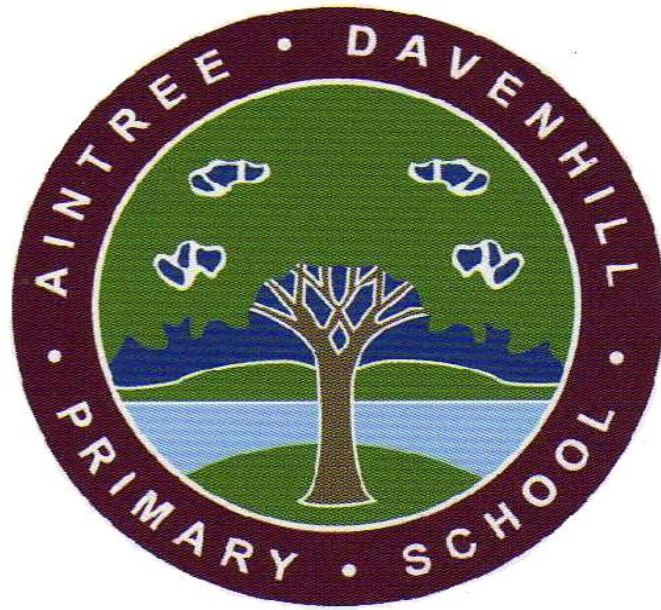


Aintree Davenhill Primary School



Science Policy

Approved by the Headteacher

July 2024

Review date: July 2025

Aintree Davenhill Science Policy

SCIENCE CURRICULUM INTENT

At Aintree Davenhill, we deliver a high-quality science curriculum that aims to develop pupils' curiosity and interest in the world around them. It enables pupils to develop a sense of enquiry and encourages them to understand how science can be used to explain what is occurring; predict how things will behave, and analyse causes.

The science curriculum builds upon prior knowledge in a carefully sequenced curriculum, both within and between year groups, and makes links to other subjects.

Practical work is an essential part of learning in science at Aintree Davenhill. It is vital for developing children's scientific understanding; teaches techniques and skills for handling equipment safely and it promotes the development of scientific reasoning. Therefore, we use a wide range of high-quality resources to provide children with direct, hands-on learning activities. Furthermore, our vast outdoor space is utilised to provide a wealth of stimulating learning opportunities about plants, habitats, wildlife etc.

In science at Aintree Davenhill, our aim is for all pupils:

- To understand what it means to be a scientist.
- To ask and answer scientific questions.
- To plan and carry out scientific investigations, using equipment (including computers) correctly.
- To know and understand the life processes of living things.
- To know and understand the physical processes of materials, electricity, light, sound, and natural forces.
- To know about the nature of the solar system, including the earth; evaluate evidence, and present their conclusions clearly and accurately.

PRINCIPLES OF GOOD SCIENCE

We know that good science occurs in our school when:

- Quality first teaching is when stimulating, motivating environments and resources catch children's enthusiasm for science.
- All children are challenged at the appropriate level.
- Children are given the opportunity to share their own knowledge and understanding.
- Teachers' enthusiasm and knowledge of the subject is passed to the children.
- Children are engaged in practical, hands on activities. They are learning while having fun and applying their scientific enquiry skills and understanding.
- Children are aware of different types of investigations and language associated to them.

- The children apply knowledge and skills to different situations and contexts.
- Children ask questions and discuss their ideas about science.
- Misconceptions are addressed by modelling and analogies.
- Children find out the answer to why something has happened and can explain their reasoning.
- Children understand that not all investigations will provide results as expected.

SCIENCE CURRICULUM IMPLEMENTATION

We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. Sometimes we do this through whole-class teaching, while at other times we engage the children in an enquiry-based research activity. We encourage the children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures, concept cartoons and photographs. They use ICT in science lessons where appropriate to enhance their learning. They take part in role-play and discussions, and they present reports to the rest of the class. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, for example, investigating a local environmental problem, or carrying out a practical experiment and analysing the results. We recognise that in all classes children have a wide range of scientific abilities, and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways:

- Setting tasks which are open-ended and can have a variety of responses.
- Setting tasks of increasing difficulty through the use of extension or high order thinking questions.
- Providing resources of different complexity, matched to the ability of the child.
- Providing support materials e.g. word banks and writing frames.
- Using teaching assistants to support the work of individual children or groups of children.
- By teaching children in mixed ability groups.

Planning

Teachers are expected to develop their planning with the support of the Lancashire 'Inspiring Science' scheme of work and related assessment materials. Teachers are not to rely solely on this resource but use it for ideas, reference and guidance so the children can have more creative, memorable and inspiring science lessons.

- The schemes of work have been adapted to meet the needs of children at Aintree Davenhill Primary.
- Lessons are evaluated by class teachers and this is used to inform future teaching and learning.

- Key Stage 2 plan for 1 hour 50 minutes of science per week (or an equivalent number of hours in blocks)
- Key Stage 1 plan for 1 ½ hours of science per week (or an equivalent number of hours in blocks)
- Planning is in line with the school planning policy.
- We combine scientific study with work in other subject areas where possible. (Cross-curricular links)
- ICT should be integrated into planning when possible including use of laptops, data loggers and database software etc.
- We have planned the topics in science so that they build on prior learning.
- We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit, and we also build progression into our lessons shown clearly through the assessment guidelines so that the children are challenged as they move up through the school.

Teaching and Learning

EYFS

At this phase children are:

- Developing the crucial knowledge, skills and understanding that help them make sense of the world.
- Involved in activities based on first-hand experiences that encourage exploration, observation, problem solving, prediction, critical thinking and decision-making and discussion.
- Experiencing a wide range of activities, indoors and outdoors, including adult focused, child-initiated and independent play.
- Stimulated, interested and curious.
- Observed by adults and learning is recorded in a variety of ways.

Key Stage 1 and 2

At this phase children are:

- Learning through a science process skill-based approach.
- Undertaking practical enquiries.
- Working collaboratively and independently.
- Developing high quality, purposeful talk for science.
- Recording findings in a variety of stimulating and purposeful ways.
- Building upon prior science learning, both skill and knowledge based.
- Beginning to think about the positive and negative effects of scientific and technological developments on the environment and in other contexts.

- Evaluating their own science learning.
- Using ICT to support and extend their learning in science.
- Experiencing a variety of teaching styles and strategies that promote positive science learning.
- Learning that science promotes the concept of positive citizenship.
- Learning through science, to raise social and moral questions, to understand differences between people and to have respect for others including those with disabilities.

Inclusion

- Our inclusive approach and differentiation allows all children to learn regardless of race, gender, faith, culture or disability. We select and use resources that positively reflect all of the above.
- Inclusion for science is carried out in line with the school's policies for SEN, G&T, Equal Opportunities and the Disability Equality Scheme.
- Planning and teaching and learning in science set high expectations for all children.
- Science provides opportunities for all children to achieve including, boys and girls; children with SEN; children with disabilities; children who are G&T; children from all social and cultural backgrounds; children from different ethnic groups.
- Teachers are aware that children bring to school different experiences, interests and strengths that will influence the way in which they learn science.
- Teachers will use a variety of teaching styles and strategies to meet the needs of all children in their science learning.

Promoting Science

- School visits for science are organised where possible in line with the current unit of work, to enhance and extend learning.
- Teachers are encouraged to make use of the school grounds whenever appropriate to enhance children's learning experiences in science.
- Local resources, such as scientists from industry are used to support units of work where possible.
- All children to attend school visits. Disability provision must be noted in Risk Assessment.
- Science displays in classrooms and around the school will celebrate children's work and evidence progression.

Resources

- All resources are stored centrally in the science cupboards.
- Resources are organised in boxes.
- Staff are responsible for informing the Science coordinator, when extra resources

are needed, when there are breakages and when consumables are running low.

- The Science Coordinator will update and replenish resources when needed.

Assessment for Learning

- Assessment for science is carried out in line with the school policy.
- Work is marked at the end of each lesson. Teachers are encouraged to focus on the learning objective when marking. Teacher's comments on children's work may relate to how well they have achieved the lesson objective or they may provide questions for the children to answer to further their understanding or provide challenge.
- Science assessments are carried out using both summative and formative assessment procedures.
- Formative assessments are made through observations in lessons.
- Summative assessment takes place at the end of each unit of work.
- Assessments are used to inform planning and teaching and learning.
- Written or verbal feedback is given to the child in line with school marking policy, to help guide his/her progress.
- Older children are encouraged to make judgements about how they can improve their own work.
- Class teachers use Lancashire's 'Assessment in Primary Science' materials for science, available on the Staff Shared Drive.

Health and Safety

- The safe use of equipment is to be promoted at all times.
- Be Safe (ASE) is available for teachers in the science stockroom.
- Risk Assessment is included on plans to cater for allergies and disabled children when appropriate.

Review and Retrieval

At Aintree Davenhill, we want the children to ultimately know more and remember more across all subjects. It is crucial that learning is embedded into the children's long-term memory. In order to do this, we make use of weekly review and retrieval activities at the start of every Science lesson. These may take the form of a multiple-choice quiz, 'speak like an expert' activity or another activity of the teacher's choice. These activities may have some focus on the previous week's learning but may also focus on prior learning from previous topics taught. This may include reviewing learning from previous year groups. The use of regular review and retrieval activities in Science will improve the children's recall and their ability to transfer knowledge to new concepts and new situations. Teachers are expected to be explicitly aware of the links within the topics that they teach in Science to be able to build upon prior knowledge effectively.

IMPACT OF THE SCIENCE CURRICULUM

Monitoring and Evaluation

Monitoring for science is carried out in line with the school monitoring policy; it is monitored by the head teacher, the senior leadership team and the science subject leader in a variety of ways:

- Learning walks – feedback to teachers
- Monitoring the planning of the science curriculum
- Looking at work in the children's books
- Pupil interviews
- Resources being used
- Courses and INSET attended by staff
- Evaluation of the science action plan for the SIP
- Staff questionnaires
- Best practice for science is identified and shared amongst practitioners.
- Samples of children's work will be collected.

Science Policy – Revised July 2024

A.Agar & H.Jones – Science Subject Leaders