



Lead Responsibility	Mark Phillips	Approved By Governors	
Implementation Date	September 2023	Review Date	September 2024

MISSION STATEMENT

Our school is a safe, happy and inclusive place where everybody is valued, treated equally, respected and where difference is celebrated.

We believe that all members of our School community should reach their full potential academically, socially and emotionally.

We are committed to ensuring that every child is prepared for their future lives as responsible citizens with a strong moral purpose.

Learning is a lifelong journey and we strive for all children to enjoy learning; leading to independent, motivated 'Lifelong Learners' who are prepared to face the modern day wider world with enthusiasm.

Vision and Aims

Our Science curriculum is fully inclusive to every child. Our aims are to fulfil the requirements of the Science National Curriculum, at a very minimum; providing a broad, balanced and differentiated curriculum; ensuring the progressive development of knowledge, skills and vocabulary and for pupils to develop a love of science. At the heart of our Science Curriculum is the desire to build a secure knowledge of the world around us, increasing children's social and moral intelligence, in addition to them achieving academic excellence. We do this by systematically building up children's schema of knowledge about natural phenomena and their investigation, starting from the 'Understanding the World' area of learning within EYFS Early Learning Goals through to Year 6. In doing so, we believe our pupils will be able to use a strong knowledge foundation to pursue an area of the world in which their curiosity may take them and have the tools to meaningfully make progress in this pursuit. Science at Whiston Willis Primary Academy provides engaging activities to enable learning to happen, both through knowledge-based learning and practical-based learning to address 'working scientifically'. Children increase and improve their scientific vocabulary; reading, writing and mathematical skills; and learn about key scientists and inventors who have worked in different areas of science.

The Reach Academy Scheme of Work is used to deliver our Science lessons in Key Stage 1 and 2. This is a fully resourced, intelligently sequenced, knowledge-rich curriculum which ensures coverage in such a manner that children are engaged and enjoy their learning. Each topic is introduced through the use of a knowledge organiser, exploration of resources linked to each topic and participation in a range of pre- and post-learning activities, such as children responding to concept cartoons at the start and end of topics, and participating in quizzes at the end of their learning sequences.

- The National Curriculum is used to ensure coverage of core learning. Topics have been carefully sequenced such that they build well one after another at spaced intervals to enable greater retention.

- Science is split into Biology, Chemistry and Physics topics which sets children up for an understanding of these different parts of science in secondary school.
- Practical investigation skills (How Science Works) are interwoven into the content and are often built into the climax of each topic to enable pupils to apply the knowledge they have just gained. This also means that the core structure of a science investigation is repeated and reinforced throughout each Key Stage.

Planning and Delivery

Children receive a 90 minute session of quality science teaching per week and topics typically last 6 - 8 weeks. Opportunities to study key scientific vocabulary, topic-specific key focus scientists and inventors are incorporated into each topic, as well as opportunities to develop children's reading, writing and mathematical skills. Each year group is required to complete a range of investigative work which covers each different area of 'Working Scientifically'. These are:

- ❖ Observation Over Time
- ❖ Pattern Seeking
- ❖ Identifying, Classifying and Grouping
- ❖ Comparative and Fair Testing
- ❖ Research using Secondary Sources

Our teaching and learning sequence is as follows:

Preparation/ Hook

- Discussing the Knowledge Organiser.
- Exploring topic-related resources to make links/ access memories of prior-learning experiences (where applicable).

Pre-learning

- Participating in a 'What I know about ...' discussion to identify prior knowledge and understanding.
- Discussing and responding to concept cartoons that are topic-relevant and age-appropriate.

Weekly Lessons

- Participating in knowledge-based and practical-based learning (Working Scientifically).
- Learning key scientific vocabulary.
- Investigating key scientists/ inventors.

Post-learning

- Responding to each Lesson Review question (KS2 only).
- Responding to concept cartoons from the start of topics – 'What I have learned about ...'
- Completing a topic quiz, to assess topic knowledge and understanding, including key scientific vocabulary.

All children receive Quality First Teaching. Any children with identified SEND or in receipt of Pupil Premium funding may have work or support additional to and/ or different from their peers, in order to access the curriculum dependent upon their needs. As well as this, our school offers a demanding and varied curriculum, providing children with a range of opportunities in order for them to reach their full potential and consistently achieve highly from their starting points. In addition to Science lessons, experiences are offered to children such as educational visits and enrichment days, including opportunities for STEM learning.

Working Scientifically

A range of activities enable children to develop both their scientific understanding and their mastery of the nature, processes and method of science. 'Working Scientifically' is taught through a constructivist approach to learning. Each and every topic of study, the emphasis is on the children learning by doing. Topics encourage activities that will enable the children to test their previously held ideas. In doing so, they will also be encouraged to develop a bank of skills and an understanding of the processes required to be able to do good science. In every topic of work the most suitable aspects of the statutory requirements for Working Scientifically have been selected. Each of these requirements will be thoroughly covered throughout both of the Key Stages.

Scientific Vocabulary

Each knowledge organiser and topic of study contains the most appropriate key scientific vocabulary when studying a particular area of science. This helps children become familiar with, and use, technical terminology accurately and precisely. Key Scientific vocabulary is referred to in each lesson which is displayed on classroom working walls. Children are encouraged to use key scientific vocabulary both verbally and in written forms.

Assessing, Reporting and Recording

Progression

Within Science, we strive to create a supportive and collaborative ethos for learning by providing opportunities for children to question and investigate to discover answers for themselves. Our Science curriculum is high quality, well thought out and is planned to demonstrate progression. We focus on progression of knowledge and skills and vocabulary progression also forms part of each unit of work. There is clear progression in key scientific knowledge and concepts, from Year 1 to Year 6. Each topic clearly indicates the aspects of knowledge to be developed and knowledge organisers indicate the 'learning journey'; i.e. where the knowledge and concepts of that particular topic fit within the learning for that particular aspect of science as the child progresses through the primary phase.

Assessment

Children are assessed both formatively throughout each lesson and summatively through a range of pre- and post-learning activities. Pre-learning discussions take place at the start of each topic and children respond to concept cartoons to showcase what they already know which, in turn, highlights what they will require to learn in order to progress in Science. These are revisited at the end of each topic. Low stakes quizzes are used to assess what children have learnt in Science and assessment grids are completed by teachers at the end of each topic. The school's Marking and Feedback Policy is adhered to when formative assessment is conducted, providing children with feedback in their books and work books, including verbal feedback.

We measure the impact of our curriculum through the following methods:

- Assessing children's understanding of topics before and after they are taught.
- Marking of written work in books.
- Using dialogue learning tasks to assess children's understanding.
- Summative assessment of pupil discussions about their learning.
- Images and videos of the children's practical learning.
- Interviewing the pupils about their learning (pupil voice).
- Moderation staff meetings where pupil's books are scrutinised and there is the opportunity for a dialogue between teachers to understand their class's work.
- External moderation of children's work at the end of each Key Stage.

- Formal reporting of standards at the end of each Key Stage.
- Annual reporting of standards across the curriculum to governors.

The Science Subject Leader continually monitors the impact Science teaching is having on the children's learning through book looks and pupil chats to ensure the progress of knowledge and skills is being taught. They also ensure the knowledge taught is retained by the children and continually revisited and that the learners are able to apply the skills they have been taught to a variety of different settings, showing independence with their learning.

Each classroom contains a science working wall. These showcase the work that is currently being completed by children in their science lessons and are continuously updated. They contain prior and current learning and are vocabulary rich with key scientific vocabulary that children encounter throughout their topics, making regular reference to them. Working walls are prepared every half term for each new topic which contains the most current knowledge organiser.

EQUALITY IMPACT STATEMENT:

Under the Equality Act 2010, we have a duty not to discriminate against any person based on 'protected characteristics'. This policy has been equality impact assessed and we believe that it is in line with the Equality Act 2010 as it is fair, it does not prioritise or disadvantage any pupil and it helps to promote equality at Whiston Willis.

MONITORING:

The practical application of this policy will be reviewed by subject leaders in consultation with the curriculum lead within school regularly. The effectiveness of the policy is demonstrated through subject leadership reports to governors which include impact statements on outcomes for pupils and the quality of teaching and learning.

The policy document will be reviewed by the subject leader and curriculum leader annually or earlier if required.