



WHITEHALL PRIMARY SCHOOL

Science Policy

Statement of Intent: Rationale and Aims

At Whitehall we believe Science teaches us an understanding of natural phenomena. It aims to stimulate a child's **curiosity** in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate creative thought. It also teaches how different enquiry types are suited to different types of scientific problems. Being a good scientist is being able to identify which enquiry type works best. This in turn builds up children's levels of resilience in that it encourages children to keep on persevering until they find the best solution and builds up their **independence**. Being able to find a solution to a problem in turn develops their level of **aspiration**. Children learn to ask scientific questions and begin to appreciate the way science will affect their future on a personal, national and global level.

The aims of science are to enable children to:

- ask and answer scientific questions through collecting, analysing and presenting data
- plan and carry out scientific investigations, using science equipment, including computers
- know and understand the life processes of living things
- know and understand the physical processes of materials, electricity, light, sound and natural forces
- know about the nature of the solar system, including the Earth
- evaluate evidence and communicate their conclusions clearly and accurately.

Teaching and learning style

At Whitehall we use a variety of teaching and learning styles in science lessons. Our principle aim is to develop children's knowledge, skills and understanding. Sometimes we do this through whole-class teaching, 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 and to communicate these is a variety of ways which helps children to develop their communication skills. They have the opportunity to use and analyse a variety of data, such as statistics, graphs, pictures and photographs. They may use computing in science lessons where it enhances their learning. They take part in role-play and discussions and they present reports to the rest of the class. The children engage in a wide variety of problem-solving activities. Where possible, we involve the pupils in 'real' scientific activities, for example, researching a local environmental problem or carrying out a practical experiment and analysing the results. By doing this we hope to inspire children to develop their scientific knowledge and to be leading ambassadors in the world of science.

We recognise that there are children of widely different scientific abilities in all classes 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 such as:

- setting common tasks which are open-ended and can have a variety of responses
- setting tasks of increasing difficulty
- differentiating work appropriately to meet the needs of all children
- providing resources of different complexity, matched to the ability of the child
- using teaching assistants to support the work of individual children or groups of children

Implementation

Science curriculum planning

Science is planned to meet the requirements of the National Curriculum. Whitehall uses Curriculum 22 scheme by Cornerstones Curriculum Maestro to support with resources and planning Science, where the lessons have a clear sequence and progression. It is organised by topic and year group and designed around the statutory requirements for Primary Science in the National Curriculum. It has wide range coverage of the working scientifically learning objectives outlined in the National Curriculum. This allows children to develop their skills of scientific enquiry. Lessons and learning intentions have been adapted to help fulfil our intent. The curriculum progression map indicates the schemes of work covered from EYFS-6 and is aligned to our curriculum values: curiosity, aspiration and independency.

We carry out our curriculum planning in science in three phases (long-term, medium-term and short-term). Long term planning maps the Science topics studied during the year. Curriculum Leaders have created medium term plans (MTP) for every topic, which include the key vocabulary that needs to be taught, the sequence of lessons, learning intentions and the key knowledge and skills for every lesson. On the MTPs, Curriculum Leaders have also highlighted lessons where working scientifically skills are met. The short term plans (STP) are taken from Curriculum 22, where teachers will then write adaptations to include differentiation, challenges and notes on any changes that they have made for that lesson. If Curriculum Leaders have chosen to change the input or activity of that lesson, these adaptations will have also been made on the STPs.

Lessons typically follow the sequence suggested by Curriculum 22. The first lesson is an introductory knowledge lesson where children revisit key prior learning from previous year groups. Next is the Engage is the engage stage, where children are introduced to the required baseline knowledge to support future learning. The teacher then implements the Develop Stage, where children delve more deeply into the theme, explore and acquire new skills and knowledge, revisit previously acquired skills and knowledge, make links between subjects, explore, make, read and write for a variety of purposes across the curriculum. Once children have acquired the knowledge and skills within the theme they are studying, they may move onto the Innovate stage. Innovate projects provide the opportunity for children to return to previous skills and knowledge and apply them in new contexts.

Planning is evaluated and annotated after each lesson is taught. Teachers will make notes on their digital timetable (on Curriculum Maestro) commenting on what went well during the lesson or areas that will need to be revisited. Curriculum Leaders and the Deputy Head teacher will monitor this to ensure that it is being done regularly.

The Early Years Foundation Stage

Planning in the EYFS meets the requirements of the Statutory Framework for Early Years Foundation Stage (EYFS) 2021. The EYFS Development Matters 2021 non-statutory guidance statements are used alongside the learning intentions in the Curriculum 22 scheme to create a sequence of progressive plans. Using Curriculum 22, we are able to relate the scientific aspects of the children's work to the objectives set out in EYFS, which underpin the curriculum planning for children aged three to five. Every lesson has a learning intention, key knowledge and skills highlighted for teachers to then adapt on the STP. The aim of the science curriculum in EYFS is to develop a child's knowledge and understanding of the world, through activities such as going on an animal safari, making electrical circuits, observing the butterfly lifecycle and planting a variety of plants. Further guidance can be found in Early Years Foundation Stage (EYFS) policy. Children are surrounded by structured play and child initiated activities, which encourage them to use their growing knowledge and vocabulary to express, explain and question their experiences.

The contribution of science to teaching in other curriculum areas

Literacy

Science contributes to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. Some of the texts covered during literacy lessons are of a scientific nature. The children develop their oral skills in science through discussion and through recounting their observations of scientific experiments. They develop their writing skills by writing reports, by completing projects and by recording information.

Mathematics

Science contributes to the teaching of mathematics in a number of ways. The children use mass and measures to learn to use and apply number. They also learn how to read and interpret a variety of graphs and scales. By carrying out investigations, children also learn how to estimate and predict. Children develop the skills of accurate observation and recording of events. They manipulate 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 and on CD-Roms. The children have access to the internet to research information about their science topics. Children use Computing to record, present and interpret data. They have the opportunity to review, modify and evaluate their work and improve its presentation. Children have access to word processing, spreadsheet and database packages enabling them to present results and findings in a variety of ways. Each classroom is fitted with an interactive whiteboard enabling the teacher to use video clips and demonstration programmes to enrich lessons.

Personal, social and health education (PSHE)

Science makes a significant contribution to the teaching of personal, social and health education. For example, children study the way people recycle materials and how

environments are changed for better or worse. Furthermore, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions.

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 why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

Equal opportunities / Special Educational Needs / Exceptionally More Able

The school's equal opportunities policy clarifies the way in which we at Whitehall strive to ensure the equal provision for all children regardless of their gender, race, culture, religion, social background, ability or disability.

We achieve these in Science by:

- involving all of the children in oral discussions
- planning differentiated work to suit the ability of the children
- allowing access to materials, resources and equipment
- having high expectations of every child
- ensuring resources used are free from stereotyping.

Science forms part of the school curriculum policy to provide a broad and balanced education for all children. We provide learning opportunities that are matched to the needs of children with special educational needs. Where pupils are identified as having special educational needs, the school provides for those additional needs in a variety of ways. Our work in science takes into account the targets set in the children's Individual Education Plans (IEPs).

Teaching science to children with EAL

Science should be achievable and accessible to all. Our work in science takes into account the needs of children who speak English as an additional language. We are aware that children may often need additional support with technical language, especially where no equivalent vocabulary exists for a particular concept. Wherever necessary, children are supported with scientific language acquisition.

Impact- Assessment and recording

In science, Pupil tracking takes place throughout EYFS to Year 6; through a system of teacher assessment. Expectations of attainment are judged by teachers and levels are then indicated against the learning intention after each lesson on Curriculum Maestro.

Teachers will indicate whether the child has attained, partially attained or not attained the lesson's learning intention. At the end of each unit of work, the children in Key Stage 1 and Key Stage 2 are assessed on meeting the overall objectives in the unit and this data is logged into Target Tracker. In addition to this, the children will complete a series of assessments after each unit, using the Head Start Topic Tests.

Feedback is provided in three ways: immediate, summary and review. Immediate feedback is usually verbal; in response to questioning, observations and in gathering evidence from pupil's work. Summary feedback is done through self or peer assessments may be used against the learning intentions. Review feedback track a pupil's understanding, how targets could be met, and encourages the pupil to implement the strategies suggested. A response to marking may be used to check for pupil's understanding. Please refer to the Marking and Feedback Policy.

Resources

General science resources are kept in a clearly labelled central resource area. Some resources used in the Foundation Stage are kept in a separate resource area or within classrooms. The library contains a good supply of science topic books to support children's individual research. There is also a wide selection of 'Big Books' that can be accessed by all members of staff to aid the teaching of science. We use the Headstart topic tests for Year 1- 6 to aid with assessment.

Monitoring and review

It is the responsibility of the science subject leader 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 provides the headteacher with an annual summary report in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement. 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 classroom.

Links to Policies

- Teaching, Learning and Assessment Policy
- Curriculum Policy
- Early Years Foundation Stage (EYFS) policy
- Marking and feedback policy