Whitestone Infant School

Science Policy

January 2022

This document is to enable the Governing Body of the school to ensure the effective management of the Science curriculum, and that the school complies with the legal requirements of the Education Reform Act (1988), The National Curriculum 2014 and The Early Years Statutory Framework (2021).

NAMED PERSONS REPONSIBLE AT WHITESTONE		
Science Leader	A.Mistry	
Headteacher	N.Green	
Link Governor	S.Hill	
Link Governor	D.Robinson	

This Policy was ratified on: _____

Date of next review: Spring 2025

This school is committed to safeguarding and promoting the welfare of children and young people and expects all staff and volunteers to share this commitment.

Vision

Science at Whitestone Infant School stimulates children's curiosity and phenomena about the world around them, their environment and events in the world, covering the basic foundations of biology, chemistry and physics. It teaches children to investigate and explore though methods of enquiry, and heightens their observation, and communication skills through first-hand experiences and secondary sources such as ICT and books.

General Aims

At Whitestone Infant School, we strive to create an atmosphere that is happy, caring and challenging. We want to promote a confident and enthusiastic community of lifelong learners. The children will receive an effective delivery of the Foundation and National Curriculum in order to promote high standards. All children will be encouraged to actively participate in a relevant, balanced and well-matched curriculum offering opportunities for challenge, enrichment and success. We have dedicated and committed staff and governors who regularly review teaching and learning to maintain our high standards. We will also ensure the promotion of positive attitudes towards gender, race, religion and disability by fostering good relations, where individuals are valued with tolerance and respect. We will keep a close partnership with parents and others in the community.

Objectives

To develop:

- An awareness of the impact of science all around us and its uses in everyday life.
- Competence and confidence in using the skills of scientific enquiry.
- A thirst for knowledge and the desire to find out for themselves.

To be able to:

- Explore and investigate through firsthand experience and play.
- Communicate scientific ideas and information verbally and in written and diagrammatic ways.
- Raise relevant scientific questions.
- Work systematically and logically.
- Use a range of scientific equipment confidently and to work safely.
- To gain scientific knowledge and understanding which develops with logic and progression.
- To acquire and enjoyment of science and a positive attitude towards it through relevant and interesting work
- To have self-confidence and motivation through striving to achieve high levels of attainment.

Guidelines

Science is fundamental in the understanding of every aspect of the world around us. It is integral to all aspects of life and with this in mind we aim to ensure that children develop a healthy and enthusiastic attitude towards science that will stay with them forever.
At Whitestone Infant School we believe that all children are entitled to a broad and balanced curriculum. We aim therefore, in accordance to curriculum aims, to ensure that all children have the opportunity to:

- Become confident and competent in using the various aspects of scientific enquiry.
- Experience a balance of activities developing knowledge, skills and understanding and the ability to problem solve.
- Learn through first hand and practical experiences wherever possible.
- Use own interests and build on experiences as starting points or as further lines of enquiry.
- Work both independently and co-operatively.
- Experience different kinds of questioning and raise questions themselves.
- Undertake tasks, which involve different modes of learning.
- Become confident in using a range of scientific skills and equipment and know how to do so safely.
- Use a variety of first hand and secondary sources to carry out a range of scientific investigations and activities.
- To incorporate ICT where ever possible.
- Progress with confidence and comfort through each stage of the science curriculum in order to avoid misconceptions or other difficulties.
- Experience scientific knowledge and conceptual understanding through the key areas of biology, chemistry and physics.
- Develop understanding of nature, process and methods of science.
- Be provided with knowledge for present and future implications.
- Draw upon the discoveries of notable scientists of both past and present.
- Have choice and ownership over investigations they might wish to pursue.

Early Years Foundation Stage

Science in the foundation stage comes under several areas of learning in addition to 'Understanding the World'. Foundation stage staff teach science in reception classes as an integral part of the topic work covered during the year. It is delivered through a range of child-initiated and adult-initiated activities in the outdoor and indoor learning environment. We aim to progressively develop children through the stages and provide opportunities for self-exploration. During the year, children the curriculum will guide the children to make sense of their physical world and their community. The frequency and range of children's personal experiences will increase their knowledge and sense of the world around them – from visiting

parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, they will listen to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this will extend their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Curriculum coverage in Key Stage 1

The national curriculum for science aims to ensure that all pupils:

- 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 scienctific knowledge required to understand the uses and implication of science, today and for the future.

Working Scientifically

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills though the teaching of then programme of study content:

- Asking simple questions and recognizing that they can be answered in different ways
- Observing closely, using simple equipment
- Performing simple tests
- Identifying and classifying
- Using their observations and ideas to suggest answers to questions
- Gathering and recording data to help in answering questions

Cross-Curricular Links

At Whitestone Infant School we aim to teach a broad and balanced science curriculum with cross curricular links to all other subject areas through such means as experiential learning.

Literacy

Science contributes to the teaching of Literacy by actively promoting the skills of reading, writing, speaking and listening. Some of the texts that the children study in literacy are of a scientific nature. This helps to develop oral skills through class discussions and observations and helps develop writing skills through recording this information.

Mathematics

Our learners apply their mathematical skills in Science. They do this by applying arithmetic fluency to problems, understanding and using measures, estimating and sense checking their work and collecting, presenting and analysing data.

ICT

Many elements of Science learning can be enhanced by the use of I.C.T. Planning incorporates the use of DVDs, classroom computers, the internet, data logging, microscopes and I-pads. These will be incorporated into the planning when they are an effective way to meet the Science learning objective but will always be available to the children if they deem them a necessary resource to aid their investigation.

Spiritual, Moral, Social and Cultural development

Science teaching offers the prospects to discuss to awe and wonder of the living world around them, to discuss issues involving the environment and keeping healthy. SMSC is intrinsically linked to the Science curriculum. Through planning for Science we aim to develop a positive attitude towards individuality and a respect for different cultures. Learning resources are carefully selected to support and develop awareness of different cultures and faiths.

RHE (Relationships and health education)

Biological aspects of RHE are taught within the Science Curriculum. The Science curriculum provides an opportunity for children to explore RHE through the Science Programmes of Study: Year 1 Animals, including humans - 'identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense'. Year 2 Animals, including humans - 'notice that animals, including humans, have offspring which grow into adults'; 'find out about and describe the basic needs of animals, including humans, for survival (water, food and air)'.

Values and attitudes

During and through science work children should:

- Work with others, listening to their ideas and treating these with respect.
- Develop respect for evidence and evaluate critically ideas which may or may not fit evidence available.
- Develop a respect for the environment and living things and for their own health and safety.

Equal opportunities

This policy reflects the school policy on equal opportunities where all children, irrespective of religion, age, gender, ethnicity, language of disability have an equal entitlement to receive a quality of education covering the full extent of the curriculum.

Special Educational Needs and Inclusion

The school strives to enable all pupils to reach their full potential. Staff will plan for those needing extra support with science when needed. Planning is linked to the I.E.P and is cross-referenced to weekly plans. The pupils are supported by teachers, helpers and outside agencies. All children have equal access to a high quality, supportive and appropriate curriculum.

More Able Children

The school encourages children to extend their work where appropriate in order to reach their full potential. The curriculum highlights the importance of open-ended investigations so children can control their own depth of learning. The class teacher in conjunction with the assessment coordinator and year group coordinator makes identification of children who are more able. It is recognised that such needs maybe in all or in one specific area of learning. I.E.P's will set targets tor these children and work will be differentiated by task or outcome in order to provide challenges to match the children's ability and experience.

Assessment

All staff have a duty to track the progress of pupils in all curriculum areas. This should be performed in a variety of ways to ensure adequate coverage. All teachers will monitor progress using O Track completed by class teacher termly. In Early Years, attainment will be recorded termly against the 'Early Years Statutory Framework' statements and 'Early Learning Goals'.

The school assess end of key stage expectations in science in line with the Teacher Assessment Framework 2018-2019. All assessments in science should be in accordance with the *Assessment* policy.

Monitoring and Evaluation Summary

The effectiveness of this policy will be based on the following criteria:

- Teacher assessments
- Reports to parents
- Progress tracker grids

- Individual children's records of attainments and progress
- Learning walks, book trawls and classroom displays
- Policy and practice review
- Reports to governors
- Pupil voice
- Tapestry

Reporting

Reception, Year 1 and Year 2 parents receive an annual written report at the end of the year summarising their child's progress in Science over the year and report on whether the children have achieved the age related expectations or not.

Teachers recording of Science

For the purpose of evidence, each year group will be recording some of their practical science activities. The Early Years Foundation Stage will use 'Tapestry' to record science observations and practical activities. All year groups will display Science work in classrooms, showcasing what the children have been learning about. Work is marked in accordance with Whitestone Infant School's marking policy.

Health and Safety

It is the duty of all staff and volunteers to take care for the health and safety of themselves and others. Class teachers will take responsibility in planning safe activities and experiments. Teachers will always explain reasons for any safety measures taken place and discuss the implications with the children. Any trips taking place throughout the year should have been planned with due regard to the school policy on taking children on outings and risk assessments carried out prior to the trips. Guidelines should be followed with regard to heat sources and electrical equipment. All children are taught the safe and appropriate use of equipment and materials as needs require. All substances used must meet COSHH requirements and are non-hazardous to children.

Information regarding health and safety can be obtained from:

- CLEAPPS booklet (displayed in the staffroom and available online)
- Be Safe – All staff are updated on health and safety changes and adhere to the' be safe' handbook.

Resources

- A wide range or resources will be available to meet the needs of all children and to enable pupils to access the science curriculum in a stimulating and inspiring way.
- Resources will be stored centrally in the science cupboard and organised into topic boxes linked to the each year group's schemes of work. Non-topic specific equipment will be stored in the same location and labeled appropriately. Members of staff are responsible for checking and returning equipment after use and for informing the science coordinator immediately of any necessary repair or replacement.
- New resources will be decided upon under the administration of the science coordinator and should be part of planning within the *Learning Improvement Plan.* Staff should also notify the science coordinator if new resources are needed with plenty of advance before order completion dates.
- Children should be taught how to use and care for equipment appropriately and consider the safe handling of them.
- Teachers encourage children to see books as a valuable source of information collected and organised for them to discover new ideas.
    - The science is enhanced through trips and workshops, for example visits to a zoo, a working farm, visits to local parks to look closely at the seasons and pond dipping.
    - Our ICT equipment and the Internet are crucial tools in the children's investigative journey. The children are encouraged to see these tools as ways of discovering the possible answers to questions they are looking for.

Bibliography

- National Curriculum in England: Science Programme of study
- Early Years Foundation Stage Statutory Framework 2021
- COSHH Risk Assessment Toolkit 2021
- Birth to 5 Matters guidance