Reviewed February 2024

Waterloo Primary School

Science Policy

Intent

We are committed to developing pupils' academic resilience, to enable them to access and fully engage with the progressive and connected curriculum we provide. With our pupils' wellbeing at the forefront, we deliver a curriculum which fulfils all statutory requirements. Teaching and learning opportunities are thoughtfully mapped to enable pupils to develop the necessary knowledge, understanding and skills to contribute successfully in the modern world. Pupils revisit, apply and deepen their scientific understanding within and across subject areas, whilst maintaining science as an independent discipline, with its own unique set of skills.

We believe that British values are fundamental to cohesion and successful participation in society and we promote these values.

We recognise that our children reflect our socially diverse community and consider it crucial for them to develop a strong vocabulary that enables them to articulate their opinions, academic understanding and emotions. Key vocabulary is mapped across the science curriculum; opportunities to revisit and embed learnt vocabulary are planned for. Key knowledge and vocabulary for units of work are shared with families in order to further consolidate learning. Opportunities to develop speaking and listening skills are planned to equip pupils to ask questions, think critically, weigh evidence, and provide clear, thoughtful conclusions.

We regard reading as an essential building block for learning across all subject areas. Taught reading skills are embedded and applied throughout our science curriculum. Questioning, tasks and resources are skilfully planned to scaffold and challenge, ensuring every child, whatever their starting point, can deepen their understanding.

Our aim is for each child to confidently enter the next stage of their education with the necessary skills, knowledge and mind-set to reach their academic potential and to thrive, knowing and understanding their place in the world and their importance and value to society as global citizens.

Aims:

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 scientific knowledge required to understand the uses and implications of science, today and for the future

Skills and Attitudes:

Key Stage 1

Pupils should be taught to:

- experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them
- ask simple questions about what they notice
- develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information
- use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways
- gather and record data to help in answering questions
- read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1

Key Stage 2

Pupils should be taught to:

- broaden their scientific view of the world around them
- develop a deeper understanding of a wide range of scientific ideas and begin to recognise that these change and develop over time
- explore, talk about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions
- ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information
- draw simple conclusions based on their data and observations, and use some scientific language, first, to talk about and, later, to write about what they have found out, using evidence to justify their ideas
- read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge

The attitudes we want to foster in children at Waterloo Primary School are:

- an enjoyment of science

- good presentation
- independence and confidence
- co-operation
- self-motivation
- curiosity and imagination

Curriculum Design:

Our Science curriculum has been devised progressively, ensuring that children have opportunities to revisit and build on prior learning throughout their time at Waterloo. Through the use of consistent weekly Science lessons, knowledge organisers and retrieval tasks, children are able to deepen their understanding of the subject and use and understand a broad range of scientific vocabulary. Optional homework projects are set for pupils, allowing learning to be consolidated at home and support for parents is added/updated on our School Website regularly.

Early Years: The Early Years curriculum has been carefully planned to ensure progression from the Early Years to Year 6. The curriculum is taught through a balance of teacher-led inputs, teacher-directed activities and free exploration. Activities are planned within continuous provision to allow children to develop the skills needed to support their wider curriculum learning throughout school. Curriculum leaders have the opportunity to spend time in the Early Years to ensure curriculum coverage and progression.

Year One: Everyday materials, Seasonal changes, Animals including humans and Plants.

Year Two: Living things and their habitats, Animals including humans, Uses of everyday materials and plants.

Year Three: Animals including humans, Forces and Magnets, Rocks, Light and Plants.

Year Four: Living things and their habitats, Animals including humans, Electricity, States of matter and Sound.

Year Five: Earth and Space, Forces, Properties and changes of materials, Living things and their habitats and Animals including humans.

Year Six: Living things and their habitats, Animals including humans, Electricity, Light and Evolution and inheritance. In summer 2, children will also prepare for secondary school science through experiments and activities that consolidate end of KS2 knowledge and introduce KS3 knowledge.

Adaptive Teaching:

At Waterloo Primary School, we ensure that we maximise learning opportunities for all by using adaptive teaching.

At Waterloo Primary School, we ensure that we maximise learning opportunities for all. Adaptive teaching means lessons and tasks are appropriate for all pupils and they can access and

be successful in their learning. All children receive high quality teaching and reasonable adjustments are made to resources and approaches.

In science, this may take the form of:

- Breaking down content into smaller chunks/steps
- Scaffolding and modelling, using a 'thinking out loud' technique
- Pre-teaching and pre-reading about a subject
- Varying levels of support
- Removing unnecessary expositions (unnecessary language)
- Increased use of concrete resources/physical environment
- Alternative methods of recording
- Adapted physical resources (keyboards, pencil grips, scissors, larger spaces to record…)
- Reframing questions
- Intervening appropriately
- Flexible groupings
- Make connections to previous learning and supporting children to remember more through various strategies through quizzes, mind maps
- Adapting thinking time to process information
- Use of visuals such as task planners, pictures and diagrams
- Extending tasks with more choice, freedom to select resources and open ended challenges

Seeking to understand pupils' differences, including their differing prior knowledge and experience and potential barriers to learning, is an essential part of teaching. Adapting teaching in a responsive way is likely to increase pupil success.
Where, despite adaptive teaching approaches, a pupil is working significantly below age related expectations, they may require a more bespoke and personalised curriculum in order to achieve success.

Learning Environment:

In all classrooms, Science displays showing key vocabulary, diagrams and photographs are devised by Teachers. These support children with their learning as pupils can refer to them regularly. In some cases, children's work from lessons or optional homework projects will be added to Science displays. Books related to Science topics will be available to children in their classrooms.

Resources: Science equipment is kept in the stockroom by the staffroom. Teachers borrow the equipment they need and return it afterwards.

Reference books are stored in classrooms or the science resource room.

Children have access to computers and iPads in the classroom and ICT suite which are used to enhance and supplement science teaching. We have sensing equipment and 2 Intel microscopes.

The school nature garden and local environment are encouraged to be used as resources where appropriate.

Health & Safety: Good classroom organisation and planning are essential and should give consideration to the safe use of resources, personal hygiene and good work practices. All teachers should be aware of potential hazards when using science equipment in the classroom and discuss these risks with the children.

Assessment:

To ensure consistency, all year groups will be assessed based on the curriculum statements made available on Target Tracker. All teachers will ensure that their children are regularly updated on the system to ensure that children's progress is charted on a half termly basis. Teacher judgements will be supported with ongoing assessments and planned end of unit assessment tasks.

Monitoring and Evaluating:

Monitoring and evaluation will be completed by the Science Lead when the time is made available as part of a subject leadership rota. The Science Lead will ensure that Target Tracker is monitored and evaluated on a half termly basis to ensure that objectives are covered and that children are placed within the appropriate steps in terms of individual assessment. Monitoring and evaluation will include scrutiny of work, lesson observations, learning walks, pupil interviews and pupil/staff questionnaires.

This policy is open to regular review, based on present practice and consultation with members of staff.

Policy reviewed by: R Cranshaw Date: February 2024

Review date: February 2026