



West Hill Primary School

SCIENCE POLICY

Let's shine together



Our vision is a school where everyone shines

What we do and encourage as a school family;

Achievement – excellence in teaching and learning which excites and inspires our children to be the best they can be.

Happiness – smiling, engaged and articulate children who are listened to, encouraged and given every support to maximise their own individual potential.

Friendship – children who are kind and caring towards each other, building lasting friendships.

Respect – a respect for people, each others' beliefs, our environment and all living things.

Responsibility – independent, creative thinkers who have the confidence to be responsible for themselves, their behaviour and for others.

Co-operation – working together, listening and valuing others' opinions within the school family and the wider community.

This policy was adopted by West Hill Primary School on
21ST SEPTEMBER 2020

Date of Review	Body responsible for review	Date of next review
July 2026	(SCIENCE) ANNA SAMPSON	July 2029

STATEMENT OF SAFEGUARDING CHILDREN

At West Hill Primary School, our school community has a duty to safeguard and promote the welfare of children who are our pupils. This means that we have a Safeguarding Children and Child Protection Policy and Procedures in place which we refer to in our prospectus. All staff including our volunteers and supply staff must ensure that they are aware of our procedures. Parents and carers are welcome to read these on request.

Sometimes we may need to share information and work in partnership with other agencies when there are concerns about a child's welfare. We will always ensure that our concerns about our pupils are discussed with their parents/carers first unless we have reason to believe that this is not in the child's best interests.

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WEST HILL PRIMARY SCHOOL SCIENCE POLICY

Intent

The 2014 National Curriculum for science aims to ensure that all pupils:

- develop a **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 skills** required to understand the **uses and implications** of science, today and for the future. We understand that it is important for lessons to have a skills based focus, and that the knowledge can be taught through this

At West Hill Primary, we intend to stimulate and excite pupils' curiosity about phenomena and events in the world around them. Science satisfies their curiosity with knowledge and can engage learners at many levels because it links direct practical experience with ideas. Scientific method is about developing and evaluating explanations through experimental evidence and modelling. This is a spur to problem-solving, independent thinking, metacognition and critical and creative thought. Through science, pupils understand how major scientific ideas contribute to technological change – impacting on industry, business and medicine and improving the quality of life. Pupils recognise the cultural significance of science and trace its worldwide development. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

Implementation

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following:

- Science will be taught in planned and arranged topic blocks by the class teacher, to have a project-based approach. This is a strategy to enable the achievement of a greater depth of knowledge.
- Through our planning, we involve problem-solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess children regularly to identify those with gaps in learning, so that all children keep up.
- We build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.
- Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.

- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts from the wider community.
- Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.
- Regular enrichment events, such as Science Week, project days or class trips, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills.

Impact

The successful approach at West Hill results in a fun, engaging, high-quality science education that provides children with the foundations and knowledge for understanding the world around them. Our engagement with the local environment ensures that children learn through varied first hand experiences. The science curriculum enables coverage of the statutory requirements whilst developing a progression of skills and vocabulary through a broad and balanced curriculum involving the wider community and local context. Enrichment activities support the children's learning providing them with the Science Capital needed for future prosperity.

1. Our teaching aims

West Hill Primary School aims to:

- stimulate and excite pupils' curiosity about changes and events in the world;
- satisfy this curiosity with knowledge;
- engage pupils as learners at many levels through linking ideas with practical experience;
- help pupils to learn to question and discuss scientific issues that may affect their own lives;
- help pupils develop, model and evaluate explanations through scientific methods of collecting evidence using critical and creative thought;
- show pupils how major scientific ideas contribute to technological change and how this impacts on improving the quality of our everyday lives;
- help pupils recognise the cultural significance of science and trace its development.

Science forms part of the National Curriculum to provide a broad, balanced education and pupils undertake some science activity every week at all key stages. Pupils in the Foundation Stage develop their knowledge, understanding and skills through play activities and direct teaching from which the pupils undertake planned tasks.

The work covered in Key Stage 1 builds on the EYFS early learning goals for pupils aged under five.

Planning takes into account that the school places a high emphasis on the development of pupils' skills through **working scientifically**, by using practical scientific methods, processes and skills through the teaching of the programme of study content. At Key Stage One, these include:

- asking simple questions and recognising 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.

At Key Stage Two these include:

- asking relevant questions, and planning different types of scientific enquiries to ask and answer key questions
- setting up simple practical enquiries, comparative and fair tests, and using test results to make predictions to set up further tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using a range of scientific equipment
- gathering, recording, classifying and presenting data and results of increasing complexity using scientific diagrams and labels
- reporting and presenting findings from enquiries
- using results to draw conclusions, make predictions, suggest improvements and raise further questions
- identifying differences, similarities or changes related to scientific ideas and processes
- using scientific evidence to answer questions or to support their findings, and identifying scientific evidence that has been used to support or refute ideas or arguments.

All lessons have clear learning objectives, which are shared and reviewed with the pupils effectively. Activities inspire the pupils to experiment and investigate the world around them and to help them raise their own questions such as "Why...?", "How...?" and "What happens if...?".

Science lessons develop the skills of enquiry, observation, locating sources of information, selecting appropriate equipment and using it safely, measuring and checking results, and making comparisons and communicating results and findings. Lessons make effective links with other curriculum areas and subjects, especially Literacy, Mathematics, Computing, Design Technology and Personal, Social and Health Education (PSHE) and citizenship, spiritual, moral, social and cultural development.

Activities are challenging, motivating and extend pupils' learning ensuring coverage of the statutory requirements and develop a progression of skills and vocabulary. Pupils have frequent opportunities to develop their skills in, and take responsibility for, planning investigative work, selecting relevant resources, making decisions about sources of information, carry out activities safely and decide on the best form of communicating their findings.

In the Foundation Stage, Science is taught through the area of learning known as 'Understanding the World'. By the end of the Foundation Stage, the performance of the great majority of the pupils should have reached the Expected level within the area of learning - Understanding the World.

At Key Stage 1, pupils observe, explore and ask questions about living things and their habitats, materials and their properties and seasonal changes. They begin to work together to collect evidence to help them answer questions and to link this to simple scientific ideas. They perform simple tests, identify and classify, and observe closely using simple equipment. They use reference materials and the Internet to find out more about scientific ideas. They share ideas and communicate them using scientific language, drawings, charts and tables with the help of Computing if it is appropriate.

At Key Stage 2, pupils learn about life processes and living things, materials and their properties and physical phenomena. They make links between ideas and explain things using simple models and

theories. They apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things and their personal health. They think about the effects of scientific and technological developments on the environment and in other contexts. They carry out more systematic investigations, working on their own and with others. They use a range of reference sources and the Internet in their work. They talk about their work and its significance, using a wide range of scientific language, conventional diagrams, charts, graphs and computing to communicate their ideas. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

2. How science is structured through the school

The school ensures curriculum continuity by following the National Curriculum programme of science units of work and by close liaison between staff at the planning stages.

Science will be taught in planned and arranged into topic blocks by the class teacher, to have a topic-based approach as set out in the curriculum map for science.

Long-term planning: The Programmes of Study are covered in a one-year programme of units as set out in the National Curriculum.

Medium-term planning: This identifies: "key learning" within each unit of work, learning objectives, science activities, progression of skills, assessment opportunities, the vocabulary to be taught, used and applied, safety issues and how information and communications technology and resources must be used. There are medium-term planning sheets for each unit of work, based on the National Curriculum.

Weekly planning: This contains elements of the overall learning objectives for the unit of work, which have been broken down into steps appropriate for the age, and stage of the pupils. This planning also contains details about risk assessment and how the needs of all pupils, including those with special educational needs and disabilities, are met. They refer to EHCPs where appropriate. The use of practical scientific methods, processes and skills should be incorporated in all science activities.

Health and sex education is taught as part of the programmes of study: Living things and their habitats and Animals, including humans.

Spoken language

The national curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. At West Hill, science lessons provide a quality and variety of subject specific language to enable the development of children's confident and accurate use of scientific vocabulary and their ability to articulate scientific concepts, clearly and precisely. They are encouraged and assisted in making their thinking clear, both to themselves and others, and teachers ensure that pupils build secure foundations by using discussion to probe and remedy any misconceptions. Pupils should have a consistent knowledge of scientific terms and apply them across the topics.

Learning resources

Every classroom has access to the resource area and pupils are encouraged to choose from a range of equipment. The subject leader is responsible for the maintenance of this area and the annual ordering of stock.

The scheme of work covers training the pupils in the safe and considerate use of animals, plants and equipment. They should be taught not to be careless and to use consumables efficiently. A small number of expensive items are kept separately by the subject leader in cupboards only accessible to teaching staff in the resource area.

Pupils should be taught how to locate and replace resources properly. Teachers should make sensible decisions, based on the age and stage of pupils, in relation to whether the teacher, the pupils under the guidance of an adult, or the pupils independently, should collect and replace resources.

In the resource area, resources are organised in portable boxes, which are clearly labelled with their contents. Teachers and children are encouraged to take these boxes into the classroom to support their work. Equipment is also listed alphabetically in a Science Equipment List folder, which is kept on display in the resource area. This can be used to locate specific equipment. These resources should be returned to their storage box or storage area.

The learning environment

Classrooms may have displays of current science in hand. Resources for the unit of work being covered should be appropriately accessible. Other sources of information should be available.

Science displays are evident in the school environment, which encourages the pupils to be curious about the world in which they live. At Key Stage 1 this might involve something to look at carefully using a hand lens or microscope. At Key Stage 2 this might involve a recent newspaper article about a scientific discovery, which builds on, or contradicts, the work of a famous scientist in history.

All science displays will highlight prominently the relevant scientific vocabulary being introduced in current units of work.

Safe practice

Safe practice must be promoted at all times. West Hill Primary School subscribes to CLEAPSS to ensure that primary science activities are safe, compliant with current health and safety guidance, and supported by expert advice, risk assessments and practical teaching resources.

The Association of Science Education publication, "Be Safe!" has also been adopted as part of the school's safety policy in science. Teachers must also take into account the school's Health and Safety policy. Particular attention must be given to avoiding the use of anything that aggravates individual pupils' allergies.

Safety issues have been identified in medium-term planning and risk assessments must be completed in lesson planning, when activities are identified that are unusual and beyond the scope of normal safety practice.

Enrichment opportunities

The whole school enrichment overview identifies links to Science. This will involve enrichment activities involving the wider community and our local context. This will focus on an area of Knowledge and Understanding through scientific enquiry, fieldwork, visits to places of scientific interest and visitors to the school in order to support the learning objectives for units of work where relevant.

Homework

No specific science homework is set at West Hill Primary, although teachers may choose to involve the pupils, parents and carers in small investigation activities or research related to the work in hand.

The role of parents and carers

Parents and carers have an important role to play in helping their children learn about science. Their role is enhanced by the use of science displays around the school to raise their interest and the interest of their children in the subject, being actively involved in homework and being encouraged to take part in an annual Science Week. Teachers need to select any science homework activities carefully so that parents and carers can provide the right levels of support or be provided with background support beforehand. Matters of topical scientific interest are raised for parents and their children to investigate or observe together.

The contribution of science to other aspects of the curriculum

The teaching of English, Mathematics, Computing and PSHE is promoted strongly in science as part of this school's drive to raise standards. Medium-term planning identifies where teachers should make explicit links with English, Mathematics, Computing and PSHE Programmes of Study.

Science is used to extend and enable the pupils to practise the skills of language, literacy and numeracy.

English

In particular, at Key Stage 1, the pupils are encouraged to use their vocabulary, speaking and listening skills to describe what they see and explain what they are going to do next. At Key Stage 2 the pupils are encouraged to develop and apply their skills of vocabulary, reading and writing to record their planning, what they observe and what they found out across a range of topics. In relation to science, they should be applying their literacy skills at levels similar to those, which they are using in their English work.

Mathematics

At both key stages the pupils are expected to use their knowledge and understanding of measurement and data handling at appropriate levels. In science, they should be applying their mathematical skills at levels similar to those, that they are using in their mathematics' lessons.

Computing

The pupils' computing skills are applied in science. At both key stages this involves the pupils using computing to: locate and research information (internet); record findings (using text, data and tables); log changes to the environment over time (sensing equipment); gain confidence in using calculators, cameras, visualisers and voice -recorders, as well as the computers and ipads.

PSHE and citizenship and SRE

Living things and their habitats, and Animals, including humans, covers topics such as similarities and differences between themselves and others, reproduction, external parts of the body and life cycles. At both key stages science complements the PSHE and SRE programmes of study and allows knowledge to be viewed and experienced from different perspectives and starting points.

Spiritual, Moral, Social and Cultural Education

Opportunities for SMSC are systematically planned and integrated into teaching sequences and short term planning.

3. Inclusion and Equal opportunities in science

In science lessons, all pupils work either individually, in pairs, as part of a small group and as a whole class. They use a variety of means for communicating and recording their work.

Educational support staff work as directed by the teacher. They are able to refer to a planning sheet for the particular group or individual they are working with. Where educational assistants are assigned to pupils with special educational needs and disabilities, they are well briefed beforehand.

All pupils, including those with special educational needs and disabilities, undertake the full range of activities. Teachers will plan individual lessons and sequence of lessons to ensure that all pupils can access the science curriculum.

4. Assessment and recording in science

Children's progress is continually monitored throughout their time at West Hill and is used to inform future teaching and learning. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study as set out in the National Curriculum. These are set out as statutory requirements. We also draw on the non-statutory requirements to extend the children and provide an appropriate level of challenge. A variety of strategies, including questioning, discussion, concept mapping, formal assessments and marking, are used to assess progress. The information is used to identify what is taught next.

The pupils' skills, knowledge and understanding are assessed before each unit of work by questioning, discussion and observation. Individuals and groups complete prior learning tasks, which summarise knowledge and understanding. The results of all these are used to refine the starting points and the level of challenge for the activities that follow. The pre-assessment tasks are revisited at the end of the unit and new knowledge and understanding are added.

Pupils are encouraged to use this self-assessment and teachers use this to identify assessment points. These prior learning tasks form the basis for teacher assessments and reporting to parents at the end of a school year.

Assessment for learning is continuous throughout the planning, teaching and learning cycle. However children are more formally assessed half termly in KS1 and KS2 using a variety of methods:-

- Observing children at work, individually, in pairs, in a group and in classes.
- Questioning, listening to and talking to children.
- Teachers should evaluate each unit of work by using the 'Teaching Assessment in Primary Science' (TAPS) model.

This information should be passed on to the subject leader who is responsible for evaluating the overall impact of the science curriculum on standards.

Teachers analyse pupils' progress at the end of each unit and school year to complete the annual report to parents.

Informal methods of assessment are used to monitor pupil's progress within the National Curriculum and teacher assessments are completed in line with these expectations.

5. Leadership and management

Staff development and training opportunities

The subject leader provides summary feedback to teachers at least once a year on the results of all formal and informal monitoring procedures about standards across the school.

This identifies staff development needs and, where appropriate, these are built into the school's staff development programme. A summative view is drawn up at the end of each summer term so that the governing body can determine the priorities for improvement. Staff attending training are expected to share the useful points with the rest of the staff by presentation and/or documentation at staff meetings. The subject leader attends Babcock Science Conferences. The subject leader is responsible for maintaining the science resources, using the budget allocation for purchase of relevant and up-to-date information.

Leadership and management roles

The science subject leader is responsible for the direction of the subject across the school. Time is allocated for the subject leader to monitor standards and quality across the school. The subject leader is expected to keep the curriculum under review and keep the head teacher informed about changes to requirements and the national and local levels. The subject leader needs to keep the link governor informed about developments, organise at least two meetings with the governor to provide an evaluation of progress and provide a written report to governors for the end of the academic year, incorporating evaluation of the school's assessment information.

How the subject is monitored and evaluated

All teachers are responsible for monitoring standards but the subject leader, under the direction of the head teacher, takes the lead in this.

Monitoring activities are planned across the year. In summary these are:

- subject leader to use one monitoring day per year to undertake lesson observations;
- subject leader to discuss with named governor the school's planning and developments. (These discussions arise from governors' planned visits);
- subject leader monitors undergo monitoring exercises once a term ongoing displays and work in hand in classrooms by termly visits, outside of lesson time;
- subject leader to prepare a short summary for the governing body once per year;
- subject leader to analyse annual teacher assessments to sample the reliability of these in each class, using the school's portfolio once per year; in every year group

- the head teacher to monitor annual reports to parents.

Review

This science policy will be reviewed by the science curriculum leader and the senior management team.

Date for next review of this document is July 2029

AS July 2026