



Pilsley C of E Primary
Science Policy
July 2021

Rationale and Ethos

At Pilsley, Science is an embedded part of our broad and balanced curriculum. Each class has Science-orientated topics in their long term plan and our Cornerstones scheme is supplemented to meet the National Curriculum. This policy reflects Pilsley's overarching aims and objectives in supporting our children to investigate the physical, chemical and biological aspects of the world which relies on first hand experiences and on other sources of information. The scientific process and pupils' problem-solving activities will be used to deepen their understanding of the concepts involved. The main aspects of science to be studied will be determined by the programmes of study of the National Curriculum 2014. Through their science lessons, pupils at Pilsley CE Primary School will continue to deepen their respect, care and appreciation for the natural world and all its wonders.

Roles and Responsibilities

The **headteacher**, in consultation with the Science leader and staff will:

- Determine the ways in which science supports, enriches and extends the curriculum.
- Decide on the provision and allocation of resources.
- Ensure that science is implemented in a way that achieves the aims and objectives of the school.

The role and responsibilities of the **Science leader** is to:

- allocate and monitor the effective use of resources within a delegated budget.
- monitor standards to ensure high quality teaching and learning. This may include pupil discussion, work scrutiny, lesson observation and moderation of work.
- involve staff in the development of the subject within school.
- keep staff informed of developments within Science.
- ensure the school follows National Curriculum guidelines.
- evaluate the needs of the school and develop plans to meet those needs.
- support the needs of staff in regards to Science.
- promote a positive attitude to Science across the school.
- integrate new resources into the curriculum and train staff to ensure confidence in their use.
- liaise with external groups and individuals in relation to standards in the subject, including the link governor.
- be accountable for the standards within the subject.

The role and responsibilities of **class teachers** is to:

- identify opportunities to embed Science across the curriculum as appropriate.
- ensure at least an hour per week equivalent of curriculum time is dedicated to teaching the science curriculum.
- ensure reasonable adjustments are taken to ensure all pupils can access the science curriculum.

- evidence teaching and learning as appropriate to the scheme of work.
- Make informed judgements of pupil attainment in science.

Curriculum Design

Intent

Through our science curriculum at Pilsley we aim to inspire a sense of curiosity and wonder about the world around us. Science is actively taught through questioning, discovering and investigating. Children are given regular opportunities to engage with the natural environment to build a connection with nature. Both indoors and outdoors, pupils are encouraged to 'be scientists' to stop and look closely, be enquiring, and ask questions. We strive to help children to become highly observant, spotting changes, noticing patterns, grouping and linking ideas and events. We aim to instil a sense of rigor throughout the science curriculum, embedding the habit of working scientifically, encouraging them to apply this way of thinking to other contexts. Children are regularly introduced to scientific words and vocabulary; learning to express their ideas and communicate effectively.

By planning a vibrant, relevant and interesting science curriculum children are given the opportunity to understand the breadth of science and importance it plays in our everyday lives. Children will develop a body of scientific knowledge that they can continue to build on throughout their school career and beyond. Children will embed an understanding of the nature, processes and methods of science by having the chance to pose and answer questions which they can interrogate through practical investigations. They will find out about scientific pioneers and their contributions to our development. Through regular events, trips and workshops children will meet people working in the field of science to help them understand its practical applications. Science has shaped the modern world as we know it and could hold the key to our future prosperity. Therefore, at Pilsley we strive to build scientific learning and thinking across our whole curriculum.

Implementation

At Pilsley C of E Primary School we provide a creative science programme based around the Cornerstones Curriculum. This is a thematic approach to learning that is mapped to the Early Years Foundation Stage and National Curriculums. Science is taught in class groups through cross curricular projects which provide a rich context for investigations and subject knowledge. Children develop a bank of scientific knowledge as they move through the school which builds on their knowledge from preceding years. Children's understanding is carefully checked using assessment for learning strategies to iron out misconceptions as they arise.

The Cornerstones projects cover units of work and areas of learning from the Early Years Foundation Stage and National Curriculum programmes of study.

Science in the Foundation Stage

In the Foundation Stage the science curriculum is covered within the specific area of learning and development 'Understanding the World'. This area of learning "involves guiding children to make sense of their physical world and their community through opportunities to explore and observe and find out about people, places, technology and the environment." EYFS statutory Framework 2018.

In Foundation Stage children:

- Talk about some of the things they have observed such as plants, animals, natural and found objects.
- Look closely at similarities, differences, patterns and change.

- They make observations of animals and plants and explain why some things occur, and talk about changes.
- Know about similarities and differences in relation to places, objects, materials and living things.

In key stage one children study units on:

plants	animals, including humans	everyday materials
seasonal changes	living things and their habitats	

In key stage two children continue to study the units from key stage one. Pupils also study:

rocks	light	Forces and magnets
Properties and changes of materials	sound	States of matter
Earth and space	Evolution and inheritance.	

Threaded through each unit of work is a commitment to developing children's understanding of how to work scientifically. Children's knowledge and competence at applying scientific methods and skills builds incrementally as they move through each body of knowledge.

Each class follows a two year rolling programme of Cornerstones projects. The Subject leader and class teachers consider the content of each project in the long term planning of the two-year cycle. Key skills and knowledge from each project are identified to ensure pupils are taught all elements of the National Science curriculum at the appropriate stage. Where units of study are not covered in sufficient depth through cross curricular learning, science learning is planned as a discrete unit.

At the beginning of each investigative learning project, the children are given the opportunity to identify their own interests, questions and subject knowledge to ensure that projects are tailored to the group of pupils participating. This enables teachers to take account of the children's varying starting points and adapt projects to ensure children can dig deeper into projects, where appropriate, or identify those who may need support to access the programme of study. Learning for each project is inspired by a 'memorable experience' which could be a workshop, visitor, trip or event which sets the scene for the project, sparking children's curiosity.

Wherever possible, scientific learning and enquiry are rooted in practical contexts. The children work in a range of groupings and environments to provide breadth to their experiences. Children Working in collaboration in with others are encouraged to develop respect for the opinions of others and to work in a democratic way. Science investigations are embedded in project learning and allow children time to explore and investigate the materials they will be using. Children make predictions before they complete a test or investigation (either by following set instructions or later on by devising their own investigations) children work scientifically to record their outcomes in a range of ways, they scrutinize their results and to draw comparisons and look for patterns. They are given the opportunity to share their outcomes and ask and answer questions about them. Across the science curriculum, there is an expectation that children will employ skills and knowledge from other areas of learning applying them to a high standard. This includes, maths, literacy and information and communication technology which is used to record results and share findings.

Impact

Assessment for learning strategies are used in all lessons. Teachers and subject leaders use observations, discussions with pupils as they work, pupils written work, sketches, video clips, photos, and feedback from investigations to evaluate pupil outcomes against attainment targets. Teachers consider how pupils use scientific vocabulary, explore materials, observe phenomena, plan and engage with investigations, interpret results and report conclusions to check understanding and engagement. These strategies provide a clear picture of a child's level of development and well-being and ensure that teachers can quickly assess when a child does not understand or requires greater support. Lessons are flexible to allow teachers to adapt to the needs of the children. Teachers use their Assessment for learning strategies to adapt future lessons to ensure all pupils make excellent progress. Progress is assessed regularly. At the end of each term, assessment data is gathered and progress is checked by subject coordinators and the Senior Leadership Team. Teachers moderate their judgements across the school and in local clusters. Subject co-ordinators monitor children's recorded work and liaise with teachers to monitor judgements against national level descriptors.

Science in the Foundation Stage

In the Foundation Stage the science curriculum is covered within the specific area of learning and development called 'Understanding the World'. This area of learning "involves guiding children to make sense of their physical world and their community through opportunities to explore and observe and find out about people, places, technology and the environment." EYFS statutory Framework 2018.

Understanding the World has three strands:

- People and Communities
- The World
- Technology

In Foundation Stage we follow the cornerstones curriculum imaginative learning projects which provide lines of enquiry across the curriculum including Understanding the World.

Teaching Responsibility and Staff Training

Science has a designated Co-ordinator and Link Governor that will regularly monitor the subject and attend CPD. The Science Coordinator will ensure there is appropriate INSET for all teaching staff and TAs. When using external speakers to deliver aspects of our Science programme we will ensure that the School Visitors and Volunteers' Policy is adhered to.

Safe and Effective Practice

Children are encouraged to consider their own safety and the safety of others at all times. Teachers will provide a safe and secure environment for children to learn. Any experiments or trips which are considered a particular risk will need a Risk Assessment Form to be completed and to consult the Science Co-ordinators and relevant SLT members prior. Safe working practices are an integral part of all Science activities. All staff are aware of safe and correct handling of tools, materials and equipment. The teaching staff demonstrate to pupils how to work safely and ensures that all children using equipment are properly supervised.

Safeguarding

At Pilsley we understand that by nature certain subjects may carry an increased risk of pupil disclosure, in cases where there is a safeguarding risk, school safeguarding policy in relation to Keeping Children Safe in Education 2018 will be followed. All external contributors will be informed of our safeguarding policy prior to working with the children. We also recognise there may be disclosures that aren't safeguarding issues, but opportunities to support the child. If this occurs staff may refer to or suggest appropriate local or national support services or information for pupils and/or their families. If a question raises potential safeguarding concerns, staff should respond in a way that will allow them time to seek advice from the Safeguarding Lead or Deputy Safeguarding Lead by replying with for instance: 'That is a really interesting question and I need time to think because I want to give you a proper answer.'

Home School Links

Our school website promotes the school and children's achievements as well as providing information and communication between the school, parents and the local community. Facebook is used to keep parents up to date in an accessible way. Texts and emails are sent to parents as reminders or to inform as an addition to sending letters home with children.

Equal Opportunities, Inclusion, Special Educational Needs and Disabilities (SEND)

Schools have a responsibility to provide a broad and balanced curriculum for all pupils.

We aim to encourage all pupils to reach their full potential through the provision of varied opportunities and differentiated lessons. Through the teaching of Science we aim to develop awareness of ethnic, cultural and economic diversity of human society and to foster positive attitudes to all people. Care is taken when selecting source material that a range of perspectives and viewpoints are represented including those of men and women from different racial, national and religious groups. Care is also taken that societies are not just represented from the British perspective but also from their own. The importance of the pupils' own cultural background is recognised as a resource which may give an alternative perspective on events of the past as well as the present. The Science co-ordinator will liaise with the SENCO to ensure that the children with SEN achieve their full potential in History lessons and activities.

Educational Visits

We aim to provide strong foundations for children's development of scientific knowledge, skills and understanding, by making best use of primary and secondary resources in our local area. Educational visits to places of scientific and investigative value will be used to support the pupils work in Science. The learning process will be based on direct experience and practical activities and will take into account the pupils own interests, experiences and activities.

Links to Other School Policies

This Policy compliments the following policies: Child protection/safeguarding; Extremism; Relationships and sex education; Drug education; Attendance; Behaviour; Inclusion; School Visitors and Volunteers.

Engaging stakeholders

This policy has been produced through engagement with the Local Authority, Governors and Teaching Staff. We will communicate with parents and carers through Pilsley's school website, Pilsley's Facebook Page as well as letters to parents and discussions during parent meetings. As a school we feel it is important to keep parents informed about what we will be discussing so that they can support their child's learning and answer any questions they may have at home. Outside visitors are used to enhance the curriculum of Science overall. Visitors are required to follow the ethos of this policy in line with Pilsley's School Visitors and Volunteers Policy.

Science Policy review date

This policy will be reviewed in May 2023 by the Science Coordinator. This will ensure that the policy continues to meet the needs of pupils, staff and parents and that it is in line with current Department for Education advice and guidance.