

SHEFFORD LOWER SCHOOL



Science Policy

Written by	Adopted by staff	Ratified by governors	Review date
Duncan Wakefield	January in DRAFT		

At Shefford Lower School we want our children to share a curiosity and love for exploration and discovery and to use evidence to make sense of the world around us. We want our children to investigate and make new discoveries to increase their sense of awe and wonder at the complexity of the world we inhabit.

1. Rationale (INTENT)

- a. The National Curriculum for Science aims to ensure that all pupils:
 - i. develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
 - ii. 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
 - iii. are equipped with the scientific skills required to understand the uses and implications of science, today and for the future.
- b. We understand that it is important for lessons to have a skills-based focus, and that children develop knowledge, building on prior and next step learning to make connections and develop further. We encourage children to be inquisitive throughout their time with us at Shefford Lower School and their journey beyond.
- c. The Science curriculum fosters a healthy curiosity in children and promotes respect for the living and non-living. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout progressive and well-structured programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills.
- d. We ensure that the Working Scientifically lies at the heart of our teaching and skills are built-on and developed throughout children's time at the school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

2. Scientific Knowledge and Conceptual Understanding

- a. The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage.
- b. Children's starting points are identified at the beginning of each science topic and the children are able to convey and record what they know already. At the end of the block, children's knowledge is checked in line with the key knowledge identified prior to the teaching block.
- c. Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary and teachers ensure that this is developed within each lesson and throughout each science topic.
- d. The science curriculum ensures that children are provided with regular opportunities to apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data.

3. Learning and Teaching of Science

- a. At Shefford Lower our teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all pupils are capable of achieving high standards in science. Our whole school approach to the learning and teaching of science involves the following;
 - i. Science will be taught, planned and arranged blocks that build on progression. This is a strategy to

enable the achievement of a greater depth of knowledge.

- ii. Through our planning, we involve problem solving opportunities that allow children to apply their knowledge, and find out answers for themselves.
- iii. We build upon the knowledge and skill development of the previous years curriculum. 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.
- iv. 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 units.
- v. Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding.
- vi. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning.
- vii. 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.
- viii. Regular events, such as Science Week allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events, where they can, will often involve families and the wider community.

4. Effective Science Teaching

- a. Science teaching at Shefford Lower School aims to create; engaging, high-quality science lessons, that provide children with the foundations and knowledge for understanding the world. Our engagement with the local environment ensures that children learn through varied and first-hand experiences of the world around them.
- b. Progressive learning outside the classroom is embedded throughout the science curriculum within lessons as well as Forest School and Outdoor Learning sessions. Through various workshops, trips and interactions with experts and visitors, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in science, as a result of their science learning.

5. 'Working scientifically'

- a. 'Working Scientifically' specifies the understanding of the nature, processes and methods of science for each year group and this is embedded within lessons and focuses on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources.
- b. Pupils are given opportunity to seek answers to questions through collecting, analysing and presenting data.

6. Organisation and Progression

- a. Science will be taught, planned and structured into blocks as per our school curriculum map. Units have been placed to allow for progression in skills and knowledge from EYFS to Year 4. Our Curriculum Coherence documents elaborate into further detail on each unit showing links and clear prior learning points and next steps in learning.

7. Assessment and Feedback

- a. Children's progress is continually monitored throughout their time at Shefford Lower School and is used to inform future teaching and learning. Pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programmes of study as set out in the National Curriculum. These are set out as statutory requirements.
- b. We also draw on the non-statutory requirements to extend our children and provide an appropriate level

of challenge. Children receive effective feedback from the class teacher through teacher assessment, both orally and through written feedback in line with our school Feedback Policy. 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;

- i. Observing children at work, individually, in pairs, in a group, and in classes.
 - ii. Questioning, talking and listening to children
 - iii. Considering work/materials / investigations produced by children together with discussion about this with them.
- c. The programmes of study are responsive to the children's starting points, as well as their specific interests. It also ensures a focus on the key identified knowledge of each topic, which is mapped within and across year groups to ensure progression. At the end of each blocked science topic, this key knowledge is checked.

8. Inclusion

- a. In school we aim to meet the needs of all of our children by differentiation and adaptive teaching within our science planning and teaching and we provide a variety of approaches and tasks appropriate to all ability levels. This involves providing opportunities for all learners to complete their own work, with support, to develop at their own individual level, as well as scientific skills and knowledge.
- b. By being given enhancing and enriching activities, more able children will be able to progress to a higher level of knowledge and understanding appropriate to their abilities.
- c. Teachers will use the school's inclusion planning key to ensure that a range of strategies are used which include and motivate all learners, ensuring that optimum progress is made throughout each part of the lesson.

9. Role of the Subject Leader

- a. It is the responsibility of the subject leader to monitor the standards of children's work. The subject leader is also responsible for supporting colleagues in their teaching, for being informed about current developments in the subject, and for providing a strategic lead and direction for science in the school.
- b. The subject leader monitors the budget, resources science topics and books, trips and workshops to support learning. The subject leader is responsible for monitoring samples of children's work, training, liaising with other subject leaders internally and externally.

10. Parental Engagement (Including Homework)

- a. Parental input is highly valued and parents are regularly invited and welcomed into school to share their own expertise with the children. As a school we are always looking for ways to increase parental engagement to add extra opportunity and insight into new scientific understanding as well as career choices and pathways.
- b. Children will receive science homework within Learning Logs based on their current topic. The aim of this is to consolidate or revisit and review previous knowledge from the classroom. These activities are open ended and also include a 'Rocket Challenge' to provide extra stretch and challenge.

11. Equal opportunities

- a. All children are entitled to a broad and balanced curriculum, irrespective of their age, gender, race, physical or intellectual ability. Each child will have the opportunity to develop at a level and rate appropriate to their needs. In the context of the classroom, it is the class teacher's responsibility to differentiate teaching and plan appropriately challenging learning activities to enable all children to make progress.
- b. Staff expectations of pupil are soundly based on evidence of the pupil's attainment and do not reflect and bias. Pupil's effort and work is valued equally and positive images of all individuals are promoted.

12. Resources

- a. Management, equipment and resources for these subjects are organised to promote effective use by pupils. They are clearly marked or labelled, where appropriate, to allow actual or visual access to the children. Teachers demonstrate the ways in which specific materials or processes will be organised, and pupils are expected to take an increasing level of responsibility for that organisation.
- b. Staff model safe use of equipment to children and begin lessons modelling and demonstrating safe use of equipment. The class teacher is responsible for ensuring the safety of the children during the lesson by

instructing them in the safe and appropriate use of any equipment. The class teacher is responsible for the general care of the equipment during the lesson by instructing the children in the correct use of the equipment and by replacing them safely after use.

- c. The class teacher should report damage to equipment to the Science Leader as soon as possible. Everyone needs to ensure the Science cupboard is kept neatly.
- d. The school is committed to expanding present equipment wherever necessary and possible, and to organising human and physical resources, with the aim of motivating both staff and pupils to take part in creative activities.

13. Museum and Art Gallery

- a. All children will have access to the museum displayed around the school. If on the wall, the panels/exhibits or artwork will be hung at child height and include a written description about each piece will be displayed next to the artwork so children can find out information about it, where it is from, when it was created and additional information. The museum will showcase a wide collection of exhibits, genres, as well as including work from throughout history, from around the globe, and different cultures.

14. Monitoring

- a. The implementation of this policy will be monitored by the Science subject leader who will evaluate developments in this area and identify any action points on the school development plan. The policy will be reviewed once every three years by staff and governors.