



Science Policy

September 2022

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Statement of intent

Science provides the foundation for understanding the world around us. It can not only teach pupils about the world they live in, but also how to study it and make sense of various phenomena. As such, it is a fundamental aspect of all children's learning.

Through adherence to this policy, Firs Primary School will not only ensure statutory compliance with the national curriculum, but also that all pupils have a solid grounding in science and a positive attitude towards scientific knowledge and experimental processes.

The aims of this policy include:

- Developing pupils' interest in, and enjoyment of, science. By building on children's curiosity, the science curriculum will help to instil a positive attitude towards science in pupils.
- Delivering all the requirements of the national curriculum in relation to science and covering major scientific concepts.
- Ensuring science lessons are purposeful, accurate and where appropriate, practical.
- Ensuring pupils have sufficient scientific knowledge to understand both the uses and implications of science, today and in the future. This will also give pupils an appreciation of the changing nature of scientific knowledge.
- The development of pupils' ability to pose questions, investigate these using correct techniques, accurately record their findings using appropriate scientific language and analyse their results.
- Helping pupils develop the scientific skills of prediction, hypothesising, experimentation, investigation, observation, measurement, interpretation and communication.
- Making pupils aware of and alert to links between science and other school subjects, as well as their lives more generally.

Signed by:

_____ Headteacher Date: _____

_____ Chair of governors Date: _____

1. Legal framework

1.1. This policy has due regard to statutory legislation and guidance including, but not limited to, the following:

- DfE (2013) 'Science programmes of study: key stages 1 and 2'
- DfE (2021) 'Statutory framework for the early years foundation stage'
- The Control of Substances Hazardous to Health Regulations (COSHH) 2002
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013

1.2. This policy will be used in conjunction with the following school policies and procedures:

- First Aid Policy
- Accessibility Policy
- Educational Visits and School Trips Policy
- Equal opportunities Policy
- Guest Speaker Policy
- Home learning Policy
- Safer Working Practices Policy
- SEND and inclusion Policy

2. Roles and responsibilities

2.1. The subject coordinator (as part of the STEM team) is responsible for:

- Preparing policy documents, curriculum plans and schemes of work for the subject.
- Reviewing changes to the national curriculum and advising on their implementation.
- Monitoring the learning and teaching of science, providing support for staff where necessary, intervening where the policy is not being observed or provisions are not adequate in following the national curriculum's objectives
- Encouraging staff to provide effective learning opportunities for pupils.
- Helping to develop colleagues' expertise in the subject.
- Organising the deployment of resources and carrying out an annual audit of all science resources.
- Communicating developments in the subject to all teaching staff.
- Leading staff meetings and providing staff members with the appropriate training.
- Organising and providing CPD opportunities in the subject.
- Ensuring common standards are met for recording and assessment.

- Collating assessment data and setting new priorities for development of science in subsequent years, relating the school's improvement plan
- Creating an annual action plan for Science to identify the current needs of the subject, continuously identify actions that need to be implemented swiftly

2.2. The classroom teacher is responsible for:

- Acting in accordance with Firs Primary School Science Policy
- Liaising with the science coordinator about key topics, resources and supporting individual pupils where support is needed.
- Ensuring that all of the relevant statutory content is covered within the school year at a level that is appropriate for the child.
- Monitoring the progress of pupils in their class and reporting this on a half-termly basis using the schools Topic book assessment (summative).
- Undertaking any training that is necessary in order to effectively teach the subject.
- Ensuring lessons take place frequently to build up from pupil's current knowledge.
- Ensure frequent formative assessment takes place, marking all pupils work before the next Science lesson to address any misconceptions or gaps in learning.
- Take account children's prior knowledge, identifying concepts from previous years may not be consistent with our schools progression documents for children who are new to the school.
- Set high expectations which challenge and inspire children, where applicable using physical resources and practical methods of teaching to ensure inclusion of all pupils.

2.3. The Headteacher is responsible for:

- Ensuring an up to date Science policy is in place across the school, taking into account the latest developments.
- Ensure Science is taking place frequently according to the overview.
- Hold the STEM team to account for the effective implementation of the Science Policy.
- Intervene where it is evident the policy is not being implemented.

- **The national curriculum**

- The national curriculum is followed and provides a full breakdown of the statutory content to be taught within each unit.

- During EYFS, in accordance with the 'Statutory framework for the early years foundation stage', focus will be put on the seven areas of learning, with the scientific aspect of pupils' work relating to the objectives set out within the framework.
- During years 1 and 2, pupils will be taught to:
 - Ask simple questions and recognise that they can be answered in different ways.
 - Observe closely, using simple equipment.
 - Perform simple tests.
 - Identify and classify.
 - Use their observations and ideas to suggest answers to questions.
- During years 3 and 4, pupils will be taught to:
 - Ask relevant questions and use different types of scientific enquiries to answer these questions, setting up simple practical enquiries, comparative and fair tests.
 - Make systematic and careful observations and, where appropriate, take accurate measurements using standard units and a range of equipment, including thermometers and data loggers.
 - Gather, record, present and classify data in a variety of ways to help answer questions.
 - Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
 - Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
 - Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
 - Identify differences, similarities or changes related to simple scientific ideas and processes.
 - Use straightforward scientific evidence to answer questions or to support their findings.
- During years 5 and 6, pupils will be taught to:
 - Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
 - Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
 - Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
 - Use test results to make predictions to set up further comparative and fair tests.

- Report and present findings from enquiries, including conclusions, causal relationships and explanations of the results and the degree of trust in them. This should be in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas/arguments.

- **Cross-curricular links**

- Wherever possible, the science curriculum will provide opportunities to establish links with other curriculum areas.
- Wherever possible, links will be made to STEM projects to encourage cross-curricular work. This might include special events, such as British Science Week, home learning tasks and competitions.

- **English**

- Pupils are encouraged to use their speaking and listening skills to describe what is happening.
- Pupils' writing skills are developed through recording their planning, what they observe and what they found out.
- Science based texts are sometimes used in English lessons and in guided reading sessions.

- **Maths**

- Science will involve a degree of numeracy at all levels.
- Pupils use their knowledge and understanding of measurement and data handling.
- Where appropriate, pupils record their findings using charts, tables and graphs.

- **ICT**

- Pupils will use ICT to locate and research information.
- ICT will be used to record findings, using text, data and tables. This may include equipment such as Data Loggers.
- Pupils are encouraged to use calculators and other electronic devices, gaining confidence throughout their school experience where appropriate.

- **PSHE**

- Health education is taught as part of the science unit about ourselves, which covers:
 - Health and growing
 - Teeth and eating
 - Moving and growing
 - Keeping healthy
 - Life cycles

- **History**
 - Scientific discoveries and the contribution of individuals to science will be studied.
- **Spiritual development**
 - Pupils' development will be focussed on the vastness of science and the natural world, encouraging a sense of awe.
 - Pupils are encouraged to think about the effect of scientific discoveries on the modern world.
 - Current scientific developments and issues will be discussed in the classroom, where appropriate.
- **Teaching and learning**
 - Pupils will be taught to describe associated processes and key characteristics in common language, as well as understand and use technical terminology and specialist vocabulary.
 - Lessons will allow for a wide range of scientific enquiry, including the following:
 - Questioning, predicting and interpreting
 - Pattern seeking
 - Practical experiences
 - Collaborative work
 - Carrying out investigations
 - Carrying out time-controlled observations
 - Classifying and grouping
 - Undertaking comparative and fair testing
 - Researching using secondary sources
 - Each year group will have the opportunity to undertake an external educational visit or an internal visitor, which is science based, at least once a year.
 - A science scheme of work and overview is located on the shared drive; this can be used to promote progression throughout the school.
 - Children will have the opportunity to research and listen to an outside speaker based on a science/ STEM career.
- **Planning**
 - All relevant staff members are briefed on the school's planning procedures as part of staff training.
 - Throughout Firs Primary School, science is made clear to pupils. The use of the Science symbol within Topic books and on Working walls will support children in understanding what lesson they are learning within

- Teachers will use the key learning content in the DfE's 'Science programmes of study: key stages 1 and 2' and the national curriculum as a starting point for their planning.
- Lesson plans will demonstrate activities which are inclusive for all pupils, taking into account the needs of English as an additional language (EAL) learners or New to English (NTE) learners.
- Overviews (Long Term Plans) will be used to outline the units to be taught within each year group.
- Topic Booklets will be used (Medium Term plan) to outline the vocabulary and skills that will be taught in each unit of work, as well as forming the Firs Primary Assessment booklet for Topic lessons.
- Short-term plans will identify learning objectives, success criteria, main learning activities and differentiation.
- Short-term planning is the responsibility of the teacher. This is achieved by building on their medium-term planning, taking into account pupils' needs and identifying the method in which topics could be taught.
- Short-term plans are solely for the benefit of the classroom teacher and do not need to be shared with the subject leader. These will only be requested should there be a concern with the sequence in teacher, where intervention is needed.
- All lessons will have clear learning objectives, which are shared and reviewed with pupils.
- **Assessment and reporting**
 - Pupils will be assessed and their progression recorded on the success criteria.
 - Pupils will be assessed continuously throughout the year, as well as undertaking a summative assessment at the end of Year 2 and 6.
 - Throughout the year, teachers will plan assessment for learning opportunities in order to gauge whether pupils have achieved the key learning objectives.
 - Assessment in science is based upon scientific knowledge and understanding, rather than achievement in English or maths.
 - Assessment will be undertaken in various forms, including the following:
 - Talking to pupils and asking questions through verbal feedback
 - Discussing pupils' work with them
 - Marking work against the learning objective
 - Specific assignments for individual pupils
 - Observing practical tasks and activities

- Pupils' self-evaluation of their work
- Classroom tests and formal exams for year 2 and 6
- Pre-unit quiz for assessment of prior learning
- Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and informs their immediate lesson planning.
- In terms of summative assessments, the results of end of year assessments will be passed to relevant members of staff, such as the pupil's future teacher.
- Parents will be provided with a written report about their child's progress during the summer term every year. These will include information on the pupil's attitude towards science, progress in understanding scientific methods, ability to investigate, and the knowledge levels they have achieved.
 - Verbal reports will be provided at parent afternoons during the Autumn and Spring terms.

- **Equipment and resources**

- Science resources for each unit are stored in appropriate year groups or in the Science Store cupboard.
- The subject leader and class teachers are responsible for ensuring that all resources and equipment are sufficiently maintained before the lesson takes place.
- Equipment will be checked prior to each use and any damages or defects must be reported to the subject leader immediately.
- The subject leader is responsible for maintaining an inventory of resources.
- Staff members must inform the subject leader of any changes regarding science resources, such as broken items or when new resources are required.
- Any equipment or resources which are a cause of concern will be removed immediately.
- The subject leader will carry out an annual audit of the science resources, reordering any consumables when necessary.
- Class teachers can discuss the need for new resources that are shared with the whole school, with the subject leader.

- **Health and safety**

- Staff members will act in accordance with the school's First Aid Policy to ensure safety is carefully maintained.

- Accidents and near-misses will be reported following the procedure outlined in the school's Accident Reporting Procedure Policy.
- A risk assessment will be carried out by teachers and approved by the deputy headteacher before conducting a high risk activity, booking an external visitor or attending a school trip.
- All pupils will be shown how to correctly use equipment and will be monitored by staff members whilst using equipment.
- All pupils will be made aware of how they are expected to behave, ensuring that they show respect to other people and the environment.
- Pupils are made aware of the personal safety protocols and equipment needed when using different equipment or carrying out different tasks.
- Staff members will be made aware of the COSHH and RIDDOR regulations as part of their induction training and will act in accordance with these whilst undertaking activities.
- Any 'new' experiments or activities which a teacher has not used in the classroom before will be trialled prior to being performed with pupils.
 - At the beginning of any experiment, the teacher will outline the purpose of the experiment to the class, and all hazards and safety precautions will be thoroughly outlined.
 - Before the lesson, teachers will assess children's current understanding of instructions, to ensure clear safety warnings are given and understood by the children.
 - Any high risk children, will be planned for to ensure inclusive practice is followed and the safety of all children is adhered to. Where appropriate a risk assessment may need to be put in place, this should be discussed with the deputy headteacher.
- **Equal opportunities**
 - All pupils will have equal access to the entire science curriculum, including practical experiments.
 - Protected characteristics such as; gender, learning ability, physical ability, ethnicity, linguistic ability and/or cultural circumstances will not impede pupils from accessing all science lessons.
 - Where it is inappropriate for a pupil to participate in a lesson because of reasons related to any of the factors outlined above, the lessons will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided where necessary.

- All efforts will be made to ensure that cultural and gender differences will be positively reflected in all lessons and teaching materials used.
- Firs Primary School aims to provide more academically able pupils with the opportunity to extend their scientific thinking through extension activities such as problem solving, investigative work and research of a scientific nature. These will be identified through challenge bubbles.

Classroom environment

- The classroom environment will include a working wall with examples that are required for the lesson.
 - Equipment should be made available during the lesson for children's to select from.
 - Children's science work will be displayed on the working walls at frequent periods.
 - Vocabulary should be evident within the lessons, either using word aware or vocabulary cards.
 - Teachers will foster a love for Science approach to enthuse children.
- **Monitoring and review**
 - This policy will be reviewed on an annual basis by the subject leader, in collaboration with the Headteacher.
 - The subject leader will monitor teaching and learning in science at Firs Primary School, ensuring that the content of the national curriculum is covered.
 - Any changes made to this policy will be communicated to all teaching staff.