



Elton Primary School & Nursery

Science Policy

In our school, the wellbeing and education of all our children comes first

Reviewed	Spring 2022
Review	Spring 2024

Rationale

This policy is intended to support the teaching and learning of science within our school. Science is an important part of our world today and is a systematic investigation of the physical, chemical and biological aspects of the world we live in and beyond. It is vital that children are taught scientific knowledge, methods, processes and uses to ensure they are able to grow and develop with the changes in our world. Science is all around us; therefore all pupils should be encouraged to understand and explore what is occurring, predict how things will behave and analyse the causes through observing, testing, and pattern seeking and classifying. At the heart of science we aim to develop children's sense of excitement and curiosity within a wide range of experiences, contexts and topics. The main aspects of science to be studied will be determined by the National Curriculum 2014.

Aims

- To develop pupils' enjoyment, excitement, curiosity and interest in science and an appreciation of its contribution to all aspects of everyday life and for their future.
- To use a range of planned investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science.
- To ensure pupils are familiar with and use scientific vocabulary appropriately and accurately.
- To provide pupils with opportunities to work scientifically, developing basic practical skills and their ability to make accurate and appropriate measurements.
- To develop opportunities to work with and support learning within science or other curriculum areas, through cross-curricular links; providing pupils with opportunities to use information and communication technology (ICT) and apply mathematical skills in their science studies.
- To allow children to explore and investigate for themselves and be involved in purposeful activities.

Learning Outcomes

The following learning outcomes are derived from the aims above and will form the basis of our decisions when planning a scheme of work.

To develop pupils' enjoyment, excitement, curiosity and interest in science and an appreciation of its contribution to all aspects of everyday life and for their future.

- To provide children with first-hand experiences and an awareness of themselves and the world around them.
- To provide opportunities for children to participate in visits, clubs, trips and workshops inspiring them to participate in science.
- To involve all children in open-ended activities, where they are participating, enquiring and leading their own learning.
- To explore, talk about and test the world around them, developing and testing ideas about everyday phenomena.
- To develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge and understanding of the world including scientists from different cultures.
- To encourage pupils to relate their scientific studies to applications and effects within the real world. To develop a knowledge of the Science contained within the programme of study of the National Curriculum.

To use a range of planned investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science.

- To provide pupils with a range of specific opportunities to work scientifically, through investigations and practical work that gives them a worth-while experience to develop their understanding of science.
- To develop progressively pupils' ability to plan, carry out and evaluate simple scientific investigations and to appreciate the meaning of a "fair test".
- To develop in pupils, over time, the ability to predict, estimate and develop their questioning skills.
- To introduce pupils to different methods of recording so that over time they may learn how to record in the most suitable way.

To ensure pupils are familiar with and use scientific vocabulary appropriately and accurately.

- To widen pupils' vocabulary by the introduction and modelling of the correct use.
- To encourage children to participate in scientific opportunities, that allows them to develop their spoken language and use of vocabulary.
- To give pupils regular opportunities to use scientific terms necessary to communicate ideas about science.

To provide pupils with opportunities to work scientifically, developing basic practical skills and their ability to make accurate and appropriate measurements.

- To develop pupils' basic practical skills and their ability to make accurate and appropriate measurements.
- Within practical activities give pupils opportunities to use a range of simple scientific measuring instruments, such as thermometers and force meters, and develop their skill in being able to read them.
- To introduce pupils to a variety of different methods to record results.
- To provide opportunities for pupils to record results in an appropriate manner including the use of diagrams, graphs, tables and charts

To develop opportunities to work with and support learning within science or other curriculum areas through cross-curricular links; providing pupils' with opportunities to use information and communication technology (ICT) and apply mathematical skill in their Science studies.

- To give pupils opportunities to use ICT (including digital microscope, video, photography, etc.) to record their work and store results.
- To provide children with opportunities to obtain information from the internet, data bases or CD-ROMs.
- To look at cross-curricular topic links where possible.
- To apply mathematical skills of collecting and recording data to support investigations.
- To provide children with opportunities to develop their spoken language.
- To plan for extended writing opportunities.

To allow children to explore and investigate for themselves and be involved in purposeful activities.

- To encourage children to pose their own questions.
- To provide children with opportunities to make some decisions about which types of scientific enquiry are likely to be the best way of investigating.
- To allow children to carry out their own investigations both independently, paired and in groups.

Principles of Teaching and Learning and Inclusion

Planning

At Elton Primary School and Nursery, we follow the Rising Stars scheme of work called Switched On Science. This scheme offers teachers support with their subject knowledge, lesson ideas, resources, key vocabulary, PowerPoints, interactive videos and assessments. The scheme has been mapped out to compliment our structure of units across the school so that where possible teachers can deliver complementing units together across the curriculum, looking at a thematic approach. When planning, teachers can take lessons and resources from the scheme and adapt it to meet the needs of the class when needed. Following the scheme ensure that we have progression all the way from early years to year 6. In addition to Switched On Science, teachers can use the long term plans, medium term plans, knowledge organisers and whole school vocabulary document to support them with ensuring progression and coverage.

Knowledge

At the beginning of each new Science unit, teachers will share knowledge organisers with the children. This will contain all the key knowledge and vocabulary which the children will need to access the unit. Throughout the unit, there will be a heavy focus on learning and retaining knowledge and teachers will therefore plan for opportunities to teach and assess the key knowledge. Throughout the year, the subject lead will complete pupil voice, which will also assess children's understanding of previous units.

Differentiation

The study of science will be planned to give pupils a suitable range of differentiated activities appropriate to their age and abilities. Differentiated activities of appropriate challenge will be provided for all pupils offering extension and open-ended work for the most able, and support/guidance for the least. Children's knowledge should be extended for the more able children by broadening the depth of application and deepening and varying the context, ensuring the objectives are fully met and embedded before moving on.

Equal Opportunities

Curriculum planning will ensure that all pupils have an equal opportunity to take part in the full scheme of work and its associated practical activities regardless of gender or cultural background.

Special Educational Needs and Disabilities

For pupils with SEND the task will be adjusted or pupils will be given extra support. The grouping of pupils for practical activities will take account of their strengths and areas for development and ensure that they all take an active part in the task and gain in confidence. Where possible, Teaching Assistants will be used to support individual needs.

Gifted and Talented

Good differentiation should provide challenging activities for all pupils. At times, more open-ended investigations are set, and pupils are routinely challenged with probing questions from the teacher either in the group or individually.

Cross Curricular Links/Key Skills

Literacy

Key words are to be routinely displayed on classroom walls and pupils are to be encouraged to use the correct scientific vocabulary. Teachers are to encourage and plan for speaking and listening opportunities within their classroom to develop children's scientific vocabulary and enable them to articulate scientific concepts clearly and precisely. A more creative theme – based curriculum will embed literacy skills with science skills where appropriate and applicable; with Teacher's planning for extended writing opportunities.

Numeracy

The use of mathematical skills in science is delivered in conjunction with the National Numeracy Curriculum. Pupils are progressively taught to use numbers, to handle data and to plot bar charts and line graphs. Teachers should plan for opportunities for this to be applied within science investigations.

ICT

We aim to develop pupils' use of ICT in their Science studies. We give pupils opportunities to use ICT to record their work and to store results for future retrieval. We give pupils the opportunity to obtain information using CD-ROMs, the Internet and other databases. Pupils are encouraged to use interactive software to model and simulate scientific processes.

Continuity and Progression

Our Science Curriculum is planned to ensure progression. Each year group covers the units named in the National Curriculum and this has been mapped out by the subject lead to ensure full coverage using the scheme of work Switched on Science. By careful planning, pupils' scientific skills and knowledge gained during EYFS and Key Stage 1 will be consolidated and developed during Key Stage 2 and teachers can ensure this by following the progression of skills and knowledge documents. EYFS will support children to access science opportunities through understanding the world and will use the Switched on Science scheme to support planning.

follows the Early Learning Goals for Knowledge and Understanding of the World.

Pupils in KS1 will be introduced to science through focused observations and explorations of the world around them. They will be encouraged to be curious and ask questions about what they notice and will be helped to develop their understanding of scientific ideas through questioning, observing and finding things out from secondary sources. These will be further developed through supportive investigations into more independent work at LKS2, where children will broaden their scientific view through asking their own questions, making decisions about scientific enquiry and drawing simple conclusions to first talk about. By the end UKS2 pupils will have a deeper understanding of a wide range of scientific ideas and this will be explored through investigations with a growing emphasis on independent enquiry, planning and analysing, which will be embedded and supported by the teacher; leading to more challenging work and progression.

Health and Safety

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class teachers, Teaching Assistants and the Subject Co-ordinator will check equipment before use and will report any damage, taking defective equipment out of use. A Science risk assessment has been carried out to identify various risks associated with scientific resources and lessons. Hazards to be avoided and considered during the planning and teaching of science.

Assessment, Recording and Reporting

Assessment of Learning

At Key Stages 1 and 2, Teacher assessment will predominantly be used to assess pupils' retention of knowledge and their skills of 'Working Scientifically'. Teachers use both knowledge descriptors and 'Working Scientifically' indicators along with the National Curriculum to form a basis of whether the child is working above age related expectation, at age related expectation or below age related expectation. Teachers will indicate where every child is for all science units taught using Target Tracker and this data will follow the class to the next academic year; allowing the next teacher to see prior learning and plan based on this knowledge.

Learning objectives are to be shared at the beginning of the lessons and reviewed at appropriate intervals. AFL techniques and strategies that have been implemented across the school will also play part of the assessment of science. Open-ended questioning and considering possibilities to work individually and with a 'Learning Partner' will raise children's ability to consider scientific concepts from different perspectives. We aim to ensure that all pupils understand what is required of them and what they need to do to improve; this can be given through verbal and written feedback. It is vital that children are given the opportunity to reflect on their own work, teachers marking and use next steps to develop learning further.

Subject Leadership

Planning and Developing the Subject

The subject leader will provide professional leadership and management for science and will ensure that it is managed and organised so that it meets the aims and objectives of the school. An annual and/ or phase meeting will be held to review the needs of science. Personal development of staff and training needs will be discussed. The Science subject leader will organise and lead these meetings.

Teaching and Learning

The subject leader will monitor teaching and learning within the subject and will initiate reviews of the scheme of work. While the subject leader will coordinate the scheme of work to ensure breadth of coverage and progression, year teams will be expected to develop medium and short-term plans using relevant skills and objectives from the National Curriculum.

Resources

The subject leader will manage the resources for science and will maintain the stock to meet the needs of the curriculum. The Science leader will see that this level of resourcing is maintained and will administer the allocated budget for science.

More specialist pieces of equipment and those posing a potential safety risk will be held by the subject leader and issued to staff when requested. Teaching materials and background information on science are kept in the central resource area.

Monitoring and Evaluation

The Science subject leader will attempt to monitor classroom teaching in all year groups on a yearly basis. The effectiveness of the science curriculum will be evaluated with the Headteacher, Key Stage Leaders and Science Subject Leader. Priorities for in service training and external review will be established. This evaluation will form the basis of an action plan which will inform the school development plan.

