



Science Policy

November 2023

Version 2.2

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1 Definition

- 1.1 To develop pupils' curiosity, enjoyment, skills and a growing understanding of science knowledge, through an approach in which pupils raise questions and investigate the world in which they live.

2 Aims

- 2.1 The 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 these impacts on improving the quality of our everyday lives.*

3 Teaching and Learning

3.1 Key Stage 1

During years 1 and 2, pupils will be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- *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.*

3.2 Lower Key Stage 2

During years 3 and 4, pupils will be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- *asking relevant questions and using different types of scientific enquiries to answer them*
- *setting up simple practical enquiries, comparative and fair tests*
- *making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers*
- *gathering, recording, classifying and presenting data in a variety of ways to help in answering questions*
- *recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables*

- *reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions*
- *using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions*
- *identifying differences, similarities or changes related to simple scientific ideas and processes*
- *using straightforward scientific evidence to answer questions or to support their findings.*

3.3 **Upper Key Stage 2**

During years 5 and 6, pupils will be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- *planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary*
- *taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate*
- *recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs*
- *using test results to make predictions to set up further comparative and fair tests*
- *reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations*
- *identifying scientific evidence that has been used to support or refute ideas or arguments.*

3.4 All lessons have clear learning objectives which are shared and reviewed with the pupils effectively. Teachers will use Bright Ideas Time in lessons, to assess children's prior knowledge, facilitate deeper thinking and generate discussion.

3.5 Pupils have frequent opportunities to develop their scientific skills and take responsibility for planning investigations; selecting relevant resources; making decisions about sources of information; carrying out activities safely and deciding on the best form of communicating their findings.

3.6 All activities will develop the skills of enquiry and observation, as well as exploring sources of information and selecting appropriate equipment. Pupils will measure and check results, make comparisons and communicate results and findings. All pupils will be taught to use equipment correctly and safely.

3.7 Long term planning for science will follow the New National Curriculum and will be based on the Twinkl plans. Science will be taught discreetly and within topic based learning. See Appendix 1

3.8 Medium term planning will be for each term and differentiation of activities will be made in the weekly/daily planning as appropriate to the pupils being taught based upon their prior knowledge, understanding and skills.

- 3.9 Science is usually taught through a thematic approach and as such there is no set model for the amount of time given over to the teaching of science on a weekly basis. The time spent on science teaching may vary from term to term but on average it would be two hours per week to be able to cover all the strands within the National Curriculum.
- 3.10 Science contributes to many subjects within the primary curriculum and opportunities will be sought to draw scientific experience out of a wide range of activities. As science is taught mainly within a thematic approach this will allow children to begin to use and apply scientific skills and knowledge in real contexts.
- 3.11 All year groups will participate in a themed STEM (Science, Technology, Engineering and Maths) week each year to broaden and enhance their understanding and enjoyment in STEM subjects.
- 3.12 Where possible all year groups will visit Science Oxford once per year or facilitate a Science Oxford workshop in school e.g., Planetarium.

4 Literacy

- 4.1 At Key Stage 1, the pupils are encouraged to use their 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 their skills of writing to record their planning, what they observe and what they found out. In relation to science, they should apply their literacy skills at levels similar to those which they are using in their English work.

5 Numeracy

- 5.1 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 numeracy skills at levels similar to those which they are using in their mathematics lessons.

6 Computing

- 6.1 Computing is an important tool for use in science work and therefore the school aims to use Computing for collecting data and presenting results. For data collection, pupils will use photography to track the progress of experiment and use sensors to read temperature, light and sound and record the results appropriately. Pupils will make use of a variety of websites for research, quizzes, puzzles and pictures as well as Discovery Networks (Espresso) for its information pages specifically designed and researched for each key stage.

7 Thinking Skills

- 7.1 The teaching of science provides numerous opportunities for the development of higher order thinking skills. Scientific enquiry demands a range of different types of thinking and processes that can be developed through thoughtful questioning.

8 Spiritual development

- 8.1 Spiritual development is encouraged through reminding pupils of the wonder of science and the effect of scientific discoveries on the modern world. Topical scientific issues are also discussed as appropriate.

9 Personal, social and health education

- 9.1 Health education is taught as part of the units on ourselves, health and growing, teeth and eating, moving and growing, keeping healthy and life cycles.

10 Resources

- 10.1 All resources for KS2 and the majority of resources for KS1 are kept in the science cupboard which is next to the year 6 classrooms.

11 Safety

- 11.1 It is important that children are taught to observe the rules of safety when carrying out experiments and investigations. Materials and equipment need to be handled sensibly and they should be shown how to do this. A copy of the 'Be Safe' document published by the Association for Science Education is available in the staffroom and science resource cupboard, this is the Science safety policy adopted by the County and our school.

12 Records and assessment

- 12.1 Teacher observations, along with end of unit mini assessments or closing the gap tasks, will be used to help decide an end of year attainment level. Children will be assessed as either: working towards expectation (WT); Working AT (WA) or exceeding expectation (E) across all aspects of scientific learning.
- 12.2 Short term assessments will be an informal part of every lesson to check the children's understanding and give the teacher information to adjust future lessons. Longer term assessment will be through the use of ongoing observations of the children's development of skills and their level of understanding.

13 Making Science inclusive

13.1 We teach science to all children regardless of their race, gender or ability which is in line with our school policy on equal opportunities. Science forms part of the school Curriculum Policy to provide a broad and balanced education for all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. Our science work will take into account any targets which are set in a child's IEP. We provide learning opportunities that are matched to the needs of EAL children through support from a TA, visual aids or a partner. Children who are on the gifted and talented register are set challenging questions and investigations and opportunities for further challenges outside of their class lessons.

14 Inclusion

14.1 We ensure that the curriculum is available to all pupils, with equal appropriate access regardless of sex, race, religion or ability.

15 Role of the Subject Leader

15.1 The Subject Leader is responsible for the monitoring and development of the subject throughout the school.

15.2 This includes:

- *attending cluster group meetings and relevant courses*
- *working alongside colleagues at both key stages*
- *updating resources/resource boxes*
- *checking medium term plans and advising on best practice*
- *monitoring progression*
- *looking at project books and talking to pupils about their work*

16 Staff Training

16.1 Staff will be encouraged to attend courses and review resources. The Science Subject Leader will have access to specific training to support and develop their role.

17 Dissemination

17.1 The Policy is available on the school web site and a paper copy is available from the school admin office on request.

18 Reviewing the Policy

- 18.1 This policy will be reviewed annually by the Subject Leader and monitored by the Link Governor to ensure that the Policy is relevant and up to date.