



Science Policy

Review Date September 2020

Every Child, Every Chance, Every Day, Working Together



SCIENCE POLICY

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1. What is Science?

1.1 Science is essential to understanding the world in which we live. A high-quality science education provides the foundations for understanding the world through biology, chemistry and physics.

1.2 Science is vital to the world's future prosperity.

2. Aims:

The overarching aim for Science in Crabtree Farm is to ensure that pupils:

2.1 Be taught essential aspects of the knowledge, methods, processes and uses of science.

2.2 To develop scientific enquiry skills.

2.3 To ask questions about the world they live in and make simple predictions about what might happen if...

2.4 Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.

2.5 To explain how to make their test fair and explain why it is fair.

2.6 To say what happened and explain trends in their results.

2.7 Be equipped with the scientific knowledge required to understand the uses and implications of science both for today and the future.

2.8 To make use of ICT, Literacy and Numeracy skills

In order to achieve these aims we will:

- Provide a stimulating environment to promote effective learning in Science
- Ensure continuity and progression in Science by liaising with colleagues on areas covered
- Give children lots of opportunities to develop and apply investigative skills
- Provide necessary resources for the children to be taught effectively
- Provide a safe environment in which to explore Science

3. Teacher Guidelines

Key Stage 1

3.1 The focus for teaching science in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and man-made world around them.

3.2 Pupils should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.

3.3 Most of the learning about science should be done through the use of first-hand practical experiences. There should also be some use of appropriate secondary sources, such as books, photographs and videos.

3.4 Pupils in Key Stage 1 will be taught the following practical scientific methods, processes and skills;

- To ask simple questions and recognise that these can be answered in different ways.
- To observe closely, using simple equipment
- To perform simple tests
- To identify and classify
- To use observations and ideas to suggest answers to questions
- To gather and record data to help to answer questions

Lower Key Stage 2 (Years 3 & 4)

3.5 The focus for teaching science in Lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them. They will do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions.

3.6 Pupils will develop the skill of asking their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information.

3.7 Pupils will draw simple conclusions and use some scientific language to talk about and then to write about what they have found out.

3.8 Pupils in Lower Key Stage 2 will be taught the following practical scientific methods, processes and skills:

- To ask relevant questions and use different types of scientific enquiries to answer them
- To set up simple practical enquiries, comparative and fair tests

- To make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- To gather, record, classify and present data in a variety of ways to help in answering questions
- To record findings using simple scientific language, drawings, labeled diagrams, keys, bar charts, and tables
- To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- To identify differences, similarities or changes related to simple scientific ideas and processes
- To use straightforward scientific evidence to answer questions or to support their findings.

Upper Key Stage 2 (Years 5 & 6)

3.9 The focus for teaching science in Upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.

3.10 Pupils will encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates.

3.11 Pupils will begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information.

3.12 Pupils will draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

3.13 Pupils in Upper Key Stage 2 will be taught the following practical scientific methods, processes and skills:

- To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- To use test results to make predictions to set up further comparative and fair tests

- To report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- To identify scientific evidence that has been used to support or refute ideas or arguments

3.14 Across Key Stage 1 and 2, pupils should read, spell and pronounce scientific vocabulary correctly.

4. Teaching Methods

4.1 Teachers will follow the guidelines in the National Curriculum Programmes of Study, which describe a sequence of knowledge and concepts for each block.

Scientific Enquiry

4.2 Each block outlines statutory requirements that pupils will be taught. It also outlines guidance for 'working scientifically'. It will not be taught as a separate strand. It 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 should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources.

4.3 Pupils should seek answers to questions through collecting, analysing and presenting data. Teachers use the pupil's ideas as a basis for their enquiry.

4.4 Teachers will ensure that pupils have a secure understanding of each block in order to progress to the next stage. Any misconceptions will be addressed.

4.5 Resources will be kept in the science cupboard (outside class 12) and updated regularly.

5. Planning

Long Term

5.1 Science is a core subject in the National Curriculum. We use the New National Curriculum for Science 2014 as the basis for implementing the statutory requirements of the programme of study for science.

5.2 The programmes for study for science are set out year-by-year for key stages 1 and 2. However, schools are only required to teach the relevant programme of study by the end of the key stage.

5.3 There is room for flexibility if teachers desire to introduce content earlier or later than set out in the programme of study. This will need to be discussed with the subject leader and relevant year groups to avoid repetition and ensure progression.

5.4 Over the course of the year science should be planned and taught every half term.

5.5 In each half term, half of the lessons planned will contain a practical element.

Short Term

5.5 The class teacher will complete weekly plans for the teaching of science (on the new wider curriculum planning format). These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught.

5.6 The subject leaders and class teacher can discuss plans on an informal basis and specify resources needed.

5.7 If planning is not carried out in conjunction with the parallel teacher, close consultation must take place to ensure continuity and progress between the classes.

6. Assessment

6.1 Assessment will be carried out at the end of each topic. Years 1-6 will use Rising Stars to do this. The assessment data will then be inputted onto a spreadsheet for the Subject Leaders to analyse. This analysis will help to identify any gaps in teaching and learning.

In Science we will also assess by:

- Talking to the pupils and asking questions
- Discussing the work with the pupil
- Looking at the work and marking against the learning objective
- Observing the pupils carrying out practical tasks
- Pupils self-evaluation of their work

6.2 Teachers are expected to use the 'I can' statements and scientific enquiry posters to ensure coverage across each year group has been met.

7. Marking

7.1 Will be in line with the schools marking policy. Pupils will also have verbal feedback.



8. Information and Communication Technology

8.1 Pupils will be taught to use a range of ICT equipment to enhance their scientific learning. For example, digital cameras may be used to record investigations.

8.2 Pupils may use a variety of computer programmes to create graphs and charts to record their results.

8.3 Specific science computer programmes will be purchased and used as appropriate. For example, programmes to make a circuit.

9. Health and Safety

9.1 Health and safety guidance is outlined in the National Curriculum Programmes of Study for each block as appropriate. It is the teacher's responsibility to read and apply this guidance.

10. Displays

10.1 A display/area should be evident within each classroom displaying the science topic being taught.

11. Review

11.1 Acceptance of the science policy implies commitment to it.

11.2 The science policy will be reviewed annually.

Hannah Hall and Lorna Leonardi-Weston
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