Science Policy

1. Title Page

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2. Contents

Contents

1. Title Page 1
2. Contents 2
3. Statement of Intent 3
4. Implementation 3
5. Scientific Knowledge and Conceptual Understanding 4
6. Working scientifically 4
7. Spoken Language 5
8. Cross Curriculum links 5
9. Recording work 5
10. Assessment 5
11. Parents 5
12. Health and Safety 6
13. Inclusion 6
14. Role of the Subject Leader 6

3. Statement of Intent

At Higham Primary School, we recognise the importance of science in every aspect of daily life and it is our intention to develop in our pupils a lifelong curiosity in the subject. At Higham, in conjunction with the aims of the National Curriculum for science (2014), our science teaching offers opportunities for children to:

- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- 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.
- Be equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Our curriculum is planned so that pupils progressively build on learnt scientific knowledge and skills. Pupils regularly have opportunities to apply skills with increased independence, raising questions and recognising ways in which they might answer them. We want pupils to be able to work scientifically; planning enquiries, identifying variables, take measurements, record data and results, make predictions from comparative and fair tests, report findings from enquiries and identify scientific evidence. As children progress through the school, it is our aim to ensure that they understand and build upon key scientific knowledge and concepts and increase their technical vocabulary.

4. Implementation

Teachers at Higham Primary School create a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science.

In the Foundation stage, science is taught through a topic-based curriculum with the children learning about the world around them. They have the both adult lead sessions and opportunities to investigate independently in their learning through play.

In both Key Stage 1 and 2, the curriculum at Higham has been structured into carefully planned units of work based on the National Curriculum programme of study. These units of work enable children to learn and retain important and useful knowledge relating to the unit as well as developing their scientific enquiry skills. These are developed with increasing depth and challenge as children move through the year groups. Within a unit of work, children will carry out investigations and hands-on activities, be encouraged to ask their own questions and be given opportunities to use scientific skills and research to discover the answers. Each lesson has a clear focus and the sequence of lessons helps to embed scientific knowledge and skills, with each lesson building on previous learning. There is also an opportunity to recap concepts and vocabulary where necessary and to regularly review and evaluate children's understanding. Lessons are well resourced and teachers demonstrate how to use equipment safely and the various working scientifically skills in order to embed scientific understanding.

In addition to this, opportunities are also provided to develop children's understanding of their surroundings by access to our well-maintained outdoor learning environment.

Science lessons are taught discretely each week and are differentiated according to the children's learning requirements. This ensures all groups of learners can access the curriculum and make good progress in each session.

Additional opportunities are provided in Science, such as an after-school Science club and educational visits linked to the curriculum, such as visits to Horton Kirby Education centre.

5. Scientific Knowledge and Conceptual Understanding

The National Curriculum 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. 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. 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. The learning environment, in all classes, reflects what is currently being taught in science and incorporates key vocabulary (See Learning Environment and Display Policy). 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.

6. Working scientifically

'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. Pupils are given opportunity to seek answers to questions through collecting, analysing, and presenting data.

Long term and medium-term planning identify the scientific skills required for each year groups and there is a clear progression of skills across each year group. The following 'Working Scientifically' skills are embedded within lessons and are taught across all year groups:

- Ideas and Evidence in Science
- Asking Questions and Enquiry
- Predicting and Hypothesising
- Planning and Enquiry
- Fair Testing
- Investigating
- Recording Results
- Presenting Results
- Drawing Conclusions
- Reviewing the Test

7. Spoken Language

The national curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. At Higham Primary science lessons provide a quality and variety of subject specific language to enable the development of children's confident and accurate use of scientific vocabulary and their ability to articulate scientific concepts clearly and precisely. They are encouraged and assisted in making their thinking clear, both to themselves and others, and teachers ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

8. Cross Curriculum links

At Higham Primary School, science is taught as a discrete subject however it has many strong links with other subjects as well as constantly reinforcing children's basic skills. It develops many of the skills used in English such as reading, writing, speaking and listening. Children enhance their mathematics skills by developing their ability to problem solve, measure and represent and analyse information. Children use ICT whenever appropriate in science lessons. This includes the use of iPads and data loggers.

9. Recording work

Scientific work is recorded in a variety of ways appropriate to the age of the children and their individual needs in each key stage. This can include teacher observations, photographs, drawings, tables, graphs, written accounts and formal write ups. It is expected that all recorded science work is to be presented to a high standard but not to the detriment of the science investigations or the teaching and learning aspect of the lesson. The balance of practical activity and length of recording tasks is carefully planned to maintain a scientific emphasis.

10. Assessment

Teachers will assess children's Science work in a variety of ways to ensure they gain a full understanding of what each child has learnt, and what is needed to progress their understanding. Teachers will carry out summative assessment while a task is being carried out through discussion, questioning and observation of children working in groups or individually. Teachers will also provide oral and written feedback in line with our Feedback and Marking Policy. At the end of each unit of work, informal teacher assessment is undertaken against the National Curriculum programmes of study. These assessment grids are then passed on to the next teacher so they fully informed of the children's progress in each area and can plan and deliver lessons that build upon their existing knowledge and skills.

11. Parents

Parents are informed via the school website of the science topics and its coverage. Parents have an opportunity to see children's work and discuss progress at parent consultations offered three times per year and open afternoons at least 3 times per year. Class teachers are always willing to discuss children's work at other times on request. Attainment of science is reported in each pupil's annual report.

12. Health and Safety

Safe working practices are an integral part of all science activities. All staff are aware of safe and correct handling of tools, materials and equipment. The teaching staff demonstrate how to work safely and ensure that all children are properly supervised when using equipment.

13. Inclusion

At Higham, all children have equal access to the full Science programme of study that satisfies the National Curriculum 2014 requirements, regardless of race, gender, culture or class. It is important for all children to experience a range of scientific activities in ways that are appropriate to their needs and abilities. We meet the needs of all our children through adaptative teaching by providing a variety of teaching approaches, resources, scaffolds and tasks appropriate to their ability levels. Some children will require closer supervision and more adult support to allow them to progress whilst more able children will be extended through extension activities. 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. Flexible groupings are used maximise learning.

14. Role of the Subject Leader

It is the responsibility of the subject leader to monitor the delivery of science teaching and the standards of children's learning across the school. This is achieved through lesson observations, drop ins, pupil voice, work scrutiny, examining planning and considering the learning environment. 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. The subject leader monitors the budget, resources, science curriculum overview and may books trips and workshops to support learning.