Science Policy

Date of review – Spring 2023

At Hunloke Park Primary School our vision is to provide a high quality science education which enables pupils to explore, investigate and discover the world around them and equip them with knowledge so that they gain a deeper understanding of the world we live in today and in the future.

We do this by providing the children with a stimulating, enquiry based curriculum that is both supportive and challenging and encourages curiosity and questioning. Through meaningful, cross curricular practical enquiries and explorations we aim to secure and extend all children's scientific knowledge, skills and understanding.

We believe that these opportunities will make our children confident, life-long learners who are equipped to continue to explore and understand our ever changing world.

Aims:

At Hunloke Park Primary School we want to support and encourage children to investigate and understand the world around them.
We believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disability. Our aims in teaching science include the following:

- Preparing our children for life in an increasingly scientific and technological world today and in the future.
- Helping our children acquire a growing understanding of the nature, processes and methods of scientific ideas.
- Helping develop and extend our children's scientific concept of their world.
- Building on our children's natural curiosity and developing a scientific approach to problems.
- Encouraging open-mindedness, self-assessment, perseverance and developing the skills of investigation – including: observing, measuring, predicting, hypothesizing, experimenting, communicating, interpreting, explaining and evaluating.
- Developing the use of scientific language, recording and techniques.
- Developing the use of computing in investigating and recording.
- Making links between science and other subjects.

Why teach science?

A fun, engaging, high-quality Science education provides foundations for understanding the world. Science has changed our lives and is vital to the world's future prosperity. Through building key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how key knowledge and concepts can be used to explain what is occurring, predict how things will behave, and analyse causes. This understanding should be consolidated through their appreciation of applications of Science in society and the economy.

In teaching Science we are developing in our children:

- motivated learners with a positive attitude towards science and an awareness of its role and importance in our lives today and in the future;
- an understanding of Science through a process of enquiry and investigation;
- confidence and competence in scientific knowledge, concepts and skills;
- an ability to reason, predict, think logically and to work systematically and accurately;
- an ability to communicate scientifically;
- the initiative to work both independently and in co-operation with others;
- the ability and meaning to use and apply science across the curriculum and real life
- an understanding of the importance of a healthy life style
- an understanding of the possibilities for careers in science

Statutory Requirements:

Statutory requirements for the teaching and learning of Science are laid out in, The National Curriculum in England Framework Document for Teaching, September 2014 and the Statutory framework for the Early Years Foundation Stage, September 2014.

The 2014 national curriculum for science aims to ensure that all pupils:

● 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

● are equipped with the **scientific skills** required to understand the **uses and implications** of science, today and for the future.

We understand that it is important for lessons to have a skills-based focus whenever possible, and that the knowledge can be taught through this.

How Science is structured through the school:

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all pupils are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following;

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of, 'The National Curriculum programmes of study for Science 2014' and, 'Understanding of the World' in the Early Years Foundation Stage.

Science teaching at Hunloke Park involves adapting and extending the curriculum to match all pupils' needs. Where possible, Science will be linked to class topics, and children are encouraged to plan areas of science learning. Science will also be taught as discrete units and lessons where needed to ensure coverage. Due to the mixed year groups in some of our classes, Science units are generally taught on a two-year rolling programme. This ensures progression between year groups and guarantees topics are covered. Teachers will plan for pupils to practice and apply the skills, knowledge and understanding acquired through Science lessons to other areas of the curriculum and through investigations. STEM /STEAM activities and supporting skills in computing are developed alongside science skills and all are used to support problem solving and practical application. Recording in science in Key Stage 2 is used as an opportunity to practice literacy skills and sometimes a piece of science writing can be found in the children's literacy books which has been used to practice a literacy skill such as report or instruction writing.

Teachers plan to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available.

Scientific knowledge and conceptual understanding

The 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.

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. They should also apply their mathematical knowledge to their understanding of Science, including collecting, presenting and analysing data.

EYFS: (Reception)

As in the previous Framework, the 'science' objectives come under Understanding the World (formerly Knowledge and understanding of the World), which is one of the specific areas. Science is a wonderful vehicle for enabling children to develop skills across the curriculum, as all the areas of learning and development at the foundation stage are inter-connected. Through engaging in science activities, children not only learn about the world around them, they also develop key skills in the three prime areas.

Key Stage 1 (Year 1 and 2):

The main focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information. They 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. Most of the learning about Science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

Pupils should read and spell scientific vocabulary at a level consistent with their reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2 – Years 3 and 4

The main focus of Science teaching in Lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them. They should 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. They should ask 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 fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

'Working scientifically' must **always** be taught throughout and clearly related to substantive Science content in the programme of study.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

Upper Key Stage 2 – Years 5-6

The main focus of Science teaching 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.

At Upper Key Stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also 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 fair tests and finding things out using a wide range of secondary sources of information. Pupils should 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. Pupils should read, spell and pronounce scientific vocabulary correctly.

Working and thinking scientifically' must **always** be taught throughout and clearly related to substantive Science content in the programme of study.

The Governing Body:

There is a governor for science who meets with the Science Coordinator. Updates on the progress of Science provision is fed back to the governors. This policy will be reviewed every three years or in the light of changes to legal requirements.

The Use of Computing:

We recognise the important role computing skills have to play in the development of scientific skills. We also recognise the importance of being computer literate. Computing skills are used regularly to enhance teaching and learning of science and to give all children the opportunity to use computing to research, collect, analyse and present scientific findings (see Computing policy).

Assessment and Target Setting:
Pupil's work will be assessed in line with the Assessment Policy.

Assessment is achieved through:

- discussion with pupils;
- observation of pupils;
- marking work;
- Assessment from pre and post learning tasks;
- Use of Target Tracker

Inclusion:

We aim to meet the needs of all children to enable them to all to reach their learning potential in science by planning and providing a range of different approaches and tasks appropriate to all ability levels. We will identify which pupils or groups of pupils are under-achieving and take steps to support and improve their attainment. Gifted children will be identified and suitable learning challenges provided (see inclusion and SEND policy).

Equal Opportunities:
Hunloke Park has universal ambitions for every child, whatever their background or circumstances. Children learn and thrive when they are healthy, safe and engaged. In order to engage all children: cultural diversity, home languages, gender and religious beliefs are all celebrated. Our curriculum includes a wide range of texts and other resources that represent the diversity and backgrounds of all our children (see equal opportunities and equality policy).

Health and Safety:

There will be occasions when the class teacher will need to make risk assessments when the children are carrying out some investigations. The Science Association provides useful help and advice. (ASE). Advise and guidance is available to the school through CLEAPSS publications.

Helpline Tel: 01895 251496.

"Teach children how to be safe, rather than being safe for the children".

National Curriculum – general teaching requirements:

"When working with tools, equipment and materials, in practical activities and in different environments, including those

that are unfamiliar, pupils should be taught:

- about hazards, risks and risk control
- to recognise hazards, assess consequent risks and take steps to control the risk to themselves and others
- to use available information to assess the immediate and cumulative risks
- to manage their environment to ensure the health and safety of themselves and others
- to explain the steps they take to control risks."

Role of Subject Leader:

The Subject Leader should be responsible for improving the standards of teaching and learning in Science through:

- Monitoring and evaluating pupil progress;
- Provision of Science;
- The quality of the Learning Environment; ·
- Taking the lead in policy development
- Auditing and supporting colleagues in their CPD;
- Purchasing and organising resources;
- Keeping up to dates with changes in the subject.

Monitoring and Evaluation:

The Subject Leader follows the School Self Evaluation for Subject Leaders' Guidelines and is achieved through:

- monitoring and evaluation of pupils' work;
- lesson observations and learning walks;
- monitoring of planning
- data from teachers assessments

Parental Involvement:

We aim to involve parents directly in the life of the school, and thus in the development of children's skills, knowledge and understanding in Science. There are two parent evening opportunities when parents can discuss their children's progress with their teacher. In addition, termly curriculum museums, letters or blogs provide information about the children's recent learning in the curriculum, including that in science**.** Parents are welcome to discuss their children's learning by appointment with the class teacher if so desired.

SATs results are published in accordance with Government legislation.

Conclusion:

This policy should be read in conjunction with the following school policies:

- Teaching and Learning Policy ·
- Assessment and Record Keeping
- Marking policy
- Special Educational Needs Policy ·
- Computing Policy
- Equal Opportunities Policy
- Health and Safety Policy including Risk Assessments

This policy will be reviewed every three years or in the light of changes to legal requirements.

Chair of Governing Body:
Date: