

Hedon Primary School

Science Policy

Approved by committee 20th October 2020
Approved by full governors 5th January 2021
Reviewed 2nd March 2023
Reviewed every 2 years unless policy changes.

Aims

Science at Hedon Primary School aims to teach our children the skills, knowledge and understanding they need to question and understand concepts and phenomena that occur in the world around them and equip them with the motivation to seek explanations for these. We aim to develop pupils' curiosity in the subject whilst also helping them to fulfil their potential. For our pupils to achieve well in science, they need to acquire the necessary scientific knowledge and also be able to enjoy the experience of engaging and purposeful scientific enquiry in order to help them to answer scientific questions about the world around them.

The new National Curriculum 2014 states why we teach science in schools: 'A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics...Through building up a body of 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.'

The aims of science are to enable children to:

- Ask and answer scientific questions
- Plan and carry out fair scientific investigations, using equipment including computers
- Know and understand the life processes of living things
- Know and understand the physical processes of materials, electricity, light, sound and natural forces
- Know about materials and their properties
- Evaluate evidence and present their conclusions clearly and accurately

Intent

At Hedon Primary School, in conjunction with the aims of the National Curriculum, our Science teaching offers opportunities for children to:

Take part in a broad and balanced range of creative and innovative experiences.

Embrace our school grounds and the local environment through outdoor learning.

Develop an enthusiasm and enjoyment of scientific learning and discovery.

Develop the essential scientific enquiry skills to deepen their scientific knowledge.

Encouraging open-mindedness, self-assessment, perseverance and developing the skills of investigation – including: observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.

Have opportunities to work collaboratively, creating their own questions about the world around them and then challenging themselves to find the answer through different types of science enquiries, building on skills learnt both in Science and across other subjects.

Develop scientific knowledge and conceptual understanding through the specific disciplines of Biology, Chemistry and Physics.

Be equipped with the scientific knowledge required to understand the uses and implications of Science, today and for the future.

Build and retain key vocabulary.

Make links between science and other subjects

Use a range of methods to communicate their scientific information and present it in a systematic, scientific manner, including I.C.T., diagrams, graphs and charts.

Develop a respect for the materials and equipment they handle with regard to their own, and other children's safety.

Preparing our children for life in an increasingly scientific and technological world today and in the future.

Teaching of Science

At Hedon Primary School we base our teaching on the National Curriculum Programmes of Study and this is particularly helpful with ensuring that there is continuity and progression.

The National Curriculum document for Science sets out a clear, full and statutory requirement for all children. It determines the content of what will be taught, and sets attainment targets for learning. The programmes of study set out what should be taught at Key Stage 1 and 2. In EYFS opportunities for Science are undertaken within themes' taught, covering objectives from Understanding the World in the Development Matters document.

We have both a Skills Progression document and a Knowledge Progression document. The Long term Plan shows the Science topic and Enquiry type linked to the topic, ensuring coverage across the year. Science KO's have statutory statements in bold and a colour coded enquiry title which corresponds to the yearly overview, ensuring all 5 are covered throughout the year.

Our principal aim is to develop the children's knowledge, skills and understanding. In each Science lesson we have both a skills and knowledge objective, stating what the children should know, understand and be able to do. In years 1 to 6 our Science lessons include an 'Explorify' activity which focuses on observation, classifying and grouping and reasoning skills - drawing conclusions from what they can see. These tasks enable the teacher to assess, address misconceptions and extend the child's thinking by challenging them to justify their reasons. Deeper level thinking questions provide children who are secure in a concept to make links and apply their knowledge in a further scenario.

Hedon Primary School uses a variety of teaching and learning styles in science lessons. We use a mixture of whole-class teaching and individual / group activities. Teachers encourage the children to ask as well as answer scientific questions. The children have the opportunity to use a variety of secondary sources of information, where it will enhance learning as well as gaining first hand experiences, for example, the use of books, photographs, graphs, diagrams, models and ICT. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit and we also build progression into the science scheme of work, so that the children are increasingly challenged as they progress through the school.

We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Through the Programmes, children will acquire and develop these skills throughout their Primary years. We believe that science promotes communication in a specific and precise language involving mathematical and logical thinking. It allows children to develop ways of finding out for themselves and gives them practice in problem solving.

In science, pupils are encouraged to be open-minded and to try and make sense of what they see and find out.

Inclusion and Differentiation

We recognise the fact that we have children of differing scientific ability in all our classes and so we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of way by:

- Setting common tasks that are open-ended and can have a variety of responses
- Setting tasks of increasing difficulty (we do not expect all children to complete all tasks)
- Using additional adults to support the work of individual children or small groups
- Incorporating high order questions that apply to scientific thinking to extend the most able children
- Using resources which have been adapted e.g. enlarged, copied onto a specific coloured background
- Hiring resources from specific companies for children with specific needs

All children must have regular access to science appropriate to their stage of development. Challenge for all is integral to our teaching and we aim to encourage all pupils to reach their full potential through the provision of varied opportunities. Work is differentiated to aid children's learning for example more-able children given open-ended tasks and opportunities for further research and more challenging studies. We recognise that our curriculum planning must allow pupils to gain a progressively deeper understanding and competency as they move through our school.

The contribution of science to teaching in other curriculum areas

Science contributes significantly to the teaching of English by actively promoting the skills of thinking, reading, writing, speaking and listening. The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information. Maths is linked by the children working on investigations as they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many of their answers and conclusions. Children use computing in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the internet as well as to record, present and interpret data. Science is linked with PSHE in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare and healthy eating and exercise. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions.

We hold a whole school STEM week to unite subjects.

Multi-Cultural links will be developed wherever possible in the teaching of this National Curriculum subject. Through the teaching of Science we are developing the schools Eco awareness and the global impact of this.

Assessment

Assessment in Science is based upon scientific knowledge and understanding. In the Foundation Stage we assess children's knowledge and understanding according to the EYFS Learning and Development Stages. In KS1 and KS2 we use a range of assessment materials to ensure that children are making appropriate progress. Pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

All staff strive to ensure that our children reach their full potential in Science and that they understand and enjoy their experiences. We teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for all children. Through our science teaching, we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Science work, where appropriate, will be recorded in science books; evidence will also be photographic and evident on classroom displays.

Assessment should:

Be formative and summative

Be used to inform the teacher for future planning

Promote continuity and progression

Form the basis for reporting to parents

Be based on observation, participation and written outcomes

Each term all of the teachers will meet for a Science moderation session, to ensure that judgements are uniform. PLAN documents will be used to assist judgements and give examples of secure work in each year group for Y1 to Y6.

Health and Safety:

A risk assessment will be made, as part of the planning process, before any potentially dangerous scientific activity is undertaken.

Children will be informed of any risks or hazards but will also be encouraged to assess and identify risks for themselves.

Children will be shown how to use scientific equipment safely.

Safety glasses/aprons/gloves will be used where appropriate.

Staff will consult the CLEAPSS website for further Health and Safety guidance and note it on their planning.

Equal Opportunities

Hedon Primary School 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 range of texts which represent diversity.

Community Links

At Hedon Primary School we are making links with local industries and have enrolled in a Science Capital Programme. Children also have the opportunity to experience science first-hand through school visits linked to topics.

Monitoring and review

The Science Co-ordinator and class teacher are responsible for monitoring the standard of the children's work and the quality of teaching in Science. The Science Coordinator is responsible for supporting colleagues in the teaching of Science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school.

This policy will be reviewed in the light of changes to requirements.