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Science Policy

July '26

Review date: July '27

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In our school curriculum, Science is a powerful vehicle through which every child is encouraged to 'gain a heart of wisdom'—not only by exploring the wonders of the natural world, but by developing thoughtful, inquisitive minds and compassionate hearts. Rooted in our Christian values and inclusive ethos, our Science teaching inspires children to Amaze with their curiosity, critical thinking and care for creation; to Achieve by building secure knowledge, practical skills and confidence in asking big questions; and to Aspire by imagining solutions, embracing challenge and recognising their role in shaping a better future. Through hands-on investigation, collaborative learning and reflective practice, we nurture wisdom that goes beyond facts—wisdom that empowers children to live wisely, act kindly and think deeply as they journey through a world full of possibility.

Policy For Science

1. Aims and objectives

1.1 Science teaches an understanding of natural phenomena. It aims to stimulate a pupil's curiosity in finding out why things happen in the way that they do. It teaches methods of enquiry and investigation to stimulate creative thought. Pupils learn to ask scientific questions and begin to appreciate the way in which science will affect the future on a personal, national and global level.
1.2 Our objectives in the teaching of Science are for all our pupils by:

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- Preparing our pupils for life in an increasingly scientific and technological world today and in the future.
- Helping our pupils acquire a growing understanding of the nature, processes and methods of scientific ideas.
- Helping develop and extend our pupils' scientific concept of their world.
- Building on our pupils' 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, hypothesising, 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.

2. Teaching and Learning Style

2.1 At Harworth Church of England Academy we use a variety of teaching and learning styles in Science lessons. Our principal aim is to develop pupils' knowledge, skills and understanding. Sometimes, we do this through whole class teaching, while at other times we engage the pupils in an enquiry based research activity. We encourage the pupils to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures and photographs. They use ICT in science lessons because it enhances their learning and they often present reports to the rest of the class. The pupils engage in a wide variety of problem solving activities. Wherever possible we involve the pupils in real scientific activities e.g. investigating a local environmental problem or carrying out a practical experiment and analysing the results.

3. The New National Curriculum

3.1 **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

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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.

3.2 The nature, processes and methods of science

'Working scientifically' specifies the understanding of the nature, processes and methods of Science for each year group. It should not be taught as a separate strand.

3.3 Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

3.4 Key Stage 1

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

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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.

3.5 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 through 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.

3.6 Upper Key Stage 2 – Years 5 and 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

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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 through and clearly related to substantive Science content in the programme of study.

4. Science Curriculum Planning

4.1 Science in a core subject in the National Curriculum. The school uses Kapow Primary Science. We carry out our planning in three phases (long-term, medium-term and short-term). The long term plan maps the scientific topics studied in each term during the key stages. The Science co-ordinator works this out with teaching colleagues in each year group. In some cases, we combine the scientific study within other subject areas when appropriate. At other times, the pupils study Science as a discrete subject.
4.2 Our medium-term plans, which we have based on the Kapow Primary Science scheme, give details of each unit of work for each term. The Science co-ordinator keeps and reviews these plans.
4.3 The class teacher is responsible for writing a short-term plan (if desired) for each lesson. These plans list the specific learning intentions, success criteria and any other information the teach needs to produce a good lesson. The topics in Science are planned so that they build on prior learning. We ensure

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that there are opportunities for pupils of all abilities to develop skills and knowledge in each unit, and we also build progression into the Science scheme of work, so that the pupils are increasingly challenged as they move up through the school.

4.4 Foundation Stage

We teach Science in FS as an integral part of the topic work covered during the year. The Science work is in relation to the objectives set out in the EYFS profile. Science makes a significant contribution to developing a pupil's knowledge and understanding of the world.

5. The Contribution of Science to teaching in other curriculum areas

5.1 Literacy

Science contributes significantly to the teaching of literacy in our school by actively promoting the skills of reading, writing, speaking and listening. Some of the texts that the pupils study in literacy are of a scientific nature. The pupils develop oral skills in science lessons through discussions (e.g. of the environment) and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

5.2 Numeracy

Science contributes to the teaching of numeracy in a number of ways. When the pupils use weights and measures and they are also learning to use and apply aspects of number. Through working on investigations they learn to estimate and predict. They develop accuracy in their observations and recording of events. Many of their answers and conclusions include numbers.

5.3 Personal, Social and Health Education (PSHE)

Science makes a significant contribution to the teaching of PSHE, This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, pupils study the way an environments changed and are changing for the better or worse. Secondly, the subject gives pupils numerous opportunities to debate and discuss. They can organise campaigns on matters of concern to them, healthy eating and raising money for local charities such as The Bluebell Wood Hospice. Science thus promotes the concept of positive citizenship.

5.4 Spiritual, Moral, Social and Cultural Development (SMSC)

Science teaching offers pupils many opportunities to examine some of the fundamental questions in life, e.g. the evolution of living things and how the

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world was created. Through many of the amazing processes that affect living things, pupils develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, pupils have the opportunity to discuss, for example, the effects of smoking (through DARE) and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet, and how science can contribute to the way in which we manage the Earth's resources. Science teaches pupils about the reasons why people are different and by developing the pupils' knowledge and understanding of physical and environmental factors, it promotes respect for other people.

6. Science and Computing

6.1 Computing enhances the teaching of science in our school because there are some tasks for which ICT is particularly useful. It also offers ways of impacting on learning which are not possible with conventional methods. Software is used to animate and model scientific concepts and to allow pupils to investigate processes which it would be impractical to deliver directly in the classroom. Data loggers are used to assist in the collection of data and in producing tables and graphs. Pupils use computing to record, present and interpret data, to review, modify and evaluate their work, and to improve its presentation. Pupils learn how to find and select information on the internet and on other media sources also.

7. Science and Inclusion

7.1 At Harworth Church of England Academy, we teach Science to all pupils, whatever their ability and individual needs. Science forms part of the school curriculum policy to provide a broad and balanced education for all our pupils. Through science teaching, we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special education needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language. We take all reasonable steps to achieve this.

7.2 When progress falls significantly outside the expected range, the pupil may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and differentiation – so that we can take some additional or different action to

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enable the pupil to learn more effectively. This ensures that our teaching is matched to the pupil's needs.

7.3 Intervention through a Support Plan (SP) for pupils with special educational needs. The SP may include, as appropriate, specific targets relating to Science.

7.4 We enable all pupils to have access to the full range of activities involved in learning science. Where pupils are to participate in activities outside the classroom (education visits for example) we carry out risk assessments prior to the activity to ensure that the activity is safe and appropriate for all pupils.

8. Assessment for learning

8.1 Teachers will assess pupil's work in Science by making informal judgements during lessons, in school assessments on completion of a piece of work, the teacher assess it and uses this assessment to plan further learning, Written or verbal feedback is given to the pupil to help guide their progress. Older pupils are encouraged to make judgements about how they can improve their own work.
8.2 A the end of a unit of work the teacher makes a summary judgement about the work of each pupil in relation to the National Curriculum guidance. The teacher records the levels on our online assessment system, Classroom Monitor. We use these levels as the basis for assessing the progress of each pupil and this is passed on the next teacher at the end of the year.
8.3 Teachers assess the pupil's work in science at the end of Key Stage 1 and 2 by using Science Seekers questions to assess learning. Other methods of formative and summative assessment are used throughout each topic.
8.4 The Science Co-ordinator keeps samples of pupil's work in a portfolio and uses these to demonstrate the expected level of achievement in science for each year group in the school. This is done by agreement trialling samples of work with scientific enquiry as the main focus.

9. Resources

9.1 We have a range of resources for all Science teaching units in the school and are updating them when we can. We keep these in a central store. The library contains a good supply of science topic books and computer software to

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support pupils' individual research which can be undertaken on tablets or laptops in classes.

10. Monitoring and review

10.1 The co-ordination and planning of the Science Curriculum are the responsibility of the Science Co-ordinator, who also:

- Supports colleagues in their teaching, by keeping informed about current developments in Science and providing a strategic lead and direction for this subject.
- Gives the head teacher an annual summary report in which s/he evaluates the strengths and weaknesses in Science and indicates areas for further improvement.
- Uses specially allocated regular management time to review evidence of the pupils' work, and to observe Science lessons across the school.

10.2 The Foundation Stage
At all times we ensure that the pupils' early years provision complies with the learning and development requirements, and the welfare requirements with regard to the statutory guidance set out in the Statutory Framework for the EYFS.

This policy will be reviewed at least every two years.

Signed: _____
Date: _____