



## *Science Policy*

*'Equipped with his five senses, man explores the universe around him and calls the adventure Science'*

*Edwin Powell Hubble*

At Beormund we aim to inspire and engage our pupils through the provision of a quality Science curriculum. This includes giving every pupil the opportunity to develop skills in scientific enquiry and foster their curiosity for scientific knowledge.

Science is a core subject within the National Curriculum. We endeavour to personalise our curriculum to meet the individual needs of every child, whatever their previous learning journey. To that end we recognise individual teachers will decide upon the best route through the National Curriculum programmes of study to suit the needs of their pupils.

This policy outlines the purpose, nature and management of the science taught and learnt in our school.

### *The Nature of Science*

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. 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. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

### *The National Curriculum*

The 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 knowledge required to understand the uses and implications of science, today and for the future

### *Entitlements*

The programmes of study specify the scientific content and enquiry skills to be taught. All pupils are given the opportunity to make progress and develop their knowledge, understanding and skills through the teaching of the two key elements. These are:

- Scientific knowledge and conceptual understanding
- The nature, processes and methods of science ( working scientifically)

All children have an entitlement to access the programmes of study at an appropriate level.

All pupils at Beormund will have equal access to the Science curriculum. The teaching of science avoids stereotyping and is sensitive to race, class and gender issues.

### *Implementation*

The programmes of study set out in the National Curriculum form the content of the school's curriculum for science.

Appendix A shows how the programmes of study have been allocated to the year groups.

The activities which the children undertake are planned using guidance from the Kent Science Scheme 2014.

### *Scientific Enquiry- KS1*

The principal 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.

### *Scientific Enquiry- Upper and Lower KS2*

Science is taught with an emphasis on the pupils engaging in practical enquiry to support and develop their understanding of scientific concepts and skills. Teachers use a range of strategies including: exploration, investigative enquiry and illustrative enquiry. Teachers try to ensure that the children's ideas are used as a basis for enquiry.

Children are encouraged to record their investigations using the relevant enquiry skills 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. They draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

### *Knowledge and understanding*

The principal focus of the science teaching in Upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They will explore and talk about their ideas; ask their own questions about scientific phenomena; and analyse functions, relationships and interactions more systematically. At Upper Key Stage 2, they will encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict

how the world operates. They will also begin to recognise that scientific ideas change and develop over time.

The national curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum - cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. Pupils are 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.

### *Science Vocabulary*

The National Curriculum for Science sets out that pupils in Key Stage 1 -

***' should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge'***

and by the end of Key Stage 2-

***' should read, spell and pronounce scientific vocabulary correctly '***

To that end and to ensure consistency teachers at Beormund will refer to the Kent Scheme units as the source for the agreed vocabulary to be taught in our school. These lists are not exhaustive and should be seen as the minimum requirement to which teachers may wish to add additional vocabulary.

Each unit of study contains a section outlining the most appropriate scientific vocabulary to be used when studying that particular area of science. This will help children to become familiar with, and use, technical terminology accurately and precisely.

### *Timetabling*

The units of work are taught across the year in either weekly science lessons or blocks, depending upon the topic.

Pupils also undertake visits to science shows, exhibitions and workshops as part of our ongoing Enrichment timetable. The school also holds a Science week every year to further inspire pupils.

### *ICT*

All children will have the opportunity to use a range of ICT equipment to enhance their scientific learning. e.g. digital cameras to record investigations; data loggers for accurate measurements of temperature and digital microscopes

for close observation. Programmes such as Excel can be used to create graphs and charts to record results.

### *Planning*

All teachers are responsible for planning and teaching science. They are also responsible for ensuring that learning mentors are conversant with the Beormund science policy. Teachers will plan according to the learning needs of their pupils making adaptations where necessary.

### *Recording*

Teachers will decide the most appropriate way to keep evidence of children's learning. This may include photographs, videos, displays, folders and books.

### *Assessment*

Teachers use a variety of assessment tools to inform their judgement of each child's progress. All teachers will keep a record of progress on the 'I Can Statements' document found in the teachers shared area. These statements are based on the requirements of the National Curriculum 2014.

### *Reporting.*

Formal, individual reports are sent home at the end of each academic year and include teachers comments on each child's individual progress.

### *Inset/ Training Needs*

Regular meetings with staff, SLT and the subject leader provide the opportunity to identify any inset needs and curriculum training requirements. SLT will devise a programme of INSET to meet those needs.

### *Monitoring*

The coordinator, in partnership with the SLT, will monitor the teaching of Science through Pupil Progress meetings, pupil feedback, book scrutiny, classroom observations, and learning walks.

### *Resources*

Beormund teaching resources can be found in the science cupboard, the school library, the staff resources area and the staff shared area on the school's computer network.

### *Background Information*

This policy was informed by reference to the statutory orders for Science of the National Curriculum 2014. The staff team and SLT

### *Health and Safety*

Activities, both on and off, site will comply with the guidelines in the school's health and safety policy.

### *Review*

The Head Teacher and staff will review this policy in the Summer Term 2018.

Reviewed by Shirley Armer, Staff and SLT , May 2016