Bedford Hall Methodist Primary School

Science Policy

Written by:	Mrs L Edwards
Date agreed:	Spring 2025
Next Review Date:	Spring 2028
Chairs signature:	

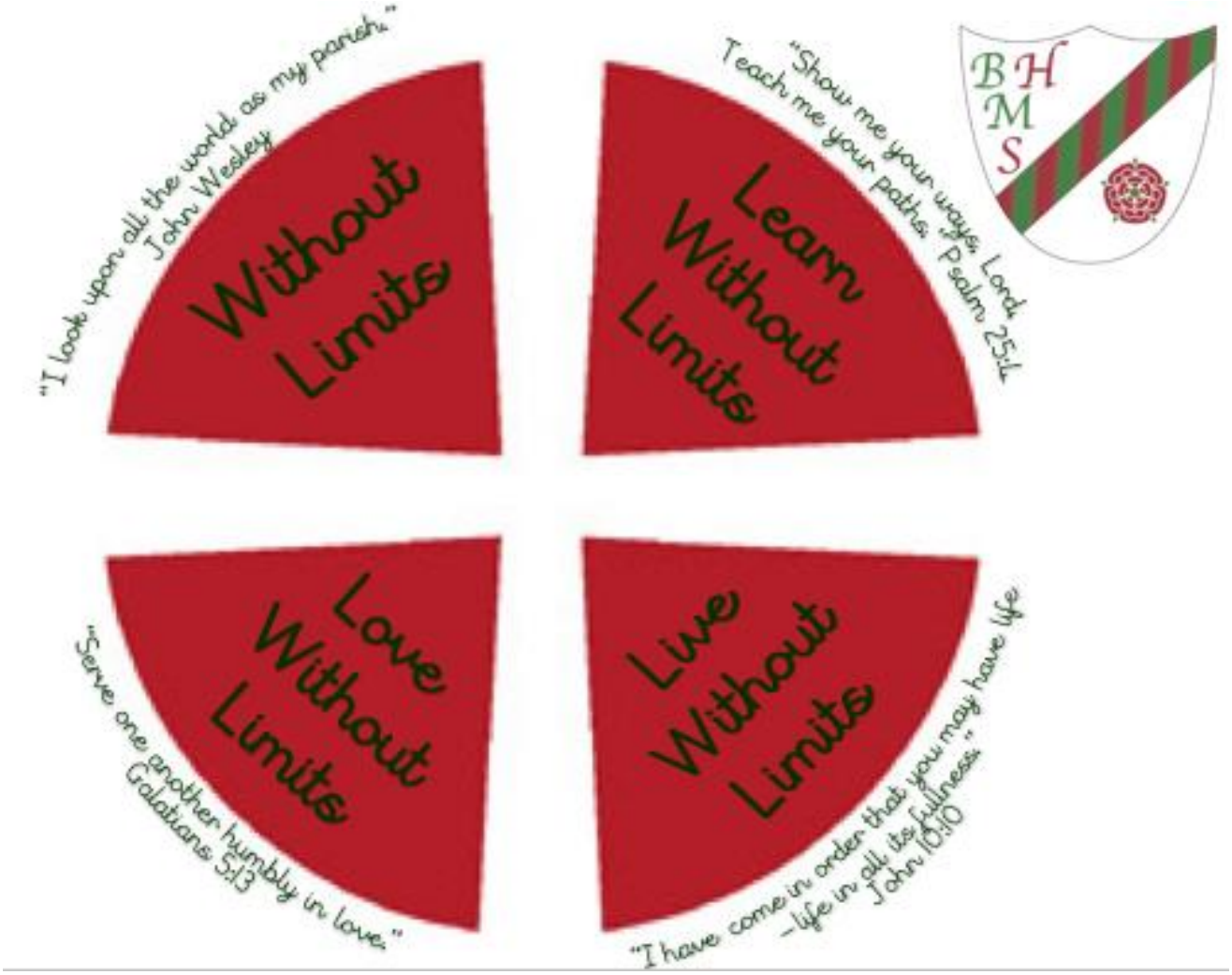
Version Control

Change Record

Date	Author	Version	Page	Reason for Change
April 2024	L Edwards	1		Policy re-written in line with changes to curriculum design and the school's scheme of learning.
January 2025	L Edwards	2		Version Control page added. 'Co-ordinator' to 'Subject leader'.

Bedford Hall Methodist Primary School strives to provide a caring environment in which every individual can achieve his or her full potential.

To achieve this, we wish to create a happy, secure and purposeful atmosphere throughout the school, which is conducive to learning and high standards, and is based on Christian values.



Safeguarding Statement

At Bedford Hall Methodist Primary School, we recognise our moral and statutory responsibility to safeguard and promote the welfare of all children.

We work to provide a safe and welcoming environment where children are respected and valued. We are alert to the signs of abuse and neglect and follow our procedures to ensure that children receive effective support, protection and justice.

The procedures contained in the Safeguarding Policy apply to all staff, volunteers and governors.

Science Policy

This policy outlines the guiding principles by which this school will implement Science in the National Curriculum. It is reviewed periodically.

Our Rationale for Teaching Science

Science is a body of knowledge built up through experimental testing of ideas. Science is also methodology, a practical way of finding reliable answers to questions we may ask about the world around us.
Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying processing skills. We want our children to develop a thirst for knowledge and an understanding, both of themselves and their environment. Science is all around us and it is of fundamental importance that children develop an enquiring and creative mind.

Aims for the teaching of Science:

- Prepare our children for life in an increasingly scientific and technological world.
- Foster concern about, and active care for, our environment.
- Help our children acquire a growing understanding of scientific ideas.
- Help develop and extend our children's scientific concept of their world.
- Develop our children's understanding of the collaborative nature of science.
- Developing links between what children learn in the classroom and the world outside the classroom (linked to the curriculum driver: POSSIBILITIES).

Attitudes:

- Encourage the development of positive attitudes to science.
- Building on our children's natural curiosity and developing a scientific approach to problems.
- Encouraging open-mindedness, perseverance and responsibility.
- Building our children's self-confidence to enable them to work independently.
- Developing our children's social skills to work co-operatively with others.
- Providing our children with an enjoyable experience of science so that they will develop a deep and lasting interest and may be motivated to study science further.

Skills:

- Giving our children an understanding of scientific processes.
- Helping our children to acquire practical scientific skills.
- 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.
- Enabling our children to become effective communicators of scientific ideas, facts and data.

The Role of the Science Subject leader

- Support colleagues in their implementation of the scheme of work, assessment and record keeping activities.
- Take responsibility for the purchase and organisation of central resources.
- Take appropriate steps to keep up-to-date with developments and pass on information to colleagues as appropriate.
- Complete regular book looks and learning walks.
- Ensure new members of staff have a firm knowledge of how science is taught at our school.
- Provide regular training for staff to ensure good quality science teaching remains through the school.

Planning and Teaching

Science teaching in Key Stage 1 and Key Stage 2 consists of four areas, these being:

- Sc1 Scientific Enquiry
- Sc2 Life and Living Processes (BIOLOGY)
- Sc3 Materials and their Properties (CHEMISTRY)
- Sc4 Physical Processes (PHYSICS)

Our role is to teach scientific enquiry through the contexts of the three main content areas.

For children in the Foundation Stage science is included as part of a holistic unit called Understanding the World. Topics for the Early Years children include as many elements of science as possible but as flexibility is necessary, the Foundation Stage does not require a rigid scheme.

Progression:

- We draw upon Chris Quigley Milestones to plan Science lesson objectives (Milestone 1 – Year 1&2, Milestone 2 – Year 3&4, Milestone 3 – Year 5&6) to ensure progression across the school.
- From Y1 to Y6, teachers use the Developing Experts Scheme of Learning. Lessons and resources are adapted to suit the needs of our pupils.
- EYFS also have access to the Developing Experts scheme, and use this where appropriate to supplement the children's learning through 'Understanding of the World'.

Developing Experts Scheme:

- Developing Experts is delivered through a sequenced curriculum, designed to enable the pupils to experience a coherent curriculum delivered through a logical progression.
- Attention has been paid to the order in which knowledge has been delivered, built on and revisited. Science units are carefully sequenced to provide a vehicle for teachers to embellish and unify what may otherwise seem like disconnected fragments of knowledge.
- Embedded unit quizzes have been designed to optimise learning outcomes for pupils to enable concepts to have a greater chance of becoming part of the learner's long-term memory. These quizzes form the 'End Point Assessment' for each science unit.

Retrieval:

- In Science, each lesson has a specific end point. Pupils record key vocabulary and one 'golden' sentence on an end point sheet (completed on a road map as a class in KS1, independently on a grid in KS2). This information is recorded on the MTP prior to the unit being taught.
- Each lesson, the end point sheet is referred to at the start and prior vocabulary and learning is revisited.
- Vocabulary PowerPoint is used to regularly revise scientific vocabulary.
- Dual coding symbols are used to identify the enquiry skills being taught/covered in that lesson. Symbols are consistent throughout school and these are stuck in the front of pupil books. Symbols are also displayed on the science working wall. The relevant symbol is used on the worksheet or a sticker is inserted so that children are clear about which skill they have focused on in that particular lesson.

Practical work:

We believe that practical work is an integral part of science learning. Children may do this in a variety of ways:

- Observations over time – Observing changes that occur over a period of time ranging from minutes to months
- Identifying, grouping and classifying – Making observations to name, sort and organise items.
- Comparative/fair testing – changing one variable to see its effect on another, whilst keep all others the same.
- Research – Using secondary sources of information to answer scientific questions.
- Pattern seeking – Identifying patterns and looking for relationships in enquiries where variables are difficult to control.

End Points:

- When planning a unit of work, teachers to be clear about the end point for that topic. Examples of end points could be:
    - An investigation, planned and carried out by the pupils
    - Developing Experts 'End of Unit Quiz'

Classroom Management

Class organisation and Science teaching should include opportunities for:

- exposition by the teacher
- discussion between teacher and pupils and between pupils themselves
- appropriate practical work
- problem solving, including the application of science to everyday situations
- investigational work
- use of appropriate science resources
- direct teaching to individuals, groups of various sizes and whole class

As we understand that there are many different science abilities in each class, we ensure that each unit of work has sufficient differentiation to allow all children to work at their level of challenge. We may do this by:

- grouping children by ability and setting different tasks for each group.
- grouping children in mixed ability groups where more able children can act as coaches/mentors
- providing a variety of resources/activities that are matched to the children's abilities.

Curriculum links in Science

Chris Quigley milestone objectives are used to plan a sequence of lessons, in order to ensure relevant skills are being taught at each phase and to ensure a broad and balanced, as well as challenging, curriculum.
Where possible, Science topics are planned to link with Creative Curriculum topics so that skills can be transferred in a range of subject areas. This also supports with deepening understanding and offers the opportunity for Science vocabulary to be used in a wider context.

Computing:
It is our intention to use computing as a natural extension of, and support for, science in order to handle and manipulate the information gained during lessons appropriately.

English:
We are aware of the importance of English in Science and encourage the children to write using bullet points and diagrams as they would with explanation texts. They also use their literacy skills to make predictions and draw conclusions, carefully explaining their reasoning and using evidence. They will also develop their use of Tier 2 and 3 vocabulary, using age-appropriate scientific vocabulary within their writing. In addition, science-based texts are sometimes used in English lessons.

Mathematics:
Mathematics and Science have some very close links and the teaching of many aspects of mathematics crosses with those of science. Measuring, data handling, weighing and capacity all fall into this category and staff are able to use these areas to re-inforce the children's knowledge.

History:
Scientific discoveries and the contributions of individuals to Science will be studied in all year groups.

Assessment

The subject leader has the responsibility for monitoring the standards of children's work and the quality of teaching. This is done by close liaison with and support from colleagues. Regular book scrutiny will take place to ensure that children are working at the correct level for their year group and ability. Allowing the subject leader to ensure the coverage and achievement in accordance with National Curriculum expectations.
Years 2 and 6 are assessed using the Interim Framework gaining either working towards age related, age related or above age related. Reporting to parents is done annually via their end of year written report.

From Year 1, pupils are assessed at the end of each unit of work. Outliers are recorded on the school's Foundation Subject Assessment Tracker to aid planning in future units/year groups.

Equal Opportunities

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 full 'Equal Opportunities' and 'Inclusion' policies can be found in our policy file. We are aware of how important differentiation is in order to allow all children access to the curriculum. We take account of EHCP and 'APDR' documents for those children who are on the SEND register.

Health and Safety

It is important that care should be taken at all times when carrying out investigations. The classroom should be well organised, and children should be guided to work safely and sensitively (especially in the study of Life and Living Processes).

Whilst Health and Safety considerations & risk assessment remain the primary responsibility of the teacher in charge, the children should be taught to:

- Reduce risks through responsible behaviour and use good practice to avoid hazardous situations developing.
- Abide by simple safety rules when using materials and scientific equipment.
- Consider and recognise hazards in their proposed ways of working and take action to minimise them.
- Store equipment and materials with due care and organise their working environment / practices in a safe way.

Areas for special concern include;

- Activities involving the use of heat require a high level of supervision with appropriate safety / protective clothing being available.
- Electricity equipment may pose some small risk (particularly at KS1) and children should be warned of the dangers of placing items in their mouths, e.g. batteries, etc.
- Contact with any materials likely to cause allergic reactions should be avoided.

ALL STAFF ARE REFERRED TO THE 'EET Health & Safety Policy' AND GUIDELINES FOR FURTHER ADVICE.