



BENGEWORTH CE ACADEMY

SCIENCE POLICY

2022 – 2023

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Bengeworth
Multi Academy Trust

Brilliant People • Better Schools • Bright Futures



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STATEMENT OF INTENT

Curriculum Intent

At Bengeworth CE Academy, we provide a broad and balanced curriculum which is underpinned by our values and core beliefs and aims. Our intent and vision is to provide inspirational learning experiences that will ignite sparks within the children and enable them to develop as confident, articulate and happy individuals who achieve academic excellence, prepared for the wider world ahead of them.

We have taken great care to design our curriculum to achieve our vision and ensure that our values underpin it. We aim to ensure that the curriculum is exciting and challenging and reflects and nurtures children's interests and needs and celebrates the many successes of our children. Links between subjects are made to ensure there is an engaging and relevant context within which to learn and topics are used as the driving forces for each half term/term's focus. We strive to create and provide opportunities for the children to develop their creativity and imagination; promoting new interests and an awareness of the wider world. We are fully committed to teaching the vital life skills children need in order to be safe and happy in and out of school.

Subject Intent

At Bengeworth CE Academy children:

- Experience a high-quality and ambitious science education that provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics whilst maintaining a high level of curiosity.
- All pupils of all backgrounds are equipped with the knowledge, methods, processes and uses of science to get a better understanding of the world around them for today and for the future.
- Develop a sense of excitement and curiosity about natural phenomena. Children are encouraged to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes. The teaching of science should be enhanced by our outdoor area at any given opportunity.

Legal framework

This policy has due regard to statutory legislation, including, but not limited to, the following:

- *DfE 'Statutory framework for the Early Year's Foundation Stage' 2021*
- *DfE Science programmes of study: Key Stages 1 and 2' 2013*

Linked Policies

Learning Outside the Classroom

PSHE

RSE

IMPLEMENTATION

Early Years' Foundation Stage (2021)

Understanding the World

The Natural World

Our science curriculum is designed to give the children the knowledge that they need to be equipped with and is in line with National Curriculum stage recommendations. The children are taught the Biology, Chemistry and Physical elements mainly through 'topics', however some may need to be taught discreetly. These topics are taught progressively as outlined by our Curriculum (Epiphany) sheets and through 'progression snakes'. Teachers plan for those that may need additional support as they would in any area of the curriculum through 'High Quality First Teaching'. Teachers provide challenge for those that need it.

The topics have been arranged within year groups to best fit the time of year; for example 'Plants' will be studied in either Spring or Summer to get best use of natural resources. Lessons are inspired by the outdoor area where possible. Other topics are sequenced where the children have the best opportunity to be engaged and excited by the topic; for example in Year 3 children will learn about Rocks and Fossils to link with their History topic on the Stone Age. This will allow children the opportunity to make cross curricular links too. Teachers plan for regular inquiry-based learning that includes application of literacy and mathematical skills.

Science lessons are delivered weekly, or bi-weekly, they build on prior learning and give the children opportunities to improve their knowledge, vocabulary and working scientifically. Feedback is given during lessons in line with our feedback and marking policy, which promotes high quality verbal feedback within lessons. Science is teacher-assessed and levels achieved are tracked via our Science Epiphany tracking sheets.

Key Stage 1 – Science

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.

'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Key 'Working scientifically' skills symbols should be used when teaching science and each key skill used within the lesson should be evident in planning and in their work. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

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

Lower Key Stage 2 Programme of Study- Year 3 and Year 4 Science

The principal 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 comparative and 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’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Key ‘Working scientifically’ skills symbols should be used when teaching science and each key skill used within the lesson should be evident in planning and in their work. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

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

Upper Key Stage 2 Programme of Study - Year 5 (and 6) Science

The principal 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 comparative and 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.

‘Working and thinking scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Key ‘Working scientifically’ skills symbols should be used when teaching science and each key skill used within the lesson should be evident in planning and in their work. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read, spell and pronounce scientific vocabulary correctly.

ROLES AND RESPONSIBILITIES

The subject leader is responsible for:

- Preparing policy documents, curriculum plans and schemes of work for the subjects.
- Reviewing changes to the national curriculum and advising teachers on their implementation.
- Monitoring the learning and teaching of Science providing support for staff where necessary.
- Ensuring the continuity and progression from year group to year group.
- Encouraging staff to provide effective learning opportunities for pupils.
- Helping develop colleagues' expertise in the subject.
- Organising the deployment of resources and carrying out an annual audit of all related resources.
- Liaising with teachers across all phases.
- Communicating developments in the subjects to all teaching staff and the senior leadership team (SLT), as appropriate.
- Leading staff meetings and providing staff members with appropriate training.
- Organising, providing and monitoring CPD opportunities in the subject.
- Ensuring common standards are met for recording and assessing pupil performance.
- Collating assessment data and setting new priorities for the development of Science in subsequent years.

The classroom teacher(s) is/are responsible for:

- Acting in accordance with this policy.
- Ensuring progression of pupils' SCIENCE skills, with due regard to the national curriculum.
- Planning lessons effectively, ensuring a range of teaching methods are used to cover the content of the national curriculum.
- Liaising with the **subject leader** about key topics, resources and support for individual pupils.
- Monitoring the progress of pupils in their class and reporting this to parents on an **annual** basis.
- Reporting any concerns regarding the teaching of the subjects to the **subject leader** or a member of the **SLT**.
- Undertaking any training that is necessary in order to effectively teach the subjects.

The Inclusion Lead is responsible for:

- Liaising with the **subject leader** in order to implement and develop specialist Science-based learning throughout the school.
- Organising and providing training for staff regarding the curriculum for pupils with special educational needs and disabilities (SEND).
- Advising staff how best to support pupils' needs.
- Advising staff on the inclusion of Science objectives in pupils' individual education plans.
- Advising staff on the use of CSPs in order to meet pupils' needs.

IMPACT

Equal Opportunities

- We are an inclusive school that ensures all pupils are provided with equal learning opportunities, regardless of social class, gender, culture, race, disability or learning difficulties.
- In order to ensure pupils with SEND achieve to the best of their ability, outcomes are adapted and the delivery of the Science curriculum is differentiated for these pupils.
- The planning and organising of teaching strategies for each subject will be reviewed on a **termly** basis by the **subject leader** to ensure no pupil is at a disadvantage.
- The school aims to maximise the use and benefits of Science as one of many resources to enable all pupils to achieve their full potential.

Teaching and Learning

The school uses a variety of teaching and learning styles in Science lessons. The main aim of these lessons is to develop pupils' knowledge, skills and understanding.

The following skills are key to development, and we promote these through our creative, broad and balanced curriculum:

- Communication.
- Application.
- Information Technology.
- Working with others.
- Improving own learning and performance.
- Problem solving.
- Mastery of key knowledge, understanding and skills within a coherent, broad and balanced curriculum
- Global, Social, Health, Environmental, Entrepreneurial, Spiritual, Moral, Social and Cultural awareness and understanding.
- Deeper level Thinking and Learning Skills.
- Meaning and purpose to children in the here and now, and prepare them for the next phase of their education and for their future.
- Widening of horizons and raising aspirations about the world of work and further education through increased Cultural Capital.
- Recognition that personal development is essential to wellbeing and success.

The **classroom teacher**, in collaboration with the **subject leader**, will ensure that the needs of all pupils are met by:

- Setting tasks which can have a variety of responses.
- Providing resources of differing complexity, according to the ability of the pupils.
- Setting tasks of varying difficulty, depending on the ability group.
- Utilising Support Professionals to ensure that pupils are effectively supported.

Specific teaching strategies and impact:

- Children will be inquisitive and have a love of Science.
- Children will recognise that Science is all around us, including outdoors.
- Most children will achieve age related expectations in Science by the end of the academic year.
- Children will have a sustained interest in 'enquiry based' learning and can be seen enjoying, planning and taking part in enquiry-based learning.
- Children will have retained the knowledge for their stage and are eager to develop this further.
- Children will be able to make cross curricular links.
- Children will be able to identify the 7 Working Scientifically skills and explain how they are making progress with these.

Planning

Curriculum Maps are used to outline the learning journey of each year group over the year which identifies key texts, topics, learning objectives, enterprise opportunities, trips and visits and shows how skills and knowledge will be built upon from the previous year whilst providing an engaging and broad curriculum for the year.

The development of Scientific Enquiry skills within each year group is outlined in the 'Working Scientifically skills progression snake' and each year group should teach a range of enquiry types throughout the year which is supported by the 'Planning and Assessment: Enquiry types' document.

Medium-term planning gives clear guidance on the skills and knowledge that we are developing within each topic/subject, showing progression from the previous year. Regular reviews take place every term.

Short term weekly planning journals are then used to map the journey within each week of the children's learning outlining key learning objectives, activities and opportunities.

Assessment and reporting

- Pupils will be assessed and their progression recorded in line with the school's **Assessment Policy**.
- In Reception the EYFS profile will be completed for each pupil in the final term. The progress and development of pupils within the EYFS is assessed against the early learning goals outlined in the 'Statutory framework for the early years foundation stage'.
- The progress and development of pupils within KS1 and KS2 is assessed against the descriptors outlined in the national curriculum.
- Throughout the year, teachers will plan in accordance with the Epiphany Tracking System and use this in order to gauge whether pupils have achieved the key learning objectives.

Assessment will be undertaken in various forms, including the following:

- Talking to pupils and asking questions
- Discussing pupils' work with them
- Marking work against the learning objectives
- Pupils' self-evaluation of their work
- Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and inform their immediate lesson planning.

- In terms of summative assessments, the results of end-of-year assessments will be passed to relevant members of staff, such as pupils' future teachers, in order to demonstrate where pupils are at a given point in time.
- Parents will be provided with a written report about their child's progress during the **Summer** term every year. This will include information on pupils' attitudes towards Science, understanding of methods, investigatory skills and the knowledge levels they have achieved.
- Verbal reports will be provided at Parents' Evening during the **Autumn** and **Spring** terms.
- The progress of pupils with SEND will be monitored by the **Inclusion Lead and Class Teacher**.

Resources and equipment

- The school has a selection of centrally-stored materials, tools and equipment to ensure that all pupils have access to the necessary resources. The school library contains an array of resources and topic books to support pupils' research.
- At the **start of every school year**, the **subject leader** will conduct an audit of the school's Science resources to ensure there is sufficient equipment for pupils. This will be shared with the Headteacher/Head of School and funds will be allocated where necessary.

Monitoring and review

- This policy will be reviewed annually by the subject leader and the Headteacher/Head of school.
- Any changes made to this policy will be communicated to all members of staff.
- All members of staff directly involved with the teaching of Science are required to familiarise themselves with this policy.

The scheduled review date for this policy is **September 2023**.

APPENDICES TO SUPPORT SUBJECT AREA INCLUDING RESOURCES

Science Resources are saved in our Shared Area on the Google Drive. Teachers must refer to the ToolKit created for the relevant year group.

These can be found at:

Google Drive>Shared Drive>General Files>Subject Area>Science>TOOLKITS

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