



BENGEWORTH CE ACADEMY

MATHEMATICS POLICY 2022 - 2023

September 2022



Bengeworth
Multi Academy Trust

Brilliant People • Better Schools • Bright Futures



CONTENTS

Statement of INTENT:

- Curriculum
- Subject

Legal framework

IMPLEMENTATION

- Early Years Foundation Stage (EYFS)
- Key Stage 1
- Key Stage 2
- Cross Curricular links
- Roles and responsibilities

IMPACT

- Equal opportunities
- Teaching and learning
- Planning
- Assessment and reporting
- Resources and equipment
- Monitoring and review

Appendices to support subject area including resources

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

The National Curriculum 2014 for mathematics aims to ensure that all pupils:

- Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately;
- Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language;
- Can solve problems by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

We want our children to be able to:

- Enjoy their learning and use Mathematics confidently.
- Think logically and clearly.
- Explain their methods and reasoning when solving problems.
- Use Mathematics in practical tasks and real life problems.
- Use and understand number; estimate, approximate and interpret results.
- Use and recognise symbolic and graphical representation to express relationships.
- Use and recognise the properties of 2-D and 3-D shapes and use measurement, locations and transformation in the study of space.
- Collect, present, process and interpret data, understand and find probabilities.
- To use ICT to support their learning in Mathematics.
- Use our mathematical skills outside of the classroom to learn how these can be applied in real life situations (LoTC).

The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. Our curriculum ensures children apply mastery skills. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich mastery and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

When teaching Mathematics at Bengeworth CE Academy, we intend to provide a curriculum which caters for the needs of all individuals and sets them up with the necessary skills and knowledge for them to become successful in their future adventures. We aim to prepare them for a successful working life. We incorporate sustained levels of challenge through varied and high quality activities with a focus on fluency, reasoning and problem solving.

Mastery

Pupils are required to explore Mathematics in depth, using mathematical vocabulary to reason and explain their workings. A wide range of mathematical resources are used and pupils are taught to show their workings in a concrete, pictorial and abstract form, where appropriate. They are taught to explain their choice of methods and develop their mathematical reasoning skills. We encourage resilience, adaptability and acceptance that struggle is often a necessary step in learning. Our curriculum allows children to better make sense of the world around them relating the pattern between Mathematics and everyday life.

Legal framework

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

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

IMPLEMENTATION

Early Years Foundation Stage (2021)

Mathematics in the Early Years Foundation Stage Curriculum comes under two strands, each of which has an Early Learning Goal attached:-

Number

Early Learning Goal - Have a deep understanding of number to 10, including the composition of each number;

- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Numerical Patterns

Early Learning Goal - Verbally count beyond 20, recognising the pattern of the counting system;

- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

The Early Learning Goals define the level of development children are expected to attain by the end of the Reception year.

As with all other areas of learning, the teaching and learning of Mathematics in our Reception classes takes place both indoors and outdoors through a wide range of practical and "hands on" activities.

The staff use their knowledge and expertise to plan for a high quality learning environment which provides children with lots of opportunities to explore different aspects of number and shape, space and measures and learn new concepts. The children have a wide range of structured play resources available to them throughout the year - this is known as "continuous provision".

Key Stage 1 – Mathematics

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools]. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2 - Mathematics

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12x multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2 - Mathematics

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

For all of the above National Curriculum aims, the objectives have been set out in a document (shared in the appendix) named 'Epiphany', where teachers will plan and assess the pupils' understanding. These objectives have been organised in such a way that they are delivered in a sequence of learning that builds each year and in an order that facilitates learning across each concept.

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 Mathematics 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 Mathematics in subsequent years.

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

- Acting in accordance with this policy.
- Ensuring progression of pupils' Mathematical 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 Mathematics-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 Mathematical 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 Mathematics 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 Mathematics 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 Mathematics 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.
- ensuring that learning takes place using the appropriate CPA (concrete, pictorial and abstract) representations, using a range of resources and models to support learning.

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.

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 Mathematics, 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**.
- Year 2 SATs will be undertaken each year during the Summer term
- In Year 4, the Multiplication Tables Check will be carried out in the Summer term

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 Mathematics resources to ensure there is sufficient equipment for pupils. This will be shared with the 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 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 Mathematics 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

Epiphany documentation

Early Years

https://drive.google.com/drive/folders/1ncooqmN51OsppU_PIKr2uOJfabLMR1Xq

KS1

<https://drive.google.com/drive/folders/10dtxc4reAJFuWaOVJM-g7bH6Axc7xJ32>

<https://drive.google.com/drive/folders/17YNpYjyPD6iFcUP-ybCetEPwB1f162za>

KS2

https://drive.google.com/drive/folders/1pv0AcGEjyKZZKBnqdUVK_szhxryoapE

<https://drive.google.com/drive/folders/14nT6klhElcXCO1Acg7Jy4DtwZ-yF78Vi>

<https://drive.google.com/drive/folders/1rjhiUWmHduxgHL1szL6PG9oQ0qlzjByN>

Bengeworth

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Bengeworth Multi Academy Trust

King's Road, Evesham, WR11 3EU

office@bengeworth.worcs.sch.uk

www.bengeworthtrust.co.uk

Company Registration Number: 08943457

UID: 16942

UKPRN: 10060770



