BARCROFT ACADEMY

Unlocking potential today for a brighter tomorrow

Mathematics Policy
2026 – 2028

LIGHTHOUSE MULTI ACADEMY TRUST

Written by:	**Mrs E Parker**
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Headteacher (Mrs G Locke) **Chair of Local Academy Governors (Mrs R Fuller)**	*G Locke* *R Fuller*

1. What is Mathematics?

Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject *(National Curriculum, 2014)*.

2. Introduction

It is our aim at Barcroft Academy to provide children with the processes and knowledge to become competent mathematicians and skilful, creative problem solvers. At Barcroft Academy we believe that mathematics should be linked to the Real World where possible, as mathematics is a tool for everyday life. As a result, it is vital for pupils to understand the importance of mathematics within the Real World and identify this within their lessons. Mathematics is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real-life problems.

3. Aims

The National Curriculum 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 routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions *(National Curriculum, 2014)*.

We want our children to be:

- Resilient and have a positive attitude towards mathematics.
- Competent and confident in mathematical knowledge, concepts and skills.
- Able to solve problems, reason, think logically and to work systematically and accurately.
- Independent and work cooperatively with others.
- Able to use and apply mathematics across the curriculum and in real life situations.

4. Teaching and Learning

Through careful planning and preparation, as well as clear policies and regular professional development from a range of sources, we aim to ensure that throughout the school children are given opportunities to:

- Become skilful and creative problem solvers.
- Reason effectively.
- Use visual images to aid their mathematical understanding.
- Participate in practical activities and mathematical games, within the classroom and outdoors.
- Be taught mathematical skills into real life contexts and through cross curricular and creative topics.
- Work with computers as a mathematical tool.
- Participate in a range of challenges relating to the mastery approach of mathematics.

Our staff at Barcroft Academy, consistently have high expectations of all children, irrespective of ability, and encourage them to be successful and achieve their full potential.

5. Planning

The approach to the teaching of mathematics within the school is based on:

- A mathematics lesson every day
- A clear focus on direct, instructional teaching and interactive oral work with both the whole class and smaller ability groups.

Each class teacher organises a daily lesson for mathematics of an age-appropriate length and planning begins from thorough understanding of children's needs, gained through effective assessment and tracking. Planning is linked with high expectations and ambition for all children to achieve and also allowing children to be challenged in their learning.

Planning is in the form of PowerPoints. If not using a specific Big Maths PowerPoint, they should have the following non negotiables:

- Squared background (if applicable to the concept)
- CLIC
- Key Questions
- Vocabulary
- Clear L.O
- Main Teaching slides to show the teaching
- Differentiated activities slides
- Challenge

6. Pupil's records of their work

At Barcroft Academy, we understand the importance of recording aspects of mathematical investigations. Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and convenient method of recording.

Exercise Books for Recording

It is school policy that the following pattern is used:

- EYFS: A learning journal is used for recording all work
- KS1: 2cm squared books
- KS2: 1 cm squared books.

The children at Barcroft Academy take pride in their work and are encouraged to work neatly when recording their work. When using squares, one square is used for each digit.

7. Organisation in Early Years

Mathematics is one of the seven areas of learning and development within the Early Years Foundation Stage (EYFS). At Barcroft Academy, we recognise that developing a strong foundation in mathematics is essential in supporting children to become confident, capable and curious mathematicians. Our mathematics provision develops children's understanding of number, numerical relationships, shape, space, measure and patterns, while encouraging children to use mathematical language to explain their thinking and reasoning.

Our mathematics curriculum is carefully planned to provide a clear and progressive sequence of learning from Nursery through to the end of Reception. It is informed by the EYFS statutory framework and Development Matters/Birth to 5 Matters guidance, ensuring that children develop the knowledge, skills and understanding needed to work towards the Early Learning Goals (ELGs) by the end of Reception.

Mathematics in the EYFS includes:

- Developing a strong understanding of number and numerical relationships.
- Counting, subitising, matching and sorting.
- Recognising and exploring patterns and relationships.
- Developing an understanding of shape, space and measure.
- Comparing quantities, objects and measures.
- Developing mathematical vocabulary and using it confidently.
- Making connections between mathematical concepts.
- Applying mathematical knowledge to solve problems.
- Developing reasoning and explaining mathematical thinking.
- Developing confidence and positive attitudes towards mathematics.

Children are encouraged to explore mathematics through playing and exploring, active learning, and creating and thinking critically. Mathematical learning takes place throughout the day and across a range of contexts, both indoors and outdoors.

Mathematics Through Continuous Provision

We recognise that young children develop their mathematical understanding through a combination of planned teaching, continuous provision, routines, incidental learning and child-initiated experiences. Mathematical opportunities are therefore embedded throughout the EYFS environment.

Mathematical understanding is developed through:

- Stories, rhymes and songs.
- Games and practical activities.
- Daily routines and transitions.
- Adult questioning and interactions.
- Imaginative and role play.
- Child-initiated learning.
- Adult-led activities.
- Indoor and outdoor continuous provision.
- Problem-solving opportunities.
- Practical exploration of number, shape, space and measure.

Practitioners intentionally identify opportunities to develop mathematical thinking within children's play and everyday experiences. Adults model appropriate mathematical vocabulary, ask purposeful questions, encourage children to explain their thinking and provide opportunities for children to apply previously taught knowledge independently.

Mathematics in Nursery

In Nursery, mathematical learning is primarily developed through continuous provision and carefully planned adult interactions. Children are provided with opportunities to explore number, counting, shape, pattern, space and measure through practical and play-based experiences both indoors and outdoors.

Mathematical concepts and vocabulary are also developed during circle time, stories, songs and daily routines. Children are encouraged to count, recognise numbers, identify shapes, compare quantities and explore mathematical relationships in meaningful contexts.

In Nursery, mathematics is taught explicitly at least three times each week in family groups for approximately 15 minutes. These sessions are complemented by opportunities within continuous provision, enabling children to practise and apply their developing mathematical knowledge and skills.

Mathematics in Reception

In Reception, mathematics is taught explicitly four times each week for approximately one hour. The curriculum follows a progressive sequence, with different mathematical concepts and areas of focus carefully planned throughout the year.

Children participate in adult-led activities designed to develop their mathematical knowledge and understanding. These sessions are supported by carefully planned continuous provision, both

indoors and outdoors, where children can practise, apply and extend their learning independently.

Practitioners provide appropriate challenge and support based on children's individual starting points and developing needs. Children are encouraged to use mathematical language, explain their thinking, make connections and apply their knowledge when solving practical problems.

Ten Town is used to support children's recognition and formation of numbers and to develop their understanding of the value and meaning of each number. This approach is embedded alongside practical experiences, manipulatives, songs, rhymes and other mathematical resources.

8. Organisation – Key Stage 1 and Key Stage 2

Children in KS1 and KS2 participate in regular mathematics lessons that are spread out during the week. The framework for the teaching and learning of mathematics in our school is the National Curriculum in England: mathematics programme of study. This is delivered through a range of individually designed and commercially produced resources, most significant of which are 'Big Maths' which is available to all classes, with online support.

Additional resources include White Rose and Test Base. The learning objectives are drawn from the National Curriculum, 2014 as well as Big Maths.

We use 'Big Maths' to deliver core numeracy skills and outer numeracy. Once a week, or once every two weeks for younger pupils, all children complete Big Maths Beat That assessments. Class teachers then input the scores and use this date to inform future planning and plan for interventions.

Our pupils are also given regular opportunities to reason mathematically and explain their thinking as well as being challenging to show a deeper understanding of a mathematical concept through mastery.

9. What is Big Maths?

Big Maths is a teaching method created by Ben Harding that embraces the logical nature of mathematics, translating it into simple Steps and Progress Drives. This makes progress easy and fun for both children and teachers giving all pupils the opportunity to achieve.

Other strategies approach the teaching of mathematics in the 'traditional way'; giving teachers broad curriculum statements with little accurate guidance on how to get pupils there. In Big Maths there is great detail built into the system that allows all teachers to experience high subject knowledge and teacher expertise, therefore getting the chronology of the mathematics journey right for each child.

Big Maths begins with a model of numeracy development that provides innovative and highly effective way of looking at the Primary Mathematics curriculum. It cashes in on the nature of mathematics, using CLIC as a chronological framework for securing basic skills and on the logical steps of progression that sit naturally in mathematical progression (Progress Drives).

Children acquire the basic skills of mathematics through the chronology of CLIC. When we look at Core Numeracy in more detail we see that it has a 4 stage process to it;

Counting

Children learn to count and to 'count on'.

Learn Its
Children then short-cut this counting by recalling their 'counting on' as facts.

It's Nothing New
Children then 'swap the thing' to realise that the counting fact, or 'learn it', can be applied to any object, amount or unit of measure.

Calculation
The previous 3 phases are combined to provide a calculation structure.

We call the rest of the mathematics curriculum 'Outer Numeracy'. This gives us a 'simple view' of the primary Mathematics Curriculum. Basic skills (CLIC) need to be acquired before they are used in different contexts. When we zoom into Outer Numeracy we see four aspects but this time they are non-chronological. They are:

Real Life Maths: (think 'word problems') These are worded scenarios that ask children to solve problems that attempt to mimic real life. For example, 'There are 20 pencils in a box. 50 children need 2 pencils each. How many boxes are needed? 'All CLIC skills can be taken into real life context.

SAFE Maths: (shape, measure, fractions and data). This refers to a large amount of primary mathematics curriculum content. Virtually all of SAFE Maths is underpinned by a Core Numeracy element.

Shape - 2D, 3D, Coordinates etc…

Amounts - Measures for distance, mass, angles etc.

Fractions - Fractions of amounts, percentages, ratio etc…

Explaining Data - Graphs, probability.

Multi-Methods: ('Column Methods, Calculators and Cool Moves'). These refer to more efficient aspects of numeracy beyond the core. For example, one might teach children to add using near doubles, or to solve 405 – 198 by adding 2 to both numbers. This means the question is easily re-written as 407 – 200 and the gap between the two numbers becomes clearer. These methods also include Column Methods and solving calculations using a calculator.

Dangerous Maths: ('number problems'). This means maths problems that take the child out of their immediate comfort zone and require more creative and analytical thinking. For example, 'What is the highest square number under 1000?' Dangerous Maths also includes algebra and number patterns.

Components of a typical mathematics lesson

Section of lesson	What it comprises	Content may include…
Oral and Mental starter	Big Maths	C – counting L – learn its I – It's nothing new C – calculation Staff will be working on accurate steps of progression known as Progress Drives

Main teaching activity	One or more of these: • Whole-class introduction to topic with some paired work • Follow up teaching to the whole class or a group • Group work – usually three groups at most • Individual practice • Key concepts recorded in mathematics books	Based on objectives from the National Curriculum or Big Maths: • Introducing new work • Extending or consolidating new previous work • Using and applying what has been learned • Assessing what has been taught • Revising and further practice

10. Spoken language

The National Curriculum for mathematics 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 mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

11. Marking

The quality of marking is crucial to ensure progress for each child within mathematics. A simple 'X' is of little assistance to a child unless accompanied by an indication of where the error occurred, together with an explanation of what went wrong, through next steps and questioning that results in a child led understanding of any misconceptions in the work. Live marking should allow the teacher to identify pupils that may need further support or intervention. It should also allow pupils to correct any mistakes they have made within the lesson.

Marking should be both diagnostic and summative. The school marking policy sets out the standard of marking expected of all staff. When appropriate, the children themselves can mark exercises which involve routine practice with support and guidance from the teacher.

12. Assessment and record keeping

Assessment for learning should occur throughout the entire mathematics lessons as this enables staff to adapt their teaching and input to meet the children's needs. This feedback should then be incisive and regular to promote progression. Regular Big Maths Assessments enable staff to identify and target 'gaps' in learning to enable rapid progress. Children should also regularly use self and peer assessment to assess against the learning objective and success criteria.

Assessment opportunities also provide children with an opportunity to learn from their misconceptions and develop depth of understanding through the use of Mastery activities. On a termly basis, pupils complete standardised assessments which are analysed by teachers to identify learning gaps to inform future teaching. 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.

13. Resources

Each class at Barcroft Academy has a range of high quality mathematics resources available to them. These resources have been carefully selected to enhance the teaching and learning of mathematics throughout the school. Displays within school promote mathematical language and vocabulary which is relevant to each lesson. High quality examples of children's mathematics work should also be displayed to encourage a positive attitude and enthusiasm towards mathematics.

14. Homework

It is our school policy to provide parents and carers with opportunities to work with their children at home. A vital skill which allows parents to be present in supporting their children with their education. Mathematics homework should be differentiated and provided to children by ensuring it suits their needs. Mathematics homework should link with the Mathematics Topic taught in the classroom.

15. The Role of the Subject Leader

- To take the lead in policy development.
- To support colleagues.
- To monitor progress in mathematics – e.g. leading staff CPD, scrutiny of work, analysis of formal assessment data.
- To take responsibility for the choice, purchase and organisation of central resources for mathematics, in consultation with colleagues.
- To liaise with other members of staff to form a coherent and progressive scheme of work which ensures both experience of, and capability in, mathematics.
- To be familiar with current thinking concerning the teaching of mathematics, and to disseminate information to colleagues.
- The subject leader will be responsible to the Headteacher and will liaise with the named link Governors.

16. Monitoring and Review

The Maths Subject Leader is responsible for the monitoring and implementation of this policy. The subject leader reports to the Headteacher on the effectiveness of the policy and to the governing body upon its review.