# **Policy for Mathematics**



# **Bentham Community Primary School**

Subject Leader: Helen Harrison Policy Date: September 2022 Review Date: September 2023

# Maths at Bentham CP School

## Intent

#### **Our Curriculum Aims:**

At Bentham CP School we believe that children should experience the awe and wonder of mathematics as they learn to solve problems; develop ways of looking at patterns; discover efficient strategies and make links between the different areas of maths. We believe maths is a universal language; it helps us to describe, make sense, investigate, understand and respect our ever-changing world. We believe all children can achieve in mathematics and teach for secure and deep understanding of concepts through fluency, reasoning and problem solving. Where possible, we try to make our maths 'real maths', making our learning and experiences relevant to everyday life. We use mistakes and misconceptions as an essential part of learning and provide challenges through rich and varied problems. We encourage children to use approaches, which work for them, by equipping them with a range of efficient strategies and ensuring an understanding of them. At our school, the majority of children will be taught age related content and will be supported in understanding this through pre-teaching and corrective teaching when necessary. We aim to make maths an exciting and varied experience to enable children to flourish and achieve.

Mathematics is a creative and highly inter-connected 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)

The EYFS Statutory Framework 2021 sets standards for the learning, development and care of children from birth to five years old and supports an integrated approach to early learning. This is supported by the 'Birth to 5' non statutory guidance.

#### The EYFS Framework in relation to mathematics aims for our children to:

Number:

- 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:

- 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 aims of the 2014 National Curriculum are for our pupils to:

- Become **fluent** in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- **Reason mathematically**; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- **Problem solve** by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.

The National Curriculum sets out year-by-year programmes of study for key stages One and Two. This ensures continuity and progression in the teaching of mathematics.

#### **Our Curriculum Drivers:**



	become good	'Our' place in 'our' world	Sologing State	We aim to help ch Maths Days, trips, maths is fundame	ildren understand how mat visitors and our every day t ntal to our everyday lives.	ths is part of the world arou teaching we help the childr	und us. Through specific en to understand how
Initiative	utilise positive learning behaviours in order to solvers who can reason well in mathematics.	Our Voice	Communication Speaking Communication Speaking Communication Speaking Communication Speaking Communication Speaking Speak	We encourage our Through whole cla to practise becom of situations. We h vocabulary and en	children to practise their c ss, group, paired or indepe ing eloquent communicato pelieve that our children sho sure this is thought about c	communication skills in all N ndent work, we provide op rs, speaking with confidenc ould be subject to a wide ra carefully in our teaching of t	Aathematics lessons. portunities for children e and fluency in a variety ange of high order mathematics.
Independence and		Ourselves	Print	Our mathematics stages to make pro positive learning b achieve their pote	teaching is inclusive for all a ogress and achieve the best ehaviours in our Maths less ntial and feel a sense of pri	and will enable children of a they possibly can. We war sons; persevere and work t de for what they have done	all different ages and ht children to utilise hrough difficulties, then e.
_	We want our chidren to u	Our Aspirations	Rearning Solution of the second secon	Children cannot aspire to things they have never encountered. We work to broaden our children's horizons, and whenever possible, will ensure our children know the relevance of what they are learning to later life and possible job opportunities in the future. We want to equip children with the mathematical skills they need to succeed at what they aspire to be when they are older.			
		Be Prou	d Be Yourself	Be Together	Be Friendly	Be Strong	Be Bentham!

It is our intention that the whole school curriculum drivers are interwoven into our teaching of Mathematics.

#### **Characteristics of a Mathematician**

- Fluent knowledge and recall of number facts and the number system.
- Fluency in performing written and mental calculations and mathematical techniques.
- An understanding of the important concepts and an ability to make connections within mathematics.
- A broad range of skills in using and applying mathematics across the curriculum and in real life.
- The ability to show initiative in solving problems in a wide range of contexts, including the new or unusual.
- The ability to reason, generalise and make sense of solutions.
- A wide range of mathematical vocabulary.
- The ability to think independently and to persevere when faced with challenges, showing a confidence of success.
- The ability to embrace the value of learning from mistakes and false starts.
- The initiative and motivation to work both independently and in cooperation with others.
- A commitment to and passion for the subject.

## Implementation

The National Curriculum for Mathematics 2014, Birth to 5 Matters and the Early Learning Goals provide the **long-term planning** for mathematics taught in our school.

Our **medium-term plans** and sequencing of lessons follow the White Rose mastery approach (Reception through Year 6) where the goal is to deepen understanding so that each lesson builds upon the last. Mathematical concepts and skills are broken up across the key stages. A concept is taught and will be revisited the following year, but in greater depth in order to build upon prior knowledge. The progression map (below) is provided to all teachers so that they understand where children are coming from and where they are headed. We tailor our sequential plans to individual cohorts.

The White Rose Maths scheme of learning supports **daily and weekly lesson planning**. Lessons are planned using a common planning format and are monitored at intervals by the mathematics subject leader. All classes have a daily mathematics lesson.

Weekly EYFS planning gives opportunity for thought on where the children are working currently and the next steps they need to take. Learning occurs through a mixture of adult led activities and child-initiated learning both inside and outside of the classroom. Continuous Provision is enhanced with Mathematical challenges and resources to ensure it is taught through an integrated approach.

In all lessons from Year 1 - 6, learning objectives are clearly displayed and discussed, with **prior learning** recapped before new learning takes place. The emphasis in lessons is to make teaching interactive, to engage all children in **discussion** and encourage them to use mathematical **vocabulary**. The teaching of Mathematics at Bentham Community Primary school takes place through group work, paired work, whole class teaching and individual support. Children work in **mixed ability groups** wherever possible. We aim to provide a stimulating and exciting learning environment that allows children to move from having a **concrete** understanding to a **pictorial** understanding before ultimately using **abstract** strategies. We endeavour to use appropriate **resources** to maximise teaching and learning for all concepts in Mathematics. **Bar modelling** is used where necessary. Children are taught bar modelling throughout school, but especially in EYFS and KS1, in order that they can use it as a means to solving problems independently.

Children across school all take part in **Rapid Recall** where they work through fluency challenges of differing ability, at least twice a week, to develop their recall of mental maths. Additionally, all children in Years 1 - 6 are members of the **Times Table Rockstars** program which focuses on improving times table recall. They access this at least twice a week in School and can access it at any time at home.

#### Inclusion

First and foremost, we focus on effective and quality teaching for all. Then we differentiate using White Rose or White Rose equivalent work so that all pupils may access the curriculum irregardless of disadvantages or SEND. We also utilise maths manipulatives, set out visual reminders, have one-to-one sessions, Keep Up Catch Up groups to help support these pupils. Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, children's Individual Provision Maps incorporate suitable objectives from the National Curriculum for Mathematics or Birth to 5 and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson. Maths focused interventions in school help children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher. Within the daily mathematics lesson teachers have a responsibility to not only provide differentiated activities to support children with SEND but also activities that provide sufficient challenge for children who are High Prior Attainers. It is the teachers' responsibility to ensure that all children are challenged at a level appropriate to their ability.

#### **Equal Opportunities**

Positive attitudes towards mathematics are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics. The aim is to ensure that everyone makes progress and gains positively from lessons.

#### Progression of knowledge and Skills

See Nursery MTP document and White Rose Maths Progression of skills document.

## Impact

#### Marking and Feedback

Marking and feedback of children's learning is essential to ensure they make further progress. Learning is marked in line with our schools Marking and Feedback Policy. Children are encouraged to self-assess their learning and are given time to read teachers' comments and make corrections or improvements in green pen.

#### Assessment

Assessment is an integral part of teaching and learning and is a continuous process. Teachers across EYFS, KS1 and KS2 make assessments of children daily through:

- regular marking of work
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short-term planning evaluated and annotated in light of these assessments. Please refer to the School's Marking and Feedback Policy for further information.

Assessments are made prior to starting a unit of work, using Maths.co.uk, which analyses starting points. A second assessment is undertaken at the end of a unit to inform teachers of progress that has been made and any gaps in learning, which need addressing in KUCU sessions or interventions.

Termly assessments are carried out across the school using the PUMA and NFER assessment materials for each Years 1 - 6. Year Two and Year Six also complete the national tests (SATs) in May. These materials used alongside professional judgements made from class learning, support teachers in making an assessment for each child which is in line with the assessment policy. Within each year group children are assessed as Working Towards the National Standard (W), Working at the National Expected Standard (N) or Working Above the National Standard (A). Teachers enter these summative assessments onto the schools Tracking Grid each term.

Summative assessment in EYFS also occurs termly and are recorded on the EYFS tracker. Children are assessed against the Birth to 5 statements and are recorded as Beginning, Developing or Secure within a band.

Pupil Progress meetings are timetabled each term for all classes. Progress of pupils is discussed, and appropriate intervention considered and put in place.

The maths curriculum is monitored and evaluated across the school by:

- o Lesson observations with specific feedback and targets
- o "Book looks" with specific and purposeful criteria
- Interviewing teachers
- Pupil Voice
- Data on the assessment trackers
- Learning Walks
- $\circ$  Governor visits