

Blackwell Primary School

Mathematics Policy



2024-2025

Aims and Visions for Mathematics

Our aim at Blackwell Primary School is to deliver a curriculum that provides creative and challenging lessons which build a sense of excitement and curiosity around mathematics, whilst also producing confident mathematicians who continue to thrive within the subject. Children are encouraged to make links between their maths knowledge and the wider curriculum, as well as the world around them, with an emphasis on the key skills that are needed in daily life, their future education and possible careers. As children at Blackwell Primary School learn mathematics, they are acquiring fluency in practical, mental and written methods, as well as developing their questioning, reasoning and problem-solving skills through a diverse range of 'using and applying' opportunities. High level modelling, questioning and class discussion provide regular opportunities to use progressive mathematical vocabulary as pupils move through the school. We ensure that all students access the maths curriculum and that they receive the appropriate support to fulfil their potential through regular curriculum reviews, on-going assessment, tracking of results and targeted interventions. Learning journeys are shared with the pupils, giving them a clear picture of their progress within the subject and an understanding of their next steps.

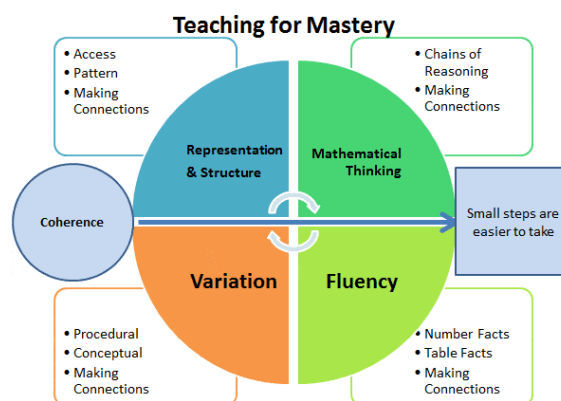
Intent

“Mathematics is the study of number, geometry, measure, statistics, algebra, ratio and proportion.”

In line with the National Curriculum for mathematics aims to ensure all pupils:

- Become fluent in the fundamentals of mathematics, including the varied and regular practice of increasingly complex problems over time.
- Reason mathematically by following a line of enquiry, understanding 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.

Central to our approach, using the White Rose scheme are the principles that are conducive to mastery in mathematics:



This enables us to:

- ☐ Promote the enjoyment of learning and challenge through practical activity, questioning and discussion.
- ☐ Develop confidence and competence with numbers and the number system through the use of practical resources and the recall of mathematical facts and knowledge.
- ☐ Develop conceptual understanding in order to solve problems through decision making and reasoning in a range of contexts.
- ☐ Develop a practical understanding of the ways in which information is recorded, presented and analysed.

- Help children understand the relevance and application of mathematics in everyday and professional life through a range of using and applying opportunities that build on knowledge and use of mathematical vocabulary.
- Where possible, facilitate a whole class progression through key skills and topics, with a secure understanding and sense of progress and success.

Implementation

Leadership and Management

The subject leader's role is to empower colleagues to teach maths to a high standard and support staff in the following ways:

- ☐ By keeping up to date on curriculum issues, share relevant information and provide training for staff members.
- ☐ Having a knowledge of the quality of mathematics provision across the school by observing lessons, working environments and monitoring class books.
- ☐ **Evaluate the impact of interventions and monitor focus groups.**
- ☐ Identifying and acting on development needs of all staff members.
- ☐ Monitoring expectations, provision and attainment across the school and providing feedback to develop practice further in order to raise standards.
- ☐ Providing necessary equipment and maintaining it to a high standard.

Class Structure

At Blackwell, children are taught in mixed year groups, with each class consisting of two separate year groups of mixed ability students. In each class the teacher is responsible for the planning, teaching and assessment of all children, as well as providing guidance to teaching assistants for any support groups or interventions.

Long Term Plans

Each year group has a long-term plan to ensure curriculum coverage, as well as support the sequence of learning. As a school, we follow the White Rose Maths scheme, using mixed-age plans, that are supplemented by individual year plans where necessary. The White Rose scheme allows for a continuous provision throughout the school from EYFS to Year 6, ensuring that there is complete coverage of the national curriculum by the end of each key stage.

Planning

Using the White Rose scheme, small steps are planned within each unit of work to ensure that there is a progression of skills which build on previous learning. Where appropriate, teaching and learning is supported with additional resources, such as the Busy Ants mastery scheme. Whilst planning these small steps, teachers consider which strategies and resources will allow pupils to best master the conceptual and procedural skills, and knowledge of each step. As well as White Rose resources, teachers also incorporate, practical activities, pupil whiteboard work and use of learning walls, to support learning. Where necessary, prior learning from previous

units is revisited to ensure the consolidation of key knowledge and that relevant links are made as part of the learning journey.

Classroom Practice

Where possible, classes move through the learning journey together with a teaching process that builds on previous learning through reviews of previous work, uses clear modelling of new skills (including the use of reasoning statements), and effective question and discussion opportunities. Children work in flexible ability groups to complete work independently or with support from teachers or teaching assistants. All lessons provide the opportunity for pupils to consolidate key skills, as well as move learning on by attempting more challenging questions that include fluency and variation, reasoning and problem solving. On-going assessment is carried out during lessons and marking informs next steps for pupils by addressing misconceptions, modelling correct processes and through targeted questioning. Interventions (both within lessons or timetabled) are planned by the class teacher to quickly address misconceptions or target specific groups of children that may require further support.

Fluency

Fluency is developed across the school by using practical, pictorial, mental and written methods and is advanced through varied problem solving and reasoning opportunities. In all year groups, a wide range of practical resources are used to support learning and provide opportunities for pupils to reason and use key vocabulary. These include Numicon, Dienes Apparatus, Rekenrek counting frames, number lines and grids, place value grids, bar model resources and individual whiteboards. All Pupils in KS2 use Times Table Rockstars app both at school and at home, to improve their recall of multiplication facts with speed and accuracy. Additionally, pupils access memory interventions and extra times-table sessions using the Big Maths multiplication challenges.

Reasoning and Problem Solving

All pupils are given the opportunity to develop their mathematical reasoning and competency in solving sophisticated and varied maths problems, including real-life 'using and applying' challenges. Daily maths lessons incorporate problem solving and reasoning, both in individual, group and whole class contexts. Where necessary, teaching staff guide pupils through problems together, discussing key information, vocabulary, and the effectiveness of different methods. Pupils are given regular opportunities within lessons to problem solve in small groups, allowing time for peer learning and discussion that builds confidence and consolidates their use of key vocabulary. Additionally, each week, each class has a whole class reasoning problem that allows teachers to model and embed reasoning statements with a focus on mathematical oracy.

Curriculum Outline

Using the revised EYFS maths curriculum as well the White Rose scheme for EYFS, Foundation Stage Pupils are encouraged to develop their Problem Solving, Reasoning and Numeracy in a broad range of contexts in which they can explore, learn, enjoy, practise, discuss and extend their skills. Pupils are encouraged to exploit their mathematical potential in both indoor and outdoor enabling environments. The provision of a wide range of activities promotes regular active participation, exploration of real-life problems, the development of imaginative play and early experience of mathematical language. All pupils are supported positively and are encouraged to gain confidence and competence in their skills.

By the end of the Foundation Stage pupils should be able to count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number, using quantities and objects, add and subtract two single-digit numbers and count on or back to find the answer. Solve problems, including doubling, halving and sharing. The children should be able to use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. Recognise, create and describe patterns.

The White Rose Early Years scheme has been used in EYFS since September 2021 in the planning and teaching of maths in the Foundation Stage.

Key Stage 1

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 (e.g. concrete object).

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.

The White Rose scheme is being adapted through planning and teaching across KS1.

Lower Key Stage 2 – Years 3-4

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 12 multiplication table and show precision and fluency in their work. Children will be tested on their times tables in Year 6 using an online screening process. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling

The White Rose scheme is being adapted through planning and teaching across KS2.

Upper Key Stage 2 – Years 5-6

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.

The White Rose scheme is being adapted through planning and teaching across KS2.

Impact

The impact of our mathematics curriculum and the approaches that have been adapted to deliver it mean that children are fluent in the fundamentals of mathematics and develop a positive and confident outlook on the subject, preparing them for their next steps in life, as well as their education. Pupils can solve a variation of problems by applying knowledge and a range of strategies, the use of appropriate resources and vocabulary. 'Pupil Voice' interviews reflect pupils' enjoyment of the subject, as well as their understanding of curriculum content, classroom practices and personal targets. Pupil interviews also impact the on-going cycle of review, as pupil concerns are addressed and any gaps in knowledge or understanding are addressed.

Throughout the school, progress and attainment are monitored through formal and informal assessments that are carried out to determine which students are on track and who needs additional support. In year 4, the National Multiplication Check is administered to determine whether students can recall their times tables fluently – an essential skill for further success in UKS2. Termly assessments are carried out in Years 1-6 using White Rose arithmetic and reasoning papers, as well as previous SATs papers. At the end of Key Stage 2, national assessments (SATs) assess if the children are meeting national expected standards, working towards them, or are working at greater depth. This information is shared with parents during parent evenings and end of year reports.

To be reviewed: September 2025