

MATHS POLICY

Intent

Our intent for the teaching of mathematics at Brockholes Wood Primary School is to develop fluency, reasoning and problem solving in a creative, enjoyable way to promote curiosity, independence and creativity. We ensure pupils have access to concrete, pictorial and abstract representations of mathematical ideas to provide a deeper understanding of mathematical ideas, closely matching the White Rose Education Scheme of learning that we have adopted throughout school in each class from EYFS to Year 6. We support pupils to make rich connections in mathematics and gain competence in solving increasingly sophisticated problems which in hand enables them to apply their mathematical knowledge in and through science and other subjects.

Rationale for the Teaching and Learning of Maths

This policy reflects the school values and philosophy in relation to the teaching and learning of maths. It sets out a framework within which teaching and non-teaching staff can operate, and gives guidance on planning, teaching and assessment.

The intention of the mathematics curriculum is to ensure that all pupils:

- Have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately. This is applied across a range of representations in every year group using concrete, pictorial and abstract representations.
- Reason mathematically following enquiries, conjecturing, generalising, justifying and using proof.
- Can solve problems by applying their mathematical knowledge and understanding to a range of routine and non-routine problems.
- All children have a thorough understanding of mathematical vocabulary.

This document is intended for:

- All teaching staff
- All staff with classroom responsibilities
- School governors
- Parents
- Inspection teams

Aims

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.

The purpose of mathematics in our school is to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practise 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
- Have a positive attitude towards mathematics and an awareness of the relevance of mathematics in the real world.
- Are competent and confident in mathematical knowledge, concepts and skills.
- Have an ability to solve problems, to reason, to think logically and to work systematically and accurately.
- Have initiative and an ability to work both independently and in cooperation with others.
- Have an ability to communicate using relevant and accurate mathematics vocabulary.
- Are able to use and apply mathematics across the curriculum and in real life.
- Gain an understanding of mathematics through a process of enquiry and experiment.
- To understand the process of errors being part of the learning journey and show resilience in their attitude to learning
- To work with a Growth Mindset towards goals and challenges

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.

The National Curriculum – Continuity and Progression

We have implemented the statutory requirements for mathematics by following the basis provided by the National Curriculum. Planning will be based on the White Rose Maths Education Scheme from Pre-school through to Y6. This ensures pupils cover objectives in full breadth and depth, following the same spiral approach in each year group and embedding key skills. Children are given many opportunities to practise these skills in many different contexts.

Each class organises a daily lesson of between 45 and 60 minutes for mathematics. Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child-initiated activities both inside and outside of the classroom.

White Rose Education

To ensure whole consistency and progression, the school uses the nationally recognised White Rose Education scheme from Pre-school – Year 6. The White Rose curriculum is a cumulative curriculum, so that once a topic is covered, it is met many times again in other contexts. For example, place value is revisited in addition and subtraction and multiplication and division. The curriculum is designed to have an emphasis on number, with a large proportion of time spent reinforcing number to build competency.

Lessons are planned to provide plenty of opportunities to build reasoning and problem-solving elements into the curriculum. When introduced to a new concept, children have the opportunity to use concrete objects and manipulatives to help them understand what they are doing. Alongside this, children are encouraged to use pictorial representations. These representations can then be used to help reason and solve problems. Both concrete and pictorial representations support children’s understanding of abstract methods. Mathematical topics are taught in blocks, to enable the achievement of ‘mastery’ over time. These teaching blocks are broken down into smaller steps, to help children understand concepts better. This approach means that children do not cover too many concepts at once which can lead to cognitive overload. Each lesson phase provides the means for children to achieve greater depth, with children who are quick to grasp new content, being offered rich and sophisticated problems, within the lesson as appropriate.

Long Term and Medium Term Planning

The National Curriculum for Mathematics 2014, Development Matters, Birth to 5 Matters and the Early Learning Goals (Number, Shape Space & Measure), and White Rose Education provide the long-term planning for mathematics taught in the school. These are then broken down into ‘small steps’ that act as a daily lesson plan for each topic being covered. These small steps may take more than one lesson, and for some, two or three small steps may be covered within one lesson. This is determined by the teachers’ expertise in adapting the plans and the workbooks appropriately for their year group.

Breadth of Study

Through careful planning and preparation, we aim to ensure that throughout the school, children are given opportunities for:

- Practical activities and mathematical games
- Problem solving and reasoning through rich and sophisticated problems intended to improve fluency
- Individual, group and whole class discussions and activities
- Open and closed tasks
- A range of efficient methods for calculating
- Working with the use of Computing as a mathematical tool
- Daily calculation work.

Written Calculations

The school has a formal Written Calculations Policy (From White Rose Education) which explains which methods we use and the stages involved in teaching calculations in each year group.

Special Educational Needs

The daily mathematics lessons are inclusive to pupils with Special Educational Needs. Where required, children’s ILP’s and Pupil Passports incorporate suitable objectives from the National Curriculum and teachers keep these objectives 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.

Within the daily mathematics lesson teachers must not only provide differentiated activities to support children with special educational needs but also activities that provide appropriate challenges for children who are high achievers in mathematics. It is vital that all children are challenged at a level appropriate to their ability.

Differentiation

Whole class teaching takes place in every year group so that every child experience lessons and objectives specifically for their year group. Differentiation is often not by task, but through support (either adult intervention or equipment), expectation and outcome. Some children will have an adapted task if they cannot access the objective, but will experience the teaching aspect of the intended outcome, relevant to their working level and aspirational target.

Reporting to Parents

Reports are completed in the autumn term and before the end of the summer term and parents are given opportunity to formally discuss their child’s progress at two parents’ evenings in the autumn and summer terms, with an additional mid-year progress review sent out in the spring term. Parents can make an informal appointment to discuss their child’s progress at any time over the school year. Parents are encouraged and offered support and guidance to support their children’s learning of mathematics.

Teachers use the information gathered from their termly assessments to help them comment on individual children’s progress.

EYFS

Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. White Rose Education complements this learning alongside Development Matters and Birth to 5 Matters. Mathematics is related to aspects of the children’s work objectives, set out in the Early Years Foundation Stage curriculum, which underpins the planning for children aged three to five. We give all the children ample opportunity to develop their understanding of number, measurement, pattern, shape and space, through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics.

Assessment and Record Keeping

Teachers make regular assessments of each child’s progress and record these systematically. A record of each child’s attainment against the key objectives for the appropriate year group is recorded.

Short Term

Children’s class work is assessed frequently through

- In the moment marking
- analysing errors and misconceptions
- questioning
- discussion
- adaptive teaching methods
- end of term assessments

This is used to inform future planning and teaching.

Medium Term

Termly assessments are to be carried out across the school using the assessment materials for each year group. These materials are to be used alongside judgements from class work to form a teacher assessment for each child. These judgements are then passed onto the assessment co-ordinator to be fed into the whole school tracking system.

Long Term

Y6 are to complete SATs assessments every May. Y1, Y2, Y3, Y4 and Y5 complete optional assessment papers during autumn and summer term. EYFS complete the statutory on-entry baseline assessment as part of the EYFS framework within the first six weeks of reception.

Monitoring and Evaluation

The mathematics subject leader is released from her classroom in order to work alongside other teachers for an hour per week. This time is used to monitor and evaluate the quality and standards of mathematics throughout the school and enables the subject leader to support teachers in their own classrooms. This monitoring may take the form of

work scrutiny, curriculum walks, environment walks, team teaching, pupil interviews and observation.

Opportunities for teachers to review any schemes, policy and published materials are given on a regular basis during staff meetings.

Recording Work

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. Children are encouraged to use mental strategies before resorting to a written method. All children are encouraged to work tidily and neatly when recording their work. When using squares one square should be used for each digit. This promotes good presentation and helps to support the understanding of the positioning of place value.

From Y1 – Y6, children are provided with workbooks from White Rose Education for each topic they cover.

They also have a blue maths book where they complete their multiplication tables tests in, challenges and reasoning and problem-solving questions where appropriate.

EYFS record informally within the setting.

For example:

- on the playground
- on whiteboards
- using jigsaws
- physically ordering numbers
- use of ICT

Staff in EYFS use Tapestry to ensure records of each child’s achievements are maintained. They complete one observation a week in maths for each child.

Marking

In the moment marking is a fundamental part of our mathematics lessons. This ensures all children are making progress within the lesson and learning from any mistakes they have made. Both the teacher and the teaching assistant circulate the classroom and using adaptive teaching, will take the children who need further support to a different table for more focus or use the class visualizer to support the children. Green highlighter will be used for errors and using green pen, a VF (verbal feedback) will be put next to the questions that are incorrect. The children then use their purple pens to act upon that instant verbal feedback. Pink highlighter is used when a question is answered correctly.

For further information, see the school marking and feedback policy.

Staffing and Resources

Practical Resources

All teachers should organise an area within the classroom dedicated to mathematics resources. This area is easily accessible to all children and allows them to become familiar with all resources. This area should be rich in vocabulary and should have a challenge section readily available.

All classrooms will have a mathematics working wall which is changed regularly to reflect the curriculum outcomes currently being taught. It will be an area which will be rich in mathematical vocabulary.

Each class have access to the iPads to provide further mathematical challenges either through Purple Mash or TTRockStars.

Cross-Circular Skills and Links

Throughout the whole curriculum, opportunities exist to extend and promote mathematics. Teachers seek to take advantage of all opportunities.

Teachers’ Planning and Organisation

Each class teacher is responsible for the mathematics in their class in consultation with, and with guidance from, the mathematics subject leader.

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

- a fluency ‘number of the day’ warm up as soon as the children come into school whilst being registered across school
- a 10/15-minute fluency warm up focusing on counting and number bonds that are appropriate for the year group across school
- a mathematics lesson every day from Year 1-6
- a clear focus on direct, instructional teaching and interactive oral work with the whole class and groups
- accurate and supportive modelling delivered by staff to aid learning with a visualizer
- an emphasis on fluency, reasoning and problem solving

Each class organises a daily lesson of between 45 and 60 minutes for mathematics. Whole class teaching should involve as many children as possible most of the time. This could be through the use of whiteboards, jotters and mixed ability pairings.

Teachers of the EYFS classes base their teaching on objectives set out in the EYFS 2021 Framework; this ensures that they are working towards the ‘Early Learning Goals for Mathematics.’ Towards the end of Reception, teachers aim to draw the elements of a daily mathematics lesson together so that by the time children move into Year 1 they are familiar with whole class lessons.

Equal Opportunities

We value each child as a unique individual. We will strive to meet the needs of all our children and seek to ensure that we meet all statutory requirements related to matters of inclusion. (This policy should be read in conjunction with the Equalities Statement).

SMCS (Social, Moral, Cultural and Spiritual)

At Brockholes Wood Primary School we provide a wide range of opportunities for pupils to develop their spiritual, moral, social and cultural identity so that they can thrive as they grow and develop in these areas in school and the wider world. As part of our spiritual, moral, social and cultural development we promote fundamental British values which are at the heart of the ethos of our curriculum drivers at Brockholes Wood Primary School. Our pupils’ spiritual, moral, social and cultural development gives them the skills to be thoughtful, caring and active citizens in school and in wider society which we develop and nurture through a range of activities and opportunities both within and outside the school environment.

PREVENT

This policy is to be read in conjunction with the school’s PREVENT policy, in response to a legal duty from the DfE placed on schools to have due regard to the need to prevent people from being drawn into terrorism or be subject to radicalisation. *The Counter Terrorism and Security Act 2015, section 26th February 2015.* In line with legislation to prevent possible radicalization of individuals the school safeguards children through adherence to this policy and allowing Internet access under staff supervision.

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Brockholes Wood Community Primary School

'Shaping Little Lives into Bright Futures'

