

Badgerbrook Primary School Maths Policy



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Badgerbrook Primary School Maths Policy

Vision and Aims- Our Intent

Vision

At Badgerbrook, we see the acquisition of mathematical skills as being vital for the life opportunities of our children. Through our work with the East Midlands South Maths Hub and White Rose, our teaching is based on the five key ideas of Teaching for Mastery: Coherence, Representation and Structure, Mathematical Thinking, Fluency and Variation (procedural and conceptual). Provided with regular opportunities to make links with maths in the real world and other curriculum areas, children will leave Badgerbrook knowing how interconnected and fundamental maths is to the world around us.



Our overarching intent is to instill a love of a mathematics in our children and staff. We aim for our children to develop enthusiastic and inquisitive attitudes towards mathematics, whilst also developing confidence in concepts and procedures. We want our children to be life-long mathematicians and to understand how mathematics is essential to everyday life and that it is critical to science, technology, engineering, and finance, as well as using logical approaches to solve problems in any context. Through developing children’s curiosity and gaining an appreciation of the beauty and power of mathematics, we want all children to enjoy the subject and to experience success. We have embedded the three aims of the National Curriculum in our teaching: fluency, reasoning and problem solving. We believe that all three of these are equally important to develop well-rounded mathematicians.

Teaching and Learning- Implementation

How mathematics is planned and taught:

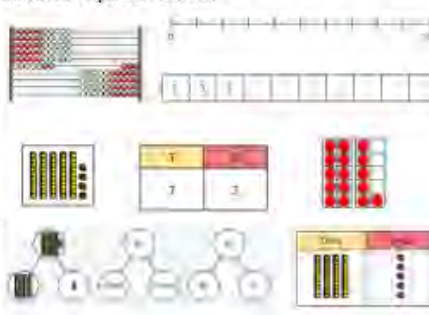
At Badgerbrook, our approach to teaching mathematics involves guided practice using the ‘I do, we do, you do’ model. This method follows a gradual release of responsibility, where the teacher demonstrates the concept first (I do), then gives time for the children to work collaboratively (we do), and finally allows them to work independently (you do). This scaffolded approach aims to support the learning process and prevents overwhelming the children’s working memory. By providing a clear model and step-by-step guidance, children can better understand the concepts and build their skills over time. The collaborative aspect of the ‘we do’ stage encourages active participation and engagement. As children progress to the ‘you do’ stage, they gain confidence in applying their knowledge autonomously. This approach creates a supportive learning environment that fosters success.

Teachers use the White Rose planning scheme to support their long-term planning. White Rose suggests how long to spend on each block of learning, but the length of time spent is down to individual teachers to decide what is best for their classes' learning. Teachers look at what the prior learning was, then build the current teaching upon that. Teachers use the White Rose Ready to Progress mapping (Appendix A) for overall National Curriculum coverage. This document lists the key steps in the White Rose Maths schemes of learning that support each of the 'ready to progress' criteria produced by the DfE.

To support our planning, we use various high quality resources:

- NCETM PD materials <https://www.ncetm.org.uk/resources/50639>
- NCETM Mastery Assessment documents <https://www.ncetm.org.uk/resources/46689>
- NCETM [Ready to Progress](#)
- White Rose Schemes of learning <https://whiterosemaths.com/resources/primary-resources/>
- Gareth Metcalfe's 'I See Reasoning' and 'I See Problem Solving' <http://www.iseemaths.com/>
- NRICH resources <https://nrich.maths.org/>
- Numberblocks <https://www.ncetm.org.uk/classroom-resources/ey-numberblocks-support-materials/>

In 2022-23, teachers began using Stem Sentences that are chorally rehearsed by the class. Teachers may miss out a key word within the sentence to reactive prior learning. These sentences are built on daily throughout the unit of work. New to 2023-24, teachers will also be creating a unit planning grid, which details the progression within the unit of work, considers problem solving activities and makes links to the Ready to Progress statements. It is an opportunity for teachers to pull together all of the named resources (above) to ensure that staff in their teams are aware of what the next stages of learning are.

Year Group: 2	Maths Strand: Place Value	Term: Autumn 1
<p>Pre-requisites: 1NPV-1 Count within 100, forwards and backwards, starting with any number.</p> <p>1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using $<$ $>$ and $=$</p>	<p>Key Vocabulary: Hundred, tens, ones, zero, place value, greater than, less than, equal to, order, two-digit number, partition, recombine, digit, numeral, words, more, less</p>	<p>Learning journey: LO: Numbers to 20 LO: Count objects to 100 by making 10s LO: Recognise tens and ones (2 lessons) LO: Use a place value chart LO: Partition numbers to 100 LO: Write numbers to 100 in words LO: Flexibly partition numbers to 100 (2 lessons) LO: Write numbers to 100 in expanded form LO: 10s on the number line to 100 LO: 10s and 1s on the number line to 100 LO: Estimate numbers on a number line (2 lessons) LO: Compare objects LO: Compare numbers LO: Order objects and numbers LO: Count in 2s, 5s and 10s (3 lessons) LO: Count in 3s (2 lessons)</p>
<p>Planned Misconceptions:</p> <p>Revert to counting in ones rather than using earlier learning of making tens.</p> <p>Write the whole number in a single column, rather than considering the structure of the number.</p> <p>Partition a number into its digits rather than considering the value of each digit, for example stating that 43 is made up of 4 and 3.</p>	<p>Stem Sentences:</p> <p>The position of a digit in a number determines its value.</p> <p>There are 10 ones in a ten There are 10 tens in 100 The value of the digit ___ is ___ ones/tens ___ can be partitioned into ___ and ___ Each interval is worth ___</p>	
<p>Problem Solving Opportunities:</p> <p>Two-digit targets: https://nrich.maths.org/6343/note</p> <p>6 beads: https://nrich.maths.org/152/note</p>	<p>Concrete Manipulatives:</p> <p>Dienes (Base 10) Place Value counters Rekenreks</p>	<p>Pictorial Representations:</p> 
<p>Fluency Focus:</p> <p>The structure of 5 and a bit Number bonds to 10 and within 10 Counting in multiples of 2, 3, 5 and 10</p>		
<p>Blended Learning Opportunities:</p> <p>White Rose Digital Tools NumBots 1-minute maths TTRS</p>		

Unit planning grid

Lesson design

Each session commences with a retrieval exercise to reinforce fluency and build a strong foundation. The teacher adopts the 'I do' approach, exemplifying the primary skill of the lesson, ensuring clarity and comprehension. Subsequently, students collaborate in pairs, groups, or as a class to participate in the 'we do' phase, facilitating peer learning and interaction. Once the teacher is confident in the students' grasp of the concept, they transition to the 'you do' stage, allowing children to independently apply their newfound knowledge. This cycle continues until the targeted learning objective is achieved. As lessons draw to a close, all pupils engage in a deepening task, ensuring that reasoning and problem-solving are integral

components of their mathematical journey. Some students may require additional scaffolding at this stage to ensure their success, fostering an inclusive learning environment for all.

Fluency

A set number of fluency questions are completed at the beginning of maths lessons in KS1 and KS2. The questions are linked to prior learning and are used as retrieval practice. Fluency is used as an opportunity to recap skills and consolidate number facts. Teachers have autonomy on the resources and strategies they use to support the fluency section of the lesson depending on the needs of their classes; these may include White Rose's Flashback 4, Big Maths Beat That, selecting appropriate strategies and comparing worked examples. Sometimes, a specific skill will need to be taught, with further fluency questions following later in the week.



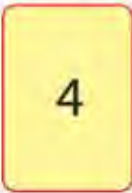
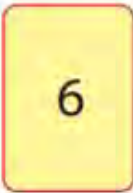

- **Times Tables RockStars**- Completed at least twice a week in Year 2 and KS2, however Year 4 will spend longer consolidating and learning the times tables.
- **NumBots** – In EYFS and Year 1, NumBots will be accessed at least once a week. Some children or classes may use NumBots as interventions for whole class or small groups.

Mastering Number at Reception and KS1

In 2022-23, EYFS and KS1 began their journey on the Maths Hub Mastering Number project. The project aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number. Teachers in EYFS use the lessons and resources, alongside the White Rose scheme of learning, whereas KS1 have four 15-minute sessions a week, in addition to their daily maths lessons.

Reasoning and Problem Solving

Every child has access to deepening opportunities at each stage of their learning journey. Teachers will exemplify the reasoning or problem-solving process using the 'I do' approach. Children will then be encouraged to work together or independently to solve similar questions using the same method; this will form part of the 'we do' and 'you do' stage of the lesson. These resources are sourced from Nrich, TestBase, White Rose and I see reasoning. For children seeking more advanced challenges, separate Mastery and Greater Depth questions will be provided at regular intervals. At Badgerbrook, we call these 'Dive Deeper Challenges'. These opportunities will be identified collaboratively by the teacher and the child once they have demonstrated mastery of the core learning objectives. The Greater Depth questions will be sourced from the NCETM Mastery Assessment documents (Appendix B), ensuring a reliable and rigorous extension to the curriculum.

	Decimals		
Using these cards can you make a number between 4.1 and 4.61?			
			
What is the smallest number you can make using all four cards? What is the largest number you can make using all four cards?			

Questioning and Reasoning Strategies used at Badgerbrook:

- How do you know? Justify Why?
- What's the same? What's different?
- Explain how you got your answer? What did you do?
- What do you notice?
- How many different ways can you show me?
- I do, We do, You Do
- Probing questions (staying with a child to probe deeper to check understanding)
- Say it again better (ask children to rephrase answers a second time to build a deeper, high quality answer)
- Whole class response: choral, whiteboard, thumbs up and down for true or false

Planning and teaching in EYFS

Maths is taught as part of the Area of Learning designated as 'Mathematics' in the EYFS Curriculum. The EYFS Curriculum is made up of two strands: Numbers and Shape, space and measure. The children receive four whole class, teacher led Maths lessons per week and they have access to independent child initiated Maths activities daily. EYFS staff also provide opportunities for the children to work as guided groups weekly to apply the whole class learning. Children are given opportunities to work on Maths activities both indoors and outdoors. These activities are based on the main areas as outlined in the EYFS curriculum (Appendix C). As in the rest of the school, the Maths planning builds on previous learning and allows time for children to develop 'mastery' in the key areas of Mathematics, without moving onto a new concept too quickly. Daily review and retrieval are also key to the EYFS teaching and learning, where the daily review links back to prior learning. Planning is updated daily considering previous learning. This ensures the Maths activities are appropriate and relevant to the children's learning needs and their interests. Maths activities in continuous provision are planned taking into account both the children's interests and curriculum coverage. Children also have access to NumBots when accessing the computer suite.

Classroom environment

Working walls are used across the school as purposeful reminders of taught concepts or procedures, as well as for displaying valuable stem sentences and subject-specific vocabulary (sticky words). These will help to recap and embed learning. Concrete resources are used across the school to help children to learn through concrete experiences and physical manipulation. In addition, we use resources to develop and build upon children's understanding of conceptual variation, enabling them to see how maths can be represented in a variety of different ways.

Parental/ Community Involvement

We value parent involvement in children's development of maths and promote a home-school partnership in the following ways:

- Maths workshops and parent/carer meetings
- Homework in line with our homework policy and home school agreement.
- Times Tables Rockstars (TTRS) and Battle of the Bands
- NumBots (EYFS and KS1)

Inclusion and Equal Opportunities:

In line with our mission statement, we believe every child will have equal opportunities to achieve their full potential and access an ambitious and coherent curriculum, regardless of race, gender, cultural background, ability or Special Educational Needs or Disability. If a child has a special educational need or disability, we will do our very best to ensure we meet that child's individual needs when accessing the mathematics curriculum. We comply with the requirements set out in the SEND Code of Practice. If a teacher has concerns about the progress of a child, they will liaise with the school SENDCO to arrange appropriate assessment of need. In some cases, where the demands of the curriculum may be too much, this may involve the use of pre year group statements to track small steps of progress or differentiation within the classroom environment to meet the needs of that child.

Formative Assessment

Pupils' progress will be assessed using regular formative assessment in lessons through questioning, regular retrieval practice, assessment of work in books and feedback. Before each unit, pupils will complete a pre-unit check based on the Ready to Progress Criteria. This will allow teachers to adapt planning to support the needs of pupils in their classes. At the end of each unit, children will complete short assessments. These will inform the teacher of any children who will need any further consolidation and/or intervention. From 2023-24, teachers will also assess children's learning against the National Curriculum with a teacher assessment framework in their books.

Summative Assessment

Summative assessment in Mathematics takes place at the end of every term in line with our school's schedule. This takes the form of NTS Assessments. Both Arithmetic and Reasoning & Problem-Solving papers will be analysed to help identify vulnerable individuals and to ensure children and classes are on track and progressing effectively. In the Spring term, Year 6 complete previous SATS papers. In year 4, the children complete the Multiplication Tables Check (MTC) in June each year as well as interim data capture points throughout the year. Year 6 also take part in the Statutory Assessment Tests (SATS) that takes place in May each year.

Tracking Pupil Progress

In mathematics children are tracked in multiple ways:

- Baseline assessment in EYFS and tracking against Early Learning Goals
- Teacher assessment data tracking using INSIGHT
- MTC simulation tracking each half term in Year 4
- Tracking of EYFS to end of KS2 statutory assessment data
- Individual progress is reported to parents through two termly Parents' Evenings and an end of year report.

Staff Development

Teachers are expected to keep up-to-date with subject knowledge and to use current materials that are available in school or on the government website. Training needs are identified as a result of whole school monitoring and evaluation, performance management and through self-analysis. The subject leader is keen to share best practice and disseminate up-to-date initiatives to staff via planned CPD and development time. This will ensure the subject is constantly evolving to meet the demands of curriculum expectations. In addition, external courses and work groups are made readily available to staff. Available courses are disseminated by the Maths lead and SLT and are usually ran by (but not restricted to) The East Midlands Maths Hub or TELA.

Monitoring

The subject leader, SLT and Governors all play a role in the monitoring of Mathematics at Badgerbrook Primary School. Regular monitoring via learning walks, book trawls and pupil/staff voice feedback ensures the subject is constantly being reviewed and regulated to ensure the best learning opportunities for all.

Policy reviewed: September 2023