



Mathematics

Mathematics 'At Ellington Primary School, Maths allows us to become fluent in calculation, to reason about the maths we are using and to solve problems.'

Intent

Introduction and Strategic Vision

At Ellington Primary School, our mathematics curriculum is designed to foster a culture of high ambition, curiosity, and mathematical proficiency. We aim to develop mathematically articulate, resilient, and confident learners who possess a deep, secure, and adaptable understanding of the subject. Our curriculum fully encompasses the statutory requirements of the Early Years Foundation Stage (EYFS) Framework and the National Curriculum Programme of Study for Key Stages 1 and 2.

Early Years Foundation Stage Framework

National Curriculum Programmes of Study Key Stage 1 and Key Stage 2

To ensure a highly effective implementation, Ellington Primary utilises a carefully coordinated mastery approach. We use Big Maths as our core curricular framework. Its systematic, diagnostic progression ensures that key learning is revisited and consolidated on a regular, cyclical basis to secure long-term retention. To support staff in resourcing and delivering this curriculum in the most impactful way possible, teachers are empowered to supplement the core Big Maths objectives with high-quality teaching resources from a variety of sources including White Rose Maths and Classroom Secrets. This deliberate use of secondary resources ensures that lessons are enriched with robust concrete-pictorial-abstract (CPA) representations, varied fluency opportunities and improved opportunities for reasoning and problem solving. This approach is perfectly tailored to enhance the delivery of the planned learning objective.

Core Curricular Components

Our curriculum intent is systematically structured around the three core pillars of mathematical knowledge outlined in current evidence-based research:

Declarative Knowledge (Fluency of Facts): Ensuring automaticity and rapid recall of core mathematical facts, relationships, and concepts (such as number bonds and multiplication tables) to reduce cognitive load on the working memory.

Procedural Knowledge (Fluency of Methods): Equipping pupils with accurate, systematic written and mental calculation strategies, emphasising structural understanding over blind replication.

Conditional Knowledge (Reasoning and Problem Solving): Developing the strategies and vocabulary necessary for pupils to identify connections, justify mathematical reasoning, and independently apply their knowledge to solve non-routine and unfamiliar problems.



The School's Curriculum Drivers

Aspiration

We hold the highest expectations for every learner at Ellington Primary. Our "low threshold, high ceiling" pedagogical design ensures that the curriculum remains highly ambitious for all, utilising precise adaptive teaching rather than premature differentiation or tracking.

We aspire for our children to achieve complete automaticity, accuracy, and flexibility in calculation. From Reception to the conclusion of Year 4, this is systematically driven by the sequential acquisition of key number facts ('Learn Its') via the Big Maths framework. This rigorously prepares pupils for the statutory Multiplication Tables Check (MTC) in Year 4. Crucially, this conceptual fluency is deliberately maintained and extended across Years 5 and 6 through advanced arithmetic retrieval, ensuring that all pupils leave Key Stage 2 equipped to perform to their maximum potential in statutory assessments and ready for the next stage in their education.

Wider World

Mathematics equips pupils with a uniquely powerful, universal set of tools to understand, interpret, and actively engage with the world around them. We endeavour to cultivate an authentic enthusiasm for mathematics by highlighting its integral role in daily life, science, and future economic well-being.

By employing diagnostic tracking tools, including the Big Maths Assessment Spines, leaders and teachers maintain a precise awareness of individual progress and component gaps. We deliberately design mathematical opportunities that construct resilience, stamina, and confidence, ensuring our pupils are emotionally and academically equipped to navigate complex problems in later life.

Independent Thinking & Metacognition

Our curriculum is a primary vehicle for developing pupils' autonomy and independent critical thinking. We systematically embed cognitive science and metacognitive strategies into our daily practice, emphasising overlearning and continuous consolidation to guarantee that knowledge is securely transferred to pupils' long-term memory.

The intentional sequence of our curriculum ensures that mathematical knowledge is built cumulatively across and between year groups; learning is never an isolated event but a continuous elaboration of prior concepts. In the Early Years, this begins with highly detailed, small-stepped planning that secures crucial subitising and composition foundations. Through targeted diagnostic interventions, including 'Big Maths Beat That' challenges, we address misconceptions that are tailored to each individual child. In addition, every maths lesson starts with a prior learning task, which either extends a child's learning from the previous lesson or provides the teacher with an opportunity to strengthen practice. Pupils are explicitly taught to recognise how they learn best, choosing from a rich array of concrete manipulatives and pictorial scaffolds to independently navigate cognitive conflict and secure deep conceptual mastery.



Implementation

Curriculum Structure and Timetabling

To successfully enact our curriculum intent, mathematics at Ellington Primary School is structured into two distinct, interconnected daily components:

The Daily CLIC Session (15–20 minutes): This highly focused session targets core declarative and procedural knowledge. It is systematically divided into four components: Counting (place value), Learn Its (rapid fact recall), It's Nothing New (applying known facts and procedures to new contexts), and Calculation (mental arithmetic). This rapid, structured retrieval session utilises an 'I do, We do, You do' modelling approach, allowing pupils to overlearn vital number facts and embed them into their long-term memory.

The Main Core & Outer Maths Lesson (50 minutes): This session delivers the broader National Curriculum strands, including formal written methods of arithmetic, shape, space, measures, fractions, decimals, percentages, and data.

To further embed procedural automaticity and efficiency with calculation, all pupils from Year 3 to Year 6 participate in an additional, dedicated 30-minute arithmetic practice session each week. This session explicitly focuses on reinforcing efficient mental and written calculation methods, ensuring fluencies are sustained across Key Stage 2.

To ensure pupils secure an unshakeable foundation in number sense at the start of each academic year, we deliberately dedicate the first three weeks of the Autumn term to a deep-dive into Place Value, utilising various resources including those from White Rose Maths. This is run alongside daily CLIC sessions to guarantee that conceptual scaffolding is fully established before pupils' progress onto advanced calculation and Outer Maths units.

Planning, Sequencing, and Resource Integration

Our curriculum syllabus is driven by the Big Maths Planning Drives, which break down the statutory National Curriculum aims into highly precise, sequentially ordered small steps. This clear progression provides teachers with absolute clarity regarding the pedagogical journey: Why this, why now, and what next?

While Big Maths provides the core framework and pedagogical progression, teachers are empowered to intelligently supplement lessons with high-quality materials including those from White Rose Maths and Classroom Secrets. This secondary layer of resourcing is deliberately deployed to enrich lessons with robust varied fluency and deep mathematical reasoning opportunities, ensuring the curriculum remains highly ambitious.

Assessment, Gap Analysis, and Responsive Intervention

Impactful implementation relies on precise, ongoing diagnostic assessment:

Weekly Formative Tracking: From Year 1 upwards, pupils complete weekly 'Big Maths Beat That' challenges. These low-stakes assessments track retention of CLIC and SAFE targets.

Precision Gap Analysis: Baseline and weekly assessments are not treated as passive data points. Instead, teachers use the diagnostic feedback to identify exact component gaps in individual pupil knowledge.

School-Led Intervention & Equitable Homework: Gaps are prioritised and addressed dynamically within school through targeted, immediate adult interventions and fluid look-back groups. To support long-



term retention equitably, homework is strictly focused on previously mastered counting steps and times tables. Because this content has been thoroughly secured in class, all pupils—including those from disadvantaged backgrounds—can engage with these tasks entirely independently at home, eliminating barriers to practice.

Impact

Achievement, Progress, and Inclusivity

The ultimate measure of the impact of our mathematics curriculum is that pupils know more, remember more, and can do more over time. Progress is defined not merely by tracking data points, but by the demonstrable acquisition of mathematical components and their successful integration into complex composites.

Sustained Progress Over Time: Work in pupils' books demonstrates a sequential, cumulative building of knowledge. Regular work scrutiny, learning walks, and professional dialogue confirm that pupils make strong, typical progress from their individual starting points across both Core and Outer Maths modules.

Closing the Advantage Gap: Our refined approach to school-led interventions and equitable homework ensures that disadvantaged pupils and those with Special Educational Needs and/or Disabilities (SEND) achieve well. They access the same ambitious curriculum as their peers, supported effectively by targeted classroom adaptations.

Readiness for the Next Stage: The success of our curriculum design is validated by published, statutory external data over time. By the end of Key Stage 2, verified national test data confirms that the vast majority of pupils achieve or exceed age-related expectations, securing the robust mathematical foundations necessary to transition smoothly to the secondary landscape.

Mathematical Fluency and Long-Term Retention

Impact is visible in the automaticity and fluidity with which pupils recall core mathematical facts, freeing up working memory for higher-order problem solving and calculation.

Retrieval and Retention: Through systematic retrieval practice embedded within the daily CLIC sessions and additional weekly Key Stage 2 arithmetic practice, core methods and number facts are successfully transferred into pupils' long-term memory.

Rapid Recall and MTC Success: The direct impact of our early structured number work is evidenced by strong historical and current outcomes in the statutory Multiplication Tables Check (MTC) at the end of Year 4. This velocity and accuracy are deliberately sustained and built upon as pupils progress through Years 5 and 6.

Flexible Procedural Knowledge: Pupils do not just memorise procedures; they understand underlying mathematical structures. This allows them to select the most efficient mental or written strategy for a given calculation, as seen in the high standard of arithmetic fluency across the school.

Breakdown of children's journey to learn key number facts including times tables from Reception to Year 4 can be found below. Each step is the focus of the Learn Its section in daily CLIC sessions for a full term:



Reception

Step 1 (Autumn Term): $1 + 1$, $2 + 2$,

Step 2 (Spring Term): $3 + 3$, $4 + 4$, $5 + 5$

Step 3 (Summer Term): $2 + 1$, $2 + 3$ and count in multiples of 10

Year 1

Step 4: $1 + 9$, $2 + 8$, $3 + 7$, $4 + 6$, $5 + 5$ and count in multiples of 5

Step 5: $4 + 2$, $5 + 2$, $6 + 2$, $7 + 2$, $9 + 2$, $4 + 3$, $5 + 3$, $6 + 3$

Step 6: $6 + 6$, $7 + 7$, $8 + 8$, $9 + 9$ and count in multiples of 2

Year 2

Step 7: $3 + 8$, $3 + 9$, $4 + 7$, $4 + 8$, $4 + 9$; and learn the 10 times table

Step 8: $5 + 4$, $5 + 6$, $6 + 7$, $8 + 7$, $8 + 9$; and learn the 5 times table

Step 9: $5 + 7$, $5 + 8$, $5 + 9$, $6 + 8$, $6 + 9$, $7 + 9$; and learn the 2 times table

Year 3

Step 10: Learn the 3 times table

Step 11: Learn the 4 times table

Step 12: Learn the 8 times table

Year 4

Step 13: Learn the 6 facts challenge. These are the remaining facts in the 6, 7 and 9 times table that have not already been covered by previous times table learning (6×6 , 7×6 , 9×6 , 7×7 , 9×7 and 9×9)

Step 14: Learn the 11 times table

Step 12: Learn the 12 times table

Mathematical Reasoning and Independent Thinking

Our curriculum empowers pupils to think independently, rather than just mechanically executing procedures.

Articulating Mathematical Thinking: During learning walks and pupil interviews, children can confidently articulate how they arrived at an answer, identify patterns, and justify their mathematical reasoning.

Precision of Vocabulary: Pupils habitually use exact mathematical language embedded within the Big Maths framework to explain their thinking. Disadvantaged and EAL learners successfully acquire this vocabulary, breaking down structural barriers to decoding complex text-based problems.



Application to Unfamiliar Contexts: Work scrutiny reveals that pupils can successfully transfer learned components to solve non-routine problems and reason logically during Green Star Challenges, demonstrating deep conceptual understanding rather than superficial replication.

Pupil Voice and Attitudes

The impact of our subject design is reflected in a positive, resilient mathematical culture across Ellington Primary School.

Resilience and Independence: Pupil voice interviews and lesson observations show that children approach challenging mathematical tasks with a growth mindset. They view errors not as failure, but as a crucial, constructive component of the learning journey.

High Engagement: Pupils express a genuine enthusiasm for mathematics. Driven by our school value of 'Pride', they take immense ownership of their learning, which is clearly reflected in the beautiful presentation and careful organisation of their mathematics books.

Learner Autonomy: Pupils confidently select appropriate concrete manipulatives or pictorial representations from their classroom environments and working walls to independently scaffold their own learning when faced with cognitive conflict.

Assessment for Learning (AfL) and Responsive Teaching

Assessment is used dynamically to ensure no child is left behind and that teaching is precisely calibrated to the needs of all learners.

Formative Precision: High-impact, ongoing formative assessment (such as the diagnostic feedback from the weekly 'Big Maths Beat That' challenges) allows teachers to identify and pinpoint exact component gaps immediately. Gaps are addressed through same-day feedback and fluid school-led look-back groups.

Data-Informed Curricular Adjustments: Summative assessments and statutory outcomes are rigorously interrogated by class teachers and leadership. Item analyses are actively used to identify whole-class or cohort-specific gaps, directly reshaping subsequent planning and targeted recovery to maximise progress for every cohort.