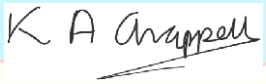
SHAP ENDOWED CHURCH OF ENGLAND PRIMARY

Maths Fluency Policy

Written by: Abbie Gorst	Approved by:
Name:	Katie Chappell and Educational Standards Subcommittee
Position:	Headteacher
Signed:	
Date:	Spring 2025
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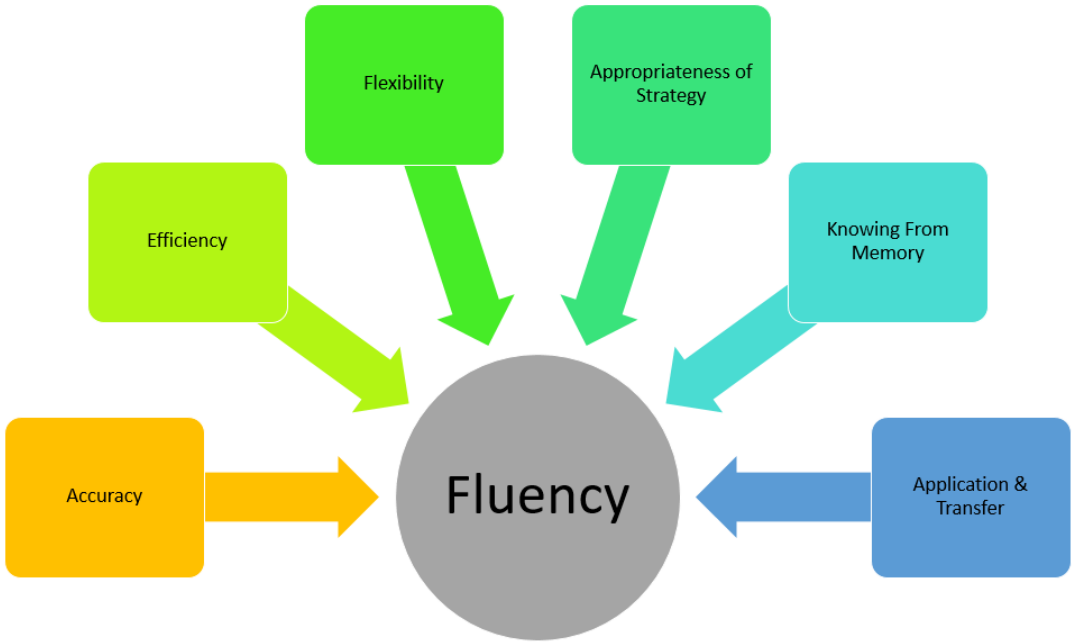
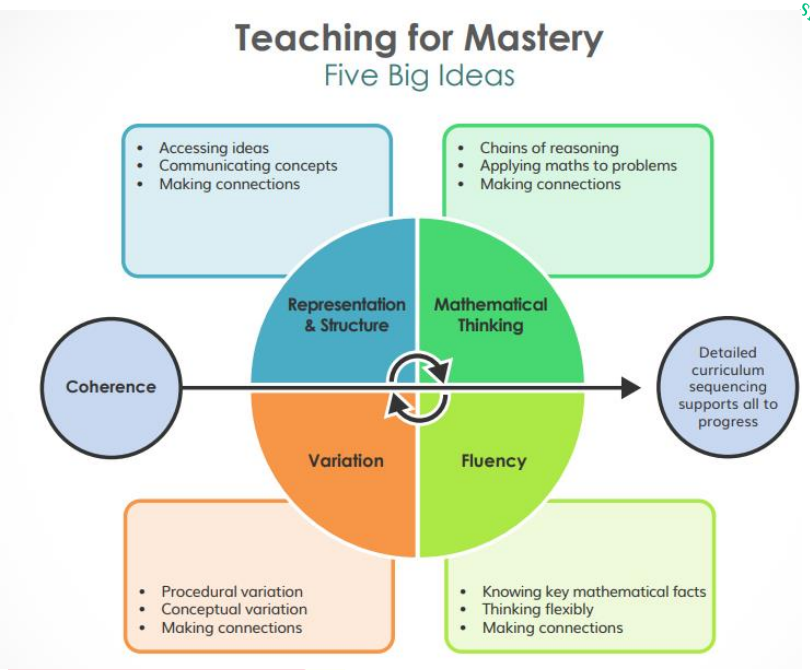
REVIEW SHEET

The information in the table below details earlier versions of this document with a brief description of each review and how to distinguish amendments made since the previous version date (if any).

Version Number	Version Description	Date of Revision
1	Original	January 2025

Maths Fluency Progression





The Importance of Fluency in Mathematics

Mathematical fluency is one of the 5 Big Ideas in teaching for mastery (NCETM) and is an essential component of children's mathematical attainment. Having mathematical fluency is the ability to perform mathematical procedures quickly, accurately, and with understanding. This foundation allows learners to access more complex problem-solving tasks and mathematical reasoning with confidence and flexibility.

Fluency encompasses three key components:

- ✓ Efficiency – choosing and using appropriate methods to solve problems without wasting time or resources.
- ✓ Accuracy – ensuring solutions are correct by minimizing errors in calculation and reasoning.
- ✓ Flexibility – applying a range of strategies to approach and solve problems, adapting as needed to new situations or challenges.

Fluency is explicitly highlighted in the National Curriculum for England (2014) as a fundamental aim:

"Pupils should become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately."

Without fluency, pupils may struggle to engage with deeper mathematical concepts, as cognitive resources are consumed by basic calculation. Developing fluency frees mental capacity, enabling children to focus on reasoning and problem-solving as well as building upon prior learning.

Why Fluency Needs to Be Taught

Fluency is not an innate skill but one that all children can master. It must be systematically developed through explicit teaching, practice, and reinforcement. Research highlights several reasons why fluency should be a key component in primary maths:

- ✓ Facilitates Conceptual Understanding:

Fluency in number facts underpins a child's ability to understand place value, relationships between numbers, and operations.
Studies by Askew et al. (1997) emphasize that effective mathematics teaching integrates procedural fluency with conceptual understanding.

- ✓ Reduces Cognitive Load:

According to Sweller's Cognitive Load Theory (1988), working memory has limited capacity. Automatic recall of key facts reduces strain, allowing pupils to tackle complex tasks.
Gersten et al. (2009) also found that fluency supports students with learning difficulties by making multi-step processes more manageable.

- ✓ Enhances Problem-Solving Skills:

Pupils with strong fluency can access and explore higher-order questions more effectively.
Research by Rittle-Johnson and Schneider (2015) suggests a bidirectional relationship between fluency and reasoning, with gains in one domain fostering improvements in the other.

- ✓ Builds Confidence and Engagement:

Rapid recall and accurate calculation foster self-efficacy, a critical element for sustained engagement in mathematics (Bandura, 1997).

- ✓ Prepares for Lifelong Mathematical Literacy:

Fluency equips children with essential skills for real-life scenarios, including financial literacy and problem-solving in diverse contexts (National Mathematics Advisory Panel, 2008).

Developing Fluency at Shap

Children will attain fluency in a number of different ways:

Mastering Number (NCETM)

All children from Reception to Year 6 will have Mastering Number sessions, where possible, at least 3 times a week.

Fluency will also be taught within lessons by:

- ✓ Explicit teaching of key facts and strategies aligned with our calculation policy (e.g., number bonds, times tables).
- ✓ Frequent, varied and intelligent practice to build speed and accuracy.
- ✓ Real-world applications to demonstrate relevance and foster deeper understanding.
- ✓ Assessment and intervention to support all learners and address gaps in fluency.

Our Key Instant Recall Facts have been arrived at using the 2014 National Curriculum for maths, the Early Years Foundation Stage Statutory Framework 2024, White Rose maths schemes and Big Maths CLICs and SAFEs.

Key Instant Recall Facts Progression Map

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting	Recite numbers in order to 5 and then to 10 Count objects, actions, and sounds to 5 and then to 10. Count forwards and backwards to 5 and then to 10. Subitise (recognise quantities without counting) up to 5. Develop a deep understanding of numbers to 10, including composition (e.g., 7 = 3 + 4). Recite numbers in order to 20 Count verbally to 20 and beyond, understanding the cardinality of numbers.	Count forwards and backwards within 100. Count to and across 100, forwards and backwards, starting from any number. Recognise and use ordinal numbers (1st, 2nd, etc.).	Begin counting in 10s from any number.	Begin counting forwards and backwards in steps of 10, 50, and 100.	Count in multiples of 25 and 1000 Count backwards through zero, including negative numbers.	Count forwards and backwards in steps of powers of 10 for any number Use negative numbers in context. Work with decimals in steps of 0.1 and 0.01.	Count in steps of powers of 10 up to 10,000,000. Count forwards and backwards in decimals and fractions.

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number Patterns	Compare quantities using vocabulary such as more, fewer, equal to. Understanding the concept of "one more" and "one less": Recognise and understand the relationship between numbers (e.g., one more than 4 is 5, one less than 7 is 6). Explore doubles (e.g., 2 + 2). Share and group objects in simple ways. Begin to count in 2s using practical objects.	Learn simple doubles up to 10. Recognise odd and even numbers	Recall doubles up to 20 Understand the concept of odd and even numbers. Recognise patterns in the 2, 5, and 10 times tables	Introduce doubling and halving strategies for larger numbers. Recognise patterns in the 3, 4, and 8 times tables.	Develop strategies for doubling and halving any number	Apply known facts to solve problems (e.g., 7 × 6 = 42, so 0.7 × 6 = 4.2	

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number Bonds	Recognise numbers to 5 and their composition (e.g., 2 and 3 make 5).	Know number bonds to 10 fluently and begin to derive related facts (e.g., 7 + 3 = 10, so 17 + 3 = 20).	Know number bonds to 20 fluently. Understand and use related facts up to 100 (e.g., 30 + 70 = 100).	Know bonds to 100 (e.g., 72 + 28 = 100).	Recall number bonds to 1,000 (e.g., 320 + 680 = 1,000).		

Key Instant Recall Facts Progression Map

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value		Partition numbers into tens and ones using concrete materials.	Partition numbers within 100 and understand place value in two-digit numbers.	Understand three-digit numbers as hundreds, tens, and ones. Build fluency in partitioning and recombining numbers.	Recognise the value of each digit in a four-digit number. Find 1,000 more or less than a given number.	Understand numbers up to 1,000,000.	Identify the place value properties of numbers up to 10,000,000 Round any whole number or decimal to a required degree of accuracy.

Key Instant Recall Facts Progression Map

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition and Subtraction	Use objects or fingers to demonstrate simple addition and subtraction (e.g., 3 + 2 = 5, 6 - 2 = 4).	Read, write, and interpret mathematical statements involving addition (+), subtraction (−), and equals (=) Add and subtract within 20, using strategies like counting on/back	Use bridging through 10 when adding and subtracting. Show that addition can be done in any order, but subtraction cannot (law of commutativity).	Add and subtract numbers with up to three digits, using formal written methods. Add and subtract numbers mentally, including: A three-digit number and ones A three-digit number and tens A three-digit number and hundreds Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Solve two-step addition and subtraction problems in context.	Adding and subtracting decimals: Recall and use number facts for addition and subtraction of decimals to two places. Perform multi-step problems using larger numbers.	Calculate with negative numbers efficiently. Solve multi-step problems involving mixed operations.

Key Instant Recall Facts Progression Map

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication and Division		Begin to skip count in 2s, 5s, and 10s.	Count in 2s, 3s, 5s, and 10s. Recall multiplication and division facts for the 2, 5, and 10 times tables.	Recall multiplication and division facts for the 3, 4, and 8 times tables. Recognise multiples of 2, 5, and 10.	Recall multiplication and division facts up to 12 × 12. Understand factor pairs and simple prime numbers. Know square numbers up to 12 x 12 Apply place value to scale numbers up and down (e.g., 5 × 10 = 50, so 50 × 10 = 500) Recognise factor pairs (e.g., 12 = 3 × 4 and 2 × 6).	Identify multiples, factors, and primes. Multiply and divide by 10, 100, and 1,000. Consolidate fluency in all multiplication tables up to 12 X 12	Use long multiplication and division fluently. Identify common factors, multiples, and prime numbers. Know what a cubed number is and how to cube numbers

Key Instant Recall Facts Progression Map

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions, Decimals and Percentages		I can recognise half of an object or shape I can recognise quarter of an object or shape I can recognise a third of an object or shape	I can find half of an amount I can find a quarter of an amount I can find three quarters of an amount	I can add and subtract fractions with the same denominator I can count forwards and backwards in given fractions (tenths etc)	Recognise and use equivalent fractions.	Convert fractions to decimals and percentages. Add and subtract fractions with different denominators. Count in fractions with mixed numbers (e.g., 1 1/5, 1 2/5, 1 3/5) Simplify fractions	Add and subtract mixed number fractions with different denominators Multiply fractions by fractions Multiply an integer by a fraction Divide a fraction by an integer Calculate percentages of amounts

Key Instant Recall Facts Progression Map

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Geometry	Recognise and name simple 2D shapes (e.g., circle, square, triangle) Recognise and name simple 3D shapes (e.g., cube, sphere).	Identify, name and describe basic 2D shapes (e.g., circle, square, triangle, rectangle) using sides, corners etc. Identify, name and describe basic 3D shapes	Identify and describe the properties of 3D shapes (faces, edges, vertices). Understand single-line symmetry in 2D shapes Use language of clockwise and anti-clockwise	Identify right angles and use them to classify 2D shapes Identify horizontal, vertical and perpendicular lines	Classify 2D shapes based on their properties (quadrilaterals, triangles) Identify lines of symmetry in 2D shapes Understand how to read co-ordinates	Use knowledge of angles to classify shapes Identify regular and irregular polygons Understand and use the terms reflection and translation of 2D shapes Plot co-ordinates on one and two quadrant grids	Use co-ordinates in 4-quadrants

Key Instant Recall Facts Progression Map

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measures	Recognise key times of day (e.g., morning, afternoon, evening) Use everyday language to compare length, heights, weight and capacity (longer, heavier, full, empty etc)	Know and recite the days of the week in order Know and recite the months of the year in order Recognise o'clock and half past times on an analogue clock (e.g., 3:00, 6:30) Use the language of measurement (cm, m, ml, l, g, kg etc)	Understand the difference between AM and PM Tell and write the times quarter past and quarter to Tell the time to 5 minutes Read a measurement from a scale correctly	Tell the time using 12-hour and 24-hour clocks	Convert times between analogue and digital clocks Convert between different units of measurement (cm to m, kg to g etc) Be able to explain how to find perimeter Be able to explain how to find area	Read and understand a timetable Convert time between hours and minutes	Convert between metric and imperial units of measurements Explain and use the formula for volume

Key Instant Recall Facts Progression Map

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ratio and Proportion							Solve problems involving relative sizes and scaling.

Research and Further Reading on Maths Fluency

Baroody, A. J. (2006). "Why Children Have Difficulties Mastering the Basic Number Combinations and How to Help Them."

Emphasizes the importance of structured practice and teaching strategies to develop automaticity with basic facts.
Dowker, A. (2004). "What Works for Children with Mathematical Difficulties?"

Highlights that fluency gaps are a key factor in wider mathematical difficulties and can be mitigated through targeted intervention.
Boaler, J., Williams, C., & Confer, A. (2015). "Fluency Without Fear: Research Evidence on the Best Ways to Learn Math Facts."

Advocates for building fluency through understanding, rather than rote memorization, ensuring deep learning and reducing maths anxiety.
Kilpatrick, J., Swafford, J., & Findell, B. (2001). "Adding It Up: Helping Children Learn Mathematics."

Identifies procedural fluency as one of five strands of mathematical proficiency, interlinked with conceptual understanding, adaptive reasoning, strategic competence, and productive disposition.
A Balanced Approach to Teaching Fluency