Muscliff Primary School
Maths Fluency Policy

Fluency in maths

Throughout their mathematical education, children will continually encounter new facts, terminology and procedures which they will need to embed in order to successfully progress in their learning.

New information can be very demanding. Learners need to 'hold on' to new information in their working memory while they try to process it. However, the working memory is limited and can only hold on to a limited amount of information at a time.

If children develop fluency, they "free up their working memory so that they can focus on solving the actual problem" (NCETM, 2017).

Fluency consists of three elements:

Efficiency – finding the most efficient strategy to solve a problem.
Accuracy – making careful calculations, keeping track of work and checking results.
Flexibility – considering different approaches to solve a problem and consider its suitability.

When children develop reliable mathematical fluency, they are able to fully attend to new learning and retrieve necessary information from their long-term memory when required.

Fluency at Muscliff Primary School

NCETM Mastering Number Programme

In EYFS, and throughout Key Stage 1, children develop their fluency with early number using the NCETM Mastering Number Programme daily, in addition to core maths lessons.

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

The programme 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. Attention will be given to key knowledge and understanding needed in Reception classes, and progression through KS1 to support success in the future. (NCETM)

Maths — No Problem!

From Year 1, core meths lessons at Muscliff follow the structure of Maths – No Problem!

Maths — No Problem! is an award-winning primary mathematics education programme that combines proven learning theories with advanced mastery techniques. Maths – No Problem is based on the Singapore method, which synthesises 30 years of international research with painstaking craftsmanship.

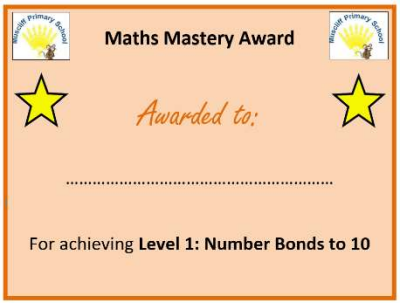
Children from Years 1 – 6 will engage with content from Maths – No Problem! and work through structured workbooks. Additionally, children develop their mathematical reasoning in Journals where they will explore key concepts further.

Number bonds

Learning number bonds to and within 10 and 20 is a key mathematical concept which is fundamental for children's progress.

In EYFS and Key Stage 1, children learn and practise number bonds regularly in class and will have the opportunity to work through 6 levels to demonstrate their mastery of this skill:

Level 1: number bonds to 10
Level 2: number bonds within 10
Level 3: addition and subtraction within 10
Level 4: number bonds to 20
Level 5: number bonds within 20
Level 6: addition and subtraction within 20



As children progress through each level, they will earn a certificate for their achievement.

Times tables

Once children have secured fluency in early number, they will embark on daily times tables work from the spring term of Year 3. At Muscliff, we use the Number Sense Times Tables Fluency Programme: a highly visual, research informed programme that provides the necessary structure and depth that children need in order to achieve fluency in essential multiplication and division facts and concepts.

The Number Sense programme is informed by research in the mathematical development of young children, particularly how children achieve fluency in multiplication facts.

The programme develops recall of 36 core multiplication facts. Fluency in these facts provides the foundation for all written and mental multiplication and division. New facts are introduced and taught visually through conceptual lessons, and aurally through the chanting of verbal sound patterns. Facts are learned to fluency through daily practice sessions with scores tracked daily and targeted support provided where needed. (Number Sense Maths)

In Year 4,children learn additional facts, up to 12 times tables in preparation for the Multiplication Tables Check.

Fluency in each year group

In each year, there are specific fluency facts that children need to learn to support their progression. These are the facts that underpin the key concepts taught in each year group:

Number & Place Value
Addition & Subtraction
Multiplication & Division
Fractions, Decimals & Percentages

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Subitise numbers to 3 Count forwards and backwards to 10 from any number	Subitise numbers to 5 Compare quantities to 5 – 1 more/1less	Recall number bonds to 5 Combine two amounts within 5	Recall number bonds to 10 Compare quantities to 10 – greater than/less than	Count forwards and backwards to 20 from any numbers Add and subtract within 10	Recall double of integers within 5 Understand odd and even numbers to 10

Year 1	Identify 1 more 1 less Count forward and backs in 2s and 10s Recall number bonds, using addition and subtraction, within 10, including missing number questions		Count forwards and backwards in 5s Double integers within 10	Half of even numbers within 20	Count forwards and backwards across 100	
Year 2	Recognise the place value of each digit in a two-digit number (10s, 1s) Count forwards and backwards in 2s, 5s, and 10s.	Recall number bonds, using addition and subtraction, within 20, including missing number questions. Use bonds within 20 to add and subtract. Recall multiplication and division facts for 2x, 5x, 10x, including missing number questions.			Count forwards and backwards in 3s.	
Year 3	Recognise the place value of each digit in a three-digit number (100s, 10s, 1s) Identify 10 or 100 more or less *Count forwards and backwards in 50s and 100s*	*Recall multiplication and division facts for 3x, 4x and 8x, including missing numbers (e.g. 8 x __ = 56)* Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure.				Count *forwards and backwards* in tenths

Year 4	Recognise the place value of each digit in a four-digit number (1000s, 100s, 10s, 1s) *Identify 1000 more or less* *Count forwards and backwards in 25s and 1000s*	*Recall all multiplication and division facts up to 12 x 12, for 6x, 7x and 9x, 11x, 12x*		Recognise the place value of each digit in a numbers up to 2 decimal places Count *forwards and backwards* in hundredths		
Year 5	Recognise the place value of each digit in numbers up to 1,000,000.	Use times table facts within 12x to multiply and divide by multiples of 10, 100 and 1000 (e.g. 400x80, 3200÷8) Recognise and use square numbers (^{2}) and cube numbers (^{3})	Recognise the place value of each digit in numbers up to 3 decimal places. Recall fraction and decimal equivalents using tenths and hundredths	Recognise and write decimal equivalents to ¼; ½; ¾ Use number bonds within 20 to recall addition and subtraction facts for tenths within 2.0 (e.g. 0.8+0.7)		
Year 6	Recognise the place value of each digit in numbers up to 10,000,000 Identify common factors, common multiples and prime numbers	Recall fraction and decimal equivalents	Recall fraction, decimal and percentage equivalents			

To support children in developing fluency, teachers use a range of approaches, including:

- The Mastering Number Programme (NCETM)
- Daily retrieval practice lesson starters
- Fluency skills included in daily lesson content (Maths-No Problem!)
- Use of manipulatives to explore mathematical concepts
- Scaffolds provided to support all children to access lesson content
- 3x maths workshop sessions per week in addition to daily maths lessons
- Planned interventions
- Arithmetic assessments (minimum 2 per half-term)
- Termly assessments to track progress

Homework

Children are encouraged to develop their mathematical fluency with our homework platforms.

NumBots is introduced to children in Reception and used throughout Year 1 and Year 2 to develop their early mathematical fluency. It may be suitable for some children to continue using NumBots as they enter KS2. As children progress in their learning, they are encouraged to use Times Tables Rockstars to develop their times tables fluency. Across Key Stage 2, children use Doodle Maths to develop their fluency across all mathematical topics.

These platforms present children with a range of different representations to strengthen their conceptual understanding.