Maths Fluency Key Learning 2022/2023

'Working together to achieve success'

This document has been produced to support teachers in planning their Maths Fluency sessions. The key learning is taught within Maths lessons and is consolidated within Maths Fluency sessions.

	Counting	Addition and Subtraction	Multiplication and Division	Other areas of maths
EYFS	• Count verbally & objects/pictures forwards to 10 and count back from 10 verbally • Verbally count forwards to 20 and then beyond and begin to count back from 20 • Subitise up to 5	• Automatically recall number bonds up to 5 (including subtraction facts) and then some bonds to 10	• Doubles up to double 5	• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

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Year 1	• count to and across 20, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals • count in multiples of twos, fives and tens • given a number, identify one more and one less • read and write numbers from 1 to 20 in numerals and words.	• Represent and use number bonds and related subtraction facts within 10 • Represent and use number bonds and related subtraction facts within 20 e.g. What is 9 + 7 = • Begin to recall number bonds for all numbers to 20 • Count on to find a total • Partition small numbers • Reorder numbers in a calculation	• Doubles of all numbers to double 10 • Halves of even numbers up to 10 • Recognise multiplication as real arrays showing repeated addition. • Recognise division as sharing amounts into equal parts. Introduce simple remainders as the items are shared into equal parts, but some may be left over. • Share an amount into equal parts. • Count in multiples of twos, fives and tens	• Days of the week • Months of the year • Subitising up to 10 accurately • Recognize odd and even numbers

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Year 2	• Counting in steps of 2, 3, 5 and 10 forwards and backwards • Count forwards or backwards in steps of 1 or 10 from any one- or two-digit number • Recognise the place value of each digit in a two-digit number (tens, ones) • Compare and order numbers from 0 up to 100; use <, > and = signs • Read and write numbers to at least 100 in numerals and in words	• recall and use addition and subtraction facts for all numbers to 20 fluently, and derive and use related facts up to 100 • partition numbers into tens and ones • Recall and use number bonds to 5 totaling 60 • Count on or back in ones and tens from any given number, e.g. (36 + 40) • Reorder numbers in a calculation. • Partition and combine multiples of tens and ones. • Find a small difference by counting up from the lesser to the greater number • Begin to bridge through 10 when adding a single digit number (partitioning, e.g. 58 + 5 = 58 + 2 + 3) • Add or subtract 9 or 11 and 19 or 21 by rounding and compensating. • Subtract a two-digit number from a two-digit number, using exchange strategies when required (jotting to support). • Add two, two-digit numbers, using exchange strategies when required (jotting to support).	• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • Derive and use doubles of simple two-digit numbers. • Derive and use halves of simple two-digit number even numbers. • Recognise multiplication as real arrays and understand that multiplication is repeated addition and the total can be found by counting in equal steps/groups. • Represent division calculations as grouping (repeated subtraction) and use jottings to support their calculation**.** Introduce simple remainders as the items are shared into equal parts, but some may be left over	• Metric conversions ○ 1m = 100cm ○ 60 mins = 1 hour ○ 24 hours = 1 day ○ Count on and back in steps of $\frac{1}{2}$ and $\frac{1}{4}$

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Year 3	• Find 1, 10 or 100 more or less than a given number • Count from 0 in multiples of 4, 8, 50 and 100 • Count on or back in tens or ones • Count up and down in tenths	• Recall addition and subtraction facts for 100 (multiples of 5 and 10) • Derive and use addition and subtraction facts for multiples of 100 that total 1000 • Find pairs of numbers that total 100 • Add a three-digit number and ones (not crossing 10) • Add a three-digit number & one-digit numbers (crossing 10) • Subtract a one-digit number from a three-digit number (not crossing 10) • Add a three-digit number and a multiple of 10 not crossing 100 boundary (exchange) • Add a three-digit number and a multiple of 10 crossing 100 boundary (exchange) • Subtract a multiple of 10 from a three-digit number not crossing 100 boundary (exchange) • Subtract a multiple of 10 from a three-digit number crossing 100 boundary (exchange)	• Recall and use multiplication division facts for the 3, 4 and 8 multiplication • Double two-digit numbers • Halve even numbers to 100 • Multiply a two-digit number by a one-digit number, e.g. 34 x 5 • Divide a two-digit number by a one-digit number by partitioning	• Add and subtract fractions with the same denominator within one whole • Compare and order unit fractions and fractions with the same denominators • Find a third and a quarter using knowledge of times tables • Metric conversions: ○ 100cm = 1m ○ 10mm = 1 cm ○ 1 l = 1000 ml ○ 1kg = 1000 g

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Year 4	• Count in multiples of 6, 7, 9, 25 and 1000 • Count backwards through zero to include negative numbers • Count up and down in hundredths • Find 0.1, 1, 10, 100 or 1000 more or less than a given number	• Derive and use addition and subtraction facts for 1 and 10 with decimal numbers to one decimal place. • Add or subtract 1s 10s, 100s • 1000s to or from any number up to 10,000 • Add or subtract any pair of two- digit numbers, e.g. 38 + 85, 92 – 47 • Find out what must be added to/subtracted from any two- or three-digit number to make the next higher/lower multiple of 10 or 100, e.g. 374 + ? = 400, 826 - ? = 800 • Add a three-digit number to a two or three-digit number not crossing the tens or hundreds boundary • Subtract a three-digit number from a two or three-digit number not crossing the tens or hundreds boundary • Add two four-digit numbers with no exchange • Subtract two four-digit numbers with no exchange • Know which method to use to efficiently add or subtract whole numbers with up to four digits	• Recall multiplication and division facts for multiplication tables up to 12 x 12 • Multiplying by 0 and 1 and divide by 1 • Multiply by 10 & 100 Divide three or four-digit ○ numbers (multiples of 10) by 10 • Divide three or four-digit numbers (multiples of 100) by 10 • Multiply together three single- digit numbers • Divide a one or two-digit number by 10 & 100 • Recognise and use factor pairs and commutativity in mental calculations • Use efficient mental calculations to multiply two-digit numbers by one-digit numbers • Double and halve any two-digit number • Double any multiple of 10 to 500, e.g. 380 x 2, and find all the corresponding halves, e.g. 760 ÷ 2, 130 ÷ 2 • Multiply and divide 2-digit numbers by 1- and 2-digit numbers using a written method	• Add and subtract fractions with the same denominator • Decimal equivalents to ¼, ½ and ¾ or any tenths or hundredths • Round decimals with one decimal place to the nearest whole number • Metric conversions • Number of days in each month of the year • Read, write and convert time between analogue and digital 12- and 24-hour clocks.

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Year 5	• Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • Count forwards and backwards with positive and negative whole numbers • including through zero • Count forwards or backwards in fraction steps and place missing values on a number line • Count forwards or backwards in decimal steps and place missing values on a number line Find 0.01, 0.1, 1, 10, 100, 1000 and other powers of 10 more or less than a given number	• Add and subtract multiples of thousands, hundreds, tens and ones • Add or subtract any pair of three-digit multiples of 10, e.g. 570 + 250, 620 – 380 • Add and subtract a four-digit number and a near multiple of 1000 by rounding and adjusting e.g. 5001-1997	• Recall related tables facts for multiples of 10, e.g. 30 x 4 = 120, using the related fact 3 x 4 = 12 OR 7200 ÷ 9 related to 72 ÷ 9 • Recall square (²) numbers up to 12 x 12 • Multiply and divide whole numbers up to 1 million and decimals by 10, 100 and 1000 • Identify and use: ○ Common factors ○ Multiples ○ Factors ○ Prime numbers ○ Cube numbers • Double or halve numbers with up to 3-digits including those with two decimal places • Multiply and divide numbers mentally drawing upon known facts • Multiply and divide numbers up to 3 digits by 1- and 2-digit numbers using a written method	• Know decimal and percentage equivalents for 1/2, 1/4, 1/5, 2/5 and 4/4 • Find complements that sum to make 1, with numbers to **three** decimal places, and e.g. 0.45 + = 1 • Find complements that sum to make 10, with numbers to **two** decimal places e.g. 4.36 + ___= 10 • Add or subtract any pair of decimal number each with units and tenths, or each with tenths and hundredths, e.g.5.7 + 2.5, 0.63 – 0.48 • Add and subtract fractions with the same denominator and denominators that are multiples of the same number • Round decimals with two decimal places to the nearest whole number and to one decimal place • Find 50%, 25%, 10% of small whole numbers or quantities, e.g. 25% of £8 • Recall percentages as fractions with denominators of 100, e.g. 71% = 71/100 • Recall decimal numbers as fractions, e.g. 0.71 = 71/100 • Metric conversions • Recall prime numbers up to 19

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Year 6	• Practise counting from ALL previous years up to 10 million • Count forwards and back through zero (negative numbers) • Count forwards or backwards in fraction steps and place missing values on a number line • Count forwards or backwards in decimal steps and place missing values on a number line • Find 0.01, 0.1, 1, 10, 100, ○ 1000 and other powers of 10 more or less than a given number	• Use knowledge of the order of operations to carry out calculations using 4 operations • Add or subtract the nearest multiple of 10 or 100, 1000 10,000, then adjust • Add or subtract a multiple of 1 or 10 and adjust	• Use knowledge of the order of operations to carry out calculations using 4 operations • Recognise and recall factors of numbers up to 144 • Consolidate using known and related facts to multiply and divide • Multiply or divide whole numbers up to 10 million and decimals to three decimal places by 10, 100 or1000 • Know by heart all the squares and square roots of numbers to 12 x 12 • To double or halve 3-digit numbers including decimals to 3 d.p. • Use factors to divide • Use known facts to multiply a number up to 3 decimals places by a whole number, (e.g. 0.08 x 7 = 0.56) • Multiply numbers up to 4 digits by a two-digit number, including long multiplication for two-digit numbers • Divide numbers with up to 4 digits by a one-digit number using the formal written method of short division	• Recall fraction, decimal and percentage equivalents of halves, quarters, thirds, fifths, tenths and hundredths • Recall and use equivalences between simple fractions, decimals and percentages • Find any multiple of 10% of a whole number or quantity e.g. 70% of £20, 30% of 5kg, 40% of 2 meters • Use doubling and halving to find 5% and 20% • Add and subtract fractions with different denominators • Multiply pairs of proper fractions • Divide proper fractions by whole numbers • Use negative numbers in context, and calculate intervals across zero • Metric conversions