

Mathematical Fluency at Lydgate Junior School



Children need to be fluent in mathematical facts and mental procedures in order to free up their working memory when working on understanding mathematical concepts and more complex procedures that involve several steps.

Fluency in mathematics involves quick, accurate recall and the confidence to apply this knowledge flexibly in different contexts. In order to recall information and procedures quickly, children need to be able to make links between methods and concepts.

Every maths lesson starts with rehearsal of fluency.

Where a child is identified as not on track to meet the age-related expectation in mathematics, their pupil progress target will be based on fluency.

Fluency Key Skills:

Year 3

- Count in tens and hundreds from different starting points.
- Find 10 or 100 more or less than a given number.
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).
- Partition 3-digit numbers in different ways.
- Know number bonds for all numbers to 20.
- Add and subtract numbers mentally (HTO +/- O).
- Count from 0 in 3s, 4s, 8s and 50s.
- Recall and use multiplication facts for the 2, 5, 10, 3, 4 and 8 multiplication tables.
- Multiply a single digit number by a multiple of 10 (<100) and know the effect on place value.
- Multiply and divide whole numbers by 10 (whole number answers).
- Double and halve two-digit numbers mentally.
- Count up and down in tenths.
- Recognise fractions equivalent to a half.
- Find unit fractions of a quantity.
- Add fractions with the same denominator to make one whole.
- Know the relationship between units of length (mm, cm, m, km).
- Read time to the nearest five minutes on analogue and digital clocks.

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Year 4

- Count backwards through zero to include negative numbers.
- Order and compare numbers beyond 1000.
- Round any 4-digit number to the nearest 10, 100 or 1000.
- Add and subtract mentally ThHTO +/- T, ThHTO +/- H.
- Count from 0 in 6s, 7s, 9s, 11s and 12s.
- Recall multiplication facts for multiplication tables up to 12 x 12.
- Multiply a single-digit number by a multiple of 100 (<1000) and know the effect on place value.
- Multiply and divide whole numbers by 10 and 100 (answers up to 1 decimal place).
- Double and halve three-digit numbers mentally.
- Count up and down in hundredths.
- Recall and write decimal equivalents to $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$ and recognise and write decimal equivalents of any number of tenths and hundredths.
- Find non-unit fractions of a quantity.
- Add and subtract fractions with the same denominator.
- Know the relationship between metric units of length, mass and capacity.
- Read time to the nearest minute on analogue and digital clocks.
- Name and compare geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.

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Year 5

- Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.
- Recognise the value of each digit in decimals up to three decimal places.
- Add and subtract numbers mentally with increasingly large numbers, E.g: $12,462 - 2,300 = 10,162$.
- Count in single-digit amounts from different starting points. E.g: Count in 4s starting from 23.
- Recall and use multiplication and division facts for multiplication tables up to 12×12 .
- Multiply a multiple of 10 or 100 by a multiple of 10.
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
- Double and halve numbers up to 1 decimal place mentally.
- Count forwards and backwards in decimal amounts.
- Order and compare numbers with up to three decimal places.
- Know percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number.
- Convert between units of metric measures.
- Know that angles on a straight line and in a triangle add up to 180° and a whole turn and quadrilateral add up to 360° .

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Year 6

- Count forwards and backwards in different sequences of numbers which cross zero.
- Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.
- Solve missing number problems involving mental addition and subtraction.
- Derive multiplication and division facts for multiples of 10 and 100. E.g: if $6 \times 7 = 42$, then $6 \times 70 = 420$, $60 \times 70 = 4200$, $600 \times 7 = 4200$, etc.
- Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
- Count fluently in fractions and decimals.
- Use common multiples to express fractions in the same denomination and cancel fractions to their simplest form.
- Calculate simple percentages of numbers.
- Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from smaller units of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.