MATHS CALCULATION POLICY - YEAR 5

PURPOSE

This policy outlines the agreed approach to teaching calculation in Year 5. It ensures:

- Consistency of models, language and expectations across classrooms.
- Secure progression from written methods into long multiplication and long division.
- Continued emphasis on number sense, reasoning and efficient strategy choice through Mastery Number.
- Alignment with NCETM Curriculum Prioritisation for main maths teaching.

AIMS

- Strengthen and extend place-value understanding within numbers up to 1,000,000.
- Consolidate formal written methods for all four operations.
- Use consistent representations to expose structure and support reasoning.
- Build fluency through structured rehearsal and intelligent practice.
- Develop precise mathematical language and encourage pupils to justify, generalise, and evaluate methods.
- Depth before acceleration; pupils move together through the curriculum.

KEY LEARNING EXPECTATIONS

1. Number Sense and Place Value

Year 5 pupils will:

- Understand numbers to 1,000,000, including the value of each digit.
- Partition numbers flexibly (e.g., 540,600 as 540,000 + 600 or 500,000 + 40,000 + 600).
- Compare and order numbers using place-value reasoning.
- Round numbers to the nearest 10, 100, 1000, 10,000, and 100,000.
- Count forwards and backwards in powers of 10.
- Recognise patterns and relationships within the number system.

2. Addition

Conceptual Understanding

- Combining quantities using place-value reasoning.
- Understanding addition as part-whole and as movement along a number line.
- Using rounding & estimation to check accuracy.

Strategies

- Counting on using place value.
- Bridging through multiples of 10, 100 & 1000 and beyond.
- Using known facts & related facts.
- Compact column addition (formal method).

Fluency Expectations

- Confident addition of large integers and decimals.
- Secure use of estimation to check reasonableness.
- Efficient mental addition using partitioning and adjusting.

3. Subtraction

Conceptual Understanding

- Removing from a quantity.
- Finding the difference.
- Understanding subtraction as part-whole and as movement backwards on a number line.
- Using rounding and estimation to check accuracy.

Strategies

- Counting back.
- Counting on to find the difference.
- Using known bonds.
- Expanded column subtraction leading to compact column subtraction with exchanging.

Fluency Expectations

- Confident subtraction within 10,000.
- Efficient mental subtraction using partitioning and adjusting.



Equally Important, Equally Different

4. Multiplication

Conceptual Understanding

- Multiplication as scaling and repeated addition.
- Understanding factor relationships and multiplicative structure.
- Moving from short multiplication to long multiplication.

Facts

- Secure multiplication tables to 12 × 12.
- Use related facts and factor relationships to support efficiency.

Written Method

- Short multiplication (formal).
- Long multiplication (formal) when conceptual understanding is secure.

5. Division

Conceptual Understanding

- Division as sharing and grouping.
- Understanding the relationship between multiplication and division.
- Interpreting remainders appropriately depending on context.

Facts

- Secure division facts linked to all multiplication tables to 12 × 12.

Written Method

- Short division (formal).
- Division with remainders, including interpreting remainders in context.

6. Fractions, Decimals and Percentages

Year 5 pupils will:

- Compare and order fractions with different denominators.
- Convert between improper fractions and mixed numbers.
- Add and subtract fractions with the same denominator and related denominators.
- Understand decimal–fraction relationships.
- Read, write, and compare decimals to three decimal places.
- Understand percentages as fractions and decimals.

REPRESENTATIONS & MODELS

Year 5 teachers will use the following consistently:

- Part-whole models for addition and subtraction.
- Number lines for all four operations and fractions/decimals.
- Place-value counters for multiplication, division, and place value.
- Bar models for multiplication, division, fractions, and percentages.
- Concrete manipulatives where appropriate.

Representations must be used to expose structure and support reasoning.

MENTAL FLUENCY EXPECTATIONS

By the end of Year 5, pupils should have secure fluency in:

- Addition and subtraction of large integers and decimals.
- Number bonds to 10, 20, 100, 1000, and beyond.
- All multiplication tables to 12 × 12.
- Related division facts.
- Counting in powers of 10.
- Efficient mental strategies using place value.
- Rounding and estimation to check accuracy.

WRITTEN METHODS

Year 5 consolidates formal written methods for all four operations. Pupils record using:

- Number sentences.
- Part-whole diagrams.
- Number lines.
- Column addition and subtraction.
- Short multiplication and long multiplication.
- Short division with remainders.
- Decimal calculations using formal methods.

Long division is not taught formally until Year 6.

MATHEMATICAL LANGUAGE

Teachers model and expect precise vocabulary, including:

- Addition: add, plus, total, sum, altogether, increase, estimate.
- Subtraction: subtract, minus, take away, difference, decrease, exchange.
- Multiplication: multiply, times, product, factor, multiple, scaling.
- Division: divide, share, group, quotient, remainder, interpret.
- Fractions/decimals/percentages: numerator, denominator, improper fraction, mixed number, decimal place, percentage.

Language is embedded in daily routines and reasoning discussions.

ASSESSMENT

Teachers use:

- NCETM Curriculum Prioritisation Assessments.
- Daily formative assessment through questioning, observation, and pupil talk.
- Small-step intervention for pupils needing additional practice.

INCLUSION

All pupils access the same curriculum. Support is provided through:

- Concrete manipulatives.
- Pre-teaching.
- Guided practice.
- Structured rehearsal.
- Challenge is provided through depth, not acceleration.
- Targeted Interventions.

EXPECTATIONS OF TEACHERS

- Follow NCETM Curriculum Prioritisation for planning.
- Deliver daily Mastery Number sessions.
- Use consistent representations and language.
- Prioritise depth and secure understanding.
- Engage with ongoing professional development linked to mastery.

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