MATHS CALCULATION POLICY - YEAR 4

PURPOSE

This policy outlines the agreed approach to teaching calculation in Year 4. It ensures:

- Consistency of models, language and expectations across classrooms.
- A secure transition from expanded written methods to compact formal methods.
- Continued emphasis on number sense and reasoning through Mastery Number.
- Alignment with NCETM Curriculum Prioritisation for main maths teaching.

AIMS

- Strengthen and extend place-value understanding within 10,000.
- Introduce formal written methods only when conceptual understanding is secure.
- 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 and generalise.
- Depth before acceleration; pupils move together through the curriculum.

KEY LEARNING EXPECTATIONS

1. Number Sense and Place Value

Year 4 pupils will:

- Understand numbers to 10,000, including thousands, hundreds, tens, and ones.
- Partition numbers flexibly (e.g., 3,406 as 3,000 + 400 + 6 or 2,000 + 1,400 + 6).
- Compare and order numbers using place-value reasoning.
- Count in steps of 6, 7, 9, 25, and 1000.
- Recognise patterns and relationships within the number system.

2. Addition

<u>Conceptual Understanding</u>

- Combining quantities using place-value reasoning.
- Understanding addition as part-whole and as movement along a number line.
- Recognising addition as the inverse of subtraction.

<u>Strategies</u>

- Counting on using place value.
- Bridging through multiples of 10, 100 & 1000.
- Using known facts & related facts.
- Expanded column addition leading to compact column addition.

<u>Fluency Expectations</u>

- Confident addition within 10,000.
- Secure use of number bonds to 10, 20, 100, and 1000.
- Efficient mental addition using partitioning and adjusting.

3. Subtraction

<u>Conceptual Understanding</u>

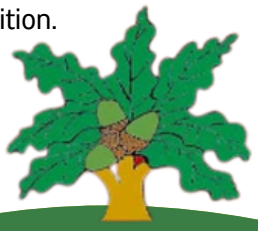
- Removing from a quantity.
- Finding the difference.
- Understanding subtraction as part-whole and as movement backwards on a number line.
- Recognising subtraction as the inverse of addition.

<u>Strategies</u>

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

<u>Fluency Expectations</u>

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



4. Multiplication

Conceptual Understanding

- Multiplication as equal groups.
- Multiplication as repeated addition.
- Understanding arrays and the commutative property.
- Scaling and multiplicative relationships.
- Moving from conceptual to formal short multiplication.

Facts

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

Written Method

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

5. Division

Conceptual Understanding

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

Facts

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

Written Method

- Short division (conceptual first, then formal) when secure with place-value reasoning.

6. Fractions

Year 4 pupils will:

- Understand unit and non-unit fractions.
- Recognise and show families of equivalent fractions.
- Add and subtract fractions with the same denominator.
- Use bar models to represent fractions.
- Understand fractions as numbers on a number line.

REPRESENTATIONS & MODELS

Year 4 teachers will use the following consistently:

- Part-whole models for addition and subtraction.
- Number lines for all four operations and fractions.
- Base-10 equipment and place-value counters for place value and calculation.
- Arrays and bar models for multiplication and division.
- Bar models for fractions.
- Concrete manipulatives where appropriate.

Representations must be used to expose structure and support reasoning.

MENTAL FLUENCY EXPECTATIONS

By the end of Year 4, pupils should have secure fluency in:

- Addition and subtraction within 10,000.
- Number bonds to 10, 20, 100, and 1000.
- All multiplication tables to 12 × 12.
- Related division facts.
- Counting in 6s, 7s, 9s, 25s, and 1000s.
- Efficient mental strategies using place value.

WRITTEN METHODS

Year 4 introduces formal written methods once conceptual understanding is secure. Pupils record using:

- Number sentences.
- Part-whole diagrams.
- Number lines.
- Base-10 drawings (thousands, hundreds, tens, ones).
- Expanded addition and subtraction leading to compact column methods.
- Short multiplication (formal).
- Short division (formal).

Long multiplication and long division are not taught in Year 4.

MATHEMATICAL LANGUAGE

Teachers model and expect precise vocabulary, including:

- Addition: add, plus, total, sum, altogether, increase.
- Subtraction: subtract, minus, take away, difference, decrease, exchange.
- Multiplication: multiply, times, equal groups, product, commutative, factor.
- Division: divide, share, group, quotient, remainder.
- Fractions: unit fraction, non-unit fraction, numerator, denominator, equivalent.

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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Persons Responsible	Maths Leaders
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