

Mathematics Curriculum Overview

INTENT

At Nanstallon School, mathematics is a creative, highly interconnected discipline that supports everyday life, future learning and financial literacy.

Our intent is that every pupil becomes fluent, reasons mathematically and solves problems with confidence, accuracy and enjoyment.

We aim for pupils to move fluently between representations, make rich connections across mathematical domains, and develop secure conceptual understanding before applying efficient written and mental methods.

We teach mathematics so that all pupils, including those who need additional support and those who grasp ideas rapidly, can progress through the programmes of study with depth, secure foundations and appropriate challenge, without rushing on before they are ready.

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes set out in the National Curriculum.

IMPLEMENTATION

Curriculum structure and sequence

Mathematics is taught daily.

The curriculum is organised into blocked units across the year, with each block lasting five weeks, allowing time for depth, revisiting and responsive teaching.

Content is structured across the domains of:

- Number and Algebra
- Fractions and Geometry
- Measurement and Angles
- Statistics

There are planned revisit blocks and statistics are incorporated through the year for Year 6.

Within key stages, we maintain flexibility to introduce content earlier or later when appropriate, while ensuring pupils meet end of key stage expectations.

Key stage focus and end of key stage ambition

In Key Stage 1, teaching prioritises confidence and mental fluency with whole numbers, counting, place value and the four operations, alongside early geometry and measure, using practical resources and precise vocabulary.

In lower Key Stage 2, pupils become increasingly fluent with whole numbers and the four operations, develop efficient written and mental methods, and extend problem solving into fractions, decimals, measures and reasoning about shape and relationships. By the end of Year 4, pupils memorise multiplication tables up to 12×12 with precision and fluency.

In upper Key Stage 2, pupils extend understanding of the number system to larger integers and develop connected understanding across fractions, decimals, percentages and ratio. Pupils solve increasingly complex problems, meet the language of algebra as a tool for problem solving, and become fluent with formal written methods, including long multiplication and division, and confident work with fractions, decimals and percentages by the end of Year 6.

Mixed age planning and progression

Planning is adapted for mixed age classes so that pupils access age-appropriate National Curriculum content while learning within a shared lesson structure.

Medium term plans identify core learning and carefully sequenced extensions, protecting progression between year groups and avoiding premature introduction of concepts or vocabulary.

Teachers use combined mixed age progression maps so that, for example, Year 3 objectives are secured and then extended through Year 4 expectations within the same strand, with clear small step learning journeys that support responsive teaching and differentiation.

Small steps and fluency building

Lessons are sequenced through small steps, so pupils build secure foundations, revisit key ideas and develop automaticity. For example, multiplication and division facts are developed from grouping and counting patterns through to rapid recall of linked facts and using known facts to derive unknown facts.

Pedagogy and classroom practice

Teaching follows a mastery aligned approach that prioritises depth, coherence and connection making.

Classrooms use consistent representation and structure so pupils can move between concrete, pictorial and abstract forms, holding it in the hand before holding it in the head.

Spoken language is deliberately planned and taught. Teachers model accurate vocabulary, sentence stems and justification, using talk to surface misconceptions and support pupils to explain reasoning and methods clearly.

Practice is purposeful and varied, with increasing complexity over time.

Reasoning and problem solving are woven throughout units, so pupils apply knowledge in unfamiliar contexts, including real life and cross curricular opportunities.

Teachers make careful decisions about pacing and progression, prioritising secure understanding. Pupils who grasp concepts rapidly are challenged through rich and sophisticated problems, while pupils who are not yet secure receive additional practice and targeted consolidation before moving on.

Resourcing

NCETM spine and professional materials

Teachers draw on NCETM spine materials to support coherent sequencing, representations, models and images, and the pedagogical focus on fluency, reasoning and problem solving. These materials are used to strengthen subject knowledge, refine lesson design and support consistent approaches across classes.

Oracy and mathematical thinking routines

Number talk routines, and 'ish' approaches inspired by Jo Boaler, are used to develop flexible calculation, strategy sharing, and reasoning through talk. Pupils explain their thinking, compare methods and generalise patterns, building confidence and depth over time.

Early number sense

In EYFS and Key Stage 1, Karen Wilding's EYMaths Essential Number Sense supports the development of subitising, counting principles, composition of number, and understanding of quantity and cardinality. These routines strengthen early fluency and reduce later gaps.

Reasoning and representation

Gareth Metcalfe's I See Reasoning supports the explicit teaching of reasoning structures, including noticing, justifying, proving and generalising. Reasoning prompts and stem sentences are used consistently to help pupils communicate mathematically with precision.

Models and manipulatives

Bar modelling is used to support problem solving and to connect additive and multiplicative structures, including comparison, part part whole, and ratio style representations in upper Key Stage 2.

Ten frames are used to develop subitising, number bonds, place value understanding and additive reasoning, particularly in EYFS and Key Stage 1 and as a representation for older pupils when needed.

Cuisenaire rods are used to develop proportional reasoning, structure, equivalence, fractions and algebraic thinking, supporting pupils to see relationships and generalise.

Numicon is used to support the composition of number, counting, place value and calculation, including structured imagery for addition, subtraction and early multiplication.

Dienes resources are used to build place value understanding, regrouping and the transition from concrete to written methods, particularly for column addition and subtraction.

IT apps and platforms

Mirodo - Used to support fluency practice, retrieval and independent consolidation. Teachers use Mirodo to strengthen automaticity and to identify pupils who need rapid intervention or additional challenge through the platform's progress information.

Seesaw - Used to capture learning in multiple formats, including photographs of representations, audio explanations and short reasoning recordings. Seesaw supports feedback, home school engagement and evidence of mathematical thinking, particularly where written recording alone would not show understanding.

Dynamo Maths - Used to provide targeted practice and consolidation aligned to current learning, with opportunities for pupils to revisit key number facts and methods. Teachers use Dynamo Maths to support adaptive teaching, homework and additional catch up where needed.

Inclusion and support for all learners

Lessons are designed so all pupils can access the same mathematical idea through graduated support, scaffolds and representation.

Pre-teach, rapid intervention and adaptive teaching are used to address gaps and misconceptions. Training and awareness around specific needs, including dyscalculia, informs identification and support.

Technology is used where it strengthens modelling, representation and practice, while maintaining strong written and mental arithmetic.

Assessment and monitoring

Assessment is used to inform teaching rather than to label. Teachers identify starting points, check understanding through ongoing formative assessment, and use end of block checks to guide re teaching, consolidation and next steps.

Monitoring draws on lesson visits, summative assessment, pupil conferencing, alongside evidence from class learning and digital platforms where used.

Curriculum alignment and quality assurance

Curriculum documents and mixed age plans are regularly reviewed to ensure precise alignment with the National Curriculum, accurate vocabulary choices, and a clear distinction between core expectations and extension pathways.

IMPACT

Pupils leave each key stage having met the statutory expectations to know, apply and understand the required mathematics, with secure foundations for the next stage of learning.

Pupils demonstrate fluency, accuracy and efficiency in calculation, and can explain their reasoning using correct mathematical language.

Pupils make connections across number, measure, geometry and statistics, selecting representations and strategies appropriately, and applying learning to solve increasingly sophisticated problems.

The consistency of mixed age planning ensures pupils experience an equitable curriculum journey, with clearly defined progression, appropriate challenge and timely support.

Teaching quality improves through evidence informed professional development, shared pedagogy and systematic monitoring, resulting in stronger mathematical confidence, improved attitudes to challenge and sustained progress over time.