

The Willows School Academy Trust



Mathematics Policy

Reviewed: September 2026

Next Review: September 2027

Introduction

This policy sets out the intent, implementation and impact of mathematics teaching and learning at *The Willows School Academy Trust*.

Mathematics is a core subject within the National Curriculum and essential to everyday life. It equips pupils with a powerful set of tools to understand and describe the world around them — through logical reasoning, problem solving and abstract thinking.

Our aim is to ensure that all pupils become fluent, confident and independent mathematicians who are able to reason and apply their skills across a range of contexts. The policy is designed to ensure consistency of practice and high expectations across the school, and to provide clarity on how mathematics is taught, assessed and monitored.

This policy should be read in conjunction with:

- SEND Policy
- Equality & Diversity Policy
- Behaviour Policy
- Emotional Health and Wellbeing Policy
- Assessment Policy
- Teaching and Learning Policy

1. Intent

At The Willows, our intent is to deliver a high-quality mathematics curriculum that is ambitious, well-sequenced, and accessible to all pupils.

We aim to ensure that pupils:

- Become fluent in the fundamentals of mathematics through varied and frequent practice.
- Develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Build reasoning skills, making connections across mathematical ideas to explain, justify, and generalise.
- Apply their understanding to solve problems in routine and non-routine contexts.
- Develop resilience, confidence, and enjoyment in mathematics, recognising mistakes as opportunities to learn.

Our curriculum follows the **White Rose Maths scheme**, fully aligned with the National Curriculum and structured around the **Concrete–Pictorial–Abstract (CPA) approach**, ensuring progression in small, connected steps so that knowledge is revisited and deepened over time.

We also embed fluency in number facts through regular practice, including the use of Times Tables Rock Stars (TTRS) to ensure rapid recall of multiplication and division facts and preparation for the Year 4 Multiplication Tables Check (MTC).

2. Implementation

2.1 The CPA Approach (Concrete–Pictorial–Abstract)

At The Willows, mathematical concepts are taught through the CPA approach:

1. **Concrete** – Pupils use manipulatives (e.g., Numicon, Dienes, place value counters) to represent problems physically.
2. **Pictorial** – Pupils transition to drawing or interpreting visual representations (e.g., bar models, part–whole diagrams, number lines).
3. **Abstract** – Pupils represent concepts using symbols, formal written methods, and independent problem solving.

Teachers plan for fluid movement between these stages, ensuring pupils retain conceptual understanding as they progress towards abstraction. Concrete resources remain available for all pupils, regardless of age or attainment.

2.2 Curriculum Structure and Planning

The school uses the White Rose Maths Scheme of Learning as the foundation for curriculum planning.

Long-term plans:

- Based on the White Rose annual overview.
- Ensure coverage of all National Curriculum objectives.
- Provide consistency and progression across all year groups.

Medium-term plans:

- Outline small steps within each unit, key vocabulary, and representations to be used.
- Include opportunities for reasoning, problem solving, and assessment for learning.
- Allow teacher adaptation in response to assessment outcomes and pupil needs.

Short-term plans (daily lessons):

- Include a clear Objective Learning Intention (OLI) and success criteria.
- Follow a structured sequence:
 - **Review / Retrieval** – revisit prior learning.
 - **I Do** – direct teaching and modelling of new concepts.
 - **We Do** – guided practice with scaffolding and discussion.
 - **You Do** – independent application and challenge.

- Incorporate CPA progression, variation, and opportunities for reasoning and problem solving.

Fluency and Recall Practice:

- Daily retrieval and arithmetic sessions reinforce previously taught concepts and number fluency.
- Times Tables Rock Stars (TTRS) is used to support rapid recall of multiplication and division facts, both in school and at home.
- Year 4 pupils receive targeted preparation for the Multiplication Tables Check (MTC).
- TTRS data, informal quizzes, and in-class recall activities inform assessment and planning via Sonar.

2.3 Inclusion and Support for All Learners

Mathematics at The Willows is inclusive and accessible. Teachers adapt learning to meet the needs of pupils with SEND (in line with our **SEND Policy**), those requiring additional support, or those needing greater challenge:

- Pupils who grasp concepts rapidly are given depth tasks, such as applying knowledge to unfamiliar problems or explaining concepts to peers.
- Pupils requiring additional support receive pre-teaching, guided practice, or targeted intervention sessions.
- Concrete resources and visual scaffolds are available to all pupils.
- Teaching assistants are trained to promote independence through effective questioning and use of manipulatives.
- Teachers are alert to signs that mathematical anxiety or difficulty may be affecting a pupil's mental health and wellbeing, and work with the SENCO and DSL where additional support may be needed (in line with our Emotional Health and Wellbeing Policy)

2.4 Vocabulary and Mathematical Language

Developing mathematical language is a key priority. Teachers explicitly model correct terminology, sentence stems, and reasoning phrases, such as:

- "I know this because..."
- "If I know __, then I also know __."
- "The pattern is..."

Key vocabulary is displayed on classroom working walls and revisited through retrieval practice to support understanding and retention.

2.5 Assessment

Assessment informs planning, identifies gaps, and celebrates progress. The school uses **Sonar** as the main assessment and tracking platform.

Formative Assessment (Assessment for Learning):

- Continuous throughout lessons via questioning, model board responses, and guided discussion.
- Informs immediate feedback and next-step planning.
- Retrieval practice ("Can You Still..." tasks) revisits prior learning and reinforces memory.

Summative Assessment:

- White Rose end-of-unit and termly assessments gauge understanding.
- Outcomes recorded and tracked in Sonar.
- Data reviewed termly to monitor progress, inform interventions, and identify trends.

Feedback:

- Verbal feedback and live marking guide improvement.
- Teachers provide next-step prompts and positive reinforcement.
- Errors addressed promptly to prevent misconceptions.
- Positive behaviour for learning is promoted in line with our Behaviour Policy, celebrating effort, resilience and mathematical thinking

Moderation:

- Within-school and cross-school moderation ensures consistency and accuracy of teacher judgements.

Times Tables Monitoring:

- TTRS tracks pupils' speed and accuracy in multiplication and division.
- Results inform planning, identify pupils needing support, and track readiness for the Year 4 MTC.

2.6 Monitoring and Evaluation

The quality and impact of mathematics teaching are monitored through the school's self-evaluation cycle. Monitoring activities include:

- Lesson observations and learning walks.
- Book looks and planning scrutiny.
- Pupil voice discussions.
- Data analysis using Sonar.

- Staff feedback and professional dialogue.

Findings inform the Mathematics Action Plan, celebrating good practice and addressing areas for development.

3. Impact

The impact of the mathematics curriculum is evident in pupils' confidence, fluency, reasoning, and problem-solving skills. Pupils at The Willows:

- Demonstrate fluency, reasoning, and problem-solving skills appropriate to age-related expectations.
- Show resilience and confidence when tackling unfamiliar problems.
- Explain and justify their mathematical thinking clearly.
- Make sustained progress from individual starting points.
- Are well-prepared for the next stage of their education.

Whole-school outcomes are monitored termly via Sonar, with evidence from lessons, books, and pupil voice demonstrating engagement, motivation, and pride in learning.

4. Professional Development

The school recognises that high-quality teaching depends on continuous professional learning:

- Regular CPD sessions focus on areas such as CPA progression, reasoning, and assessment use.
- Staff have access to White Rose, NCETM, and other professional development resources.
- Peer observations and lesson study are encouraged to promote reflective practice.
- The Maths Coordinator provides ongoing support, modelling, and coaching for staff.

5. Resources and Environment

Each classroom is equipped with a range of manipulatives, including Numicon, Dienes, place value counters, bead strings, fraction walls, and number lines.

The maths working wall displays current learning, key vocabulary, models, and examples of reasoning. Resources are well-organised, accessible, and promote pupil independence.

6. Roles and Responsibilities

- **Maths Subject Leader:** Oversees curriculum intent and implementation, monitors teaching and learning, analyses assessment data, leads CPD, and reports to SLT and governors.

- **Class Teachers:** Deliver high-quality lessons, adapt planning for pupil needs, assess progress, maintain high expectations, and be alert to any safeguarding concerns (including mental health difficulties) that may affect a pupil's mathematical learning, reporting concerns to the DSL in line with our Child Protection and Safeguarding Policy.
- **Teaching Assistants:** Support pupils effectively, promote use of manipulatives, and reinforce conceptual understanding.
- **SLT:** Provide strategic oversight, ensure adequate resourcing, and monitor the impact of provision through data and quality assurance.
- **Governors:** Hold leaders to account for the quality of mathematics education and pupil outcomes.

7. Equal Opportunities and Inclusion

At The Willows, we are committed to ensuring that mathematics is accessible to all learners, in line with our Equality & Diversity Policy. Teaching and resources promote equality, reflect diversity, and actively challenge stereotypes including gender stereotypes about mathematical ability. All pupils, regardless of background, gender, ability, or protected characteristics, have equal access to mathematical learning and opportunities for success. We actively monitor outcomes to identify and address any disproportionality in achievement.

8. Key Stage Overviews

Mathematics Curriculum at The Willows School Academy Trust

Key Stage	Year	Focus Areas & Expectations	CPA Approach Highlights
KS1	Year 1	Number & Place Value: Count to 100, identify one more/less, read/write numbers to 100, count in 2s, 5s, 10s. Addition & Subtraction: Number bonds to 20, solve one-step problems, understand +, −, =. Multiplication & Division: Solve one-step problems using concrete/pictorial methods. Fractions: Recognise $\frac{1}{2}$, $\frac{1}{4}$ of shapes/quantities. Measurement: Length, mass, capacity, time, money – compare, measure, record. Geometry: Recognise 2-D/3-D shapes; describe position, direction, turns.	Concrete: Numicon, counters, measuring tools Pictorial: Number lines, bar models, shape drawings Abstract: Symbols, written calculations
	Year 2	Number & Place Value: Count in 2,3,5s, tens; recognise tens/ones; compare/order numbers to 100. Addition & Subtraction: Use mental/written methods, inverse relationships, solve missing-number problems. Multiplication & Division: Recall 2,5,10 tables; solve problems with arrays, materials. Fractions: $\frac{1}{2}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$; equivalence. Measurement: Length, mass, capacity, money, time – measure, compare, convert.	Concrete: Counters, coins, measuring tools Pictorial: Diagrams, arrays, charts Abstract: Number sentences, symbols, mental calculations

		Geometry: Properties of shapes; position, direction, turns. Statistics: Interpret/construct pictograms, tally charts, tables.	
LKS2	Year 3	Number & Place Value: Count in multiples (4,8,50,100), recognise hundreds/tens/ones, compare/order to 1000. Addition & Subtraction: Mental and formal written methods, estimate, solve problems. Multiplication & Division: Recall 3,4,8 tables, calculate using arrays, written methods. Fractions: Unit/non-unit fractions, equivalent fractions, add/subtract same denominator. Measurement: Length, mass, volume, money, time – measure, compare, calculate. Geometry: Draw 2-D/3-D shapes, recognise angles, lines, perpendicular/parallel. Statistics: Bar charts, pictograms, tables, solve one/two-step problems.	Concrete: Counters, shapes, measuring tools Pictorial: Bar models, diagrams, graphs Abstract: Formal calculations, number sentences
	Year 4	Number & Place Value: Count in multiples (6,7,9,25,1000), negative numbers, round to 10/100/1000. Addition & Subtraction: Formal written methods, two-step problems. Multiplication & Division: Recall tables to 12×12, multiply/divide multi-digit numbers. Fractions & Decimals: Equivalent fractions, hundredths, decimals, add/subtract fractions. Measurement: Convert units, perimeter, area, time, money. Geometry: Classify shapes, angles, symmetry, coordinates. Statistics: Bar charts, time graphs, solve comparison/sum/difference problems.	Concrete: Counters, fraction tiles, measuring tools Pictorial: Bar models, grids, diagrams Abstract: Columnar methods, fractions/decimals calculations
UKS2	Year 5	Number & Place Value: Numbers to 1,000,000, negative numbers, rounding, Roman numerals. Addition & Subtraction: Multi-step problems, columnar methods, mental methods. Multiplication & Division: Factor pairs, multiples, prime numbers, long multiplication/division, scaling problems. Fractions, Decimals, Percentages: Equivalent fractions, mixed numbers, calculations with decimals/percentages. Measurement: Convert units, perimeter, area, volume, money. Geometry: 3-D shapes, angles, polygons, reflection/translation. Statistics: Line graphs, tables, solve problems.	Concrete: Counters, fraction bars, measuring tools Pictorial: Bar models, diagrams, grids Abstract: Formal methods, decimal/fraction operations
	Year 6	Number & Place Value: Numbers to 10,000,000, rounding, negative numbers, intervals. The Four Operations: Long multiplication/division, short division, mental strategies, multi-step problems. Fractions, Decimals, Percentages: Simplify, compare, add/subtract, multiply/divide	Concrete: Counters, fraction/decimal manipulatives, measuring tools Pictorial: Bar models, grids, graphs, diagrams Abstract: Algebraic

		fractions, equivalences. Ratio & Proportion: Solve problems with fractions/percentages, similar shapes. Algebra: Formulae, sequences, missing number problems, combinations. Measurement: Units conversion, area/volume, formulae. Geometry: 2-D/3-D shapes, nets, angles, circles. Position & Direction: Coordinates, translations, reflections. Statistics: Pie charts, line graphs, mean.	notation, formal calculations
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9. Review and Evaluation

This policy will be reviewed annually by the Maths Subject Leader and SLT. Amendments will reflect curriculum developments, assessment updates (including Sonar refinement), and evolving best practice from NCETM and White Rose Maths.

10. References and Supporting Documents

- The National Curriculum for Mathematics (2014)
- White Rose Maths Scheme of Learning
- NCETM: CPA Guidance and Professional Resources
- Sonar Assessment System Guidance
- Ofsted: Education Inspection Framework (2025)
- Keeping Children Safe in Education (KCSIE) – September 2026

Head Teacher
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Signed: September 2026



Curriculum Lead
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Signed: September 2026

