Addison Primary School

Maths Handbook

Approved

Autumn 2026

At Addison, we are committed to providing all pupils with a high-quality mathematics education that develops the knowledge, skills and confidence they need both in school and in everyday life. We aim to ensure that every child sees themselves as a capable mathematician and develops a positive and enthusiastic attitude towards the subject.

Our approach to mathematics is based on the principles of teaching for mastery. Pupils are given regular opportunities to explore mathematical concepts in depth, make connections between different areas of learning and develop a secure understanding of key mathematical ideas. Through carefully planned lessons, practical experiences, mathematical discussion and appropriate challenge, pupils develop fluency, reasoning and problem-solving skills.

Our curriculum meets the statutory requirements of the National Curriculum for Mathematics and supports its three key aims. We ensure that pupils:

- Become fluent in the fundamentals of mathematics through regular and varied practice, enabling them to recall and apply mathematical knowledge accurately and efficiently
- Reason mathematically by identifying patterns and relationships, making connections, explaining their thinking and using appropriate mathematical vocabulary to justify their ideas
- Solve problems by applying their mathematical knowledge to a range of routine and non-routine problems, choosing suitable strategies, breaking more complex tasks into manageable steps and persevering when faced with challenge

Through this approach, we aim to develop confident, resilient and independent mathematicians who are curious about mathematics, enjoy being challenged and understand the important role mathematics plays in the wider world.

2. Vision and Intent

Our curriculum is ambitious for all pupils. We aim to develop confident, fluent and resilient mathematicians who understand mathematical structures, make connections, communicate precisely and apply their knowledge independently.

- Develop secure number sense and fluency in essential facts and procedures
- Build conceptual understanding alongside procedural fluency
- Enable pupils to reason mathematically, explain relationships and justify conclusions
- Develop confident problem solvers who can apply mathematics in familiar and unfamiliar contexts
- Give mathematical language and oracy a prominent place in every lesson
- Ensure pupils know more, remember more and can use what they know with increasing independence

- Provide equitable access and ambitious expectations for pupils with SEND, disadvantaged pupils and pupils learning English as an additional language
- Develop enjoyment, curiosity, perseverance and positive attitudes towards mathematics

3. Curriculum Organisation and White Rose Maths

Addison Primary School follows the statutory National Curriculum for Mathematics in England. The school uses White Rose Maths as its principal scheme and sequencing framework from Reception through Key Stage 2, adapted by teachers to meet the needs of pupils and the requirements of the National Curriculum.

White Rose Maths supports a mastery approach through carefully sequenced small steps. It is a resource and planning framework rather than a substitute for teacher expertise. Teachers use assessment, professional judgement and knowledge of their pupils to decide when to spend longer on a concept, revisit prior learning, provide additional practice or deepen learning.

The curriculum is mapped year by year and ensures appropriate coverage of number and place value; addition, subtraction, multiplication and division; fractions, decimals and percentages; ratio and proportion; algebra; measurement; geometry; position and direction; and statistics, as appropriate to each year group.

Teachers make deliberate links between strands so that pupils understand mathematics as an interconnected discipline rather than a collection of isolated procedures.

Early Years Foundation Stage

Mathematics in Reception follows the current EYFS statutory framework. Children develop a strong grounding in number alongside rich experiences of pattern, shape, space and measure. Adults use direct teaching, purposeful play, routines, stories, songs, practical experiences and the learning environment to develop mathematical understanding.

There is a strong focus on developing secure number sense, recognising quantities, understanding the composition of numbers, comparing quantities, identifying patterns and developing mathematical vocabulary. Concrete resources and visual representations are used purposefully and adults model precise language through high-quality interactions.

Reception provision prepares pupils for the National Curriculum in Year 1 while respecting the distinctive pedagogy of the EYFS.

Key Stage 1

In Years 1 and 2, the principal focus is developing confidence and mental fluency with whole numbers, counting and place value. Pupils work with numerals, words, the four operations, concrete resources, pictorial representations and measuring tools.

Particular attention is given to number bonds, place value, efficient calculation strategies, mathematical vocabulary, shape and measures. Pupils are expected to explain their thinking orally and increasingly in writing. Frequent, varied practice supports pupils in becoming fluent while maintaining conceptual understanding.

Lower Key Stage 2

In Years 3 and 4, pupils become increasingly fluent with whole numbers, the four operations, number facts and place value. Teaching develops efficient mental and written calculation methods, accurate use of measures, understanding of fractions and decimals, and increasingly sophisticated mathematical reasoning.

Multiplication and division facts are a major priority. By the end of Year 4, pupils are expected to know multiplication and related division facts up to 12 × 12 and use them accurately and fluently.

Upper Key Stage 2

In Years 5 and 6, pupils extend their understanding of the number system and place value to larger integers and make increasingly sophisticated connections between multiplication, division, fractions, decimals, percentages and ratio.

Pupils solve increasingly complex problems and select efficient mental and written methods. They develop fluency in the four operations and work with fractions, decimals and percentages. Algebraic thinking, geometry, measurement and statistics are taught in ways that build on secure number knowledge and precise mathematical vocabulary.

By the end of Year 6, pupils should be well prepared for the mathematical demands of Key Stage 3.

4. Lesson Structure and Fluency

Fluency is a major whole-school priority. Mathematics lessons normally begin with purposeful fluency and retrieval practice. This gives pupils' regular opportunities to revisit key facts, strengthen prior learning, identify connections and prepare for new content.

Fluency is understood as more than speed. A fluent mathematician can recall key facts efficiently, choose appropriate methods, use known facts to derive unknown facts and move flexibly between representations and strategies. Teachers provide:

- Daily retrieval of important number facts and previously taught knowledge
- Regular mental mathematics and arithmetic practice appropriate to the year group
- Explicit modelling of efficient strategies
- Opportunities to explain why a strategy works, not simply produce an answer
- Practice that is varied so pupils attend to mathematical structure rather than memorising a worksheet pattern

- Rapid identification and correction of misconceptions

After fluency, new learning is introduced through carefully sequenced modelling, guided practice, discussion and independent application. Reasoning and problem solving are incorporated throughout the lesson.

5. Mathematical Language, Vocabulary and Oracy

Mathematical language is a central feature of mathematics at Addison Primary School. Teachers explicitly teach the vocabulary pupils need in order to understand concepts, compare ideas, describe relationships, reason and justify.

Teachers model precise vocabulary and complete mathematical sentences. Pupils are encouraged to answer in full sentences, explain how they know, compare methods, agree or disagree with reasoning and justify conclusions with mathematical evidence.

- Key vocabulary is identified during planning and explicitly introduced
- Vocabulary is displayed and referred to meaningfully rather than used decoratively
- Stem sentences and sentence stems are used where they strengthen understanding and support participation
- Teachers give pupils sufficient thinking time before expecting responses
- Partner talk and whole-class discussion are used to rehearse mathematical explanations
- Teachers probe answers with questions such as, *'How do you know?', 'Can you prove it?', 'Is there another way?'* and *'What do you notice?'*
- Pupils are taught to use symbols, diagrams, representations and spoken language together to communicate mathematical ideas.
- Language support is adapted for pupils with SEND and pupils learning English, without reducing mathematical ambition.

10. Concrete–Pictorial–Abstract and Representation

Teachers use concrete resources, pictorial representations and abstract notation purposefully to reveal mathematical structure. Manipulatives are used when they help pupils understand an idea, not simply as an activity.

Teachers explicitly connect concrete, pictorial and abstract forms so that pupils understand what symbols represent. As understanding becomes secure, pupils are supported to work increasingly efficiently and independently while returning to representations when they are useful.

11. Mastery, Depth and Challenge

The school's mastery approach is based on the expectation that all pupils are entitled to access important mathematical ideas. New content is broken into small steps and pupils receive additional support promptly when needed.

Pupils who grasp concepts rapidly are challenged through depth rather than unnecessary acceleration. They apply knowledge in unfamiliar contexts, compare strategies, generalise, prove, reason, identify errors and explore mathematical structure.

12. Reasoning and Problem Solving

Reasoning and problem solving are integral to the curriculum and are not reserved for the end of a lesson or for higher-attaining pupils. All pupils are taught how to reason and solve problems, and also how to:

- Explain and justify methods and answers
- Identify patterns, relationships and generalisations
- Compare different representations and strategies
- Identify, explain and correct errors
- Work systematically and select relevant information
- Apply mathematics to practical and real-life contexts
- Persevere when the solution is not immediately apparent

13.Multiplication Tables and the MTC

Secure multiplication-table knowledge is a major priority at Addison Primary School. Fluent recall supports later success in division, fractions, decimals, percentages, ratio, proportion, algebra and problem solving.

Times-table learning is progressive across the school and becomes particularly intensive in Years 3 and 4. By the end of Year 4, pupils should recall multiplication and related division facts for tables up to 12 × 12.

The statutory Multiplication Tables Check (MTC) is used to determine whether Year 4 pupils can fluently recall multiplication facts. Preparation is embedded in high-quality curriculum teaching rather than delivered as isolated test preparation.

- Short, frequent and cumulative times-table practice
- Explicit teaching of patterns, commutativity, inverse relationships and fact families
- Regular low-stakes assessment to identify specific gaps
- Targeted intervention for pupils who are not yet secure
- Opportunities to apply facts within calculations, fractions and problem solving
- Appropriate digital practice so pupils are familiar with responding efficiently on screen
- Reasonable and permitted access arrangements for pupils with specific needs
- Regular communication with families about how multiplication facts can be practised at home

The MTC assesses recall of multiplication facts; therefore, the wider curriculum continues to teach conceptual understanding, division relationships, reasoning and application. The school does not treat an MTC score as a complete measure of a pupil's mathematical attainment.

14. Calculation

Calculation is taught progressively so that pupils develop secure mental strategies before and alongside formal written methods. Teachers ensure that pupils understand the mathematical structure behind procedures and do not rely on rules without understanding.

Written methods are introduced at an appropriate stage and taught consistently across year groups. Pupils are expected to estimate, choose efficient methods and check whether answers are reasonable.

15. Inclusion, SEND and Equal Opportunities

All pupils are entitled to an ambitious mathematics curriculum. Teachers identify barriers to learning and make appropriate adaptations while maintaining the mathematical intention of the lesson. Strategies include:

- Use of concrete and visual representations
- Pre-teaching or revisiting prerequisite knowledge
- Smaller instructional steps and additional guided practice
- Explicit vocabulary teaching and language scaffolds
- Additional retrieval and overlearning where appropriate
- Carefully selected examples that reduce unnecessary cognitive load
- Targeted intervention based on identified gaps
- Use of technology and access arrangements where appropriate

Intervention is designed to enable pupils to access the curriculum and reconnect with whole-class learning. Pupils are not routinely given a permanently reduced curriculum because they require additional support.

16. Assessment and Feedback

Teachers use formative, 'in-the-moment' assessment in lessons to assess how much pupils know, understand and remember. Assessment is an integral part of teaching and is used to identify misconceptions, adapt explanations, determine the level of support or challenge required and inform subsequent planning. Formative assessment strategies include:

- Observation of pupils during independent, paired and group work
- Purposeful questioning to check understanding and probe mathematical reasoning

- Listening to mathematical discussion and pupils' explanations
- Reviewing pupils' use of representations, methods and mathematical vocabulary
- Marking and feedback in accordance with the school's Marking and Feedback Policy
- Retrieval practice, fluency activities, mini-whiteboard responses, low-stakes quizzes and other short checks for understanding

Summative Assessment

Three-times-yearly summative assessments are used to provide a clear and standardised picture of pupils' attainment and progress across the school. NFER assessments are administered alongside other agreed school progress checks to support teachers in making accurate and consistent judgements about pupils' achievement. Assessment outcomes are carefully analysed to identify individual strengths, gaps in knowledge and areas where further support may be required.

Assessment information is recorded on the school's tracking system, including the NFER Hub where applicable, and is used alongside ongoing teacher assessment to build a comprehensive picture of each pupil's progress. Teachers use this information to inform future planning, adapt teaching and ensure that learning is appropriately matched to pupils' needs. Assessment data also supports the early identification of pupils who may require additional intervention or consolidation, as well as those who would benefit from further challenge. Progress is monitored regularly to ensure that appropriate support is put in place and that all pupils are given opportunities to achieve their full potential in mathematics.

The school judges the impact of mathematics teaching through a range of evidence, including:

- Statutory end-of-key-stage assessment outcomes where applicable
- The statutory Year 4 Multiplication Tables Check (MTC)
- NFER mid-year and end-of-year assessments
- Agreed termly progress checks and analysis of pupil progress
- Book and planning scrutiny
- Lesson visits, learning walks and evaluation of mathematics teaching
- Pupil voice and pupil interviews
- Assessment of fluency, multiplication-table knowledge and key number facts
- Evaluation of the progress of significant pupil groups and the impact of interventions

17. Marking and Presentation

Marking and feedback follow the school's Marking and Feedback Policy and are designed to be purposeful, manageable and focused on improving learning. Feedback may be written, verbal, live, whole-class, self-assessment or peer-assessment, depending on which approach is most effective.

Where highlighting is used in pupils' mathematics work:

- Green pens identify a correct answer, successful method or effective working-out strategy
- An example or model may be provided where this will help the pupil understand how to improve
- Feedback should contribute to pupils' learning and progress. Where appropriate, it includes a developmental point or next step
- Pupils are given opportunities to reflect on their learning and respond to feedback as promptly as possible after the lesson
- Teachers may acknowledge pupils' written responses, including responses completed during Next Steps time
- Pupils are encouraged to develop responsibility for checking and improving their own work
- Self-assessment and peer assessment may therefore be used where they have a clear learning purpose
- Verbal feedback is used extensively during mathematics lessons so misconceptions can be addressed immediately

18. Home Learning and Parental Partnership

Parents and carers are important partners in developing mathematical confidence. The school provides information and, where appropriate, resources to support number facts, times tables and other key learning at home.

Home practice should reinforce school learning positively. Families are encouraged to discuss mathematics in everyday contexts, including time, money, measures, cooking, shopping, journeys and games.

19. Use of Technology

Technology is used when it enhances mathematical learning, provides purposeful practice, supports accessibility or enables efficient assessment. Digital resources do not replace high-quality teacher explanation, mathematical discussion, practical experience or written mathematics.

20. Roles and Responsibilities

The Maths Lead

- Lead the vision, curriculum and continuous improvement of mathematics
- Ensure curriculum progression and National Curriculum coverage
- Support effective and consistent use of White Rose Maths

- Promote high expectations for fluency, mathematical language, reasoning and problem solving
- Monitor planning, teaching, pupil work and outcomes
- Use pupil voice to evaluate pupils' mathematical experiences
- Monitor multiplication-table provision and MTC preparation
- Analyse assessment information, including the progress of significant pupil groups
- Identify professional development needs and provide coaching, modelling or training
- Maintain awareness of national developments, statutory guidance and evidence-informed practice
- Report strengths, priorities and actions to senior leaders and governors as appropriate

Class teachers

- Plan and teach an ambitious, well-sequenced mathematics curriculum
- Use assessment to adapt teaching and address misconceptions promptly
- Maintain high expectations for mathematical vocabulary and pupil explanations
- Provide appropriate support and challenge
- Ensure pupils practise and retain essential number and multiplication facts
- Communicate relevant information about progress to pupils and families

Teaching assistants

Teaching assistants support pupils in line with teacher planning and guidance. They promote independence, use agreed mathematical language and representations, and provide feedback to the teacher about pupils' understanding.

Senior leaders and governors

Senior leaders support the Maths Lead in maintaining high expectations, appropriate resources and professional development. Governors provide strategic oversight and appropriate challenge regarding curriculum quality, pupil outcomes and statutory responsibilities.

21. Monitoring the Quality of Mathematics

Monitoring the outcomes of pupils' learning and the quality of mathematics teaching is the responsibility of the Maths Lead working with the Senior Leadership Team. Monitoring is developmental and is used to identify strengths, areas for improvement and priorities for professional development. The Maths Lead monitors mathematics through:

- Work and book scrutiny
- Talking to pupils and gathering pupil voice

- Learning walks and focused classroom visits
- Reviewing planning and curriculum sequencing
- Analysis of formative, summative and statutory assessment information
- Monitoring fluency, TTRS, NumBots, multiplication tables and MTC preparation
- Evaluating interventions and the progress of identified pupil groups
- Professional dialogue with teachers and teaching assistants

22. Transition

Transition information is shared between year groups so that teachers understand pupils' prior attainment, strengths and gaps. Year 6 teachers support transition to secondary mathematics by ensuring pupils leave with secure foundations, accurate mathematical language, independence and confidence.

23. Mathematics Online Resources and Professional Materials

Teachers may draw on high-quality online resources and professional materials to support curriculum planning, subject knowledge and pupils' learning. Resources are selected because they support the National Curriculum and the school's approach to mastery, fluency, reasoning and problem solving. Recourses include:

- NCETM – professional guidance, mastery materials and subject development resources
- NRICH Mathematics – rich mathematical tasks, reasoning and problem-solving resources
- White Rose Maths – the school's principal scheme and sequencing framework
- Times Tables Rock Stars (TTRS) – multiplication and division fluency practice
- NumBots – number sense, number bonds and addition/subtraction fluency
- Other DfE-approved or school-evaluated resources may be used where they add value to teaching and learning

24. Digital Fluency: Times Tables Rock Stars (TTRS) and NumBots

Addison Primary School uses Times Tables Rock Stars (TTRS) and NumBots as key digital resources to strengthen number fluency. These programmes complement high-quality classroom teaching; they do not replace explicit teaching, mathematical discussion, practical representations, reasoning or problem solving.

Times Tables Rock Stars (TTRS)

TTRS is used to develop rapid and accurate recall of multiplication and related division facts. It supports the school's strong focus on multiplication-table fluency and preparation for the statutory Year 4 Multiplication Tables Check (MTC). Pupils are encouraged to practise regularly so that key facts become secure and can be applied efficiently in wider mathematics.

- Teachers use TTRS regularly in school and as appropriate for home practice
- Pupils are taught to connect multiplication facts with related division facts, fact families and mathematical patterns
- Year 4 use of TTRS has a particularly strong link to MTC preparation
- Teachers review available TTRS information to identify strengths, gaps and pupils who require additional practice or intervention
- TTRS is used positively to build confidence and motivation; speed is not valued at the expense of understanding
- Achievements and improvements may be celebrated through class recognition, certificates, assemblies, challenges or competitions
- Where accessibility adjustments are required, teachers select appropriate settings and alternative approaches so that pupils can participate successfully

NumBots

NumBots is used to strengthen early number sense and mental addition and subtraction. It supports pupils in moving from counting-based strategies towards efficient calculation by developing subsidising, number bonds, addition and subtraction facts and flexible mental strategies.

- NumBots is used particularly where pupils need to strengthen foundational number knowledge and additive fluency
- Teachers encourage regular, short practice rather than infrequent long sessions
- Pupil progress and usage are monitored so that practice can be linked to identified needs
- NumBots may be used as part of targeted intervention where assessment identifies gaps in number sense, number bonds, addition or subtraction
- Teachers make links between pupils' digital practice and the representations, vocabulary and strategies taught in class
- Pupils are expected to explain strategies and number relationships as well as develop recall

25. Mathematics Homework

Mathematics homework forms part of the school's approach to retrieval, fluency and consolidation. Maths homework is set each week on Monday and is due on Thursday. Homework should reinforce learning that pupils have already encountered in school and should be purposeful, manageable and appropriate to the age and needs of the pupils.

- The week's mathematics homework is issued on Monday
- The homework is divided into clearly identified daily tasks or sections
- Each day, pupils complete the part allocated for that day rather than completing the whole week's work at once

- Daily tasks are designed to be manageable and to encourage regular mathematical practice
- Homework primarily consolidates learning already taught in school and may include arithmetic, fluency, number facts, multiplication tables, reasoning, problem solving or retrieval of previous learning
- Times Tables Rock Stars (TTRS) may form part of weekly practice to strengthen multiplication and division fluency
- NumBots may form part of weekly practice to strengthen number sense, number bonds and addition and subtraction fluency
- Teachers explain expectations clearly and ensure tasks are appropriate to pupils' age, stage and current learning
- Where pupils require additional support or adaptation, an appropriate task is provided while maintaining ambitious expectations
- Where access to technology is a barrier, pupils are provided with an appropriate alternative or an opportunity to access the required resource in school

Policy Review

This policy will be reviewed annually by the Maths Lead and Senior Leadership Team, or sooner when national statutory requirements or the school's mathematics provision change. The review will consider curriculum implementation, pupil outcomes, inclusion, staff development, fluency, mathematical language, multiplication tables and MTC provision.

Adopted: Autumn 2026

Review date: Autumn 2028