



Abingdon Primary School

Teaching for Mastery: Mathematics Policy

Our Vision, Curriculum and Practice

"Success in mathematics is achieved through high expectations, carefully designed learning and the belief that every child can succeed."

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Chapter 1: Vision and Intent

1.1 Our Vision

At Abingdon Primary School, we believe that every child can achieve and succeed in mathematics.

Mathematics is a powerful tool that enables children to make sense of the world around them. It equips them with the knowledge, confidence and resilience needed to solve problems, think critically and make informed decisions throughout their lives. We believe that mathematical success is not determined by innate ability but is achieved through high-quality teaching, carefully sequenced learning and the belief that every pupil is capable of deep mathematical understanding.

Our vision is to nurture confident, curious and resilient mathematicians who are willing to explore ideas, explain their thinking, learn from mistakes and embrace challenge. We strive to create classrooms where mathematical discussion is valued, misconceptions are seen as opportunities for learning and every child feels successful.

Through our Teaching for Mastery approach, children develop secure conceptual understanding alongside procedural fluency, enabling them to reason mathematically, solve increasingly sophisticated problems and make rich connections across different areas of mathematics.

We aim to ensure that every child leaves our school with both the mathematical knowledge and the confidence to apply it successfully in secondary education and beyond.

1.2 Our Intent

Our mathematics curriculum has been carefully designed to provide every pupil with a coherent, ambitious and inclusive mathematical education.

The curriculum is built upon:

- the National Curriculum for England (2014)
- the NCETM Teaching for Mastery principles
- the NCETM Curriculum Prioritisation materials
- the NCETM Curriculum Matching Documents
- the DfE Ready-to-Progress Criteria

These documents work together to ensure that learning is carefully sequenced so that new knowledge builds logically upon prior understanding.

Rather than viewing mathematics as a collection of isolated skills, we teach pupils to recognise patterns, identify structures and make meaningful connections between mathematical concepts.

Our curriculum enables pupils to:

- develop secure conceptual understanding before moving to abstract procedures;
- become fluent through intelligent practice rather than repetition alone;
- reason mathematically by explaining, convincing and justifying;
- solve increasingly complex problems using a range of efficient strategies;
- communicate using precise mathematical vocabulary;
- make connections across different areas of mathematics;
- become independent, resilient and reflective learners.

1.3 Our Teaching for Mastery Philosophy

At Abingdon Primary School, we believe that mathematics is for everyone.

Our teaching is underpinned by the belief that, with excellent teaching and carefully designed learning experiences, nearly all pupils can achieve age-related expectations and experience success in mathematics.

We therefore adopt a Teaching for Mastery approach where:

- concepts are taught in depth before moving on;
- pupils learn together as a whole class wherever appropriate;
- carefully chosen representations and manipulatives reveal mathematical structure;
- variation is used to deepen understanding;
- mathematical discussion is central to every lesson;
- misconceptions are anticipated and addressed through responsive teaching;
- challenge comes through greater depth of thinking rather than acceleration through new content.

We recognise that pupils learn at different rates and may require different levels of support. Adaptive teaching enables all pupils to access the same ambitious mathematical ideas while ensuring that support and challenge are responsive to individual need.

1.4 Our Core Beliefs

We believe...

- Every child can learn mathematics.

- Understanding is more important than memorising procedures.
- Fluency grows from understanding.
- Mathematical talk deepens thinking.
- Mistakes are valuable opportunities for learning.
- Representations should reveal mathematical structure.
- Assessment should inform teaching, not simply measure attainment.
- Challenge is achieved through depth, not speed.
- High expectations are for every learner.
- Professional collaboration improves teaching and learning.

1.5 What We Want Every Child to Become

By the time pupils leave Abingdon Primary School, we want every child to be:

- **Confident** in tackling unfamiliar mathematical problems.
- **Fluent** in recalling and applying key mathematical knowledge.
- **Curious** about patterns, structures and relationships.
- **Resilient** when faced with challenge.
- **Articulate**, able to explain and justify their thinking using mathematical language.
- **Independent**, selecting efficient strategies and appropriate representations.
- **Prepared** for the mathematical demands of secondary education and everyday life.

Chapter 2: Teaching for Mastery in Action

2.1 Our Approach to Teaching Mathematics

At Abingdon Primary School, mathematics is taught through a Teaching for Mastery approach that enables all pupils to develop secure conceptual understanding alongside procedural fluency. Our teaching is carefully planned to ensure that children make meaningful connections between mathematical ideas and develop confidence in applying their learning in a range of contexts.

Teachers use the NCETM Curriculum Prioritisation materials and Curriculum Matching Documents as the basis for curriculum planning. These are supported by the Professional Development Materials, which provide guidance on mathematical structures, representations, misconceptions, variation and key teaching points.

Lessons are designed to allow pupils to explore mathematics deeply, rather than moving rapidly through content. Children are encouraged to explain, justify, question and reason throughout every lesson.

We believe that understanding should always precede efficiency and that secure conceptual understanding provides the foundation for fluent calculation and successful problem solving.

We recognise that secure number sense is fundamental to future mathematical success. To strengthen pupils' understanding of number, we use the NCETM Mastering Number programme alongside our mathematics curriculum.

In Reception, Mastering Number forms the core approach to the teaching of early number, supported by the wider NCETM Teaching for Mastery resources to ensure a broad and balanced mathematics curriculum.

In Years 1 to 4, pupils participate in a daily 15–20 minute Mastering Number session in addition to their main mathematics lesson. These sessions provide frequent opportunities to revisit and deepen key number concepts, develop automaticity with number facts and strengthen fluency through carefully sequenced activities.

Mastering Number is not a replacement for the main mathematics curriculum. Instead, it complements classroom teaching by providing additional opportunities for rehearsal, discussion and conceptual understanding of number.

2.2 Our Mathematics Lesson Design Principles

Every mathematics lesson is carefully designed around six key principles.

1. Build on Prior Learning

Every lesson begins by connecting new learning to previously secured knowledge.

Teachers:

- revisit prior learning where appropriate;
- identify prerequisite knowledge;
- activate key vocabulary;
- make explicit links between previous and new learning.

Children should recognise that mathematics is interconnected rather than a series of isolated topics.

2. Reveal Mathematical Structure

Teachers carefully select representations that expose the underlying mathematical structure.

Children are encouraged to notice:

- patterns;
- relationships;
- similarities;
- differences;
- generalisations.

Representations are selected because they help children understand the mathematics—not simply because they are engaging.

3. Use Intelligent Practice and Variation

Practice is purposeful.

Rather than completing large numbers of similar calculations, pupils experience carefully varied examples that encourage them to notice mathematical relationships and make connections.

Teachers plan examples that enable pupils to:

- compare;
- classify;
- predict;
- explain;
- generalise.

Variation is used to deepen understanding rather than increase workload.

4. Promote Mathematical Thinking Through Discussion

Talk is central to learning mathematics.

Teachers create classrooms where pupils regularly:

- explain their thinking;
- justify answers;
- challenge ideas respectfully;
- ask questions;
- compare strategies.

Sentence stems and precise mathematical vocabulary support all learners to communicate confidently.

5. Respond Through Formative Assessment

Assessment is continuous.

Teachers continually gather evidence through:

- questioning;
- observation;
- mini whiteboards;
- hinge questions;
- discussion;
- independent work.

6. Develop Independence

Children gradually become increasingly independent mathematicians.

Teachers encourage pupils to:

- select appropriate strategies;
- choose suitable representations;
- explain reasoning;
- evaluate efficiency;
- reflect upon mistakes.

2.3 The Teaching Sequence

Although lessons remain responsive, they follow a consistent structure.

Connect

Review prior learning and establish links.

Explore

Introduce the mathematical concept through rich discussion and representation.

Develop

Model carefully chosen examples and encourage pupils to identify mathematical structure.

Practise

Provide intelligent practice using carefully varied examples.

Deepen

Challenge children to reason, justify and solve problems.

Assess

Use formative assessment to inform next steps.

2.4 The Role of Representations and Manipulatives

Representations and manipulatives are essential components of teaching for mastery.

They are used to expose mathematical structure, develop conceptual understanding and support children in making connections between mathematical ideas.

Teachers carefully select representations that are mathematically efficient and appropriate to the learning intention.

Children are encouraged to move flexibly between:

- concrete representations;
- pictorial representations;
- abstract notation.

This progression is responsive rather than fixed, recognising that pupils may revisit concrete resources whenever deeper understanding is required.

2.5 Mathematical Talk

Every classroom should be rich in purposeful mathematical discussion.

Teachers encourage children to:

- explain their thinking;
- justify answers;
- compare methods;
- identify errors;
- build upon the ideas of others.

Teachers model precise mathematical vocabulary and expect pupils to communicate using increasingly accurate mathematical language.

Sentence stems are used consistently across the school to scaffold reasoning and explanation.

Examples include:

"I know this because..."

"The same because..."

"The difference is..."

"I noticed..."

"Another way would be..."

"I agree with... because..."

2.6 Challenge for All

Challenge is achieved through depth rather than acceleration.

Pupils are not routinely moved onto new curriculum content simply because they complete work quickly.

Instead, teachers deepen understanding through opportunities to:

- reason;
- justify;
- generalise;
- prove;
- represent ideas in different ways;
- compare method

- identify patterns.

This ensures that all pupils develop secure conceptual understanding before moving forward.

2.7 Adaptive Teaching

We believe that every child should access ambitious mathematical learning.

Adaptive teaching enables all pupils to work towards the same learning intention through appropriate levels of support and challenge.

Teachers adapt learning through:

- carefully selected representations;
- targeted questioning;
- pre-teaching vocabulary;
- scaffolding;
- additional modelling;
- timely intervention;
- flexible grouping.

Support is gradually removed as understanding develops, promoting independence and confidence.

2.8 What You Would See in an Abingdon Mathematics Classroom

Visitors to mathematics lessons should typically observe:

- ✓ Calm, purposeful learning.
- ✓ High levels of pupil participation.
- ✓ Mathematical discussion.
- ✓ Manipulatives used with purpose.
- ✓ Children explaining and justifying their thinking.
- ✓ Teachers adapting learning in response to assessment.
- ✓ Carefully sequenced examples.
- ✓ High expectations for every learner.

- ✓ Mistakes being explored positively.
- ✓ Challenge through reasoning and depth.

2.9 In Practice: Every Mathematics Lesson

- Connect to prior learning.
- Use purposeful representations.
- Encourage mathematical talk.
- Provide intelligent practice.
- Assess throughout.
- Adapt teaching responsively.
- Deepen understanding through reasoning.
- End with pupils feeling successful and ready for the next step

Chapter 3: Assessment for Learning and Pupil Progress

3.1 Our Assessment Philosophy

At Abingdon Primary School, assessment is an integral part of effective teaching and learning. It is used to identify pupils' current understanding, inform future teaching and ensure that all children make sustained progress in mathematics.

Assessment is not viewed as an endpoint but as an ongoing process that enables teachers to respond to pupils' needs in real time. High-quality formative assessment is the foundation of our Teaching for Mastery approach, ensuring that misconceptions are identified promptly, strengths are recognised and learning is adapted to meet the needs of every pupil.

We believe that the purpose of assessment is to improve learning rather than simply measure attainment.

Assessment within mathematics should:

- identify what pupils know and understand;
- reveal misconceptions;
- inform responsive teaching;
- celebrate progress and achievement;
- identify pupils requiring additional support or challenge;
- provide accurate information for teachers, leaders, parents and governors.

3.2 Formative Assessment

Formative assessment takes place continuously throughout every mathematics lesson.

Teachers gather evidence through:

- high-quality questioning;
- purposeful mathematical discussion;
- mini whiteboards;
- observation of pupils during guided and independent learning;
- hinge questions;
- live marking and verbal feedback;
- exit tickets where appropriate;
- pupil self-assessment and reflection.

Teachers use this information to make immediate adaptations to teaching, ensuring that misconceptions are addressed before they become embedded.

Responsive teaching is a defining feature of every mathematics lesson.

3.3 Daily Review and Retrieval

Each lesson provides opportunities to revisit previously taught concepts in order to strengthen long-term memory and develop fluency.

Retrieval activities are carefully selected to reflect the needs of the class rather than following a fixed programme.

Retrieval may include:

- arithmetic fluency;
- key facts;
- vocabulary;
- prior representations;

- previously taught concepts;
- reasoning questions.

3.4 End-of-Unit Assessment

At the end of each curriculum unit, teachers complete a short mastery assessment to evaluate pupils' conceptual understanding alongside procedural fluency.

These assessments include opportunities for pupils to:

- demonstrate fluency;
- explain reasoning;
- solve problems;
- identify errors;
- justify conclusions;
- apply learning in unfamiliar contexts.

Assessment outcomes are used to:

- identify pupils requiring additional teaching;
- inform intervention planning;
- support future curriculum planning.

3.5 Summative Assessment

Summative assessment provides an overview of pupils' attainment and progress across the academic year.

The school completes formal mathematics assessments three times each year.

These assessments are used alongside teacher assessment and daily formative assessment to provide a holistic picture of pupil attainment.

Summative assessment information is used to:

- identify whole-school trends;
- evaluate curriculum effectiveness;
- support transition between year groups;
- report to parents and governors.

No single assessment determines a child's mathematical attainment.

Professional judgement remains central to the assessment process.

3.6 Feedback

Feedback is timely, purposeful and focused upon improving learning.

Teachers provide feedback through:

- verbal feedback;
- whole-class feedback;
- live modelling;
- questioning;
- pupil conferencing.

Children are encouraged to respond to feedback immediately wherever possible.

Feedback should promote thinking rather than simply correct errors.

3.7 Intervention

Intervention is responsive rather than routine.

Pupils receive additional support as soon as misconceptions are identified.

Intervention may include:

- same-day intervention;
- pre-teaching;
- additional guided practice;
- targeted small-group teaching;
- revisit sessions.

Interventions focus upon securing understanding rather than accelerating pupils through new content.

3.8 Monitoring Pupil Progress

Teachers regularly review pupil progress using evidence gathered from:

- formative assessment;
- end-of-unit assessments;
- termly summative assessments;
- pupil discussions;
- independent work;
- professional judgement.

This information informs future teaching and school improvement priorities. Evidence gathered during Mastering Number sessions also contributes to teachers' understanding of pupils' developing fluency and informs planning for subsequent mathematics lessons.

Assessment Non-Negotiables

At Abingdon Primary School:

- ✓ Assessment informs teaching.
- ✓ Formative assessment takes place in every lesson.
- ✓ Misconceptions are addressed promptly.
- ✓ Assessment values reasoning alongside fluency.
- ✓ Teacher judgement is central.
- ✓ Assessment supports learning rather than drives teaching.

Chapter 4 Adaptive Teaching and Inclusion

4.1 Our Inclusive Mathematics Philosophy

At Abingdon Primary School, we believe that every child is capable of achieving success in mathematics. We are committed to providing an ambitious mathematics curriculum that is accessible to all pupils, regardless of their starting points, background or additional needs.

Our Teaching for Mastery approach is founded on the belief that most pupils can learn the same mathematical concepts when provided with high-quality teaching, appropriate representations and responsive support. We recognise that pupils learn at different rates and in different ways; however, we maintain high expectations for all and adapt our teaching to enable every child to achieve.

Adaptive teaching is not about lowering expectations or reducing ambition. Instead, it is about removing barriers to learning so that all pupils can engage with the same important mathematical ideas and experience success.

We foster inclusive classrooms where mistakes are valued as opportunities for learning, mathematical discussion is encouraged, and every child feels confident to contribute.

4.2 Principles of Adaptive Teaching

Adaptive teaching is a planned and responsive approach that enables all pupils to access high-quality mathematical learning.

Teachers adapt learning by:

- identifying and responding to pupils' strengths and needs;
- maintaining a common learning intention for the class wherever appropriate;
- providing carefully considered scaffolds that support understanding;
- using representations and manipulatives purposefully;
- adapting questioning to deepen thinking;
- providing timely intervention when misconceptions arise;
- gradually removing support as confidence and understanding develop.

Adaptations should enable pupils to become increasingly independent rather than reliant upon adult support.

4.3 High Expectations for Every Learner

We believe that all pupils deserve access to an ambitious mathematics curriculum.

Teachers:

- communicate consistently high expectations;
- promote a positive mathematical mindset;
- encourage perseverance and resilience;
- celebrate effort, reasoning and improvement;
- value multiple strategies and approaches;

- ensure that challenge is available for every learner.

Children are encouraged to believe that mathematical understanding develops over time.

Chapter 5: Professional Development and Monitoring

5.1 Our Commitment to Professional Learning

At Abingdon Primary School, we recognise that high-quality mathematics teaching begins with knowledgeable, reflective and continually developing professionals.

Professional development is viewed as a continuous process rather than a series of isolated training events.

We are committed to developing teachers' mathematical subject knowledge, pedagogical understanding and confidence through collaborative professional learning.

5.2 Collaborative Professional Development

Professional learning opportunities include:

- staff meetings;
- lesson study;
- collaborative planning;
- peer observations;
- instructional coaching;
- NCETM Professional Development Materials;
- participation in NCETM Work Groups;
- professional reading;
- trust-wide collaboration where appropriate.

Teachers are encouraged to reflect upon research and evidence-informed practice to continually improve the quality of mathematics teaching.

5.3 Collaborative Planning

Planning is recognised as professional learning.

Teachers work collaboratively to:

- study curriculum materials;
- identify key mathematical structures;
- discuss misconceptions;
- select appropriate representations;
- design intelligent practice;
- share effective questioning.

This collaborative approach promotes consistency across the school whilst valuing professional expertise.

5.4 The Role of the Mathematics Leader

The Mathematics Leader provides strategic leadership for mathematics across the school.

Responsibilities include:

- leading curriculum development;
- supporting colleagues;
- monitoring teaching and learning;
- analysing assessment information;
- leading professional development;
- ensuring curriculum coherence;

- evaluating the impact of improvement priorities;
- maintaining high expectations.

The Mathematics Leader works alongside colleagues to improve practice through coaching and professional dialogue.

5.5 Monitoring Teaching and Learning

Monitoring is developmental rather than judgemental.

Its purpose is to celebrate strengths, identify priorities and improve outcomes for pupils.

Monitoring activities include:

- learning walks;
- lesson visits;
- planning scrutiny;
- book scrutiny;
- pupil voice;
- teacher discussions;
- assessment analysis;
- environment audits.

Evidence from monitoring informs future professional development and school improvement planning.

5.6 Learning Walks

Learning walks focus upon:

- mathematical talk;
- use of representations;
- adaptive teaching;
- challenge;
- classroom culture;
- pupil engagement;
- use of manipulatives;
- assessment for learning.

Feedback is developmental and encourages professional reflection.

5.7 Book Scrutiny

Book scrutiny considers:

- curriculum coverage;
- progression over time;
- reasoning opportunities;

- challenge;
- presentation;
- teacher feedback;
- evidence of responsive teaching.

Book scrutiny is triangulated with lesson observations and pupil discussions to provide a balanced view of mathematics across the school.

5.8 Pupil Voice

Pupil voice provides valuable insight into the effectiveness of mathematics teaching.

Children are encouraged to discuss:

- their enjoyment of mathematics;
- how they learn best;
- the representations they use;
- how teachers help them when learning becomes challenging;
- their confidence as mathematicians.

Pupil voice informs curriculum development and professional learning.

5.9 Our Culture of Continuous Improvement

We believe that excellent mathematics teaching is never finished.

Through collaboration, reflection and evidence-informed practice, we continually refine our curriculum and teaching so that every child experiences success in mathematics.

Professional learning is everyone's responsibility and is central to achieving our vision of developing confident, capable and resilient mathematicians.

Professional Learning Non-Negotiables

At Abingdon Primary School:

- ✓ Professional development is continuous.
- ✓ Collaboration is valued.
- ✓ Coaching is supportive.
- ✓ Monitoring develops practice.

- ✓ Research informs decision-making.
- ✓ Reflection leads improvement.
- ✓ Every teacher is a learner.

Chapter 6 Appendices: Teaching for Mastery Toolkit

Purpose of the Appendices

The appendices provide practical guidance to support the consistent implementation of our Teaching for Mastery approach across the school.

These documents are designed to support teachers in planning, teaching, assessing and reflecting upon mathematics lessons. They should be used alongside the National Curriculum, NCETM Curriculum Matching Documents, Curriculum Prioritisation Materials and Professional Development Materials.

The appendices are working documents and will continue to evolve in response to professional learning, research and school development priorities.

Appendix A

The Abingdon Mathematics Lesson

Every mathematics lesson should reflect the principles of Teaching for Mastery. Although lessons remain responsive to pupils' needs, teachers should consider the following lesson sequence.

1. Connect

- ✓ Review prior learning.
- ✓ Activate key vocabulary.
- ✓ Revisit prerequisite knowledge.
- ✓ Make explicit connections.

2. Explore

- ✓ Introduce the concept.
- ✓ Use carefully selected representations.
- ✓ Encourage discussion.
- ✓ Promote noticing.

3. Develop

- ✓ Model examples.
- ✓ Use intelligent variation.
- ✓ Reveal mathematical structure.
- ✓ Encourage multiple strategies.

4. Practise

Children develop fluency through intelligent practice.

Tasks should encourage pupils to:

compare → explain → justify → predict → generalise

5. Deepen

Children should have opportunities to:

- ✓ reason
- ✓ convince
- ✓ prove
- ✓ explain
- ✓ solve problems

Challenge comes through depth rather than acceleration.

6. Assess

Teachers continually assess understanding through:

- ✓ questioning
- ✓ discussion
- ✓ observation
- ✓ mini whiteboards
- ✓ independent practice

Appendix B

Lesson Planning Checklist

Before every lesson teachers should ask:

Mathematical structure

What is the key mathematical idea?

Prior learning

What must children already understand?

Representation

Which representation best exposes the structure?

Manipulatives

Which concrete resources will support understanding?

Vocabulary

Which mathematical language will be explicitly taught?

Variation

How will examples be sequenced?

Misconceptions

Which misconceptions might arise?

Assessment

How will understanding be checked?

Reasoning

Where will pupils explain and justify?

Independence

When will pupils work independently?

Appendix C

Manipulative Progression

Concept	Main Manipulative
Counting	Rekenrek
Number bonds	Rekenrek
Place value	Base Ten & Place Value Counters
Addition	Base Ten / Counters
Subtraction	Base Ten / Counters
Multiplication	Arrays & Counters
Division	Arrays / Counters
Fractions	Cuisenaire Rods & Fraction Bars
Decimals	Place Value Counters
Ratio	Cuisenaire Rods
Algebra	Algebra Tiles (Upper KS2)

Appendix D

Representation Progression

Children move flexibly between:

Concrete



Pictorial



Abstract



Back again whenever required.

Teachers recognise that this progression is not linear. Children revisit concrete and pictorial representations whenever deeper understanding is needed.

Appendix E

Mathematical Talk

Teachers consistently promote mathematical discussion.

Examples include:

"I know this because..."

"I noticed..."

"The pattern is..."

"The same because..."

"The difference is..."

"I disagree because..."

"I can prove it by..."

"My representation shows..."

Appendix F

Adaptive Teaching

Teachers adapt through:

✓ Representation

✓ Questioning

✓ Scaffolding

✓ Vocabulary

✓ Guided practice

✓ Additional modelling

✓ Same-day intervention

Appendix G

Working Wall Expectations

Every classroom should include:

Current learning

Key vocabulary

Stem sentences

Models and representations

Worked examples

Children's thinking

Misconceptions

Generalisations

Working walls should evolve alongside learning rather than become static displays.

Appendix H

Assessment Overview

Daily:

Observation

Questioning

Mini whiteboards

Weekly:

Teacher reflection

End of Unit

Mastery Check

Termly:

NFER Mathematics Assessment

Annually:

National Curriculum assessments (where applicable)

Appendix I

Mathematics Learning Walk

Visitors should typically observe:

- ✓ High expectations
- ✓ Mathematical talk
- ✓ Children explaining reasoning
- ✓ Purposeful manipulatives
- ✓ Intelligent practice
- ✓ Positive learning culture
- ✓ Responsive teaching
- ✓ High engagement

Appendix J

Professional Reading

Recommended reading for staff includes:

Developing Mastery in Mathematics – NCETM

Teaching for Mastery – NCETM publications

How I Wish I'd Taught Maths – Craig Barton

Teaching Maths for Mastery – National Centre resources

Mathematical Mindsets – Jo Boaler

Mastery and Depth in Primary Mathematics – Mike Askew