

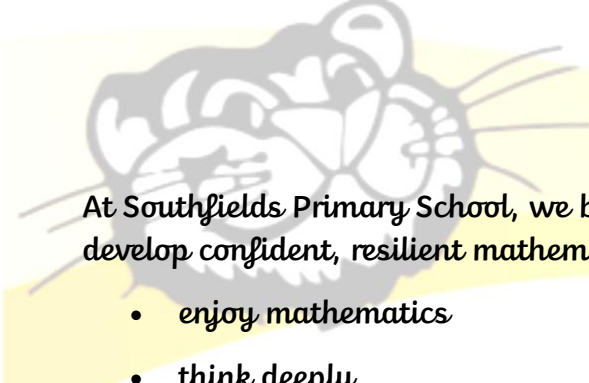
Maths at Southfields

September 2026 (to be reviewed September 2027)

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Vision and Intent

At Southfields Primary School, we believe every child can succeed in mathematics. We strive to develop confident, resilient mathematicians who:

- enjoy mathematics
- think deeply
- explain their reasoning
- make connections between mathematical ideas
- solve problems independently
- develop fluency alongside conceptual understanding

Mathematics is taught through a Teaching for Mastery approach where all pupils are supported and challenged to think mathematically. We have high expectations for every child and believe that achievement is built through carefully sequenced learning, rich discussion and intelligent practice.

Curriculum

Our Maths Curriculum follows the National Curriculum (2014) and utilises the White Rose Maths Scheme whilst incorporating the NCTEM's Teaching for Mastery principles (The Five Big Ideas). This is supported with the Mastering Number Programme and Ninja Arithmetic.

From Year 1, children receive four Maths lessons each week which follow the White Rose Scheme, one arithmetic lesson per week and daily opportunities for further development of mathematical fluency and mathematical thinking through the Mastering Number programme.

This curriculum is preceded in Reception by the White Rose Reception Jigsaw programme, which supports the development of secure early mathematical understanding through high-quality adult interactions, purposeful play and carefully planned mathematical experiences. The programme focuses on developing strong number sense, mathematical language and conceptual understanding, providing children with the foundations they need for successful progression into Key Stage 1.

Our curriculum ensures every child develops secure mathematical foundations, regardless of their starting point or when they join Southfields. Pupils new to Southfields are rapidly assessed in their first Mathematics lessons through a range of formative assessment methods; teachers are then able to adapt learning effectively and/or plan any interventions required to support the individual child.

Through Quality First Teaching, careful assessment, adaptive teaching and the use of concrete and pictorial representations, teachers consistently identify and address gaps in understanding while building on pupils' prior knowledge. The coherent sequencing of the White Rose curriculum, alongside the Mastering Number programme and targeted support where required, enables all children to develop confidence, fluency and a deep conceptual understanding of mathematics, ensuring they are well prepared for future learning.

Teaching for Mastery and The Five Big Ideas

At Southfields, we are committed to embedding the NCETM Teaching for Mastery principles, ensuring that all children can access, learn and make progress in mathematics through a coherent curriculum built on small, connected steps. Pupils develop deep conceptual understanding by learning together, with carefully chosen representations, rich mathematical discussion and reasoning at the heart of every lesson, while support and challenge are provided through skilled questioning rather than accelerating to new content.

The Five Big Ideas

Our approach to mathematics is underpinned by the NCETM Five Big Ideas of Teaching for Mastery: Coherence, Representation and Structure, Mathematical Thinking, Fluency, and Variation. These principles ensure that pupils develop a deep, connected and secure understanding of mathematics, rather than relying on memorised procedures.



Coherence: Our lessons are carefully planned using small, coherent steps that build on prior learning and allow all children to progress together. New concepts are introduced in a logical sequence, enabling pupils to make meaningful connections and develop a secure understanding before moving on.

Representation and Structure: Teachers make purposeful use of concrete resources and pictorial representations to expose mathematical structures and support conceptual understanding before moving to abstract methods. Carefully chosen representations help pupils recognise patterns, make connections and understand the relationships between mathematical concepts rather than simply following procedures.

Mathematical thinking: Mathematical thinking is promoted through rich discussion, reasoning, explanation and justification, encouraging pupils to make connections, spot patterns and prove their ideas. Teachers use carefully planned questioning to deepen understanding, challenge misconceptions and develop pupils' confidence in explaining and defending their mathematical thinking.

Fluency: Fluency is developed through intelligent practice, enabling children to recall and apply key facts efficiently while understanding the relationships between concepts. Pupils are encouraged to select efficient strategies, recognise mathematical structures and develop flexibility in their thinking, rather than relying solely on memorisation. The Mastering Number Programme heavily supports children's development of Fluency and Mathematical Thinking.

Variation: Through the deliberate use of procedural and conceptual variation, pupils are encouraged to recognise what stays the same and what changes, helping them to generalise and deepen their understanding. Carefully sequenced examples and questions draw attention to key mathematical structures, enabling pupils to make connections and apply their learning confidently in a range of contexts.

By embedding the Five Big Ideas in every mathematics lesson, we foster confident, resilient mathematicians who are equipped to reason, solve problems and apply their learning in a wide range of contexts.

Planning and Lesson Design

Maths planning at Southfields follows White Rose small steps and teachers apply the Southfields' maths lesson structure to each step. One small step will often equate to one lesson, but some small steps will need to be spread over two lessons depending on the needs of the children.

All Maths lessons taught at Southfields follow a common structure which supports the inclusion of The Mastery Approach and the Five Big Ideas. The template Maths lesson PowerPoint, including notes for further guidance should be used to help structure individual lessons.

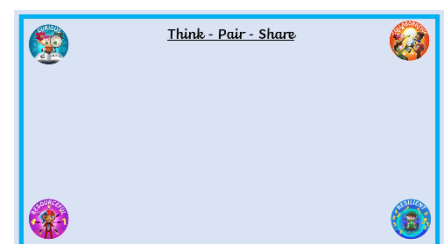
Southfields font, colours and graphics should be used consistently.

Lesson Structure

1) Think Pair Share

Purpose: To activate prior knowledge and facilitate children in retrieving prior learning, encourage mathematical thinking and give every child the opportunity to engage with the learning from the outset.

Teacher's role: Present a carefully chosen question, image or problem that encourages discussion. The question will facilitate the children in utilising the prior learning required for them to succeed in the lesson's Learning Objective. It may be taken from a previous unit/year group's 'Reasoning and Problem Solving' resources available on White Rose. Teachers provide sufficient thinking time before pupils discuss their ideas with a partner, using targeted questioning to probe understanding, address misconceptions and introduce key mathematical vocabulary. This acts as the EXPLORE stage of the lesson and should last around 10 minutes and is a rich opportunity for AfL and to address misconceptions.



2) Teach, Discuss and Clarify Methods

Purpose: To explicitly teach the new mathematical concept/method, develop conceptual understanding and make the underlying mathematical structures visible through carefully chosen representations, precise mathematical language and rich discussion.

Teacher's role: Lead whole-class learning by explicitly teaching the new concept using concrete and pictorial representations before moving towards abstract methods. Model accurate mathematical vocabulary, make links to prior learning and use questioning to clarify misconceptions and deepen understanding. Throughout this stage, teachers encourage purposeful discussion, selecting pupils to explain, compare and justify ideas where appropriate.

The latter part of this stage forms the 'My Turn' element of the Gradual Release Model, where the teacher models worked examples while verbalising their metacognitive thinking. Teachers should demonstrate not only how to solve problems but also how to reason, explain and make mathematical connections. Additional modelling should be provided whenever formative assessment (AfL) indicates that pupils require further support before moving into Guided Practice.

Discuss and Clarify Methods



Discuss and Clarify Methods – My turn



3) Guided Practice

Purpose: To consolidate new learning through carefully scaffolded practice, allowing pupils to apply concepts with the support of the teacher.

Teacher's role: Guide pupils through examples using questioning, modelling and immediate feedback. Use the 'Our Turn, Your Turn' gradual release model (going back and incorporating more 'My Turn' if required) and incorporate procedural and/or conceptual variation. Encourage pupils to explain their thinking, justify their answers and make connections through targeted questioning, while continually assessing understanding and adapting support where necessary. This section will often need to be repeated so children have the opportunity to practice different question types, including questions which require them to reason, problem solve and/or explain their answers.

Guided Practice – Our turn



Guided Practice – Your turn



4) Independent Practice

Purpose: To enable pupils to apply their learning independently, building fluency while developing reasoning and problem-solving skills through carefully sequenced tasks.

Teacher's role: Provide purposeful tasks that promote intelligent practice and deepen understanding. Monitor learning through observation, live marking and questioning, offering timely support or challenge to ensure all pupils continue to make progress. Questions for this section of the

Independent Practice

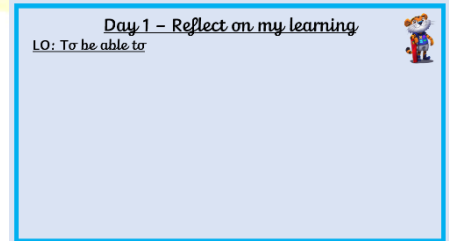


lesson should be intentionally selected from a range of sources, including but not limited to White Rose, Grammarsaurus and Classroom Secrets.

5) Reflecting on Our Learning

Purpose: To consolidate learning, encourage pupils to reflect on their mathematical thinking and identify key concepts, strategies and misconceptions.

Teacher's role: Pose a question that enables children to revisit the lesson objective and key learning points through discussion and questioning. Encourage pupils to explain what they have learned, evaluate different methods, and make links to previous or future learning, helping to strengthen long-term understanding. **Suggested activity:** White Rose 'True or False' question.



Classroom Practice

Mathematical Language and Vocabulary at Southfields

At Southfields, we recognise that language is fundamental to learning mathematics. As a Voice 21 Oracy School of Excellence, we believe that pupils develop deeper mathematical understanding by discussing, explaining and justifying their thinking using precise mathematical vocabulary. High-quality mathematical talk is embedded throughout every lesson and is a key feature of our Teaching for Mastery approach.

Teachers explicitly teach and model mathematical vocabulary, ensuring new terminology is introduced in context, displayed on working walls alongside sentence stems and revisited regularly. Pupils are encouraged to communicate using accurate mathematical language and to explain, justify and compare their methods through structured talk opportunities such as Think, Pair, Share.

Teachers should:

- explicitly teach and model mathematical vocabulary.
- encourage pupils to explain and justify their thinking using full mathematical sentences.
- use sentence stems to support reasoning and discussion.
- provide regular opportunities for pupils to discuss, question and compare mathematical ideas.
- establish a classroom culture where all pupils are confident to contribute, challenge respectfully and learn from mistakes.

By embedding oracy within mathematics, we develop pupils who are able to communicate their mathematical thinking with confidence, reason effectively and make meaningful connections between concepts.

Adaptation and Challenge at Southfields

At Southfields, we believe that all children are capable of achieving success in mathematics. Through our Teaching for Mastery approach, pupils work towards the same learning objective, with adaptations made to ensure every child can access and succeed within the lesson. Rather than accelerating pupils onto new content, we deepen understanding through reasoning, problem solving and rich mathematical discussion.

Adaptive Teaching

Teachers adapt learning by:

- using concrete and pictorial representations to support conceptual understanding.
- providing additional modelling or revisiting previous representations where required.
- using carefully targeted questioning to scaffold or deepen thinking.
- pre-teaching or over-learning key vocabulary and concepts where appropriate.
- providing immediate intervention during lessons to address misconceptions before they become embedded.
- ensuring that all pupils have access to the same high-quality mathematical thinking.

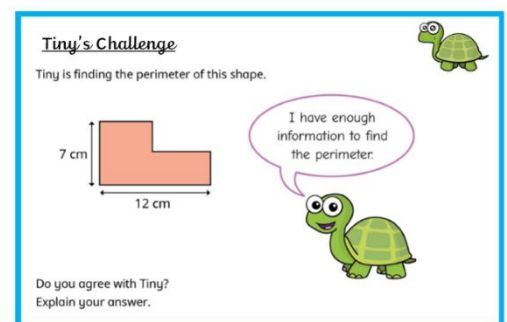
Teaching assistants support pupils by reinforcing representations, encouraging mathematical talk and developing independence, rather than completing tasks for pupils.

Challenge

Challenge is achieved through depth rather than acceleration. Teachers should provide opportunities for pupils to:

- explain and justify their reasoning.
- compare and evaluate different methods.
- prove or disprove mathematical statements.
- identify patterns and make generalisations.
- solve increasingly complex problems using the same underlying mathematical concept.
- create their own examples and non-examples.

Challenge is evident in all stages of the lesson through questions such as *"How do you know?"*, *"Will this always be true?"* and *"Can you convince me?"* encouraging pupils to think more deeply about the mathematics rather than simply completing additional calculations. An explicit Challenge is also used in the Independent Practice portion of the lesson through a carefully selected additional question(s). To ensure effective questioning and to facilitate higher level thinking, teachers should refer to Blooms Taxonomy.



Resources and Manipulatives

At Southfields, manipulatives are an essential part of mathematics teaching and are used to develop conceptual understanding, reveal mathematical structures and support children's reasoning. They are not reserved solely for younger pupils or those requiring additional support; instead, they are available to all learners whenever they enhance understanding.

Teachers should select resources purposefully, ensuring they are directly linked to the learning objective and support pupils in making connections between concrete, pictorial and abstract representations. Examples of manipulatives used across school include but are not limited to:

- Place value counters
- Base ten (Dienes)
- Numicon
- Tens frames
- Bead strings
- Cubes
- Double-sided counters
- Fraction strips and circles
- Number lines
- Bar models
- Gattegno Charts

Manipulatives should be introduced through teacher modelling and gradually withdrawn as pupils develop secure conceptual understanding. Consistent use of representations across year groups enables pupils to build upon prior learning and transfer their understanding to new concepts.

Learning Environment

All classrooms at Southfields comply to the standardised learning environment for consistency. This includes squared whiteboard(s) split into five sections; one displaying the learning theme, key vocabulary for the unit and stem sentences for the unit/small step; one section dedicated to the arithmetic methods that was focused on in the weekly lesson; and four sections which show the learning journey through the week. These are updated daily and act as a working wall for children to refer to. Vocabulary and stem sentences should be taken from the White Rose documentation for each unit.

All classrooms also display key vocabulary linked to the four main operations and speech bubbles displaying reasoning and problem-solving sentence stems. The Southfields 'Good Learning Characters' are also displayed and referred to through lessons and on flipcharts (further details below).

All labels should be written in the prescribed Twinkl cursive or pre-cursive font and use the 'Maths Blue' border.

Southfields 'Good Learning Characters'

At Southfields, we actively promote our Good Learning Characteristics throughout mathematics. These behaviours support pupils in developing confidence, independence and a positive attitude towards learning. The characters are displayed in classrooms and on flipcharts and teachers refer to them where appropriate during lessons.

Resilient

We encourage pupils to persevere when learning becomes challenging, viewing mistakes as valuable opportunities to learn. Children are supported to reflect on their thinking, try different strategies and develop confidence in tackling unfamiliar problems.

**Collaborative**

Mathematics is a shared learning experience. Through strategies such as Think, Pair, Share and purposeful mathematical discussion, pupils listen to the ideas of others, explain their thinking and work together to deepen their understanding.

**Curious**

We foster a love of mathematical enquiry by encouraging pupils to ask questions, notice patterns, make connections and explore different methods. Children are encouraged to think critically and explain why mathematical ideas work.

**Resourceful**

Pupils are taught to select and use appropriate resources, representations and strategies to support their learning. They develop independence by making informed choices about the tools they need to solve problems and communicate their mathematical thinking effectively.

**Feedback and Assessment**

Assessment is an integral part of every mathematics lesson and informs teachers' planning, adaptations and next steps. Teachers continually assess pupils' understanding through observation, questioning, discussion, whiteboard work and independent work.

Formative assessment is prioritised through:

- Think Pair Share discussions
- targeted questioning
- guided practice
- live marking
- observation of pupils using manipulatives and representations
- identifying and addressing misconceptions during lessons

Where misconceptions are identified, teachers respond immediately through additional modelling, questioning or guided practice to ensure pupils remain secure before moving on.

Summative assessment includes:

- White Rose pre and post unit assessments
- Arithmetic assessments.
- Termly arithmetic and reasoning assessments
- National statutory assessments where appropriate

Records of summative assessments should be kept on the White Rose Online Assessment Tool (to be launched Sept 2026).

Feedback should be timely, purposeful and move learning forward. Verbal feedback during lessons is often the most effective means of improving understanding, allowing misconceptions to be addressed immediately. Written feedback should be concise and should encourage pupils to reflect on and improve their mathematical thinking.

Additional Curriculum Components

Arithmetic Lessons

Children in Years 1–6 receive one dedicated arithmetic lesson each week using Ninja Arithmetic. These sessions are designed to develop pupils' fluency, efficiency and confidence when applying the four operations and key calculation strategies.

Arithmetic lessons provide regular opportunities to revisit previously taught methods, strengthen recall of number facts and develop accuracy through repeated intelligent practice. Teachers should continue to emphasise conceptual understanding by discussing methods, encouraging efficient strategies and using representations where appropriate.

Arithmetic teaching should complement, rather than replace, the conceptual mathematics taught through White Rose lessons. Wherever possible, links should be made between arithmetic practice and current learning within the wider mathematics curriculum.

Teachers should use assessment from arithmetic lessons to identify gaps in pupils' knowledge and adapt future teaching accordingly.

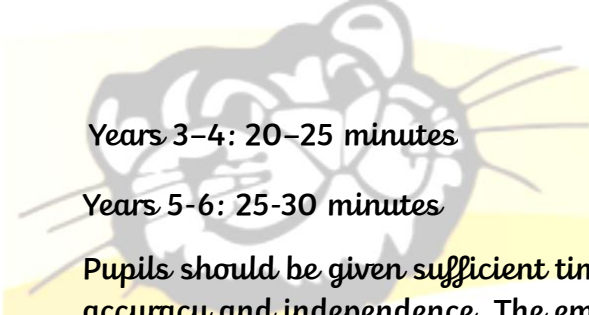
Arithmetic Lesson Structure

Teachers select one arithmetic question per week to focus on and spend the first 15-20 minutes of the session teaching/consolidating the skill through the Discussion and Clarify Methods (My Turn) and Guided Practice (Our Turn and Your Turn) techniques used in all other Maths lessons.

Children then complete their Independent Practice, which takes the form of the weekly Ninja Arithmetic test. The time allocated for this is flexible but Ninja suggests:

Year 1: 10–15 minutes

Year 2: 15–20 minutes

Years 3-4: 20-25 minutes

Years 5-6: 25-30 minutes

Pupils should be given sufficient time to complete the weekly Ninja Arithmetic sheet with accuracy and independence. The emphasis should be on developing efficient calculation strategies and fluency rather than simply working at speed. Teachers should use the lesson to explicitly teach arithmetic methods, address misconceptions and provide immediate feedback, rather than treating the sheet as a timed test.

After completion, children will then self-mark or peer-mark, including discussion of methods used rather than simply giving answers.

Mastering Number

Children in Years 1-5 participate in the NCETM Mastering Number Programme, which forms a key part of our approach to developing secure number sense and mathematical fluency. Through short, frequent sessions, pupils develop automaticity with number facts alongside a deep understanding of number relationships and structures.

Mastering Number supports pupils in:

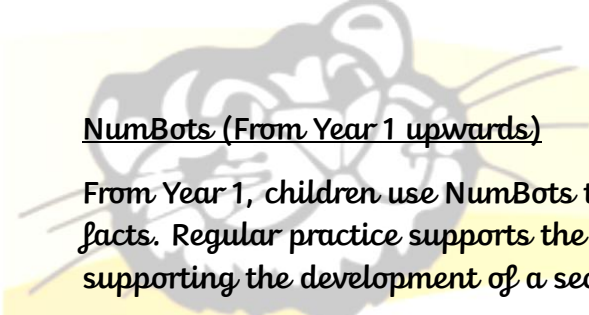
- developing confidence with number.
- recognising number patterns and relationships.
- subitising and understanding quantity.
- composing and decomposing numbers.
- recalling key addition and subtraction facts.
- developing efficient mental calculation strategies.

The programme complements the White Rose curriculum and reinforces the principles of Teaching for Mastery, particularly Fluency and Mathematical Thinking. Teachers are encouraged to make explicit links between Mastering Number sessions and their classroom mathematics so that pupils can transfer their understanding across different contexts. In instances of children working significantly below their age-related expectations, Mastering Number will take the form of an intervention, delivered by a specifically trained Teaching Assistant. These interventions will be coordinated by the Maths Lead

The consistency of language, representations and structures used within Mastering Number supports progression across the school and helps children develop secure, connected mathematical understanding.

Technology to Support Mathematics

At Southfields, we use technology purposefully to enhance mathematics teaching and learning. Digital platforms are used to develop fluency, reinforce key mathematical concepts and provide opportunities for independent practice both in school and at home. These platforms complement high-quality classroom teaching and are not used as a substitute for direct instruction.



NumBots (From Year 1 upwards)

From Year 1, children use NumBots to develop fluency in number bonds, addition and subtraction facts. Regular practice supports the development of automatic recall and number sense, supporting the development of a secure foundation for future mathematical learning.

Times Tables Rock Stars (Years 3–6)

Children in Years 3–6 use Times Tables Rock Stars (TTRS) to develop rapid recall of multiplication and division facts. Regular use supports pupils in becoming fluent with multiplication tables, preparing them for increasingly complex calculations and the statutory Multiplication Tables Check in Year 4.

LBQ (Years 5–6)

Children in Years 5 and 6 use LBQ to consolidate mathematical understanding through adaptive online learning. The platform provides immediate feedback, identifies misconceptions and allows teachers to monitor progress, informing future planning and targeted support.

Teachers should use assessment information from these platforms alongside classroom assessment to celebrate achievement, identify gaps in learning and inform future teaching.