

ST MARY'S, WELHAM GREEN

Maths

“Creating resilient and passionate mathematicians,
who will flourish for the future”

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At St Mary’s, we have created a dynamic and inclusive mathematics curriculum that embraces the **C**oncrete-**P**ictorial-**A**bstract (**CPA**) mastery approach, empowering our children to develop a deep conceptual understanding of mathematical concepts and apply them confidently in real-life situations.

Our vision is to foster a love of maths across the school by nurturing our children’s curiosity, thinking skills and self-belief. Our mastery approach allows **all** children to develop as resilient and passionate mathematicians, who will flourish for the future.

Our Mathematics curriculum is drawn from White Rose Educations Maths Scheme to ensure a coherent and consistent sequence of content to support sustained progression over time. Other elements have been written by staff and advisors based on these sequences. We thank all of them for their role in bringing our curriculum together.

Key Principles of Our Curriculum

Concrete Experiences:

We believe in providing our children with hands-on learning experiences, using manipulatives, real-life objects, and interactive activities to enable them to explore mathematical concepts in a tangible and meaningful way. By engaging in concrete experiences, children build a solid foundation of mathematical understanding before moving to more abstract representations.

Pictorial Representations:

We recognise the importance of visual representations in enhancing children's comprehension and retention of mathematical concepts. Our curriculum incorporates a variety of pictorial tools, such as diagrams, charts, and models, to help children visualise and make connections between concrete and abstract ideas. These representations support children in developing mental imagery and deeper conceptual understanding.

Abstract Reasoning:

Our curriculum emphasises the gradual transition from concrete and pictorial representations to abstract thinking. We encourage children to move beyond specific examples and apply their understanding to solve problems in more generalised contexts. Through regular practice and guided instruction, children develop the ability to think critically, make logical connections, and reason abstractly, enhancing their problem-solving skills.

Scaffolded Instruction: We recognise that each child has unique learning needs and abilities. Our mastery approach, using **CPA**, allows all children, at various stages of mathematical understanding, to access their learning. By tailoring instruction to individual needs, we foster a positive learning environment that values each child's progress and achievements.

Real-World Connections: We believe that mathematics is not just a theoretical subject but a practical tool for navigating the world. Our curriculum emphasises the application of mathematical concepts in real-life contexts, encouraging children to identify and solve authentic problems. By making connections between mathematics and everyday experiences, we aim to instill a sense of relevance and empower children to become confident mathematical thinkers and problem solvers.

The Non-Negotiables

We teach daily maths lessons based on the sequences and steps of **White Rose Maths Education**.

In the Classroom -

- Children will have a clear understanding of the objective of each lesson through the use of a 'WALT'.
- In a typical lesson, teachers will use discussion and purposeful questioning alongside explanation and modelling to identify misconceptions and promote independence.
- Children are offered the use of concrete manipulatives and individual whiteboards for pictorial or abstract interaction, when appropriate.
- Use of correct mathematical language is modelled to encourage children to explain their thinking using mathematical vocabulary.
- Tasks are well-sequenced, linking to prior learning to ensure children can access the new learning and build a secure understanding of concepts.

Working Walls -

- Working Walls that support children are in every classroom and engaged with regularly.
- Models from current learning and mathematical vocabulary are displayed.
- A relevant number line will be on display in classrooms. KS1/LKS2
- We'd expect to see a Place Value Chart (Year group specific)
- Working walls are not wallpaper, they are an interactive resource that will help with scaffolding and giving children independence.
- <https://www.hfleducation.org/blog/4-ways-make-your-maths-working-wall-work>

The Non-Negotiables

Presentation -

- In Years 1-5, each child has a White Rose workbook for each unit of learning and a yellow squared page exercise book (large squares up to Year 1/ small from Year 2).
- These exercise books are labelled with the child's name and year group.
- KS2 children are taught to write and underline the short date and the 'WALT' for the lesson and draw a margin.

Marking & Feedback -

- Teachers are encouraged to use live marking where possible (as an aid to AfL) and at the end of a lesson to look through work to see where children need support and/or challenge – work is acknowledged with a single purple tick. Written feedback is not required.
- Where adults provide immediate intervention, they can simply write VF in purple pen.
- Where children are making corrections, they are encouraged to use green pen.

DfE Early Years Foundation Stage (EYFS) Curriculum:

Mathematics Developing a strong grounding in number is essential so that all children develop the necessary **building blocks** to excel mathematically. Children should be able to **count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers**. By providing **frequent and varied opportunities** to build and apply this understanding – such as using **manipulatives**, including small pebbles and tens frames for organising counting – children will develop a **secure base of knowledge and vocabulary** from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their **spatial reasoning skills** across all areas of mathematics including shape, space and measures. It is important that children develop **positive attitudes and interests** in mathematics, **look for patterns and relationships, spot connections, 'have a go'**, talk to adults and peers about what they notice and **not be afraid to make mistakes**.

ELG Number:

Children at the expected level of development will:

- Have a deep understanding of numbers to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

ELG Numerical Patterns:

Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Reception Maths Overview



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Getting to know you		Match, sort and compare <small>Free trial</small> VIEW		Talk about measure and patterns VIEW		It's me 1, 2, 3 VIEW		Circles and tri... VIEW	1, 2, 3, 4, 5 VIEW		Shapes with 4 ... VIEW
Spring term	Alive in 5 VIEW	Mass and capa... VIEW	Growing 6, 7, 8 VIEW	Length, height and time VIEW	Building 9 and 10 VIEW	Explore 3-D shapes VIEW						
Summer term	To 20 and beyond VIEW	How many now? VIEW	Manipulate, compose and decompose VIEW	Sharing and grouping VIEW	Visualise, build and map VIEW	Make connecti... VIEW	Consolidation					

Year 1 Maths Overview



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value (within 10) VIEW					Number Addition and subtraction (within 10) VIEW					Geometry Shape VIEW	Consolidation
Spring term	Number Place value (within 20) VIEW	Number Addition and subtraction (within 20) VIEW		Number Place value (within 50) VIEW	Measurement Length and height VIEW	Measurement Mass and volume VIEW						
Summer term	Number Multiplication and division VIEW	Number Fractions VIEW	Geometry Position and di... VIEW	Number Place value (within 100) VIEW	Measurement Money VIEW	Measurement Time VIEW		Consolidation				

* Timings are suggested

Year 2 Maths Overview



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	<p>Number</p> <p>Place value</p> <p>VIEW</p> <p><i>Free trial</i></p>				<p>Number</p> <p>Addition and subtraction</p> <p>VIEW</p>				<p>Geometry</p> <p>Shape</p> <p>VIEW</p>			
Spring term	<p>Measurement</p> <p>Money</p> <p>VIEW</p>	<p>Number</p> <p>Multiplication and division</p> <p>VIEW</p>					<p>Measurement</p> <p>Length and height</p> <p>VIEW</p>	<p>Measurement</p> <p>Mass, capacity and temperature</p> <p>VIEW</p>				
Summer term	<p>Number</p> <p>Fractions</p> <p>VIEW</p>			<p>Measurement</p> <p>Time</p> <p>VIEW</p>		<p>Statistics</p> <p>VIEW</p>		<p>Geometry</p> <p>Position and direction</p> <p>VIEW</p>		<p>Consolidation</p>		

* Timings are suggested

Year 3 Maths Overview



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	<p>Number</p> <p>Place value</p> <p>VIEW</p> <p><i>Free trial</i></p>			<p>Number</p> <p>Addition and subtraction</p> <p>VIEW</p>				<p>Number</p> <p>Multiplication and division A</p> <p>VIEW</p>				
Spring term	<p>Number</p> <p>Multiplication and division B</p> <p>VIEW</p>			<p>Measurement</p> <p>Length and perimeter</p> <p>VIEW</p>		<p>Number</p> <p>Fractions A</p> <p>VIEW</p>		<p>Measurement</p> <p>Mass and capacity</p> <p>VIEW</p>				
Summer term	<p>Number</p> <p>Fractions B</p> <p>VIEW</p>	<p>Measurement</p> <p>Money</p> <p>VIEW</p>	<p>Measurement</p> <p>Time</p> <p>VIEW</p>			<p>Geometry</p> <p>Shape</p> <p>VIEW</p>	<p>Statistics</p> <p>VIEW</p>		<p>Consolidation</p>			

* Timings are suggested

Year 4 Maths Overview



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value VIEW				Number Addition and subtraction VIEW		Measurement Area VIEW		Number Multiplication and division A VIEW		Consolidation	
Spring term	Number Multiplication and division B VIEW		Measurement Length and perimeter VIEW		Number Fractions VIEW				Number Decimals A VIEW			
Summer term	Number Decimals B VIEW	Measurement Money VIEW	Measurement Time VIEW	Consolidation	Geometry Shape VIEW	Statistics VIEW	Geometry Position and direction VIEW					

* Timings are suggested

Year 5 Maths Overview



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value VIEW			Number Addition and subtraction VIEW		Number Multiplication and division A VIEW		Number Fractions A VIEW				
Spring term	Number Multiplication and division B VIEW			Number Fractions B VIEW		Number Decimals and percentages VIEW		Measurement Perimeter and area VIEW		Statistics VIEW		
Summer term	Geometry Shape VIEW			Geometry Position and direction VIEW		Number Decimals VIEW		Number Negative num... VIEW	Measurement Converting units VIEW		Measurement Volume VIEW	

* Timings are suggested

Year 6 Maths Overview



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	
Autumn term	Number Place value VIEW	Free trial	Number Addition, subtraction, multiplication and division VIEW				Number Fractions A VIEW		Number Fractions B VIEW		Measurement Converting units VIEW		
Spring term	Number Ratio VIEW	Number Algebra VIEW	Number Decimals VIEW	Number Fractions, decimals and percentages VIEW	Measurement Area, perimeter and volume VIEW	Statistics VIEW							
Summer term	Geometry Shape VIEW		Geometry Position and di... VIEW	Themed projects, consolidation and problem solving VIEW									

* Timings are suggested

Barriers To and Solutions for Engagement, Progress and Achievement

	Hearing Impairment	Visual Impairment	Dyspraxia (fine/ gross motor)	Memory/ processing	ASC	ADHD	Cognition	SEMH
Barriers identified by SENCo/Class teacher	<ul style="list-style-type: none"> Difficulty hearing explanation/ instruction 	<ul style="list-style-type: none"> Difficulty reading Qs Difficulty seeing the modelled examples Tracking Difficulty seeing shaded areas/ seeing dashed lines 	<ul style="list-style-type: none"> Difficulty recording and drawing Difficulty managing and using a range of resources to complete tasks Difficulty organising oneself 	<ul style="list-style-type: none"> Amount of vocab Recalling methods Space between instruction and task 	<ul style="list-style-type: none"> Noise and movement- over stimulation sharing equipment amount of vocab 	<ul style="list-style-type: none"> Waiting and frustration Turn taking Maintain attention Recording 	<ul style="list-style-type: none"> Understanding of process, lang Retention/ application of number knowledge to task Recording Vocabulary 	<ul style="list-style-type: none"> Attitude towards maths Fear of failure
Solutions Identified by subject co-ordinator	<ul style="list-style-type: none"> CPA approach- concrete materials Pre-teaching Clear worked examples Vocab lists Sentence stems/speaking frames Written/ visual instruction/ explanation signing training for staff 	<ul style="list-style-type: none"> CPA approach- concrete materials Enlarged resources Adapted equipment Larger squares in books Audio instructions External advice Coloured overlays 	<ul style="list-style-type: none"> CPA approach- concrete materials Alternative ways to record Adapted equipment Now and next boards/123 boards/sequencing board 	<ul style="list-style-type: none"> CPA approach- concrete materials Written/visual instructions Clear worked examples Well-considered transitions Audio instructions Computer/ipad access Sentence stems/speaking frames Now and next boards/123 boards/sequencing board 	<ul style="list-style-type: none"> CPA approach- concrete materials Own set of equipment Sufficient quiet space Well planned transitions – i.e., between carpet and desk Visual instruction Worked examples Now and next boards/123 boards/sequencing board 	<ul style="list-style-type: none"> CPA approach- concrete materials Sufficient quiet space Well planned transitions – i.e., between carpet and desk Visual instruction Worked examples Now and next boards/123 boards/sequencing board 	<ul style="list-style-type: none"> CPA approach- concrete materials Word/definition bank Sufficient quiet space Well planned transitions – i.e., between carpet and desk Visual instruction Worked examples Sentence stems/speaking frames 	<ul style="list-style-type: none"> CPA approach- concrete materials Written/visual instructions Clear worked examples Computer/ipad access Sentence stems/speaking frames Now and next boards/123 boards/sequencing board

- **Clarity of instruction, explanations and modelling are crucial**
- **Ensure that the most important aspect of learning is made clear – cognitive load theory is relevant for all pupils with SEND both in terms of what pupils see and hear and are expected to learn. Use the teacher guides to see the essential disciplinary and substantive knowledge that all children need.**
- **For many pupils with SEND, it is the recording of the content rather than the content itself which provides the greatest level of challenge in lessons, and this should be addressed in the planning and preparation for lessons**

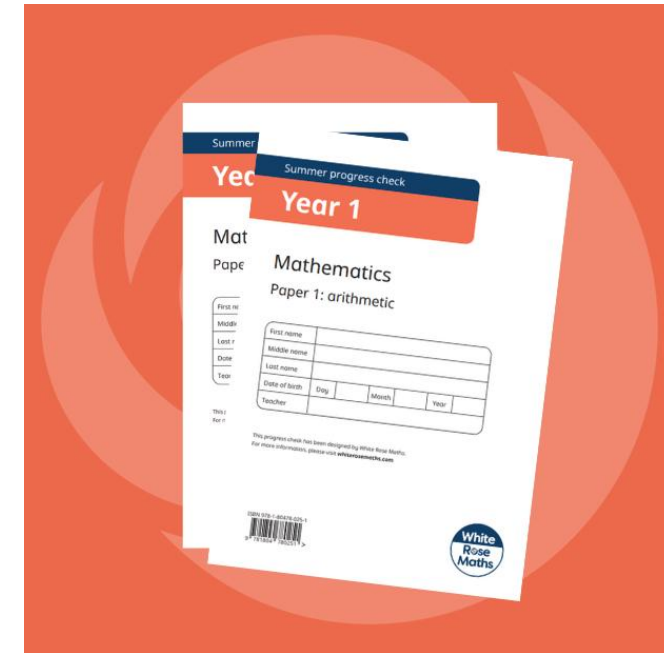
Assessment in maths

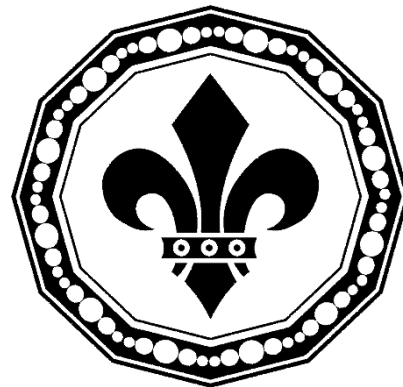
Formative assessment

Through AFL is our go-to method of immediate and regular analysis of how children are progressing throughout a learning step or sequence.

Summative assessment occurs three times per year (at the end of each term), using the **White Rose Maths end of term assessments**. These termly tests are used in conjunction with the learning sequences and steps and, therefore, only test the content that has been taught.

Where possible, the tests are expected to be completed with the teacher present, to pick up on any common misconceptions that may arise. Once completed, teachers record the children's results on Arbor, marking children as 'B', 'WTS', 'EXS' or 'GD'.





www.stmarys565.herts.sch.uk