



Maths Calculation Workshop

December 2025

Calculation Policies can be found on the school website under Curriculum - Mathematics [St Martin's Catholic Primary School - Mathematics](#)



We will cover....

- mastery approach
- mathematical vocabulary
- methods to calculate
- manipulatives

Mastery approach

The national curriculum for mathematics aims to ensure that all pupils:

become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately

reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language

can **solve problems by applying their mathematics** to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

At St. Martin's we follow a **Mastery approach** to help us to achieve these aims.

The key features of a mastery approach:

The class work together on the same topic

The emphasis is on keeping the class together until specific concepts or skills are mastered and then moving on together. This does **not** mean that some children will be left behind or others not challenged. Differentiation is now achieved through and deeper understanding, as explained below.

Speedy teacher intervention to prevent gaps

Those children that have not met the expected outcomes or have gaps in their understanding, will be helped by receiving short, immediate extra time on maths, during the lesson or later in the day. This is a positive opportunity to consolidate their understanding.

Challenge is provided by going deeper not accelerating

For those children that have mastered the skill, concept or procedure they will be presented with higher order thinking activities, rather than accelerating through the curriculum.

Focused, rigorous and thorough teaching

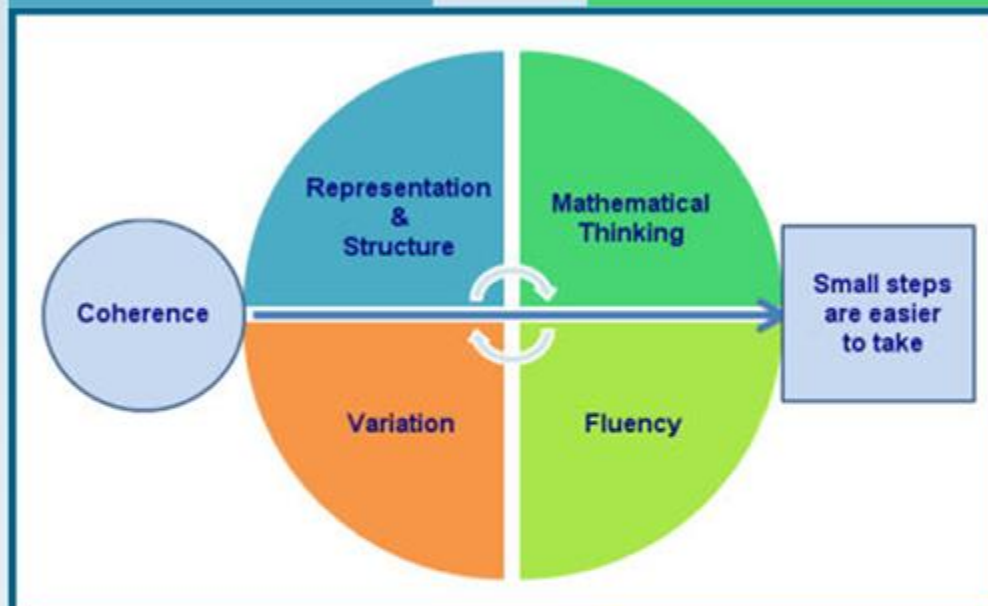
Within Mastery, the idea is to focus on one small step at a time in a lesson, with an emphasis on the mathematical structures involved and the best way to represent these through models and images. Each small step is important as it builds towards deep understanding of a concept.

More time on teaching topics – depth and practice

The same topic is likely to have the same focus until the class has mastered the concept, skill or procedure being taught. This is particularly the case for number and calculations. Focus areas are being taught over a longer time with smaller steps of progress and time is for practice and depth, making the learning effective.

Representation and Structure
Representations such as objects and pictures are used in lessons expose the mathematical concepts being taught.

Mathematical Thinking
If taught ideas are to be understood deeply, they must not merely be passively received but must be thought about, reasoned with and discussed with others.



Variation
Varying the way a concept is initially presented to students, by giving examples that display a concept as well as those that don't display it. Also, carefully varying practice questions so that mechanical repetition is avoided, and thinking is encouraged.

Fluency
Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics.

Coherence
Connecting new ideas to concepts that have already been understood, and ensuring that, once understood and mastered, new ideas are used again in next steps of learning, all steps being small steps.

You will see in our daily maths lessons:

- Fluency, reasoning and problem solving.
- In EYFS, KS1 and Year 3 the children are using the Mastering Number KS1 Programme to develop number facts.
- Learners are supported and challenged in lessons through questioning, resources and to think creatively about a problem.
- Concrete manipulatives and pictorial representations are used to support conceptual understanding and to make links across topics.

Mathematical vocabulary

- Included in the glossary section of the relevant calculation policy on the school website.
- Used consistently by all staff and supports oracy by helping children to understand concepts and reason mathematically.
- Different terms for each operation: add, subtract, multiply, divide.

Glossary – Addition and subtraction

Addend - A number to be added to another.

Aggregation - combining two or more quantities or measures to find a total.

Augmentation - increasing a quantity or measure by another quantity.

Commutative – numbers can be added in any order.

Complement – in addition, a number and its complement make a total e.g. 300 is the complement to 700 to make 1,000

Difference – the numerical difference between two numbers is found by comparing the quantity in each group.

Exchange – Change a number or expression for another of an equal value.

Minuend – A quantity or number from which another is subtracted.

Partitioning – Splitting a number into its component parts.

Reduction – Subtraction as take away.

Subitise – Instantly recognise the number of objects in a small group without needing to count.

Subtrahend - A number to be subtracted from another.

Sum - The result of an addition.

Total – The aggregate or the sum found by addition.

Glossary – Multiplication and division

Array – An ordered collection of counters, cubes or other item in rows and columns.

Commutative – Numbers can be multiplied in any order.

Dividend – In division, the number that is divided.

Divisor – In division, the number by which another is divided.

Exchange – Change a number or expression for another of an equal value.

Factor – A number that multiplies with another to make a product.

Multiplicand – In multiplication, a number to be multiplied by another.

Partitioning – Splitting a number into its component parts.

Product – The result of multiplying one number by another.

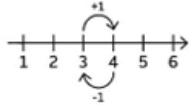
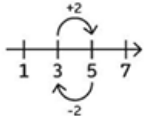
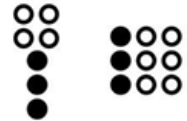
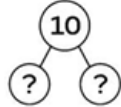
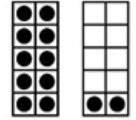
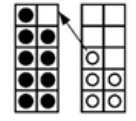
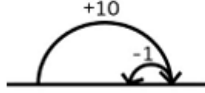
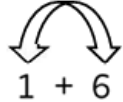
Quotient – The result of a division

Remainder – The amount left over after a division when the divisor is not a factor of the dividend.

Scaling – Enlarging or reducing a number by a given amount, called the scale factor

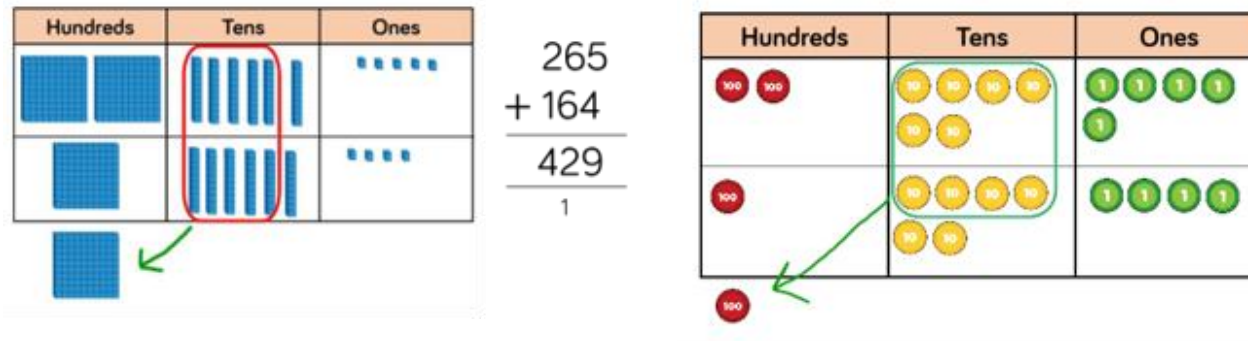
Methods to calculate

- Number facts

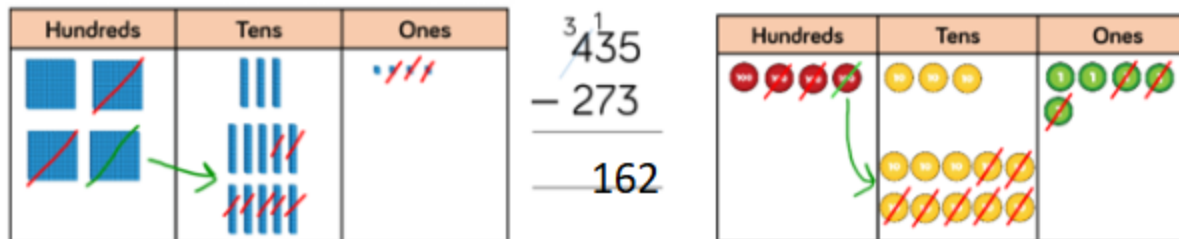
One More, One Less 	When we add one, we get the next counting number. When we subtract one, we get the previous counting number (e.g. $5 - 1 = 4$).	Number Neighbours: Spot the Difference 	Adjacent numbers have a difference of 1. Adjacent odds and evens have a difference of 2. Spot number neighbours (adjacent, odds or evens) to solve subtractions of adjacent numbers (e.g. $5 - 4 = 1$), of adjacent odds (e.g. $9 - 7 = 2$) or adjacent evens (e.g. $6 - 4 = 2$).
Two More, Two Less: Think Odds and Evens 	If we add two to a number, we go from odd to next odd or even to next even. If we subtract two from a number, we go from odd to previous odd or even to previous even.	7 Tree and 9 Square 	Use these visual images to remember addition and subtractions fact families that children can find tricky. For example, visualising the 7 tree helps remember that $7 - 3 = 4$. Visualising the 9 square helps remember that $3 + 6 = 9$.
Number 10 Fact Families 	Go beyond just recalling the pairs of numbers that add to 10. Make sure that we can also spot additions and subtractions which we can use number bonds to 10 to solve.	Ten and A Bit 	The numbers 11 – 20 are made up of 'Ten and a Bit'. Recognising and understanding the 'Ten and a Bit' structure of these numbers enables addition and subtraction facts involving their constituent parts (e.g. $3 + 10 = 13$, $17 - 7 = 10$, $12 - 10 = 2$).
Five and A Bit 	The numbers 6, 7, 8 and 9 are made up of 'five and a bit'. This can be shown on hands, and supports decomposition of these numbers into their five and a bit parts (e.g. $5 + 3 = 8$, $9 - 5 = 4$).	Make Ten and Then... 	Additions which cross the 10 boundary can be calculated by 'Making Ten' first, and then adding on the remaining amount (e.g. $8 + 6$ can be calculated by thinking '$8 + 2 = 10$ and 4 more makes 14'). The same strategy can be applied to subtractions through 10.
Know about 0 	When we add 0 to or subtract 0 from another number, the total remains the same. If we subtract a number from itself, the difference is 0.	Adjust It 	Any addition and subtraction can be calculated by adjusting from a fact you know already, (e.g. $6 + 9$ is one less than $6 + 10$).
Doubles and Near Doubles 	Memorise doubles of numbers to 10, using a visual approach. Then use these known double facts to calculate near doubles and hidden doubles. Once we know $6 + 6 = 12$ then $6 + 7$ and $5 + 7$ is easy.	Swap It  $1 + 6$	When the order of two numbers being added (addends) is exchanged the total remains the same. E.g. $1 + 8 = 8 + 1$. Sometimes reversing the order of the two addends makes addition easier to think about conceptually.

Methods to calculate – mental and written

- Addition – partition and exchange



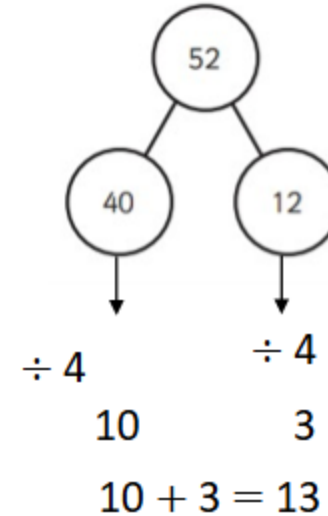
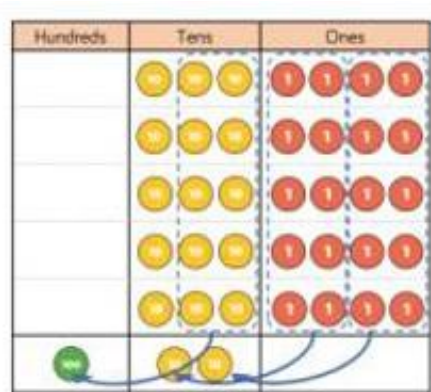
- Subtraction – partition and exchange



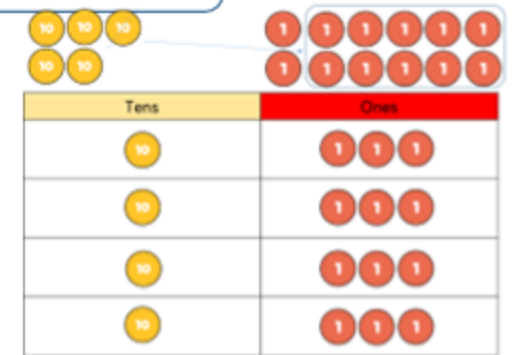
Methods to calculate – mental and written

- Multiplication – repeated addition, times tables, partition and exchange
- Division – sharing and grouping, partition and exchange

	H	T	O	
		3	4	
×			5	
	1	7	0	
	1	2		

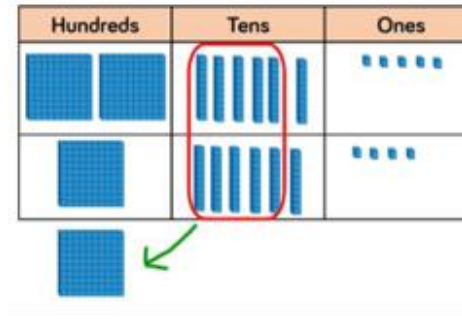


$$52 \div 4 = 13$$



Manipulatives

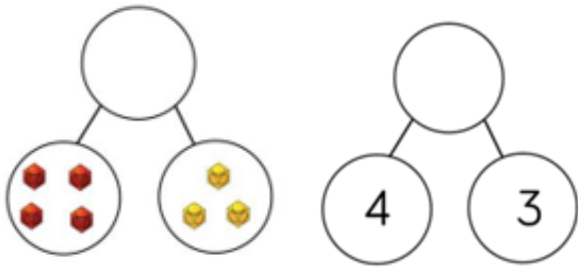
Multilink



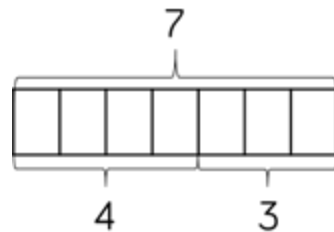
Base 10 (dienes)



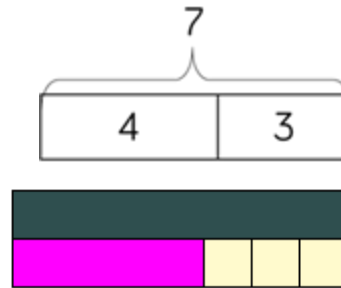
Place value chart and counters



Part whole models



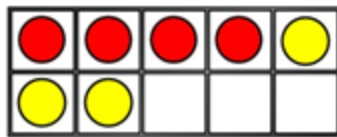
Bar models



Cuisenaire rods



Numicon



Tens frame

Bead string



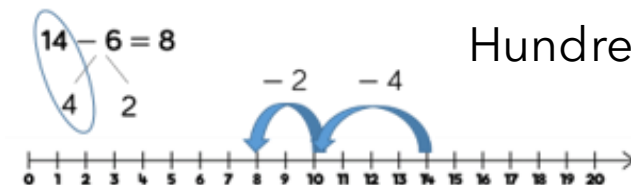
Rekenrek

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Hundred square



Number track



Number line

Websites you can use to help your children at home:

White Rose 1-minute Maths app: [1-minute maths app | White Rose Education](#)

<https://nrich.maths.org/parents>

<https://www.bbc.co.uk/bitesize>

<https://www.primaryhomeworkhelp.co.uk/maths/index.html>

<https://www.cgpbooks.co.uk/resources/cgp-s-free-online-10-minute-tests>

<https://www.educationquizzes.com/in/primary/>

<https://mathsbot.com/>

<https://www.ncetm.org.uk/classroom-resources/ey-numberblocks-at-home/>

<https://www.topmarks.co.uk/maths-games/5-7-years/counting>