



Maths Curriculum: Intent

'Mathematics is a creative and highly inter-connected discipline...It is essential to everyday life, critical to science, technology and engineering...and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.'

National Curriculum 2014

At St. Mary's, we aim to instil in pupils a **love** of number and pattern which will lead to the development of strong arithmetic, reasoning and problem solving skills which will fit them well for the future. Maths is about exploring, mastering skills in counting and developing an understanding of number. It involves exploring shape and pattern, and measurement through activities which contextualise skills and knowledge. Maths develops a **curiosity** in the world around us, offers solutions to problems and helps to develop greater independence as our learners grow.



Maths: Implementation

“So teach us to number our days so that we may get a heart of wisdom.” Psalm 90:12

At St. Mary's, we ...

Follow the NCETM Prioritisation Curriculum. This is based on the Ready-to Progress document produced by the DfE (2020). The additional Statutory requirements are addressed within additional units. Third Space Learning, NCETM Spines and NRich are used to support this curriculum.

DfE- Aims of the publication are...

- bring greater coherence to the national curriculum by exposing core concepts in the national curriculum and demonstrating progression from year 1 to year 6
- Summarise the most important knowledge and understanding within each year group and important connections between these mathematical topics teach Mastery maths with the CPA approach.

The ready-to-progress criteria in this document are organised into 6 strands, each of which has its own code for ease of identification.

Measurement and Statistics are integrated as applications of number criteria, and elements of measurement that relate to shape are included in the Geometry strand.

Ready-to-progress criteria strands	Code
Number and place value	NPV
Number facts	NF
Addition and subtraction	AS
Multiplication and division	MD
Fractions	F
Geometry	G

- Fact Fluency- Number Sense Scheme to be followed in KS1 And Y3
- Number Sense- Times Tables Scheme Y3 & Y4
- EYFS follow Number Sense Early Years which covers the statutory Number teaching.
- Number Sense Intervention Programme to be used further in KS2 with any children identified. (10 week intervention)
- The Rosenshine's Principles are addressed through daily Retrieve and Review tasks, demonstrating long and short term retrieval activities.
- Y5 and Y6 complete the 'Four Ops' retrieval activities at the beginning of every maths lesson.
- Third Space's Fluent in Five is used Daily as morning tasks in KS1 and KS2.

- EYFS have daily Maths routines which include things such as; counting songs, Number story books, Numberblocks episodes

St. Mary's curriculum follows the Mastery approach and we aim to...

- teach less, learn more: less teacher talk and more evidencing work and progress.
- ensure that no child is left behind: all children are enabled to keep up every day.
- provide space and time to experience and apply, with all children entitled to additional support to ensure they do not fall behind or to go deeper.
- Use real life applications wherever possible to make learning relevant and not abstract; nothing should be taught without a purpose.
- Teach all children in class, together, most of the time.
- organise children working in mixed ability pairs/groups.
- give verbal feedback during lessons and intervention sessions, shortened comments in books and more ticking of correct concepts.
- spend longer on one idea.
- give children who need it additional support during same day intervention sessions.

Maths: Impact

- NTS Assessments completed termly
- Formal Books trawls (SLT & Lead) and Pupil Voice conferences will take place termly and feedback shared with teachers.
- Informal book checks will take place (by the Subject Lead) every half term.
- Informal assessments by teachers will consider any 1-1/same day intervention strategies needed to ensure that no child is left behind.
- Number Sense assessments (KS1/Y3)- to take place at the end of each unit following a 'Pupil Conference Assessment'
- **KS2 Fact Fluency Assessment termly- Third Space**
- Number sense Time Tables Programme- Year 3 & 4

A St. Mary's Mathematician has...

- An understanding of the important concepts and an ability to make connections within mathematics.
- A broad range of skills in using and applying mathematics.
- Fluent knowledge and recall of number facts and the number system.
- The ability to show initiative in solving problems in a wide range of contexts, including the new or unusual.
- The ability to think independently and to persevere when faced with challenges, showing a confidence of success.
- The ability to embrace the value of learning from mistakes and false starts.
- The ability to reason, generalise and make sense of solutions.
- Fluency in performing written and mental calculations and mathematical techniques.
- A wide range of mathematical vocabulary.
- A commitment to and passion for the subject.

Statutory Framework

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.

Mathematics ELG: Number

Children at the expected level of development will:

- Have a deep understanding of number 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.

Teaching resources

For **number** weeks, the Early Years Number Sense Programme provides teaching resources and associated guidance. You will see that the suggested yearly plan shows a number focus for each half term, and a supporting Early Years Number Sense book for each week. As you plan each week, look at the animations for that book, read the associated guidance, and use these to plan your whole class maths sessions for that week. The animations are progressive within each book. Of course you do not need to use every one if you have different ways you would like to teach the concept which you think will work better in your classroom. However, do make sure that you have planned coherent teaching through the week; don't, for example, jump straight to using animations from towards the end of a book.

For **non-number** weeks, we suggest referring to the following resources to support your planning:

- **Spatial reasoning (covering shape and space):** The excellent Early Childhood Maths Group materials on spatial reasoning provide all of the guidance you will need to plan excellent provision <https://earlymaths.org/spatial-reasoning/> For the four terms where we have suggested you teach spatial reasoning, we have also suggested a different main focus for that term. However you should refer to the materials and guidance and decide how you want to organise your provision.
- **Pattern:** For this, we think the most comprehensive and user friendly teaching guidance is available here: <https://www.ncetm.org.uk/classroom-resources/ey-pattern/>
- **Measures:** We'd also refer you to the NCETM Early Years section as a starting point for planning your measures teaching <https://www.ncetm.org.uk/classroom-resources/ey-measures/>

EYFS Curriculum at St. Mary's

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.

National Curriculum 2014

The following building blocks were designed to show the progressive small steps linked to the Development Matters document.

Nursery- Yearly plan for whole class maths

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Aut 1				Non-Number <u>Spatial Reasoning</u> <u>2D Shapes</u> -free play with blocks, shapes, puzzles, shape sorters Focus on Mathematical language; sides, corners, straight, flat, round	Number <u>Subitising 1-2</u> Book 1 (lots of ones/one of something/Lots of twos) Recognising small groups of 1 & 2. Regular counting of 1,2 Using items around the classroom to count and repeat the last number "1, 2- 2 cars!" "Please get me 2 apples."	
				Continue Spatial Reasoning through provocations in continuous provision		
Aut 2	Non-Number <u>Spatial Reasoning</u> <u>2D Shapes</u> -free play with blocks, shapes, puzzles, shape sorters Focus on Mathematical language; sides, corners, straight, flat, round Support and discuss questions like; 'What is the same and what is different?' Encourage children to talk informally about the shape properties using words like 'sharp corner, pointy, curvy'. Talk about shapes through play eg. 'we need a straight edge for...'		Number <u>Subitising 1-2</u> Book 1 (Lots of twos/Two of something/Five Frame) Recognising small groups of 1 & 2. Regular counting of 1,2 Using items around the classroom to count and repeat the last number "1, 2- 2 cars!" "Please get me 2 apples."	Number <u>Subitising 1-3</u> Book 2 (Lots of threes/three of something) Recognising small groups of 1, 2,3. Regular sequence counting of 1,2,3 eg. Rocket launch countdowns. Using items around the classroom to count and repeat the last number "1, 2, 3- 3 cars!" "Please get me 3 apples."		
	Continue Spatial Reasoning through provocations in continuous provision					

Spr 1	<p>Non- Number Pattern</p> <p>Look for patterns around them eg. On clothes, wallpaper, rugs etc Use informal language like ‘pointy, spotty, blobs.’</p> <p>Use natural everyday objects; blocks, shapes for children to make patterns and spot mistakes.</p> <p>Create and extend ABAB patterns- leaf, stick, leaf, stick...</p> <p>Notice and correct errors in patterns.</p> <p>Engage children in following and inventing movement and music patterns, such a clap, clap, stamp.</p>	<p>Number</p> <p><u>Subitising 1-3</u></p> <p>Book 2 (Lots of threes/Three of something)</p> <p>Recognising small groups of 1, 2,3. Regular sequence counting of 1,2,3 eg. Rocket launch countdowns.</p> <p>Using items around the classroom to count and repeat the last number “1, 2, 3- 3 cars!” “Please get me 3 apples.”</p>		<p>Number</p> <p><u>Recite Numbers past 5</u></p> <p>Say each number for each item in order: 1,2,3,4,5</p> <p>Know that the last number reached when counting a small set of objects tells you how many there are in total (cardinal principle)</p> <p>Use playful contexts; hide and seek, rocket-launch, count the children and repeat the last number. “please get me 4 pencils”</p>
Continue Pattern through provocations in continuous provision				
Spr 2	<p>Non-Number</p> <p><u>Spatial Reasoning</u> <u>2D/3D shape</u></p> <p>Talk about and explore 2/d/3d shapes (circles, rectangles, triangles and cuboids) Focus on Mathematical language; sides, corners, straight, flat, round</p> <p>Support and discuss questions like; ‘What is the same and what is different?’ Encourage children to talk informally about the shape properties using words like ‘sharp corner, pointy, curvy’. Talk about shapes through play eg. ‘we need a straight edge for...’ Provide construction materials like blocks and interlocking bricks. Provide den-making materials. Ask about the shapes properties and how it suits the purpose.</p> <p>Tidy-up time- match blocks to silhouettes or fit things in containers. ‘Where does this triangular one/cylinder/cube go?’</p>	<p>Number</p> <p><u>Subitising 1-3</u></p> <p>Book 2 (Two or three? /How many? /Five Frame)</p> <p>Recognising small groups of 1, 2,3. Regular sequence counting of 1,2,3 eg. Rocket launch countdowns.</p> <p>Using items around the classroom to count and repeat the last number “1, 2, 3- 3 cars!” “Please get me 3 apples.”</p> <p>Labelled pots/crates- 3 cars, 2 pencils “How many pencils should be in this pot?”</p>		<p>Number</p> <p><u>Show ‘finger numbers’ up to 5</u></p> <p>Compare quantities using language; ‘more than, fewer than’.</p> <p>Mathematical discussions indoors/outdoors: ‘I think Jasmin has got more crackers than...’</p> <p>Use stories to bring children’s attention to changes and differences in amounts eg. The enormous Turnip.’</p>
Continue Spatial Reasoning through provocations in continuous provision				
Sum 1	<p>Non-Number</p> <p><u>Measures</u></p> <p>Make comparisons between objects relating to size, length, weight and capacity</p> <p>Provide experiences of size changes. Suggestions; ‘Can you make a puddle larger?’ ‘When you squeeze a sponge, does it stay small?’ What happens when you stretch dough/elastic?’</p>	<p>Number</p> <p><u>Link numbers and amounts</u></p> <p>Matching the right number of objects to match the numeral up to 5.</p> <p>Displays- quantities and numerals up to 5.</p> <p>Labelled pots/crates with numerals up to 5- 3 cars, 2 pencils “How</p>	<p>Non-Number</p> <p><u>Pattern</u></p> <p>Begin to describe a sequence of events, real or fictional, using words such as ‘first, ‘then’...</p> <p>Talk about patterns of events in, cooking, gardening, sewing or getting dressed. ‘First, then, after, before.’ ‘Everyday we...’ Every evening we...’</p> <p>Sequence events in stories. Use vocab like ‘morning, afternoon, evening, night-time, earlier, later, too late, in a minute.’</p>	<p>Number</p> <p>Book 2 (Lots of threes/Three of something Two or three? /How many? /Five Frame) Subitising 1-3</p> <p>Recognising small groups of 1, 2,3. Regular sequence counting of 1,2,3 eg. Rocket launch countdowns.</p> <p>Using items around the classroom to count and repeat the last number “1, 2, 3- 3 cars!” “Please get me 3 apples.”</p> <p>Labelled pots/crates- 3 cars, 2 pencils “How many pencils should be in this pot?”</p>

		many pencils should be in this pot?"	Start weekly event calendar- Refer to days of the week, day before or day after, yesterday, tomorrow.		
	Continue Measures all term through provocations in continuous provision				
Sum 2	Non-Number Spatial Reasoning <u>2D/3D shape</u> Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. Combine shapes Children build increasingly complex constructions combining shapes to make a new one.	Number <u>Link numbers and amounts</u> Matching the right number of objects to match the numeral up to 5. Displays- quantities and numerals up to 5. Labelled pots/crates with numerals up to 5- 3 cars, 2 pencils "How many pencils should be in this pot?"	Number <u>Experiment with their own symbols and marks as well as numerals</u> <u>Solve Real world mathematical problems with numbers up to 5.</u> Encourage children in their own ways of recording how many balls they managed to throw through a hoop. Provide numerals nearby for reference. Eg. Wooden numerals in a basket/number track on a fence. 'There are four of you but there are not enough chairs...' Use stories that bring attention to problems with numbers up to 5.	Non-Number <u>Measure</u> Make comparisons between objects relating to size, length, weight and capacity Talk with children about everyday ways of comparing size, length, weight and capacity. Model lining up ends eg. Ribbons and discuss accuracy.	Non-Number <u>Spatial Reasoning</u> Understand position through words alone eg. 'The bag is under the table'- with no pointing. Describe a familiar route. Discuss routes and locations, using words like 'in front of' and 'behind'. Use spatial words like 'in, on, under, up, down, besides, between'. Take children on a local walk and recall route. Use train tracks/loops/bridges, water-flow for free-play. Read stories (Rosie's walk)

Reception Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1				Non-number		Number: Subitising quantities to 3	
				Spatial reasoning <i>Construction and 3D shapes</i>	Spatial reasoning <i>Construction 3D shapes</i>	Book 1: Subitising 1 - 2	Book 2: Subitising 1 - 3
	Continue spatial reasoning for rest of term through provocations in continuous provision						
Autumn 2	Non-number		Number: Subitising quantities to 5				
	Spatial reasoning <i>2D shapes and shape puzzles</i>	Spatial reasoning <i>2D shapes and shape puzzles</i>	Book 3: Subitising 1 - 4	Book 3: Subitising 1 - 4	Book 4: Subitising 1 - 5	Book 4: Subitising 1 - 5 (tens frames)	
	Continue spatial reasoning all term through provocations in continuous provision →						
Spring 1	Non-number		Number: Enumerating between 6 and 10 items				
	Pattern	Pattern	Book 5: Subitising 6 - 10	Book 5: Subitising 6 - 10	Counting out up to 10 items from a collection (not covered by EYNS)		
	Continue pattern all term through provocations in continuous provision →						
Spring 2	Non-number	Partitioning 2, 3, 4, 5 and 10 and 'number bonds' for these number					
	Spatial reasoning <i>Symmetry (incl. shape puzzles & construction)</i>	Books 6 & 7: Partitioning 2 and 3	Book 8: Partitioning 4	Book 9: Partitioning 5	Book 10: Partitioning 10	Book 10: Partitioning 10	
	Continue spatial reasoning all term through provocations in continuous provision →						
Summer 1	Non-number		Composition of 6 – 9, and comparison of numbers to 10				
	Measures	Measures	Book 11: Composition of 6 - 9	Book 11: Composition of 6 - 9	Book 12: Comparing numbers to 10	Book 12: Comparing numbers to 10	
	Continue measures all term through provocations in continuous provision →						
Summer 2	Patterns in numbers to 10			Non-number			
	Book 13: Patterns in odd and even numbers	Book 13: Patterns in doubles	Book 13: Equal distribution	Pattern	Spatial reasoning <i>Maps and plans</i>	Measures	

KS1 & KS2 Maths progression at St. Mary's

	→	→	→	→	the nearest of each.	→	of 1 and 0.1 and rounding to the nearest of each.	→	appropriate, including in contexts.
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KS1 & KS2 Maths progression at St. Mary's

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
AS	1AS-1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.	2AS-1 Add and subtract across 10.	3AS-1 Calculate complements to 100.			6AS/MD-1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).
	1AS-2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.	2AS-2 Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?".	3AS-2 Add and subtract up to three-digit numbers using columnar methods.			6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.
		2AS-3 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number.	3AS-3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part-part-whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.			6AS/MD-3 Solve problems involving ratio relationships.
		2AS-4 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.				6AS/MD-4 Solve problems with 2 unknowns.

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
MD		<u>2MD-1</u> Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.	<u>3MD-1</u> Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.	<u>4MD-1</u> Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. →	<u>5MD-1</u> Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.	For year 6, MD ready-to-progress criteria are combined with AS ready-to-progress criteria (please see above).
		<u>2MD-2</u> Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).		<u>4MD-2</u> Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.	<u>5MD-2</u> Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.	
				<u>4MD-3</u> Understand and apply the distributive property of multiplication. →	<u>5MD-3</u> Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.	
					<u>5MD-4</u> Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.	

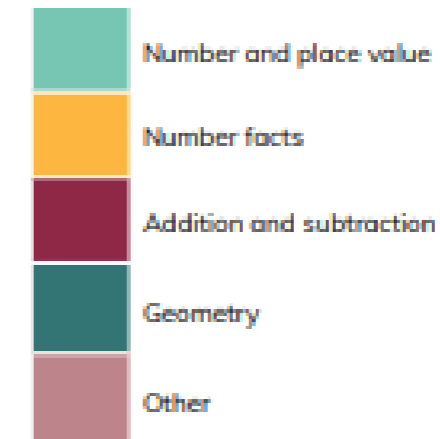
Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
F			<u>3F-1</u> Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.			<u>6F-1</u> Recognise when fractions can be simplified, and use common factors to simplify fractions.
			<u>3F-2</u> Find unit fractions of quantities using known division facts (multiplication tables fluency). →		<u>5F-1</u> Find non-unit fractions of quantities.	<u>6F-2</u> Express fractions in a common denomination and use this to compare fractions that are similar in value.
			<u>3F-3</u> Reason about the location of any fraction within 1 in the linear number system. →	<u>4F-1</u> Reason about the location of mixed numbers in the linear number system.		<u>6F-3</u> Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.
				<u>4F-2</u> Convert mixed numbers to improper fractions and vice versa.	<u>5F-2</u> Find equivalent fractions and understand that they have the same value and the same position in the linear number system.	
			<u>3F-4</u> Add and subtract fractions with the same denominator, within 1. →	<u>4F-3</u> Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.	<u>5F-3</u> Recall decimal fraction equivalents for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$, and for multiples of these proper fractions.	
G	<u>1G-1</u> Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another. →	<u>2G-1</u> Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties. →	<u>3G-1</u> Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.		<u>5G-1</u> Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.	

KS1 & KS2 Maths progression at St. Mary's

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
G					<u>5G-2</u> Compare areas and calculate the area of rectangles (including squares) using standard units.	
	<u>1G-2</u> Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations. →		<u>3G-2</u> Draw polygons by joining marked points, and identify parallel and perpendicular sides. →	<u>4G-1</u> Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant. →		<u>6G-1</u> Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.
				<u>4G-2</u> Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.		
				<u>4G-3</u> Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.		

Curriculum at St. Mary's

	Unit	Unit name
Autumn 1	1	Previous Reception experiences and counting within 100
Autumn 2	2	Comparison of quantities and part-whole relationships
	3	Numbers 0 to 5
Spring 1	4	Recognise, compose, decompose and manipulate 2D and 3D shapes
	5	Numbers 0 to 10
Spring 2	6	Additive structures
	7	Addition and subtraction facts within 10
Summer 1	8	Numbers 0 to 20
Summer 2	9	Unitising and coin recognition
	10	Position and direction
	11	Time



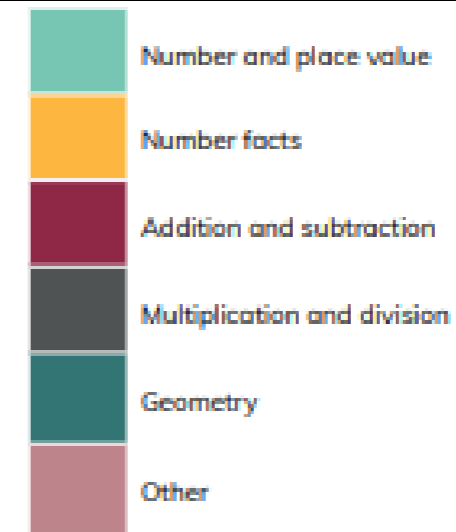
Year 1 Curriculum map



June 2021

Curriculum at St. Mary's

	Unit	Unit name
Autumn 1	1	Numbers 10 to 100
	2	Calculations within 20
Autumn 2	3	Fluently add and subtract within 10
	4	Addition and subtraction of two-digit numbers (1)
	5	Introduction to multiplication
Spring 1	6	Introduction to division structures
	7	Shape
Spring 2	8	Addition and subtraction of two-digit numbers (2)
	9	Money
Summer 1	10	Fractions
	11	Time
	12	Position and direction
	13	Multiplication and division – doubling, halving, quotitive and partitive division
Summer 2	14	Sense of measure – capacity, volume, mass



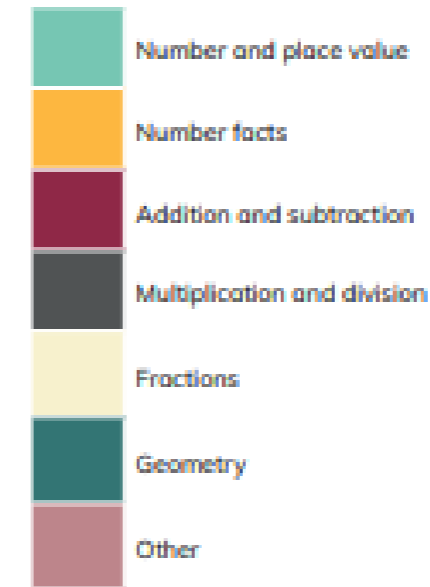
Year 2 Curriculum map



June 2021

Curriculum at St. Mary's

	Unit	Unit name
Autumn 1	1	Adding and subtracting across 10
	2	Numbers to 1,000
Autumn 2		
Spring 1	3	Right angles
	4	Manipulating the additive relationship and securing mental calculation
Spring 2	5	Column addition
	6	2, 4, 8 times tables
	7	Column subtraction
Summer 1	8	Unit fractions
Summer 2	9	Non-unit fractions
	10	Parallel and perpendicular sides in polygons
	11	Time










Year 3 Curriculum map



Curriculum at St. Mary's

	Unit	Unit name
Autumn 1	1	Review of column addition and subtraction
	2	Numbers to 10,000
Autumn 2	3	Perimeter
	4	3, 6, 9 times tables
Spring 1	5	7 times table and patterns
	6	Understanding and manipulating multiplicative relationships
Spring 2	7	Coordinates
	8	Review of fractions
Summer 1	9	Fractions greater than 1
	10	Symmetry in 2D shapes
Summer 2	11	Time
	12	Division with remainders

	Number and place value
	Number facts
	Addition and subtraction
	Multiplication and division
	Fractions
	Geometry
	Other

Year 4

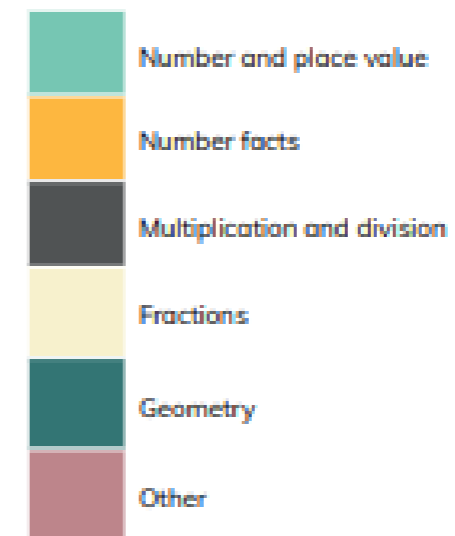
Curriculum map



June 2021

Curriculum at St. Mary's

	Unit	Unit name
Autumn 1	1	Decimal fractions
	2	Money
	3	Negative numbers
Autumn 2	4	Short multiplication and short division
	5	Area and scaling
Spring 1	6	Calculating with decimal fractions
	7	Factors, multiples and primes
Spring 2	8	Fractions
	9	Converting units
Summer 1	10	Angles
Summer 2		



Year 5 Curriculum map



Summer 2021

Curriculum at St. Mary's

	Unit	Unit name
Autumn 1	1	Calculating using knowledge of structures (1)
	2	Multiples of 1,000
Autumn 2	3	Numbers up to 10,000,000
	4	Draw, compose and decompose shapes
Spring 1	5	Multiplication and division
	6	Area, perimeter, position and direction
Spring 2	7	Fractions and percentages
	8	Statistics
Summer 1		KS2 tests
Summer 2	9	Ratio and proportion
	10	Calculating using knowledge of structures (2)
	11	Solving problems with two unknowns
	12	Order of operations
	13	Mean average



Year 6

Curriculum map

Curriculum at St. Mary's

Year 1

Year 1	
1	<p>Previous Reception experiences and counting within 100</p> <ul style="list-style-type: none"> • INPV-1 Count within 100, forwards and backwards, starting with any number. • 1.9 Composition of numbers: 20-100
2	<p>Comparison of quantities and part-whole relationships</p> <ul style="list-style-type: none"> • INPV-1 Count within 100, forwards and backwards, starting with any number. • INPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using $<$, $>$ and $=$. • 1.1 Comparison of quantities and measures • 1.2 Introducing 'whole' and 'parts': part-part-whole
3	<p>Numbers 0 to 5</p> <ul style="list-style-type: none"> • INPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using $<$, $>$ and $=$. • 1A5-1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. • 1.3 Composition of numbers: 0-5
4	<p>Recognise, compose, decompose and manipulate 2D and 3D shapes</p> <ul style="list-style-type: none"> • 1G-1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another. • 1G-2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.
5	<p>Numbers 0 to 10</p> <ul style="list-style-type: none"> • INPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using $<$, $>$ and $=$. • 1A5-1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. • 1.4 Composition of numbers: 6-10
6	<p>Additive structures</p> <ul style="list-style-type: none"> • 1A5-2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts. • 1.5 Additive structures: Introduction to aggregation and partitioning • 1.6 Additive structures: Introduction to augmentation and reduction
7	<p>Addition and subtraction facts within 10</p> <ul style="list-style-type: none"> • 1NF-1 Develop fluency in addition and subtraction facts within 10. • 1.7 Addition and subtraction: strategies within 10
8	<p>Numbers 0 to 20</p> <ul style="list-style-type: none"> • 1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using $<$, $>$ and $=$. • 1.10 Composition of numbers: 11-19
9	<p>Unitising and coin recognition</p> <ul style="list-style-type: none"> • 1NF-2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers. • 2.1 Counting, writing and coins
10	<p>Position and direction</p> <ul style="list-style-type: none"> • This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.
11	<p>Time</p> <ul style="list-style-type: none"> • This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.

	Number and place value
	Number facts
	Addition and subtraction
	Multiplication and division
	Fractions
	Geometry
	Other

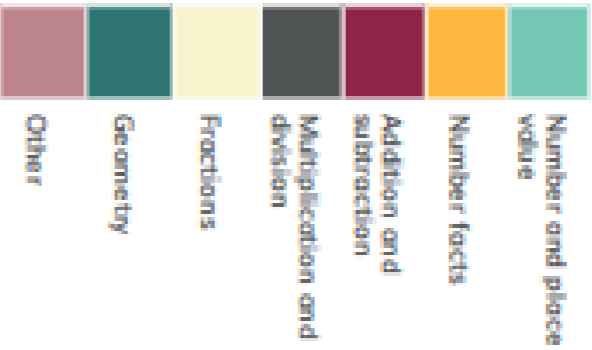
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Curriculum at St. Mary's

Year 2

1	<p>Numbers 10 to 100</p> <ul style="list-style-type: none"> 2NPV-1 Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning. 2NPV-2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10. 1.8 Composition of numbers: multiples of 10 up to 100 1.9 Composition of numbers: 20–100
2	<p>Calculations within 20</p> <ul style="list-style-type: none"> 2AS-1 Add and subtract across 10. 2AS-2 Recognise the subtraction structure of ‘difference’ and answer questions of the form, ‘How many more...?’. 1.11 Addition and subtraction: bridging 10 1.12 Subtraction as difference
3	<p>Fluently add and subtract within 10</p> <ul style="list-style-type: none"> 2NF-1 Secure fluency in addition and subtraction facts within 10, through continued practice. 1.7 Addition and subtraction strategies within 10
4	<p>Addition and subtraction of two-digit numbers (1)</p> <ul style="list-style-type: none"> 2AS-3 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens together from a two-digit number. 1.13 Addition and subtraction: two-digit and single-digit numbers 1.14 Addition and subtraction: two-digit numbers and multiples of ten
5	<p>Introduction to multiplication</p> <ul style="list-style-type: none"> 2MD-1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables. 2.2 Structures: multiplication representing equal groups 2.3 Times tables: groups of 2 and commutativity (part 1) 2.4 Times tables: groups of 10 and of 5, and factors of 0 and 1 2.5 Commutativity (part 2), doubling and halving
6	<p>Introduction to division structures</p> <ul style="list-style-type: none"> 2MD-2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotative division). 2.6 Structures: quotative and partitive division
7	<p>Shape</p> <ul style="list-style-type: none"> 2G-1 Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.
8	<p>Addition and subtraction of two-digit numbers (2)</p> <ul style="list-style-type: none"> 2AS-4 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers. 1.15 Addition: two-digit and two-digit numbers 1.16 Subtraction: two-digit and two-digit numbers
9	<p>Money</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.
10	<p>Fractions</p> <ul style="list-style-type: none"> 3.0 Guidance on the teaching of fractions in Key Stage 1
11	<p>Time</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.
12	<p>Position and direction</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.
13	<p>Multiplication and division – doubling, halving, quotative and partitive division</p> <ul style="list-style-type: none"> 2.5 Commutativity (part 2), doubling and halving 2.6 Structures: quotative and partitive division
14	<p>Sense of measure – capacity, volume, mass</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.



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Curriculum at St. Mary's

Year 3

1	<p>Adding and subtracting across 10</p> <ul style="list-style-type: none"> 2A-S-1 Add and subtract across 10. 3NF-1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice. L1.1 Addition and subtraction: bridging 10
Numbers to 1,000	<ul style="list-style-type: none"> 3NPV-1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10. 3NPV-2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning. 3NPV-3 Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10. 3NPV-4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. 3A-S-1 Calculate complements to 100. 3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). L1.7 Composition and calculation: 100 and bridging 100 L1.8 Composition and calculation: three-digit numbers
3	<p>Right angles</p> <ul style="list-style-type: none"> 3G-1 Recognise right angles as a property of shapes or a description of a turn, and identify right angles in 2D shapes presented in different orientations.
4	<p>Manipulating the additive relationship and securing mental calculation</p> <ul style="list-style-type: none"> 3A-S-3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part-part-whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction. L1.9 Securing mental strategies: calculation up to 999
5	<p>Column addition</p> <ul style="list-style-type: none"> 3A-S-2 Add and subtract up to three-digit numbers using columnar methods. L2.0 Algorithmic: column addition
6	<p>2, 4, 8 times tables</p> <ul style="list-style-type: none"> 3MD-1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotient and partitive division. 3NF-2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number. 3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). 2.7 Times tables: 2, 4 and 8, and the relationship between them
7	<p>Column subtraction</p> <ul style="list-style-type: none"> 3A-S-2 Add and subtract up to three-digit numbers using columnar methods. L2.1 Algorithmic: column subtraction
8	<p>Unit fractions</p> <ul style="list-style-type: none"> 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3F-2 Find unit fractions of quantities using known division facts (multiplication tables fluency). 3.1 Preparing for fractions: the part-whole relationship 3.2 Unit fractions: identifying, representing and comparing
9	<p>Non-unit fractions</p> <ul style="list-style-type: none"> 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3F-3 Reason about the location of any fraction within 1 in the linear number system. 3F-4 Add and subtract fractions with the same denominator, within 1. 3.3 Non-unit fractions: identifying, representing and comparing 3.4 Adding and subtracting within one whole
10	<p>Parallel and perpendicular sides in polygons</p> <ul style="list-style-type: none"> 3G-2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.
11	<p>Time</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Fractions
- Geometry
- Other

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Curriculum at St. Mary's

Year 4	
1	<p>Review of column addition and subtraction</p> <ul style="list-style-type: none"> 3A.5-2 Add and subtract up to three-digit numbers using columnar methods. 1.2.0 Algorithms: column addition 1.2.1 Algorithms: column subtraction
2	<p>Numbers to 10,000</p> <ul style="list-style-type: none"> 4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. 4NPV-2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. 4NPV-3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. 4NPV-4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100). 1.2.2 Composition and calculation: 1,000 and four-digit numbers
3	<p>Perimeter</p> <ul style="list-style-type: none"> 4G-2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. 2.1.6 Multiplicative contexts: area and perimeter 1
4	<p>3, 6, 9 times tables</p> <ul style="list-style-type: none"> 4NF-1 Recall multiplication and division facts up to 12x12, and recognise products in multiplication tables as multiples of the corresponding number. 2.8 Times tables: 3, 6 and 9, and the relationship between them
5	<p>7 times table and patterns</p> <ul style="list-style-type: none"> 4NF-1 Recall multiplication and division facts up to 12x12, and recognise products in multiplication tables as multiples of the corresponding number. 2.9 Times tables: 7 and patterns within/across times tables
6	<p>Understanding and manipulating multiplicative relationships</p> <ul style="list-style-type: none"> 4MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. 4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. 4MD-3 Understand and apply the distributive property of multiplication. 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) 2.1.0 Connecting multiplication and division, and the distributive law 2.1.3 Calculation: multiplying and dividing by 10 or 100
7	<p>Coordinates</p> <ul style="list-style-type: none"> 4G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.
8	<p>Review of fractions</p> <ul style="list-style-type: none"> 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3.1 Preparing for fractions: the part-whole relationship
9	<p>Fractions greater than 1</p> <ul style="list-style-type: none"> 4F-1 Reason about the location of mixed numbers in the linear number system. 4F-2 Convert mixed numbers to improper fractions and vice versa. 4F-3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers. 3.5 Working across one whole: improper fractions and mixed numbers
10	<p>Symmetry in 2D shapes</p> <ul style="list-style-type: none"> 4G-3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.
11	<p>Time</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.
12	<p>Division with remainders</p> <ul style="list-style-type: none"> 4NF-2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders. 2.1.2 Division with remainders

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Fractions
- Geometry
- Other

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Curriculum at St. Mary's

Year 5

Decimal fractions	
1	<ul style="list-style-type: none"> SNPV-1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. SNPV-2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning. SNPV-3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. SNPV-4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scale/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. SNF-2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth). 1.23 Composition and calculation: tenths 1.24 Composition and calculation: hundredths and thousandths
2	<ul style="list-style-type: none"> Money 1.25 Addition and subtraction: money
3	<ul style="list-style-type: none"> Negative numbers 1.27 Negative numbers: counting, comparing and calculating
4	<ul style="list-style-type: none"> Short multiplication and short division SMD-3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. SMD-4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context. 2.14 Multiplication: partitioning leading to short multiplication 2.15 Division: partitioning leading to short division
5	<ul style="list-style-type: none"> Area and scaling 5G-2 Compare areas and calculate the area of rectangles (including squares) using standard units. 2.16 Multiplicative contexts: area and perimeter 1 2.17 Structure: using measures and comparison to understand scaling
6	<ul style="list-style-type: none"> Calculating with decimal fractions SMD-1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size. 2.19 Calculation: +/- decimal fractions by whole numbers 2.29 Decimal place-value knowledge, multiplication and division
7	<ul style="list-style-type: none"> Factors, multiples and primes SMD-2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors. 2.20 Multiplication with three factors and volume 2.21 Factors, multiples, prime numbers and composite numbers
8	<ul style="list-style-type: none"> Fractions SNPV-5 Convert between units of measure, including using common decimals and fractions. 5F-1 Find non-unit fractions of quantities. 5F-2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system. 5F-3 Recall decimal fraction equivalents for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$, and for multiples of these proper fractions. 3.6 Multiplying whole numbers and fractions 3.7 Finding equivalent fractions and simplifying fractions 3.10 Linking fractions, decimals and percentages
9	<ul style="list-style-type: none"> Converting units SNPV-5 Convert between units of measure, including using common decimals and fractions.
10	<ul style="list-style-type: none"> Angles 5G-1 Compare angles, estimate and measure angles in degrees ($^{\circ}$) and draw angles of a given size.

-  Number and place value
-  Number facts
-  Addition and subtraction
-  Multiplication and division
-  Fractions
-  Geometry
-  Other

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Curriculum at St. Mary's

Year 4	
1	<p>Review of column addition and subtraction</p> <ul style="list-style-type: none"> 3A.5-2 Add and subtract up to three-digit numbers using columnar methods. 1.2.0 Algorithms: column addition 1.2.1 Algorithms: column subtraction
2	<p>Numbers to 10,000</p> <ul style="list-style-type: none"> 4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. 4NPV-2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. 4NPV-3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. 4NPV-4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100). 1.2.2 Composition and calculation: 1,000 and four-digit numbers
3	<p>Perimeter</p> <ul style="list-style-type: none"> 4G-2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. 2.1.6 Multiplicative contexts: area and perimeter 1
4	<p>3, 6, 9 times tables</p> <ul style="list-style-type: none"> 4NF-1 Recall multiplication and division facts up to 12x12, and recognise products in multiplication tables as multiples of the corresponding number. 2.8 Times tables: 3, 6 and 9, and the relationship between them
5	<p>7 times table and patterns</p> <ul style="list-style-type: none"> 4NF-1 Recall multiplication and division facts up to 12x12, and recognise products in multiplication tables as multiples of the corresponding number. 2.9 Times tables: 7 and patterns within/ across times tables
6	<p>Understanding and manipulating multiplicative relationships</p> <ul style="list-style-type: none"> 4MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. 4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. 4MD-3 Understand and apply the distributive property of multiplication. 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) 2.1.0 Connecting multiplication and division, and the distributive law 2.1.3 Calculation: multiplying and dividing by 10 or 100
7	<p>Coordinates</p> <ul style="list-style-type: none"> 4G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.
8	<p>Review of fractions</p> <ul style="list-style-type: none"> 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3.1 Preparing for fractions: the part-whole relationship
9	<p>Fractions greater than 1</p> <ul style="list-style-type: none"> 4F-1 Reason about the location of mixed numbers in the linear number system. 4F-2 Convert mixed numbers to improper fractions and vice versa. 4F-3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers. 3.5 Working across one whole: improper fractions and mixed numbers
10	<p>Symmetry in 2D shapes</p> <ul style="list-style-type: none"> 4G-3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.
11	<p>Time</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.
12	<p>Division with remainders</p> <ul style="list-style-type: none"> 4NF-2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders. 2.1.2 Division with remainders

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Fractions
- Geometry
- Other

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Curriculum at St. Mary's

Year 6

Calculating using knowledge of structures (1)	
1	<ul style="list-style-type: none"> 6AS/MID-1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number) 6AS/MID-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. 1.28 Common structures and the part-part-whole relationship 1.29 Using equivalence and the compensation property to calculate
2	<p>Multiples of 1,000</p> <ul style="list-style-type: none"> 1.26 Composition and calculation: multiples of 1,000 up to 1,000,000
3	<p>Numbers up to 10,000,000</p> <ul style="list-style-type: none"> 6NPV-1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000) 6NPV-2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning. 6NPV-3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts. 6NPV-4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts. 1.30 Composition and calculation: numbers up to 10,000,000
4	<p>Draw, compose and decompose shapes</p> <ul style="list-style-type: none"> 6G-1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.
5	<p>Multiplication and division</p> <ul style="list-style-type: none"> 6AS/MID-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. 2.18 Using equivalence to calculate 2.23 Multiplication strategies for longer numbers and long multiplication 2.24 Division: dividing by two-digit divisors 2.25 Using compensation to calculate
6	<p>Area, perimeter, position and direction</p> <ul style="list-style-type: none"> 2.30 Multiplicative contexts: area and perimeter 2
7	<p>Fractions and percentages</p> <ul style="list-style-type: none"> 6F-1 Recognise when fractions can be simplified, and use common factors to simplify fractions. 6F-2 Express fractions in a common denominator and use this to compare fractions that are similar in value. 6F-3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denominator as a comparison strategy. 3.8 Common denominators: more adding and subtracting 3.9 Multiplying fractions and dividing fractions by a whole number 3.10 Linking fractions, decimals and percentages
8	<p>Statistics</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.
9	<p>Ratio and proportion</p> <ul style="list-style-type: none"> 6AS/MID-3 Solve problems involving ratio relationships. 2.27 Scale factors, ratio and proportional reasoning
10	<p>Calculating using knowledge of structures (2)</p> <ul style="list-style-type: none"> 6AS/MID-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. 1.29 Using equivalence and the compensation property to calculate
11	<p>Solving problems with two unknowns</p> <ul style="list-style-type: none"> 6AS/MID-4 Solve problems with 2 unknowns. 1.31 Problems with two unknowns
12	<p>Order of operations</p> <ul style="list-style-type: none"> 2.22 Combining multiplication with addition and subtraction 2.28 Combining division with addition and subtraction
13	<p>Mean average</p> <ul style="list-style-type: none"> 2.26 Mean average and equal shares

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Fractions
- Geometry
- Other

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Curriculum at St. Mary's

Year 4	
1	<p>Review of column addition and subtraction</p> <ul style="list-style-type: none"> 3A.5-2 Add and subtract up to three-digit numbers using columnar methods. 1.2.0 Algorithms: column addition 1.2.1 Algorithms: column subtraction
2	<p>Numbers to 10,000</p> <ul style="list-style-type: none"> 4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. 4NPV-2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. 4NPV-3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. 4NPV-4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100). 1.2.2 Composition and calculation: 1,000 and four-digit numbers
3	<p>Perimeter</p> <ul style="list-style-type: none"> 4G-2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. 2.1.6 Multiplicative contexts: area and perimeter 1
4	<p>3, 6, 9 times tables</p> <ul style="list-style-type: none"> 4NF-1 Recall multiplication and division facts up to 12x12, and recognise products in multiplication tables as multiples of the corresponding number. 2.8 Times tables: 3, 6 and 9, and the relationship between them
5	<p>7 times table and patterns</p> <ul style="list-style-type: none"> 4NF-1 Recall multiplication and division facts up to 12x12, and recognise products in multiplication tables as multiples of the corresponding number. 2.9 Times tables: 7 and patterns within/across times tables
6	<p>Understanding and manipulating multiplicative relationships</p> <ul style="list-style-type: none"> 4MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. 4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. 4MD-3 Understand and apply the distributive property of multiplication. 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) 2.1.0 Connecting multiplication and division, and the distributive law 2.1.3 Calculation: multiplying and dividing by 10 or 100
7	<p>Coordinates</p> <ul style="list-style-type: none"> 4G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.
8	<p>Review of fractions</p> <ul style="list-style-type: none"> 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3.1 Preparing for fractions: the part-whole relationship
9	<p>Fractions greater than 1</p> <ul style="list-style-type: none"> 4F-1 Reason about the location of mixed numbers in the linear number system. 4F-2 Convert mixed numbers to improper fractions and vice versa. 4F-3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers. 3.5 Working across one whole: improper fractions and mixed numbers
10	<p>Symmetry in 2D shapes</p> <ul style="list-style-type: none"> 4G-3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.
11	<p>Time</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.
12	<p>Division with remainders</p> <ul style="list-style-type: none"> 4NF-2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders. 2.1.2 Division with remainders

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Fractions
- Geometry
- Other

Dark grey references are ready-to-progress criteria from the DfE Guidance 2020

Light grey references are from the NCETM Primary Mastery Professional Development materials

Both are available online

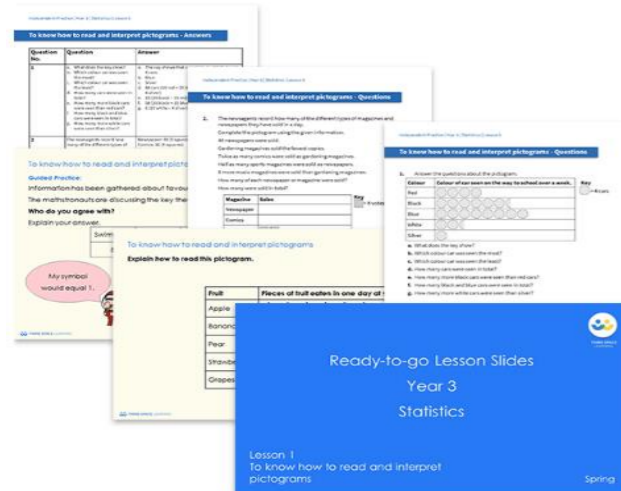
Curriculum at St. Mary's

Statistics and Time

Statistics and Time Units are taught through Third Space Learning.

These must be taught before any Science units that will need the skills.

Teachers must plan where is best to cover the units.



Roman Numerals

Year 3 Tell and write the time.... using Roman numerals from I to XII

Year 4 Read Roman numerals to 100 (I to C) and know that, over time, the numeral system changed to include the concept of zero and place value

Year 5 Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

[Roman Numerals \(maths.org\)](http://maths.org)

Links can be made with any history units and when covering Time. Use R and R activities ensure children revisit. (4 lessons over the year)



**Early
Years
Number
Sense**

Builds a deep understanding of quantity and of numbers to 10, supports the EYFS framework

For Reception

**Number
Facts
Fluency**

Builds fluency in addition & subtraction facts, and confidence and flexibility with number

For KS1 and beyond

**Times
Tables
Fluency**

Builds fluency in multiplication & division facts, and understanding of multiplicative relationships

For KS2 and beyond

Suggested yearly plan for whole class maths sessions in Reception

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1				Non-number		Number: Subitising quantities to 3	
				Spatial reasoning <i>Construction and 3D shapes</i>	Spatial reasoning <i>Construction 3D shapes</i>	Book 1: Subitising 1 - 2	Book 2: Subitising 1 - 3
	Continue spatial reasoning for rest of term through provocations in continuous provision						
Autumn 2	Non-number		Number: Subitising quantities to 5				
	Spatial reasoning <i>2D shapes and shape puzzles</i>	Spatial reasoning <i>2D shapes and shape puzzles</i>	Book 3: Subitising 1 - 4	Book 3: Subitising 1 - 4	Book 4: Subitising 1 - 5	Book 4: Subitising 1 - 5 (tens frames)	
	Continue spatial reasoning all term through provocations in continuous provision →						
Spring 1	Non-number		Number: Enumerating between 6 and 10 items				
	Pattern	Pattern	Book 5: Subitising 6 - 10	Book 5: Subitising 6 - 10	Counting out up to 10 items from a collection (not covered by EYNS)		
	Continue pattern all term through provocations in continuous provision →						
Spring 2	Non-number	Books 6 & 7: Partitioning 2 and 3		Partitioning 2, 3, 4, 5 and 10 and 'number bonds' for these number			
	Spatial reasoning <i>Symmetry (incl shape puzzles & construction)</i>	Book 8: Partitioning 4	Book 9: Partitioning 5	Book 10: Partitioning 10	Book 10: Partitioning 10	Book 10: Partitioning 10	
	Continue spatial reasoning all term through provocations in continuous provision →						
Summer 1	Non-number		Composition of 6 - 9, and comparison of numbers to 10				
	Measures	Measures	Book 11: Composition of 6 - 9	Book 11: Composition of 6 - 9	Book 12: Comparing numbers to 10	Book 12: Comparing numbers to 10	
	Continue measures all term through provocations in continuous provision →						
Summer 2	Patterns in numbers to 10			Non-number			
	Book 13: Patterns in odd and even numbers	Book 13: Patterns in doubles	Book 13: Equal distribution	Pattern	Spatial reasoning <i>Maps and plans</i>	Measures	

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Stage 1 Book 1	Stage 1 Book 2	Stage 1 Book 3	Stage 1	Stage 2 Book 1	Stage 2 Book 2	Stage 2 Book 3
	Subitising 1 - 5	Subitising 6 - 10	Subitising on tens frames	Gap teaching and consolidation	Make and Break 5	Make and Break 4, 3 & 2	Make and Break 10
Autumn 2	Stage 2 Book 4	Stage 2 Book 5	Stage 2 Book 6	Stage 2 Book 7	Stage 2	Stage 2	
	Make and Break 6	Make and Break 7	Make and Break 8	Make and Break 9	Gap teaching and consolidation	Gap teaching and consolidation	
Spring 1	Stage 3 Book 1	Stage 3 Book 1	Stage 3 Book 2	Stage 3 Book 2	Stage 3 Book 3	Stage 3 Book 3	
	One More, One Less	One More, One Less	Two More, Two Less	Two More, Two Less	Number 10 Fact Families	Number 10 Fact Families	
Spring 2	Stage 3 Book 4	Stage 3 Book 4	Stage 3 Book 5	Stage 3 Book 6	Stage 3 Book 6	Stage 3	
	Five and A Bit	Five and A Bit	Know About Zero	Doubles and Near Doubles	Doubles and Near Doubles	Gap teaching and consolidation	
Summer 1	Stage 3 Book 7	Stage 3 Book 7	Stage 3 Book 8	Stage 3 Book 9	Stage 3 Book 9	Stage 3 Book 9	
	Number Neighbours	Number Neighbours	7 Tree & 9 Square	Strategy Selection	Strategy Selection	Strategy Selection	
Summer 2	Stage 4 Book 1	Stage 4 Book 1	Stage 4 Book 1	Stages 3&4	Stages 3&4	Stages 3&4	Stages 3&4
	Ten and A Bit	Ten and A Bit	Ten and A Bit	Gap teaching and consolidation	Gap teaching and consolidation	Gap teaching and consolidation	Gap teaching and consolidation

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Stage 1 Books 1 & 2	Stage 1 Books 2 & 3	Stage 2 Books 3 - 7	Stage 3 Book 1	Stage 3 Book 2	Stage 3 Book 2	Stage 3 Book 3
	Subitising 1 – 5 Subitising 6 – 10	Subitising 6 – 10 Subitising on tens frames	Make and Break 10, 6, 7, 8 and 9	One More, One Less	Two More, Two Less	Two More, Two Less	Number 10 Fact Families
Autumn 2	Stage 3 Book 4	Stage 3 Books 4 & 5	Stage 3 Book 6	Stage 3 Book 6	Stage 3 Book 7	Stage 3 Books 7 & 8	
	Five and A Bit	Five and A Bit Know about Zero	Doubles and Near Doubles	Doubles and Near Doubles	Number Neighbours	Number Neighbours 7 Tree & 9 Square	
Spring 1	Stage 3 Book 9	Stage 4 Book 1	Stage 4 Book 1	Stage 5 Book 1	Stage 5 Book 1	Stage 5 Book 1	
	Strategy Selection	Ten and A Bit	Ten and A Bit	Make Ten and Then: Addition	Make Ten and Then: Addition	Make Ten and Then: Addition	
Spring 2	Stage 5 Book 2	Stage 5 Book 2	Stage 5 Book 2	Stage 5 Book	Stage 5	Stage 5	
	Make Ten and Then: Subtraction	Make Ten and Then: Subtraction	Make Ten and Then: Subtraction	More Doubles and Near Doubles	More Doubles and Near Doubles	More Doubles and Near Doubles	
Summer 1	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	
	Adjusting	Adjusting	Adjusting	Strategy Selection	Strategy Selection	Strategy Selection	
Summer 2	Stage 6	Stage 6	Stage 6	Stage 6	Stage 6	Stages 5 & 6	Stages 5 & 6
	Calculating with Multiples of 10	Two-Digit Numbers: Calculating with Ones	Two-Digit Numbers: Calculating with Tens	Make the Next Ten and Then	Make the Previous Ten and Then	Gap teaching and consolidation	Gap teaching and consolidation

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Stage 1 Books 1 – 2	Stage 1 Books 2 – 3	Stage 3 Books 1 – 2	Stage 3 Books 2 – 3	Stage 3 Book 4	Stage 3 Books 5 – 6	Stage 3 Books 7 – 8
	Subitising 1 – 5 Subitising 6 – 10	Subitising 6 – 10 Subitising on Tens Frames	One More, One Less Two More, Two Less	Two More, Two Less Number 10 Fact Families	Five and A Bit	Know about Zero Doubles and Near Doubles	Number Neighbours 7 Tree 9 Square
Autumn 2	Stage 3 Book 9	Stage 3 Book 9	Stage 3 Book 9	Stage 4 Book 1	Stage 5 Book 1	Stage 5 Book 1	
	Strategy Selection	Strategy Selection	Strategy Selection	Ten and a Bit	Make Ten and Then: Addition	Make Ten and Then: Addition	
Spring 1	Stage 5 Book 2	Stage 5 Book 2	Stage 5 Book 3	Stage 5 Book 4	Stage 5 Book 6	Stage 5 Book 6	
	Make Ten and Then: Subtraction	Make Ten and Then: Subtraction	More Doubles and Near Doubles	Adjusting	Make Ten and Then: Subtraction Part 2	Make Ten and Then: Subtraction Part 2	
Spring 2	Stage 5 Book 7	Stage 6 Books 1 – 3	Stage 6 Books 4 – 5	Stage 6 Book 6	Stage 6 Book 6	Stage 6 Book 6	
	Strategy Selection Part 2	Application of within 10 facts	Application of across 10 facts	Year 3 Strategy Selection	Year 3 Strategy Selection	Year 3 Strategy Selection	

The whole Numberblocks approach to developing children's visual understanding of numbers is highly compatible with the Number Sense Maths approach, and we strongly suggest watching every episode sequentially as part of your Early Years and Y1 curriculum (and there is plenty for other year groups to gain too!).

This document shows episodes that particularly support Number Sense Maths books. Children will get most out of these episodes if they are familiar with the full series, however you may well wish to re-watch these episodes to link into your Number Sense Maths sessions.

NSM Stage	NSM Book	Linked Numberblocks Episodes
Stage 1 Visual Number Foundations	Every single Numberblocks episode is crammed full of subitising opportunities! You will notice from the way that the characters are arranged and coloured that you never need to count individual blocks to work out who a number is, so we could list every single episode here! Here are two which explicitly particularly provide opportunities to discuss and practise subitising: <ul style="list-style-type: none"> • Series 1, Episode 11: Stampolines • Series 5, Episode 4: What's My Number? 	
Stage 2 Make and Break Numbers to 10	As with subitising, making and breaking numbers runs through all of Numberblocks – every episode includes numbers breaking up, joining back together, and arranging themselves in different ways to expose different parts within each whole number. The episodes listed below particularly focus on each number to 10.	Series 1, Episode 7: Five Series 1, Episode 12: The Whole of Me Series 1, Episode 15: Hide and Seek Series 3, Episode 3: The Numberblocks Express Series 3, Episode 4: Fruit Salad
	Make & Break 5	Series 1, Episode 1: One Series 1, Episode 2: Another One Series 1, Episode 3: Two Series 1, Episode 4: Three Series 1, Episode 5: One, Two, Three! Series 1, Episode 6: Four Series 1, Episode 12: The Whole of Me Series 3, Episode 3: The Numberblocks Express Series 3, Episode 4: Fruit Salad
	Make & Break 4, 3 & 2	
	Make & Break 10	Series 2, Episode 5: Ten Series 2, Episode 14: Numberblock Castle Series 3, Episode 15: Ten Again
	Make & Break 6	Series 2, Episode 1: Six Series 2, Episode 8: Counting Sheep

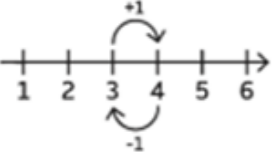

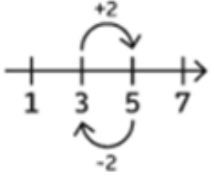
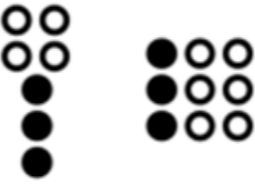
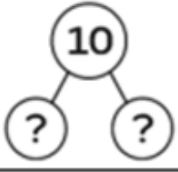
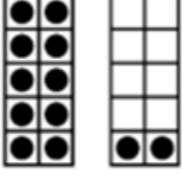

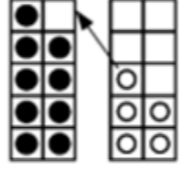

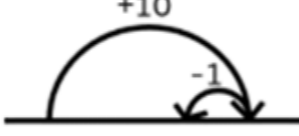


<p>Stage 3 Facts and Strategies within 10</p>	Make & Break 7	<p>Series 2, Episode 2: Seven Series 2, Episode 12: Fluffies</p>
	Make & Break 8	<p>Series 2, Episode 3: Eight Series 3, Episode 14: Octoblock to the Rescue!</p>
	Make & Break 9	<p>Series 2, Episode 4: Nine Series 2, Episode 10: The Three Threes Series 3, Episode 10: Hiccups</p>
	One More, One Less	<p>Series 1, Episode 14: Holes Series 2, Episode 6: Just Add One Series 2, Episode 15: Ten Green Bottles Series 3, Episode 1: Once Upon a Time Series 3, Episode 6: Now We Are Six To Ten</p>
	Two More, Two Less: Think Odds and Evens	<p>Series 2, Episode 11: Odds and Evens Series 2, Episode 13: The Two Tree Series 5, Episode 8: Twoland Series 5, Episode 10: Odd Side Story</p>
	Number 10 Fact Families	<p>Series 2, Episode 7: Blast Off Series 3, Episode 15: Ten Again</p>
	Five and A Bit	<p>Series 3, Episode 13: Five and Friends</p>
	Know About Zero	<p>Series 3, Episode 5: Zero</p>
	Doubles and Near Doubles	<p>Series 2, Episode 9: Double Trouble Series 3, Episode 19: Mirror, Mirror Series 5, Episode 8: Twoland</p>
	Number Neighbours: Spot the Difference	<p>There aren't any episodes particularly looking at difference of 1 and difference of 2, but refer to "One More, One Less" for building understanding of adjacent numbers, and "Two More, Two Less" for building understanding of adjacent odds and evens.</p>
7 Tree and 9 Square	<p>Series 2, Episode 10: The Three Threes Series 3, Episode 18: The Legend of Big Turn Series 4, Episode 6: Square Club Series 4, Episode 23: We're Going on a Square Hunt</p>	

<p>Stage 4 Ten and A Bit</p>	<p>From episode 21 of series 3, teens numbers are introduced. Every time a teens number appears its Ten and A Bit structure is clear to see, so lots of other episodes reinforce this. However, the episodes listed here make this particularly explicit. Unlucky number Thirteen in particular is a character worth noticing – every time someone says its name “Thirteen” it falls apart into 10 and 3, so this character is particularly good at repeatedly exposing the Ten and A Bit structure.</p>	
<p>Stage 5 Facts and Strategies across 10</p>	<p>Make 10 and Then: Addition Make 10 and Then: Subtraction More Doubles and Near Doubles Adjusting</p>	<p>Series 5, Episode 7: Ten Vaulting - Series 3, Episode 22: Twelve Series 3, Episode 27: Fourteen Series 4, Episode 5: Sixteen Series 4, Episode 8: Eighteen Series 4, Episode 11: Twenty</p>
<p>Stage 6 Extending Facts and Strategies</p>	<p>Calculating with Multiples of 10 Other Stage 6 books</p>	<p>- Series 4, Episode 21: Thirty's Big Top Series 4, Episode 24: Land of the Giants Series 4, Episode 25: Fifty Series 4, Episode 26: Sixty's High Score Series 4, Episode 28: One Hundred</p>
		<p>-</p>

NSM Number Facts	NCETM spines	Ready-to-progress criteria
Stage 1 Visual Number Foundations	1.3 Composition of numbers 0 – 5 1.4 Composition of numbers 6 - 10	
Stage 2 Make and Break Numbers to 10	1.3 Compositions of numbers 0 – 5 1.4 Composition of numbers 6 - 10	1AS-1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers
Stage 3 Facts and Strategies Within 10	1.7 Addition and subtraction: strategies within 10	1NF-1 Develop fluency in addition and subtraction facts within 10 2NF-1 Secure fluency in addition and subtraction facts within 10, through continued practice
Stage 4 Ten and A Bit Facts	1.10 Composition of numbers 11 – 19	(Feeds into 2NPV-1 Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning)
Stage 5 Facts and Strategies Across 10	1.11 Addition and subtraction: bridging 10	2AS-1 Add and subtract across 10 3NF-1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice
Stage 6 Extending Facts and Strategies Beyond the Grids	1.13 Addition and subtraction: two-digit and single digit numbers 1.14 Addition and subtraction: two-digit numbers and multiples of ten	2AS-3 Add and subtract within 100 by applying related addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number

Fact Fluency Strategies

Calculation Strategies

<p>One More, One Less</p> 	<p>When we add one, we get the next counting number. When we subtract one, we get the previous counting number (e.g. $5 - 1 = 4$).</p>	<p>Number Neighbours Spot the Difference</p> 	<p>Adjacent numbers have a difference of 1. Adjacent odds and evens have a difference of 2.</p> <p>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. $6 - 4 = 2$)</p>
<p>Two More, Two Less Think Odds and Evens</p> 	<p>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.</p>	<p>7 Tree and 9 Square</p> 	<p>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 $3 + 6 = 9$.</p>
<p>Number 10 Fact Families</p> 	<p>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.</p>	<p>Ten and A Bit</p> 	<p>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. $3 + 10 = 13$, $17 - 7 = 10$, $12 - 10 = 2$).</p>
<p>Five and A Bit</p> 	<p>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. $5 + 3 = 8$, $9 - 5 = 4$).</p>	<p>Make Ten and Then...</p> 	<p>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.</p>
<p>Know about 0</p> 	<p>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.</p>	<p>Adjust It</p> 	<p>Any addition and subtraction can be calculated by adjusting from a fact you know already, (e.g. $6 + 9$ is one less than $6 + 10$).</p>
<p>Doubles and Near Doubles</p> 	<p>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.</p>	<p>Swap It</p> 	<p>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.</p>