

## Early Years Maths

### Number Early Learning Goals

**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.**

### Numerical Patterns Early Learning Goal

**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.**

## Year 1- Year 6 Maths

### Place Value

#### COUNTING

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Count to and across 100, forwards and backwards, starting with any number.</b>			count backwards through zero to include negative numbers	interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	use negative numbers in context, and calculate intervals across zero
count, read and write numbers to 100 in numerals; count in multiples of twos, fives, and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward	count from 0 in multiples of 4, 8, 50 and 100	count in multiples of 6, 7, 9, 25 and 1000	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	
given a number, identify one more and one less		find 10 or 100 more or less than a given number	find 1000 more or less than a given number		

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## Mathematics Progression Map Y1-Y6



COMPARING NUMBERS					
use the language of equal to, more than, less than (fewer), most, least	compare and order numbers from 0 up to 100; use <, > and = signs	compare and order numbers up to 1000	order and compare numbers beyond 1000	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	read, write, order, and compare numbers up to 10 000 000 and determine the value of each digit
IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS					
identify and represent numbers using objects and pictorial representations including the number line	identify, represent, and estimate numbers using different representations, including the number line	identify, represent and estimate numbers using different representations	identify, represent, and estimate numbers using different representations		
READING AND WRITING NUMBERS (including Roman Numerals)					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
read and write numbers from 1 to 20 in numerals and words.	read and write numbers to at least 100 in numerals and in words.	read and write numbers up to 1000 in numerals and in words	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.	read Roman numerals to 1000 (M) and recognise years written in Roman numerals. <b>Convert between units of measure, including using common decimals and fractions.</b>	

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## Mathematics Progression Map Y1-Y6



		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.	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.	Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts.	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.
<b>UNDERSTANDING PLACE VALUE</b>					
		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.	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.  <i>find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths</i>	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. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.	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).  <i>identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places</i>

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



	<b>Recognise the place value of each digit in two-digit numbers and compose and decompose two-digit numbers using standard and non-standard partitioning.</b>	<b>Recognise the place value of each digit in three-digit numbers and compose and decompose three-digit numbers using standard and non-standard partitioning.</b>	<b>Recognise the place value of each digit in four-digit numbers and compose and decompose four-digit numbers using standard and non-standard partitioning.</b>	<b>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.</b>	<b>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.</b>
<b>Reason about the location of numbers to 20 within the linear number system, including comparing using <math>&lt;</math> <math>&gt;</math> <math>=</math></b>	<b>Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10.</b>	<b>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.</b>	<b>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.</b>	<b>Reason about the location of any number with up to 2 decimal 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.</b>	<b>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.</b>

ROUNDING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			round any number to the nearest 10, 100 or 1 000	round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000	round any whole number to a required degree of accuracy
			<i>round decimals with one decimal place to the nearest whole number</i>	<i>round decimals with two decimal places to the nearest whole number and to one decimal place</i>	<i>solve problems which require answers to be rounded to specified degrees of accuracy</i>

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## Mathematics Progression Map Y1-Y6



PROBLEM SOLVING					
	use place value and number facts to solve problems	solve number problems and practical problems involving these ideas.	solve number and practical problems that involve all of the above and with increasingly large positive numbers	solve number problems and practical problems that involve all the above	solve number and practical problems that involve all the above

Addition and Subtraction					
NUMBER BONDS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
represent and use number bonds and related subtraction facts within 20.	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				
MENTAL and WRITTEN CALCULATION					
<b>Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognizing odd and even numbers.</b>	<b>Add and subtract across 10.</b>	<b>Calculate complements to 100.</b>			<b>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).</b>

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## Mathematics Progression Map Y1-Y6



<p><b>Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) signs.</b></p>	<p><b>Recognise the subtraction structure of difference and answer questions of the form, 'How many more...?'</b></p>	<p><b>Add and subtract up to three digits numbers using columnar methods.</b></p>			<p><b>Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.</b></p>
<p>add and subtract one-digit and two-digit numbers to 20, including zero</p>	<p><b>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.</b></p>	<p><b>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.</b></p>		<p>add and subtract numbers mentally with increasingly large numbers</p>	<p><b>Solve problems involving ratio relationships.</b></p> <p>perform mental calculations, including with mixed operations and large numbers</p>
	<p><b>Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.</b></p>				<p><b>Solve problems with 2 unknowns.</b></p>
	<p>show that addition of two numbers can be done in any order (commutative) and subtraction of one</p>				<p>use their knowledge of the order of operations to carry out calculations involving the four operations</p>

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## Mathematics Progression Map Y1-Y6



	number from another cannot				
		add and subtract numbers mentally, including: <ul style="list-style-type: none"> <li>* a three-digit number and ones</li> <li>* a three-digit number and tens</li> <li>* a three-digit number and hundreds</li> </ul>	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	
<b>INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS</b>					
	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	estimate the answer to a calculation and use inverse operations to check answers	estimate and use inverse operations to check answers to a calculation	use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
<b>PROBLEM SOLVING</b>					
<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and	solve problems with addition and subtraction: <ul style="list-style-type: none"> <li>* using concrete objects and pictorial representations, including those involving numbers,</li> </ul>	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



missing number problems such as $7 = \square - 9$	quantities and measures * applying their increasing knowledge of mental and written methods				Solve problems involving addition, subtraction, multiplication, and division
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## Multiplication and Division

### MULTIPLICATION & DIVISION FACTS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	recall multiplication and division facts for multiplication tables up to $12 \times 12$		

### MENTAL & WRITTEN CALCULATION

	<b>Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.</b>	<b>Apply known multiplication and division facts to solve contextual problems with different structures, including quotative and partitive division.</b>	<b>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.</b>	<b>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.</b>	<b>(See AS section for combined criteria)</b>
	<b>Relate grouping problems where the number of groups is unknown to multiplication equations</b>		<b>Manipulate multiplication and division equations and understand and apply</b>		use their knowledge of the order of operations to carry out calculations



# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



	<b>with a missing factor, and to division equations (quotative division).</b>		<b>the commutative property of multiplication</b>		involving the four operations
	calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.	use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers.	multiply and divide numbers mentally drawing upon known facts	perform mental calculations, including with mixed operations and large numbers
			multiply two-digit and three-digit numbers by a one-digit number using formal written layout	multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	
	show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot		<b>Understand and apply the distributive property of multiplication</b>	<b>Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.</b>	multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



				<p><b>Divide a number with up to 4 digits by a one-digit number using formal written method, and interpret remainders appropriately for the context.</b></p>	<p>divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</p>
					<p><b>Solve problems involving ratio relationships.</b></p>
					<p><b>Solve problems with 2 unknowns.</b></p>
<p><b>PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS</b></p>					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			<p>recognise and use factor pairs and commutativity in mental calculations</p>	<p><b>Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a</b></p>	<p>identify common factors, common multiples and prime numbers</p>

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



				<p><b>given number as a product of 2 or 3 factors.</b></p> <p>know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p> <p>establish whether a number up to 100 is prime and recall prime numbers up to 19</p>	
				<p>recognise and use square numbers and cube numbers, and the notation for squared (<sup>2</sup>) and cubed (<sup>3</sup>)</p>	
<b>INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS</b>					
		<p>estimate the answer to a calculation and use inverse operations to check answers</p>	<p>estimate and use inverse operations to check answers to a calculation</p>		<p>use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy</p>

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



PROBLEM SOLVING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which $n$ objects are connected to $m$ objects	solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as $n$ objects are connected to $m$ objects	solve problems involving multiplication and division including using their knowledge of factors and multiples, squares, and cubes	solve problems involving addition, subtraction, multiplication and division
				solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	
				solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



### Number Facts

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Develop fluency in addition and subtraction facts within 10.	Secure fluency in addition and subtraction facts within 10, through continued practice.	Secure fluency in addition and subtraction facts that bridge 10, through continued practice.			
		Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).	Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100).	Apply place value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).	
Count forwards and backwards in multiples of 2, 5 and 10 up to multiples of 10, beginning with any multiple, and count forwards and backwards through the odd numbers.		Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognising products in these multiplication tables as multiples of the corresponding number.	Recall multiplication and division facts up to 12 x 12 and recognise products in multiplication tables as multiples of the corresponding number.	Secure fluency in multiplication table facts, and corresponding division facts through continued practice.	
			Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders		

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



			<b>appropriately according to the context.</b>		
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## Fractions (Including Decimals and Percentages)

### COUNTING IN FRACTIONAL STEPS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<i>Pupils should count in fractions up to 10, starting from any number and using the 1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)</i>	count up and down in tenths	Count up and down in hundredths		

### RECOGNISING FRACTIONS

recognise, find and name a half as one of two equal parts of an object, shape or quantity	recognise, find, name and write fractions $\frac{1}{3}$ , $\frac{1}{4}$ , $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators	recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten		
		recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10.	<b>Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.</b>		
recognise, find and name a quarter as one of four equal parts of an object, shape or quantity		recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators			

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



		<b>Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.</b>	<b>Convert mixed numbers to improper fractions and vice versa.</b>		<b>Recognise when fractions can be simplified, and use common factors to simplify fractions.</b>
<b>COMPARING FRACTIONS</b>					
		compare and order unit fractions, and fractions with the same denominators		compare and order fractions whose denominators are all multiples of the same number	compare and order fractions, including fractions $>1$
		<b>Find unit fractions of quantities using known division facts (multiplication tables fluency).</b>		<b>Find non-unit fractions of quantities.</b>	<b>Express fractions in a common denomination and use this to compare fractions that are similar in value.</b>
		<b>Reason about the location of any fraction within 1 in the linear number system.</b>	<b>Reason about the location of mixed numbers in the linear number system.</b>		<b>Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.</b>

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



COMPARING DECIMALS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			compare numbers with the same number of decimal places up to two decimal places	read, write, order, and compare numbers with up to three decimal places	identify the value of each digit in numbers given to three decimal places
ROUNDING INCLUDING DECIMALS					
			round decimals with one decimal place to the nearest whole number	round decimals with two decimal places to the nearest whole number and to one decimal place	solve problems which require answers to be rounded to specified degrees of accuracy
EQUIVALENCE (INCLUDING FRACTIONS, DECIMALS AND PERCENTAGES)					
	write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ .	recognise and show, using diagrams, equivalent fractions with small denominators	recognise and show, using diagrams, families of common equivalent fractions	identify, name, and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths  <b>Find equivalent fractions and understand that they have the same value and the same position in the linear number system.</b>	use common factors to simplify fractions; use common multiples to express fractions in the same denomination
			recognise and write decimal equivalents of any number of tenths or hundredths	read and write decimal numbers as fractions (e.g., $0.71 = \frac{71}{100}$ )  <b>Recall decimal fraction equivalents for <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math> and <math>\frac{1}{10}</math>, and for multiples of these proper fractions.</b>  recognise and use thousandths and relate them to tenths, hundredths, and decimal equivalents	
					associate a fraction with division and calculate decimal fraction equivalents (e.g., 0.375) for a simple fraction (e.g., $\frac{3}{8}$ )



# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



			recognise and write decimal equivalents to $\frac{1}{4}$ ; $\frac{1}{2}$ ; $\frac{3}{4}$	recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction	recall and use equivalences between simple fractions, decimals, and percentages, including in different contexts.
<b>ADDITION AND SUBTRACTION OF FRACTIONS</b>					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<b>Add and subtract fractions with the same denominator, within 1.</b>	<b>Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.</b>	add and subtract fractions with the same denominator and multiples of the same number  recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements $> 1$ as a mixed number (e.g. $\frac{2}{5}$ $+ \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$ )	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
<b>MULTIPLICATION AND DIVISION OF FRACTIONS</b>					
				multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ )  multiply one-digit numbers with up to two decimal places by whole numbers

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



					divide proper fractions by whole numbers (e.g., $\frac{1}{3} \div 2 = \frac{1}{6}$ )
<b>MULTIPLICATION AND DIVISION OF DECIMALS</b>					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					multiply one-digit numbers with up to two decimal places by whole numbers
			find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths		multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
					identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
					associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$ )
					use written division methods in cases where the answer has up to two decimal places

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



PROBLEM SOLVING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		solve problems that involve all of the above	solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number	solve problems involving numbers up to three decimal places	
			solve simple measure and money problems involving fractions and decimals to two decimal places.	solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{5}$ , $\frac{2}{5}$ , $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25.	

## Geometry

### IDENTIFYING SHAPES AND THEIR PROPERTIES

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Recognise and name common 2-D and 3-D shapes presented in different orientations, and know that rectangles, triangles, cuboids, and pyramids are not always similar to one another.</p>	<p>Use precise language to describe the properties of 2D and 3D shapes and compare shapes by reasoning about similarities and difference in properties.</p>	<p>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.</p>		<p>Compare angles, estimate and measure angles in degrees (<math>^{\circ}</math>) and draw angles of a given size.</p>	<p>recognise, describe and build simple 3-D shapes, including making nets</p>
	<p>identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p>		<p>identify lines of symmetry in 2-D shapes presented in different orientations</p>		
			<p>Identify regular polygons, including equilateral triangles and squares, as those in which the side-length are equal, and the angles are equal. Find the perimeter of regular and irregular polygons.</p>		
	<p>identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p>		<p>Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete symmetric figure or pattern with respect to a specified line of symmetry</p>		
	<p>identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</p>				

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



DRAWING AND CONSTRUCTING					
<p><b>Compose 2D and 3 D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.</b></p>		<p><b>Draw polygons by joining marked points and identify parallel and perpendicular sides.</b></p>	<p><b>Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.</b></p>		<p><b>Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.</b></p>
		<p>draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</p>	<p>complete a simple symmetric figure with respect to a specific line of symmetry</p>	<p>draw given angles, and measure them in degrees (°)</p>	
COMPARING AND CLASSIFYING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>compare and sort common 2-D and 3-D shapes and everyday objects</p>		<p>compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</p>	<p>use the properties of rectangles to deduce related facts and find missing lengths and angles</p> <p><b>Compare areas and calculate the area of rectangles (including squares) using standard units.</b></p> <p>distinguish between regular and irregular polygons based on reasoning about equal sides and angles</p>	<p>compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</p>

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



ANGLES					
				know angles are measured in degrees: estimate and compare acute, obtuse, and reflex angles	
		identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle	identify acute and obtuse angles and compare and order angles up to two right angles by size	identify: * angles at a point and one whole turn (total $360^\circ$ ) * angles at a point on a straight line and $\frac{1}{2}$ a turn (total $180^\circ$ ) * other multiples of $90^\circ$	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
		identify horizontal and vertical lines and pairs of perpendicular and parallel lines			

Ration and Proportion					
Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division					
					Year 6
					solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



					solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
					solve problems involving similar shapes where the scale factor is known or can be found
					solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



### Algebra

#### EQUATIONS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					express missing number problems algebraically
					find pairs of numbers that satisfy number sentences involving two unknowns
					enumerate all possibilities of combinations of two variables

#### FORMULAE

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					use simple formulae

#### SEQUENCES

					generate and describe linear number sequences
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### Measurement

#### COMPARING AND ESTIMATING

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



<p>compare, describe, and solve practical problems for:</p> <ul style="list-style-type: none"> <li>* lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half]</li> <li>* mass/weight [e.g. heavy/light, heavier than, lighter than]</li> <li>* capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]</li> <li>* time [e.g. quicker, slower, earlier, later]</li> </ul>	<p>compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math></p>			<p>estimate volume (e.g. using <math>1\text{ cm}^3</math> blocks to build cubes and cuboids) and capacity (e.g. using water)</p>	<p>calculate, estimate, and compare volume of cubes and cuboids using standard units, including centimetre cubed (<math>\text{cm}^3</math>) and cubic metres (<math>\text{m}^3</math>), and extending to other units such as <math>\text{mm}^3</math> and <math>\text{km}^3</math>.</p>
<p>sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p>	<p>compare and sequence intervals of time</p>	<p>compare durations of events, for example to calculate the time taken by particular events or tasks</p>			
		<p>estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time)</p>			

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



MEASURING and CALCULATING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
measure and begin to record the following: * lengths and heights * mass/weight * capacity and volume * time (hours, minutes, seconds)	choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels	measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	estimate, compare and calculate different measures, including money in pounds and pence (appears also in Comparing)	use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.	solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Converting)
		measure the perimeter of simple 2-D shapes	measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	recognise that shapes with the same areas can have different perimeters and vice versa
MEASURING and CALCULATING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
recognise and know the value of different denominations of coins and notes	recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value find different combinations of coins that equal the same amounts of money solve simple problems in a practical context	add and subtract amounts of money to give change, using both £ and p in practical contexts			

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



	involving addition and subtraction of money of the same unit, including giving change				
			find the area of rectilinear shapes by counting squares	calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm <sup>2</sup> ) and square metres (m <sup>2</sup> ) and estimate the area of irregular shapes	<p>calculate the area of parallelograms and triangles</p> <p>calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [e.g. mm<sup>3</sup> and km<sup>3</sup>].</p> <p>recognise when it is possible to use formulae for area and volume of shapes</p>
<b>TELLING THE TIME</b>					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a	tell and write the time from an analogue clock, including using Roman numerals from I to XII, and		solve problems involving converting between units of time	

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



	clock face to show these times.	12-hour and 24-hour clocks			
recognise and use language relating to dates, including days of the week, weeks, months and years					

CONVERTING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)	know the number of seconds in a minute and the number of days in each month, year and leap year	convert between different units of measure (e.g. kilometre to metre; hour to minute)	convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
				solve problems involving converting between units of time	
				understand and use equivalences between metric units and common imperial units such as inches, pounds and pints	convert between miles and kilometres

# St John's CofE Primary School

## Mathematics Progression Map Y1-Y6



<b>Statistics</b>					
<b>INTERPRETING, CONSTRUCTING AND PRESENTING DATA</b>					
<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
	interpret and construct simple pictograms, tally charts, block diagrams and simple tables	interpret and present data using bar charts, pictograms and tables	interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	complete, read and interpret information in tables, including timetables	interpret and construct pie charts and line graphs and use these to solve problems
	ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity				
	ask and answer questions about totalling and comparing categorical data				
<b>SOLVING PROBLEMS</b>					
		solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	solve comparison, sum and difference problems using information presented in a line graph	calculate and interpret the mean as an average

Critical knowledge from the DfE's Ready to Progress Non statutory guidance is highlighted in bold.