

## Mathematics End Point Plan

<u>EYFS Mathematics</u>	
NUMBER	
Nursery	Reception
Children will have a deep understanding of number to 4. Adds and subtracts very small collections (totals up to three), often making a collection rather than answering verbally. ( <i>Learning Trajectories</i> )	Children will have a deep understanding of number to 10.
Children recognise that sets can be combined in different orders but may not explicitly recognise that groups are additively composed of smaller groups. (LT)	Children to know composition of each number up to 10.
Instantly recognises collections up to 4 briefly shown and verbally names the number of items. (LT)	Subitise up to 5
Sing number rhymes within 5 using finger puppets, props etc.	Automatically recall number bonds up to 5 (including subtraction facts)
Recognise double 1 and double 2.	Automatically recall <b>some</b> number bonds to 10
Recite finger rhymes with numbers. React to changes of amount in a group of up to 5.	Automatically recall double facts within 10
	Read and write numbers to 10 in numerals.
NUMERICAL PATTERNS	
Verbally counts to ten with some correspondence with objects. Keeps one-to-one correspondence between counting words and objects (one word for each object), at least for small groups of objects laid in a line. (LT)	Verbally count beyond 20, recognising the pattern of the counting system

Compare collections of 1 to 4 items verbally or nonverbally (“just by looking”) use language such as ‘more than’ and fewer than’.	Compare quantities up to 10 in different contexts, recognising when one quantity is ‘greater than, less than or the same as the other quantity.
Makes small groups (fewer than 5). Shares by “dealing out,” but usually only between 2 people. (LT)  Extend and create ABAB patterns e.g. stick, leaf, stick, leaf.	Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

## Number: Number and Place Value

### COUNTING

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number			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 and backward	count from 0 in multiples of 4, 8, 50 and 100;	count in multiples of 6, 7, 9, 25 and 1 000	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 1 000 more or less than a given number		

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 1 000	order and compare numbers beyond 1 000	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 1 000 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 0 and place value.	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit  read Roman numerals to 1 000 (M) and recognise years written in Roman numerals.	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit

UNDERSTANDING PLACE VALUE					
	recognise the place value of each digit in a two-digit number (10s, 1s)	recognise the place value of each digit in a 3-digit number (100s, 10s, 1s)	recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)
					Use negative numbers in context and calculate intervals across 0

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> (copied from Fractions)	<i>round decimals with two decimal places to the nearest whole number and to one decimal place</i> (copied from Fractions)	<i>solve problems which require answers to be rounded to specified degrees of accuracy</i> (copied from Fractions)

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

## Number: Addition and Subtraction

### MENTAL CALCULATION

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	add and subtract numbers mentally, including: * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds		add and subtract numbers mentally with increasingly large numbers	perform mental calculations, including with mixed operations and large numbers
add and subtract one-digit and two-digit numbers to 20, including 0	add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and 1s * a two-digit number and 10s * 2 two-digit numbers adding 3 one-digit numbers				

### WRITTEN METHODS

read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	show that addition of two numbers can be done in any order (commutative) and subtraction of 1 number from another cannot	add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction	Add and subtract with up to 4 digits using formal written methods of columnar addition and subtraction when appropriate.	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	use their knowledge of the order of operations to carry out calculations involving the four operations
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		estimate the answer to a calculation and use inverse operations to check answers			
PROBLEM SOLVING					
solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems e.g. $7 = [ ] - 9$ .	<p>Solve problems with addition and subtraction:</p> <p>1. Using concrete objects and pictorial representations, including those involving numbers, quantities and measures.</p> <p>2. Applying increasing knowledge of mental and written methods.</p> <p>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p>	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	<p>Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p> <p>Estimate and use inverse operations to check answers to calculations.</p>	<p>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p> <p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</p>	<p>Solve addition and subtraction multi-step problems in contexts, deciding which methods to use and why.</p> <p>Solve problems involving addition, subtraction, multiplication and division.</p> <p>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p>

## MULTIPLICATION & DIVISION

### MULTIPLICATION & DIVISION FACTS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<i>count in multiples of twos, fives and tens</i>	<i>count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward</i>	<i>count from 0 in multiples of 4, 8, 50 and 100</i>	<i>count in multiples of 6, 7, 9, 25 and 1 000</i>	<i>count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</i>	
	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 CALCULATION

		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 (appears also in 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 3 numbers	multiply and divide numbers mentally drawing upon known facts	perform mental calculations, including with mixed operations and large numbers
	show that multiplication of 2 numbers can be done in any order(commutative) and division of 1 number by another cannot		recognise and use factor pairs and commutativity in mental calculations	multiply and divide whole numbers and those involving decimals by 10, 100 and 1000  <i>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams (Fractions)</i>	<i>associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. <math>\frac{3}{8}</math>)</i>

WRITTEN CALCULATION					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	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 (appears also in Mental Methods)	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers  divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context	multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication  divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.
PROBLEM SOLVING					
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 context.	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 and a combination of these, including understanding the meaning of the equals sign	solve problems involving addition, subtraction, multiplication and division.

				<p>solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</p>	
PROPERTIES OF NUMBERS: MULTIPLES,FACTORS,PRIMES,SQUARE AND CUBE NUMBERS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			<p>recognise and use factor pairs and commutativity in mental calculations (repeated)</p>	<p>identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</p>	<p>identify common factors, common multiples and prime numbers (<i>copied from addition, subtraction, multiplication and division</i>)</p>
				<p>know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p>	<p>use common factors to simplify fractions; use common multiples to express fractions in the same denomination (<i>copied from Fractions</i>)</p>
				<p>establish whether a number up to 100 is prime and recall prime numbers up to 19</p>	<p>calculate, estimate and compare volume of cubes and cuboids using standard units. (<i>copied from measurement</i>)</p>
				<p>recognise and use square numbers and cube numbers, and the notation for squared (<sup>2</sup>) and cubed (<sup>3</sup>)</p>	

## Number: 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</i>	count up and down in tenths	count up and down in hundredths		Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

### RECOGNISING AND WRITING FRACTIONS, DECIMALS AND PERCENTAGES

<p>recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity</p> <p>recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity</p>	<p>recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</p> <p>Write simple fractions e.g. <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math></p>	<p>recognise that tenths arise from dividing an object into 10 equal parts and in dividing 1 – digit numbers or quantities by 10</p> <p>recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</p> <p>recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</p> <p>recognise and show, using diagrams, equivalent fractions with small denominators</p>	<p>recognise that hundredths arise when dividing an object by one 100 and dividing tenths by 10</p> <p>recognise and show, using diagrams, families of common equivalent fractions,</p> <p>recognise and write decimal equivalents of any number of tenths or hundreds.</p> <p>Recognise and write decimal equivalents to <math>\frac{1}{4} + \frac{1}{2} + \frac{3}{4}</math></p>	<p>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence)</p> <p>identify, name and write equivalent fractions of given fraction, represented visually, including tenths and hundredths.</p> <p>recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements &gt; 1 as a mixed number</p> $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$	<p>identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places</p> <p>use written division methods in cases where the answer has up to 2 decimal places.</p>
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				<p>Read and write decimal numbers as fractions e.g.</p> $0.71 = \frac{71}{100}$ <p>recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction</p>	
<b>COMPARING FRACTIONS</b>					
		compare and order unit fractions, and fractions with the same denominators	Compare numbers the same number of decimal places up to 2 decimal places.	compare and order fractions whose denominators are all multiples of the same number  read, write and compare numbers with up to 3 decimal places.	compare and order fractions, including fractions >1
<b>CALCULATING WITH FRACTIONS</b>					
		<p>add and subtract fractions with the same denominator within one whole e.g.</p> $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$	<p>Add and subtract fractions with the same denominator</p> <p>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 one, tenths and hundredths.</p>	<p>Add and subtract fractions with the same denominator, and denominators that are multiples of the same number.</p>	<p>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</p> <p>multiply simple pairs of proper fractions, writing</p>

					<p>the answer in its simplest form e.g.  <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math></p> <p>divide proper fractions by whole numbers  <math>\frac{1}{3} \div 2 = \frac{1}{6}</math></p> <p>Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction  <math>\frac{3}{8}</math></p> <p>Multiply one-digit numbers with up to 2 decimal places by whole numbers.</p>
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**PROBLEM SOLVING**

		<p>solve problems that involve all of the above.</p>	<p>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</p> <p>solve simple measure and money problems involving</p>	<p>Solve problems involving numbers with up to 3 decimal places</p> <p>solve problems which require knowing percentage and decimal equivalents of  <math>\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25</p>	<p>Solve problems which require answers to be rounded to specified degrees of accuracy.</p>
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fractions and decimals to 2 decimal places

### Ratio 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

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.

**Measurement**  
**COMPARING AND ESTIMATING**

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<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>Recognise and use the language relating to dates, including days of the week, weeks, months and years.</p> <p>Sequence events in chronological order using language e.g. before, after, next, first, today, yesterday, tomorrow, morning, afternoon</p>	<p>compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =</p> <p>compare and sequence intervals of time</p> <p>Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.</p> <p>Know the number of minutes in an hour and the number of hours in a day.</p>	<p>compare durations of events e.g. to calculate the time taken by particular events or tasks use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight</p> <p>estimate and read time with increasing accuracy to the nearest minute</p> <p>record and compare time in terms of seconds, minutes and hours.</p> <p>tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</p> <p>Know the number of seconds in a minute and the number of days in each month, year and leap year.</p>	<p>estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring)</p> <p>Read, write and convert time between analogue and digital 12 and 24 hour clocks.</p>	<p>calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>), and estimate the area of irregular shapes (also included in measuring)</p> <p>estimate volume (e.g. using 1 cm<sup>3</sup> 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 (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units such as mm<sup>3</sup> and km<sup>3</sup>.</p> <p>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 3 decimal places.</p>

Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times					
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**MEASURING and CALCULATING**

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>measure and begin to record the following:</p> <ul style="list-style-type: none"> <li>* <b>lengths and heights</b></li> <li>* <b>mass/weight</b></li> <li>* <b>capacity and volume</b></li> <li>* <b>time</b> (hours, minutes, seconds)</li> <li>*</li> </ul> <p>Recognise and know the value of different denominations of coins and notes</p>	<p>choose and use appropriate standard units to estimate and measure <b>length/height</b> in any direction (m/cm); <b>mass</b> (kg/g); <b>temperature</b> (°C); <b>capacity</b> (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</p> <p>Recognise and use symbols for pounds (£) and pence (p), combine amounts to make a particular value.</p> <p>Find different combinations of coins that equal the same amounts of money</p>	<p>measure, compare, add and subtract: <b>lengths</b> (m/cm/mm); <b>mass</b> (kg/g); <b>volume/capacity</b> (l/ml)</p> <p>measure the <b>perimeter</b> of simple 2-D shapes</p> <p>Add and subtract amounts of money to give change, using both £ and p in practical contexts</p>	<p>estimate, compare and calculate <b>different measures</b>, including <b>money in pounds and pence</b> (appears also in Comparing)</p> <p>measure and calculate the <b>perimeter</b> of a rectilinear figure (including squares) in centimetres and metres</p> <p>Convert between different units of measure (e.g. kilometre to metre, hour to min)</p> <p>Find the area of rectilinear shapes by counting squares.</p>	<p>use all four operations to solve problems involving measure (e.g. <b>length, mass, volume, money</b>) using decimal notation including scaling.</p> <p>measure and calculate the <b>perimeter</b> of composite rectilinear shapes in centimetres and metres</p> <p>convert between different units of metric measure [for example, km and m; cm and m; cm and mm; gram and kilogram; litre and millilitre]</p> <p>understand and use approximate equivalences between metric units and common imperial units i.e. inches, pounds and pints</p>	<p>Convert between miles and kilometres.</p> <p>recognise that shapes with the same areas can have different <b>perimeters</b> and vice versa</p> <p>recognise when it is possible to use formulae for area and volume of shapes.</p> <p>calculate the area of parallelograms and triangles.</p>

**PROBLEM SOLVING**

	Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.		Solving problems involving converting from hours to minutes, minutes to seconds, years to months and weeks to days.	Solve problems involving converting between units	solve problems involving the calculation and conversion of <b>units of measure</b> , using decimal notation up to three decimal places where appropriate
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**Geometry: Properties of Shapes**  
**IDENTIFYING SHAPES AND THEIR PROPERTIES**

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line	Recognise 3D shapes in different orientations and describe them.	identify lines of symmetry in 2-D shapes presented in different orientations	identify 3-D shapes, including cubes and other cuboids, from 2-D representations	recognise, describe and build simple 3-D shapes, including making nets
	identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces				illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
	identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]				

DRAWING AND CONSTRUCTING					
		draw 2-D shapes and make 3-D shapes using modelling materials;	complete a simple symmetric figure with respect to a specific line of symmetry	draw given angles, and measure them in degrees ( $^{\circ}$ )	draw 2-D shapes using given dimensions and angles recognise, describe and build simple 3-D shapes, including making nets
COMPARING AND CLASSIFYING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	compare and sort common 2-D and 3-D shapes and everyday objects		compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
ANGLES					
		recognise angles as a property of shape or a description of a turn	identify acute and obtuse angles and compare and order angles up to two right angles by size	know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
		identify right angles, recognise that two right angles make a half-turn, three make 3 quarters of a turn and 4 a complete turn identify whether angles are greater than or less than a right angle		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 $90^{\circ}$	

		identify horizontal and vertical lines and pairs of perpendicular and parallel lines			
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### Geometry: Position and Direction

#### POSITION, DIRECTION AND MOVEMENT

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
describe position, direction and movement, including half, quarter and three-quarter turns.	use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)		describe positions on a 2-D grid as coordinates in the first quadrant	identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	describe positions on the full coordinate grid (all four quadrants)
			describe movements between positions as translations of a given unit to the left/right and up/down		draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
	order and arrange combinations of mathematical objects in patterns and sequences		plot specified points and draw sides to complete a given polygon		

## Statistics

### INTERPRETING, CONSTRUCTING AND PRESENTING DATA

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	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				

### PROBLEM SOLVING

		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
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## Algebra EQUATIONS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p><i>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and <b>missing number problems</b> such as <math>7 = \quad - 9</math></i> (copied from Addition and Subtraction)</p>	<p><i>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and <b>missing number</b> problems.</i> (copied from Addition and Subtraction)</p>	<p>solve problems, including <b>missing number</b> problems, using number facts, place value, and more complex addition and subtraction. (copied from Addition and Subtraction)</p>		<p>use the properties of rectangles to deduce related facts and find <b>missing lengths and angles</b> (copied from Geometry: Properties of Shapes)</p>	<ul style="list-style-type: none"> <li>*use simple formulae</li> <li>*generate and describe linear number sequences</li> <li>*express missing number problems algebraically</li> <li>*find pairs of numbers that satisfy number sentences involving two unknowns</li> <li>*enumerate possibilities of combinations of 2 variables.</li> </ul>
		<p>solve problems, including <b>missing number</b> problems, involving multiplication and division, including integer scaling (copied from Multiplication and Division)</p>			