

Maths

at Norton CP School

Developed directly from the national curriculum for mathematics, our school curriculum ensures that all pupils become fluent in the fundamentals of mathematics.

We include varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

We develop the skill of mathematical reasoning by teaching the concepts and mathematical language that are vital.

We encourage children to solve problems by applying their mathematics to problems of increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions:

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Bold = New ready to progress criteria

Place Value

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	<p>Count to 100</p> <p>Count in multiples of 2s, 5s and 10s</p> <p>Recognise place value, read , write and compare numbers to 20</p> <p>Find 1 more/ less</p> <p>Count within 100, forwards and backwards, starting with any number.</p>	<p>Count in 2, 3, 5, 10s</p> <p>Recognise place value, read , write and compare numbers to 100</p> <p>10 more/ less</p>	<p>Count in 4, 8, 50, 100</p> <p>Recognise place value, read , write and compare numbers to 1000</p> <p>100 more/ less</p> <p>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</p>	<p>Count in 6, 7, 9, 25, 1000</p> <p>Recognise place value, read , write and compare numbers beyond 1000</p> <p>1000 more/ less</p> <p>Round any number to the nearest 10, 100 or 1000.</p> <p>Roman numerals to 100.</p> <p>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</p>	<p>Powers of 10 for any number up to 1,000,000</p> <p>Recognise place value, read , write and compare numbers to 1,000,000</p> <p>Count forwards and backwards with positive and negative numbers.</p> <p>Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000, 100,000.</p> <p>Read Roman numerals to 1000 and recognise Roman numeral years. 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</p>	<p>Use the whole number system</p> <p>Recognise place value, read , write and compare numbers to 10,000,000</p> <p>Use negative numbers to calculate negative numbers across zero.</p> <p>Round any whole number to a required degree of accuracy.</p> <p>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</p>

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			<p>three digit multiples of 10. →</p> <p>Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning. →</p> <p>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. →</p> <p>Divide 100 into 2, 4, 5</p>	<p>of 100. →</p> <p>Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and nonstandard partitioning →</p> <p>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. →</p> <p>Divide 1,000 into 2, 4, 5 and 10 equal</p>	<p>0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01. →</p> <p>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 nonstandard partitioning. →</p> <p>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. →</p>	<p>hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).</p> <p>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 nonstandard partitioning.</p> <p>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.</p>
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			<p>and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. →</p>	<p>parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. →</p>	<p>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. →</p> <p>Convert between units of measure, including using common decimals and fractions</p>	<p>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.</p>
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Number Facts

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
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	<p>Develop fluency in addition and subtraction facts within 10 →</p> <p>Count forwards and backwards in multiples of 2, 5 and 10 up to 10 multiples, beginning with any multiple and forwards/backwards through odd numbers. →</p>	<p>Secure fluency in addition and subtraction facts within 10, through continued practice →</p>	<p>Secure fluency in addition and subtraction facts that bridge 10, through continued practice.</p> <p>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 →</p>	<p>Recall multiplication and division facts up to 12 x 12, and recognise products in multiplication tables as multiples of the corresponding number. →</p> <p>Solve division problems, with two-digit dividends and one-digit divisors that involve remainders, and interpret remainders appropriately according to the context.</p> <p>Apply place-value</p>	<p>Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.</p>	
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			Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). →	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).	
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Addition/Subtraction

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
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	Solve one step problems.	Solve addition and subtraction problems.	Solve problems including missing number problems.	Solve two step problems.	Solve multi- step problems.	Solve multi- step problems in context.
	Interpret statements involving +, -, =	Show addition can be done in any order. Check using inverse.	Use formal methods to + - up to 3 digits. Check using inverse.	Use formal methods to + - up to 4 digits. Check using inverse.	Use formal methods to + - whole numbers with more than 4 digits. Check using rounding.	Use knowledge of order of operations to carry out calculations. Know how to check using inverse + rounding.
	Represent number bonds to 20.	Know number bonds to 20 and subtraction facts. (apply to facts to 100) Mentally +/- 2 digit numbers + ones. 2 digit numbers + tens.	Know pairs of multiples of 10 that = 100 Mentally +/- 3 digit numbers + ones.	Know pairs of multiples of 100 = 1000 Mentally +/-	Know pairs of multiples of 10 + 5 = 100	Know all 2 digit parts= 100
	Add and subtract 1 digit/ 2 digit numbers to 20	Two 2 digit numbers Three 1 digit numbers.	3 digit numbers + tens. 3 digit numbers + hundreds.	4 digit numbers + ones. 4 digit numbers + tens. 4 digit numbers + hundreds.	Mentally +/- increasingly large numbers.	Perform mental calculations including mixed operations and large numbers.
	Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.	Add and subtract across 10	Calculate complements to 100			Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative
	Read, write and	Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?"				

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	interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.	<p>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.</p> <p>Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two digit numbers.</p>	<p>Add and subtract up to three-digit numbers using columnar methods.</p> <p>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.</p>			<p>relationships restricted to multiplication by a whole number).</p> <p>Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.</p> <p>Solve problems involving ratio relationships.</p> <p>Solve problems with 2 unknowns.</p>
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Multiplication/Division

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	Solve 1 step problems using objects/ arrays.	Solve problems using arrays, repeated addition, and mental methods.	Solve problems including missing numbers, positive integer scaling problems and correspondence.	Solve problems \times and \div including distributive law to $\times 2$ digit numbers by 1 digit integer scaling and harder correspondence.	Solve problems \times , \div , $+$, $-$ including scaling fractions + simple rates, factors, multiples, squares and cubes.	Solve problems \times , \div , $+$, $-$ Use knowledge of order of operations to carry out calculations and

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	Count forwards/ backwards in 10s	<p>X ÷ facts 2, 5, 10</p> <p>Calculate mathematical statements using $x \div =$ and know the order for $\div \times$. Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.</p> <p>Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitvedivision)</p>	<p>X ÷ facts 3 ,4 ,8</p> <p>Write and calculate 2 digits by 1 digit moving to formal method.</p> <p>Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.</p>	<p>X ÷ up to 12 x 12</p> <p>Use formal method 2 digit/ 3 digit by 1 digit.</p> <p>Use place value to x, \div mentally by 0, 1 using factor pairs and commutativity.</p> <p>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. →</p> <p>Manipulate multiplication and division equations, and understand and apply the commutative</p>	<p>Identify multiples/ factors of a number and prime numbers to 19.</p> <p>Use formal method 4 digit by 1 digit including remainders.</p> <p>Mentally solve x and \div problems using known facts including by 10, 100, 1000.</p> <p>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.</p> <p>Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given</p>	<p>estimation to check accuracy.</p> <p>Common factors, multiples and prime numbers.</p> <p>Long multiplication and division interpreting remainders.</p> <p>Perform mental calculations including mixed operations and large numbers 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).</p>
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				<p>property of multiplication.</p> <p>Understand and apply the distributive property of multiplication →</p>	<p>number as a product of 2 or 3 factors.</p> <p>Multiply any whole number with up to 4 digits by any one digit number using a formal method</p> <p>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.</p>	<p>Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.</p> <p>Solve problems involving ratio relationships.</p> <p>Solve problems with 2 unknowns.</p>
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Fractions

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	<p>Recognise and name $\frac{1}{2}$ of shapes and quantities.</p> <p>Recognise and name $\frac{1}{4}$ of shapes and</p>	<p>Recognise and name $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ of shapes and quantities.</p> <p>Write simple fractions.</p>	<p>Recognise and use fractions of a discrete set of objects.</p> <p>Write fractions of a discrete set of</p>	<p>(Including decimals) Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$</p> <p>Recognise and write the decimal equivalent of any number of tenths or hundredths.</p>	<p>(Including decimals and %)</p> <p>Recognise mixed and improper fractions, convert one to another.</p> <p>Compare and order fractions whose</p>	<p>(Including decimals and %)</p> <p>Use common factors to simplify fractions.</p>

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	quantities.	Recognise equivalence $2/4 = 1/2$	<p>objects. (unit and non-unit)</p> <p>Using diagrams recognise equivalent fractions.</p> <p>Add and subtract fractions within a whole.</p> <p>Count in tenths.</p> <p>Solve problems including all of the above.</p> <p>Compare and order fractions.</p> <p>Interpret and write proper fractions to represent 1 or several parts of a</p>	<p>Using diagrams show families of common equivalent fractions.</p> <p>Add and subtract with the same denominator.</p> <p>Count in hundredths.</p> <p>Solve problems including fractions, measure and money</p> <p>Compare numbers with the same number of decimal places.</p> <p>Round decimals with one decimal place to the nearest whole number.</p>	<p>denominators are multiples of the same number.</p> <p>Identify, name and write equivalent fractions of a given number. Include tenths and hundredths.</p> <p>Add and subtract with the same denominator and multiples of the same denominator.</p> <p>Recognise thousandths and relate to hundredths and tenths.</p> <p>Solve problems with up to three decimal places.</p> <p>Read, write, order and compare numbers with up to three decimal places.</p> <p>Round decimals with two decimal places to the nearest whole</p>	<p>Compare and order fractions including fractions >1.</p> <p>Associate a fraction with \div and calculate decimal fraction equivalents.</p> <p>Add and subtract with different denominators and mixed numbers.</p> <p>Identify value of each digit to three decimal places.</p> <p>Solve problems which require rounding to specified degrees of accuracy.</p> <p>Divide proper fractions by whole numbers.</p>
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			<p>whole that is divided into equal parts.</p> <p>Find unit fractions of quantities using known division facts(multiplication tables fluency) →</p> <p>Reason about the location of any fraction within 1 in the linear number system. →</p> <p>Add and subtract fractions with the same denominator, within 1.</p>	<p>Reason about the location of mixed numbers in the linear number system</p> <p>Convert mixed numbers to improper Fractions and vice versa</p> <p>Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.</p>	<p>numbers and to one decimal place.</p> <p>Find non-unit fractions of quantities</p> <p>Find equivalent fractions and understand that they have the same value and the same position in the linear number system.</p> <p>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.</p>	<p>Multiply one digit numbers with up to two decimal places by whole numbers and use \div methods where answers have up to two decimal places.</p> <p>Recognise when fractions can be simplified, and use common factors to simplify fractions.</p> <p>Express fractions in a common denomination and use this to compare fractions that are similar in value.</p> <p>Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common</p>
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						denomination as a comparison strategy.
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Measurement

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	Compare, describe and solve practical problems. -Length/height -Mass/ weight -Capacity/ volume -Time Measure/ Record: -Lengths -Mass -Capacity -Time Recognise and know value of different denominations coins/ notes Sequence events chronologically using relevant language.	Choose and use appropriate standard units to estimate and measure: -Length/ height(m, cm) -Mass(kg, g) - Temperature(°C) - Capacity(L, ml) Compare and order: -Lengths -Mass -Volume/ Capacity Using > < = Recognise and use £, p. Find different combination of coins to = same amount Compare and sequence intervals of time.	Measure, compare, +, - : -Lengths (m, cm, mm) - Mass - Volume/ Capacity (L, ml) Measure perimeter of 2D shapes + and – amounts of money to give change (practical contexts) Complete duration of events	Convert between different metric measures: Km → m Hr →minutes Measure and calculate perimeter of rectilinear shapes in cm and m. Find the area of rectilinear shapes by counting squares.	Convert between different metric measures: Km + m Cm +m Cm +mm g + kg L +ml Understand and use appropriate equivalences metric and imperial: Inches, pounds and pints. Measure and calculate perimeter of composite rectilinear shapes- cm and m. Calculate and compare area of rectangles using standard units, cm ² , m ² .	Use, read, write, convert btw standard units: Length, mass, volume and time. (Using decimal notation up to 3 decimal places) Convert btw miles and km. Recognise shapes with the same area can have different perimeters(vice versa) Recognise when can use formulae for area

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	<p>Recognise and use language relating to date.</p> <p>Tell the time and draw hands: 'o' clock ½ past</p>	<p>Know number of minutes in 1 hour and hours in a day.</p> <p>Tell, write and draw hands for ¼ to ½ past 5 minute intervals</p> <p>Solve problems practically including +, - of money including giving change.</p>	<p>Know the number of seconds in a minute, number of days in a month, year and leap year.</p> <p>Tell, write time: -From analogue clock (including Roman numerals I – XII) -12 hour -24 hour clocks</p> <p>Estimate and read time with increasing accuracy to the nearest minute record and compare.</p>	<p>Read, write and convert time: Analogue/ digital 12/24 hr clocks.</p> <p>Sole problems converting: Hrs→ mins Mins→ secs yrs→ months and weeks</p>	<p>Estimate volume and capacity.</p> <p>Solve problems involving converting btw units of time.</p> <p>Use all 4 operations to solve problems involving measure. Using decimal notation and scaling.</p>	<p>and volume of shapes.</p> <p>Calculate area of parallelograms and triangles.</p> <p>Calculate, estimate and compare volume of cubes/ cuboids using standard units, cm², m³, extending to mm³ and km³.</p> <p>Solve problems involving calculation and conversion of measures using decimal notation(up to 3 decimal places)</p>
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Geometry – properties of shape

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	Recognise and name common 2D/3D shapes.	Identify and describe properties of 2D/3D shapes. 2D-no. of sides, line of symmetry.	Draw 2D shapes and make 3D shapes recognising them in different orientations Recognise angles as a property of a shape	Compare and classify geometric shapes based on properties and size. Identify acute and obtuse angles- compare and order.	Identify 3D shapes from 2D representations.	Draw 2D shapes using given dimensions and angles.

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	<p>2D-square, rectangle, triangle, circle.</p> <p>3D-cuboids, pyramids, spheres.</p> <p>Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not</p>	<p>3D-edges, vertices, faces.</p> <p>Identify 2D shapes on surface of a 3D shape.</p> <p>Compare and sort 2D/3D shapes.</p> <p>Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties. →</p>	<p>Identify a right angle > < than a right angle.</p> <p>Identify horizontal, vertical, pairs of perpendicular and parallel lines.</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>Draw polygons by joining marked</p>	<p>Identify lines of symmetry in 2D shapes in different orientations.</p> <p>Complete simple symmetric figure with specific line of symmetry.</p>	<p>Know angles are measured in degrees- compare and order.</p> <p>Draw given angles and measure in degrees.</p> <p>Identify angles on point: 1 turn 360° ½ turn 180° Other multiples of 90°</p> <p>Use properties of rectangles to deduce missing lengths/angles.</p> <p>Distinguish between regular and irregular polygons</p> <p>Compare angles, estimate and measure angles in degrees and draw angles of a given size.</p> <p>Compare areas and</p>	<p>Recognise and build simple 3D shapes including nets.</p> <p>Compare and classify geometric shapes based on properties, sizes and find unknown angles.</p> <p>Recognise angles meet at a point on a straight line or vertically opposite and find missing angles.</p> <p>Illustrate/name parts of a circle-radius, diameter and circumference.</p>
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	<p>always similar to one another. →</p> <p>Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.</p> <p>→</p>		<p>points, and identify parallel and perpendicular sides.</p> <p>→</p>	<p>Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant. →</p> <p>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.</p> <p>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.</p>	<p>calculate the area of rectangles (including squares) using standard units</p>	<p>Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.</p>
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Geometry – position and direction

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	Describe position, direction and movement Whole $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}$ turns	Use mathematical vocabulary to describe position, direction and movement -Straight line -Rotation -Clockwise/ anti-clockwise. Order and arrange patterns and sequences.		Describe positions on 2D grid as co-ordinates in 1 st quad Describe movements as translations of a given unit. Plot specified points to complete a polygon.	Identify, describe, and represent position of shapes after reflection / translation. (in lines parallel to axis)	Describe positions in all four quad. Draw and translate on co- ordinate plane -Reflect in axes.

Statistics

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	Interpret and construct: -Pictograms -Tally charts -Block diagrams -Simple tables	Interpret and present data: -Bar charts -Pictograms -Tables Solve 1 step and 2	Interpret and present: -Discrete -Continuous data	Complete, read and interpret information in tables and timetables. Solve comparison,	Interpret and construct: -Pie charts -Line graphs	Interpret and construct: -Pictograms -Tally charts -Block diagrams -Simple tables

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	<p>Ask and answer questions.</p> <p>-Counting objects, sorting categories by quantity.</p> <p>Ask and answer questions about totalling/ comparing data.</p>	<p>step questions using information in scaled charts.</p>	<p>Solve comparison, sum and difference problems using information presented.</p>	<p>sum and difference problems for information in a line graph.</p>	<p>Solve problems using the above.</p> <p>Calculate and interpret the mean as an average.</p>	<p>Ask and answer questions.</p> <p>-Counting objects, sorting categories by quantity.</p> <p>Ask and answer questions about totalling/ comparing data.</p>
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Ratio and Proportion

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
						<p>Solve problems involving:</p> <ul style="list-style-type: none"> -Relative size of 2 quantities -Calculation of % (15% of 360%) -Similar shapes where scale factor is known. -Unequal sharing/ grouping.

Algebra

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
						Use simple formulae.

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						<p>Describe linear number sequences.</p> <p>Express missing number problems algebraically.</p> <p>Find pairs of numbers to satisfy equation with 2 unknowns.</p> <p>Establish possibilities of combinations of 2 variables.</p>
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Document Control

September 2021 – Reviewed
 December 2021 – Added EYFS column

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