



Mathematics Curriculum

"Love one another. As I have loved you." (John 13.34)

At St John's Primary Academy, we strive to follow Jesus' commandment by showing care, respect and friendship to all we meet. This is built on a foundation and commitment to educating the whole child through a broad and balanced curriculum, fostering children's aspirations and providing them with opportunities to flourish, in body, mind and spirit and to experience the joy and hope of *"...life in all its fullness"* (John 10.10).



Vision for Mathematics

Intent

Our mathematics curriculum aims to foster a love for maths in all learners through engaging, challenging and varied opportunities. At St. John's, we provide meaningful and relevant experiences which allow children to become methodical, resilient life-long learners and apply their mathematical understanding in real life contexts. We embed a deeper understanding, relational understanding of maths by utilising a concrete, pictorial, abstract approach, guiding children on their path to mastering mathematical concepts. Children at St. John's are encouraged to become risk takers through exploration and discovery.

Implementation

A **CPA (concrete, pictorial, abstract) approach** is incorporated into planning and teaching in order to deepen children's understanding of mathematical concepts and methods, leading children down the path to achieving maths mastery.

Children are encouraged to use both **concrete resources and pictorial representations** to guide them in solving problems.

Children are given the opportunity to **reason and solve problems** regularly; learning is varied and allows for deep and secure understanding.

The academy's **agreed calculations policy** for progression in written and mental calculations is implemented across year groups.

Pupils develop **fluency** through practicing key skills, repeating, reinforcing and revising which is all built into planning across the academy.

Planning is **well differentiated** to support and challenge children accordingly.

To **challenge** pupils in each mathematical area, teachers plan 'Warrior Challenges' that require children to deepen their thinking, often through problem solving and reasoning questions.

Children practise their **times table recall** and accuracy through daily 'speedy tables' grids, which are progressive across each term and year group.

Mathematical vocabulary is explicitly displayed within the classroom – this is discussed with children and they are encouraged to use it independently.

Children work both **collaboratively and independently** solving problems, which require them to persevere and develop resilience.

Classrooms use working wall displays and more permanent mathematical displays to share **good examples of skills** so that children can use this to support their workings.

Children's mathematical work is **celebrated** during special mentions.

Impact

Planning – Does the planning provide opportunities for fluency, reasoning and problem solving? Does the planning adopt a CPA approach, whereby the children can explore mathematical concepts in a variety of ways? Are questions planned for to support children in mastering a deeper understanding of a range of concepts? Is planning relevant and linked where appropriate to real life contexts? Are tasks differentiated? Is there a clear sequence where children build on prior learning?

Monitoring of planning and books – Does the children's work in books reflect their understanding? Is planning well thought through? Is CPA planned for suitably to ensure resources support the children in understanding different concepts? Is it clear that children have been challenged? Are there a variety of tasks in children's books?

Pupil voice – Do children enjoy Maths? Are they excited by lessons? Do they have a passion for maths? Are they learning and developing their understanding for a range of concepts? Do they feel they have the opportunity to use these skills and apply them? Are children confident in discussing concepts using mathematical vocabulary? Do they enjoy working in collaboration with their peers?

CPD – Are staff confident in their subject knowledge? Do we provide opportunities for staff to share good practise and ask for support? Are staff given feedback following planning/book scrutinies and opportunities to develop their practice? Are we keeping staff updated with any necessary information regarding the Maths action plan?

Environment – Are classroom displays and working walls purposeful? Are they age appropriate? Do they use correct mathematical vocabulary? Do they support the children? Do the children use the displays and working walls? Are there displays of children's maths work up in classrooms? Is concrete equipment accessible in classrooms for children to use?

Data – Is the maths data in line with historical End of KS1 and End of KS2 data? Does it show progress throughout a child's school journey? Is the data in line or better than national averages?

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St. John's Primary Academy



Overview of the Mathematics Curriculum

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	1: Number: counting (to/ across 100) 2: Place Value - Reading/ Writing numbers, partitioning, one more/ one less 3: Addition (facts/ strategies) 4: Subtraction (facts/ strategies) 5: Money - Coin recognition/ ordering coins 6: Geometry (2D shape inc. patterns) 7: Geometry (3D shape inc. patterns) 8: Number: counting (2s, 5s, 10s)	1: Place Value - Comparing & ordering (inc. ordinal numbers, 10 more/ 10 less) 2: Multiplication (facts/ strategies) 3: Division (facts/ strategies) 4: Doubling & Halving 5: Measures - Time (Describe everyday events, days of the week, months of the year, read the time to the hour/ half past the hour) 6: Number sequences (odd and evens) 7: Christmas maths - recipes mass/ weight & handling data	1: Place Value - partition into multiples of tens and ones, one/ ten more ten less 2: Addition (inc. near doubles, bridging) 3: Subtraction (inc. bridging & using the inverse) 4: Measures - non-standard length 5: Position & Direction 6: Money (Calculations)	1: Multiplication/ Division (Doubling & Halving, use arrays to represent grouping) 2: Fractions (halve simple shapes and quantities, find $\frac{1}{2}$ of a shape) 3: Geometry (2D shape) 4: Geometry (3D shape) 5: Measures - Time 6: Money (calculations)	1: Place Value - comparing & ordering (numbers in between) 2: Addition & Subtraction (add o subtract 9 bridging) 3: Position & Direction 4: Statistics (handling data) 5: Focus Week	1: Measures - length/ heights 2: Measures (mixed - length, mass & capacity) 3: Number: Counting in 3s, sequences, statements 4: Multiplication/ Division 5: Fractions 6: Measures (Time)
Year 2	1: Number & Place Value: counting, reading 7 writing numbers, partitioning 1/10 more/less 2: Addition/ Subtraction number facts & mental strategies (inc. near multiples of 10) 3: Multiplication/ Division 4: Number facts: Doubling and halving 5: Geometry (2D shapes) 6: Geometry (3D shape) 7: money 8: Number: counting, sequences, odds and evens & recognising multiples	1: Number & Place Value comparing & ordering numbers (ordinal numbers and inequality signs) 2: Addition and subtraction mental strategies (bridging through multiples of 10, adding/ subtracting near multiples of 10, 9, 11, 19, 21 etc. inc using the inverse) 3: Fractions 4: Measures - Time 5: Measures - length/ height 6: Number & Place Value - counting in 3s comparing & ordering 7: Christmas Maths - include recipes (mass/ weight) handling data	1: Addition (adding several numbers & partitioning method) inc near doubles 2: Subtraction (partitioning method inc. informal methods - complimentary addition) 3: Money 4: Position & Direction 5: Geometry (2D and 3D shape) including symmetry 6: Statistics (handling data)	1: Place Value - estimating & rounding 2: Multiplication & Division 3: Fractions 4: Measures (Time) 5: Place Value ordering, estimating and rounding 6: Addition (written methods inc word problems)	1: Subtraction (written methods (inc. counting up using number line inc word problems & inverse e.g. expanded exchanging) 2: Money (Calculations) 3: Measures (capacity/ volume) 4: Geometry (2D and 3D shape) SATS Refresh last minute intervention 5: SATS	1: Addition & Subtraction (written methods) inc. word problems 2: Multiplication & Division 3: Fractions inc. thirds 4: Measures (Time) 5: Measures (weight/ mass) 6: Position & Direction 7: Statistics (handling data)

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<p>Year 3</p>	<p>1: Number (place value of digits, partitioning, read and write whole numbers, more, less, rounding, x10, 100, 1000) 2: Mental Strategies and FACTS - addition facts 3: Mental Strategies and FACTS - subtraction facts 4: Mental strategies and FACTS multiplication facts (doubles and halves, multiples and factors, x10, 100, 1000) 5: Mental strategies and FACTS - Division facts including remainders 6: Measures - length (inc x 10, 100, 1000 for converting, practical scale reading) 7: Measures - weight (inc x 10, 100, 1000 for converting, practical scale reading) 8: Measures - capacity (inc x 10, 100, 1000 for converting, practical scale reading)</p>	<p>1: Geometry - 2D shapes (inc triangles) Could include Venn and Carroll diagrams 2: Geometry - 3D shapes 3: Addition/ subtraction (inc inverse and missing numbers) 4: Multiplication/ Division (inc inverse and missing numbers) 5: Fractions (of shapes and amounts, tenths) 6: Number (odd and even, compare and order, sequences, estimate and approximate) 7: Christmas Maths - data handling (inc tables, bar graphs, tally charts and pictograms)</p>	<p>1: Written Addition 2: Subtraction (finding the difference/ complimentary addition) 3: Written Subtraction 4: Measures - Time (inc units of time, time telling, estimate and time, solving time problems, earlier/ later not necessarily intervals) 5: Money (including value of coins, ordering amounts and change) 6: Geometry Angles</p>	<p>1: Geometry: Position and direction (including compass points and grids, rotation) 2: Written addition and subtraction (including using the inverse) 3: Written multiplication 4: Written division 5: Geometry (symmetry/ reflective symmetry) 6: Mixed measures (length, weight, capacity) inc some problem solving</p>	<p>1: Fractions (inc compare and order, add and subtract) 2: Addition/ subtraction (mental, written) 3: Multiplication/ Division (mental/ written) 4: Using and applying (inc 4 rules, measures, money) 5: Money (inc multi step problems)</p>	<p>1: Fractions (inc equivalent fractions) 2: Measures - Time (including time telling, time intervals and timetables) 3: Written strategies 4 rules 4: Using and applying (inc 4 rules, measures and money) 5: Geometry (2D 3D shape, inc circles) Include measuring PERIMETER OF SHAPES. 6: Statistics: data handling (inc table, bar graphs, tally charts and pictograms and Venn and Carroll diagrams)</p>
<p>Year 4</p>	<p>1: Number (nc PV of digits, read and write up to 10, 100, 1000, partitioning, compare and order, < >, more or less) 2: Mental strategies and FACTS - Addition 3: Mental Strategies and FACTS - Subtraction 4: Mental Strategies and FACTS - multiplication 5: Division (inc mental strategies and facts inc remainders and written) 6: Written strategies - addition and subtraction 7: geometry (properties of 2D and 3D shape) Venn and Carroll diagrams can be included here)</p>	<p>1: Number - Decimals and money (inc value of coins and notes, decimal notation, what each digit represents, compare and order decimals and amounts of money) 2: Measures - Length (inc. converting, x 10, 100, 1000, practical, choose and use, scale reading) 3: Measures - weight and capacity (inc converting, x10, 100, 1000, practical, choose and use, scale reading) 4: Measures - Time (read 12- and 24-hour clock, converting, timetables and calendars, converting problems) not necessarily time intervals for WT 5: Fractions (+ decimal equivalents. Inc fractions of amounts, shapes and quantities, compare and order, add and subtract, reading fractions and reducing to simplest form)</p>	<p>1: Written strategies - multiplication Recap GRID method (TO x TO), moving on to SHORT multiplication (HTO x O) 2: Using and applying - addition and subtraction (recap written) 3: Using ad applying - multiplication and division (inc remainders and rounding of answers) 4: Using and applying - all four operations including money 5: Geometry - Symmetry, the language of shape and circles 6: Number (inc rounding whole and decimal numbers, negative numbers, < > Roman numerals, odd and even)</p>	<p>1: Measures - Time (time telling, time intervals inc from timetables) 2: Fractions (recap fraction quantities, equivalents, comparing, position on a number line) 3: Mixed measures (inc problem solving, using and applying, word problems) 4: Statistics - data handling (including bar charts, pictograms, tables and other graphs) 5: Mental strategies recap - addition and subtraction inc applying skills 6: Mental strategies recap - multiplication and division inc applying skills</p>	<p>1: Geometry - Angles, position, direction and movement 2: Measures - Area and perimeter 3: Written strategies recap 4: Money and multi-step problem solving 5: Fractions and decimals (recap, interpreting mixed number, problem solving)</p>	<p>1: Geometry (co-ordinates, translations) 2: Statistics - data handling (inc time graphs, Venn and Carroll diagrams and other graphs) 3: Using and applying - using 4 rules, measures and money 4: Problem solving (reasoning) 5: Algebra 6: Calculator skills (using and applying)</p>

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		6: Geometry - Angles (inc triangles) 7: Geometry: Position and direction Number - Rounding				
Year 5	1: Number (read and write the value of digits, compare and order decimals) 2: Mental strategies and FACTS - addition 3: Mental strategies and FACTS - subtraction 4: Mental strategies and FACTS - multiplication (doubles, halves, facts, multiples and factors, squared and cubed numbers) 5: Division (inc mental strategies and facts, remainders and using the inverse, prime numbers) 6: Written strategies - addition and subtraction BENCHMARKING 7: Written strategies - multiplication and division 8: Number (sequences, decimals and estimating)	1: Measures - Time (inc time telling inc 24 hr clock, intervals timetables and calendars, 4 operations and calculator) 2: Money (investigating, converting currencies, problem solving, using 4 operations, calculator) 3: Mixed measures - Length, weigh and capacity (converting x10, 100, 1000, scales, draw and measure, choose and use) 4: Fractions and decimals (of quantities, numbers, compare and order, equivalents, + and -, decimal equivalents) 5: Geometry - 2D and 3D shape (properties, language, make and draw, nets and cubes) 6: Number (Odd and even statements, estimates and approximation to calculate, decimals) 7: Christmas Maths - statistics (tables, bar/ line graphs, pictograms)	1: Multiplication and division MENTAL strategies 2: STANDON BOWERS 3: Written strategies - multiplication and division 4: PERCENTAGES (1 st visit) 5: Ratio and proportion 6: Measures - Area and perimeter	1: Statistics - Data handling (pie charts and probability) 2: Measures - Time 3: Written strategies recap and using and applying all 4 operations 4: Fractions/ decimals/ percentages (link between them, converting, mixed and improper fractions, multiplying fractions, decimal equivalents, build on percentages) 5: Number - Roman numerals 6: Number (negative numbers, sequences, compare and order, difference between + and - integer, in context)	1: Geometry - Angles 2: Geometry (triangles, circles, symmetry, reflective and rotational) 3: Geometry - Position, direction and movement (co-ordinates, translation, reflection, rotation) 4: One and two step problems using 4 operations 5: Statistics - Data Handling (averages, variety of different charts, scatter, pie, line, etc. Inc Venn and Carroll)	1: one and 2 step problems involving time, money and measures 2: Algebra - new (linear algebraic sentences, letters to help express a problem) 3: Problem solving (including using and applying and reasoning) 4: Ration and proportion 5: Geometry - Position direction movement (translation, rotation, reflection) 6: Calculator skills (using and applying)
Year 6	1: Place Value 2: Mental calculation strategies (4 operations) 3: Fractions 4: Written calculation strategies (addition and subtraction) 5: FDP 6: BENCHMARKING 7: Written calculation strategies (addition and subtraction) 8: Ratio & Proportion	1: Geometry (2D & 3D shape properties) 2: Geometry: Angles 3: Measures: Area, perimeter and volume 4: MIXES PROBLEM SOLVING as recap of coverage so far 5: Position & direction (co-ordinates) 6: Christmas Maths - linked with statistics	1: Number 2: Mental Strategies 3: Geometry (2D and 3D shape) inc circles - symmetry 4: Algebra 5: FDP 6: Measures: Time	1: BENCHMARKING 2: Statistics: Pie Charts/ Finding the mean 3: Measures: various inc, converting between imperial/ reading scales 4: PARIS 5: Mixes - dependent on analysis from benchmarking 6: BOOSTER	1: BOOSTER 2: BOOSTER 3: BOOSTER 4: SATS WEEK 5: MATHS GAMES	1: Geometry (2D shapes - further properties) 2: Further Fractions (4 operations) 3: Investigating patterns 4: Transition Work 5: Transition Work 6: Transition Work

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	Year 1 Progression of Skills	Year 2 Progression of Skills	Year 3 Progression of Skills	Year 4 Progression of Skills	Year 5 Progression of Skills	Year 6 Progression of Skills
Number – Number and place value	<p>Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.</p> <p>Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s.</p> <p>Given a number, identify 1 more and 1 less.</p> <p>Identify and represent numbers using objects and pictorial representations including the number line, and use the language of equal to, more than, less than (fewer), most, least.</p> <p>Read and write numbers from 1 to 20 in numerals and words.</p>	<p>Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward.</p> <p>Recognise the place value of each digit in a two-digit number (10s, 1s).</p> <p>Identify, represent and estimate numbers using different representations, including the number line.</p> <p>Compare and order numbers from 0 up to 100; use <, > and = signs.</p> <p>Read and write numbers to at least 100 in numerals and in words.</p> <p>Use place value and number facts to solve problems.</p>	<p>Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.</p> <p>Recognise the place value of each digit in a 3-digit number (100s, 10s, 1s).</p> <p>Compare and order numbers up to 1,000.</p> <p>Identify, represent and estimate numbers using different representations.</p> <p>Read and write numbers up to 1,000 in numerals and in words.</p> <p>Solve number problems and practical problems involving these ideas</p>	<p>Count in multiples of 6, 7, 9, 25 and 1,000.</p> <p>Find 1,000 more or less than a given number.</p> <p>Count backwards through 0 to include negative numbers.</p> <p>Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s).</p> <p>Order and compare numbers beyond 1,000.</p> <p>Identify, represent and estimate numbers using different representations.</p> <p>Round any number to the nearest 10, 100 or 1,000.</p> <p>Solve number and practical problems that involve all of the above and with increasingly large positive numbers.</p> <p>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</p>	<p>Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.</p> <p>Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.</p> <p>Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0.</p> <p>Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000.</p> <p>Solve number problems and practical problems that involve all the above.</p> <p>Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals.</p>	<p>Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.</p> <p>Round any whole number to a required degree of accuracy.</p> <p>Use negative numbers in context and calculate intervals across 0.</p> <p>Solve number and practical problems that involve all the above.</p>

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	Year 1 Progression of Skills	Year 2 Progression of Skills	Year 3 Progression of Skills	Year 4 Progression of Skills	Year 5 Progression of Skills	Year 6 Progression of Skills
Number – Addition and Subtraction	<p>Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.</p> <p>Represent and use number bonds and related subtraction facts within 20.</p> <p>Add and subtract one-digit and two-digit numbers to 20, including 0.</p> <p>Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$.</p>	<p>Solve problems with addition and subtraction:</p> <p>using concrete objects and pictorial representations, including those involving numbers, quantities and measures</p> <p>applying their increasing knowledge of mental and written methods</p> <p>Recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100.</p> <p>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <p>a two-digit number and 1s</p> <p>a two-digit number and 10s</p> <p>2 two-digit numbers</p> <p>adding 3 one-digit numbers</p> <p>Show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot.</p> <p>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p>	<p>Add and subtract numbers mentally, including:</p> <p>a three-digit number and 1s</p> <p>a three-digit number and 10s</p> <p>a three-digit number and 100s.</p> <p>Add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction.</p> <p>Estimate the answer to a calculation and use inverse operations to check answers.</p> <p>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p>	<p>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</p> <p>Estimate and use inverse operations to check answers to a calculation.</p> <p>Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p>	<p>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</p> <p>Add and subtract numbers mentally with increasingly large numbers.</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 operations and methods to use and why.</p>	<p>Addition, Subtraction, Multiplication & Division</p> <p>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.</p> <p>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>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.</p> <p>Perform mental calculations, including with mixed operations and large numbers.</p> <p>Identify common factors, common multiples and prime numbers.</p> <p>Use their knowledge of the order of operations to carry out calculations involving the 4 operations.</p> <p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and 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>

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Number – Multiplication and Division	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.	<p>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.</p> <p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs.</p> <p>Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot.</p> <p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</p>	<p>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</p> <p>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.</p> <p>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.</p>	<p>Recall multiplication and division facts for multiplication tables up to 12×12.</p> <p>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.</p> <p>Recognise and use factor pairs and commutativity in mental calculations.</p> <p>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</p> <p>Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</p>	<p>Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers.</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>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.</p> <p>Multiply and divide numbers mentally, drawing upon known facts.</p> <p>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.</p> <p>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.</p>	<p>Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).</p> <p>Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes.</p> <p>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</p> <p>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p>
						<p>Year 6 Progression of Skills</p> <p>See strand above</p>

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Number - Fractions Knowledge	<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 $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity.</p> <p>Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.</p>	<p>Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-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>Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$].</p> <p>Compare and order unit fractions, and fractions with the same denominators</p> <p>Solve problems that involve all of the above.</p>	<p>Recognise and show, using diagrams, families of common equivalent fractions.</p> <p>Count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10.</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>Add and subtract fractions with the same denominator.</p> <p>Recognise and write decimal equivalents of any number of tenths or hundreds.</p> <p>Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$.</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 ones, tenths and hundredths.</p>	<p>Compare and order fractions whose denominators are all multiples of the same number.</p> <p>Identify, name and write equivalent fractions of a 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 > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$].</p> <p>Add and subtract fractions with the same denominator, and denominators that are multiples of the same number.</p> <p>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</p> <p>Read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$].</p>	<p>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.</p> <p>Compare and order fractions, including fractions >1.</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 the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$].</p> <p>Divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$].</p> <p>Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$].</p>

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Number - Fractions Knowledge continued				<p>Round decimals with 1 decimal place to the nearest whole number.</p> <p>Compare numbers with the same number of decimal places up to 2 decimal places.</p> <p>Solve simple measure and money problems involving fractions and decimals to 2 decimal places.</p>	<p>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</p> <p>Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place.</p> <p>Read, write, order and compare numbers with up to 3 decimal places.</p> <p>Solve problems involving number up to 3 decimal places.</p> <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> <p>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 fractions with a denominator of a multiple of 10 or 25.</p>	<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>Multiply one-digit numbers with up to 2 decimal places by whole numbers.</p> <p>Use written division methods in cases where the answer has up to 2 decimal places.</p> <p>Solve problems which require answers to be rounded to specified degrees of accuracy.</p> <p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p>
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	Year 1 Progression of Skills	Year 2 Progression of Skills	Year 3 Progression of Skills	Year 4 Progression of Skills	Year 5 Progression of Skills	Year 6 Progression of Skills
Measurement	<p>Compare, describe and solve practical problems for:</p> <p>lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</p> <p>mass/weight [for example, heavy/light, heavier than, lighter than]</p> <p>capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</p> <p>time [for example, quicker, slower, earlier, later]</p> <p>measure and begin to record the following:</p> <p>lengths and heights</p> <p>mass/weight</p> <p>capacity and volume</p> <p>time (hours, minutes, seconds)</p> <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 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.</p> <p>Compare and order lengths, mass, volume/capacity and record the results using >, < and =.</p> <p>Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a value.</p> <p>Find different combinations of coins that equal the same amounts of money.</p> <p>Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</p>	<p>Measure, compare, add and subtract lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</p> <p>Measure the perimeter 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>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>Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight.</p>	<p>Convert between different units of measure [for example, kilometre to metre; hour to minute].</p> <p>Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres,</p> <p>Find the area of rectilinear shapes by counting squares.</p> <p>Estimate, compare and calculate different measures, including money in pounds and pence.</p> <p>Read, write and convert time between analogue and digital 12- and 24-hour clocks.</p> <p>Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days.</p>	<p>Convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre].</p> <p>Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</p> <p>Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.</p> <p>Calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm²) and square metres (m²), and estimate the area of irregular shapes.</p> <p>Estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water].</p>	<p>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate.</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> <p>Convert between miles and kilometres.</p> <p>Recognise that shapes with the same areas can have different perimeters 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>

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Measurement continued	<p>Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening].</p> <p>Recognise and use language relating to dates, including days of the week, weeks, months and years.</p> <p>Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</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>Know the number of seconds in a minute and the number of days in each month, year and leap year.</p> <p>Compare durations of events [for example, to calculate the time taken by particular events or tasks].</p>		<p>Solve problems involving converting between units of time.</p> <p>Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</p>	<p>Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³].</p>

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Geometry – Properties of shapes	<p>Recognise and name common 2-D and 3-D shapes, including:</p> <p>2-D shapes [for example, rectangles (including squares), circles and triangles].</p> <p>3-D shapes [for example, cuboids (including cubes), pyramids and spheres].</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 and describe the properties of 3-D shapes, including the number of edges, vertices and faces.</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> <p>Compare and sort common 2-D and 3-D shapes and everyday objects.</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>Recognise angles as a property of shape or a description of a turn.</p> <p>Identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle.</p> <p>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</p>	<p>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p> <p>Identify acute and obtuse angles and compare and order angles up to 2 right angles by size.</p> <p>Identify lines of symmetry in 2-D shapes presented in different orientations.</p> <p>Complete a simple symmetric figure with respect to a specific line of symmetry.</p>	<p>Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.</p> <p>Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.</p> <p>Draw given angles and measure them in degrees ($^{\circ}$).</p> <p>Identify:</p> <ul style="list-style-type: none"> angles at a point and 1 whole turn (total 360°) angles at a point on a straight line and half a turn (total 180°) other multiples of 90°. <p>Use the properties of rectangles to deduce related facts and find missing lengths and angles.</p> <p>Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</p>	<p>Draw 2-D shapes using given dimensions and angles.</p> <p>Recognise, describe and build simple 3-D shapes, including making nets.</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> <p>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</p> <p>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p>

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Geometry – Position & Direction	Describe position, direction and movement, including whole, half, quarter and three-quarter turns.	Order and arrange combinations of mathematical objects in patterns and sequences. 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).	Covered within properties of shape.	Describe positions on a 2-D grid as coordinates in the first quadrant. Describe movements between positions as translations of a given unit to the left/right and up/down. Plot specified points and draw sides to complete a given polygon.	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 4 quadrants). Draw and translate simple shapes on the coordinate plane and reflect them in the axes.

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Statistics		<p>Interpret and construct simple pictograms, tally charts, block diagrams and tables.</p> <p>Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</p> <p>Ask-and-answer questions about totalling and comparing categorical data.</p>	<p>Interpret and present data using bar charts, pictograms and tables.</p> <p>Solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.</p>	<p>Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p>	<p>Solve comparison, sum and difference problems using information presented in a line graph.</p> <p>Complete, read and interpret information in tables, including timetables.</p>	<p>Interpret and construct pie charts and line graphs and use these to solve problems.</p> <p>Calculate and interpret the mean as an average.</p>

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Year 6 Progression of Skills	
Ratio and proportion	<p>Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts.</p> <p>Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison.</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found.</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p>

Year 6 Progression of Skills	
Algebra	<p>Use simple formulae.</p> <p>Generate and describe linear number sequences.</p> <p>Express missing number problems algebraically.</p> <p>Find pairs of numbers that satisfy an equation with 2 unknowns.</p> <p>Enumerate possibilities of combinations of 2 variables.</p>