

Maths Long Term Plan and Progression of Skills and Knowledge



Year 5 Long Term Plan:

	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12
Aut	Number: Place Value 5NPV-2, 5NPV-3			Number: Addition & Subtraction 5NPV-3		Number: Multiplication and Division A 5MD-1, 5MD-2, NF-1, NF-2			Number: Fractions A 5F-1, 5F-2, 5NPV-1			
Spr	Number: Multiplication & Division B 5NF-1, 5NF-2, 5MD-3, 5MD-4			Number: Fractions B 5F-1, 5F-2, 5NPV-1		Number: Decimals and Percentages 5NPV1, 5NPV-2, 5NPV-3, 5F-3			Measurement: Perimeter and Area 5NF-1, 5G-2		Statistics 5NPV-4	
Sum	Geometry: Properties of Shapes 5G-1			Geometry: Position and Direction		Number: Decimals 5MD-1			Number: negative numbers	Measurement: Converting Units 5NPV-4, 5NPV-5		Measurement: Volume* 5NF-1

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In line with government guidance, the Year 5 Ready-to-Progress criteria has been mapped to the long term plan. The Ready-to-Progress criteria sets out the key areas that children must be secure with in order to progress with their learning the following year.

There are 6 strands within this criteria: Number and Place Value, Number Facts, Addition and Subtraction, Multiplication and Division, Fractions and Geometry.

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NPV	1NPV-1 Count within 100, forwards and backwards, starting with any number.		3NPV-1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other threedigit multiples of 10	4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.	5NPV-1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.	6NPV-1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).
		2NPV-1 Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and	3NPV-2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-	4NPV-2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and	5NPV-2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to	6NPV-2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose

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		nonstandard partitioning.	standard partitioning.	nonstandard partitioning.	2 decimal places using standard and nonstandard partitioning.	numbers up to 10 million using standard and nonstandard partitioning.
	1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using $<$ $>$ and $=$	2NPV-2 Reason about the location of any twodigit number in the linear number system, including identifying the previous and next multiple of 10.	3NPV-3 Reason about the location of any threedigit number in the linear number system, including identifying the previous and next multiple of 100 and 10.	4NPV-3 Reason about the location of any fourdigit 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.	5NPV-3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.	6NPV-3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.
			3NPV-4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.	4NPV-4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.	5NPV-4 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.	6NPV-4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.
					5NPV-5 Convert between units of measure, including using common decimals and fractions.	
NF	1NF-1 Develop fluency in addition	2NF-1 Secure fluency in addition	3NF-1 Secure fluency in addition			

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

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

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			structure. Understand and use the commutative property of addition, and understand the related property for subtraction.			
		2AS-4 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.				6AS/MD-4 Solve problems with 2 unknowns.
MD		2MD-1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.	3MD-1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.	4MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.	5MD-1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.	For year 6, MD ready-to-progress criteria are combined with AS ready-to-progress criteria (please see above).
		2MD-2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division		4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.	5MD-2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.	

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		equations (quotitive division).				
				4MD-3 Understand and apply the distributive property of multiplication.	5MD-3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.	
					5MD-4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.	
F			3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.			6F-1 Recognise when fractions can be simplified, and use common factors to simplify fractions.
			3F-2 Find unit fractions of quantities using known division facts (multiplication tables fluency).		5F-1 Find non-unit fractions of quantities.	6F-2 Express fractions in a common denomination and use this to compare fractions that are similar in value.
			3F-3 Reason about the location of any	4F-1 Reason about the location of		6F-3 Compare fractions with

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			fraction within 1 in the linear number system.	mixed numbers in the linear number system.		different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.
				4F-2 Convert mixed numbers to improper fractions and vice versa.	5F-2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system.	
			3F-4 Add and subtract fractions with the same denominator, within 1.	4F-3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers	5F-3 Recall decimal fraction equivalents for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$ and for multiples of these proper fractions.	
G	1G-1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles,	2G-1 Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and	3G-1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in		5G-1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.	

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	cuboids and pyramids are not always similar to one another.	differences in properties.	different orientations.				
					5G-2 Compare areas and calculate the area of rectangles (including squares) using standard units.		
	1G-2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.		3G-2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.	4G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.		6G-1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.	
				4G-2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.			
				4G-3 Identify line symmetry in 2D shapes presented in different			

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				orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.		
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Maths Programme of Study National Curriculum (2013)

Purpose of study	Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history’s most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.
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<p>Aims</p>	<p>The national curriculum for mathematics aims to ensure that all pupils:</p> <ul style="list-style-type: none"> • become fluent in the fundamentals of mathematics, including through 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. • reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language • can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. <p>Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects. The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.</p>
<p>Subject content – by the end of Key Stage 1 pupils should be taught to:</p>	<p>The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools]. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.</p>

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<p>Subject content – by the end of Lower Key Stage 2 pupils should be taught to:</p>	<p>The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.</p>
<p>Subject content – by the end of Upper Key Stage 2 pupils should be taught to:</p>	<p>The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.</p>

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Year 5 Curriculum Progression

<p><i>What should they know from the previous year?</i></p> <p>Year 4</p>	<p><i>What should they know this year?</i></p> <p>Year 5</p>	<p><i>Where are they going next year?</i></p> <p>Year 6</p>
<p>Number – Number and place value</p>		
<ul style="list-style-type: none"> • Count in multiples of 6, 7, 9, 25 and 1000. • Find 1000 more or less. • Count backwards through zero to include negative numbers. • Recognise the place value of each 4-digit number (<i>thousands, hundreds, tens, ones.</i>) • Order and compare numbers beyond 1000. • Identify, represent and estimate numbers using different representations. 	<ul style="list-style-type: none"> • Read, write, order and compare numbers to at least 1,000,000 and determine value of each digit. • Count forwards/backwards in steps of powers of 10 for any number up to 1million. • Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers (<i>including through 0</i>). • Round any number up to 1million to nearest 10, 100, 1000, 10 000 and 100 000. • Solve number problems and practical problems that involve the above. 	<ul style="list-style-type: none"> • Read, write, order and compare numbers up to 10 million and determine the value of each digit. • Round any whole number to a required degree of accuracy. • Use negative numbers in context, and calculate intervals across zero. • Solve number and practical problems involving the above.

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<ul style="list-style-type: none"> • Round any number to the nearest 10, 100 or 1000. • Solve number and practical problems involving the above. • Read Roman numerals to 100 and know that the numeral system changed over time to include zero/place value. 	<ul style="list-style-type: none"> • Read Roman numerals to 1000 and recognise years written in Roman numerals. 	
Number – addition and subtraction		
<ul style="list-style-type: none"> • Add and subtract numbers with up to 4 digits using formal written methods (<i>column</i>). • Estimate and use inverse operations to check answers to calculations. • Solve addition and subtraction two-step problems in context, deciding which operations/method to use and why. 	<ul style="list-style-type: none"> • Add and subtract whole numbers with more than 4 digits using formal written methods (<i>column</i>). • Add and subtract numbers mentally with increasingly large numbers. • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. • Solve addition and subtraction multi-step problems in context, deciding which operations/methods to use and why. 	<ul style="list-style-type: none"> • Perform mental calculations, including mixed operations and large numbers. • Use their knowledge of the order of operations to carry out calculations involving the 4 operations. • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. • Solve problems involving addition, subtraction, multiplication and division.

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		<ul style="list-style-type: none"> • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
Number – multiplication and division		
<ul style="list-style-type: none"> • Recall \times and \div facts for times tables up to 12×12. • Use place value, known and derived facts to \times and \div mentally (<i>including $\times 0$ and 1, $\div 1$, $\times 3$ numbers together</i>). • Recognise and use factor pairs and commutativity in mental calculations. • Multiply 2-digit and 3-digit numbers by 1-digit using formal method. • Solve problems involving \times and (<i>including distributive law to \times 2-digit numbers by 1-digit, integer scaling problems and harder correspondence problems.</i>) 	<ul style="list-style-type: none"> • Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers. • Know and use the vocabulary of prime numbers, prime factors and composite numbers. • Establish whether a number up to 100 is prime and recall prime numbers up to 19. • Multiply numbers up to 4 digits by a 1 or 2-digit number using a formal written method (<i>including long multiplication for 2-digit numbers</i>). • Divide numbers up to 4 digits by a 1-digit number using the formal written method of short division and 	<ul style="list-style-type: none"> • Multiply multi-digit numbers up to 4 digits by a 2-digit whole number using formal written method (<i>long multiplication</i>). • Divide numbers up to 4 digits by a 2-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. • Divide numbers up to 4 digits by a 2-digit number using formal written method (<i>short division</i>), interpreting remainders according to the context. • Perform mental calculations, including mixed operations and large numbers.

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	<p>interpret remainders appropriately for the context.</p> <ul style="list-style-type: none"> • \times and \div whole numbers and those involving decimals by 10, 100 and 1000. • Recognise and use square and cube numbers, and notations for them. • Solve problems involving \times and \div <i>(including using knowledge of factors, multiples, squares and cubes.)</i> • Solve problems involving $+$, $-$, \times and \div and combinations of these and show understanding of the meaning of $=$ sign. • Solve problems involving \times and \div, including scaling by simple fractions and problems involving simple rates. 	<ul style="list-style-type: none"> • Identify common factors, common multiples and prime numbers. • Use their knowledge of the order of operations to carry out calculations involving the 4 operations. • Solve problems involving addition, subtraction, multiplication and division. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
Number - fractions		
<ul style="list-style-type: none"> • Recognise and show, using diagrams, families of common equivalent fractions. 	<p><i>(including decimals and percentages)</i></p>	<p><i>(including decimals and percentages)</i></p> <ul style="list-style-type: none"> • Use common factors to simplify fractions; use common multiples to

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<ul style="list-style-type: none"> Count up and down in hundredths; recognise hundredths come from $\div 100$ or \div tenths by 10. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities (<i>including non-unit fractions where the answer is a whole number</i>). Add and subtract fractions with same denominator. Recognise and write decimal equivalents of any number of tenths and hundredths. Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$. Find effect of dividing a 1 or 2-digit number by 10 and 100 (<i>identifying value of digits as ones, tenths, hundredths</i>). 	<ul style="list-style-type: none"> Compare and order fractions whose denominators are multiples of the same number. Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Recognise mixed numbers and improper fractions and convert from one form to the other. Write mathematical statements >1 as a mixed number. Add and subtract fractions with the same denominators and denominators that are multiples of the same number. Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. Read and write decimal numbers as fractions. 	<p>express fractions in the same denomination.</p> <ul style="list-style-type: none"> Compare and order fractions, including fractions >1. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. Multiply simple pairs of proper fractions, writing the answer in its simplest form. Divide proper fractions by whole numbers. Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction. Identify the value of each digit in numbers given to 3dp and multiply and divide numbers by 10, 100 and 1000 giving answers up to 3dp.
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- Round decimals with 1dp to nearest whole number.
- Compare numbers with same number of decimals (*up to 2dp*).
- Solve simple measure and money problems involving fractions and decimals (*to 2dp*).

- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.
- Round decimals with 2dp to the nearest whole number and to 1dp.
- Read, write, order and compare numbers with up to 3dp.
- Solve problems involving numbers up to 3dp.
- Recognise % symbol and understand per cent relates to 'parts per hundred', and write percentages as fractions with denominator 100 and as a decimal.
- Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$ and $\frac{4}{5}$ and fractions with a denominator of a multiples of 10 or 25.

- Multiply 1-digit numbers with up to 2dp by whole numbers.
- Use written division methods in cases where the answer has up to 2dp
- Solve problems which require answers to be rounded to specified degrees of accuracy.
- Recall and use equivalences between simple fractions, decimals and percentages (*including in different contexts*).

Measurement

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<ul style="list-style-type: none"> • Convert between different units of measure. • Measure and calculate perimeter of rectilinear figure (<i>cm, m</i>). • Find area of rectilinear shapes by counting squares. • Estimate, compare and calculate different measures, including money in pounds and pence. • Read, write and convert between analogue and digital 12 and 24-hr clocks. • Solve problems involving converting from hours to mins; mins to secs; years to months; weeks to days. 	<ul style="list-style-type: none"> • Convert between different units of metric measure (<i>km and m; cm and m; cm and mm; g and kg; l and ml.</i>) • Understand and use approximate equivalences between metric units and common imperial units (<i>inches, pounds, pints</i>). • Measure and calculate the perimeter of composite rectilinear shapes in cm and m. • Calculate and compare area of rectangles (<i>including using standard units, cm² and m²</i>) and estimate area of irregular shapes. • Estimate volume and capacity. • Solve problems involving converting between units of time. • Use all 4 operations to solve problems involving measure, using decimal notation, including scaling. 	<ul style="list-style-type: none"> • Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3dp where appropriate. • Use, read, write and convert between standard units, converting measurements of: length, mass, volume and times, from a smaller unit of measure to a larger unit, and vice versa, using decimal notation up to 3dp. • Convert between miles and km. • Recognise that shapes with the same area can have different perimeters and vice versa. • Recognise when it is possible to use formulae for area and volume of shapes. • Calculate the area of parallelograms and triangles.
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		<ul style="list-style-type: none"> Calculate, estimate and compare volume of cubes and cuboids using standard units (<i>including cm^3 and m^3 and extending to other units: mm^3 and km^3</i>).
Geometry – properties of shapes		
<ul style="list-style-type: none"> Compare and classify geometric shapes (<i>including quadrilaterals and triangles, based on their properties and sizes</i>). Identify acute and obtuse angles and compare and order angles up to 2 right angles by size. Identify lines of symmetry in 2D shapes presented in different orientations. Complete a simple symmetric figure with respect to a specific line of symmetry. 	<ul style="list-style-type: none"> Identify 3D shapes, including cubes and cuboids, from 2D representations. Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Draw given angles and measure in degrees. Identify: angles at a point and whole turn (360°); angles at a point on a straight line (180°); and $\frac{1}{2}$ a turn; other multiples of 90°. Use the properties of rectangles to deduce related facts and find missing lengths and angles. 	<ul style="list-style-type: none"> Draw 2D shapes using given dimensions and angles. Recognise, describe and build simple 3D shapes, including making nets. Compare and classify geometric shapes based on their properties and sizes and find unknown angles in triangles, quadrilaterals and regular polygons. Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

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	<ul style="list-style-type: none"> Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. 	
Geometry – position and direction		
<ul style="list-style-type: none"> Describe positions on a 2D 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. 	<ul style="list-style-type: none"> Identify, describe and represent the position of a shape following a reflection or translation, using appropriate language, and know that the shape has not changed. 	<ul style="list-style-type: none"> Describe positions on the full coordinate grid (<i>all 4 quadrants</i>). Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
Statistics		
<ul style="list-style-type: none"> Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. Solve comparison, sum and difference problems using information presented in charts, pictograms, tables and other graphs. 	<ul style="list-style-type: none"> Solve comparison, sum and difference problems using information presented in a line graph. Complete, read and interpret information in tables, including timetables. 	<ul style="list-style-type: none"> Interpret and construct pie charts and line graphs and use these to solve problems. Calculate and interpret the mean as an average.
Ratio and proportion		

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		<ul style="list-style-type: none">• Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts.• Solve problems using calculations of percentages 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.
Algebra		
		<ul style="list-style-type: none">• Use simple formulae.• Generate and describe linear number sequences.• Express missing number problems algebraically.• Find pairs of numbers that satisfy an equation with 2 unknowns.

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		<ul style="list-style-type: none">• Enumerate possibilities of combinations of 2 variables.
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