

## Lower Peover C of E Primary School

Progression of Skills in Mathematics under the 2014 National Curriculum

### Key Stage 1

#### Years 1 and 2

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.

### Key Stage 2

#### Years 3 and 4

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.

#### Years 5 and 6

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.



Ready to progress criteria	Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Key areas:						
Place Value	<p>Count with 100, forwards and backwards, starting with any number.</p> <p>Reason about the location of numbers to 20 within the linear number system, including comparing using <math>&lt;</math> <math>&gt;</math> and <math>=</math></p> <ul style="list-style-type: none"> <li>Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.</li> <li>Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens.</li> </ul>	<p>Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and nonstandard partitioning.</p> <p>Reason about the location of any two digit number in the linear number system, including identifying the previous and next multiple of 10.</p> <ul style="list-style-type: none"> <li>Count in steps of 2,3, and 5 from 0, and in tens from any number forward and backwards.</li> <li>Recognise the place value of each digit in a 2 digit number (tens, ones)</li> <li>Identify, represent and estimate numbers using different</li> </ul>	<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 three digit multiples of 10.</p> <p>2 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 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 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.</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 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</p>	<p>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.</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</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 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> <p>Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and</p>

	<ul style="list-style-type: none"> <li>Given a number, identify one more and one less.</li> <li>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.</li> <li>Read and write numbers from 1 to 20 in numerals and words.</li> </ul>	<p>representations, including the number line</p> <ul style="list-style-type: none"> <li>Compare and order numbers from 0 up to 100: use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> signs</li> <li>Read and write numbers to at least 100 in numerals and words</li> <li>Use place value and number facts to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.</li> <li>Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).</li> <li>Compare and order numbers up to 1000.</li> <li>Identify, represent and estimate numbers using different representations.</li> <li>Read and write numbers up to 1000 in numerals and in words.</li> <li>Solve number problems and practical problems involving these ideas.</li> </ul>	<p>rounding to the nearest of each.</p> <p>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.</p> <ul style="list-style-type: none"> <li>Count in multiples of 6, 7, 9, 25 and 1000.</li> <li>Find 1000 more or less than a given number.</li> <li>Count backwards through zero to include negative numbers.</li> <li>Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).</li> <li>Order and compare numbers beyond 1000.</li> </ul>	<p>and rounding to the nearest of each.</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> <ul style="list-style-type: none"> <li>Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.</li> <li>Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.</li> <li>Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</li> </ul>	<p>10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.</p> <ul style="list-style-type: none"> <li>Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.</li> <li>Round any whole number to a required degree of accuracy.</li> <li>Use negative numbers in context, and calculate intervals across zero.</li> <li>Solve number and practical problems that involve all of the above.</li> </ul>
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<b>Addition and Subtraction</b>	<p>Develop fluency in addition and subtraction facts within 10.</p> <p>Compose numbers to 10 from 2 parts,</p>	Secure fluency in addition and subtraction facts within 10, through continued practice.	Secure fluency in addition and subtraction facts that bridge 10, through continued practice.	<ul style="list-style-type: none"> <li>Add and subtract numbers with up to 4 digits using the</li> </ul>	<ul style="list-style-type: none"> <li>Add and subtract whole numbers with more than 4 digits.</li> <li>Add and subtract whole numbers with more</li> </ul>	Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative

	<p>and partition numbers to 10 into parts, including recognising odd and even numbers.</p> <p>Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.</p> <ul style="list-style-type: none"> <li>• Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.</li> <li>• Represent and use number bonds and related subtraction facts within 20.</li> <li>• Add and subtract one digit and two digit numbers</li> </ul>	<p>Add and subtract across 10.</p> <p>Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?".</p> <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> <ul style="list-style-type: none"> <li>• Solve problems with addition and subtraction: <ul style="list-style-type: none"> <li>- Using concrete objects and pictorial representation, including those involving quantities and measures</li> <li>- Applying their increasing knowledge of mental and written methods</li> </ul> </li> <li>• Recall and use addition and subtraction facts:</li> </ul>	<p>Calculate complements to 100.</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> <ul style="list-style-type: none"> <li>• Add and subtract numbers mentally, including: <ul style="list-style-type: none"> <li>- a three-digit number and ones</li> <li>- a three digit number and tens</li> <li>- a three digit number and hundreds</li> </ul> </li> <li>• Add and subtract numbers with up to three digits,</li> </ul>	<p>written methods of addition and subtraction where appropriate.</p> <ul style="list-style-type: none"> <li>• Estimate and use inverse operations to check answers to a calculation.</li> <li>• Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<p>than 4 digits, including using formal written methods (columnar addition and subtraction).</p> <ul style="list-style-type: none"> <li>• Add and subtract numbers mentally with increasingly large numbers (example, <math>12,462 - 2300 = 10,162</math>).</li> <li>• Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</li> <li>• Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<p>relationships (multiplicative 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 with 2 unknowns.</p> <ul style="list-style-type: none"> <li>• Multiply multi-digit numbers up to 4 digits by a two-digit whole number.</li> <li>• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.</li> <li>• Divide numbers up to 4 digits by a two-digit whole number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.</li> </ul>
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	<p>to 20, including zero.</p> <ul style="list-style-type: none"> <li>Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = ? - 9</math>.</li> </ul>	<ul style="list-style-type: none"> <li>To 20 fluently</li> <li>And derive related facts up to 100</li> <li>Add and subtract numbers using concrete objects, pictorial representations, and mentally including: <ul style="list-style-type: none"> <li>A 2 digit number and ones</li> <li>A 2 digit number and tens</li> <li>Two 2 digit numbers</li> <li>Adding three 1 digit numbers</li> <li>Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</li> <li>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing numbers problems</li> </ul> </li> </ul>	<p>using formal written methods of columnar addition and subtraction.</p> <ul style="list-style-type: none"> <li>Estimate the answer to a calculation and use inverse operations to check answers.</li> <li>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</li> </ul>			<ul style="list-style-type: none"> <li>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.</li> <li>Perform mental calculations, including with mixed operations and large numbers.</li> <li>Identify common factors, common multiples and prime numbers.</li> <li>Use their knowledge of the order of operations to carry out calculations involving the four operations.</li> <li>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> <li>Solve problems involving addition,</li> </ul>
<b>Multiplication and division</b>	<b>Count forwards and backwards in multiples of 2, 5</b>	<b>Recognise repeated addition contexts, representing them</b>	<b>Recall multiplication facts, and corresponding division</b>	<b>Recall multiplication and division facts up to 12 x 12, and</b>	<b>Secure fluency in multiplication table facts, and corresponding division</b>	

	<p>and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers</p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<p>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 (quotitive division).</p> <ul style="list-style-type: none"> <li>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs.</li> <li>Show that multiplication of</li> </ul>	<p>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>Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).</p> <p>Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.</p> <ul style="list-style-type: none"> <li>Recall and use multiplication and division facts for the: <ul style="list-style-type: none"> <li>3x table</li> <li>4x table</li> <li>8x table</li> </ul> </li> <li>Write and calculate mathematical statements for multiplication and division using the multiplication tables that they</li> </ul>	<p>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 knowledge to known additive and multiplicative number facts (scaling facts by 100)</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</p>	<p>facts, through continued practice.</p> <p>Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).</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 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 written method.</p> <p>Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders</p>	<p>subtraction, multiplication and division</p> <ul style="list-style-type: none"> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> </ul>
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		<p>two numbers can be done in any order (commutative) and division of one number by another cannot.</p> <ul style="list-style-type: none"> <li>• Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> </ul>	<p>know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.</p> <ul style="list-style-type: none"> <li>• Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which <math>n</math> objects are connected to <math>m</math> objects.</li> </ul>	<p>division equations, and understand and apply the commutative property of multiplication.</p> <p>Understand and apply the distributive property of multiplication.</p> <ul style="list-style-type: none"> <li>• Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math>.</li> <li>• Use place value, known and derived facts to multiply and divide mentally including: <ul style="list-style-type: none"> <li>• Multiplying by 0 and 1</li> <li>• Dividing by 1</li> <li>• Multiplying together three numbers</li> </ul> </li> <li>• Recognise and use factor pairs and</li> </ul>	<p>appropriately for the context.</p> <ul style="list-style-type: none"> <li>• Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</li> <li>• Solve problems involving multiplication and division where larger numbers are used by decomposing them into their factors.</li> <li>• Establish whether a number up to 100 is prime and recall prime numbers up to 19.</li> <li>• Know and use the vocabulary of prime numbers, prime factors and composite (non prime) numbers.</li> <li>• Multiply numbers up to 4 digits by a one- or two digit number using a formal written method, including long</li> </ul>	
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				<p>commutativity in mental calculations.</p> <ul style="list-style-type: none"><li>• Multiply two digit and three digit numbers by a one digit number using formal written layout.</li><li>• Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</li></ul>	<p>multiplication for two digit numbers.</p> <ul style="list-style-type: none"><li>• Multiply and divide numbers mentally drawing upon known facts.</li><li>• 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.</li><li>• Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.</li><li>• Recognise and use square numbers and cube numbers, and the notation for squared (<sup>2</sup>) and cubed (<sup>3</sup>).</li><li>• Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.</li></ul>	
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Fractions, decimals and percentages	<ul style="list-style-type: none"> <li>Recognise, find and name a half as one of two equal parts of an object, shape or quantity</li> <li>Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity</li> </ul>	<ul style="list-style-type: none"> <li>Recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math>, and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity.</li> <li>Write simple fractions for example, <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>.</li> </ul>	<p>Interpret and write proper fractions to represent 1 or several parts of a 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> <ul style="list-style-type: none"> <li>Count up and down in tenths; recognise that tenths arise from dividing an</li> </ul>	<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> <ul style="list-style-type: none"> <li>Recognise and show, using diagrams, families of</li> </ul>	<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 <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math> and <math>\frac{1}{10}</math>, and for multiples of these proper fractions.</p> <ul style="list-style-type: none"> <li>Compare and order fractions whose denominators are all multiples of the same number.</li> </ul>	<p>Recognise when fractions can be simplified, and use common factors to simplify fractions.</p> <p>2 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 denomination as a comparison strategy.</p> <ul style="list-style-type: none"> <li>Use common factors to simplify fractions;</li> </ul>

			<p>object into 10 equal parts and in dividing one-digit numbers or quantities by 10.</p> <ul style="list-style-type: none"> <li>Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.</li> <li>Recognise and use fractions as numbers: unit fractions (numerator of 1) and non-unit fractions with small denominators.</li> <li>Recognise and show, using diagrams, equivalent fractions with small denominators.</li> <li>Add and subtract fractions with the same denominator within one whole for example, <math>\frac{5}{7} + \frac{1}{7} = \frac{6}{7}</math>.</li> <li>Compare and order unit fractions, and</li> </ul>	<p>common equivalent fractions.</p> <ul style="list-style-type: none"> <li>Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</li> <li>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.</li> <li>Add and subtract fractions with the same denominator.</li> <li>Recognise and write decimal equivalents of</li> </ul>	<ul style="list-style-type: none"> <li>Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.</li> <li>Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number [for example, <math>\frac{2}{5} + \frac{14}{5} = \frac{6}{5} = 1\frac{1}{5}</math>].</li> <li>Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</li> <li>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> <li>Read and write decimal numbers as fractions [for example, <math>0.71 = \frac{71}{100}</math>].</li> <li>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</li> </ul>	<p>use common multiples to express fractions in the same denomination.</p> <ul style="list-style-type: none"> <li>Compare and order fractions, including fractions <math>&gt; 1</math></li> <li>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</li> <li>Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math>].</li> <li>Divide proper fractions by whole numbers [for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>].</li> <li>Associate a fraction with division and calculate decimal fraction equivalents [for example, <math>0.375</math>] for a simple fraction [for example, <math>\frac{3}{8}</math>].</li> <li>Identify the value of each digit in numbers given to three decimal places and multiply and</li> </ul>
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			<p>fractions with the same denominators.</p> <ul style="list-style-type: none"> <li>Solve problems that involve all of the above.</li> </ul>	<p>any number of tenths or hundredths.</p> <ul style="list-style-type: none"> <li>Recognise and write decimal equivalents to <math>\frac{1}{4}, \frac{1}{2}, \frac{3}{4}</math>.</li> <li>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.</li> <li>Round decimals with one decimal place to the nearest whole number.</li> <li>Compare numbers with the same number of decimal places up to two decimal places.</li> <li>Solve simple measure and money problems involving fractions and</li> </ul>	<ul style="list-style-type: none"> <li>Round decimals with two decimal places to the nearest whole number and to one decimal place.</li> <li>Read, write, order and compare numbers with up to three decimal places.</li> <li>Solve problems involving numbers up to three decimal places</li> <li>Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.</li> </ul> <p>Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</p>	<p>divide numbers by 10, 100 and 1,000 giving answers up to three decimal places.</p> <ul style="list-style-type: none"> <li>Multiply one-digit numbers with up to two decimal places by whole numbers.</li> <li>Use written division methods in cases where the answer has up to two decimal places.</li> <li>Solve problems which require answers to be rounded to specified degrees of accuracy.</li> <li>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li> </ul>
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				decimals to two decimal places.		
Ratio and proportion						<p>Solve problems involving ratio relationships.</p> <ul style="list-style-type: none"> <li>• Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</li> <li>• Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison.</li> <li>• Solve problems involving similar shapes where the scale factor is known or can be found.</li> <li>• Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</li> </ul>
Algebra						Solve problems with 2 unknowns.

						<ul style="list-style-type: none"> <li>• Use simple formulae.</li> <li>• Generate and describe linear number sequences.</li> <li>• Express missing number problems algebraically.</li> <li>• Find pairs of numbers that satisfy an equation with two unknowns.</li> <li>• Enumerate possibilities of combinations of two variables.</li> </ul>
<p>Geometry: Properties of Shapes</p>	<p>Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.</p> <p>Compose 2D and 3D shapes from smaller shapes to match an example,</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> <ul style="list-style-type: none"> <li>• Identify and describe the properties of 2-D shapes, including the number of sides and line</li> </ul>	<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 points, and identify parallel and perpendicular sides.</p>	<p>Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.</p> <p>2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal.</p>	<ul style="list-style-type: none"> <li>• Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> </ul>	<p>Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.</p> <ul style="list-style-type: none"> <li>• Draw 2-D shapes using given dimensions and angles.</li> <li>• Recognise, describe and build simple 3-D shapes, including making nets.</li> </ul>

	<p>including manipulating shapes to place them in particular orientations.</p> <ul style="list-style-type: none"> <li>Recognise and name common 2-D and 3-D shapes, including:</li> <li>2-D shapes [for example, rectangles (including squares), circles and triangles]</li> <li>3-D shapes: [for example, cuboids (including cubes), pyramids and spheres].</li> </ul>	<p>symmetry in a vertical line.</p> <ul style="list-style-type: none"> <li>Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.</li> <li>Identify 2-D shapes on the surface of 3-D shapes [for example, a circle on a cylinder and a triangle on a pyramid].</li> <li>Compare and sort common 2-D and 3-D shapes and everyday objects.</li> </ul>	<ul style="list-style-type: none"> <li>Draw 2-D shapes and make 3-D shapes using modelling materials.</li> <li>Recognise 3-D shapes in different orientations and describe them.</li> <li>Recognise angles as a property of shape or a description of a turn.</li> <li>Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.</li> <li>Identify horizontal and vertical lines and pairs of</li> </ul>	<p>Find the perimeter of regular and irregular polygons.</p> <p>3 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> <ul style="list-style-type: none"> <li>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</li> <li>Identify acute and obtuse angles and compare and order angles up</li> </ul>		<ul style="list-style-type: none"> <li>Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.</li> <li>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</li> <li>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li> </ul>
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			perpendicular and parallel lines.	<p>to two right angles by size</p> <ul style="list-style-type: none"> <li>Identify lines of symmetry in 2-D shapes presented in different orientations.</li> <li>Complete a simple symmetric figure with respect to a specific line of symmetry.</li> </ul>		
<b>Geometry: Position and Direction</b>	<ul style="list-style-type: none"> <li>Describe position, direction and movement, including whole, half, quarter and three quarter turns.</li> </ul>	<ul style="list-style-type: none"> <li>Order and arrange combinations of mathematical objects in patterns and sequences.</li> <li>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,</li> </ul>		<ul style="list-style-type: none"> <li>Describe positions on a 2-D grid as coordinates in the first quadrant.</li> <li>Describe movements between positions as translations of a given unit to the left/right and up/down.</li> <li>Plot specified points and draw sides to</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Describe positions on the full coordinate grid (all four quadrants).</li> <li>Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</li> </ul>



		half and three quarter turns (clockwise and anti clockwise).		complete a given polygon.		
Measurement	<ul style="list-style-type: none"> <li>Compare, describe and solve practical problems for :</li> <li>Lengths and heights [for example, long/short, longer/shorter, tall/short, double/half].</li> <li>Mass/weight [for example, heavy/light, heavier than, lighter than].</li> <li>Capacity and volume [for example, full/empty, more than, less than, half, half full, quarter].</li> <li>Time [for example, quicker, slower, earlier, later].</li> <li>Measure and begin to record the following:</li> </ul>	<ul style="list-style-type: none"> <li>Choose and use appropriate standard units to estimate and measure to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels: <ul style="list-style-type: none"> <li>Length/height in any direction (m/cm)</li> <li>Mass (kg/g)</li> <li>Temperature (°C)</li> <li>Capacity (litres/ml)</li> </ul> </li> <li>Compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =.</li> </ul> <p>Recognise and:</p> <ul style="list-style-type: none"> <li>Use pounds (£) and pence(P)</li> <li>Combine amounts to make a particular value</li> </ul>	<ul style="list-style-type: none"> <li>Measure, compare, add and subtract: <ul style="list-style-type: none"> <li>Lengths (m/cm/mm)</li> <li>Mass (kg/g)</li> <li>Volume/capacity (l/ml)</li> </ul> </li> <li>Measure the perimeter of simple 2-D shapes.</li> <li>Add and subtract amounts of money to give change, using both £ and p in practical contexts.</li> <li>Tell and write the time from: <ul style="list-style-type: none"> <li>An analogue clock and 12-hour and 24-hour clocks.</li> <li>An analogue clock, including using Roman numerals from I to XII.</li> </ul> </li> <li>Estimate and read time with increasing</li> </ul>	<ul style="list-style-type: none"> <li>Convert between different units of measure [for example, kilometre to metre; hour to minute].</li> <li>Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.</li> <li>Find the area of rectilinear shapes by counting squares.</li> <li>Estimate, compare and calculate different measures, including money</li> </ul>	<p>Compare areas and calculate the area of rectangles (including squares) using standard units.</p> <ul style="list-style-type: none"> <li>Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).</li> <li>Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</li> <li>Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.</li> <li>Calculate and compare the area of rectangles (including squares), and including using standard units, square</li> </ul>	<ul style="list-style-type: none"> <li>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</li> <li>Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.</li> <li>Convert between miles and kilometres.</li> <li>Recognise that shapes with the same areas can have different perimeters and vice versa.</li> <li>Recognise when it is possible to use formulae for area and volume of shapes.</li> </ul>

	<ul style="list-style-type: none"> <li>• Lengths and heights.</li> <li>• Mass/weight.</li> <li>• Capacity and volume.</li> <li>• Time (hours, minutes, seconds).</li> <li>• Recognise and know the value of different denominations of coins and notes.</li> <li>• Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening].</li> <li>• Recognise and use language relating to dates, including days of the week, weeks,</li> </ul>	<ul style="list-style-type: none"> <li>• Find different combinations of coins that equals the same amounts of money</li> <li>• Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</li> <li>• Compare and sequence intervals of time</li> <li>• Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</li> <li>• Know the number and minutes in an hour and number of hours in a day</li> </ul>	<p>accuracy to the nearest minute.</p> <ul style="list-style-type: none"> <li>• Record and compare time in terms of seconds, minutes and hours.</li> <li>• Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.</li> <li>• Know the number of seconds in a minute and the number of days in each month, year and leap year.</li> <li>• Compare durations of events [for example to calculate the time taken by particular events or tasks].</li> </ul>	<p>in pounds and pence.</p> <ul style="list-style-type: none"> <li>• Read, write and convert time between analogue and digital 12- and 24-hour clocks.</li> <li>• Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</li> </ul>	<p>centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>).</p> <ul style="list-style-type: none"> <li>• Estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water].</li> <li>• Solve problems involving converting between units of time.</li> <li>• Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</li> </ul>	<ul style="list-style-type: none"> <li>• Calculate the area of parallelograms and triangles.</li> <li>• Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [for example, mm<sup>3</sup> and km<sup>3</sup>].</li> </ul>
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	<p>months and years.</p> <ul style="list-style-type: none"> <li>• Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</li> </ul>					
<p><b>Statistics</b></p>		<ul style="list-style-type: none"> <li>• Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.</li> <li>• Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li> <li>• Ask and answer questions about totalling and comparing categorical data.</li> </ul>	<ul style="list-style-type: none"> <li>• Interpret and present data using bar charts, pictograms and tables.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</li> <li>• Solve comparison, sum and difference problems using information presented in bar charts, pictograms,</li> </ul>	<ul style="list-style-type: none"> <li>• Solve comparison, sum and difference problems using information presented in a line graph.</li> <li>• Complete, read and interpret information in tables, including timetables.</li> </ul>	<ul style="list-style-type: none"> <li>• Interpret pie charts and line graphs and use these to solve problems.</li> <li>• Interpret and construct pie charts and line graphs and use these to solve problems.</li> <li>• Calculate and interpret the mean as an average.</li> </ul>

				tables and other graphs.		
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