

# Maths Unit Overview

## Francis Baily School



### Year 1

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Place Value (within 10):</b></p> <ul style="list-style-type: none"> <li>Count to and across 10, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>Count numbers to 100 in numerals; count in multiples of twos, fives and tens</li> <li>Identify and represent numbers using objects and pictorial representations</li> <li>Read and write numbers to 10 in numerals</li> <li>Read and write numbers from 1 to 10 in numerals and words</li> <li>Given a number, identify one more and one less</li> </ul> <p><b>Addition &amp; Subtraction (within 10):</b></p> <ul style="list-style-type: none"> <li>Add and subtract one-digit and two-digit numbers to 20, including zero</li> </ul> <p><b>Shape:</b></p> <ul style="list-style-type: none"> <li>Recognise and name common 2- D shapes [for example, rectangles (including squares), circles and triangles]</li> <li>Recognise and name common 3- D shapes [for example, cuboids (including cubes), pyramids and spheres]</li> </ul> <p><b>Consolidation</b></p>		<p><b>Place Value (within 20):</b></p> <ul style="list-style-type: none"> <li>Count to and across 20, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>Count numbers to 20 in numerals; count in multiples of twos, fives and tens</li> <li>Identify and represent numbers using objects and pictorial representations</li> <li>Read and write numbers to 20 in numerals</li> </ul> <p><b>Addition &amp; Subtraction (within 20):</b></p> <ul style="list-style-type: none"> <li>Add and subtract one-digit and two-digit numbers to 20, including zero</li> <li>Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square - 9</math> (this starts initial link to algebra)</li> </ul> <p><b>Place Value (within 50):</b></p> <ul style="list-style-type: none"> <li>Count to and across 50, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>Count numbers to 50 in numerals; count in multiples of twos, fives and tens</li> <li>Identify and represent numbers using objects and pictorial representations</li> <li>Read and write numbers to 50 in numerals</li> <li>Read and write numbers from 1 to 20 in numerals and words</li> <li>Given a number, identify one more and one less</li> </ul>		<p><b>Multiplication &amp; Division:</b></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><b>Fractions:</b></p> <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> <p><b>Position &amp; Direction:</b></p> <ul style="list-style-type: none"> <li>Describe position, direction and movement, including whole, half, quarter and three-quarter turns</li> </ul> <p><b>Place Value (within 100):</b></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 numbers to 100 in numerals; count in multiples of twos, fives and tens</li> <li>Identify and represent numbers using objects and pictorial representations</li> <li>Read and write numbers to 100 in numerals</li> <li>Read and write numbers from 1 to 20 in numerals and words</li> <li>Given a number, identify one more and one less</li> </ul> <p><b>Money:</b></p> <ul style="list-style-type: none"> <li>Recognise and know the value of different denominations of coins and notes</li> </ul>	

	<p><b>Length &amp; Height:</b></p> <ul style="list-style-type: none"><li>• Compare, describe and solve practical problems for: lengths and heights</li><li>• Measure and begin to record the following: lengths and heights</li></ul> <p><b>Mass &amp; Volume:</b></p> <ul style="list-style-type: none"><li>• Compare, describe and solve practical problems for: mass/weight → capacity and volume</li><li>• Measure and begin to record the following: mass/weight → capacity and volume</li></ul>	<p><b>Time:</b></p> <ul style="list-style-type: none"><li>• Compare, describe and solve practical problems for: time</li><li>• Measure and begin to record the following: time (hours, minutes, seconds)</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, months and years</li><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>Consolidation</b></p>
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## Year 2

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Place Value:</b></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 backward</li> <li>Read and write numbers to at least 100 in numerals and in words</li> <li>Identify, represent and estimate numbers using different representations, including the number line</li> <li>recognise the place value of each digit in a two-digit number (tens, ones)</li> <li>Compare and order numbers from 0 up to 100; use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> signs</li> <li>Use place value and number facts to solve problems</li> </ul> <p><b>Addition &amp; Subtraction:</b></p> <ul style="list-style-type: none"> <li>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and tens, two two-digit numbers, adding three one-digit numbers</li> <li>Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures, applying their increasing knowledge of mental and written methods</li> </ul> <p><b>Shape:</b></p> <ul style="list-style-type: none"> <li>Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</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 shapes and everyday objects</li> </ul>		<p><b>Money:</b></p> <ul style="list-style-type: none"> <li>Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li>Find different combinations of coins that equal 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> </ul> <p><b>Multiplication &amp; Division:</b></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>Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</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 (<math>=</math>) signs</li> <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><b>Length &amp; Height</b></p> <ul style="list-style-type: none"> <li>Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); to the nearest appropriate unit, using rulers</li> <li>Compare and order lengths and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math></li> </ul> <p><b>Mass, Capacity &amp; Temperature:</b></p> <ul style="list-style-type: none"> <li>Choose and use appropriate standard units to estimate and measure mass (kg/g);</li> </ul>		<p><b>Fractions:</b></p> <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>Recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math></li> <li>Write simple fractions for example, <math>\frac{1}{2}</math> of <math>6 = 3</math></li> </ul> <p><b>Time:</b></p> <ul style="list-style-type: none"> <li>Compare and sequence intervals of time</li> <li>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</li> <li>Know the number of minutes in an hour and the number of hours in a day</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> <p><b>Position &amp; Direction:</b></p> <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, half and three-quarter turns (clockwise and anticlockwise)</li> </ul> <p><b>Consolidation</b></p>	

<ul style="list-style-type: none"><li>• Recognise and name common 3- D shapes [for example, cuboids (including cubes), pyramids and spheres]</li><li>• Compare and sort common 3-D shapes and everyday objects</li></ul>	<p>temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</p> <ul style="list-style-type: none"><li>• Compare and order mass, volume/capacity and record the results using &gt;, &lt; and =</li></ul>	
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# Year 3

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Place Value:</b></p> <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>Identify, represent and estimate numbers using different representations</li> <li>Read and write numbers up to 1000 in numerals and in words</li> <li>Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</li> <li>Compare and order numbers from 0 up to 1000, use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> signs</li> <li>Solve number problems and practical problems involving these ideas</li> </ul> <p><b>Addition &amp; Subtraction:</b></p> <ul style="list-style-type: none"> <li>Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds</li> <li>Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</li> <li>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction (link to algebra)</li> </ul> <p><b>Multiplication &amp; Division A:</b></p> <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>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</li> <li>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</li> </ul>		<p><b>Multiplication &amp; Division B:</b></p> <ul style="list-style-type: none"> <li>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</li> <li>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</li> <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 (beginning of algebra)</li> </ul> <p><b>Length &amp; Perimeter:</b></p> <ul style="list-style-type: none"> <li>Measure, compare, add and subtract; lengths (m/cm/mm)</li> <li>Measure the perimeter of simple 2-D shapes</li> </ul> <p><b>Fractions A:</b></p> <ul style="list-style-type: none"> <li>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</li> <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 and non-unit fractions with small denominators</li> <li>Recognise and show, using diagrams, equivalent fractions with small denominators</li> <li>Compare and order unit fractions, and fractions with the same denominators</li> <li>Solve problems that involve all of the above</li> </ul>		<p><b>Fractions B:</b></p> <ul style="list-style-type: none"> <li>Add and subtract fractions with the same denominator within one whole [for example <math>5/7 + 1/7 = 6/7</math>]</li> <li>Solve problems that involve all of the above</li> </ul> <p><b>Money:</b></p> <ul style="list-style-type: none"> <li>Add and subtract amounts of money to give change, using both <math>\pounds</math> and p in practical contexts</li> </ul> <p><b>Time:</b></p> <ul style="list-style-type: none"> <li>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</li> <li>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, 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><b>Shape:</b></p> <ul style="list-style-type: none"> <li>Draw 2-D shapes</li> <li>Make 3-D shapes using modelling materials; 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;</li> </ul>	

	<p><b>Mass &amp; Capacity:</b></p> <ul style="list-style-type: none"><li>• Measure, compare, add and subtract: mass (kg/g); volume/capacity (l/ml)</li></ul>	<p>identify whether angles are greater than or less than a right angle</p> <ul style="list-style-type: none"><li>• Identify horizontal and vertical lines and pairs of perpendicular and parallel lines</li></ul> <p><b>Statistics:</b></p> <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> <p><b>Consolidation</b></p>
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# Year 4

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Place Value:</b></p> <ul style="list-style-type: none"> <li>Count in multiples of 6, 7, 9, 25 and 1000</li> <li>Count backwards through zero to include negative numbers</li> <li>Identify, represent and estimate numbers using different representations • read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value</li> <li>Find 1000 more or less than a given number</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> <li>Round any number to the nearest 10, 100 or 1000</li> <li>Solve number and practical problems that involve all of the above and with increasingly large positive numbers</li> </ul> <p><b>Addition &amp; Subtraction:</b></p> <ul style="list-style-type: none"> <li>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</li> <li>Solve addition and subtraction twostep problems in contexts, deciding which operations and methods to use and why</li> </ul> <p><b>Area:</b></p> <ul style="list-style-type: none"> <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> </ul> <p><b>Multiplication &amp; Division A:</b></p> <ul style="list-style-type: none"> <li>Count in multiples of 6, 7, 9, 25 and 1000</li> <li>Count backwards through zero to include negative numbers</li> </ul>		<p><b>Multiplication &amp; Division B:</b></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 multiplying by 0 and 1; dividing by 1; multiplying together three numbers</li> <li>Recognise and use factor pairs and commutativity in mental calculations</li> <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><b>Length &amp; Perimeter:</b></p> <ul style="list-style-type: none"> <li>Convert between different units of measure [for example, kilometre to metre]</li> <li>Estimate, compare and calculate different measures</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> </ul> <p><b>Fractions:</b></p> <ul style="list-style-type: none"> <li>Recognise and show, using diagrams, families of common equivalent fractions</li> <li>Add and subtract fractions with the same denominator</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> </ul>		<p><b>Decimals B:</b></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>Recognise and write decimal equivalents of any number of tenths or hundredths</li> <li>Recognise and write decimal equivalents to <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math></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 decimals to two decimal places</li> </ul> <p><b>Money:</b></p> <ul style="list-style-type: none"> <li>Estimate, compare and calculate different measures, including money in pounds and pence</li> </ul> <p><b>Time:</b></p> <ul style="list-style-type: none"> <li>Convert between different units of measure [for example, hour to minute]</li> <li>Estimate, compare and calculate different measures</li> <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 the time taken by particular events or tasks]</li> </ul> <p><b>Consolidation</b></p> <p><b>Shape:</b></p> <ul style="list-style-type: none"> <li>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</li> </ul>	

- Recall multiplication and division facts for multiplication tables up to  $12 \times 12$
- Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- Recognise and use factor pairs and commutativity in mental calculations

### Consolidation

- Solve simple measure and money problems involving fractions and decimals to two decimal places

#### Decimals:

- Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- Recognise and write decimal equivalents of any number of tenths or hundredths
- Recognise and write decimal equivalents to  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$
- Round decimals with one decimal place to the nearest whole number
- Compare numbers with the same number of decimal places up to two decimal places
- solve simple measure and money problems involving fractions and decimals to two decimal places

- Identify lines of symmetry in 2-D shapes presented in different orientations
- Identify acute and obtuse angles and compare and order angles up to two right angles by size
- Identify lines of symmetry in 2-D shapes presented in different orientations
- Complete a simple symmetric figure with respect to a specific line of symmetry

#### Statistics:

- 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 bar charts, pictograms, tables and other graphs

#### Position & Direction:

- 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

## Year 5

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Place Value:</b></p> <ul style="list-style-type: none"> <li>Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</li> <li>Count forwards and backwards with positive and negative whole numbers, including through zero</li> <li>Read, write, (order and compare) numbers to at least 1 000 000 and determine the value of each digit</li> <li>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals</li> <li>(read, write) order and compare numbers to at least 1 000 000 and determine the value of each digit</li> <li>Interpret negative numbers in context</li> <li>Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</li> </ul> <p><b>Addition &amp; Subtraction:</b></p> <ul style="list-style-type: none"> <li>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</li> <li>Add and subtract numbers mentally with increasingly large numbers</li> <li>Solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why</li> <li>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</li> </ul> <p><b>Multiplication &amp; Division A:</b></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> </ul>		<p><b>Multiplication &amp; Division B:</b></p> <ul style="list-style-type: none"> <li>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</li> <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>solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</li> <li>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</li> <li>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</li> </ul> <p><b>Fractions B:</b></p> <ul style="list-style-type: none"> <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> </ul> <p><b>Decimals &amp; Percentages:</b></p> <ul style="list-style-type: none"> <li>Read and write decimal numbers as fractions [for example, 0.71 = 71/100]</li> <li>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</li> </ul>		<p><b>Shape:</b></p> <ul style="list-style-type: none"> <li>Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> <li>Use the properties of rectangles to deduce related facts and find missing lengths and angles</li> <li>Identify 3-D shapes, including cubes and other cuboids, from 2-D representations</li> </ul> <p><b>Position &amp; Direction:</b></p> <ul style="list-style-type: none"> <li>Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</li> <li>Draw given angles, and measure them in degrees</li> <li>Identify: angles at a point and one whole turn (total 360°), angles at a point on a straight line and ½ a turn (total 180°), other multiples of 90°</li> <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> <p><b>Decimals:</b></p> <ul style="list-style-type: none"> <li>Read and write decimal numbers as fractions [for example, 0.71 = 71/100]</li> <li>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</li> <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>Use all four operations to solve problems involving measure [for example, money]</li> </ul>	

- Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers
- Establish whether a number up to 100 is prime and recall prime numbers up to 19
- Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
- 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
- Multiply and divide numbers mentally drawing upon known facts
- Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
- Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates

#### **Fractions A:**

- 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 and write mathematical statements  $> 1$  as a mixed number [for example,  $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$ ]
- Compare and order fractions whose denominators are all multiples of the same number
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number

- Round decimals with two decimal places to the nearest whole number and to one decimal place
- Read, write, order and compare numbers with up to three decimal places
- 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
- 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

#### **Perimeter & Area:**

- Convert between different units of metric measure Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling
- measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- Calculate and compare the area of rectangles (including squares) and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes
- Estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water]

#### **Statistics:**

- Complete, read and interpret information in tables, including timetables

#### **Negative Numbers:**

- Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000
- Count forwards and backwards with positive and negative whole numbers, including through zero

#### **Converting Units:**

- Convert between different units of metric measure
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling
- Solve problems involving converting between units of time
- measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- Calculate and compare the area of rectangles (including squares) and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes Estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water]

#### **Volume:**

- Convert between different units of metric measure
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- Use all four operations to solve problems involving measure [for example, length, mass,

<ul style="list-style-type: none"><li>• Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li></ul>	<ul style="list-style-type: none"><li>• Solve comparison, sum and difference problems using information presented in a line graph</li></ul>	volume, money] using decimal notation, including scaling
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# Year 6

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Place Value:</b></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>• (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 the above</li> </ul> <p><b>Addition, Subtraction, Multiplication &amp; Division:</b></p> <ul style="list-style-type: none"> <li>• Perform mental calculations, including with mixed operations and large 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>• Identify common factors, common multiples and prime numbers</li> <li>• Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</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 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>• Divide numbers up to 4 digits by a two-digit number using the formal written method of</li> </ul>		<p><b>Ratio:</b></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/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> <p><b>Algebra:</b></p> <ul style="list-style-type: none"> <li>• Use simple formulae</li> <li>• Generate and describe linear number sequences</li> <li>• Express missing number problems algebraically</li> <li>• Find pairs of numbers that satisfy an equation with two unknowns</li> <li>• Enumerate possibilities of combinations of two variables</li> </ul> <p><b>Decimals:</b></p> <ul style="list-style-type: none"> <li>• Identify the value of each digit in numbers given to three decimal places</li> <li>• Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8]</li> <li>• Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</li> </ul> <p><b>Fractions, Decimals &amp; Percentages:</b></p> <ul style="list-style-type: none"> <li>• Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8]</li> </ul>		<p><b>Shape:</b></p> <ul style="list-style-type: none"> <li>• Draw 2-D shapes using given dimensions and angles</li> <li>• Compare and classify geometric shapes based on their properties and sizes</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, describe and build simple 3-D shapes, including making nets</li> <li>• find unknown angles in any triangles, quadrilaterals, and regular polygons</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> <p><b>Position &amp; Direction:</b></p> <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> <p><b>Themed Projects</b></p> <p><b>Consolidation</b></p> <p><b>Problem Solving</b></p>	

short division where appropriate, interpreting remainders according to the context

- Perform mental calculations, including with mixed operations and large numbers
- Solve problems involving addition, subtraction, multiplication and division
- Use their knowledge of the order of operations to carry out calculations involving the four operations

**Fractions A:**

- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- 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 [for example  $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ ]
- Divide proper fractions by whole numbers [for example  $\frac{1}{3} \div 2 = \frac{1}{6}$ ]

**Fractions B:**

- 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 [for example  $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ ]
- Divide proper fractions by whole numbers [for example  $\frac{1}{3} \div 2 = \frac{1}{6}$ ]

**Converting Units:**

- Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 d.p. where appropriate
- Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller

- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

**Area, Perimeter & Volume:**

- Recognise that shapes with the same areas 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
- Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres ( $\text{cm}^3$ ) and cubic metres ( $\text{m}^3$ ), and extending to other units

**Statistics:**

- Interpret and construct pie charts and line graphs and use these to solve problems
- Calculate and interpret the mean as an average

<p>unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 d.p.</p> <ul style="list-style-type: none"><li>• Convert between miles and kilometres</li><li>• Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa</li></ul>		
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