



The Newlands Federation of Schools

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Year One Key Knowledge and Skills Expectations for Maths

Autumn	Spring	Summer
<p>Number: Place Value (within 10)</p> <ul style="list-style-type: none"> Count to 10, forwards and backwards, beginning with 0 or 1, or from any given number. Read and write numbers to 10 in numerals. Identify one more and one less than numbers within 10. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. 	<p>Number: Addition and Subtraction (within 20)</p> <ul style="list-style-type: none"> Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs. Represent and use number bonds and related subtraction facts within 10 and 20. Add and subtract one-digit and two-digit numbers to 20, including zero. Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. 	<p>Number: Multiplication and Division</p> <ul style="list-style-type: none"> 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. Count in multiples of 2, 5 and 10.
<p>Number: Addition and Subtraction (within 10)</p> <ul style="list-style-type: none"> Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs. Represent and use number bonds and related subtraction facts within 10. Add and subtract one-digit numbers to 10, including zero. solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. 	<p>Number: Place Value (within 50)</p> <ul style="list-style-type: none"> Count to 50, forwards and backwards, beginning with 0 or 1, or from any given number. Count in multiples of 2 and 5. Identify one more and one less than numbers within 50. 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. Read and write numbers to 50 in numerals. Read and write numbers to 20 in words. 	<p>Number: Fractions</p> <ul style="list-style-type: none"> Recognise, find, and name a half as one of two equal parts of an object or shape. Recognise, find, and name a half as one of two equal parts of a quantity. Recognise, find, and name a quarter as one of four equal parts of an object or shape. Recognise, find, and name a quarter as one of four equal parts of a quantity.
		<p>Geometry: Position and Direction</p> <ul style="list-style-type: none"> Describe position, direction and movement, including whole, half, quarter and three-quarter turns.

<p>Geometry: Shape</p>	<p>Measurement: Length and Height</p>	<p>Number: Place Value (within 100)</p>
<ul style="list-style-type: none"> • Recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> - 2-D shapes (for example, rectangles including squares, circles, and triangles) - 3-D shapes (for example, cuboids, including cubes, pyramids, and spheres). 	<ul style="list-style-type: none"> • Compare, describe, and solve practical problems for lengths and heights (for example, long/short, longer/shorter, tall/short, double/half). • Measure and begin to record lengths and heights. • Begin move from using and comparing lengths and heights using non-standard units, to using manageable common standard units. • Begin to use measuring tools such as a ruler, in order to become familiar with standard measures. 	<ul style="list-style-type: none"> • Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. • Count in multiples of 2, 5 and 10. 1 • Identify one more and one less than numbers to 100. • 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. • Read and write numbers to 100 in numerals. • Read and write numbers to 20 in words.
<p>Number: Place Value (within 20)</p>	<p>Measurement: Weight and Volume</p>	<p>Measurement: Money</p>
<ul style="list-style-type: none"> • Count to and across 10 and 20, forwards and backwards, beginning with 0 or 1, or from any given number. • Count in multiples of 2. • Identify one more and one less of numbers within 20. • 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. • Read and write numbers to 20 in numerals and words. 	<ul style="list-style-type: none"> • Compare, describe, and solve practical problems for weight (for example, heavy/light, heavier than, lighter than) and capacity (for example, full/empty, more than, less than, half, half full, quarter). • The pairs of terms: mass and weight, volume and capacity, can be used interchangeably at this stage. • Measure and begin to record weight and volume. • Begin move from using and comparing weight and volume using non-standard units, to using manageable common standard units. • Begin to use measuring tools such as weighing scales and containers, in order to become familiar with standard measures. 	<ul style="list-style-type: none"> • Recognise and know the value of different denominations of coins and notes.
<p>Number: Addition and Subtraction (within 20)</p>	<p>Number: Multiplication and Division</p>	<p>Measurement: Time</p>
<p><i>Dependant upon term length, this spring term unit may begin at the end of the autumn term.</i></p>	<p><i>Dependant upon term length, this summer term unit may begin at the end of the spring term.</i></p>	<ul style="list-style-type: none"> • Measure and begin to record time (hours, minutes, seconds). • Compare, describe, and solve practical problems for time [for example, quicker, slower, earlier, later] • Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]. • Recognise and use language relating to dates, including days of the week, weeks, months and years. • Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

Year Two Key Knowledge and Skills Expectations for Maths

The main teaching of place value and the four operations is planned for the autumn term and the beginning of the spring term, as we recognise that strong number knowledge and skills support pupils to achieve well in other areas of the maths curriculum. However, in order to ensure fluency and long-term recall of number facts, the objectives for these units on Number are revisited through lesson starters and through application within other units across the whole year.

Autumn	Spring	Summer
<p>Number: Place Value</p> <ul style="list-style-type: none"> Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. Recognise the place value of each digit in a twodigit number (tens, ones). Identify, represent, and estimate numbers using different representations, including the number line. Compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs. Read and write numbers to at least 100 in numerals and in words. Use place value and number facts to solve problems. 	<p>Number: Multiplication and Division</p> <ul style="list-style-type: none"> Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. 	<p>Measurement: Length and Height</p> <ul style="list-style-type: none"> Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) to the nearest appropriate unit, using rulers. Compare and order length, recording the results using $>$, $<$ and $=$.
<p>Number: Addition and Subtraction</p> <ul style="list-style-type: none"> Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> a two-digit number and ones a two-digit number and tens two two-digit numbers adding three one-digit numbers show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. Recognise and use the inverse relationship between addition and subtraction and use this to 	<p>Statistics</p> <ul style="list-style-type: none"> Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. Ask and answer questions about totalling and comparing categorical data. 	<p>Geometry: Position and Direction</p> <ul style="list-style-type: none"> Order and arrange combinations of mathematical objects in patterns and sequences. Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).

<p>check calculations and solve missing number problems.</p> <ul style="list-style-type: none"> • Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures. • Apply their increasing knowledge of mental and written methods. • Begin to record addition and subtraction in columns to support place value and prepare for formal written methods with larger numbers. 		
<p>Measurement: Money</p>	<p>Geometry: Properties of Shapes</p>	<p>Measurement: Time</p>
<ul style="list-style-type: none"> • Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. • Find different combinations of coins that equal the same amounts of money. • Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. 	<ul style="list-style-type: none"> • Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. • Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]. • Compare and sort common 2-D and 3-D shapes and everyday objects. 	<ul style="list-style-type: none"> • Compare and sequence intervals of time. • 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. • Know the number of minutes in an hour and the number of hours in a day.
<p>Number: Multiplication and Division</p>	<p>Number: Fractions</p>	<p>Measurement: Mass, Capacity and Temperature</p>
<p><i>Dependant upon term length, this spring term unit may begin at the end of the autumn term.</i></p>	<ul style="list-style-type: none"> • Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity. • Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. • Count in fractions up to 10, starting from any number and using the $\frac{1}{2}$ and $\frac{2}{4}$ equivalence on the number line (for example, $1\frac{1}{4}$, $1\frac{2}{4}$ (or $1\frac{1}{2}$), $1\frac{3}{4}$, 2). This reinforces the concept of fractions as numbers and that they can add up to more than one. 	<ul style="list-style-type: none"> • Choose and use appropriate standard units to estimate and measure mass (g/kg) to the nearest appropriate unit, using scales. • Compare and order mass, recording the results using >, < and =. • Choose and use appropriate standard units to estimate and measure temperature (°C) and capacity (litres/ml) to the nearest appropriate unit, using thermometers and measuring vessels. • Compare and order volume/capacity and record the results using >, < and =.

Note: as we continue to refine and develop our curriculum, we make decisions about where to place particular units in order to build on prior learning. The unit order outlined above is for 2022-23. The remaining units for summer 2 in 2021-22 are Statistics and Measurement: Mass, Capacity and Temperature.

Lower Key Stage Two Key Knowledge and Skills Expectations for Maths

The main teaching of place value and the four operations is planned for the autumn term as we recognise that strong number knowledge and skills support pupils to achieve well in other areas of the maths curriculum. However, in order to ensure fluency and long-term recall of number facts, the objectives for these units on Number are revisited through lesson starters and through application within other units across the whole year.

Autumn	Spring	Summer
Number: Place Value	Measurement: Length, Perimeter and Area	Number: Decimals (including Money)
<p>Year 3 Objectives:</p> <ul style="list-style-type: none"> Count in multiples of 10, 50 and 100, forwards and backwards within 1000. Identify, represent, and estimate numbers using different representations. Read and write numbers up to 1000 in numerals and in words. Compare and order numbers up to 1000. Locate any 3-digit number on a marked line from 0-1000 and use this to order and compare numbers. Recognise the place value of each digit in a three digit number (hundreds, tens, ones). Use place value knowledge to add/subtract 1, 10 or 100. Round to the nearest ten and hundred. Read Roman Numerals to 12 (I to XII). solve number problems and practical problems involving these ideas. <p>Year 4 Objectives:</p> <ul style="list-style-type: none"> Count in multiples of 25 and 100, forwards and backwards within 10,000. Read, write and locate any 4-digit number on a marked line and use this to order and compare numbers. Use < and > signs when comparing numbers. Understand the numbers of 1s, 10s, 100s, 1,000s in a 4-digit number and the use of zero as a place holder. 	<p>Year 3 Objectives:</p> <ul style="list-style-type: none"> Measure, compare, add, and subtract lengths. Know that there are 100cm in a metre and that there are 10mm in a centimetre. Use a ruler to measure lines. <p>Year 4 Objectives:</p> <ul style="list-style-type: none"> Convert between units of measurement, e.g. cm to m, or km to m. Estimate, compare and calculate different measures. Measure and calculate the perimeter of a rectilinear figure (incl. squares) in cm and m or Find the area of rectilinear shapes by counting squares. 	<p>Year 3 Objectives:</p> <ul style="list-style-type: none"> Use both £ and pence in practical contexts. Add and subtract amounts of money; use both pounds and pence in practical contexts. <p><i>Fractions unit Year 3 objective links to decimals:</i></p> <ul style="list-style-type: none"> Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. <p>Year 4 Objectives:</p> <ul style="list-style-type: none"> Connect hundredths to tenths and place value and decimal measure. Compare numbers with the same number of decimal places up to two decimal places. 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. Round decimals with one decimal place to the nearest whole number. Recognise and write decimal equivalents of any number of tenths or hundredths and decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$. Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Solve simple measure/money problems involving fractions and decimals to two decimal places.

<ul style="list-style-type: none"> • Use this understanding of place value to compare and order 3-digit and 4-digit numbers. • Round to the nearest ten, hundred and a thousand. • Read Roman Numerals to 100 (I to C). • Solve number problems and practical problems involving these ideas. 		
<p>Number: Addition and Subtraction</p>	<p>Number: Fractions</p>	<p>Measurement: Time</p>
<p>Year 3 Objectives:</p> <ul style="list-style-type: none"> • Know securely number pairs for all the numbers up to and including 20. • Estimate the answer to a calculation and use inverse operations to check answers. • Add and subtract 1-digit numbers from 2-digit numbers using number facts. • Mentally add or subtract any pair of 2-digit numbers, including pairs to 100. • Add and subtract multiples of 1, 10 and 100 to/from 3-digit numbers. • Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. • Recognise that there are two ways of completing subtractions, either by counting up or by counting back. • Subtract larger numbers with confidence, using bridging for counting up, e.g., either side of 100. • Find a difference between a 3-digit and a 2-digit number by counting up. • Solve problems including those involving missing numbers, using number facts, place value, addition and subtraction. <p>Year 4 Objectives:</p> <ul style="list-style-type: none"> • Mentally add and subtract any pair of 2-digit numbers, including totals beyond 100. • Mentally add and subtract pairs of 3-digit multiples of 10. 	<p>Year 3 Objectives:</p> <ul style="list-style-type: none"> • Recognise, find and write unit and non-unit fractions of convenient amounts, e.g. $\frac{1}{10}$ of 100 or $\frac{1}{3}$ of 60. • Recognise that $\frac{2}{4}$ is equivalent to $\frac{1}{2}$. • Compare and order unit fractions and fractions with the same denominator. • Count up and down in fractional steps, hence recognise fractions as numbers. • 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. • Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. • Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. • Recognise and show, using diagrams, equivalent fractions with small denominators. • Add and subtract fractions with the same denominator within one whole. • Compare and order unit fractions, and fractions with the same denominators. • Solve problems that involving these ideas. <p>Year 4 Objectives:</p> <ul style="list-style-type: none"> • Understand unit and non-unit fractions. 	<p>Year 3 Objectives:</p> <ul style="list-style-type: none"> • Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. • 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. • Know the number of seconds in a minute and the number of days in each month, year, and leap year. • Compare durations of events [for example to calculate the time taken by events or tasks]. <p>Year 4 Objectives:</p> <ul style="list-style-type: none"> • Convert between units of time e.g. minutes and hours. • Convert between analogue and digital times. • Convert between between 12-hour and 24-hour times.

<ul style="list-style-type: none"> • Subtract numbers from 2-digit and 3-digit numbers using counting up. • Use column addition to add 3-digit and 4-digit numbers: first expanded, then compact method. • Use compact column subtraction to subtract 3-digit and 4-digit numbers. • Estimate and use inverse operations to check answers to a calculation. • Add or subtract multiples of 1, 10, 100, and 1,000. • Solve addition and subtraction two-step problems in contexts, deciding which operations & methods to use & why. 	<ul style="list-style-type: none"> • Find unit and non-unit fractions of shapes and quantities. • Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. • Count in tenths and hundredths. • Understand fractions greater than 1. • Add and subtract fractions with the same denominator. • Write the equivalent fraction for fractions with given denominators or numerators. • Use times tables to find unit and non-unit fractions of amounts, e.g., $\frac{1}{6}$ of 48, $\frac{3}{8}$ of 64. • Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. 	<p>Statistics</p> <p>Year 3 Objectives:</p> <ul style="list-style-type: none"> • Interpret and present data using bar charts, pictograms, and tables. • Understand and use simple scales (for example 2, 5, 10 units per cm) in pictograms and bar charts with increasing accuracy. • Solve one-step and two-step questions [for example, ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and pictograms and tables. <p>Year 4 Objectives:</p> <ul style="list-style-type: none"> • Interpret and present discrete data using bar charts, pictograms and tables, and continuous data on time graphs. • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.
<p>Number: Multiplication and Division</p>	<p>Measurement: Mass and Capacity</p>	<p>Geometry: Properties of Shapes (including Y₄ position and direction)</p>
<p>Year 3 Objectives:</p> <ul style="list-style-type: none"> • Count from 0 in 2s, 4s, 8s, 10s, 100s, and 50s. • Know the 2x, 3x, 4x, 5x, 8x and 10x times tables, including division facts. • Understand that multiplication is commutative and write mathematical statements for multiplication and division. • Understand that division is the inverse of multiplication. • Partition to double and halve numbers. • Multiply a 1-digit number by a 2-digit number using partitioning. • Solve problems, including missing number problems, scaling and correspondence problems. 	<p>Year 3 Objectives:</p> <ul style="list-style-type: none"> • Measure, compare, add, and subtract weights and lengths. • Measure, compare, add, and subtract capacities. <p>Year 4 Objectives:</p> <ul style="list-style-type: none"> • Convert between units of measurement, e.g. kilograms and grams, millilitres and litres. 	<p>Year 3 Objectives:</p> <ul style="list-style-type: none"> • Draw 2-D shapes and make 3-D shapes using modelling materials. • Recognise 3-D shapes in different orientations and describe them. • Recognise angles as a property of shape or a description of a turn. • 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, beginning to use the terms acute and obtuse. • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

<p>Year 4 Objectives:</p> <ul style="list-style-type: none"> • Count in multiples of 6, 7, 9, 25 and 1000. • Double and halve 2- and 3-digit numbers. • Know and recite times tables, including division facts, up to 12×12; multiply by 0 and multiply and divide by 1. • Use known facts, place value, factors, and commutativity to multiply and divide mentally. • Multiply 1-digit numbers by 2-digit or 3- digit numbers using grid method (i.e., using the distributive law). • Know how to use 'efficient chunking' for division above the range of the tables facts. Begin to extend this to 3-digit numbers. • 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. 		<p>Year 4 Objectives:</p> <ul style="list-style-type: none"> • Compare and classify geometric shapes based on their properties and sizes. • Identify acute and obtuse angles, compare and order angles up to 180°. • Identify lines of symmetry in 2-D shapes presented in different orientations; complete a simple symmetric figure with respect to one line of symmetry. • Begin to classify triangles (isosceles, equilateral, scalene) and quadrilaterals (parallelogram, rhombus, trapezium). • Describe positions on a 2-D grid as coordinates in the first quadrant, plot specified points and draw sides to complete a given polygon. • Describe movements between positions as translations of a given unit to the left/right and up/down.
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Note: as we continue to refine and develop our curriculum, we make decisions about where to place particular units in order to build on prior learning. This overview shows Geometry: Properties of Shape (including Y4 Position and Direction) as taking place in the summer term. During the academic year 2021-22, this unit was completed in the autumn term, but it is planned for summer term 2022-23 onwards.

Upper Key Stage Two Key Knowledge and Skills Expectations for Maths

The main teaching of place value, the four operations and fractions is planned for the autumn term as we recognise that strong number knowledge and skills support pupils to achieve well in other areas of the maths curriculum. However, in order to ensure fluency and long-term recall of number facts, the objectives for these units on Number are revisited through lesson starters and through application within other units across the whole year.

Autumn	Spring	Summer
Number: Place Value	Number: Decimals and Percentages (including Y6 Algebra)	Geometry: Properties of Shapes
<p>Year 5 Objectives:</p> <ul style="list-style-type: none"> • Read, write & locate 5- & 6-digit numbers on a marked line; use this to compare/order numbers; recognise the value of each digit. • Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. • Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000. • Interpret negative numbers in context, counting backwards and forwards through zero. • Read Roman numerals and recognise years written in Roman numerals • Solve number problems and practical problems involving place value. <p>Year 6 Objectives:</p> <ul style="list-style-type: none"> • Locate numbers up to 10 million on a landmarked line; use this to compare and order numbers. • Round to ten, a hundred, a thousand, ten thousand, one hundred thousand or a million, as appropriate. • Use negative numbers in context, and calculate intervals across zero. • Solve number and practical problems involving these concepts. 	<p>Year 5 Objectives:</p> <ul style="list-style-type: none"> • Read and write decimal numbers as fractions. • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. • Locate 2-place decimal numbers on a marked line. • 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. • Solve problems involving number up to three decimal places. • Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred'; 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. <p>Year 6 Objectives:</p> <ul style="list-style-type: none"> • Identify the value of each digit in numbers given to three decimal places. • Add several decimal numbers using mental or written addition. • Subtract decimal numbers using mental strategies or written counting up. 	<p>Year 5 Objectives:</p> <ul style="list-style-type: none"> • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. • Draw given angles and measure them in degrees. • Identify: angles at a point and one whole turn (total 360°); angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°); other multiples of 90°. • Use the properties of rectangles to deduce related facts and find missing lengths and angles. • Understand the properties of triangles; use these to find unknown lengths and angles. • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. <p>Year 6 Objectives:</p> <ul style="list-style-type: none"> • Draw 2-D shapes using given dimensions and angles. • Understand terms parallel and perpendicular. • Recognise, describe and build simple 3-D shapes, including making nets. • Draw shapes and nets accurately, using measuring tools and conventional markings and labels for lines and angles. • Compare and classify geometric shapes based on their properties and sizes, including triangles and names of angles.

	<ul style="list-style-type: none"> • Find the complement to 1, or to next whole number, for a number less than 10 with up to 3-decimal places. • Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. • Multiply one-digit numbers with up to two decimal places by whole numbers. • Understand that if two numbers less than 1 are multiplied, the answer is smaller than either of them. • Use written division methods in cases where the answer has up to two decimal places. • 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. • Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. • Use simple formulae, including formulae expressed in words. • Generate, describe and continue linear number sequences. • Express missing number problems algebraically. • Find pairs of numbers that satisfy an equation with two unknowns. • Enumerate possibilities of combinations of two variables. 	<ul style="list-style-type: none"> • Find unknown angles in any triangles, quadrilaterals, and regular polygons. • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. • Identify, illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. • Describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements. These relationships might be expressed algebraically for example, $d = 2 \times r$; $a = 180 - (b + c)$. • Identify positions on the full co-ordinate grid; draw and translate simple shapes and reflect them in the x-axis or y-axis.
Number: Four Operations	Measurement: Converting Units	Geometry: Position and Direction
<p>Year 5 Objectives:</p> <ul style="list-style-type: none"> • Add and subtract mentally with confidence, where numbers are less than 100 or the calculation relies upon simple addition/subtraction or place value, e.g. giving change. 	<p>Year 5 Objectives:</p> <ul style="list-style-type: none"> • Convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). 	<p>Year 5 Objectives:</p> <ul style="list-style-type: none"> • 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.

- Confidently add numbers with up to 4- or 5-digits using column addition, including 'piles' of numbers.
- Subtract larger numbers using expanded or compact column subtraction, or by counting up.
- Use rounding to check answers and determine levels of accuracy.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- Know and recite all times tables including division facts; identify multiples & factors, including common factors of two numbers.
- Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
- Establish whether a number up to 100 is prime and recall prime numbers up to 19.
- Multiply 2, 3, 4-digit numbers by a one- or two-digit number using long or short multiplication or grid method.
- Multiply and divide numbers mentally drawing upon known facts.
- Divide 2, 3, 4-digit numbers by 1-digit numbers using the short division method; interpret remainders appropriately according to context.
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
- Recognise and use square and cube numbers and the matching notation.
- Solve problems involving multiplication and division, using knowledge of factors, multiples, squares, and cubes.

Year 6 Objectives:

- Consolidate Year 5 addition and subtraction objectives.
- Know all multiplication & division facts up to 12 x 12.

- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pint.
- Solve problems involving converting between units of time; use 12- & 24-hr times, find time intervals & tell the time with confidence.
- Begin to read scales of different types; solve scaling problems involving measures.

Year 6 Objectives:

- Use, read and write, and convert between, standard units including miles and kilometres, using decimal numbers with up to three places as appropriate.
- Solve problems using standard units and converting between them.
- Use 12 and 24-hour clocks including analogue with Roman numerals; calculate time intervals; use timetables.

- Recognise and use reflection and translation in a variety of diagrams, including continuing to use a 2-D grid and coordinates in the first quadrant. Reflection should be in lines that are parallel to the axes.

Year 6 Objectives:

- Describe positions on the full coordinate grid (all four quadrants).
- Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
- Draw and label a pair of axes in all four quadrants with equal scaling, including the use of negative numbers.
- Draw and label rectangles (including squares), parallelograms and rhombuses, specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes. These might be expressed algebraically for example, translating vertex (a, b) to $(a - 2, b + 3)$; (a, b) and $(a + d, b + d)$ being opposite vertices of a square of side d .

<ul style="list-style-type: none"> • Identify common factors, common multiples, square numbers to 144 & prime nos. up to 20. • Multiply/divide whole numbers mentally, using facts to 12×12 and place value. • Multiply numbers with up to 4 digits by 2-digit numbers using formal long multiplication. • Multiply 2-, 3- and 4-digit numbers by numbers up to 12 using short multiplication or another appropriate written method. • Perform mental calculations, including with mixed operations & large numbers; carry out calculations using knowledge of the order of operations & brackets. • Round answers to multiplications & divisions to a specified degree of accuracy. • 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. • Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. • 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. • Use estimation to check answers and determine, in the context of a problem, an appropriate degree of accuracy. 			
Number: Fractions (including Y6 Ratio)	Measurement: Perimeter, Area and Volume	Year 6 SATS and Investigations	Year 5 Consolidation of Key Concepts
Year 5 Objectives: <ul style="list-style-type: none"> • Compare and order fractions whose denominators are all multiples of the same number. 	Year 5 Objectives: <ul style="list-style-type: none"> • Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. 	During the lead up to the Year 6 SATS, maths lessons are planned to	During the lead up to the Year 6 SATS, maths lessons are planned to

<ul style="list-style-type: none"> • 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 greater than one as a mixed number. • Add and subtract fractions with the same denominator and denominators that are multiples of the same number. • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. • Solve problems involving fractions, using known equivalences to help. <p>Year 6 Objectives:</p> <ul style="list-style-type: none"> • Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. • Compare and order fractions, including fractions greater than 1. • Use common multiples to generate equivalent fractions. • 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. • Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. • Solve problems involving similar shapes where the scale factor is known or can be found. 	<ul style="list-style-type: none"> • Understand the concept of area, estimate areas of irregular shapes and count squares to find these. • Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes. • Estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]. <p>Year 6 Objectives:</p> <ul style="list-style-type: none"> • 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 (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³]. <p>Statistics</p> <p>Year 5 Objectives:</p> <ul style="list-style-type: none"> • Create and interpret line graphs. • Solve comparison, sum and difference problems using information presented in a line graph. • Complete, read and interpret information in tables, including timetables. • Connect work on coordinates and scales to the interpretation of time graphs. • Begin to decide which representations of data are most appropriate and why <p>Year 6 Objectives:</p> <ul style="list-style-type: none"> • Interpret and construct pie charts and line graphs and use these to solve problems. • Connect work on angles, fractions and percentages to the interpretation of pie charts. 	<p>include revision of key concepts with a particular focus on areas identified through pupil assessment.</p> <p>Following the Year 6 SATS, pupils will be included in sessions on areas identified as needing consolidation. When the session focus is an area of strength for individuals, they will complete a series of maths investigations which require them to apply the knowledge and skills that they have developed over their time in key stage two.</p>	<p>include revision of key concepts with a particular focus on areas identified through pupil assessment.</p> <p>Following the Year 6 SATS, pupils will be included in sessions on areas identified as needing consolidation. For pupils in Year 5: if a particular session focus is an area of strength for an individual, they will complete a maths investigation which require them to apply the knowledge and skills that they have developed in that area of maths.</p>
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<ul style="list-style-type: none"> • Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. 	<ul style="list-style-type: none"> • Calculate and interpret the mean as an average; know when it is appropriate to find the mean of a data set. 		
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Notes: As we continue to refine and develop our curriculum, we make decisions about where to place particular units in order to build on prior learning. This overview shows Number: Fractions as taking place in the autumn term. During the academic year 2021-22, this unit was completed in the spring term, but it is planned for autumn term 2022-23 onwards. Measurement: Perimeter, Area and Volume is shown as spring term, along with Statistics – both of these were completed in the autumn term in 2021-22, but will switch with Fractions for 2022-23. Dependant on term length, some spring term content may be taught at the end of the autumn term. In 2021-22, Statistics was planned for autumn rather than spring.