



KS1 & KS2 – Maths Overview

Number

Class	<u>Number & place value</u>	<u>Number – addition & subtraction</u>	<u>Number – multiplication & division</u>	<u>Number – fractions</u> <u>Y4-6 (Decimals & Percentages)</u>	<u>Ratio & Proportion</u>	<u>Algebra</u>
Class 1	<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, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens □ given a number, identify one more and one less □ 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 	<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 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 such as $7 = \square - 9$. 	<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. 	<ul style="list-style-type: none"> □ recognise, find and name a half as one of two equal parts of an object, shape or quantity □ recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. 	N/A	N/A

	from 1 to 20 in numerals and words.					
Class 2	<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 two-digit 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. 	<ul style="list-style-type: none"> □ solve problems with addition and subtraction: <ul style="list-style-type: none"> □ using concrete objects and pictorial representations, including those involving numbers, quantities and measures □ applying their increasing knowledge of mental and written methods □ 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 	<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. 	<ul style="list-style-type: none"> □ recognise, find, name and write fractions <ul style="list-style-type: none"> 3 1, 4 1, 4 2 and 4 3 of a length, shape, set of objects or quantity □ write simple fractions for example, 2 1 of 6 = 3 and recognise the equivalence of 4 2 and 2 1 . 	N/A	N/A

		<p>numbers can be done in any order (commutative) and subtraction of one number from another cannot</p> <ul style="list-style-type: none"> □ recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. 				
Class 3	<ul style="list-style-type: none"> □ count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number □ recognise the place value of each digit in a three-digit number (hundreds, tens, ones) □ compare and order numbers up to 1000 □ identify, represent and estimate numbers using different representations □ read and write numbers up to 1000 in numerals and in words □ solve number problems and practical problems involving 	<ul style="list-style-type: none"> □ add and subtract numbers mentally, including: <ul style="list-style-type: none"> □ a three-digit number and ones □ a three-digit number and tens □ a three-digit number and hundreds □ add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction □ estimate the answer to a calculation and use inverse operations to check answers □ solve problems, including missing number problems, 	<ul style="list-style-type: none"> □ recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables □ 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 □ solve problems, including missing number problems, involving multiplication and division, including positive 	<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 □ recognise, find and write fractions of a discrete set of objects: unit fractions and 	N/A	N/A

	these ideas.	using number facts, place value, and more complex addition and subtraction.	integer scaling problems and correspondence problems in which n objects are connected to m objects.	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 [for example, $\frac{7}{5} + \frac{7}{6} = 1$]		
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				<ul style="list-style-type: none"> □ compare and order unit fractions, and fractions with the same denominators □ solve problems that involve all of the above. 		
Class 4	<ul style="list-style-type: none"> □ count in multiples of 6, 7, 9, 25 and 1000 □ find 1000 more or less than a given number □ count backwards through zero to include negative numbers □ recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) □ order and compare numbers beyond 1000 □ identify, represent and estimate numbers using different representations □ round any number to the nearest 10, 100 or 1000 □ solve number and practical problems that involve all of 	<ul style="list-style-type: none"> □ add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate □ estimate and use inverse operations to check answers to a calculation □ solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. 	<ul style="list-style-type: none"> □ recall multiplication and division facts for multiplication tables up to 12×12 □ 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 □ multiply two-digit and three-digit numbers by a one-digit number using formal written layout □ solve problems involving multiplying and adding, 	<ul style="list-style-type: none"> □ recognise and show, using diagrams, families of common equivalent fractions □ count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. □ solve problems 		

	<p>the above and with increasingly large positive numbers</p> <p>□ read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</p>		<p>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>	<p>involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number</p> <p>□ add and subtract fractions with the same denominator</p> <p>□ recognise and write decimal equivalents of any number of tenths or hundredths</p> <p>□ recognise and write decimal equivalents to 4</p> <p>1 , 2</p>		
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				<p>1 , 4 3</p> <p>□ find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths</p> <p>□ round decimals with one decimal place to the nearest whole number</p> <p>□ compare numbers with the same number of decimal places up to two decimal places</p> <p>□ solve simple measure and money</p>		
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				problems involving fractions and decimals to two decimal places.		
Class 5	<ul style="list-style-type: none"> □ read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit □ count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 □ interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero □ round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 □ solve number problems and practical problems that involve all of the above □ read Roman numerals to 1000 (M) and recognise years written in Roman numerals. 	<ul style="list-style-type: none"> □ add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) □ add and subtract numbers mentally with increasingly large numbers □ use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy □ solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. 	<ul style="list-style-type: none"> □ identify multiples and factors, including finding all factor pairs of a number, and 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 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 	<ul style="list-style-type: none"> □ compare and order fractions whose denominators are all multiples of the same number □ identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths □ recognise mixed numbers and improper fractions and convert from one form to the other and write 		

			<p>using the formal written method of short division and interpret remainders appropriately for the context</p> <p>□ multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p> <p>□ recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)</p> <p>□ solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</p> <p>□ solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p> <p>□ solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p>	<p>mathematical statements > 1 as a mixed number [for example, $5\frac{2}{4} = 5\frac{1}{2}$]</p> <p>□ add and subtract fractions with the same denominator and denominators that are multiples of the same number</p> <p>□ multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p>		
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				<p>□ read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$]</p> <p>□ recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>□ round decimals with two decimal places to the nearest whole number and to one decimal place</p> <p>□ read, write, order and compare numbers with up to three decimal places</p> <p>□ solve</p>		
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				<p>problems involving number up to three decimal places</p> <p>□ 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</p> <p>□ solve problems which require knowing percentage and decimal equivalents of</p> <p>2</p> <p>1 , 4</p> <p>1 ,</p> <p>5</p>		
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				1 , 5 2 , 5 4 and those fractions with a denominator of a multiple of 10 or 25.		
Class 6	<ul style="list-style-type: none">□ read, write, order and compare numbers up to 10 000 000 and determine the value of each digit□ round any whole number to a required degree of accuracy□ use negative numbers in context, and calculate intervals across zero□ solve number and practical problems that involve all of the above.	<ul style="list-style-type: none">□ multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication□ 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□ perform mental calculations, including with mixed operations and large numbers□ identify common factors, common multiples and prime numbers□ use their knowledge of the order of operations to carry out calculations involving the four operations□ solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	<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 > 1□ add and subtract fractions with different denominators	<ul style="list-style-type: none">□ solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and	<ul style="list-style-type: none">□ use simple formulae□ generate and describe linear number sequences□ express missing number problems algebraically□ find pairs of	

		<p>□ solve problems involving addition, subtraction, multiplication and division</p> <p>□ use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p>	<p>and mixed numbers, using the concept of equivalent fractions</p> <p>□ multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $4 \frac{1}{2} \times 2 \frac{1}{2} = 8 \frac{1}{2}$]</p> <p>□ divide proper fractions by whole numbers [for example, $3 \frac{1}{2} \div 2 = 6 \frac{1}{2}$]</p> <p>□ associate a fraction with division and calculate decimal fraction equivalents [for</p>	<p>division facts</p> <p>□ solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</p> <p>□ solve problems involvin</p>	<p>numbers that satisfy an equation with two unknowns</p> <p>□ enumerate possibilities of combinations of two variables.</p>
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			<p>example, 0.375] for a simple fraction [for example, $\frac{8}{3}$]</p> <p>□ identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places</p> <p>□ multiply one-digit numbers with up to two decimal places by whole numbers</p> <p>□ use written division methods in cases where the answer has up to two</p>	<p>g similar shapes where the scale factor is known or can be found</p> <p>□ solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p>	
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			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.		
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Measures, Shape & Space

Class	<u>Measurement</u>	<u>Geometry-Properties of shape</u>	<u>Geometry - Position & direction</u>	<u>Statistics</u>
Class 1	□ compare, describe and solve practical problems for: □ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]	□ recognise and name common 2-D and 3-D shapes, including: □ 2-D shapes [for example, rectangles (including squares), circles and	□ describe position, direction and movement, including whole, half, quarter and three-quarter turns.	N/A

	<ul style="list-style-type: none"> □ mass/weight [for example, heavy/light, heavier than, lighter than] □ capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] □ time [for example, quicker, slower, earlier, later] □ measure and begin to record the following: <ul style="list-style-type: none"> □ lengths and heights □ mass/weight □ capacity and volume □ time (hours, minutes, seconds) □ recognise and know the value of different denominations of coins and notes □ 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, 	<p>triangles]</p> <ul style="list-style-type: none"> □ 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. 		
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	<p>months and years</p> <p>□ tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</p>			
Class 2	<p>□ choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</p> <p>□ compare and order lengths, mass, volume/capacity and record the results using >, < and =</p> <p>□ recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</p> <p>□ find different combinations of coins that equal the same amounts of money</p> <p>□ solve simple problems in a practical context involving addition and subtraction of money of the same unit,</p>	<p>□ identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <p>□ identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p> <p>□ identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</p> <p>□ compare and sort common 2-D and 3-D shapes and everyday objects.</p>	<p>□ order and arrange combinations of mathematical objects in patterns and sequences</p> <p>□ 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>	<p>□ interpret and construct simple pictograms, tally charts, block diagrams and simple tables</p> <p>□ ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</p> <p>□ ask and answer questions about totalling and comparing categorical data.</p>

	including giving change □ 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.			
Class 3	□ measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) □ measure the perimeter of simple 2-D shapes □ add and subtract amounts of money to give change, using both £ and p in practical contexts □ 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	□ 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 □ identify horizontal and	N/A	□ interpret and present data using bar charts, pictograms and tables □ 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>seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight</p> <ul style="list-style-type: none"> □ 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 particular events or tasks]. 	<p>vertical lines and pairs of perpendicular and parallel lines.</p>		
Class 4	<ul style="list-style-type: none"> □ Convert between different units of measure [for example, kilometre to metre; hour to minute] □ measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres □ find the area of rectilinear shapes by counting squares □ estimate, compare and calculate different measures, including money in pounds and pence □ read, write and convert time between analogue and digital 12- and 24-hour clocks 	<ul style="list-style-type: none"> □ compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes □ 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. 	<ul style="list-style-type: none"> □ 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. 	<ul style="list-style-type: none"> □ interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. □ solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

	<ul style="list-style-type: none"> □ solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. 			
Class 5	<ul style="list-style-type: none"> □ convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) □ understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints □ 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 (cm²) and square metres (m²) and estimate the area of irregular shapes □ estimate volume [for 	<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 (o) □ identify: <ul style="list-style-type: none"> □ angles at a point and one whole turn (total 360o) □ angles at a point on a straight line and 2 1 a turn (total 180o) □ other multiples of 90o □ use the properties of rectangles to deduce related facts and find missing lengths and angles □ distinguish between regular and irregular polygons based on reasoning about equal sides and 	<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. 	<ul style="list-style-type: none"> □ solve comparison, sum and difference problems using information presented in a line graph □ complete, read and interpret information in tables, including timetables.

	<p>example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]</p> <ul style="list-style-type: none"> □ solve problems involving converting between units of time □ use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. 	angles.		
Class 6	<ul style="list-style-type: none"> □ solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate □ 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 □ convert between miles and kilometres 	<ul style="list-style-type: none"> □ draw 2-D shapes using given dimensions and angles □ recognise, describe and build simple 3-D shapes, including making nets □ compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons □ illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius □ recognise angles where 	<ul style="list-style-type: none"> □ 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. 	<ul style="list-style-type: none"> □ interpret and construct pie charts and line graphs and use these to solve problems □ calculate and interpret the mean as an average.

	<p>□ recognise that shapes with the same areas can have different perimeters and vice versa</p> <p>□ recognise when it is possible to use formulae for area and volume of shapes</p> <p>□ calculate the area of parallelograms and triangles</p> <p>□ calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³].</p>	<p>they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p>		
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