

Maths								
	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value	Subitise up to 3. Recite numbers past 5. Say one number for each item in order: 1, 2, 3, 4, 5 Compare quantities using language such as 'more than' or 'fewer than'.	Subitise up to 5. Count beyond 20, recognising the pattern of the counting system. Understand numbers up to 10, including the composition of each number. Compare quantities up to 10 in different contexts and understand the 'one more than', 'one less than' relationship between consecutive numbers.	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count numbers to 100 in numerals; count in multiples of twos, fives and tens. Identify and represent numbers using objects and pictorial representations. Read and write numbers to 100 in numerals, and numbers from 1 to 20 in numerals and words. Identify one more and one less of a given number.	Count in steps of 2, 3 and 5 from 0, and in tens from any number, forwards and backwards. Read and write numbers to at least 100 in numerals and in words. Identify, represent and estimate numbers using different representations, including the number line. Recognise the place value of each digit in a two-digit number (tens, ones). Compare and order numbers from 0 up to 100; using inequality symbols (<, > and =). Use place value and number facts to solve problems.	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. Identify, represent and estimate numbers using different representations. Read and write numbers up to 1000 in numerals and in words. Recognise the place value of each digit in a three-digit number. Compare and order numbers up to 1000. Solve number problems and practical problems involving these ideas.	Count in multiples of 6, 7, 9, 25 and 1000. Count backwards through zero to include negative numbers. Identify, represent and estimate numbers using different representations. Read Roman numerals to 100. Find 100 more or less than a given number. Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones). Order and compare numbers beyond 1000. Round any number to the nearest 10, 100 or 1000. Solve number and practical problems that involve all of the above and with increasingly large positive 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. Read, write, (order and compare) numbers to at least 1,000,000 and determine the value of each digit. Read Roman numerals to (1000 - M) and recognise years written in Roman numerals. Read, write, order and compare numbers to 1,000,000 and determine the value of each digit. Interpret negative numbers in context. 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, 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 problems using practical problems that involve all of the above.

Addition and Subtraction	Start to add and subtract objects up to 5. Start to solve real world mathematical problems with numbers up to 5.	Automatically recall number bonds up to 5 and some number bonds to 10, including doubles. Start to solve real world mathematical problems with numbers up to 10.	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, pictorial representations and missing number problems.	Add and subtract numbers using concrete objects, pictorial representations and mentally, including: • a 2-digit number and ones • a 2-digit number and tens • two 2-digit numbers • three 1-digit numbers. Solve problems with addition and subtraction: • using concrete objects and pictorial representations • applying their increasing knowledge of mental and written methods.	Add and subtract numbers mentally, including: • a 3-digit number and ones • a 3-digit number and tens • a 3-digit number and hundreds Add and subtract numbers with up to 3 digits using formal written methods. Solve problems including missing number problems, using number facts, place value and more complex addition and subtraction.	Add and subtract numbers with up to 4 digits using the formal written method of columnar addition and subtraction where appropriate. Solve addition and subtraction 2-step problems in contexts, deciding which operations and methods to use and why.	Add and subtract whole numbers with more than 4-digits, including using formal written methods. Add and subtract numbers mentally with increasingly large numbers. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Solve problems including all four operations, including understanding the meaning of the equals sign.	Perform mental calculations, including with mixed operations and large numbers. Use 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.
Multiplication and Division	Start to make equal groups and understand how to share objects fairly.	Understand doubles facts to 10. Understand how quantities can be distributed equally.	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.	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Show that multiplication of two numbers can be done in any order, whereas division cannot. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the correct mathematical signs. Solve problems involving multiplication and division using materials, arrays,	Recall and use multiplication and division facts for 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication and division using multiplication tables known, including for 2-digit numbers times 1-digit numbers, using mental and progressing to formal written methods. Solve problems including missing number problems involving multiplication and division, including positive integer scaling problems and correspondence	Recall multiplication and division facts for multiplication tables up to 12 x 12. Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1 and multiplying together three numbers. Recognise and use factor pairs and commutativity in mental calculations. Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written methods. Solve problems involving multiplying and adding, including	Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers. Know and use 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. Recognise and use square numbers, cube numbers and the notation for these numbers. Multiply numbers up to 4-digits by a 1- or 2-digit number using a	Identify common factors, common multiples and prime numbers. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. Multiply multi-digit numbers up to 4 digits by a 2-digit whole number using the formal written method of long multiplication. Divide numbers up to 4 digits by a 2-digit number using the formal written method of short and long division and interpret remainders as whole

				repeated addition, mental methods and known facts.	problems in which n objects are connected to m objects.	using the distributive law to multiply 2-digit numbers by 1-digit, integer scaling problems and harder correspondence problems.	formal written method, including long multiplication for 2-digit numbers. Multiply and divide numbers mentally, drawing upon known facts. Divide numbers up to 4 digits by a 1-digit number using the formal written method of short division, interpreting remainders appropriately. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Solve problems involving multiplication and division, using knowledge of factors, multiples, squares and cubes. Solve problems involving multiplication and division including scaling by simple fractions and problems involving simple rates. Solve problems involving all four operations, including an understanding of the meaning of the equals sign.	numbers, fractions or by rounding. Perform mental calculations, including with mixed operations and large numbers. Solve problems involving all four operations and use knowledge of the order of operations to carry out calculations.
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Fractions, Decimals and Percentages			Recognise, find and name a half as one of two equal parts of an object, shape or quantity. ($\frac{1}{2}$) Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	Recognise, find and 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. Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. Write simple fractions for example, $\frac{1}{2}$ of 6 = 3.	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 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. Compare and order unit fractions, and fractions with the same denominator. Add and subtract fractions with the same denominator within one whole (E.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$). Solve problems on all of the above.	Count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by ten. Recognise and show, using diagrams, families of common equivalent fractions. Add and subtract fractions with the same denominator. 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. Recognise and write decimal equivalents of any number of tenths or hundredths. Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$. 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. Solve simple measure and money problems involving fractions and decimals to two decimal places.	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 another and write mathematical statements as a mixed number (>1). E.g. $\frac{2}{5} + \frac{1}{5} = \frac{6}{5} = 1 \frac{1}{5}$) 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. Multiply proper fractions and multiply mixed numbers by whole numbers, supported by materials and diagrams. Read and write decimal numbers as fractions (for example, 0.71 = $\frac{71}{100}$). Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. 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.	To 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 it's simplest form (for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$). Divide proper fractions by whole numbers (for example, $\frac{1}{3}$ divided by 2 = $\frac{1}{6}$.) Identify the value of each digit in numbers given to three decimal places. Multiply and divide numbers by 10,100 and 1000 giving answers to three decimal places. Use written division methods in cases where the answer has up to a decimal place. Solve problems which require answers to be rounded to specified degrees of accuracy. Associate a fraction with division and calculate decimal fraction equivalents. Recall and use equivalences between simple fractions, decimals and

							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', and write percentages as a fraction with denominator 100, and as a decimal. Solve problems require knowing percentage and decimal equivalents or $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, and $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.	percentages, including in different contexts.
Ratio and Proportion							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 the calculation of percentages and the use of percentages for comparison. Solve problems involving similar shapes where the scale factor is known or can be found. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	

Algebra			Solve one-step problems that involve addition and subtraction using concrete objects and pictorial representations and missing number problems, such as $7 = ? - 9$.	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Solve problems involving missing number problems.			Use simple formulae. Generate and describe 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.
Measurement	Make comparisons between objects relating to size, length, weight and capacity.	Compare length, weight and capacity, using 'greater than', 'less than' or 'the same as'.	Compare, describe and solve practical problems for: lengths and heights, mass/weight, capacity and volume, time. To begin measuring and recording above measurements. Recognise and know the value of different denominations of coins and notes Sequence events in chronological order using language such as before, after, next. 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.	Choose and use appropriate standard units to estimate measure. Compare and order lengths, mass, volume/capacity and record the results using inequality symbols. Recognise and use symbols for pounds and pence; combine mounts 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. Compare and sequence intervals of time. Tell and write the time to five minutes, including quarter past/to the hour, and draw hands on a clock face to show the time.	Mesure, compare, add and subtract: lengths, mass, volume and capacity. Add and subtract amounts to 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 seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m. etc. Know the number of seconds in a minute and the number of days in each month, year and leap year. Compare durations of events. Measure the perimeter of 2D shapes.	Convert between different units of measure (km to m) Estimate, compare and calculate different measures. Estimate, compare and calculate different measures, including money in pounds and pence. Read, write and convert time between analogue and digital 12-hour and 24-hour clocks. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. Measure and calculate the perimeter of a rectilinear figures in cm and m. Find the area of rectilinear shapes by counting squares.	Convert between different units of metric measure (km -m, cm - m, g to kg). 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 (e.g. length, mass, volume, money) using decimal scaling. Use all four operations to solve problems involving measure. Solve problems involving converting between units of time. Measure and calculate the perimeter of composite rectilinear shapes in cm and m. Calculate and compare the area of rectangles and including using standard units, square cm and square m.	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. 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. Recognise that shapes with the same areas can have different perimeters and vice versa.

				Know the number of minutes in an hour and the number of hours in a day.			Estimate the area of irregular shapes. Estimate volume and capacity.	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 and cubic metres.
Geometry	Talk about and explore 2D and 3D shapes using both informal and mathematical language. Select shapes appropriately and combine shapes to make new ones. Understand position through words alone without pointing. Describe a familiar route. Create and correct repeating patterns.	Select, rotate and manipulate shapes in order to develop spatial reasoning skills. Investigate composing and decomposing shapes and recognise a shape can have other shapes within it. Continue, copy and create repeating patterns.	Recognise and name common 2D and 3D shapes. Describe position, direction and movement, including whole, half, quarter and three-quarter turns.	Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line. Identify 2D shapes on the surface of 3D shapes. Compare and sort common 2D shapes and everyday objects. Recognise and name 3D shapes. Compare and sort common 3D shapes and everyday objects. 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	Draw 2D shapes. Make 3D shapes using modelling materials; recognise 3D 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 make a complete turn. Identify whether angles are greater than or less than a right angle. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	Compare and classify geometric shapes including quadrilaterals and triangles based on their properties and sizes. Identify lines of symmetry in 2D 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 2D shapes presented in different orientations. Complete a simple symmetric figure with respect to a specific line of symmetry. Describe positions on a 2D grid as co-ordinates in the first quadrant. Describe movements between positions as translations of a given unit to the left/right and up/down.	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Use the properties of rectangles to deduce related facts and find missing lengths and angles. 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 in degrees. Identify: Angles at a point and one whole turn (total 360 degrees) Angles at a point on a straight line and $\frac{1}{2}$ a turn (180 degrees) Other multiples of 90 degrees.	Draw 2D shapes using given dimensions and angles. Compare and classify geometric shapes based on their properties and sizes. Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Recognise, describe and build simple 3-D shapes, including making nets. Find unknown angles in any triangles, quadrilaterals, and regular polygons. Recognise angles where the meet at a point, are on a straight line, or are vertically opposite, and find missing angles. Describe the positions on the full coordinate grid (all four quadrants)

				quarter turns (clockwise and anti-clockwise).		Plot specified points and draw sides to complete a given polygon.		Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
Statistics				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.	Interpret and present data using bar charts, pictograms and tables. Solve one-step and two-step equations using information presented in scaled bar charts, pictograms and tables.	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.	Complete, read and interpret information in tables, including timetables. Solve comparison, sum and difference problems using information presented in a line graph.	Interpret and construct pie charts and line graphs and use these to solve problems.