MATHS CURRICULUM 2014/15	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions (including decimals - from Yr 4 - and percentages - from Yr 5)	Measurement	Geometry - Properties of Shapes	Geometry - Position and Direction	Statistics	Ratio and Proportion (Yr 6 only)
Year 1	▪ 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 from 1 to 20 in numerals and words.	▪ 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 = – 9.	▪ 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.	▪ 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.	▪ compare, describe and solve practical problems for: ▪ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] ▪ 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: ▪ 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, 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.	▪ recognise and name common 2-D and 3-D shapes, including: ▪ 2-D shapes [for example, rectangles (including squares), circles and triangles] ▪ 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	▪ describe position, direction and movement, including whole, half, quarter and three-quarter turns.		

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Year 2	• 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.	• solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods • 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: • 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 check calculations and solve missing number problems.	• 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 (×), division (÷) 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.	· recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity · write simple fractions for example,1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	• 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 • compare and order lengths, mass, volume/capacity and record the results using >, < and = • 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 • 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.	• 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.	• 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).	• 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.	

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Year 3	▪ 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 these ideas.	▪ add and subtract numbers mentally, including: ▪ 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, using number facts, place value, and more complex addition and subtraction.	▪ 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 integer scaling problems and correspondence problems in which n objects are connected to m objects.	· 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 [for example, 5/7 + 1/7 = 6/7] · compare and order unit fractions, and fractions with the same denominators · solve problems that involve all of the above.	▪ 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 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 particular events or tasks].	▪ 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 vertical lines and pairs of perpendicular and parallel lines.		▪ 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.	

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Year 4	▪ 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 the above and with increasingly large positive numbers ▪ 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.	▪ 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.	▪ 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, 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.	· 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 involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number · add and subtract fractions with the same denominator · recognise and write decimal equivalents of any number of tenths or hundredths · recognise and write decimal equivalents to 1/4, 1/2, 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 · round decimals with one decimal place to the nearest whole number · compare numbers with the same number of decimal places up to two decimal places · solve simple measure and money problems involving fractions and decimals to two decimal places.	▪ 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 ▪ solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	▪ 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.	▪ 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.	▪ 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.	

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Year 5	▪ 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.	▪ 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.	▪ 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 using the formal written method of short division and interpret remainders appropriately for the context ▪ multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 ▪ recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) ▪ solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes ▪ solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign ▪ solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	· 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 mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5] · 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 · read and write decimal numbers as fractions [for example, 0.71 = 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 · 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 which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5,2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	▪ 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 (cm^2) and square metres (m^2) and estimate the area of irregular shapes ▪ estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] ▪ 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.	· 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: · 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 angles.	▪ 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.	▪ solve comparison, sum and difference problems using information presented in a line graph ▪ complete, read and interpret information in tables, including timetables.	

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Year 6	▪ 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.	▪ 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 ▪ solve problems involving addition, subtraction, multiplication and division ▪ use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	· use common factors to simplify fractions; use common multiples to express fractions in the same denomination · compare and order fractions, including fractions > 1 · add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions · multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 x 1/2 = 1/8] · divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6] · associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] · 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 ▪ multiply one-digit numbers with up to two decimal places by whole numbers ▪ 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 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 ▪ 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 (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].	▪ 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 they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	▪ 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.	▪ interpret and construct pie charts and line graphs and use these to solve problems ▪ calculate and interpret the mean as an average.	**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 [for example, of measures, and such as 15% of 360] 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** ▪ 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.