Year 1

Year 1 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
Number and place value Pupils should be taught to: ■ 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 different multiples including ones, twos, fives and tens ■ given a number, identify one more and one less ■ identify and represent numbers using concrete 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 digits and words.	**Number and place value** Pupils should practise counting (1, 2, 3), ordering (e.g. first, second, third), or to indicate a quantity (e.g. 3 apples, 2 centimetres), including solving simple concrete problems, until they are fluent. They should practice counting as reciting numbers and counting as enumerating objects, and counting in ones, twos, fives and tens from different multiples to develop their recognition of patterns in the number system (e.g. odd and even numbers). They connect these patterns with objects and with shapes, including through varied and frequent practice of increasingly complex questions. Pupils begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by concrete objects and pictorial representations.
Addition and subtraction Pupils should be taught to: ■ read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs ■ represent and use number bonds and related subtraction	**Addition and subtraction** Pupils should memorise and reason with number bonds to 10 and 20 in several forms (e.g. 9 + 7 = 16; 16 – 7 = 9; 7 = 16 - 9). They should realise the effect of adding or subtracting zero. Pupils should combine and increase numbers, counting forwards

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facts within 20 ■ add and subtract one-digit and two-digit numbers to 20 (9 + 9, 18 - 9), including zero ■ solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems.	and backwards. They should discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms put together, add, altogether, total, take away, difference between, more than and less than so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.
Multiplication and division Pupils should be taught to: ■ solve simple one-step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	**Multiplication and division** Through grouping and sharing small quantities, pupils should begin to understand multiplication and division; doubling numbers and quantities, and finding simple fractions of objects, numbers and quantities. They should make connections between arrays, number patterns, and counting in twos, fives and tens.

Fractions	Fractions
Pupils should be taught to: ■ 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	Pupils should be taught $\frac{1}{2}$ and $\frac{1}{4}$ as operators on discrete and continuous quantities by solving problems using shapes, objects and quantities. For example, they could recognise and find half a length, quantity, set of objects or shape. Pupils connect halves and quarters to the equal sharing and grouping of sets of objects and to

Year 1 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
parts of an object, shape or quantity.	measures, as well as recognising and combining halves and quarters as parts of a whole.

Measures
 	
Pupils should be taught to:
 	
■ compare, describe and solve practical problems for:
 	
   ■ lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half)
 	
   ■ mass or weight (e.g. heavy/light, heavier than, lighter than)
 	
   ■ capacity/volume (full/empty, more than, less than, quarter)
 	
   ■ time (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 such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening
	Measures
	
	The terms mass and weight, volume and capacity are used interchangeably at this stage
	
	Pupils should move from using and comparing different types of quantities and measures using non-standard units, including discrete (e.g. counting) and continuous (e.g. liquid) measures, to using manageable common standard units. They should understand the difference between non-standard and standard units.
	
	In order to become familiar with standard measures, pupils begin to use measuring tools such as a ruler, weighing scales and containers.
	
	Pupils should use the language of time, including telling the time throughout the day, first using o'clock and then half past.

Year 1 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
■ 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.	

Geometry: properties of shapes
 	
Pupils should be taught to:
 	
■ recognise and name common 2-D and 3-D shapes, including:
 	
  ■ 2-D shapes (e.g. rectangles (including squares), circles and triangles)
  ■ 3-D shapes (e.g. cuboids (including cubes), pyramids and spheres).
	Geometry: properties of shapes
	
	Pupils should handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. They should recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids can be different shapes.

Year 1 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
Geometry: position, direction, motion Pupils should be taught to: ■ order and arrange combinations of objects and shapes in patterns ■ describe position, directions and movements, including half, quarter and three-quarter turns.	**Geometry: position, direction, motion** Pupils should create, copy, describe and reorganise patterns. They should use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside. Pupils should make turns to show they understand half, quarter and three-quarter turns and routinely make these turns in a clockwise direction.

Year 2

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
Number and place value Pupils should be taught to: ■ count in steps of 2, 3, and 5 from 0, and count in tens from any number, forward or 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.	**Number and place value** Using materials and a range of representations, pupils should practise counting, reading, writing and comparing numbers to at least 100 and solving a variety of related problems to develop fluency. They should count in multiples of three to support their later understanding of a third. As they become more confident with numbers up to 100, pupils should be introduced to larger numbers to develop further their recognition of patterns within the number system and represent them in different ways, including spatial representations. Pupils should partition numbers in different ways (e.g. 23 = 20 + 3 and 23 = 10 + 13) to support subtraction. They become fluent and apply their knowledge of numbers to reason with, discuss and solve problems that emphasise the value of each digit in two-digit numbers. They begin to understand zero as a place holder.
Addition and subtraction Pupils should be taught to: ■ solve simple one-step problems with addition and subtraction:	**Addition and subtraction** Pupils should extend their understanding of the language of addition and subtraction to include sum and difference. Pupils should practise addition and subtraction to 20 to become

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
- 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 missing number problems.	increasingly fluent in deriving facts such as using 3 + 7 = 10, 10 - 7 = 3 and 7 = 10 - 3 to calculate 30 + 70 = 100, 100 - 70 = 30 and 70 = 100 - 30. They should check their calculations, including by adding to check subtraction and adding numbers in a different order to check addition (e.g. 5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5). Recording addition and subtraction in columns supports place value and prepares for efficient written methods with larger numbers.
Multiplication and division Pupils should be taught to: ■ recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and	**Multiplication and division** Pupils should use a variety of language to describe multiplication and division. They are taught multiplication and division with larger numbers through equal grouping and sharing out quantities, relating multiplication tables to arrays and repeated addition and

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
even numbers ■ calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs ■ recognise and use the inverse relationship between multiplication and division in calculations ■ show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot ■ solve one-step problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	finding more complex fractions of objects, numbers and quantities. Pupils should be introduced to the multiplication tables. They should practise to become fluent in the 2, 5 and 10 multiplication tables and connect them to each other. They connect the 10 multiplication table to place value, and the 5 multiplication table to the divisions on the clock face. They begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations. Pupils should work with a range of materials and contexts in which multiplication and division relate to grouping and sharing discrete and continuous quantities, relating these to fractions and measures (e.g. $40 \div 2 = 20$, 20 is a half of 40). They use commutativity and inverse relations to develop multiplicative reasoning (e.g. $4 \times 5 = 20$ and $20 \div 5 = 4$).
Fractions Pupils should be taught to: ■ 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 e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of two quarters and one half.	**Fractions** Pupils should use additional fractions as operators on discrete and continuous quantities by solving problems using shapes, objects and quantities. They connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantity, a set of objects or shapes. They meet $\frac{3}{4}$ as the first example of a non-unit fraction. Pupils should 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 (e.g. $1\frac{1}{4}$,

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
	$1^2/_4$, (or $1^1/_2$), $1^3/_4$, 2). This reinforces the concept of fractions as numbers and that they can add up to more than one.
Measures Pupils should be taught to: ■ 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 = ■ read relevant scales to the nearest numbered unit ■ recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value and match different combinations of coins to equal the same amounts of money; add and subtract money of the same unit, including giving change ■ solve simple problems in a practical context involving addition and subtraction of money ■ 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.	**Measures** Pupils should use standard units of measurement with increasing accuracy, using their knowledge of the number system. They should use the appropriate language and record using standard abbreviations. They should become fluent in telling the time on analogue clocks and recording it. Pupils should also become fluent in counting and recognising coins. They should use the symbols £ and p accurately and say the amounts of money confidently.

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
Geometry: properties of shapes Pupils should be taught to: - identify and describe the properties of 2-D shapes, including the number of sides and 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.	**Geometry: properties of shapes** Pupils should handle and name a wider variety of common 2-D and 3-D shapes including: quadrilaterals and cuboids, prisms, cones and polygons, and identify the properties of each shape (e.g. number of sides, number of faces). Pupils identify, compare and sort shapes on the basis of their properties and use vocabulary precisely, such as sides, edges, vertices and faces. Pupils should read and write names for shapes that are appropriate for their word reading and spelling. Pupils should draw lines and shapes using a straight edge.
Geometry: position, direction, motion Pupils should be taught to: - order and arrange combinations of mathematical objects in patterns - use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise), and movement in a straight line.	**Geometry: position, direction, motion** Pupils should work with patterns of shapes, including those in different orientations. Pupils should use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (e.g. pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles).

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
Data Pupils should be taught to: - 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 compare categorical data.	**Data** At this stage, pupils' recording and interpretation become more sophisticated as they collate, organise and compare information (e.g. using many-to-one correspondence in pictograms and using simple ratios 2, 5, 10).