Number: Addition and Subtraction

Early Years Ages and Stages Early Learning Goals	Year 1	Year 2	Year 3	Year 4
NUMBER BONDS				
Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). Show 'finger numbers' up to 5. Subitise. Explore the composition of numbers to 10. Automatically recall number bonds 0-5 and some to 10. Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. Have a deep understanding of numbers to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 5.	Represent and use number bonds and related subtraction facts within 20.	Recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100.		
MENTAL CALCULATION				
Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). Show 'finger numbers' up to 5. Subitise. Explore the composition of numbers to 10. Automatically recall number bonds 0-5 and some to 10. Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. Have a deep understanding of numbers to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 5.	Add and subtract one-digit and two-digit numbers to 20, including zero. Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.	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.	Add and subtract numbers mentally, including: * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds.	

Number: Addition and Subtraction

WRITTEN METHODS				
Early Years Ages and Stages Early Learning Goals	Year 1	Year 2	Year 3	Year 4
	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.		Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS				
Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). Explore the composition of numbers to 10.		Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Estimate the answer to a calculation and use inverse operations to check answers.	Estimate and use inverse operations to check answers to a calculation.
PROBLEM SOLVING				
Solve real world mathematical problems with numbers up to 5. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then…' Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9.	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 *Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change* (copied from Measurement).	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Number: Fractions (including Decimals and Percentages)

COUNTING IN FRACTIONAL STEPS				
Early Years Ages and Stages Early Learning Goals	Year 1	Year 2	Year 3	Year 4
		Pupils should count in fractions up to 10, starting from any number and using the 1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)	Count up and down in tenths.	Count up and down in hundredths.
RECOGNISING FRACTIONS				
	Recognise, find and name a half as one of two equal parts of an object, shape or quantity.	Recognise, find, name and write fractions $^{1}/_{3}$, $^{1}/_{4}$, $^{2}/_{4}$ and $^{3}/_{4}$ of a length, shape, set of objects or quantity.	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.	Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
			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 name a quarter as one of four equal parts of an object, shape or quantity.		Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.	
COMPARING FRACTIONS				
			Compare and order unit fractions, and fractions with the same denominators.	
COMPARING DECIMALS				
				Compare numbers with the same number of decimal places up to two decimal places.
ROUNDING INCLUDING DECIMALS				
				Round decimals with one decimal place to the nearest whole number.
EQUIVALENCE (INCLUDING FRACTIONS, DECIMALS AND PERCENTAGES)				
		Write simple fractions e.g. $^{1}/_{2}$ of 6 = 3 and recognise the equivalence of $^{2}/_{4}$ and $^{1}/_{2}$.	Recognise and show, using diagrams, equivalent fractions with small denominators.	Recognise and show, using diagrams, families of common equivalent fractions.
				Recognise and write decimal equivalents of any number of tenths or hundredths.
				Recognise and write decimal equivalents to $^{1}/_{4}$; $^{1}/_{2}$; $^{3}/_{4}$

Number: Fractions (including Decimals and Percentages)

ADDITION AND SUBTRACTION OF FRACTIONS				
Early Years Ages and Stages Early Learning Goals	Year 1	Year 2	Year 3	Year 4
			Add and subtract fractions with the same denominator within one whole (e.g. $^5/_7 + {}^1/_7 = {}^6/_7$).	Add and subtract fractions with the same denominator.
MULTIPLICATION AND DIVISION OF DECIMALS				
				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.
PROBLEM SOLVING				
			Solve problems that involve all of the above.	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.
				Solve simple measure and money problems involving fractions and decimals to two decimal places.

Geometry: Position and Direction

POSITION, DIRECTION AND MOVEMENT				
Early Years Ages and Stages Early Learning Goals	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Understand position through words alone – for example, "The bag is under the table," – with no pointing. Describe a familiar route. Discuss routes and locations, using words like 'in front of' and 'behind'. Draw information from a simple map.	Describe position, direction and movement, including half, quarter and three-quarter turns.	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).		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.
PATTERN				
Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc. Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern. Continue, copy and create repeating patterns.		Order and arrange combinations of mathematical objects in patterns and sequences.		

Geometry: Properties of Shapes

IDENTIFYING SHAPES AND THIER PROPERTIES				
Early Years Ages and Stages Early Learning Goals	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. Select, rotate and manipulate shapes in order to develop spatial reasoning skills	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].	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].		Identify lines of symmetry in 2-D shapes presented in different orientations.
DRAWING AND CONSTRUCTING				
Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. Combine shapes to make new ones - an arch, a bigger triangle etc. Select, rotate and manipulate shapes in order to develop spatial reasoning skills. Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.			Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.	Complete a simple symmetric figure with respect to a specific line of symmetry.
COMPARING AND CLASSIFYING				
Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.		Compare and sort common 2-D and 3-D shapes and everyday objects.		Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.
ANGLES				
			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 acute and obtuse angles and compare and order angles up to two right angles by size.
			Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	

Measurement

COMPARING AND ESTIMATING				
Early Years Ages and Stages Early Learning Goals	Year 1	Year 2	Year 3	Year 4
Make comparisons between objects relating to size, length, weight and capacity. Compare length, weight and capacity.	Compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than] * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter] * time [e.g. quicker, slower, earlier, later].	Compare and order lengths, mass, volume/capacity and record the results using >, < and = .		Estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring).
	Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening].	Compare and sequence intervals of time.	Compare durations of events, for example to calculate the time taken by particular events or tasks.	
			Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time).	
MEASURING and CALCULATING				
	Measure and begin to record the following: * **lengths and heights** * **mass/weight** * **capacity and volume** * **time** (hours, minutes, seconds).	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.	Measure, compare, add and subtract: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml).	Estimate, compare and calculate **different measures,** including **money in pounds and pence** (appears also in Comparing).
			Measure the **perimeter** of simple 2-D shapes.	Measure and calculate the **perimeter** of a rectilinear figure (including squares) in centimetres and metres.

Measurement

MEASURING and CALCULATING				
Early Years Ages and Stages Early Learning Goals	Year 1	Year 2	Year 3	Year 4
	Recognise and know the value of different denominations of **coins and notes.**	Recognise and use symbols for pounds **(£) and pence (p)**; combine amounts to make a particular value.	Add and subtract amounts of **money** to give change, using both £ and p in practical contexts.	
		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.		
				Find the area of rectilinear shapes by counting squares.
TELLING THE TIME				
Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then…'	Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	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.	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.	Read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting).
	Recognise and use language relating to dates, including days of the week, weeks, months and years.	Know the number of minutes in an hour and the number of hours in a day. (appears also in Converting).	Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Comparing and Estimating).	
				Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Converting).
CONVERTING				
		Know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time).	Know the number of seconds in a minute and the number of days in each month, year and leap year.	Convert between different units of measure (e.g. kilometre to metre; hour to minute).
				Read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting).
				Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Telling the Time).

Number: Multiplication and Division

MULTIPLICATION & DIVISION FACTS				
Early Years Ages and Stages Early Learning Goals	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Explore the composition of numbers to 10. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly. Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.	*Count in multiples of twos, fives and tens* (copied from Number and Place Value).	*Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward* (copied from Number and Place Value).	*Count from 0 in multiples of 4, 8, 50 and 100* (copied from Number and Place Value).	*Count in multiples of 6, 7, 9, 25 and 1 000* (copied from Number and Place Value). Recall multiplication and division facts for multiplication tables up to 12 × 12.
		Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.	
MENTAL CALCULATION				
			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 (appears also in Written Methods)	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.
		Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.		Recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers).
WRITTEN CALCULATION				
		Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.	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 (appears also in Mental Methods).	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.
PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS				
Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.				Recognise and use factor pairs and commutativity in mental calculations (repeated).

Number: Multiplication and Division

ORDER OF OPERATIONS				
Early Years Ages and Stages Early Learning Goals	Year 1	Year 2	Year 3	Year 4
	INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS			
			Estimate the answer to a calculation and use inverse operations to check answers (copied from Addition and Subtraction).	*Estimate and use inverse operations to check answers to a calculation* (copied from Addition and Subtraction).

PROBLEM SOLVING				
Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.	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.	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	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.	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.

Number: Number and Place Value

COUNTING				
Early Years Ages and Stages Early Learning Goals	Year 1	Year 2	Year 3	Year 4
Recite numbers past 5. Say one number for each item in order: 1,2,3,4,5. Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). Count objects, actions and sounds. Count beyond ten. Verbally count beyond 20, recognising the pattern of the counting system.	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.			Count backwards through zero to include negative numbers.
	Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens.	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward.	Count from 0 in multiples of 4, 8, 50 and 100.	Count in multiples of 6, 7, 9, 25 and 1000.
	Given a number, identify one more and one less.		Find 10 or 100 more or less than a given number.	Find 1000 more or less than a given number.
COMPARING NUMBERS				
Compare quantities using language: 'more than', 'fewer than'. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then…' Compare numbers. Understand the 'one more than/one less than' relationship between consecutive numbers. Compare quantities up to10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity	use the language of: equal to, more than, less than (fewer), most, least	compare and order numbers from 0 up to 100; use <, > and = signs	compare and order numbers up to 1000	Order and compare numbers beyond 1000. *Compare numbers with the same number of decimal places up to two decimal places* (copied from Fractions).
	IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS			
Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). Show "finger numbers' up to 5. Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Experiment with their own symbols and marks as well as numerals. Subitise. Link the number symbol (numeral) with its cardinal number value. Subitise (recognise quantities without counting) up to 5.	Identify and represent numbers using objects and pictorial representations including the number line.	Identify, represent and estimate numbers using different representations, including the number line.	Identify, represent and estimate numbers using different representations.	Identify, represent and estimate numbers using different representations.

Number: Number and Place Value

READING AND WRITING NUMBERS (including Roman Numerals)				
Early Years Ages and Stages Early Learning Goals	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Experiment with their own symbols and marks as well as numerals. Link the number symbol (numeral) with its cardinal number value.	Read and write numbers from 1 to 20 in numerals and words.	Read and write numbers to at least 100 in numerals and in words.	Read and write numbers up to 1000 in numerals and in words. *Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks* (copied from Measurement).	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.
UNDERSTANDING PLACE VALUE				
Understand the 'one more than/one less than' relationship between consecutive numbers. Explore the composition of numbers to10. Have a deep understanding of numbers to 10, including the composition of each number		Recognise the place value of each digit in a two-digit number (tens, ones).	Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).	Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). *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 units, tenths and hundredths* (copied from Fractions).
ROUNDING				
				Round any number to the nearest 10, 100 or 1000. *Round decimals with one decimal place to the nearest whole number* (copied from Fractions).
PROBLEM SOLVING				
Solve real world mathematical problems with numbers up to 5. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then…'		Use place value and number facts to solve problems.	Solve number problems and practical problems involving these ideas.	Solve number and practical problems that involve all of the above and with increasingly large positive numbers.

Statistics

INTERPRETING, CONSTRUCTING AND PRESENTING DATA				
Early Years Ages and Stages Early Learning Goals	Year 1	Year 2	Year 3	Year 4
		Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.	Interpret and present data using bar charts, pictograms and tables.	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
		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.		
SOLVING PROBLEMS				
			Solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.