Progression in Mathematics in Declarative, Procedural and Conditional Knowledge & Skills

Number: Place Value

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
COUNTING						
count reliably with numbers from 1 to 20; rote count from 1-50 (forwards and backwards)	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given numbers count in multiples of twos, fives and ten	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 1 000	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	count forwards or backwards in steps of integers, decimals, powers of 10
				count backwards through zero to include negative numbers	interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	use negative numbers in context, and calculate intervals across zero
explore patterns within numbers to 10, including odds and evens	recognise and create repeating patterns with numbers identify odd and even numbers linked to counting in twos from 0 and 1	describe and extend simple sequences involving counting on or back in different steps	describe and extend sequences involving counting on or back in different steps	describe and extend number sequences involving counting on or back in different steps, including sequences with multiplication and division steps	describe and extend number sequences including those with multiplication and division steps and where the step size is a decimal	describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal
finds one more and less from a group of up to five objects, then ten objects	given a number, identify one more and one less	find 1 or 10 more or less than a given number	find 10 or 100 more or less than a given number	find 0.1, 1, 10, 100 or 1 000 more or less than a given number	find 0.0.1, 0.1, 1, 10, 100 or 1 000 and other powers of 10 more or less than a given number	find 0.001, 0.01, 0.1, 1, 10, 100 or 1 000 and powers of 10 more or less than a given number

READING AND WRITING NUMBERS (including roman numerals)						
link the numeral with its cardinal numeral value; recognise and record numerals 1-20	read and write numbers to 100 in numerals and in words	read and write numbers to at least 100 in numerals and in words	read and write numbers up to 1 000 in numerals and in words	read and write numbers up to 10 000 in numerals and in words	read, write numbers to at least 1 000 000 and determine the value of each digit (appears also in Comparing Numbers)	read, write numbers up to 10 000 000 and determine the value of each digit (appears also in Understanding Place Value)
record numbers to 10 in the written form			use Roman numerals from I to XII	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	read Roman numerals to 1 000 (M) and recognise years written in Roman numerals.	
			read and write numbers with one decimal place	read and write numbers with up to two decimal places	read and write numbers up to 3 decimal places	
COMPARING NUMBERS						
can recognize when one quantity is greater than, less than or the same as another quantity ; place the numbers 1 to 20 in order: order numbers from 1-20	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 1 000	order and compare numbers beyond 1 000	order and compare numbers to at least 1 000 000 and determine the value of each digit	order and compare numbers up to 10 000 000 and determine the value of each digit
			compare and order numbers with one decimal place	compare and order numbers with the same number of decimal places up to two decimal places	compare and order numbers with up to 3 decimal places	
UNDERSTANDING PLACE VALUE						
identify the value of a 2-digit number	begin to recognise the place value of numbers beyond 20 (tens and ones\)	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)	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit

	recognize and create patterns with numbers, object and shapes	understand the connection between the 10 multiplication table and place value	find the effect of multiplying a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer	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 hths	multiply/divide whole numbers and decimals by 10, 100 and 1000	multiply and divide numbers by 10, 100 and1 000 where the answers are up to three decimal places
		partition numbers in different ways (up to 100)	partition numbers in different ways (up to 1000)	partition numbers in different ways (including decimals)		
			identify the value of each digit to one decimal place	identify the value of each digit to two decimal places	identify the value of each digit to three decimal places	identify the value of each digit to three decimal places
IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS						
estimates how many objects they can see and checks by counting them	identify and represent numbers using objects and pictorial representations including number lines	identify, represent and estimate numbers using different representations, including number lines	identify, represent and estimate numbers using different representations	identify, represent and estimate numbers using different representations	identify, represent and estimate numbers using the number line	
ROUNDING						
		round numbers to at least 100 to the nearest 10	round numbers to at least 1000 to the nearest 10 or 100	round any number to the nearest 10, 100 or 1 000	round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000	round any whole number to a required degree of accuracy
				round decimals with one decimal place to the nearest whole number	round decimals with two decimal places to the nearest whole number and to one decimal place	round decimals with three decimal places to the nearest whole number and to one or two decimal place
PROBLEM SOLVING						
	solve problems and practical problems	use place value and number facts to solve problems	solve number and concrete problems involving these ideas	solve number and practical problems with increasingly large positive numbers	solve number and practical problems that involve all of the above	solve number and practical problems that involve all of the above

Number: Addition and Subtraction

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NUMBER BONDS						
knows number bonds up to 10	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	recall/use addition/ subtraction facts for 100 (multiples of 5 and 10)			
		recall and use number bonds for multiples of 5 totaling 60 (to support telling the time to the nearest 5 minutes)	derive and use addition and subtraction facts for 100	recall and use addition and subtraction facts for 100		
			derive and use addition and subtraction facts for multiples of 100 totaling 1000	recall and use addition and subtraction facts for multiples of 100 totaling 1000		
				derive and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)	recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to two decimal place)	derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)
					derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)	

MENTAL CALCULATION						
using resources, add and subtract two single-digit numbers by counting on or back to find the answer	add and subtract one-digit and two-digit numbers to 20, including zero	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	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 mentally combinations of two and three digit numbers	add and subtract numbers mentally with increasingly large numbers	perform mental calculations, including with mixed operations and large numbers
				add and subtract mentally decimals to one decimal place	add and subtract mentally decimals to two decimal places	perform mental calculations, including decimals
find the total number of items in two groups by counting all of them; begin to use the vocabulary involved in adding and subtracting	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)	show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot				use knowledge of the order of operations to carry out calculations involving the four operations
		select a mental strategy appropriate for the numbers involved in the calculation	select a mental strategy appropriate for the numbers involved in the calculation	select a mental strategy appropriate for the numbers involved in the calculation	select a mental strategy appropriate for the numbers involved in the calculation	select a mental strategy appropriate for the numbers involved in the calculation

WRITTEN METHODS						
	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)	understand subtraction as take away and difference (how many more, how many less/ fewer)	understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context			
			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 and decimals with one decimal place using the formal written methods of columnar addition and subtraction where appropriate	add and subtract whole numbers with more than 4 digits and decimals with two decimal places, including using formal written methods (columnar addition and subtraction)	add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction)
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS						
		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	use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

PROBLEM SOLVING						
	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 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, including problems involving missing numbers	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why, including problems involving missing numbers	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why, including problems involving missing numbers
		solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change				Solve problems involving addition, subtraction, multiplication and division

Number: Multiplication and Division

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
MULTIPLICATION & DIVISION FACTS						
		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	recall multiplication and division facts for multiplication tables up to 12 × 12	multiply and divide numbers mentally, drawing upon known facts	
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 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	multiply and divide numbers mentally drawing upon known facts	perform mental calculations, including with mixed operations and large numbers
understand that doubling is adding the same number to itself and that it is multiplying by 2	recall and use doubles of all numbers to 10 and corresponding halves	derive and use doubles of simple two-digit numbers (numbers in which the ones total less than 10)	derive and use doubles of all numbers to 100 and corresponding halves	use partitioning to double or halve any number, including decimals to one decimal place	use partitioning to double or halve any number, including decimals to two decimal places	use partitioning to double or halve any number
understand that halving is sharing into two equal portion and that this is dividing by 2		derive and use halves of simple two-digit, even numbers (numbers in which tens are even)	derive and use doubles of all multiples of 50 to 500			

		show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	understand that division is the inverse of multiplication and vise versa	recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers)	multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$)
		understand multiplication as repeated addition and arrays	understand how multiplication and division statements can be represented using arrays			
		understand division as sharing and grouping and that a division calculation can have a remainder	understand division as sharing and grouping and use each appropriately			
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 formal written methods	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	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 multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
						multiply one-digit numbers with up to two decimal places by whole numbers
				divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret	divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret	divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where

				remainders appropriately for context	remainders appropriately for the context	appropriate for the context 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
						use written division methods in cases where the answer has up to two decimal places
PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE & CUBE NUMBERS						
				recognise and use factor pairs and commutativity in mental calculations (repeated)	identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.	identify common factors, common multiples and prime numbers
					know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	use common factors to simplify fractions; use common multiples to express fractions in the same denomination (copied from Fractions)
					establish whether a number up to 100 is prime and recall prime numbers up to 19	
					recognise and use square numbers and	calculate, estimate and compare volume

					cube numbers, and the notation for squared (^{2}) and cubed (^{3})	of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3 (copied from Measures)
ORDER OF OPERATIONS						
						use their knowledge of the order of operations to carry out calculations involving the four operations
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS						
			use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy	use estimation and inverse to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy	use estimation/ inverse to check answers to calculations; determine in the context of a problem, an appropriate degree of accuracy	use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
PROBLEM SOLVING						
solve problems with sharing	solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and	solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, division (including interpreting	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, including those with missing numbers

	arrays with the support of the teacher	division facts, including problems in contexts	correspondence problems in which n objects are connected to m objects	remainders), integer scaling problems and harder correspondence problems such as n objects are connected to m objects	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	solve problems involving similar shapes where the scale factor is known or can be found (copied from Ratio and Proportion)

Number: Fractions (including Decimals & Percentages)

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
COUNTING IN FRACTIONAL STEPS						
		count on and back in steps of $\frac{1}{2}$ and $\frac{1}{4}$	count on and back in steps of $\frac{1}{2}$ and $\frac{1}{4}$	count on and back in steps of unit fractions	count on and back in mixed number steps such as $1\frac{1}{2}$	
			count up and down in tenths	count up and down in hundredths		
RECOGNISING FRACTIONS						
understand that halving is sharing into two equal portions that this is dividing by two	understand that a fraction can describe part of a whole	understand that a fraction can describe part of a set	understand that finding a fraction of an amount relates to division		recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence)	
	understand that a unit fraction represents one equal part of a whole		show concretely or pictorially that a fraction is one whole number divided by another	understand that a fraction is one whole number divided by another		
	recognise, find and name a half as one of two equal parts of an object, shape or quantity	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	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators	recognise, find and write fractions of a discrete set of objects including those with a range of numerators and denominators		
	recognise, find and name a quarter as one of four equal parts of an object, shape or quantity		recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10.	recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten		

COMPARING FRACTIONS						
		understand that the larger the denominator is, the more piece it is split into and therefore the smaller each part is.	compare and order unit fractions, and fractions with the same denominators (including on a number line)	compare and order unit fractions, and fractions with the same denominators (including on a number line)	compare and order fractions whose denominators are all multiples of the same number (including on a number line)	compare and order fractions, including fractions >1 (including on a number line)
EQUIVALENCE (INCLUDING FRACTIONS, DECIMALS AND PERCENTAGES)						
		write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.	recognise and show, using diagrams, equivalent fractions with small denominators	recognise and show, using diagrams, families of common equivalent fractions	identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	use common factors to simplify fractions; use common multiples to express fractions in the same denomination
				recognise and write decimal equivalents of any number of tenths or hundredths	read and write decimal numbers as fractions (e.g. 0.71 = $\frac{71}{100}$) recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)
				recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{3}$, $\frac{3}{4}$	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 as a decimal fraction	recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

ADDITION AND SUBTRACTION OF FRACTIONS						
			add and subtract fractions with the same denominator within one whole (e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$)	add and subtract fractions with the same denominator	add and subtract fractions with the same denominator and multiples of the same number recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$)	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
MULTIPLICATION AND DIVISION OF FRACTIONS						
					multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$)
						divide proper fractions by whole numbers e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$
PERCENTAGES						
						find simple percentages of amounts

PROBLEM SOLVING						
begin to identify own mathematical problems based on own interests and fascinations			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 problems involving numbers up to three decimal places	solve problems involving fractions
				solve simple measure and money problems involving fractions and decimals to two decimal places.	solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}$ and those with a denominator of a multiple of 10 or 25.	solve problems involving calculation of percentages and the use of percentages for comparison

Ratio and Proportion

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						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 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.

Measurement

<table>
<tr><th>EYFS</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Year 6</th></tr>
<tr><td colspan="7">COMPARING AND ESTIMATING</td></tr>
<tr><td>order two or three items by length or height</td><td rowspan="3">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]</td><td rowspan="3">compare and order lengths, mass, volume/capacity and record the results using >, < and =</td><td rowspan="3"></td><td rowspan="3">estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring)</td><td>use, read and write standard units of length and mass</td><td>use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places</td></tr>
<tr><td>order two items by weight</td><td rowspan="2">estimate volume (e.g. using 1 cm^3 blocks to build cubes and cuboids) and capacity (e.g. using water)</td><td rowspan="2">calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3.</td></tr>
<tr><td>order two items by capacity</td><td>understand the difference between liquid volume and solid volume</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>calculate and compare the area of rectangles, use standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes (copied - below</td><td></td></tr>
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	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			
MEASURING AND CALCULATING						
ELG: use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems	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)	use all four operations to solve problems involving measure (e.g. **length, mass, volume, money**) using decimal notation including scaling.	solve problems involving the calculation and conversion of **units of measure**, using decimal notation up to three decimal places where appropriate (appears also in Converting)
			continue to estimate and measure temperature to the nearest degree (°C) using thermometers	order temperatures including those below 0°C	interpret negative numbers in context, count on or back with positive and negative whole numbers, including through zero	calculate differences in temperature, including those that involved a positive and negative temperature
			understand perimeter is a measure of distance around the boundary of a shape measure the **perimeter** of simple 2-D shapes	measure and calculate the **perimeter** of a rectilinear figure (including squares) in centimetres and metres	measure and calculate the **perimeter** of composite rectilinear shapes in centimetres and metres	recognise that shapes with the same areas can have different **perimeters** and vice versa
begin to use everyday language related to money	recognise and know the value of different denominations of	recognise and use symbols for pounds **(£) and pence (p)**;	continue to recognise and use the symbols for	write amounts of money using decimal notation		

	coins and notes	combine amounts to make a particular value	pounds (£) and pence (p) and understand that the decimal point separates pounds/ pence			
		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	recognise that ten 10p coins equal £1 and that each coin is $\frac{1}{10}$ of £1	recognise that one hundred 1p coins equal £1 and that each coin is $\frac{1}{100}$ of £1		
		solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	solve problems involving money	solve problems involving money		
				know area is a measure of surface within a given boundary	calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes *recognise and use*	calculate the area of parallelograms and triangles
				find the area of rectilinear shapes by counting squares		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

					square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) (copied from Multiplication and Division)	units [e.g. mm^3 and km^3]. recognise when it is possible to use formulae for area and volume of shapes
TELLING THE TIME						
measure short periods of time in simple ways	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 estimate and read time with increasing accuracy to the nearest minute	read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)	continue to read, write and convert time between analogue and digital 12 and 24-hour clocks	
use everyday language related to time order and sequence familiar events	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)	know the number of seconds in a minute and the number of days in each month, year and leap year 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 simple problems in a practical context involving time	solve problems involving passage of time	solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Converting)	solve problems involving converting between units of time (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)	convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	convert between standard units of length, mass, volume and time using decimal notation to up to three decimal places
				read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)	solve problems involving converting between units of time	solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Measuring and Calculating)
				solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints	convert between miles and kilometres

				(appears also in Telling the Time)	use four operations to solve problems involving measure, using decimal notation, including scaling	solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate

Algebra

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
EQUATIONS						
	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and **missing number problems** such as 7 = □ - 9 (copied from Addition and Subtraction)	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and **missing number** problems. (copied from Addition and Subtraction)	solve problems, including **missing number** problems, using number facts, place value, more complex addition and subtraction, multiplication and division, including integer scaling (copied from Addition and Subtraction and Multiplication and Division)		use the properties of rectangles to deduce related facts and find **missing lengths and angles** (copied from Geometry: Properties of Shapes)	express missing number problems algebraically
		recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 (copied from Addition and Subtraction)			solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	find pairs of numbers that satisfy number sentences involving two unknowns
	represent and use number bonds and related subtraction facts within 20 (copied from Addition and Subtraction)					enumerate all possibilities of combinations of two variables

FORMULAE						
				Perimeter can be expressed algebraically as 2(a + b) where a and b are the dimensions in the same unit. (Copied from NSG measurement)		use simple formulae recognise when it is possible to use **formulae** for area and volume of shapes (copied from Measurement)
SEQUENCES						
	sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening (copied from Measurement)	compare and sequence intervals of time (copied from Measurement) *order and arrange combinations of mathematical objects in patterns* (copied from Geometry: position and direction)			count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 count forwards or backwards in decimal steps describe and extend number sequences including those with multiplication/ division steps and where the step size is a decimal	generate and describe linear number sequences

Statistics

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
INTERPRETTING, CONSTRUCTING AND PRESENTING DATA						
	present and interpret data in block diagrams using concrete materials	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	complete, read and interpret information in tables, including timetables	interpret and construct pie charts and line graphs and use these to solve problems
	sort objects, numbers and shapes to a given criterion and their own	compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects	use sorting diagrams to compare and sort objects, numbers and common 2-D and 3-D shapes	use a variety of sorting diagrams to compare and classify numbers and geometric shapes based on their properties and sizes	complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)	continue to complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)
	ask and answer simple questions by counting the number of objects in each category	ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity				
	ask and answer questions by comparing categorical data	ask and answer questions about totaling and comparing categorical data				
SOLVING PROBLEMS						
			solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using	solve comparison, sum and difference problems using information presented in bar charts,	solve comparison, sum and difference problems using information presented in a line graph	solve comparison, sum and difference problems using information presented in all types od graph

			information presented in scaled bar charts and pictograms and tables.	pictograms, tables and other graphs.		calculate and interpret the mean as an average

Geometry: Properties of Shapes

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
IDENTIFYING SHAPES AND THEIR PROPERTIES						
begin to use mathematical names for solid 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes; select a particular named shape	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	draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them (copied from below)	identify lines of symmetry in 2-D shapes presented in different orientations	identify 3-D shapes, including cubes and other cuboids, from 2-D representations	recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing)
ELG: They recognise, create and describe patterns explore characteristics of everyday objects and shapes and use mathematical language to describe them 2D: circle, triangle, square, oblong 3D: sphere, cube, cuboid, cone		identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces				illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
		identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]				

DRAWING AND CONSTRUCTING						
use familiar objects and common shapes to create and recreate patterns and build models			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	draw given angles, and measure them in degrees (°)	draw 2-D shapes using given dimensions and angles
						recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties)
COMPARING AND CLASSIFYING						
				compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	use the properties of rectangles to deduce related facts and find missing lengths and angles	find unknown angles in any triangles, quadrilaterals, and regular polygons
					distinguish between regular and irregular polygons based on reasoning about equal sides and angles	compare and classify geometric shapes based on their properties and sizes
ANGLES						
			recognise angles as a property of shape or a description of a turn		know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	find unknown angles in any triangles, quadrilaterals, and regular polygons (copied from comparing and classifying angles)
			identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a	identify acute and obtuse angles and compare and order angles up to two right angles by size	identify: * angles at a point and one whole turn (total 360°) * angles at a point on a straight line	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing

			complete turn; identify whether angles are greater than or less than a right angle		and ½ a turn (total 180°) * other multiples of 90°	angles
			identify horizontal and vertical lines and pairs of perpendicular and parallel lines	continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines (consolidate)		

Geometry: Position and Direction

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
POSITION, DIRECTION AND MOVEMENT						
	describe movement, including whole, 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)	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 (copied from properties of shape: angles)	describe positions on a 2-D grid as coordinates in the first quadrant	describe positions on the first quadrant of a coordinate grid	describe positions on the full coordinate grid (all four quadrants)
	describe position and direction			describe movements between positions as translations of a given unit to the left/right and up/down	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	draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
			describe positions on a square grid labelled with letters and numbers	plot specified points and draw sides to complete a given polygon	plot specific points and complete shapes	
PATTERN						
	recognise and create repeating patterns with objects and shapes	order and arrange combinations of mathematical objects in patterns and sequences				