

Number: Number and Place Value

COUNTING						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Numbers to 10 – have a deep understanding of numbers to 10, including the composition of each number.	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number		continue to count in 1s, 10s and 100s to become fluent in the order and PV of numbers to 1000	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
Subitise (recognize quantities without counting) up to 5	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	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	
Recognise the pattern of the counting system Verbally count (recognizing the pattern of the counting system)	given a number, identify one more and one less	practise counting, reading, writing and comparing numbers to at least 100 and solving a variety of related problems to develop fluency	find 10 or 100 more or less than a given number	find 1000 more or less than a given number		
Counting to and from 20 Verbally count beyond 20, recognizing the pattern of the counting system	practise counting as reciting numbers and counting as enumerating objects and counting in 2s, 5s and 10s from different multiples, including practise through increasingly complex questions					

COMPARING NUMBERS

Number: Number and Place Value

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Comparing groups within 5 – comparing quantities of identical and non-identical objects.</p> <p>Compare quantities up to 10 in different contexts, recognizing when 1 quantity is greater than, less than or the same as another quantity.</p> <p>Subitise (recognize quantities without counting) up to 5</p>	<p>use the language of: equal to, more than, less than (fewer), most, least, odd and even</p>	<p>compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs</p>	<p>compare and order numbers up to 1000</p>	<p>order and compare numbers beyond 1000</p>	<p>read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)</p>	<p>read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)</p>
<p>Comparing numbers within 10</p> <p>Have a deep understanding of number to 10, including the composition of each number</p> <p>Subitise (recognise quantities without counting) up to 5.</p> <p>Compare quantities up to 10 in different contexts, (recognizing when one quantity is greater than, less than or the same as the other quantity</p>				<p><i>compare numbers with the same number of decimal places up to two decimal places</i> (copied from Fractions)</p>		

IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS

Number: Number and Place Value

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	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 connect estimation and rounding of numbers to measuring instruments.		
READING AND WRITING NUMBERS (including Roman Numerals)						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	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	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, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Comparing Numbers)	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Understanding Place Value)
			<i>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)</i>	put Roman numerals in their historical context and understand that the concept of 0 and PV have been introduced over a period of time	read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	use the whole number system, including saying, reading and writing numbers accurately
UNDERSTANDING PLACE VALUE						
	begin to recognise PV in numbers beyond 20 by reading, writing, counting, and comparing numbers to 100, supported by objects and pictorial	recognise the place value of each digit in a two-digit number (tens, ones) begin to understand 0 as a place holder	recognise the place value of each digit in a three-digit number (hundreds, tens, ones) use larger numbers to 1000 applying	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 (appears also in Reading and Writing Numbers)	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)

Number: Number and Place Value

	representations	partition numbers in different ways e.g. $23 = 20 + 3$ $23 = 10 + 13$	partitioning related to PV using increasingly complex problems building on Yr2 e.g. $146 = 100 + 40 + 6$ $146 = 130 + 16$	<i>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</i> (copied from Fractions)	<i>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</i> (copied from Fractions) Identify the PV in large whole numbers	<i>identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places</i> (copied from Fractions)
ROUNDING						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				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
				<i>round decimals with one decimal place to the nearest whole number</i> (copied from Fractions)	<i>round decimals with two decimal places to the nearest whole number and to one decimal place</i> (copied from Fractions)	<i>solve problems which require answers to be rounded to specified degrees of accuracy</i> (copied from Fractions)
PROBLEM SOLVING						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		use place value and number facts to solve problems solve problems that emphasise the value of each digit in a 2 digit number	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	solve number problems and practical problems that involve all of the above	solve number and practical problems that involve all of the above

Number: Addition and Subtraction

NUMBER BONDS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Introducing the part whole model Have a deep understanding of number to 10 including the composition of each number Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts. Number bonds to 5/ 10 Using a 10 frame The part-whole model to 10 Counting on and back – adding by counting on. Takeaway by counting back – Have a deep understanding of number to 10 including the composition of each number.</p>	<p>represent and use number bonds and related subtraction facts within 20</p>	<p>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p>				

Number: Addition and Subtraction

MENTAL CALCULATION						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Change within 5 – 1 more, 1 less</p> <p>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.</p>	<p>add and subtract one-digit and two-digit numbers to 20, including zero</p> <p>realise the effect of adding and subtracting zero to establish addition and subtraction as related operations</p>	<p>add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> * a two-digit number and ones * a two-digit number and tens * two two-digit numbers * adding three one-digit numbers 	<p>add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds 		<p>add and subtract numbers mentally with increasingly large numbers</p> <p>practise mental calculations with increasingly large numbers to aid fluency e.g. $12,462 - 2,300 = 10,162$</p>	<p>perform mental calculations, including with mixed operations and large numbers</p>
	<p>read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)</p>	<p>show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</p> <p>practice addition and subtraction to 20 to become increasingly fluent in deriving facts such as using $3+7=10$, $10-7=3$, $7=10-3$ to calculate $30+70=100$, $100-$</p>				<p>use their knowledge of the order of operations to carry out calculations involving the four operations</p>

Number: Addition and Subtraction



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Number: Addition and Subtraction

WRITTEN METHODS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Addition to 10 Combining 2 groups to find the whole Have a deep understanding of number to 10, including the composition of each number. Subitise (recognize quantities without counting) up to 5 Compare quantities up to 10 in different context, recognising when 1 quantity is greater than, less than or the same as the other quantity Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including substitution facts) and some number bonds to 10, including doubles. Subtraction – have a deep understanding of number to 10</p>	<p>read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)</p>		<p>add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction use understanding of place value and partitioning with increasingly large numbers up to 3 digits to become fluent</p>	<p>add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</p>	<p>add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</p>	<p>Explore the order of the operations using brackets; e.g. $2 + 1 \times 3 = 5$ $(2 + 1) \times 3 = 9$</p>

Number: Addition and Subtraction

including the composition of each number.						
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<p>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> <p>use the language of addition and subtraction to include sum and difference.</p> <p>check calculations by adding numbers in a different order e.g. $5+2+1=1+2+5=1+5+2=$</p>	<p>estimate the answer to a calculation and use inverse operations to check answers</p>	<p>estimate and use inverse operations to check answers to a calculation</p>	<p>use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</p>	<p>use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p>

Number: Addition and Subtraction

PROBLEM SOLVING						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$</p> <p>memorise and reason with number bonds to 10 and 20 in several forms e.g. $9+7=16$ $16-7=9$ $7=16-9$</p>	<p>solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> * using concrete objects and pictorial representations, including those involving numbers, quantities and measures * applying their increasing knowledge of mental and written methods 	<p>solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</p> <p>practice solving varied addition and subtraction questions for mental calculations</p>	<p>solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why</p> <p>Continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency</p>	<p>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p>	<p>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p>
	<p>discuss and solve problems in familiar practical contexts, including using quantities and include the terms put together, add, altogether, total, takeaway, distance between, difference between, more than, less than, to develop the concept of</p>	<p><i>solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (copied from Measurement)</i></p>				<p>Solve problems involving addition, subtraction, multiplication and division</p>

Number: Addition and Subtraction



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	addition and subtraction and use these operations flexibly					
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Number: Multiplication and Division



MULTIPLICATION & DIVISION FACTS

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Numerical patterns Doubling Halving and sharing Odds and evens Explore and represent patterns within numbers up to 10, including even and odds, double facts and how quantities can be distributed evenly	<i>count in multiples of twos, fives and tens</i> (copied from Number and Place Value)	<i>count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward</i> (copied from Number and Place Value)	<i>count from 0 in multiples of 4, 8, 50 and 100</i> (copied from Number and Place Value)	<i>count in multiples of 6, 7, 9, 25 and 1 000</i> (copied from Number and Place Value)	<i>count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</i> (copied from Number and Place Value)	
		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	apply all the multiplication tables and related division facts frequently	apply all the multiplication tables and related division facts frequently

MENTAL CALCULATION

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		begin to become familiar with multiplication tables, practice to become fluent in the 2, 5, and 10x tables and connect them to each other	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	multiply and divide numbers mentally drawing upon known facts	perform mental calculations, including with mixed operations and large numbers

Number: Multiplication and Division



		show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	connect the 2, 4 and 8 multiplication tables through doubling continue to practise mental recall of multiplication tables when calculating mathematical statements in order to improve fluency	recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers) practise mental methods and extend this to 3 digit numbers to derive facts e.g. $600 \div 3 = 200$ can be derived from $2 \times 3 = 6$	multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	<i>associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) (copied from Fractions)</i>
WRITTEN CALCULATION						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	begin to understand multiplication and division through grouping and sharing small quantities. doubling numbers and quantities. find simple fractions of objects, numbers and quantities	calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) 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	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
	make connections between arrays, number patterns and counting in 2s, 5s and 10s		develop reliable written methods for multiplication and division, starting with calculations of 2 digit	Write statements about the equality of expressions e.g. $39 \times 7 = 30 \times 7 + 9 \times 7$ and $(2 \times 3) \times 4 = 2 \times (3 \times 4)$	divide numbers up to 4 digits by a one-digit number using the formal written method of short division and	divide numbers up to 4-digits by a two-digit whole number using the formal written method of short

Number: Multiplication and Division



			numbers by 1 digit numbers and progressing to formal written methods of short multiplication and division		interpret remainders appropriately for the context	division where 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
					recognise expressing division with remainders as fractions and decimals e.g. $98 \div 4 = 24r2 = 24 \frac{2}{4} = 24.5$	<i>use written division methods in cases where the answer has up to two decimal places (copied from Fractions (including decimals))</i>
PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		use a variety of language to describe multiplication and division		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. know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	identify common factors, common multiples and prime numbers <i>use common factors to simplify fractions; use common multiples to express fractions in the same denomination</i>

Number: Multiplication and Division



					establish whether a number up to 100 is prime and recall prime numbers up to 19	(copied from Fractions)
					<p>recognise and use square numbers and cube numbers, and the notation for squared (\square^2) and cubed (\square^3)</p> <p>Use and understand the terms factor, multiple, prime number, square number and cube number</p> <p>And connect them to statements e.g.</p> <p>$4 \times 35 = 2 \times 2 \times 35$</p> <p>$3 \times 270 = 3 \times 3 \times 9 \times 10 =$</p> <p>$9^2 \times 10$</p>	<p><i>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</i></p> <p>(copied from Measures)</p>

Number: Multiplication and Division



ORDER OF OPERATIONS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Show that multiplication of 2 numbers can be done in any order (commutative) and division of one number by another cannot		Combine knowledge of number facts and arithmetic rules to solve mental and written calculations e.g. $2 \times 6 \times 5 = 10 \times 6 = 60$		use their knowledge of the order of operations to carry out calculations involving the four operations
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	begin to relate inverse relations to develop multiplicative reasoning e.g. $4 \times 5 = 20$ $20 \div 5 = 4$	<i>estimate the answer to a calculation and use inverse operations to check answers</i> (copied from Addition and Subtraction)	<i>estimate and use inverse operations to check answers to a calculation</i> (copied from Addition and Subtraction)	use multiplication and division as inverse to support the introduction of ratio in year 6 e.g. converting between units such as km and m	use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy

Number: Multiplication and Division



PROBLEM SOLVING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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	<p>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</p>	<p>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</p>	<p>solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</p>	<p>solve problems involving addition, subtraction, multiplication and division</p>
		<p>solve simple problems in context including correspondence problems – e.g. 3 hats and 4 coats, how many different outfits?</p>	<p>solve 2-step problems in context, choosing the appropriate operation, working with increasingly harder numbers, solving correspondence questions e.g. choices of a meal on a menu, or 3 cakes shared between 10 children</p>	<p>solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p>	
				<p>solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</p>	<p><i>solve problems involving similar shapes where the scale factor is known or can be found</i> (copied from Ratio and Proportion)</p>

Number: Fractions (including Decimals and Percentages)

COUNTING IN FRACTIONAL STEPS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<i>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 to reinforce the concept of fractions as numbers which can add up to more than one (Non Statutory Guidance)</i>	count up and down in tenths	count up and down in hundredths count forwards and backwards using simple fractions and decimals	Continue to practise counting forwards and backwards in simple fractions, extend from Yr4 using decimals and fractions including bridging zero	

RECOGNISING FRACTIONS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
recognise, find and name a half as one of two equal parts of an object, shape or quantity recognise and find half of a length, quantity, set of objects or shape	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 connect unit fractions to equal sharing and grouping	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators 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	recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence)	
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

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
connect halves and quarters to the equal sharing and grouping of set objects and to		compare and order unit fractions, and fractions with the same denominators	use factors and multiples to recognise equivalent fractions simplify where appropriate e.g.	compare and order fractions whose denominators are all multiples of the same	compare and order fractions, including fractions > 1



Number: Fractions (including Decimals and Percentages)

measures. recognise and combine halves and quarters as part of a whole		begin to understand unit and non-unit fractions as numbers on a number line	$6/9=2/3$ or $1/4=2/8$	number	
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Number: Fractions (including Decimals and Percentages)

COMPARING DECIMALS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			compare numbers with the same number of decimal places up to two decimal places	read, write, order and compare numbers with up to three decimal places	identify the value of each digit in numbers given to three decimal places
ROUNDING INCLUDING DECIMALS					
			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	solve problems which require answers to be rounded to specified degrees of accuracy
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 order decimal amounts and quantities that are expressed to the same number of decimal places	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 understand that decimals and fractions are different ways of expressing numbers and proportions	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 $\frac{1}{4}$; $\frac{1}{2}$; $\frac{3}{4}$	recognise the per cent symbol (%) and understand that per cent relates to “number of parts per hundred”, and write percentages as a fraction with	recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Number: Fractions (including Decimals and Percentages)

			represent numbers with 1 or 2 decimal places in several ways such as number lines	denominator 100 as a decimal fraction make connections between % fractions and decimals e.g. 1% = 1/100, 50% = 50/100, 25% = 25/100 and relate this to finding 'fractions of'	
ADDITION AND SUBTRACTION OF FRACTIONS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		add and subtract fractions with the same denominator within one whole (e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$) practise adding and subtracting fractions with the same denominator through a variety of increasingly complex problems to improve fluency	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. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$) multiply one-digit numbers with up to two decimal places by whole numbers
					divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$)

Number: Fractions (including Decimals and Percentages)

MULTIPLICATION AND DIVISION OF DECIMALS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					multiply one-digit numbers with up to two decimal places by whole numbers
			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		multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
					identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
					associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)
					use written division methods in cases where the answer has up to two decimal places

Number: Fractions (including Decimals and Percentages)

PROBLEM SOLVING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		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 which require answers to be rounded to specified degrees of accuracy
			<p>solve simple measure and money problems involving fractions and decimals to two decimal places.</p> <p>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 fractions with a denominator of a multiple of 10 or 25</p>	<p>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.</p>	

Ratio and Proportion

Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division

Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division				
				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 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

EQUATIONS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$ (copied from Addition and Subtraction)</p>	<p>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)</p>	<p>solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. (copied from Addition and Subtraction)</p>		<p>use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geometry: Properties of Shapes)</p>	<p>express missing number problems algebraically</p>
		<p>solve problems, including missing number problems, involving multiplication and division, including integer scaling (copied from Multiplication and Division)</p>			
	<p>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 (copied from Addition and Subtraction)</p>				<p>find pairs of numbers that satisfy number sentences involving two unknowns</p>
<p>represent and use number bonds and related subtraction facts within 20 (copied from Addition and Subtraction)</p>					<p>enumerate all possibilities of combinations of two variables</p>

Algebra

FORMULAE					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			<p><i>Perimeter can be expressed algebraically as $2(a + b)$ where a and b are the dimensions in the same unit. (Copied from NSG measurement)</i></p>		<p>use simple formulae</p> <hr/> <p><i>recognise when it is possible to use formulae for area and volume of shapes (copied from Measurement)</i></p>
SEQUENCES					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p><i>sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening (copied from Measurement)</i></p>	<p><i>compare and sequence intervals of time (copied from Measurement)</i></p> <hr/> <p><i>order and arrange combinations of mathematical objects in patterns (copied from Geometry: position and direction)</i></p>				<p>generate and describe linear number sequences</p>

Measurement

COMPARING AND ESTIMATING

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Length, height, distance and weight- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity	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 \gg , $<$ and $=$		estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring)	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 (also included in measuring) estimate volume (e.g. using 1 cm^3 blocks to build cubes and cuboids) and capacity (e.g. using water)	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 .
	sequence events in chronological order using language [e.g. before, 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			
		compare measures including multiples e.g. half as high, twice as wide	estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms			

Measurement

			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						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Volume and capacity Compare quantities up to 10 different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.	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)
	begin to use measuring tools such as a ruler, weighing scales and containers	use the appropriate language and recording using standard abbreviations (l, ml, m, cm, kg, g, km)	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, including using the relations of perimeter or area to find unknown lengths.	recognise that shapes with the same areas can have different perimeters and vice versa

Measurement

MEASURING and CALCULATING						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	recognise and know the value of different denominations of coins and notes	<p>recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</p> <p>find different combinations of coins that equal the same amounts of money</p> <p>solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</p>	<p>add and subtract amounts of money to give change, using both £ and p in practical contexts</p> <p>continue to become fluent recognizing the value of coins by adding and subtracting amounts, including mixed units and giving change using manageable amounts</p>	<p>build on understanding of place value and decimal notation to record metric measures including money</p>		
			Continue to measure using appropriate tools	find the area of rectilinear shapes by	calculate and compare the area of squares and rectangles including using	calculate the area of parallelograms and triangles

Measurement

			and units, progressing to a wider range of measure and mixed units e.g. 1kg and 220g as well as equivalents – 5m=500cm	counting squares relate area to arrays and multiplication	standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes <i>recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)</i> (copied from Multiplication and Division)	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 [e.g. mm ³ and km ³].
						recognise when it is possible to use formulae for area and volume of shapes

TELLING THE TIME

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
My day – Optional unit Whilst not covered in the EYFS framework exploring time provides a useful introduction for the elements covered in Y1	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 use both analogue and digital 12 hour clocks to record time	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			

Measurement

			vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Comparing and Estimating)			
			compare durations of events e.g. calculate the time taken by a particular event or task	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	

Measurement

CONVERTING						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		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)	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
				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 (appears also in Telling the Time)	understand and use equivalences between metric units and common imperial units such as inches, pounds and pints	convert between miles and kilometres know approximate conversions to tell if an answer is sensible

Geometry: Properties of Shapes

IDENTIFYING SHAPES AND THEIR PROPERTIES

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Shape – 2d and 3d Circles are curved Triangles have 3 sides Shapes with 4 sides</p> <p>Teaching to support the development matters statement- Select, rotate and manipulate shapes in order to develop spatial reasoning</p>	<p>recognise and name common 2-D and 3-D shapes, including:</p> <ul style="list-style-type: none"> * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres]. 	<p>identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p>	<p>extend knowledge of the properties of shapes to symmetrical and non-symmetrical polygons and polyhedra</p>	<p>identify lines of symmetry in 2-D shapes presented in different orientations</p> <p>recognise line symmetry in a variety of diagrams, including where the line of symmetry does not dissect the original shape</p>	<p>identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p>	<p>recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing)</p>
<p>Shape hunts linked to everyday objects</p>	<p>handle common 2-D and 3-D shapes, naming these and relating them to everyday objects fluently</p> <p>recognise common 2-D and 3-D shapes in different orientations and sizes and know that rectangles, triangles, cuboids and pyramids are not always similar to each other</p>	<p>identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p>				<p>illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</p>
		<p>identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</p> <p>identify, compare and sort shapes on the basis of their properties and use vocabulary precisely such as sides, edges,</p>				<p>Describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements</p>

Geometry: Properties of Shapes

		vertices and faces				
		read and write names for shapes that are appropriate for their word spelling and reading				
DRAWING AND CONSTRUCTING						
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1
Printing with 2d shapes		draw lines and shapes using a straight edge	draw 2-D shapes and make 3-D shapes using modelling materials	complete a simple symmetric figure with respect to a specific line of symmetry draw symmetric patterns to become familiar with different orientations of lines of symmetry	draw given angles, and measure them in degrees ($^{\circ}$)	draw 2-D shapes using given dimensions and angles
Construction, model building, dough			recognise 3-D shapes in different orientations and describe them		become accurate in drawing lines to the nearest mm and measure with a protractor.	recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties)
			connect decimals and rounding to drawing and measuring straight lines in cm in a variety of contexts		use conventional markings for parallel lines and right angles	Draw shapes and nets accurately, using measuring tools and conventional markings and labels for lines and angles

Geometry: Properties of Shapes

COMPARING AND CLASSIFYING

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		compare and sort common 2-D and 3-D shapes and everyday objects	extend knowledge	compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes isosceles, equilateral, scalene, parallelogram, rhombus, trapezium	use the properties of rectangles to deduce related facts and find missing lengths and angles	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
				decide if a polygon is regular or irregular	distinguish between regular and irregular polygons based on reasoning about equal sides and angles	

ANGLES

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			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	
			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 use accurate language	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 and $\frac{1}{2}$ a turn (total 180°) * other multiples of 90°	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

Geometry: Properties of Shapes

			acute and obtuse for angles greater or lesser than a right angle			
			identify horizontal and vertical lines and pairs of perpendicular and parallel lines		Use angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems	

Geometry: Position and Direction

POSITION, DIRECTION AND MOVEMENT

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Spatial awareness – Using positional language</p> <p>This will support the Development matters statement – Select, rotate and manipulate shapes in order to develop spatial reasoning skills</p>	<p>describe position, direction and movement, including half, quarter and three-quarter turns.</p> <p>Make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face</p>	<p>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)</p>		<p>describe positions on a 2-D grid as coordinates in the first quadrant</p>	<p>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</p>	<p>describe positions on the full coordinate grid (all four quadrants)</p>
				<p>describe movements between positions as translations of a given unit to the left/right and up/down</p>		
	<p>Use the terms left, right, top, middle, bottom, on top of, in front of, above, between, around, near, close, far, up, down, inside, outside</p>	<p>Use the concept and language of angles to describe turns by applying rotations e.g. themselves moving in turns, giving instructions to others, using robots</p>		<p>plot specified points and draw sides to complete a given polygon</p> <p>draw a pair of axes in one quadrant with equal scales and integer labels</p> <p>read, write and use pairs of coordinates (2,5) including ICT tools</p>	<p>recognise and use reflection and translation in a variety of diagrams, including continuing to use a 2-D grid and coordinates in the first quadrant and reflection should be in lines that are parallel to the axes</p>	<p>draw and label a pair of axes in all four quadrants with equal scaling, including the use of negative numbers</p>

Geometry: Position and Direction

PATTERN						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Exploring patterns – This unit supports the Development Matters Making simple patterns and exploring more complex pattern Repeat, describe, copy, spot the odd 1 out/		order and arrange combinations of mathematical objects in patterns and sequences work with pattern of shapes, including those in different orientations				

Statistics

INTERPRETING, CONSTRUCTING AND PRESENTING DATA

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	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
	ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity	continue to interpret data presented in many contexts	understand and use a greater range of scales in their representations	connect work on coordinates and scales to interpretation of time graphs	Connect work on angles, fractions and percentages to the interpretation of pie charts
	ask and answer questions about totalling and comparing categorical data	understand and use simple scales e.g. 2, 5, 10 units per cm in pictograms and bar charts	begin to relate the graphical representation of data to record change over time	Begin to decide which representations of data are most appropriate and why	Encounter and draw graphs relating to two variables arising from own enquiry and in other subjects

SOLVING PROBLEMS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Record, interpret, collate, organise and information e.g. using many to one correspondence in pictograms with simple ratios 2, 5, 10	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.	solve comparison, sum and difference problems using information presented in a line graph	calculate and interpret the mean as an average