Programme of Study Skills Progression

Maths - Number

Drivers for learning	**Number and place value**	**Number: addition and subtraction**	**Number: multiplication and division**	**Number: fractions**	**Ratio and proportion**
EYFS					
Year 1	• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens • given a number, identify one more and one less • use the language of: equal to, more than, less than (fewer), most, least • identify and represent numbers using objects and pictorial representations including the number line • read and write numbers from 1 to 20 in numerals and words.	• represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20, including zero • read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods) • read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation) • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9	• *count in multiples of twos, fives and tens* (copied from Number and Place Value) • 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	• recognize, find and name a half as one of two equal parts of an object, shape or quantity • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	
Year 2	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward • compare and order numbers from 0 up to 100; use <, > and = signs	• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 add and subtract numbers using concrete objects, pictorial	• *count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward* (copied from Number and Place Value)	• *Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non Statutory Guidance*	

	• identify, represent and estimate numbers using different representations, including the number line • read and write numbers to at least 100 in numerals and in words • recognize the place value of each digit in a two-digit number (tens, ones) • use place value and number facts to solve problems	representations, and mentally, including: • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognize and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. • solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods • *solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change* (copied from Measurement)	• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	• recognize, find, name and write fractions $^1/_3$, $^1/_4$, $^2/_4$ and $^3/_4$ of a length, shape, set of objects or quantity • write simple fractions e.g. $^1/_2$ of 6 = 3 and recognize the equivalence of $^2/_4$ and $^1/_2$.	
Year 3	• count from 0 in multiples of 4, 8, 50 and 100; • find 10 or 100 more or less than a given number • compare and order numbers up to 1000 • identify, represent and estimate numbers using different representations • read and write numbers up to 1 000 in numerals and in words • *tell and write the time from an analogue clock, including using Roman numerals from I to XII,*	• add and subtract numbers mentally, including: • a three-digit number and ones - partial • a three-digit number and tens - partial • a three-digit number and hundreds - partial • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	• *count from 0 in multiples of 4, 8, 50 and 100* (copied from Number and Place Value) • recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for	• count up and down in tenths • recognize, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • recognize that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. • recognize and use fractions as numbers: unit fractions and non-	

	and 12-hour and 24-hour clocks (copied from Measurement) • recognize the place value of each digit in a three-digit number (hundreds, tens, ones) • solve number problems and practical problems involving these ideas. - partial	• estimate the answer to a calculation and use inverse operations to check answers - partial • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction - partial	two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Written Methods)	unit fractions with small denominators - partial • compare and order unit fractions, and fractions with the same denominators - partial • recognize and show, using diagrams, equivalent fractions with small denominators • add and subtract fractions with the same denominator within one whole (e.g. $^{5}/_{7} + {}^{1}/_{7} = {}^{6}/_{7}$) • solve problems that involve all of the above	
Year 4	• count backwards through zero to include negative numbers • count in multiples of 6, 7, 9, 25 and 1000 • find 1 000 more or less than a given number • order and compare numbers beyond 1 000 *compare numbers with the same number of decimal places up to two decimal places* (copied from Fractions) • identify, represent and estimate numbers using different representations • 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. • recognize the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • solve number and practical problems that involve all of the above and with increasingly large positive numbers	• add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • estimate and use inverse operations to check answers to a calculation • solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	• *count in multiples of 6, 7, 9, 25 and 1 000* (copied from Number and Place Value) • recall multiplication and division facts for multiplication tables up to 12 × 12 • 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 • recognize and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers) • multiply two-digit and three-digit numbers by a one-digit number using formal written layout • recognize and use factor pairs and commutativity in mental calculations (repeated)	• count up and down in hundredths • recognize that hundredths arise when dividing an object by one hundred and dividing tenths by ten • compare numbers with the same number of decimal places up to two decimal places • round decimals with one decimal place to the nearest whole number • recognize and show, using diagrams, families of common equivalent fractions • recognize and write decimal equivalents of any number of tenths or hundredths • recognize and write decimal equivalents to $^{1}/_{4}$; $^{1}/_{2}$; $^{3}/_{4}$ • add and subtract fractions with the same denominator • 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 • solve problems involving increasingly harder fractions to calculate	

				quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole • number solve simple measure and money problems involving fractions and decimals to two decimal places.	
Year 5	• interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • count forwards or backwards in steps of powers of 10 for any given number up to 1000 000 • 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 Roman numerals to 1 000 (M) and recognize years written in Roman numerals. 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) • round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000 *round decimals with two decimal places to the nearest whole number and to one decimal place* • solve number problems and practical problems that involve all of the above	• add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	• *count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000* (copied from Number and Place Value) • multiply and divide numbers mentally drawing upon known facts multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 • 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 • divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 recognize and use square numbers and cube	• recognize and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence compare and order fractions whose denominators are all multiples of the same number • read, write, order and compare numbers with up to three decimal places • round decimals with two decimal places to the nearest whole number and to one decimal place identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • read and write decimal numbers as fractions (e.g. $0.71 = {}^{71}/_{100}$) • recognize and use thousandths and relate them to tenths, hundredths and decimal equivalents • recognize 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 • add and subtract fractions with the same denominator and multiples of the same number	

			numbers, and the notation for squared (^{2}) and cubed (^{3})	• recognize mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $^2/_5 + ^4/_5 = ^6/_5 = 1^1/_5$) • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • solve problems involving numbers up to three decimal places • solve problems which require knowing percentage and decimal equivalents of $^1/_2$, $^1/_4$, $^1/_5$, $^2/_5$, $^4/_5$ and those with a denominator of a multiple of 10 or 25.	
Year 6	• use negative numbers in context, and calculate intervals across zero • 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) • read, write, order and compare numbers up to 10 000 000 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 • *identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the*	• use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Solve problems involving addition, subtraction, multiplication and division	• perform mental calculations, including with mixed operations and large numbers • *associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$)* (copied from Fractions) • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4-digits by a two-digit whole number using the formal written method of short 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,	• compare and order fractions, including fractions >1 • identify the value of each digit in numbers given to three decimal places • solve problems which require answers to be rounded to specified degrees of accuracy use common factors to simplify fractions; use common multiples to express fractions in the same denomination • associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$) • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. • add and subtract fractions with different	• 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.

	answers are up to three decimal places • round any whole number to a required degree of accuracy • *solve problems which require answers to be rounded to specified degrees of accuracy* (copied from Fractions) • solve number and practical problems that involve all of the above		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* (copied from Fractions (including decimals)) • identify common factors, common multiples and prime numbers • *use common factors to simplify fractions; use common multiples to express fractions in the same denomination* (copied from Fractions) • *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* (copied from Measures)	denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $^1/_4 \times {}^1/_2 = {}^1/_8$) • multiply one-digit numbers with up to two decimal places by whole numbers • divide proper fractions by whole numbers (e.g. $^1/_3 \div 2 = {}^1/_6$) • multiply one-digit numbers with up to two decimal places by whole numbers • 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. $^3/_8$) • use written division methods in cases where the answer has up to two decimal places	