Arithmetic Progression Document

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting	-counts up to three or four objects by saying number name for each item -counts actions or objects which cannot be moved -counts objects to 10 and to count beyond 10 -counts out up to six objects from a larger group -counts reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number (ELG)	-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	-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 -find 10 or 100 more or less than a given number	-count backwards through zero to include negative numbers -count in multiples of 6, 7, 9, 25 and 1000 -find 1000 more or less than a given number	-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 to 1 000 000	-use negative numbers in context, and calculate intervals across zero

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Comparing Numbers	-use the language of 'more' and 'fewer' to compare two sets of objects -says the number that is one more than a given number -finds one more or one less from a group of up to five objects then ten objects	-use the language of: equal to, more than, less than (fewer), most, least	-compare and order numbers from 0 up to 100; use <, > and = signs	- compare and order numbers up to 1000	- order and compare numbers beyond 1000 -compare numbers with the same number of decimal places up to two decimal places	-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
Mental Addition and Subtraction	-finds the total number of items in two groups by counting all of them -in practical activities and discussion, beginning to use vocabulary involved in adding and subtracting -know one more and one less of number up to 20	-know number bonds to 6 -know double numbers to 10 -know number bonds to 10 - know number bonds to each number to 10 -add and subtract one-digit and two-digit numbers to 20, including zero	-recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 -add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and	-add and subtract numbers mentally, including: -a three-digit and ones -a three-digit and tens -a three-digit number and hundreds	-add and subtract numbers mentally, including: -a four-digit and 1s -a four-digit and 10s -a four-digit number and 100s	-add and subtract numbers mentally with increasingly large numbers	-perform mental calculations, including with mixed operations -use their knowledge of the order of operations to carry out calculations involving the four operations

			ones * a two-digit				
	-double all numbers to 5 -halve all numbers to 10 -using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer (ELG)	-read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)	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 cannot -halve numbers to 20				

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Written Methods Addition and Subtraction		-read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)		-add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	-add and subtract numbers with up to 4-digits using the formal written methods of columnar addition and subtraction where appropriate	-add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	
Mental Calculation Multiplication and Division	-They solve problems, including doubling, halving and sharing. (ELG)	-count in multiples of twos, fives and tens (copied from Number and Place Value)	-count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward (copied from Number and Place Value)	-count from 0 in multiples of 4, 8, 50 and 100 (copied from Number and Place Value)

-recall and use multiplication and | -count in multiples of 6, 7, 9, 25 and 1 000 (copied from Number and Place Value)

-recall multiplication | -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) | -perform mental calculations, including with mixed operations and large numbers

-associate a fraction |

			-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	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 two-digit numbers of times one-digit numbers, using mental and progressing to formal written methods (appears also in Written Methods)	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 -recognise and use factor pairs and commutativity in mental calculations	-multiply and divide numbers mentally drawing upon known facts -multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	*with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8)*
Written Calculation Multiplication and Division			-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	-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 -divide numbers up to 4-digits by a two- digit whole number

					mental and progressing to formal written methods (appears also in Mental Methods)		-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	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, 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 Number: Multiples, Factors, Primes, Square and 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. - know and use the vocabulary of prime	-identify common factors, common multiples and prime numbers -*use common factors to simplify fractions; use common multiples to express fractions*

						numbers, prime factors and composite (non-prime) numbers -establish whether a number up to 100 is prime and recall prime numbers up to 19 -recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	*in the same denomination* *-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*
Fractions and Decimals			-write simple fractions e.g. $1/2$ of 6 = 3 and recognise the equivalence of $2/4$ and $1/2$.	-count up and down in tenths -recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 -add and subtract fractions with the same denominator	-count up and down in hundredths. -recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten -recognise and write decimal equivalents to	-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. $2/5 + 4/5 = 6/5 = 1\,1/5$) -add and subtract mixed numbers.	-add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions -divide proper fractions by whole numbers (e.g. $1/3 \div 2 = 1/6$) -identify the value of each digit in

				within one whole (e.g. $5/7 + 1/7 = 6/7$)	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	-add and subtract improper fractions. - multiply proper fractions and mixed number by whole numbers. -add and subtract fractions with the same denominator, and denominators that are multiples of the same number. -multiply proper fractions and mixed numbers by whole numbers	numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 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 -multiply one-digit numbers with up to 2 decimal places by whole numbers -use written division methods in cases where the answer has up to two decimal places
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