Mental Maths Progression Document

Nursery: Mental Maths Progression		
Term 1	**Term 2**	**Term 3 – Building in reasoning practice**
Count to 5, using number names in order	Count forwards and backwards to 5	Match numeral to quantity up to 5
Explore and name 2D shapes (circle, square, triangle, rectangle)	Touch count a group of items, saying one number for each item up to 3	Use marks to represent numerals
Know and use language to describe shapes (flat, round, sides, corners)	Use language related to 3D shapes (face, curved, straight, sphere, cuboid, cylinder)	Talk about the properties of 2D and 3D shapes (sphere, cuboid, cylinder)
Find one more than a given number to 5 using a number line	Find one more than a given number to 5	Know a set of objects tells you a total – cardinal principle
Compare quantities using language 'more than'	Compare quantities using language 'more than' and 'fewer than'	Use language 'biggest' and 'smallest'
Subitise a group of items up to 3	Use language heavier and lighter	Use language 'longest' and 'shortest'
Understand prepositions 'in front' and 'behind'	Create a simple ABAB pattern	Use language first, then and next in a variety of mathematical situations

Reception: Mental Maths Progression		
Term 1	**Term 2**	**Term 3 – Building in reasoning practice**
Count forwards and backwards to 10	Count forwards and backwards to 20	Count forwards and backwards to 30
Touch count a group of items, saying one number for each item up to 10	Count out 10 objects from a larger group	Touch count up to 20 items
Be.g.in to recognise numerals of 0 – 10	Order the numerals 0 – 10	Match the quantity to the numeral to 20
Subitise up to 5 objects	Subitise up to 7 objects	Subitise numbers to 10
Add and subtract from/to numbers to 5	Add and subtract from/to numbers to 10	Add and subtract from/to numbers to 20
Show fingers up to 10	Recall number bonds to 5	Recall number bonds to 10
Make meaningful shapes using common 2D shapes (circle, triangle, square, rectangle, diamond)	Compose and decompose common 3D shapes (cone, cube, cuboid, pyramid, cylinder, sphere)	Explore 2D and 3D shapes using mathematical language
Use positional language to describe and locate the position of an object	Use language related to capacity, weight, length and height (longest/ shortest/ tallest, heaviest/ lightest)	Explore patterns within numbers (odd and even, doubles, sharing equally)
Predict what comes next in a simple pattern (AAB, ABB, ABC)	Spot the error in a repeating pattern (AAB, ABB, ABC)	Identify and explain pattern rules for a range of repeating patterns (AAB, ABB, ABC)

Year 1: Mental Maths Progression		
Term 1	**Term 2**	**Term 3**
Read and write numbers 1-20 in numerals and words.	Read and write numbers 1-50 in numerals and words.	Read and write numbers 1-100 in numerals and words.
Count in 1s + 2s to 20. (forwards and backwards)	Count in 1s, 2s + 5s. (forwards and backwards.) from any number to 50.	Count in 1s, 2s, 5s, 10s (forwards and backwards) from any number to 100.
Recall numbers one/two more and one/two less up to 20.	Recall numbers one/two more and one/two less up to 50.	Recall numbers one/two more and one/two less up to 100. Given a number, identify one more and one less
Use knowledge of number bonds to 10, to represent and use number bonds to 20.	Using number bonds to 20, devise related subtraction facts to 20.	Recall number bonds to 20 with increasing speed and accuracy.
Add one-digit and two-digit numbers to 20, including zero e.g. 3 + 5, 13 + 4.	Subtract one-digit and two-digit numbers to 20, including zero.	Missing number problems such as 7 = ? – 9.
Recall odd and even numbers up to 20.	Recall odd and even numbers up to 35.	Recall odd and even numbers up to 50.
Doubles of all numbers to 20.	Know halves of all numbers up to 20.	Doubles of all numbers to 20 and corresponding halves.
Be.g.in to know ten times table. (By rote)	Be.g.in to know ten times table. (Quick recall)	Secure knowledge of ten times table. (Inc 12 x 10)

Year 2: Mental Maths/Warm-Up Progression		
Term 1	**Term 2**	**Term 3**
Count in steps of 2, 5 and 10 from 0, forwards and backwards from 100 (retrieval) Count in steps of 3 to 100 (forwards)	Count in steps of 3 to 100 (backwards)	Count in steps of 2, 3, 5 and 10 from 0, forwards and backwards from any number.
Read and write numbers to 50 in numerals and words. (EOY 1 expectation to 20)	Read and write numbers to 75 in numerals and words.	Read and write numbers to 100 in numerals and words
Recall addition facts for all numbers up to 20	Recall subtraction facts for all numbers up to 20	Recall addition and subtraction facts for all numbers up to 20
Use my knowledge of numbers bonds to 10, to represent and show addition facts to 100 – involving multiples of 10 E.g. 40 + 60 = 100	Use my knowledge of numbers bonds to 10, to represent and show subtraction facts to 100 – involving multiples of 10 E.g. 100 – 30 = 70	Find the missing multiple of 10 to complete addition and subtraction calculations to 100. E.g. 100 = 20 + ? 100 - ? = 70
Add 3 single digits – not crossing 10.	Add 3 single digits – crossing 10.	Find the missing number e.g. 2 + ? + 3 = 12.
Add any single digit to a multiple of 10.	Subtract any two-digit number from any two-digit number when the difference is less than 10, e.g. 78 – 71 or 52 – 48.	Subtract any two-digit number from a two digit number when the difference is small (crossing 10)
Add or subtract any single digit number to a 2-digit number without crossing 10.	Add or subtract a multiple of 10 to or from any 2-digit number e.g. 47 + 30, 82 – 50.	Add or subtract any 2-digit number, crossing the tens boundary, e.g. 23 + 49, 48 – 13.
Use my knowledge of number bonds to add any 2-digit and single digit number to total to a multiple of 10. E.g. 52 + 8 = 60	Use my knowledge of number bonds to subtract any single digit number from a multiple of 10. E.g. 70 – 3 = 67	Add pairs of 2-digit numbers that total 100 E.g. 32 + ___ = 100
Add/subtract 9.	Add 9, 19, 11 or 21 by rounding and compensating.	Subtract 9, 19, 11 or 21 by rounding and compensating.
Double and half numbers to 50	Double multiples of 5 and 10 to 100	Add near doubles e.g. 39 + 40 =
Halve multiples of 10 to 100 (when the tens digit is even) e.g. 20, 40, 60, 80	Halve any multiple of 10 to 100	Halve even numbers to 100
Recall odd and even numbers from 50 – 100	Recall odd and even numbers to 100	Recall odd and even numbers to 100 and explain how you know that they are odd or even
Recall multiplication and division facts for the 2 and 5 times table (This must be up to x12)	Recall multiplication and division facts for the 2, 5 and 10 times table (This must be up to x12)	Recall multiplication and division facts for the 2, 5, 10 and be.g.in to know 3 times table and division facts. (This must be up to x12)

Year 3: Mental Maths Progression		
Term 1	**Term 2**	**Term 3**
Count in multiples of 50 and 100 from 0.	Count in multiples of 4 and 8 from 0.	Count in multiples of 4, 8, 50 and 100 from 0.
Recall and use multiplication facts for the 3, 4 and 8 multiplication tables up to x12.	Recall and use division facts for the 3, 4 and 8 multiplication tables up to x12	Recall and use multiplication and division facts for 3, 4 and 8 multiplication tables up to x12
Read and write numbers up to 500 in numerals and words.	Read and write numbers up to 750 in numerals and words.	Read and write numbers up to 1000 in numerals and words.
Find 10 more or less than a given number to 1000	Find 100 more of less than a given number to 1000	Find 10 or 100 more or less than a given number up to 1000.
Add/subtract multiples of 10 (2 and 3 digits) up to 1000. E.g. 80 + 30 = 130 + 60 =	Add/subtract multiples of 100 that total 1000 E.g. 300 + 700 = 1000	What must be added to a multiple of 10 or 100 to make the next multiple of 10/100? 520 + ___ = 600.
Mentally add/subtract ones and tens to any 3-digit number.	Mentally add/subtract ones, tens and hundreds to any three-digit number	Missing number problems e.g. 125 + ? = 369
Add 9, 19, 11 or 21 by rounding and compensating – 3 digits	Subtract 9, 19, 11 or 21 by rounding and compensating – 3 digits	Add near doubles E.g. 18 + 16 = or 260 + 370 =
Double multiples of 10 up to 200 E.g. 90 + 90 =	Halve multiples of 10 up to 200	Double and halve multiples of 10 up to 200
Double multiples of 5 up to 50	Double multiples of 5 up to 100	Double multiples of 5 up to 200
Multiply any 1-digit number by 10 or 100 E.g. 7 x 100 =	Multiply any 2-digit number by 10 E.g. 46 x 10 =	Multiply any 1-digit number or 2-digit number by 10 or 100 e.g. 7 x 100 = 46 x 10 =
Identify the remainder when dividing by 2	Identify the remainder when dividing by 5	Identify the remainder when dividing by 2, 5 or 10
Count up and down in tenths	Divide 1-digit numbers or quantities by 10	Find tenths of numbers/quantities
Add fractions with the same denominator	Subtract fractions with the same denominator	Add and subtract fractions with the same denominator and compare/order fractions with the same denominators

Year 4: Mental Maths Progression		
Term 1	**Term 2**	**Term 3**
Count in multiples of 10, 25 and 1000	Count in multiples of 6, 7, 9, 10, 25 and 1000	Identify the missing multiple in a sequence
Recall multiplication facts for the 7,9 times tables and related division facts	Recall multiplication facts for all times tables and related division facts	Identify the missing number in a multiplication or division calculation, using the inverse.
Find 10/100/1000 more/less than a given number to 1000	Find 10/100/1000 more/less than a given number up to 10,000	What must be added to any three-digit number to make the next multiple of 10/100? 521 + ___ = 600.
Add/subtract 3-digit multiples of 10 e.g. 120 – 40, 140 + 160 =	Add/subtract near multiples of 10 (3 digit + 2 digit) e.g. 283 + 71 = 661 – 42	Add/subtract near multiples of 10 (3 digit + 3 digit) e.g. 283 + 712 = 661 – 421
Add/subtract 3-digit numbers e.g. 236 + 459	Subtract a 4-digit number from 4-digit number when the difference is small, not crossing 10 e.g. 3456 - 3451	Subtract a 4-digit number from 4 digit number when the difference is small e.g. 3456 - 3448
Count backwards through zero to include negative numbers	Count forwards through zero to include negative numbers	Count forwards and backwards through zero to include negative numbers
Double numbers up to 50	Double numbers up to 100	Double numbers up to 100 and their corresponding halves
Recall factors of 2, 5 and 10	Recall factors of 3, 4 and 8	Recall factors and factor pairs of numbers up to 12
Multiply and divide a 1-digit number by 10 and 100	Multiply and divide a 2-digit number by 10 and 100	Missing number calculations e.g. 31 x ? = 3100 ? x 100 = 5600
Identify the remainder when dividing by 5	Identify the remainder when dividing by 3	Identify the remainder when dividing by 5 and 3
Multiply a multiple of 10 by a 1-digit number	Multiply numbers to 20 by a 1-digit number E.g. 17 x 3 = so… (10 x 3) + (7 x 3) =	Use the distributive law to derive facts, for example, 30 x 7 + 9 x 7= 39 x 7.
Identify fraction and decimal equivalents of one half, one quarter and three quarters	Identify fraction and decimal equivalents of tenths and hundredths	Identify pairs of fractions that make one whole/one
Use multiplication facts to derive related facts, involving 2-digit numbers E.g. 3 x 2 = 6 so 30 x 2 = 60	Use multiplication facts to derive related facts, involving 3-digit numbers E.g. 3 x 2 = 6 so 300 x 2 = 600	Use multiplication and division facts to derive related facts, involving 2 and 3-digit numbers

Year 5: Mental Maths Progression		
Term 1	**Term 2**	**Term 3**
Count forwards or backwards in steps of powers of 10 for any given number up to 250,000.	Count forwards or backwards in steps of powers of 10 for any given number up to 500,000.	Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.
Count forwards with positive and negative whole numbers, including through 0.	Count backwards with positive and negative whole numbers, including through 0.	Apply counting forwards and backwards with positive and negative whole numbers to finding simple temperature difference.
Add/subtract a pair of 4-digit multiples of 10. E.g. 2300 + 1560	Add/subtract a pair of 4-digit multiples of 100. E.g. 5300 - 1200	Use inverse to find missing number pairs of multiples (application)
Add/subtract a near multiple of 10 to any four digit number e.g. 6264 + 3198 =	Add/subtract a near multiple of 100 to any 4-digit number e.g. 1675 + 999 = e.g. 4105 - 1198 =	Subtract a four digit number just less than a multiple of 1000 from a four digit number just more than a multiple of 1000 e.g. 5001 – 1997.
Know what must be added to a 4-digit number (tens and one) to make the next multiple of 1000, e.g. 4056 + ___ = 5000.	Know what must be added to any 4-digit number to make the next multiple of 1000, e.g. 4156 + ___ = 5000.	Decimal bonds – Know what must be added to a decimal number (tenths) to make the next whole number e.g. 4.1 + ? = 5.
Find the difference between near multiples of 100 e.g. 1609 – 2593	Find the difference between near multiples of 1000 e.g. 6070 – 4087 =	Mentally add and subtract with increasingly large numbers e.g. 12 462 – 2300 = 10 162
Identify multiples up to 12 x 12	Identify multiples and factors up to 12 x 12	Identify common multiples - 2/5, ¾ and identify common factors of 2 numbers.
Recall prime numbers up to 50.	Know whether a number up to 100 is a prime number.	Reasoning application involving prime number.
Recall square numbers up to 12 x 12	Recall cubed numbers up to 12 x 12 x 12.	BIDMAS with cubed and squared numbers
Multiply and divide 4 and 5 digit whole numbers by 10, 100,1000	Multiply and divide decimals with 3decimal points by 10/100.	Multiply and divide decimals with 3decimal points by 10/100/1000
Multiply pairs of multiples of 10 e.g. 50 x 40 =	Multiply pairs of multiples of 10/100/100 e.g. 5000 x 400 =	Missing number problems with different multiples.
Divide a 3-digit multiple of 10 by a single digit number e.g. 800 divided by 4, 270 divided by 3 =	Divide a 4-digit multiple of 10 by a single digit number e.g. 2800 divided by 4, 4270 divided by 3 =	Use known facts to divide decimals e.g. 0.3 x 7, 2.4 divided by 3.
Doubles of decimals e.g double 4.6	Halves of decimals e.g. half of 5.6	Doubles and halves of decimals – larger number e.g. half of 32.6
Find the remainder after dividing a 2-digit number by a single digit number (4,8) – within 12 x 12	Find the remainder after dividing a 2-digit number by a single digit number (6,7,9) - within 12 x 12	Find the remainder after dividing a 2-digit number by a two digit number (10,11,12) - within 12 x 12
To count up and down in a given fraction (up to fifths)	To count up and down in a given fraction (up to tenths)	To count up and down in a given fraction, including mixed numbers.
Add and subtract tenths to/from any decimal number – up to 1 dec place e.g. 0.1 + 0.5 = 0.6, 25.3 - 0.1 = 25.2.	Add or subtract any pair of decimal fractions with units and tenths or each with tenths and hundredths e.g. 5.7 + 2.5 and 0.63-0.48.	Use inverse to check/solve missing number problems (decimals-units and tenths and hundredths) ? – 7.26 = 0.74. 7.26 + 0.74 = 8.
Find fractions of 2-digit numbers – 2/3 of 15.	Find fractions of whole numbers (multiples of 10) – 2/3 of 150.	Find fractions of whole numbers (multiples of 10,100, 1000) – 2/6 of 1800.
Find 10% of small whole numbers or quantities.	Find 50% and 10% of small whole numbers or quantities.	Find 50%, 25% or 10% of small whole numbers or quantities.

Year 6: Mental Maths Progression		
Term 1	**Term 2**	**Term 3 – Building in reasoning practice and consolidation of all taught mental skills.**
Decimal bonds – hundredths. 7.26 + ? = 8. 0.26 + ? = 1	Decimal bonds – thousandths. 2.261 + ? = 3. 0.263 + ? = 1	Complete all year 6 mental calculation skills with increasing speed and accuracy.
Add/subtract pairs of decimals with units, tenths and hundredths– up to 2 decimal points. 0.5 + 3.35	Add/subtract pairs of decimals with units, tenths, hundredths and thousandths– up to 3 decimal points. 6.15 – 0.04.	Missing number calculations. Continue to focus on performing mental calculations with mixed operations.
Add/subtract a decimal with units and tenths that is nearly a whole number – 4.3 + 2.9	Use inverse to check to solve all missing number calculations e.g. ? – 7.26 = 0.74, 3.65 + ? = 2.36	Mentally add and subtract with increasingly large numbers. NRICH application mental maths - https://nrich.maths.org/6046 - Thousands and Millions
To add/subtract negative and whole numbers.	To use inverse to solve missing negative number calculations.	https://nrich.maths.org/846 - Prime Magic https://nrich.maths.org/15107 - Mathdokus
Add and subtract the nearest multiple of 10,100 or 1000 and adjust e.g. 8897 + 2002.	Add and subtract the nearest multiple of 10,100 or 1000 and adjust up to 5 digits e.g. 5607 - 1998.	
Mentally add and subtract with increasingly large numbers.	Perform mental calculations with mixed operations.	
Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.	Use inverse to check/solve missing number calculations including multiplication/division of numbers by 10/100/1000 e.g. ? x 100 = 0.23	
Divide a 4-digit multiple of 10 by a multiple of 10 e.g. 2800 divided by 40, 4270 divided by 30 =	Divide up to 5-digit multiple of 10 by any multiple of 10 e.g. 28000 divided by 400, 4200 divided by 300 =	
Identify multiples (Above 12 x)	Use a range of tables and diagrams to sort/identify multiples.	
Identify common multiples (up to 12 x)	Identify common multiples (above 12 x)	
Identify common factors (all tables)	Use a range of tables and diagrams to sort/identify factors.	
Identify all prime numbers.	Use a range of tables and diagrams to sort/identify prime numbers.	
Find squares of multiples of 10 up to 100.	Find squares of multiples of 10 up to 1000.	
Multiply and divide a two digit number by a single digit e.g. 34 x 6;	Multiply and divide up to a three digit number by a two digit number. E.g. 244 divided by 12	
Continue to use known facts to multiply decimals e.g. 0.3 x 70 and 0.9 x 600.	Continue to use known facts to multiply and divide decimals e.g. 2.4 divided by 0.3 and 3.6 divided by 0.6.	
Multiply simple pairs of proper fractions.	Multiply pairs of proper fractions, writing the answer in its simplest form.	
Divide simple pairs of proper fractions, writing the answer in its simplest form	Divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6	
Find any multiple of 10% of a whole number – 70% of 200, 50% of 610, 20% of 220.	Find any multiple of 10% of a quantity – 70% of £20, 50% of 5kg, 20% of 2 metres.	