

Mental Calculation Overview

Addition / Subtraction		Multiplication / Division, including Skip Counting		
	Recall	Mental calculation skills	Recall	Mental calculation skills
FS	<ul style="list-style-type: none"> - 1 more/1 less with numbers to 20 - Number bonds to 5 - Addition doubles for numbers to 5 (3 + 3) and corresponding halves 	<ul style="list-style-type: none"> - Begin to partition numbers to 5 - 	<ul style="list-style-type: none"> - Count in 1s forwards and backwards up to and across 20 - Odd and even numbers to 20 	-
1	<ul style="list-style-type: none"> - Number bonds to 10 - Addition facts (stage 2 – +0; +1; +2; doubles; near doubles; +10) - Addition doubles for all numbers to 10 (8 + 8) and the corresponding halves 	<ul style="list-style-type: none"> - Add or subtract a pair of 1-digit numbers (4 + 5; 8 – 3) - Add or subtract a 1-digit number to or from 10 (addition facts +10) - Add or subtract a 1-digit number to or from a teens number (13 + 5; 17 – 3) - Add any 1-digit number to a multiple of 10 (60 + 5) - Add a multiple of 10 to any 1-digit number (7 + 30) - Add near doubles (6 + 7) - Reorder numbers when adding (putting larger number first) 	<ul style="list-style-type: none"> - Count in 1s forwards and backwards up to and across 100 - Count in 2s, 5s, 10s - Knowledge that ‘double’ means the number added twice (double 8 = 8 + 8) 	-
2	<ul style="list-style-type: none"> - Number bonds to 20 (14 + 6; 9 + 11) - Number bonds to 100 with multiples of 10 (70 + 30; 20 + 80) - What must be added to any 2-digit number to make the next multiple of 10 (52 + ___ = 60) - All addition facts (stage 1 and 2) - Addition doubles for all numbers to 20 (17 + 17) 	<ul style="list-style-type: none"> - Addition facts (stage 3 – +9 by adjusting; partitioning to use known facts) - Subtract any 1-digit number from a multiple of 10 (80 – 7) - Add or subtract a 1-digit number to or from a 2-digit number (23 + 5; 57 – 3) - Add or subtract any 1-digit number to or from a 2-digit number, including bridging (28 + 5; 52 – 7) 	<ul style="list-style-type: none"> - Count in 3s - Count in 10s from any number - Odd and even numbers to 100 - Knowledge that ‘double’ also means x 2 (double 14 = 14 + 14 = 14 x 2) - Multiplication facts for the 2, 5, 10 times table 	<ul style="list-style-type: none"> - Find the total number of objects when they are arranged into groups of 2, 5 or 10

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	<ul style="list-style-type: none"> and corresponding halves - Addition doubles for multiples of 10 up to 50 ($40 + 40$) and corresponding halves 	<ul style="list-style-type: none"> - Add or subtract a multiple of 10 to or from any 2-digit number ($27 + 60$; $72 - 50$) - Add a 2-digit number to a multiple of 10 ($50 + 38$) - Add near doubles (1 step away) ($13 + 14$; $39 + 40$) - Add numbers close to a multiple of 10 and adjust ($+ 9$; $+ 19$; $+ 49$) 		
3	<ul style="list-style-type: none"> - Sums and differences of multiples of 10 ($50 + 80$; $120 - 90$) - 2-digit number bonds to 100 ($32 + 68 = 100$) - Addition doubles for multiples of 5 and 10 to 100 ($90 + 90$; $65 + 65$) and the corresponding halves 	<ul style="list-style-type: none"> - Subtract a 2-digit number from a multiple of 10 ($90 - 27$) - Add or subtract 2-digit numbers ($34 + 65$; $68 - 35$) - Add near doubles (>1 step away), including multiples of 10 between 50 and 100 ($18 + 16$; $60 + 70$) 	<ul style="list-style-type: none"> - Count in 1s, 10s across boundaries in 3-digit numbers - Count in 3s, 4s, 8s, 50s, 100s - Multiplication facts for the 3, 4, 8 times table 	<ul style="list-style-type: none"> - Multiply 1-digit or 2-digit numbers by 10 or 100 (54×100)
4	<ul style="list-style-type: none"> - Sums and difference of pairs of multiples of 10, 100 or 1000 - Addition of doubles of numbers 1 to 100 ($38 + 38$) and corresponding halves - What must be added to any 3-digit number to make the next multiple of 100 ($521 + \underline{\quad} = 600$) - Pairs of fractions that total 1 	<ul style="list-style-type: none"> - Add near doubles of 2-digit numbers ($38 + 37$) - Add or subtract 2-digit or 3-digit multiples of 10 ($120 - 40$; $140 + 150$; $370 - 180$) 	<ul style="list-style-type: none"> - Count in 1s, 10s, 100s across boundaries in 4-digit numbers - Count in 6s, 7s, 9s, 11s, 12s, 25s, 1000s - Count backwards and forwards in 1s through zero, including negative numbers - Multiplication facts for all times tables up to $\times 12$ 	<ul style="list-style-type: none"> - Find unit fractions of numbers and quantities, involving halves, thirds, quarters, fifths, eighths, tenths ($\frac{1}{8}$ of 24) - Multiply 3-digit numbers by 10 (247×10) - Multiply a multiple of 10 or 100 up to 1000 by a 1-digit number (40×3; 800×6). - Divide a multiple of 10 or 100 by a 1-digit number, resulting in a whole number ($80 \div 4$; $270 \div 3$; $400 \div 8$) - Multiply numbers to 20 by a 1-digit number by partitioning (17×3)

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5	<ul style="list-style-type: none"> - Doubles and halves of decimals, (half of 5.6, double 3.4) - What must be added to any 4-digit number to make the next multiple of 1000 ($4087 + \underline{\quad} = 5000$) - What must be added to a decimal with units and tenths to make the next whole number ($7.2 + \underline{\quad} = 8$) 	<ul style="list-style-type: none"> - Add or subtract any pair of 2-digit numbers * - Add or subtract any pair of 3-digit multiples of 10 * - Add or subtract a near multiple of 10 or 100 ($56 + 29$; $235 - 198$) - Find the difference between near multiples of 100 ($607 - 588$) - Add or subtract any pairs of decimal fractions each with units and tenths ($5.7 + 2.5$; $6.3 - 4.8$) - Find doubles of decimals each with units and tenths ($1.6 + 1.6$) - Add near doubles of decimals ($2.5 + 2.6$) <p style="text-align: center;">* by partitioning or jumping on a numberline.</p>	<ul style="list-style-type: none"> - Count in powers of 10 up to 1,000,000 from any given number (in 1,000s from 372; in 100,000s from 2,873) - Skip count forwards and backwards through zero with simple increments (in 4s from -12) - Fraction, decimal and percentage equivalents to one half, quarters, tenths and hundredths ($\frac{1}{2} = 0.5 = 50\%$; $\frac{3}{4} = 0.75 = 75\%$) - Factor pairs for known multiplication facts - Square numbers to 12 - Relate unit fractions to times table knowledge ($9 \times 7 = 63$, so $\frac{1}{9}$ of 63 = 7) - Recall prime numbers less than 20 	<ul style="list-style-type: none"> - Identify the remainder when dividing by 2, 5 or 10 - Find simple non-unit fractions of numbers and quantities, including measures ($\frac{3}{8}$ of 24) - Find 50%, 25%, 10% of simple whole numbers or quantities (25% of 20kg) - Multiply 3-digit numbers by 100 (543×100) - Multiply and divide 2-digit numbers by 4 or 8 by repeated doubling/halving (26×4; $96 \div 8$) - Double 3-digit multiples of 10 up to 500 (380×2) and corresponding halves - Find remainder after dividing 2-digit number by 1-digit number, using known facts ($27 \div 4 = 6R3$) - Multiply and divide whole numbers and decimals by 10, 100 or 1000 - Multiply pairs of multiples of 10 (60×30) - Find factor pairs for numbers to 100
6	<ul style="list-style-type: none"> - Addition and subtraction facts for multiples of 10 to 1000 ($650 + \underline{\quad} = 930$) - Addition and subtraction facts for decimal numbers with 1 d.p ($\underline{\quad} - 1.4 = 2.5$) 	<ul style="list-style-type: none"> - Find the difference between near multiples of 1000 ($6070 - 4087$) - Add or subtract pairs of decimals with units, tenths or hundredths ($0.7 + 3.38$) - Add or subtract a decimal with units and tenths that is nearly a whole number ($4.3 + 2.9$; $6.5 - 3.8$) 	<ul style="list-style-type: none"> - Squares of multiples of 10 	<ul style="list-style-type: none"> - Multiply 2-digit numbers by 5 or 20 (320×5) by relating to $\times 10$ then halve/double. - Multiply and divide by 25 or 50 by relating to 100 (48×25; 32×50) - Multiply and divide 2-digit numbers by a 1-digit number by partitioning into known facts (28×3; $68 \div 4$)

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			<ul style="list-style-type: none"> - Multiply and divide pairs of multiples of 10 and 100 (300 x 80; 2100 ÷ 300) - Multiply and divide 2-digit decimals (4.8 ÷ 6) - Find 10% and multiples of 10% of whole numbers and quantities (30% of 50ml) - Scale up and down using known facts (given 3 oranges cost 24p, find the cost of 4 oranges) - Simplify fractions with common factors
<p><u>Notes</u></p> <ul style="list-style-type: none"> - Doubles & near doubles will have to start with lower year groups - Year 1/2/3 changeover is different – feedback on this after year 1 of this teaching progression - Addition facts stage 2 potential year 1 but put in y2 as that is current NC guideline. 		<p><u>Notes</u></p> <ul style="list-style-type: none"> - Times tables distributed as normal – this can be changed - Unit/non-unit fractions can go into skip counting - Crossover between doubling/halving with the addition/subtraction skills 	