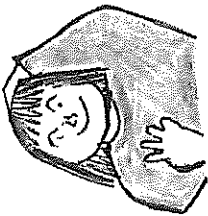
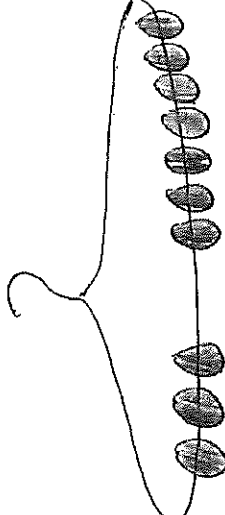
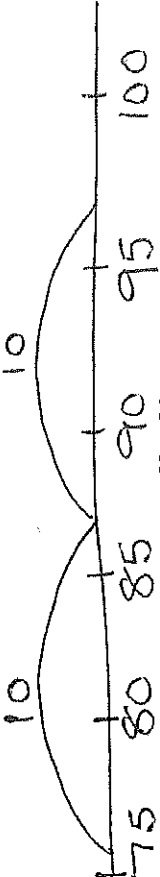


Calculation Methods and Strategies – Addition and Subtraction

Year 1	Year 2																																								
Using Place value Count in ones / Counting in tens, e.g. knowing $45 + 1$ or $45 + 10$ without counting on in ones $23 + 10$ <table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td></td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td></td></tr><tr><td>41</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> Counting on Count on in ones, e.g. $11 + 2 = 7 + 4 =$ Count on in tens, e.g. $45 + 20$ as 45, 55, 65 Using number facts 'Story' of 4, 5, 6, 7, 8 and 9, e.g. $7 = 7 + 0$ or $6 + 1$ or $5 + 2$ or $4 + 3$ Number bonds to 10, e.g. $5 + 5, 6 + 4, 7 + 3, 8 + 2, 9 + 1, 10 + 0$   Patterns using known facts, e.g. $4 + 3 = 7$ so we know $24 + 3, 44 + 3, 74 + 3,$ etc.	1	2	3	4	5	6	7	8	11	12	13	14	15	16	17	18	21	22	23	24	25	26	27		31	32	33	34	35	36	37		41								Using Place value Know 1 more or 10 more than any number, e.g. 1 more than 67 or 10 more than 85 Partitioning, e.g. $55 + 37$ as $50 + 30$ and $5 + 7$ finally combining the two totals: $80 + 12$ $(50) + (30) = 80$ $(5) + (7) = 12$ $80 + 12 = 92$ Counting on Add ten and multiples of ten, e.g. $76 + 20$ as 76, 86, 96 or in one hop $76 + 20$ Add two 2-digit numbers by counting on in tens then in ones, e.g. $55 + 37$ as 55 add 30 (85) add 7 (92)  Add near multiples, e.g. $46 + 19$ or $63 + 21$ Using number facts Know pairs of numbers which make the numbers up to and including 10, e.g. $8 = 4 + 4, 3 + 5, 2 + 6, 1 + 7$ and $10 = 5 + 5, 4 + 6, 3 + 7, 2 + 8, 1 + 9, 0 + 10$ Patterns of known facts, e.g. $6 + 3 = 9$, so we know $36 + 3 = 39, 56 + 3 = 59, 53 + 6 = 59$ Bridging ten, e.g. $57 + 5$ as 57 add 3 then add 2 more  Adding three or more single-digit numbers, spotting bonds to 10 or doubles, e.g. $6 + 7 + 4 + 2$ as $10 + 7 + 2$
1	2	3	4	5	6	7	8																																		
11	12	13	14	15	16	17	18																																		
21	22	23	24	25	26	27																																			
31	32	33	34	35	36	37																																			
41																																									

Calculation Methods and Strategies – Addition and Subtraction

	Year 3	Year 4
Mental Addition	Using Place value Count in hundreds, e.g. knowing 475 + 200 as 475, 575, 675 475 575 675 Add multiples of 10, 100 and £1, e.g. 746 + 200 or 746 + 40 or £6.34 + £5 as £6 + £5 and 34p Partitioning, e.g. 68 + 74 as 60 + 70 and 8 + 4 and combine the totals: 130 + 12 = 142 or £8.50 + £3.70 as £8 + £3 and 50p + 70p and combine: £11 + £1.20 Counting on Add two 2-digit numbers by adding the multiple of ten then the ones, e.g. 67 + 55 as 67 add 50 (117) add 5 (122) Add near multiples of 10 and 100, e.g. 67 + 39 or 364 + 199 Count on from 3-digit nos, e.g. 247 + 34 as 247 + 30 (277) then 277 + 4 = 281 Using number facts Number bonds to 100, e.g. 35 + 65, 46 + 54, 73 + 27, etc. Add to next ten and next hundred, e.g. 176 + 4 = 180, 435 + 65 = 500, etc.	Using Place value Count in thousands, e.g. knowing 475 + 200 as 475, 575, 675 Partitioning, e.g. 746 + 203 as 700 + 200 and 46 + 3 or 134 + 707 as 130 + 700 and 4 + 7 Counting on Add two 2-digit numbers by adding the multiple of ten then the ones, e.g. 67 + 55 as 67 add 50 (117) add 5 (122) Add near multiples of 10, 100 and 1000, e.g. 467 + 199 or 3462 + 2999 6567 6617 6667 Count on to add 3-digit numbers and money, e.g. 463 + 124 as 463 + 100 (563) + 20 (583) + 4 = 587 or £4.67 + £5.30 as £9.67 add 30p Using number facts Number bonds to 100 and to next multiple of 100, e.g. 463 + 37, 1353 + 47 460463 460933 461403 Number bonds to £1 and to the next whole pound, e.g. £3.45 + 55p Add to next whole number, e.g. 4.6 + 0.4, 7.2 + 0.8
	Build on partitioning to develop expanded column addition with two 3-digit numbers 400 60 6 + 300 50 8 ----- 700 110 14 ----- 1000 20 4 Expanded column addition with 'carrying' Compact column addition with two or more 3-digit numbers or towers of 2-digit numbers 400 60 6 + 300 50 8 ----- 700 110 14 ----- 1000 20 4 Compact column addition with 3-digit and 4-digit numbers Recognise fractions which add to 1, e.g. $\frac{1}{4} + \frac{3}{4}$ or $\frac{1}{5} + \frac{4}{5}$	Build on expanded column addition to develop compact column addition with larger numbers. 1000 400 60 6 + 4000 300 60 8 ----- 1400 700 120 14 ----- 1500 0 20 4 Compact column addition with larger numbers. 1000 400 60 6 + 4000 300 60 8 ----- 1400 700 120 14 ----- 1500 0 20 4 Use expanded and compact column addition to add amounts of money. 5347 2286 ----- 7633 Add like fractions, e.g. $\frac{3}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$
Written Addition	Build on partitioning to develop expanded column addition with two 3-digit numbers 347 286 ----- 633 Expanded column addition with 'carrying' Compact column addition with two or more 3-digit numbers or towers of 2-digit numbers 347 286 ----- 633 Compact column addition with 3-digit and 4-digit numbers Recognise fractions which add to 1, e.g. $\frac{1}{4} + \frac{3}{4}$ or $\frac{1}{5} + \frac{4}{5}$	Build on expanded column addition to develop compact column addition with larger numbers. 5347 2286 ----- 7633 Compact column addition with larger numbers. 5347 2286 ----- 7633 Use expanded and compact column addition to add amounts of money. 5347 2286 ----- 7633 Add like fractions, e.g. $\frac{3}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

Calculation Methods and Strategies -- Addition and Subtraction

Year 5		Year 6
Mental Addition	Using Place value Count in 0.1s, 0.01s, e.g. knowing what 0.1 more than 0.51 is 100s 10s 1s 0.1s 0.01s 0.001s Partitioning, e.g. $2.4 + 5.8$ as $2 + 5$ and $0.4 + 0.8$ and combine the totals: $7 + 1.2 = 8.2$ Counting on Add two decimal numbers by adding the ones then the tenths/hundredths, e.g. $5.72 + 3.05$ as 5.72 add 3 (8.72) then add 0.05 (8.77) Add near multiples of 1, e.g. $6.34 + 0.99$ or $5.63 + 0.9$ Count on from large numbers, e.g. $6834 + 3005$ as $9834 + 5$ Using number facts Number bonds to 1 and to the next whole number, e.g. $0.4 + 0.6$ or $5.7 + 0.3$ Add to next ten from a decimal number, e.g. $7.8 + 2.2 = 10$	Using Place value Count in 0.1s, 0.01s, 0.001s, e.g. knowing what 0.001 more than 6.725 is Partitioning, e.g. $9.54 + 3.25$ as $9 + 3$ and $0.5 + 0.2$ and $0.04 + 0.05$ to get 12.79 Counting on Add two decimal numbers by adding the ones then the tenths/hundredths or thousandths, e.g. $6.314 + 3.006$ as 6.314 add 3 (9.314) then add 0.006 (9.32) Add near multiples of 1, e.g. $6.345 + 0.999$ or $5.673 + 0.9$ Count on from large numbers, e.g. $16,375 + 12,003$ Using number facts Number bonds to 1 and to next multiple of 1, e.g. $0.63 + 0.37$ or $2.355 + 0.645$ Add to next ten, e.g. $4.62 + 0.38$
		The Year 5 section contains a place value chart for 2.4 + 5.8, showing the partitioning into 2 + 5 and 0.4 + 0.8, and a crossed-out vertical addition. The Year 6 section contains a place value chart for 9.54 + 3.25, showing the partitioning into 9 + 3 and 0.5 + 0.2 + 0.04 + 0.05, and a vertical addition for 4.62 + 0.38.

Calculation Methods and Strategies – Addition and Subtraction

	Year 5	Year 6
Written Addition	Continue to use column addition to add towers of several larger numbers. Use compact addition to add decimal numbers with up to two places $\begin{array}{r} 15.68 \\ + 24.96 \\ \hline 40.64 \\ \hline \end{array}$ Adding fractions with related denominators, e.g. $\frac{1}{4} + \frac{3}{8} = \frac{5}{8}$	Compact column addition for adding several large numbers and decimal numbers with up to two places $\begin{array}{r} £14.64 \\ £28.78 \\ + £12.26 \\ \hline £55.68 \\ \hline \end{array}$ Compact column addition with money Add fractions with unlike denominators, e.g. $\frac{3}{4} + \frac{1}{3} = 1 \frac{1}{12}$ or $\frac{13}{12}$ $2 \frac{1}{4} + 1 \frac{1}{3} = 3 \frac{7}{12}$

Calculation Methods and Strategies – Addition and Subtraction

	Year 1	Year 2																		
Mental Subtraction	Using Place value Count back in ones / Count back in tens, e.g. knowing $53 - 1$ or $53 - 10$ without counting back in ones <table border="1"><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td></td></tr></table> Taking away Count back in ones, e.g. $11 - 3 = 15 - 4 =$ Count back in tens, e.g. $53 - 20$ as $53, 43, 33$ Using number facts 'Story' of 4, 5, 6, 7, 8 and 9, e.g. $7 - 1 = 6, 7 - 2 = 5, 7 - 3 = 4$, etc. Number bonds to 10, e.g. $10 - 1 = 9, 10 - 2 = 8, 10 - 3 = 7$, etc. Say: eg 7: "2s a part, 5s a part, 7s a whole." Patterns using known facts, e.g. $7 - 3 = 4$ so we know $27 - 3 = 47 - 3 = 77 - 4 =$, etc.	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	35		Using Place value Know 1 less or 10 less than any number, e.g. 1 less than 74 or 10 less than 82 Partitioning, e.g. $55 - 32$ as $50 - 30$ and $5 - 2$ combining the answers: $20 + 3$ Taking away Subtract ten and multiples of ten, e.g. $76 - 20$ as $76, 66, 56$ or in one hop $76 - 20 = 56$ Subtract two 2-digit numbers by counting back in tens then in ones, e.g. $67 - 33$ as 67 subtract 30 (37) then count back 3 (34) Subtracting near multiples, e.g. $74 - 21$ or $57 - 19$ Using number facts Know pairs of numbers which make the numbers up to and including 10, e.g. $10 - 6 = 4, 8 - 3 = 5, 5 - 2 = 3$, etc. Patterns of known facts, e.g. $9 - 6 = 3$, so we know $39 - 6 = 33, 69 - 6 = 63, 89 - 6 = 83$ Bridge ten, e.g. $52 - 6$ as 52 subtract 2 then subtract 4 more Counting up Find a difference between two numbers on a line, e.g. $51 - 47$
11	12	13	14	15	16															
21	22	23	24	25	26															
31	32	33	34	35																

Calculation Methods and Strategies – Addition and Subtraction

Year 3		Year 4
Mental Subtraction	Taking away Use place value to subtract, e.g. $348 - 300$ or $348 - 40$ or $348 - 8$ Take away multiples of 10, 100 and £1, e.g. $476 - 40 = 436$, $476 - 300 = 176$, $£4.76 - £2 = £2.76$ Partitioning, e.g. $68 - 42$ as $60 - 40$ and $8 - 2$ or $£6.84 - £2.40$ as $£6 - £2$ and $80p - 40p$ Count back in hundreds, tens then ones, e.g. $763 - 121$ as $763 - 100$ (663) then subtract 20 (643) then subtract 1 (642) Subtract near multiples, e.g. $648 - 199$ or $86 - 39$ Counting up Find a difference between two numbers by counting up from the smaller to the larger, e.g. $121 - 87$ Using number facts Number bonds to 100, e.g. $100 - 35 = 65$, $100 - 48 = 52$, etc.	Taking away Use place value to subtract, e.g. $4748 - 4000$ or $4748 - 8$, etc. Take away multiples of 10, 100, 1000, £1, 10p or 0.1, e.g. $8392 - 50$ or $6723 - 3000$ or $£3.74 - 30p$ or $5.6 - 0.2$ Partitioning, e.g. $£5.87 - £3.04$ as $£5 - £3$ and $7p - 4p$ or $7493 - 2020$ as $7000 - 2000$ and $90 - 20$ Count back, e.g. $6482 - 1301$ as $6482 - 1000$ then -300 then -1 (5181) Subtract near multiples, e.g. $3522 - 1999$ or $£34.86 - £19.99$ Counting up Find a difference between two numbers by counting up from the smaller to the larger, e.g. $506 - 387$ Using number facts Number bonds to 10, 100 and derived facts, e.g. $100 - 76 = 24$, $1.0 - 0.6 = 0.4$ Number bonds to £1 and £10, e.g. $£1.00 - 86p = 14p$ or $£10 - £3.40 = £6.60$
	Develop counting up subtraction Use counting up subtraction to find change from £1 and £10 Recognise complements of any fraction to 1, e.g. $1 - \frac{1}{4} = \frac{3}{4}$ or $1 - \frac{2}{3} = \frac{1}{3}$	Expanded column subtraction Begin to use compact column subtraction $\begin{array}{r} 726 \\ - 358 \\ \hline 368 \end{array}$ Use counting up subtraction to find change from £10, £20, £50 and £100 Subtract like fractions, e.g. $\frac{3}{8} - \frac{1}{8} = \frac{2}{8}$
Written Subtraction		Expanded column subtraction Begin to use compact column subtraction $\begin{array}{r} 726 \\ - 358 \\ \hline 368 \end{array}$ Use counting up subtraction to find change from £10, £20, £50 and £100 Subtract like fractions, e.g. $\frac{3}{8} - \frac{1}{8} = \frac{2}{8}$

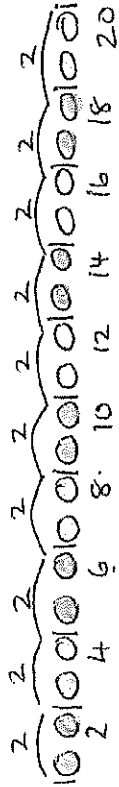
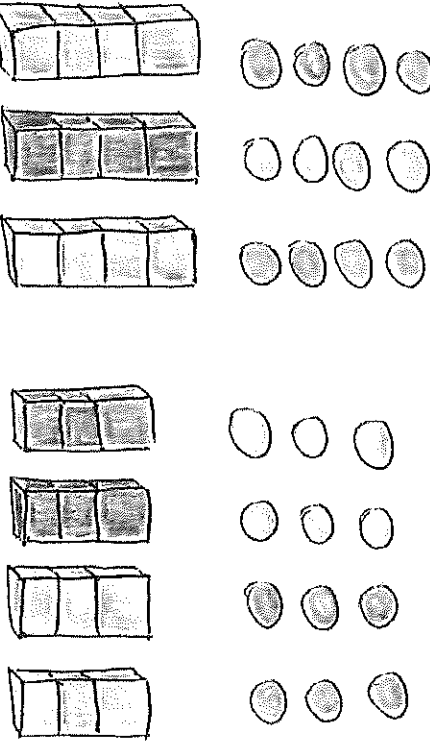
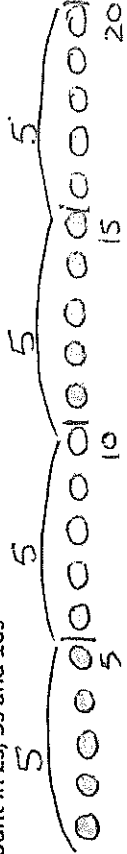
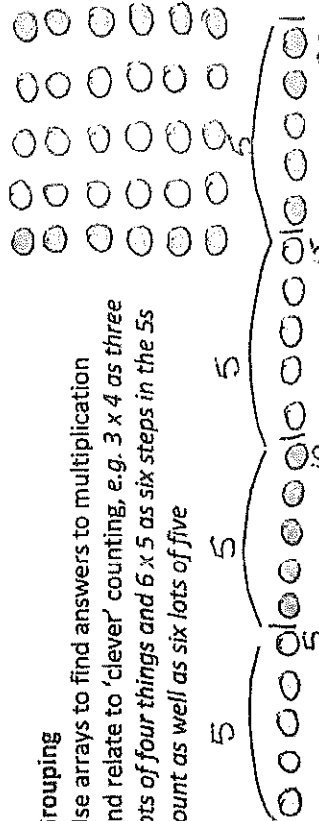
Calculation Methods and Strategies – Addition and Subtraction

	Year 5	Year 6
Mental Subtraction	Taking away Use place value to subtract decimals, e.g. $4.58 - 0.08$ or $6.26 - 0.2$, etc. Take away multiples of powers of 10, e.g. $15,672 - 300$ or $4.82 - 2$ or $2.71 - 0.5$ or $4.68 - 0.02$ Partition or count back, e.g. $3964 - 1051$ or $5.72 - 2.01$ Subtract near multiples, e.g. $86,456 - 9999$ or $3.58 - 1.99$ Counting up Find a difference between two numbers by counting up from the smaller to the larger, e.g. $2009 - 869$ Find change using shopkeepers' addition, e.g. buy toy for £6.89 using £10 Using number facts Derived facts from number bonds to 10 and 100, e.g. $2 - 0.45$ using $45 + 55 = 100$ or $3.00 - 0.86$ using $86 + 14 = 100$	Taking away Use place value to subtract decimals, e.g. $7.782 - 0.08$ or $16.263 - 0.2$, etc. Take away multiples of powers of 10, e.g. $132,956 - 400$ or $686,109 - 40,000$ or $7.823 - 0.5$ Partition or count back, e.g. $3964 - 1051$ or $5.72 - 2.01$ Subtract near multiples, e.g. $360,078 - 99,998$ or $12.831 - 0.99$ Counting up Count up to subtract numbers from multiples of 10, 100, 1000, 10,000 Find a difference between two decimal numbers by counting up from the smaller to the larger, e.g. $1.2 - 0.87$ Using number facts Derived facts from number bonds to 10 and 100, e.g. $0.1 - 0.075$ using $75 + 25 = 100$ or $5 - 0.65$ using $65 + 35 = 100$ Number bonds to £1, £10 and £100, e.g. $£7.00 - £4.37$ or $£100 - £66.20$ using $20p + 80p = £1$ and $£67 + £33 = £100$.
	Diagram for $2009 - 869$: 869 and 2009 are connected by a bracket. Below 869 is $11p$. Below 2009 is $100p$. A bracket connects $11p$ and $100p$ to $£3$. Diagram for $£6.89$ and $£10$: A bracket connects $£6.89$ and $£10$ to $£3$. Diagram for $2 - 0.45$: 0.04 and 0.1 are connected by a bracket. Below 0.04 is 0.86. Below 0.1 is 0.9. A bracket connects 0.86 and 0.9 to 1. Below 1 is 3.	Diagram for $1.2 - 0.87$: 0.03 and 0.1 are connected by a bracket. Below 0.03 is 0.87. Below 0.1 is 1. A bracket connects 0.87 and 1 to 1.2. Diagram for $5 - 0.65$: 0.35 and 1 are connected by a bracket. Below 0.35 is 0.65. Below 1 is 4. A bracket connects 0.65 and 4 to 5.

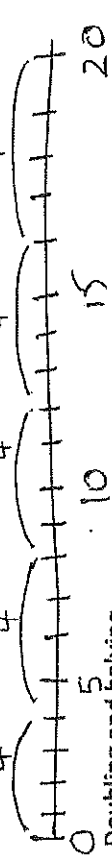
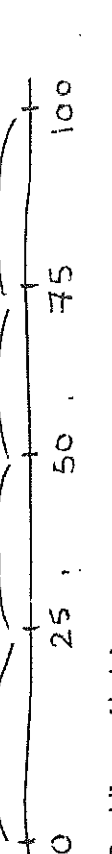
Calculation Methods and Strategies – Addition and Subtraction

	Year 5	Year 6
Written Subtraction	Compact column subtraction for numbers with up to 5 digits $\begin{array}{r} 28'6'' \\ - 8'1'' \\ \hline 8'1'' \end{array}$ Continue to use counting up subtraction for subtractions involving money, including finding change or, e.g. £50 - £28.76 $\begin{array}{r} 24p \\ 28.76 \\ - 8.29 \\ \hline 20.47 \end{array}$ Use counting up subtraction to subtract decimal numbers, e.g. 4.2 - 1.74 $\begin{array}{r} 0.06 \\ 4.2 \\ - 1.74 \\ \hline 2.46 \end{array}$ Subtracting fractions with like denominators, e.g. $1\frac{1}{8} - \frac{3}{8}$ as $1\frac{1}{8} - \frac{3}{8}$ or $10/8 - 3/8 = 7/8$	Compact column subtraction for large numbers $\begin{array}{r} 28'4'' \\ - 16'4'' \\ \hline 12'0'' \end{array}$ Use counting up subtraction when dealing with money, e.g. £100 - £78.56 or £45.23 - £27.57 $\begin{array}{r} 44p \\ 100 \\ - 78.56 \\ \hline 21.44 \end{array}$ Use counting up subtraction to subtract decimal numbers, e.g. 13.1 - 2.37 $\begin{array}{r} 0.13 \\ 13.1 \\ - 2.37 \\ \hline 10.73 \end{array}$ Subtracting fractions with unlike denominators, e.g. $1\frac{1}{3} - \frac{2}{3}$ as $1\frac{1}{3} - \frac{2}{3}$ or $15/12 - 8/12 = 7/12$

Calculation Methods and Strategies – Multiplication and Division

Year 1	Year 2
Counting in steps ('Clever' counting) Count in 2s and 10s  Doubling and halving Find doubles to double 6 using fingers  Grouping Begin to use visual and concrete arrays and 'sets' of objects to find the answers to '3 lots of 4' or '2 lots of 5', etc. 	Counting in steps ('Clever' counting) Count in 2s, 5s and 10s  Begin to count in 3s Doubling and halving Begin to know doubles of multiples of 5 to 100, e.g. double 35 is 70 Grouping Use arrays to find answers to multiplication and relate to 'clever' counting, e.g. 3×4 as three lots of four things and 6×5 as six steps in the 5s count as well as six lots of five  Understand that 5×3 can be worked out as three 5s or five 3s Using number facts Know doubles to double 20 Double $7 = 14$ Start learning 2x, 5x, 10x tables, relating these to 'Clever counting' in 2s, 5s, and 10s, e.g. $5 \times 10 = 50$, and 10, 20, 30, 40, 50 is five steps in the tens count

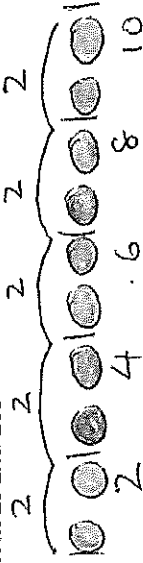
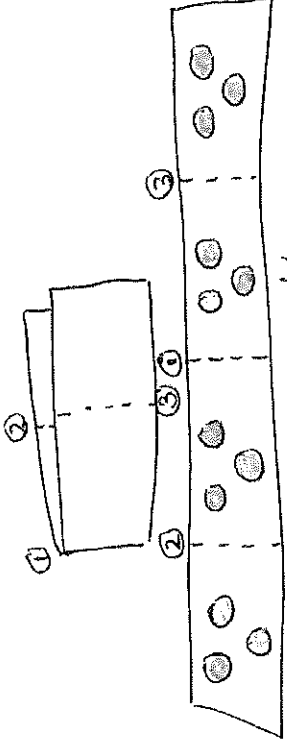
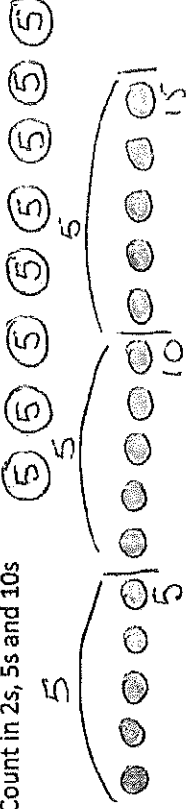
Calculation Methods and Strategies – Multiplication and Division

Year 3		Year 4																		
Mental Multiplication	Counting in steps ('Clever' counting) Count in 2s, 3s, 4s, 5s, 8s and 10s, e.g. colour the multiples on a 1-100 grid or use hops along a landmarked line  Doubling and halving Find doubles to double 50 using partitioning Use doubling as a strategy in multiplying by 2 E.g. 18×2 is double 18 (36) Grouping Recognise that multiplication is commutative, e.g. $4 \times 8 = 8 \times 4$ Multiply multiples of 10 by single digit numbers, e.g. $30 \times 8 = 240$ Multiply friendly 2-digit numbers by single digit numbers, e.g. 13×4 Using number facts Know doubles to 20 and doubles of multiples of 5 to 100, e.g. double 45 is 90 Know doubles of multiples of 5 to 100, e.g. double 85 is 170 Know 2x, 3x, 4x, 5x, 8x, 10x tables facts	Counting in steps – sequences Count in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12s, 25s, 50s, 100s and 1000s  Doubling and halving Find doubles to double 100 and beyond using partitioning Begin to double amounts of money. E.g. £3.50 doubled is £7 Use doubling as a strategy in multiplying by 2, 4 and 8, e.g. $34 \times 4 = \text{double } 34 \text{ (68) doubled again (136)}$ Grouping Use partitioning to multiply 2-digit numbers by single-digit numbers Multiply multiples of 100 by single digit numbers using tables facts, e.g. $400 \times 8 = 3200$ Multiply using near multiples by rounding, e.g. 24×19 as $(24 \times 20) - 24$ Using number facts - Know times tables up to 12×12	Use grid multiplication to multiply 3-digit by 1-digit numbers <table data-bbox="987 356 1059 723"><tr><td>x</td><td>200</td><td>50</td><td>3</td></tr><tr><td>6</td><td>1200</td><td>300</td><td>18</td></tr></table> = 1518 Use a vertical written algorithm (ladder) to multiply 3-digit numbers by 1-digit numbers $\begin{array}{r} 253 \\ \times 6 \\ \hline 1518 \end{array}$ Use grid multiplication to multiply 2-digit numbers by 2-digit numbers <table data-bbox="1227 219 1329 546"><tr><td>x</td><td>40</td><td>6</td></tr><tr><td>10</td><td>400</td><td>60</td></tr><tr><td>8</td><td>320</td><td>48</td></tr></table> 720 108 = 828	x	200	50	3	6	1200	300	18	x	40	6	10	400	60	8	320	48
x	200	50	3																	
6	1200	300	18																	
x	40	6																		
10	400	60																		
8	320	48																		
Written Multiplication	Build on partitioning to develop grid multiplication <table data-bbox="1051 1720 1163 1935"><tr><td>x</td><td>20</td><td>3</td></tr><tr><td>4</td><td>80</td><td>12</td></tr></table> = 92	x	20	3	4	80	12													
x	20	3																		
4	80	12																		

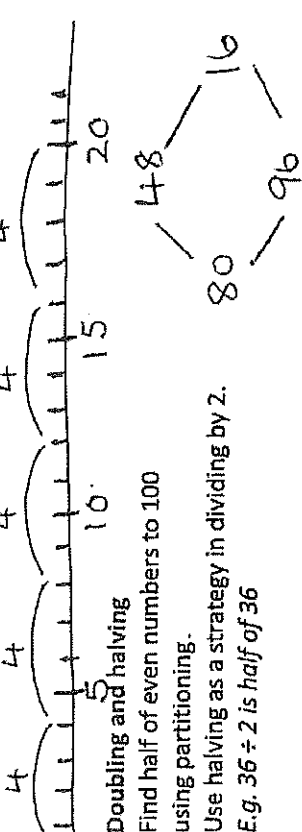
Calculation Methods and Strategies – Multiplication and Division

	Year 5	Year 6
Mental Multiplication	Doubling and halving Double amounts of money using partitioning, e.g. £6.73 doubled is double £6 (£12) plus double 73p (£1.46) Use doubling and halving as a strategy in multiplying by 2, 4, 8, 5 and 20. E.g. $58 \times 5 = \frac{1}{2}$ of 58 (29) $\times 10$ (290) Grouping Multiply decimals by 10, 100, 1000, e.g. $3.4 \times 100 = 340$ Use partitioning to multiply friendly 2-digit and 3-digit numbers by single-digit numbers. E.g. 402×6 as 400×6 (2400) and 2×6 (12) Use partitioning to multiply decimal numbers by single-digit numbers, e.g. 4.5×3 as $(4 \times 3) + (4 \times 0.5)$ Multiply using near multiples by rounding, e.g. 32×29 as $(32 \times 30) - 32$ Using number facts Use times tables facts up to 12×12 to multiply multiples of the multiplier, e.g. $4 \times 6 = 24$ so $40 \times 6 = 240$ and $400 \times 6 = 2400$ Know square numbers and cube numbers	Doubling and halving Double decimal numbers with up to 2-places using partitioning, e.g. 36.73 doubled is double 36 (72) plus double 0.73 (1.46) Use doubling and halving as strategies in mental multiplication Grouping Use partitioning as a strategy in mental multiplication, as appropriate, e.g. 3060×4 as $(3000 \times 4) + (60 \times 4)$ or 8.4×8 as 8×8 (64) and 0.4×8 (3.2) Use factors in mental multiplication, e.g. 421×6 as 421×3 (1263) doubled (2526) or 3.42×5 as half of (3.42×10) Multiply decimal numbers using near multiples by rounding, e.g. 4.3×19 as 4.3×20 ($86 - 4.3$) Using number facts Use times tables facts up to 12×12 in mental multiplication of large numbers or numbers with up to two decimal places, e.g. $6 \times 4 = 24$ and $0.06 \times 4 = 0.24$
Written Multiplication	Short multiplication of 2-digit, 3-digit and 4-digit numbers by 1-digit numbers $\begin{array}{r} 387 \\ \times 6 \\ \hline 2322 \\ 54 \\ \hline \end{array}$ Long multiplication of 2-digit, 3-digit and 4-digit numbers by teen numbers $\begin{array}{r} 387 \\ \times 14 \\ \hline 1548 \\ 3870 \\ \hline 5418 \end{array}$ Grid multiplication of numbers with up to 2 decimal places by single digit numbers Multiplying fractions by single digit numbers E.g. $\frac{3}{4} \times 6 = \frac{18}{4}$ which is $4\frac{2}{4} = 4\frac{1}{2}$	Short multiplication of 2-digit, 3-digit and 4-digit numbers by 1-digit numbers $\begin{array}{r} 3875 \\ \times 6 \\ \hline 23250 \\ 543 \\ \hline \end{array}$ Long multiplication of 2-digit, 3-digit and 4-digit numbers by 2-digit numbers Short multiplication of decimal numbers using $\times 100$ and $\div 100$, e.g. 13.72×6 as $1372 \times 6 \div 100$ Short multiplication of money, £13.72 $\times 6$ Grid multiplication of numbers with up to 2 decimal places by single digit numbers Multiplying proper and improper fractions, e.g. $\frac{3}{4} \times \frac{2}{3}$ NB Grid multiplication provides a default method for ALL children

Calculation Methods and Strategies – Multiplication and Division

	Year 1	Year 2
Mental Division	Counting in steps ('Clever' counting) Count in 2s and 10s  Doubling and halving Find half of even numbers up to 12 including realising that it is hard to halve an odd number  Grouping Begin to use visual and concrete arrays and 'sets' of objects to find the answers to 'how many towers of 3 can I make with 12 cubes?' Sharing Begin to find half of a quantity using sharing, e.g. half of 16 cubes by giving one each repeatedly to two children 	Counting in steps ('Clever' counting) Count in 2s, 5s and 10s  Doubling and halving Find half of numbers up to 40, including realising that half of an odd number gives a remainder of 1 or an answer containing a ½ Begin to know half of multiples of 10 to 100, e.g. half of 70 is 35 Grouping Relate division to multiplication by using arrays or towers of cubes to find answers to division, e.g. how many towers of five cubes can I make from 20 cubes as $4 \times 5 = 20$ and also as $20 \div 5 = ?$  Relate to division to 'clever' counting and hence to multiplication, e.g. how many 5s do I count to get to 20? Sharing Begin to find half or a quarter of a quantity using sharing, e.g. ¼ of 16 cubes by sorting the cubes into four piles Find ¼, ½, ¾ of small quantities Using number facts Know halves of even numbers to 24 Know 2x, 5x and 10x division facts Begin to know 3x division facts

Calculation Methods and Strategies – Multiplication and Division

	Year 3	Year 4
Mental Division	Counting in steps ('Clever' counting) Count in 2s, 3s, 4s, 5s, 8s and 10s by colouring numbers on the 1-100 grid or using a landmarked line  Doubling and halving Find half of even numbers to 100 using partitioning. Use halving as a strategy in dividing by 2. E.g. $36 \div 2$ is half of 36 Grouping Recognise that division is not commutative, e.g. $16 \div 8$ does not equal $8 \div 16$ Relate division to multiplications 'with holes in', e.g. $\square \times 5 = 30$ is the same calculation as $30 \div 5 = ?$ thus we can count in 5s to find the answer Divide multiples of 10 by single digit numbers, e.g. $240 \div 8 = 30$ Using number facts Know halves of even numbers to 40 Know halves of multiples of 10 to 200, e.g. half of 170 is 85 Know 2x, 3x, 4x, 5x, 8x, 10x division facts Use division facts to find unit and simple non-unit fractions of amounts within the times tables, e.g. $\frac{3}{8}$ of 48 is $3 \times (48 \div 4)$	Counting in steps – sequences Count in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12s, 25s, 50s, 100s and 1000s  Doubling and halving Find halves of even numbers to 200 and beyond using partitioning. Begin to half amounts of money. E.g. £9 halved is £4.50 Use halving as a strategy in dividing by 2, 4 and 8, e.g. $164 \div 4$ is half of 164 (82) halved again (41) Grouping Use multiples of 10 times the divisor to divide by number 59 above the tables facts, e.g. $45 \div 3$ Divide multiples of 100 by single digit numbers using division facts, e.g. $3200 \div 8 = 400$ Using number facts Know times tables up to 12×12 and all related division facts Use division facts to find unit and non-unit fractions of amounts within the times tables, e.g. $\frac{7}{8}$ of 56 is $7 \times (56 \div 8)$ 45 $\div$ 3 = $\square$ Relate to multiplication $\square \times 3 = 45$ $10 \times 3 = 30$ 15 $5 \times 3 = 15$
Written Division	Mental division of 2-digit numbers, progressing into Year 4 written strategy.	Written version of a mental method $\square \times 3 = 86$ $84 \div 3 = 28 \text{ r}2$ $20 \times 3 = 60$ 26 $8 \times 3 = 24$ Relate to multiplication 2

Overview of Calculation Methods and Strategies – Multiplication and Division

	Year 5	Year 6
Mental Division	Doubling and halving Halve amounts of money using partitioning, e.g. half of £14.84 as half of £14 and half of 84p Use doubling and halving as a strategy in dividing by 2, 4, 8, 5 and 20, e.g. 115 ÷ 5 as double 115 (230) ÷ 10 Grouping Divide numbers by 10, 100, 1000 to obtain decimal answers with up to three places, e.g. $340 \div 100 = 3.4$. Use the 10th, 20th, 30th ... multiple of the divisor to divide friendly 2-digit and 3-digit numbers by single-digit numbers, e.g. $186 \div 6$ as 30×6 (180) and 1×6 (6) Find unit & non-unit fractions of large amounts, e.g. $\frac{3}{5}$ of 265 is $3 \times (265 \div 5)$ Using number facts Use division facts from the times tables up to 12 x 12 to divide multiples of powers of ten of the divisor, e.g. $3600 \div 9$ using $36 \div 9$ Know square numbers and cube numbers	Doubling and halving Halve decimal numbers with up to 2-places using partitioning, e.g. half of 36.86 is half of 36 (18) plus half of 0.86 (0.43) Use doubling and halving as strategies in mental division, e.g. $216 \div 4$ is half of 216 (108) and half of 108 (54) Grouping Use 10th, 20th, 30th, ... or 100th, 200th, 300th ... multiples of the divisor to divide large numbers, e.g. $378 \div 9$ as $40 \times 9 = 360$ and $2 \times 9 = 18$ so the answer is 42 Use tests for divisibility, e.g. 135 divides by 3 as $1 + 3 + 5 = 9$ and 9 is in the 3x table Using number facts Use division facts from the times tables up to 12 x 12 to divide decimal numbers by single-digit numbers, e.g. $1.17 \div 3$ is $\frac{1}{100}$ of $117 \div 3$ (0.39)
Written Division	Written version of a mental strategy for 3-digit ÷ 1 digit numbers Short division of 3-digit and 4-digit numbers by single-digit numbers	Short division of 3-digit and 4-digit numbers by single-digit numbers Long division of 3-digit and 4-digit numbers by two-digit numbers Divide fractions by whole numbers, e.g. $\frac{3}{4} \div 3 = \frac{1}{12}$