

Overview of Strategies and Methods – Addition and Subtraction

Year 3		Year 4	
Mental Addition	<p>Using place value Count in 100s e.g. Know $475 + 200$ as $475, 575, 675$</p> <p>Add multiples of 10, 100 and £1 e.g. $746 + 200$ e.g. $746 + 40$ e.g. $£6.34 + £5$ as $£6 + £5$ and $34p$</p> <p>Partitioning e.g. $£8.50 + £3.70$ as $£8 + £3$ and $50p + 70p$ and combine the totals: $£11 + £1.20$ e.g. $347 + 36$ as 300 and $40 + 30$ and $7 + 6$ and combine the totals: $370 + 13 = 383$ e.g. $68 + 74$ as $60 + 70$ and $8 + 4$ and combine the totals: $130 + 12 = 142$</p>	<p>Using place value Count in 1000s e.g. Know $3475 + 2000$ as $3475, 4475, 5475$</p> <p>Partitioning e.g. $746 + 40$ e.g. $746 + 203$ as $700 + 200$ and 40 and $6 + 3$ e.g. $134 + 707$ as $100 + 700$ and 30 and $4 + 7$</p> <p>Counting on Add 2-digit numbers to 2-, 3- and 4-digit numbers by adding the multiple of 10 then the 1s e.g. $167 + 55$ as $167 + 50 (217) + 5 = 222$ Add near multiples of 10, 100 and 1000 e.g. $467 + 199$ e.g. $3462 + 2999$</p> <p>Count on to add 3-digit numbers and money e.g. $463 + 124$ as $463 + 100 (563) + 20 (583) + 4 = 587$ e.g. $£4.67 + £5.30$ as $£9.67 + 30p$</p>	

Year 3		Year 4	
Mental Addition	<p>Counting on Add two 2-digit numbers by adding the multiple of 10, then the 1s e.g. $67 + 55$ as $67 + 50 (117) + 5 = 122$ Add near multiples of 10 and 100 e.g. $67 + 39$ e.g. $364 + 199$ Add pairs of 'friendly' 3-digit numbers e.g. $548 + 120$ Count on from 3-digit numbers e.g. $247 + 34$ as $247 + 30 (277) + 4 = 281$</p> <p>Using number facts Know pairs which total each number to 20 e.g. $7 + 8 = 15$ e.g. $12 + 6 = 18$ Number bonds to 100 e.g. $35 + 65$ e.g. $46 + 54$ e.g. $73 + 27$</p> <p>Add to the next 10 and the next 100 e.g. $176 + 4 = 180$ e.g. $435 + 65 = 500$</p>	<p>Using number facts Number bonds to 100 and to the next multiple of 100 e.g. $288 + 12 = 300$ e.g. $1353 + 47 = 1400$ e.g. $463 + 37 = 500$</p> <p>Number bonds to £1 and to the next whole pound e.g. $63p + 37p = £1$ e.g. $£3.45 + 55p = £4$ Add to the next whole number e.g. $4.6 + 0.4$ e.g. $7.2 + 0.8$</p>	

Year 3		Year 4	
Written Addition	<p>Build on partitioning to develop expanded column addition with two 3-digit numbers e.g. $466 + 358$</p> $\begin{array}{r} 400 & 60 & 6 \\ + 300 & 50 & 8 \\ \hline 700 & 110 & 14 = 824 \end{array}$ <p>Use expanded column addition where digits in a column add to more than the column value e.g. $466 + 358$</p> $\begin{array}{r} 400 & 60 & 6 \\ 300 & 50 & 8 \\ + 100 & 10 & \\ \hline 800 & 20 & 4 \end{array}$ <p>Compact column addition with two or more 3-digit numbers or towers of 2-digit numbers e.g. $347 + 286 + 495$</p> $\begin{array}{r} 347 \\ + 286 \\ + 495 \\ \hline 21 \\ \hline 1128 \end{array}$ <p>Compact column addition with 3- and 4-digit numbers Recognise like fractions that add to 1 e.g. $1/4 + 3/4$ e.g. $3/5 + 2/5$</p>	<p>Build on expanded column addition to develop compact column addition with larger numbers e.g. $1466 + 4868$</p> $\begin{array}{r} 1000 & 400 & 60 & 6 \\ 4000 & 800 & 60 & 8 \\ + 1000 & 100 & 10 & \\ \hline 6000 & 300 & 30 & 4 \end{array}$ <p>Compact column addition with larger numbers e.g. $5347 + 2286 + 1495$</p> $\begin{array}{r} 5347 \\ + 2286 \\ + 1495 \\ \hline 121 \\ \hline 9128 \end{array}$ <p>Use expanded and compact column addition to add amounts of money Add like fractions e.g. $3/8 + 1/8 + 1/8$</p>	

Year 3

Taking away

Use place value to subtract
e.g. $348 - 300$

e.g. $348 - 40$
e.g. $348 - 8$



Take away multiples of 10, 100 and £1

e.g. $476 - 40 = 436$

e.g. $476 - 300 = 176$

e.g. $£4.76 - £2 = £2.76$

Partitioning

e.g. $68 - 42$ as $60 - 40$ and $8 - 2$

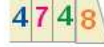
e.g. $£6.84 - £2.40$ as $£6 - £2$ and $80p - 40p$



Year 4

Taking away

Use place value to subtract
e.g. $4748 - 4000$



Take away multiples of 10, 100, 1000, £1, 10p or 0.1

e.g. $8392 - 50$

e.g. $6723 - 3000$

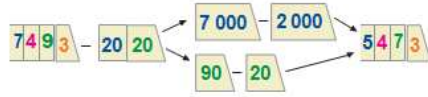
e.g. $£3.74 - 30p$

e.g. $5.6 - 0.2$

Partitioning

e.g. $£5.87 - £3.04$ as $£5 - £3$ and $7p - 4p$

e.g. $7493 - 2020$ as $7000 - 2000$ and $90 - 20$



Count back

e.g. $6482 - 1301$ as $6482 - 1000 (5482) - 300 (5182) - 1 = 5181$

Subtract near multiples of 10, 100, 1000 or £1

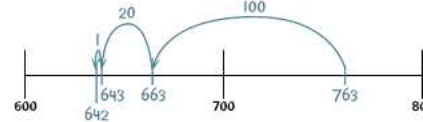
e.g. $3522 - 1999$

e.g. $£34.86 - £19.99$

Year 3

Count back in 100s, 10s then 1s

e.g. $763 - 121$ as $763 - 100 (663) - 20 (643) - 1 = 642$



Subtract near multiples of 10 and 100

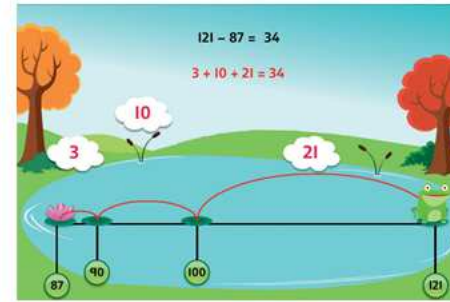
e.g. $648 - 199$

e.g. $86 - 39$

Counting up

Find a difference between two numbers by counting up from the smaller to the larger

e.g. $121 - 87$



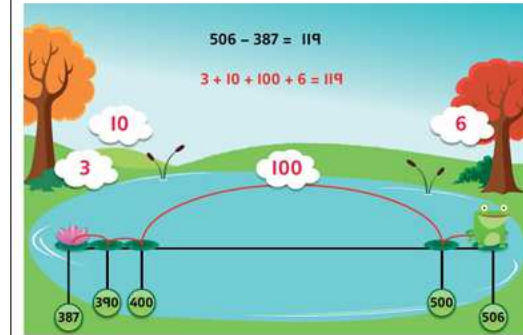
Year 4

Counting up

Find a difference between two numbers by counting up from the smaller to the larger

e.g. $506 - 387$

e.g. $4000 - 2693$



Year 3

Using number facts

Know pairs which total each number to 20

e.g. $20 - 14 = 6$

Number bonds to 100

e.g. $100 - 48 = 52$

e.g. $100 - 35 = 65$



Subtract using number facts to bridge back through a 10

e.g. $42 - 5 = 42 - 2 (40) - 3 = 37$

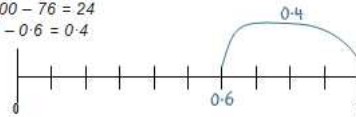
Year 4

Using number facts

Number bonds to 10 and 100 and derived facts

e.g. $100 - 76 = 24$

e.g. $1 - 0.6 = 0.4$



Number bonds to £1 and £10

e.g. $£1.00 - 86p = 14p$

e.g. $£10.00 - £3.40 = £6.60$

Expanded column subtraction with 3- and 4-digit numbers

e.g. $726 - 358$

$$\begin{array}{r} 600 \quad 110 \quad 16 \\ \cancel{700} \quad \cancel{20} \quad \cancel{8} \\ - 300 \quad 50 \quad 8 \\ \hline 300 \quad 60 \quad 8 \end{array}$$

Begin to develop compact column subtraction

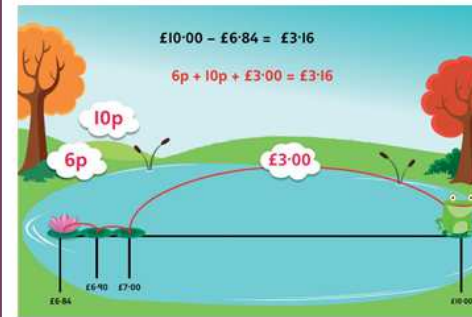
e.g. $726 - 358$

$$\begin{array}{r} 6 \quad 11 \quad 16 \\ \cancel{7} \quad \cancel{2} \quad \cancel{8} \\ - 3 \quad 5 \quad 8 \\ \hline 3 \quad 6 \quad 8 \end{array}$$

Year 3

Use counting up subtraction to find change from £1, £5 and £10

e.g. $£10.00 - £6.84$



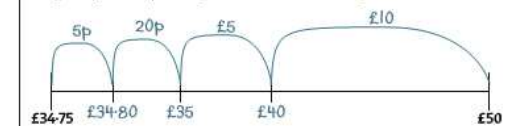
Recognise complements of any fraction to 1

e.g. $1 - 1/4 = 3/4$
e.g. $1 - 3/5 = 2/5$

Year 4

Use counting up subtraction to find change from £10, £20, £50 and £100

e.g. Buy a computer game for £34.75 using £50



Subtract like fractions

e.g. $3/8 - 1/8 = 2/8$

Mental Subtraction

Mental Subtraction

Written Subtraction

Mental Subtraction

Written Subtraction

Overview of Strategies and Methods – Multiplication and Division

Year 3											Year 4											
Mental Multiplication	Counting in steps ('clever' counting) Count in 2s, 3s, 4s, 5s, 8s and 10s											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 e.g. double 126										
	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. 34×4 is double 34 (68) doubled again = 136																					

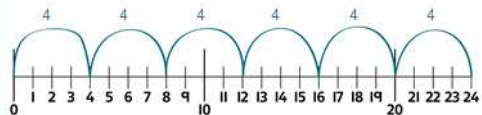
Year 3											Year 4											
Mental Multiplication	Doubling and halving Find doubles of numbers to 50 using partitioning e.g. double 48											Grouping Use partitioning to multiply 2-digit numbers by 1-digit numbers e.g. 24×5										
	Use doubling as a strategy in multiplying by 2 e.g. 18×2 is double 18 = 36											Multiply multiples of 100 and 1000 by 1-digit numbers using tables facts e.g. $400 \times 8 = 3200$ Multiply near multiples by rounding e.g. 24×19 as $(24 \times 20) - 24 = 456$										
	Grouping Recognise that multiplication is commutative e.g. $4 \times 8 = 8 \times 4$ Multiply multiples of 10 by 1-digit numbers e.g. $30 \times 8 = 240$ Multiply 'friendly' 2-digit numbers by 1-digit numbers e.g. 13×4											Using number facts Know times-tables up to 12×12										
	Using number facts Know doubles to double 20 e.g. double 15 is 30 Know doubles of multiples of 5 to 100 e.g. double 85 is 170 Know $\times 2, \times 3, \times 4, \times 5, \times 8, \times 10$ tables facts																					

Year 3											Year 4											
Written Multiplication	Build on partitioning to develop grid multiplication e.g. 23×4											Use grid multiplication to multiply 3-digit numbers by 1-digit numbers e.g. 253×6										
	Use a vertical written algorithm (ladder) to multiply 3-digit numbers by 1-digit numbers e.g. 253×6											Use grid multiplication to multiply 2-digit numbers by 2-digit numbers e.g. 16×48										

Year 3

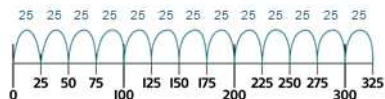
Counting in steps ('clever' counting)
Count in 2s, 3s, 4s, 5s, 8s and 10s

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



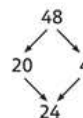
Year 4

Counting in steps (sequences)
Count in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12s, 25s, 50s, 100s and 1000s



Year 3

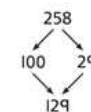
Doubling and halving
Find half of even numbers to 100 using partitioning
e.g. find half of 48



Use halving as a strategy in dividing by 2
e.g. $36 \div 2$ is half of $36 = 18$
Find half of odd numbers

Year 4

Doubling and halving
Find half of even numbers to 200 and beyond using partitioning
e.g. find half of 258



Begin to halve 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

Year 3

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. $_ \times 5 = 30$ is the same calculation as $30 \div 5 = _$ thus we can count in 5s to find the answer



Divide multiples of 10 by 1-digit numbers
e.g. $240 \div 8 = 30$
Begin to use subtraction of multiples of 10 of the divisor to divide numbers above the 10th multiple
e.g. $52 \div 4$ is 10×4 (40) and 3×4 (12) = 13

Year 4

Grouping
Use multiples of 10 times the divisor to divide by 1-digit numbers above the tables facts
e.g. $45 \div 3$ as 10×3 (30) and 5×3 (15)

$$45 \div 3 = \square$$

$$\begin{array}{r} \square \times 3 = 45 \\ 10 \times 3 = 30 \\ \quad 15 \\ \hline 5 \times 3 = 15 \\ \quad 0 \\ \hline 15 \end{array}$$

$$45 \div 3 = 15$$

Divide multiples of 100 by 1-digit numbers using division facts
e.g. $3200 \div 8 = 400$

Year 3

Using number facts
Know half of even numbers to 40
Know half of multiples of 10 to 200
e.g. half of 170 is 85
Know $\times 2, \times 3, \times 4, \times 5, \times 8, \times 10$ division facts

Year 4

Using number facts
Know times-tables up to 12×12 and all related division facts

\times	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Mental Division

Written Division

Perform divisions just above the 10th multiple using written jottings, understanding how to give a remainder as a whole number
Use division facts to find unit and simple non-unit fractions of amounts within the times-tables
e.g. $3/4$ of 48 is $3 \times (48 \div 4) = 36$

Use a written version of a mental method to divide 2- and 3-digit numbers by 1-digit numbers
e.g. $86 \div 3$ as 20×3 (60) and 8×3 (24), remainder 2

$$86 \div 3 = \square$$

$$\begin{array}{r} \square \times 3 = 86 \\ 20 \times 3 = 60 \\ \quad 26 \\ \hline 8 \times 3 = 24 \\ \quad 2 \\ \hline 28 \end{array}$$

Use division facts to find unit and non-unit fractions of amounts within the times-tables
e.g. $7/8$ of 56 is $7 \times (56 \div 8) = 48$