Overview of Strategies and Methods – Addition

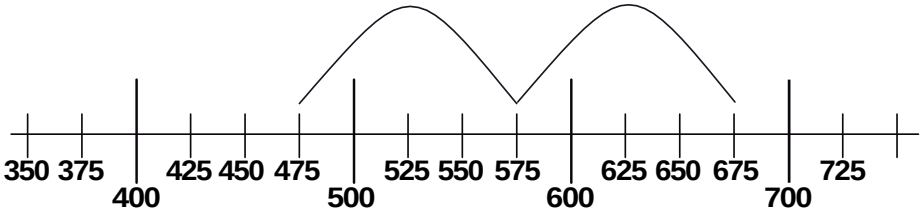
Mental Addition

Year 3

Using place value

Count in 100s

e.g. *Know 475 + 200 as 475, 575, 675*



Add multiples of 10, 100 and £1

e.g. *746 + 200*

e.g. *746 + 40*

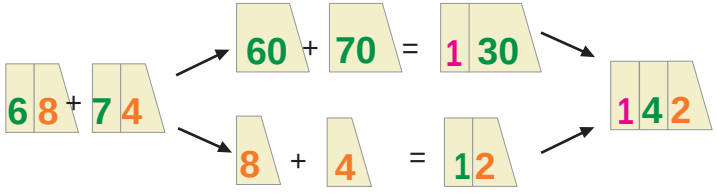
e.g. *£6·34 + £5 as £6 + £5 and 34p*

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*



Year 4

Using place value

Count in 1000s

e.g. *Know 3475 + 2000 as 3475, 4475, 5475*

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*

Counting on

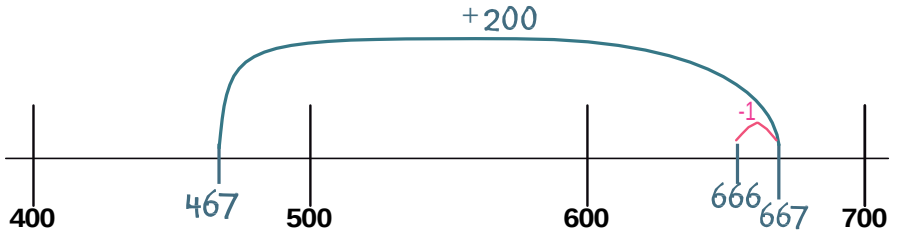
Add 2-digit numbers to 2-, 3- and 4-digit numbers by adding the multiple of 10 then the 1s

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*



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*

Overview of Strategies and Methods – Addition

Mental Addition

Year 3

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*

Using number facts

Know pairs which total each number to 20
e.g. *7 + 8 = 15*
e.g. *12 + 6 = 18*

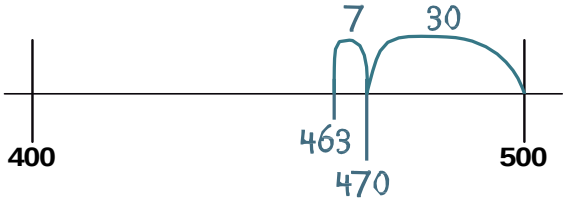
Number bonds to 100
e.g. *35 + 65*
e.g. *46 + 54*
e.g. *73 + 27*

Add to the next 10 and the next 100
e.g. *176 + 4 = 180*
e.g. *435 + 65 = 500*

Year 4

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*



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*

Overview of Strategies and Methods – Addition

Written Addition

Year 3

Build on partitioning to develop expanded column addition with two 3-digit numbers

e.g. *466 + 358*

$$\begin{array}{rrrr} & 400 & 60 & 6 \\ + & 300 & 50 & 8 \\ \hline & 700 & 110 & 14 \end{array} = 824$$

Use expanded column addition where digits in a column add to more than the column value

e.g. *466 + 358*

$$\begin{array}{rrrr} & 400 & 60 & 6 \\ & 300 & 50 & 8 \\ + & 100 & 10 & \\ \hline & 800 & 20 & 4 \end{array}$$

Compact column addition with two or more 3-digit numbers or towers of 2-digit numbers

e.g. *347 + 286 + 495*

$$\begin{array}{rrr} & 3 & 4 & 7 \\ & 2 & 8 & 6 \\ + & 4 & 9 & 5 \\ \hline & 2 & 1 & \\ \hline & 1 & 1 & 2 & 8 \end{array}$$

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*

Year 4

Build on expanded column addition to develop compact column addition with larger numbers

e.g. *1466 + 4868*

$$\begin{array}{rrrrr} & 1000 & 400 & 60 & 6 \\ & 4000 & 800 & 60 & 8 \\ + & 1000 & 100 & 10 & \\ \hline & 6000 & 300 & 30 & 4 \end{array}$$

Compact column addition with larger numbers

e.g. *5347 + 2286 + 1495*

$$\begin{array}{rrrr} & 5 & 3 & 4 & 7 \\ & 2 & 2 & 8 & 6 \\ + & 1 & 4 & 9 & 5 \\ \hline & 1 & 2 & 1 & \\ \hline & 9 & 1 & 2 & 8 \end{array}$$

Use expanded and compact column addition to add amounts of money

Add like fractions

e.g. *3/8 + 1/8 + 1/8*

Overview of Strategies and Methods – Addition

Mental Addition

Year 5

Using place value

Count in 0·1s, 0·01s

e.g. *Know what 0·1 more than 0·51 is*

10s	1s	0·1s	0·01s
	0	5	1

Partitioning

e.g. *2·4 + 5·8 as 2 + 5 and 0·4 + 0·8 and combine the totals: 7 + 1·2 = 8·2*

0·1	0·2	0·3	0·4	0·5	0·6	0·7	0·8	0·9	1
1·1	1·2	1·3	1·4	1·5	1·6	1·7	1·8	1·9	2
2·1	2·2	2·3	2·4	2·5	2·6	2·7	2·8	2·9	3
3·1	3·2	3·3	3·4	3·5	3·6	3·7	3·8	3·9	4
4·1	4·2	4·3	4·4	4·5	4·6	4·7	4·8	4·9	5
5·1	5·2	5·3	5·4	5·5	5·6	5·7	5·8	5·9	6
6·1	6·2	6·3	6·4	6·5	6·6	6·7	6·8	6·9	7
7·1	7·2	7·3	7·4	7·5	7·6	7·7	7·8	7·9	8
8·1	8·2	8·3	8·4	8·5	8·6	8·7	8·8	8·9	9
9·1	9·2	9·3	9·4	9·5	9·6	9·7	9·8	9·9	10

Year 6

Using place value

Count in 0·1s, 0·01s, 0·001s

e.g. *Know what 0·001 more than 6·725 is*

Partitioning

e.g. *9·54 + 3·23 as 9 + 3, 0·5 + 0·2 and 0·04 + 0·03, to give 12·77*

Counting on

Add two decimal numbers by adding the 1s, then the 0·1s/0·01s/0·001s

e.g. *6·314 + 3·006 as 6·314 + 3 (9·314) + 0·006 = 9·32*

Add near multiples of 1

e.g. *6·345 + 0·999*

e.g. *5·673 + 0·9*

Count on from large numbers e.g.

16 375 + 12 003 as 28 375 + 3

Overview of Strategies and Methods – Addition

Mental Addition

Year 5

Counting on

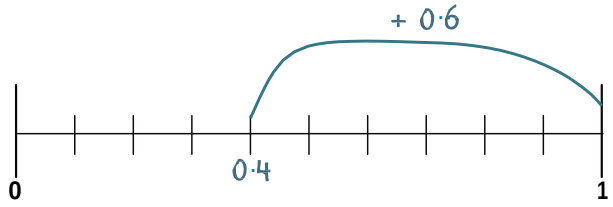
Add two decimal numbers by adding the 1s, then the 0·1s/0·01s
e.g. *5·72 + 3·05 as 5·72 + 3 (8·72) + 0·05 = 8·77*

Add near multiples of 1
e.g. *6·34 + 0·99*
e.g. *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. *5·7 + 0·3*
e.g. *0·4 + 0·6*

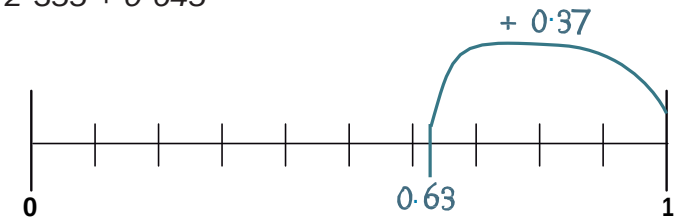


Add to the next 10 from a decimal number
e.g. *7·8 + 2·2 = 10*

Year 6

Using number facts

Number bonds to 1 and to the next multiple of 1
e.g. *0·63 + 0·37*
e.g. *2·355 + 0·645*



Add to the next 10
e.g. *4·62 + 5·38*

Overview of Strategies and Methods – Addition

Written Addition

Year 5

Expanded column addition for money leading to compact column addition for adding several amounts of money

e.g. *£14·64 + £28·78 + £12·26*

	£14	60p	4p
	£28	70p	8p
+	£12	20p	6p
	£1	10p	
	£55	60p	8p

Compact column addition to add pairs of 5-digit numbers

Continue to use column addition to add towers of several larger numbers

Use compact addition to add decimal numbers with up to 2 decimal places

e.g. *15·68 + 27·86*

	15·68
+	27·86
	11·1
	43·54

Add related fractions

e.g. *3/4 + 1/8 = 7/8*

Year 6

Compact column addition for adding several large numbers and decimal numbers with up to 2 decimal places

Compact column addition with money

e.g. *£14·64 + £28·78 + £12·26*

	£14·64
+	£28·78
	£12·26
	11·1
	£55·68

Add unlike fractions, including mixed numbers

e.g. *1/4 + 2/3= 11/12*

e.g. *2 1/4 + 1 1/3 = 3 7/12*

Overview of Strategies and Methods – Subtraction

Mental Subtraction

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*

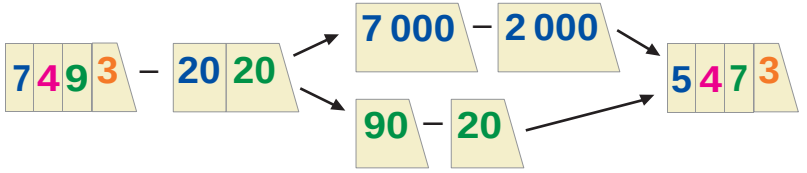
e.g. *£3·74 – 30p*

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*

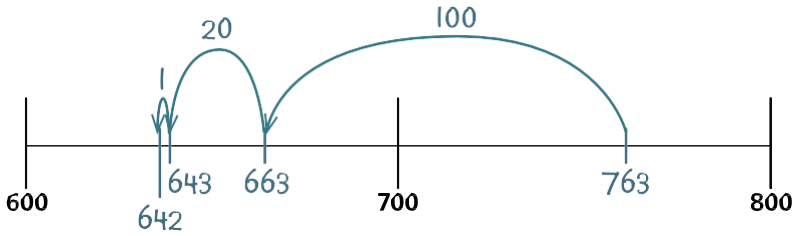
Overview of Strategies and Methods – Subtraction

Mental Subtraction

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

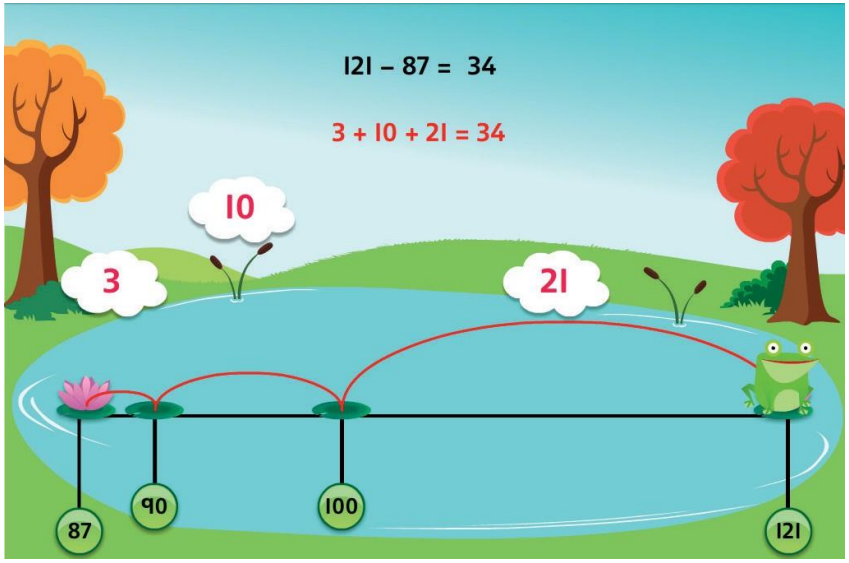
e.g. *648 – 199*

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*



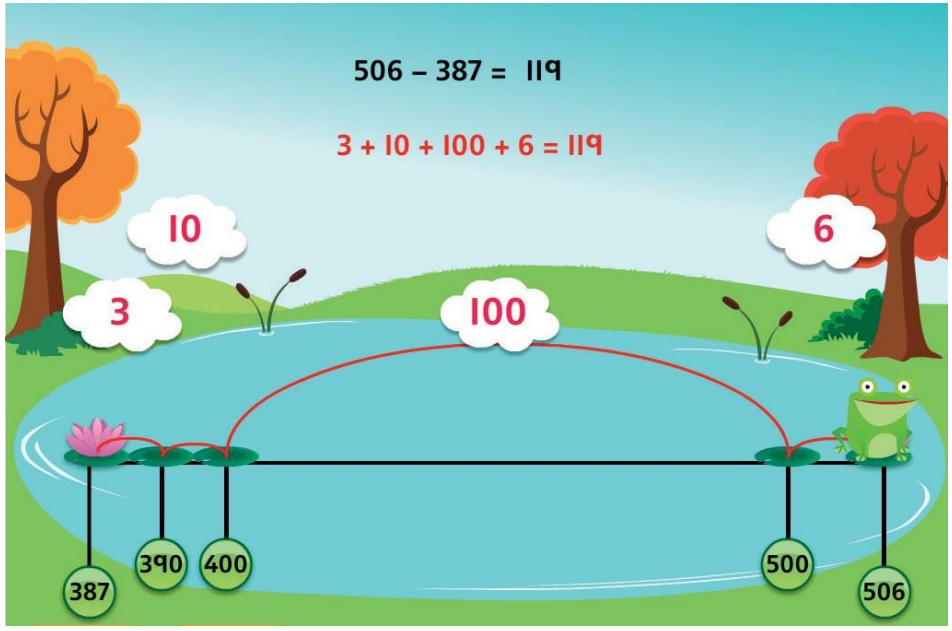
Year 4

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*



Overview of Strategies and Methods – Subtraction

Mental Subtraction

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*

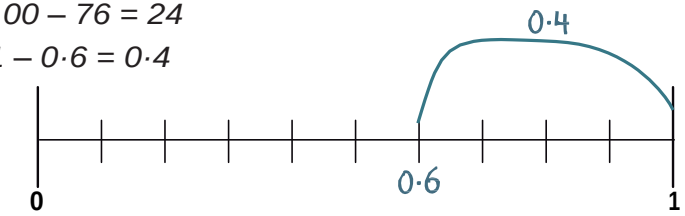
Year 4

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*

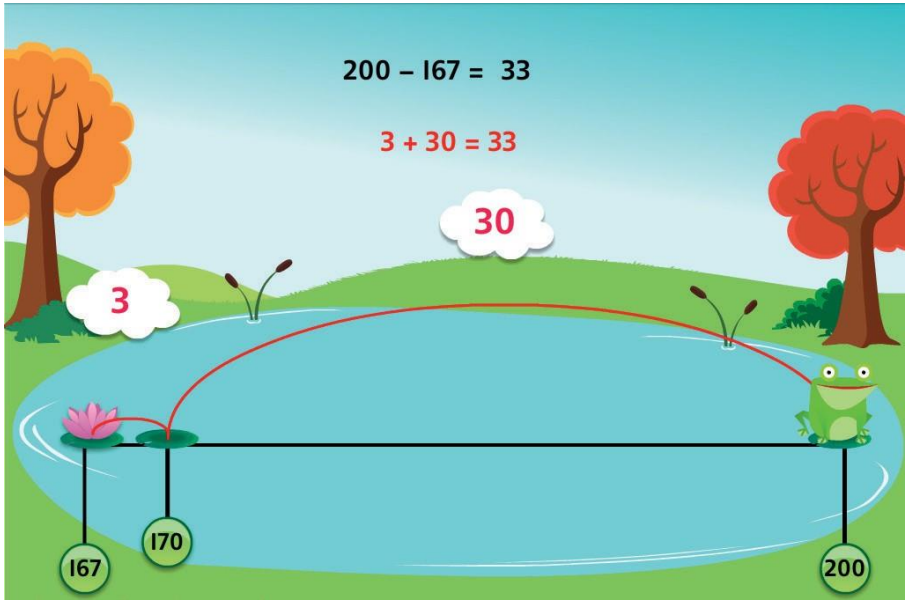
e.g. *£10·00 – £3·40 = £6·60*

Written Subtraction

Year 3

Develop counting up subtraction

e.g. *200 – 167*



Year 4

Expanded column subtraction with 3- and 4-digit numbers

e.g. *726 – 358*

	600	110	16
	~~700~~	~~20~~	~~6~~
–	300	50	8
	300	60	8

Begin to develop compact column subtraction

e.g. *726 – 358*

	6	11	16
	~~7~~	~~2~~	~~6~~
–	3	5	8
	3	6	8

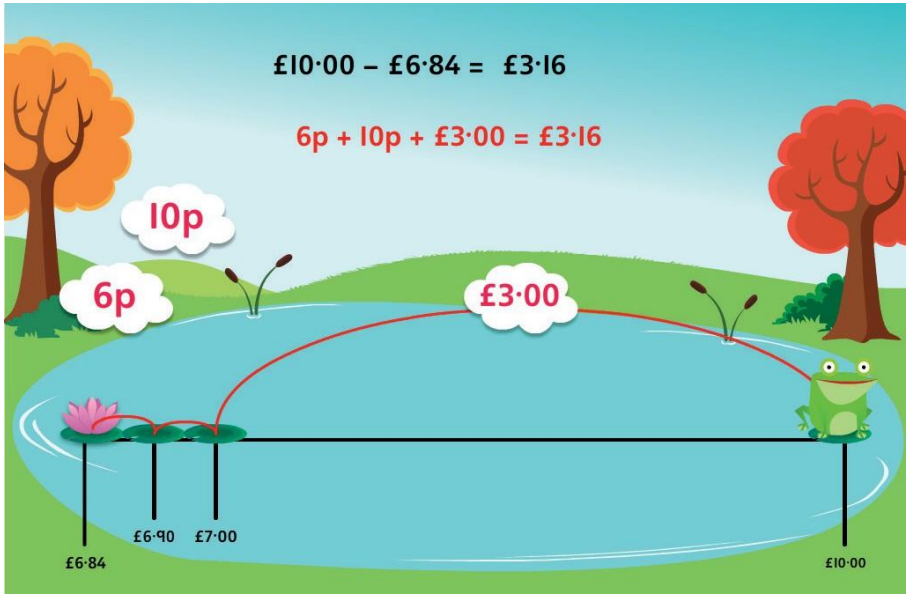
Overview of Strategies and Methods – Subtraction

Written Subtraction

Year 3

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

e.g. *£10·00 – £6·84*



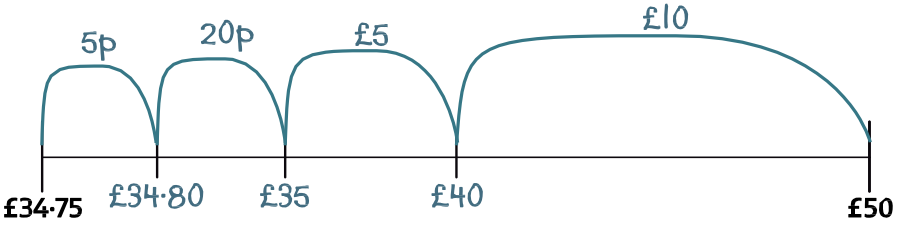
Recognise complements of any fraction to 1

- 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*

Overview of Strategies and Methods – Subtraction

Mental Subtraction

Year 5

Taking away

Use place value to subtract decimals

e.g. *4·58 – 0·08*

e.g. *6·26 – 0·2*

Take away multiples of powers of 10

e.g. *15 672 – 300*

e.g. *4·82 – 2* e.g. *2·71 – 0·5*

e.g. *4·68 – 0·02*

Partitioning or counting back

e.g. *3964 – 1051*

e.g. *5·72 – 2·01*

Subtract near multiples of 1, 10, 100, 1000, 10 000 or £1

e.g. *86 456 – 9999*

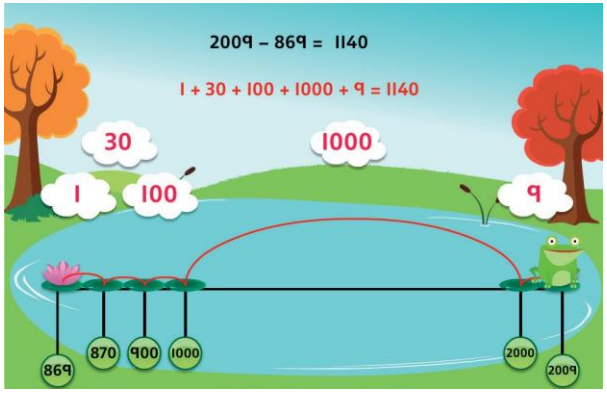
e.g. *3·58 – 1·99*

Counting up

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

e.g. *£12·05 – £9·59*

e.g. *2009 – 869*



Year 6

Taking away

Use place value to subtract decimals

e.g. *7·782 – 0·08*

e.g. *16·263 – 0·2*

Take away multiples of powers of 10

e.g. *132 956 – 400*

e.g. *686 109 – 40 000*

e.g. *7·823 – 0·5*

Partitioning or counting back

e.g. *3964 – 1051*

e.g. *5·72 – 2·01*

Subtract near multiples of powers of 10

e.g. *360 078 – 99 998*

e.g. *12·831 – 0·99*

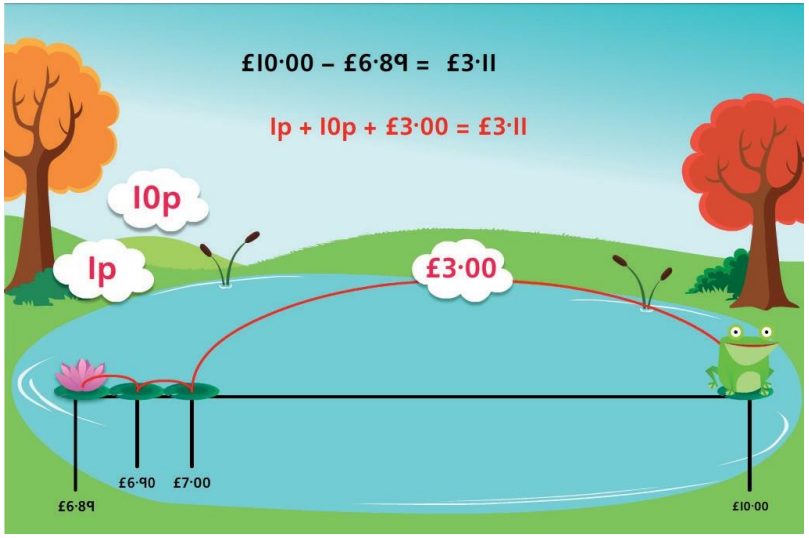
Overview of Strategies and Methods – Subtraction

Mental Subtraction

Year 5

Find change using shopkeepers' addition

e.g. *Buy a toy for £6·89 using £10·00*



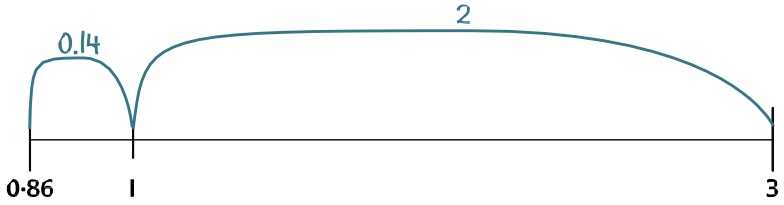
Find a difference between two amounts of money by counting up

Using number facts

Derived facts from number bonds to 10 and 100

e.g. *2 – 0·45 using 45 + 55 = 100*

e.g. *3 – 0·86 using 86 + 14 = 100*



Number bonds to £1, £10 and £100

e.g. *£4·00 – £3·86*

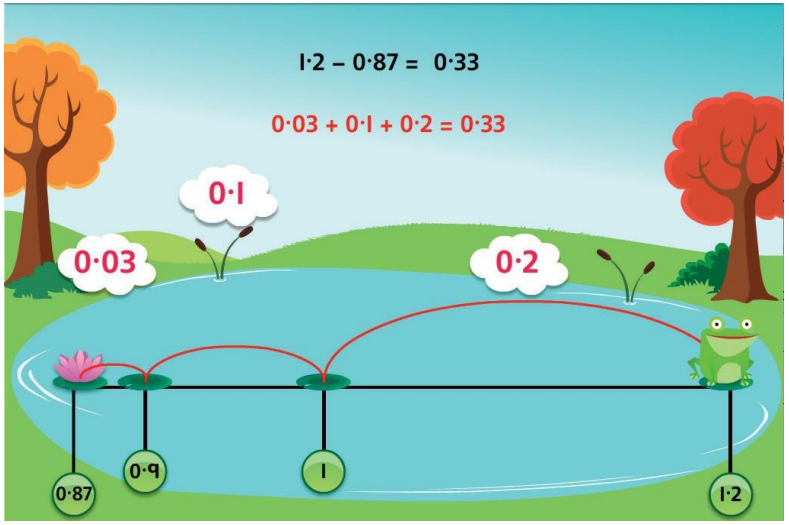
e.g. *£100 – £66 using 66 + 34 = 100*

Year 6

Counting up

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

e.g. *1·2 – 0·87*

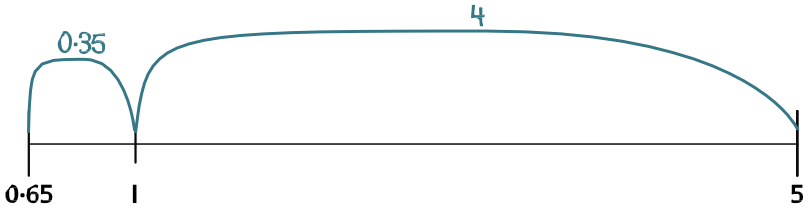


Using number facts

Derived facts from number bonds to 10 and 100

e.g. *0·1 – 0·075 using 75 + 25 = 100*

e.g. *5 – 0·65 using 65 + 35 = 100*



Number bonds to £1, £10 and £100

e.g. *£7·00 – £4·37*

e.g. *£100 – £66·20 using 20p + 80p = £1 and £67 + £33 = £100*

Overview of Strategies and Methods – Subtraction

Written Subtraction

Year 5

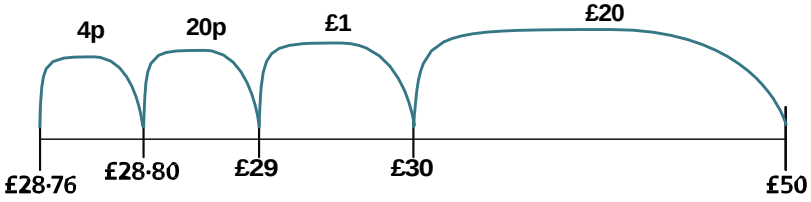
Compact column subtraction for numbers with up to 5 digits

e.g. *16 324 – 8516*

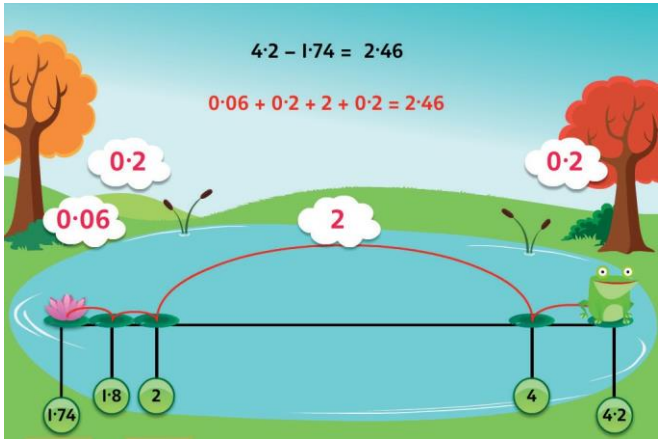
	0	15	13	1	14
	~~1~~	~~6~~	~~3~~	~~2~~	~~4~~
–		8	5	1	6
		7	8	0	8

Continue to use counting up subtraction for subtractions involving money, including finding change

e.g. *£50 – £28·76*



Use counting up subtraction to subtract decimal numbers



e.g. *4·2 – 1·74*

Subtract related fractions

e.g. *3/4 – 1/8 = 5/8*

NB Counting up subtraction provides a default method for ALL children

Year 6

Compact column subtraction for large numbers

e.g. *34 685 – 16 458*

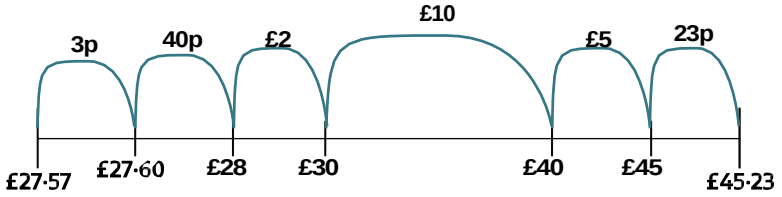
	2	14		7	15
	~~3~~	~~4~~	6	~~8~~	~~5~~
–	1	6	4	5	8
	1	8	2	2	7

Use counting up for subtractions where the larger number is a multiple or near multiple of 1000 or 10 000

Use counting up subtraction when dealing with money

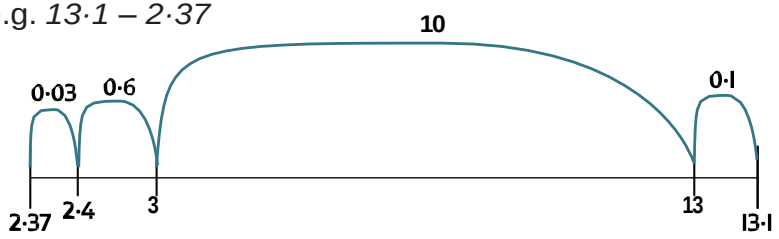
e.g. *£100 – £78·56*

e.g. *£45·23 – £27·57*



Use counting up subtraction to subtract decimal numbers

e.g. *13·1 – 2·37*



Subtract unlike fractions, including mixed numbers

e.g. *3/4 – 1/3 = 5/12*

e.g. *2 3/4 – 1 1/3 = 1 5/12*

NB Counting up subtraction provides a default method for ALL children

Overview of Strategies and Methods – Multiplication

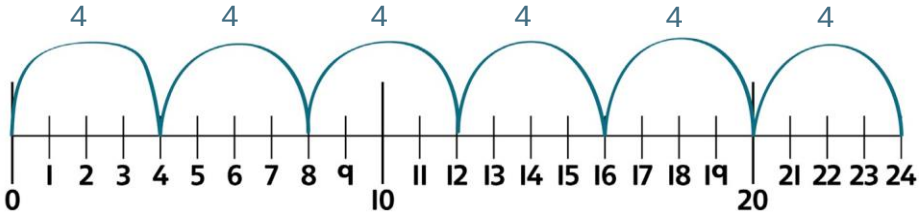
Mental Multiplication

Year 3

Counting in steps ('clever' counting)

Count in 2s, 3s, 4s, 5s, 8s and 10s

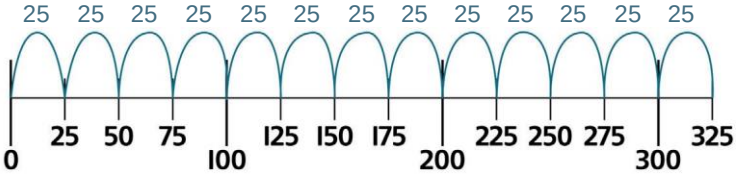
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Year 4

Counting in steps (sequences)

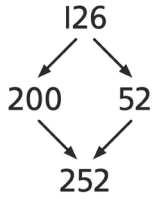
Count in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12s, 25s, 50s, 100s and 1000s



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*

Overview of Strategies and Methods – Multiplication

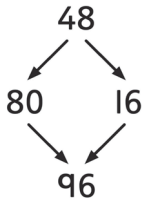
Mental Multiplication

Year 3

Doubling and halving

Find doubles of numbers to 50 using partitioning

e.g. *double 48*



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 × 8 = 8 × 4*

Multiply multiples of 10 by 1-digit numbers

e.g. *30 × 8 = 240*

Multiply 'friendly' 2-digit numbers by 1-digit numbers

e.g. *13 × 4*

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*

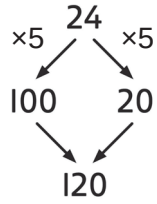
Know ×2, ×3, ×4, ×5, ×8, ×10 tables facts

Year 4

Grouping

Use partitioning to multiply 2-digit numbers by 1-digit numbers

e.g. *24 × 5*



Multiply multiples of 100 and 1000 by 1-digit numbers using tables facts

e.g. *400 × 8 = 3200*

Multiply near multiples by rounding e.g.

24 × 19 as (24 × 20) – 24 = 456

Using number facts

Know times-tables up to 12 × 12

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

Overview of Strategies and Methods – Multiplication

Written Multiplication

Year 3

Build on partitioning to develop grid multiplication

e.g. *23 × 4*

×	20	3	
4	80	12	= 92

Year 4

Use grid multiplication to multiply 3-digit numbers by 1-digit numbers

e.g. *253 × 6*

×	200	50	3	
6	1200	300	18	= 1518

Use a vertical written algorithm (ladder) to multiply 3-digit numbers by 1-digit numbers

e.g. *253 × 6*

```
   2 5 3
×      6
-------
 1 2 0 0  ← 6 × 200
   3 0 0  ← 6 × 50
+    1 8  ← 6 × 3
-------
 1 5 1 8
```

Use grid multiplication to multiply 2-digit numbers by 2-digit numbers

e.g. *16 × 48*

×	10	6	
40	400	240	= 640
8	80	48	= 128
			768

Overview of Strategies and Methods – Multiplication

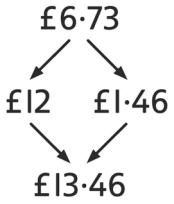
Mental Multiplication

Year 5

Doubling and halving

Double amounts of money using partitioning

e.g. *double £6·73*



Use doubling and halving as a strategy in multiplying by 2, 4, 8, 5 and 20

e.g. *58 × 5 is half of 58 × 10 (580) = 290*

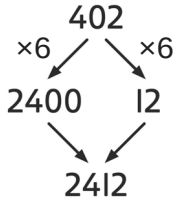
Grouping

Multiply whole numbers and decimals by 10, 100, 1000

e.g. *3·4 × 100 = 340*

Use partitioning to multiply 'friendly' 2- and 3-digit numbers by 1-digit numbers

e.g. *402 × 6 as 400 × 6 (2400) and 2 × 6 (12) = 2412*



Use partitioning to multiply decimal numbers by 1-digit numbers

e.g. *4·5 × 3 as 4 × 3 (12) and 0·5 × 3 (1·5) = 13·5*

Multiply near multiples by rounding e.g.

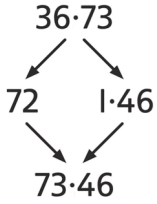
32 × 29 as (32 × 30) – 32 = 928

Year 6

Doubling and halving

Double decimal numbers with up to 2 places using partitioning

e.g. *double 36·73*



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 × 4 (12 000) and 60 × 4 (240) = 12 240*

e.g. *8·4 × 8 as 8 × 8 (64) and 0·4 × 8 (3·2) = 67·2*

Use factors in mental multiplication

e.g. *421 × 6 as 421 × 3 (1263) doubled = 2526*

e.g. *3·42 × 5 as half of 3·42 × 10 = 17·1*

Multiply decimal numbers using near multiples by rounding

e.g. *4·3 × 19 as (4·3 × 20) – 4·3 = 81·7*

Overview of Strategies and Methods – Multiplication

Mental Multiplication

Year 5

Using number facts

Use times-tables facts up to 12 × 12 to multiply multiples of 10/100 of the multiplier

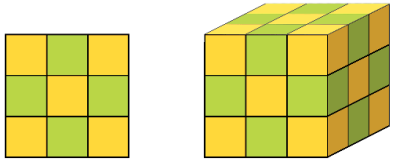
e.g. *4 × 6 = 24 so 40 × 6 = 240 and 400 × 6 = 2400*

Use knowledge of factors and multiples in multiplication

e.g. *43 × 6 is double 43 × 3*

e.g. *28 × 50 is half of 28 × 100 (2800) = 1400*

Know square numbers and cube numbers



Year 6

Using number facts

Use times-tables facts up to 12 × 12 in mental multiplication of large numbers or numbers with up to 2 decimal places

e.g. *6 × 4 = 24 and 0·06 × 4 = 0·24*

Written Multiplication

Year 5

Short multiplication of 2-, 3- and 4-digit numbers by 1-digit numbers

e.g. *435 × 8*

$$\begin{array}{r} 435 \\ \times\ \ 8 \\ \hline 24 \\ \hline 3480 \end{array}$$

Long multiplication of 2-, 3-and 4-digit numbers by ‘teen’ numbers

e.g. *48 × 16*

$$\begin{array}{r} 48 \\ \times\ 16 \\ \hline 480 \\ 28^{4}8 \\ 1 \\ \hline 768 \end{array}$$

Year 6

Short multiplication of 2-, 3- and 4-digit numbers by 1-digit numbers

e.g. *3743 × 6*

$$\begin{array}{r} 3743 \\ \times\ \ 6 \\ \hline 421 \\ \hline 22458 \end{array}$$

Long multiplication of 2-, 3- and 4-digit numbers by 2-digit numbers

e.g. *456 × 38*

$$\begin{array}{r} 456 \\ \times\ 38 \\ \hline 13^{1}6^{1}80 \\ 36^{4}4^{4}8 \\ 11 \\ \hline 17328 \end{array}$$

Overview of Strategies and Methods – Multiplication

Written Multiplication

Year 5

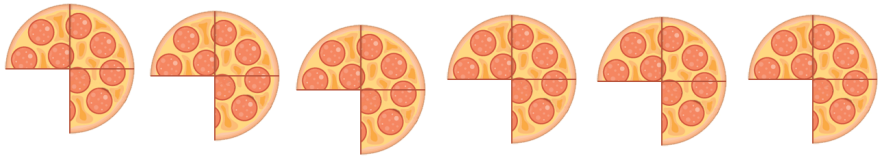
Grid multiplication of numbers with up to 2 decimal places by 1-digit numbers

e.g. *1·34 × 6*

×	1	0·3	0·04	
6	6	1·8	0·24	= 8·04

Multiply fractions by 1-digit numbers

e.g. *3/4 × 6 = 18/4 = 4 2/4 = 4 1/2*



NB Grid multiplication provides a default method for ALL children

Year 6

Short multiplication of decimal numbers using × 100 and ÷ 100

e.g. *13·72 × 6 as (1372 × 6) ÷ 100 = 82·32*

Short multiplication of money

e.g. *£13·72 × 6*

£ 1 3.7 2
× 6
2 4 1
£ 8 2.3 2

Grid multiplication of numbers with up to 2 decimal places by 1-digit numbers

e.g. *6·76 × 4*

×	6	0·7	0·06	
4	24	2·8	0·24	= 27·04

Multiply simple pairs of proper fractions

e.g. 1/2 × 1/4 = 1/8

NB Grid multiplication provides a default method for ALL children

Overview of Strategies and Methods – Division

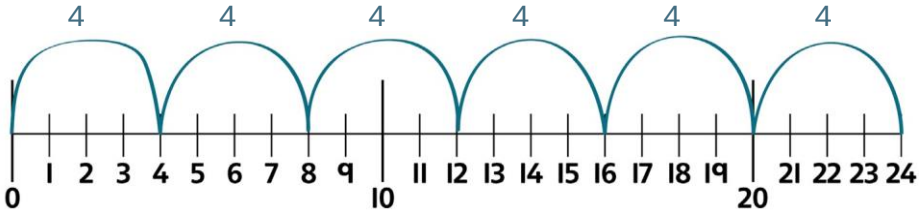
Mental Division

Year 3

Counting in steps ('clever' counting)

Count in 2s, 3s, 4s, 5s, 8s and 10s

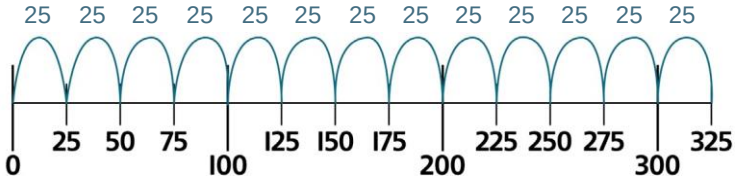
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Year 4

Counting in steps (sequences)

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



Overview of Strategies and Methods – Division

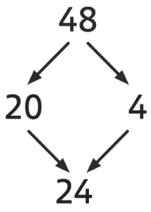
Mental Division

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 ÷ 2 is half of 36 = 18*

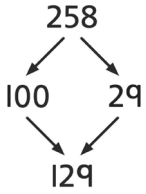
Find half of odd numbers

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 ÷ 4 is half of 164 (82) halved again = 41*

Overview of Strategies and Methods – Division

Mental Division

Year 3

Grouping

Recognise that division is not commutative

e.g. *16 ÷ 8 does not equal 8 ÷ 16*

Relate division to multiplications 'with holes in'

e.g. _ × *5 = 30 is the same calculation as 30 ÷ 5 =* _ *thus we can count in 5s to find the answer*

_ × £5 = £30

Divide multiples of 10 by 1-digit numbers

e.g. *240 ÷ 8 = 30*

Begin to use subtraction of multiples of 10 of the divisor to divide numbers above the 10th multiple

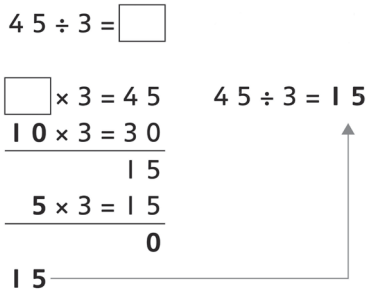
e.g. *52 ÷ 4 is 10 × 4 (40) and 3 × 4 (12) = 13*

Year 4

Grouping

Use multiples of 10 times the divisor to divide by 1-digit numbers above the tables facts

e.g. *45 ÷ 3 as 10 × 3 (30) and 5 × 3 (15)*



Divide multiples of 100 by 1-digit numbers using division facts

e.g. *3200 ÷ 8 = 400*

6320Overview of Strategies and Methods – Division

Mental Division

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 ×2, ×3, ×4, ×5, ×8, ×10 division facts

Year 4

Using number facts

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

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

Written Division

Year 3

Perform divisions just above the 10th multiple using written jottings, understanding how to give a remainder as a whole number

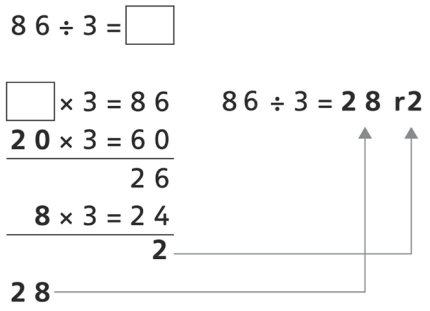
Use division facts to find unit and simple non-unit fractions of amounts within the times-tables

- e.g. *3/4 of 48 is 3 × (48 ÷ 4) = 36*

Year 4

Use a written version of a mental method to divide 2- and 3-digit numbers by 1-digit numbers

e.g. *86 ÷ 3 as 20 × 3 (60) and 8 × 3 (24), remainder 2*



Use division facts to find unit and non-unit fractions of amounts within the times-tables

- e.g. *7/8 of 56 is 7 × (56 ÷ 8) = 48*

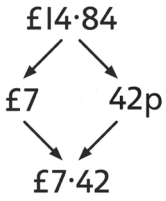
Mental Division

Year 5

Doubling and halving

Halve amounts of money using partitioning

e.g. *half of £14·84 is half of £14 (£7) plus half of 84p (42p)*



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 = 23*

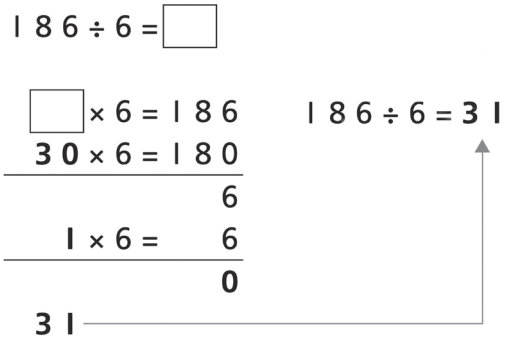
Grouping

Divide numbers by 10, 100, 1000 to obtain decimal answers with up to 3 decimal places

e.g. *340 ÷ 100 = 3·4*

Use the 10th, 20th, 30th … multiple of the divisor to divide 'friendly' 2- and 3-digit numbers by 1-digit numbers

e.g. *186 ÷ 6 as 30 × 6 (180) and 1 × 6 (6)*

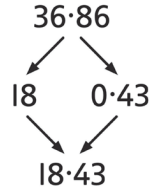


Year 6

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)*

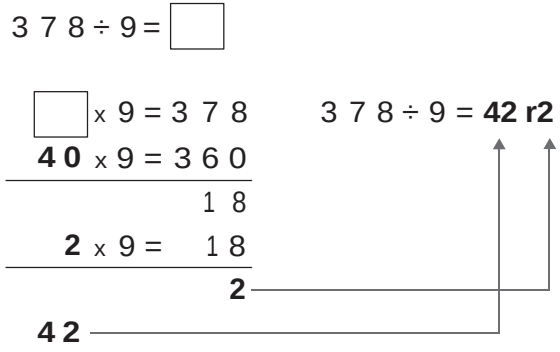


Use doubling and halving as strategies in mental division

Grouping

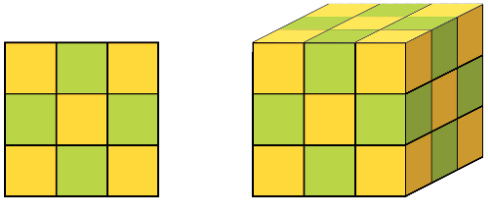
Use the 10th, 20th, 30th, … or 100th, 200th, 300th … multiples of the divisor to divide large numbers

e.g. *378 ÷ 9 as 40 × 9 (360) and 2 × 9 (18), remainder 2*



Use tests for divisibility

e.g. *135 divides by 3, as 1 + 3 + 5 = 9 and 9 is in the ×3 table*

	Year 5	Year 6
Mental Division	**Using number facts** Use division facts from the times-tables up to 12 × 12 to divide multiples of powers of 10 of the divisor e.g. *3600 ÷ 9 using 36 ÷ 9* Know square numbers and cube numbers 	**Using number facts** Use division facts from the times-tables up to 12 × 12 to divide decimal numbers by 1-digit numbers e.g. *1·17 ÷ 3 is 1/100 of 117 ÷ 3 (39)* Know tests of divisibility for numbers divisible by 2, 3, 4, 5, 9, 10 and 25
Written Division	Use a written version of a mental strategy to divide 3-digit numbers by 1-digit numbers e.g. *326 ÷ 6 as 50 × 6 (300) and 4 × 6 (24), remainder 2* 3 2 6 ÷ 6 = □ □ × 6 = 3 2 6 5 0 × 6 = 3 0 0 2 6 4 × 6 = 2 4 2 5 4 3 2 6 ÷ 6 = **5 4 r2**	Short division of 3- and 4-digit numbers by 1-digit numbers e.g. *139 ÷ 3* 4 6 r 1 3 ⟌ 1 3 ¹9 Long division of 3- and 4-digit numbers by 2-digit numbers e.g. *4176 ÷ 13* 300 + 20 + 1, r 3 13 ⟌ 4176 −3900 276 −260 16 −13 3 4176 ÷ 13 = 321 r 3

	Year 5	Year 6
Written Division	Short division of 3- and 4-digit numbers by 1-digit numbers e.g. *139 ÷ 3* 4 6 r 1 3 ⟌ 1 3 [1]9 Give remainders as whole numbers or as fractions Find unit and non-unit fractions of large amounts – e.g. *3/5 of 265 is 3 × (265 ÷ 5) = 159* Turn improper fractions into mixed numbers and vice versa	Give remainders as whole numbers, fractions or decimals Use place value to divide 1- and 2-place decimals by numbers ≤ 12 e.g. *3.65 ÷ 5 as (365 ÷ 5) ÷ 100 = 0·73* Divide proper fractions by whole numbers