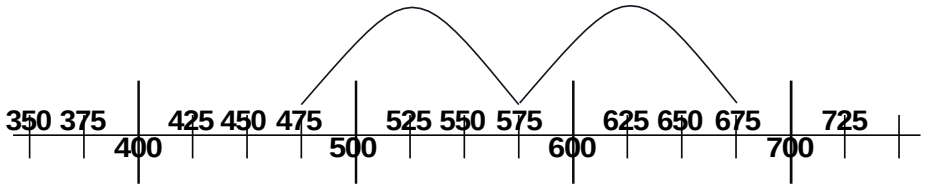
Mental Addition

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*

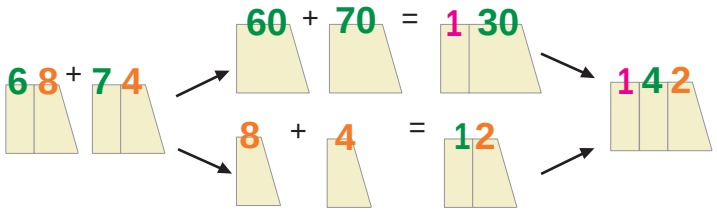
e.g. *£6·34 + £5 as £6 + £5 and 34p*

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

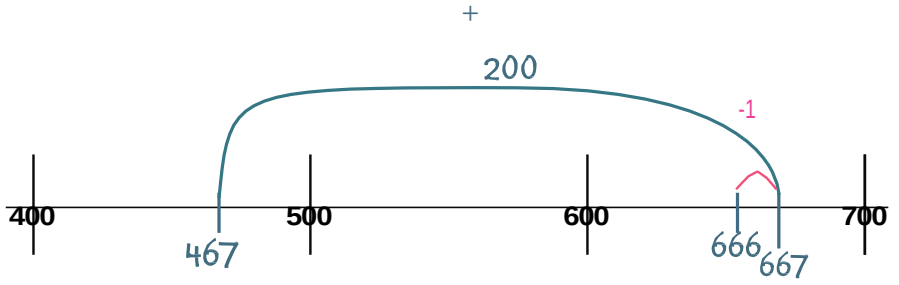
Add 2-digit numbers to 2-, 3- and 4-digit numbers by adding the multiple of 10 then the 1s

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*

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*

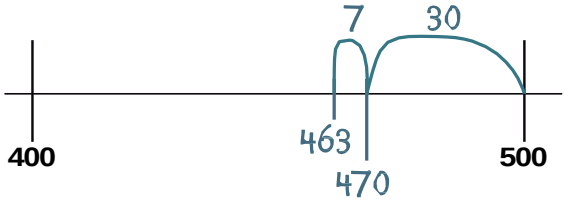
Number bonds to 100
e.g. *35 + 65*
e.g. *46 + 54*
e.g. *73 + 27*

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*

Written Addition

Year 3

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

e.g. *466 + 358*

	400	60	6
+	300	50	8
	700	110	14	= 824

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

e.g. *466 + 358*

	400	60	6
	300	50	8
+	100	10	
	800	20	4

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

e.g. *347 + 286 + 495*

	347
	286
+	495
	21
	1128

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*

	1000	400	60	6
	4000	800	60	8
+	1000	100	10	
	6000	300	30	4

Compact column addition with larger numbers

e.g. *5347 + 2286 + 1495*

	5347
	2286
+	1495
	121
	9128

Use expanded and compact column addition to add amounts of money

Add like fractions

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

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*

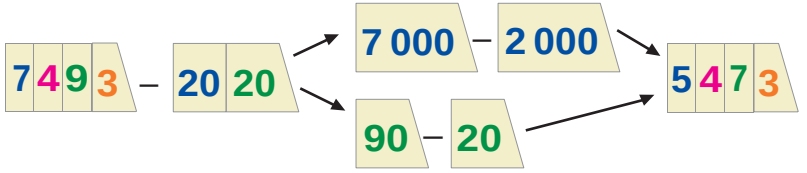
e.g. *£3·74 – 30p*

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*

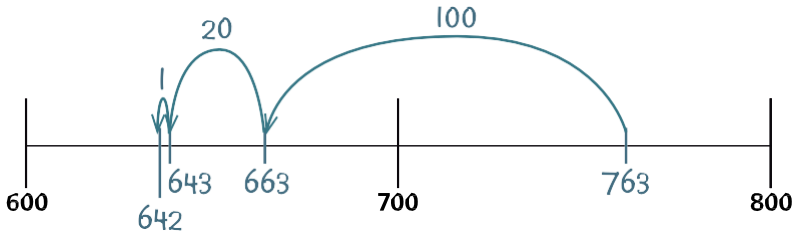
e.g. *£34·86 – £19·99*

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

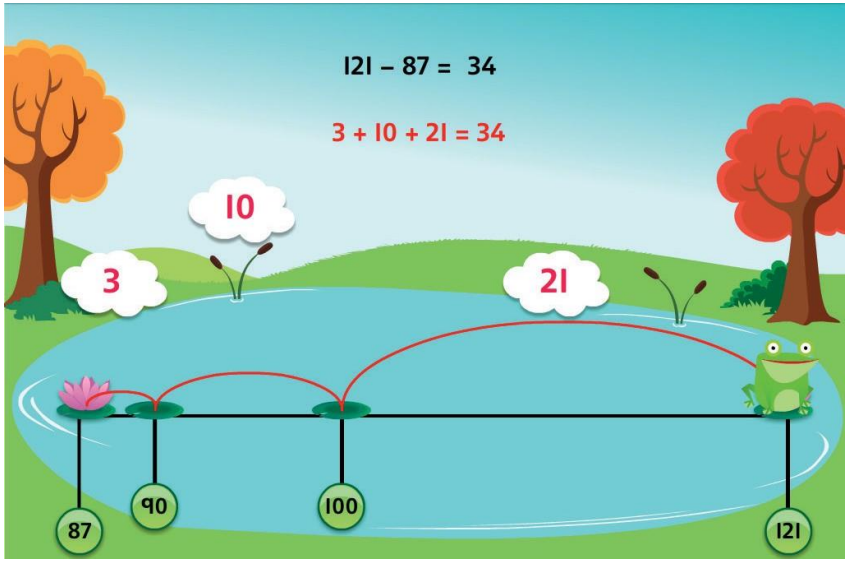
e.g. *648 – 199*

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*



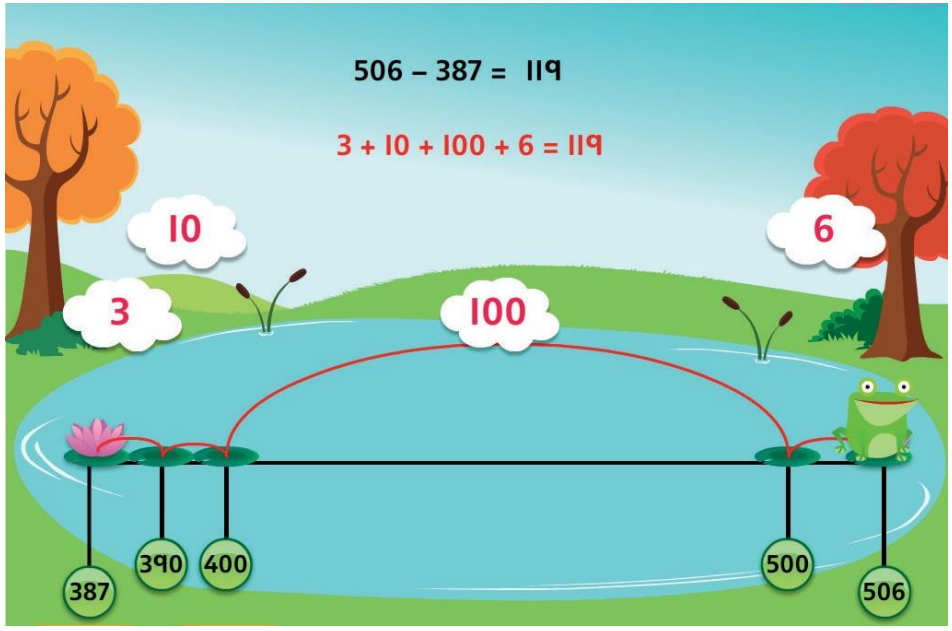
Year 4

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*



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*

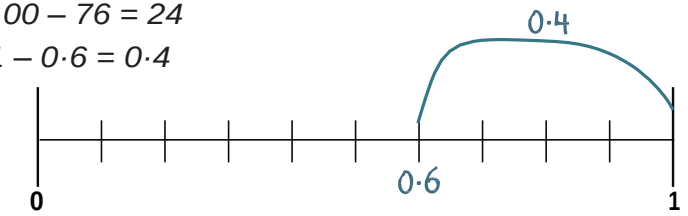
Year 4

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

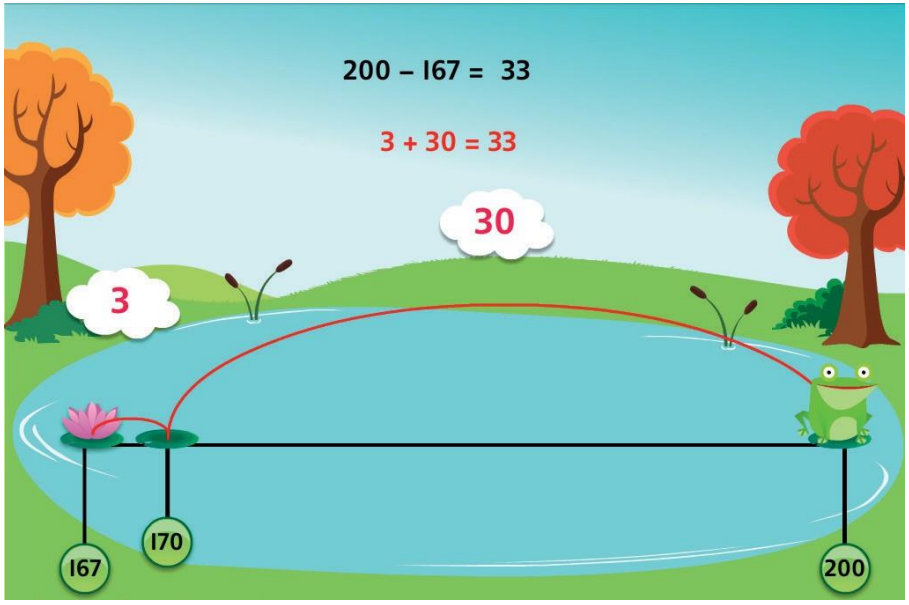
e.g. *£1·00 – 86p = 14p*

e.g. *£10·00 – £3·40 = £6·60*

Written Subtraction

Develop counting up subtraction

e.g. *200 – 167*



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*

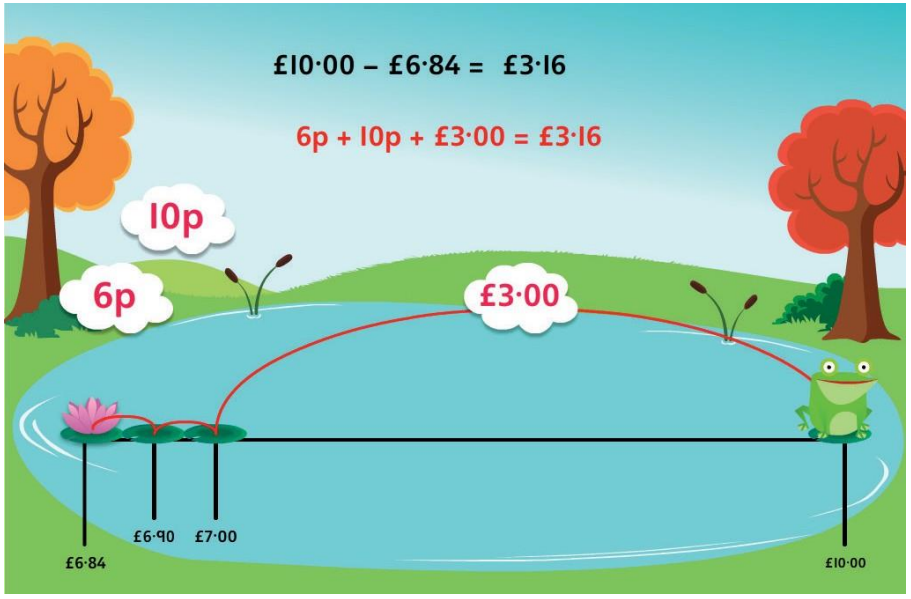
	6	11	16
	~~7~~	~~2~~	~~6~~
–	3	5	8
	3	6	8

Written Subtraction

Year 3

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

e.g. *£10·00 – £6·84*



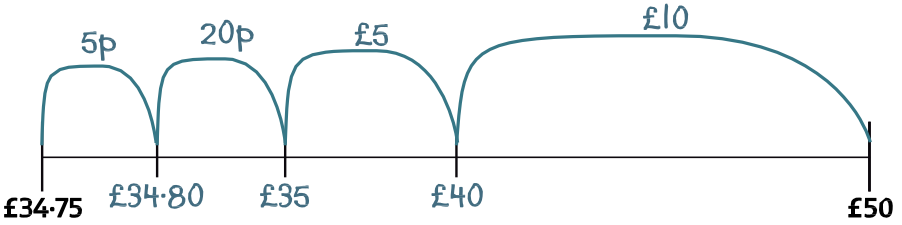
Recognise complements of any fraction to 1

- 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*

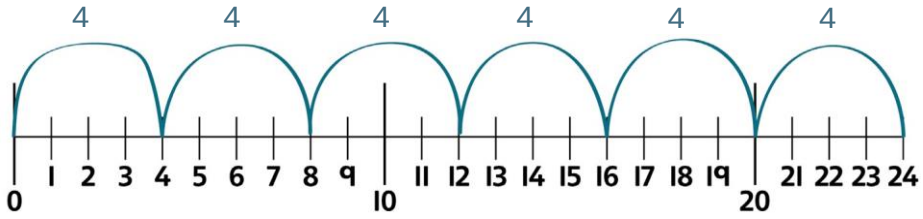
Mental Multiplication

Year 3

Counting in steps ('clever' counting)

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

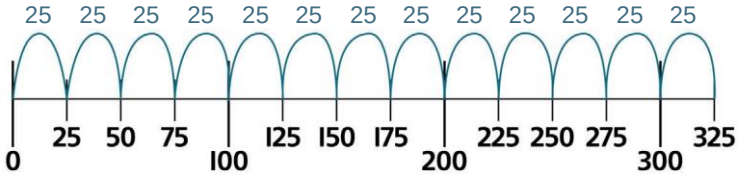
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Year 4

Counting in steps (sequences)

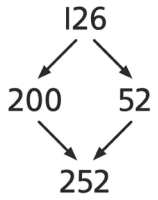
Count in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12s, 25s, 50s, 100s and 1000s



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*

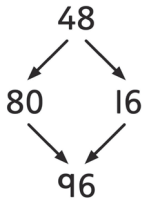
Mental Multiplication

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*

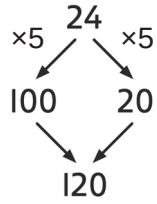
Know ×2, ×3, ×4, ×5, ×8, ×10 tables facts

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

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

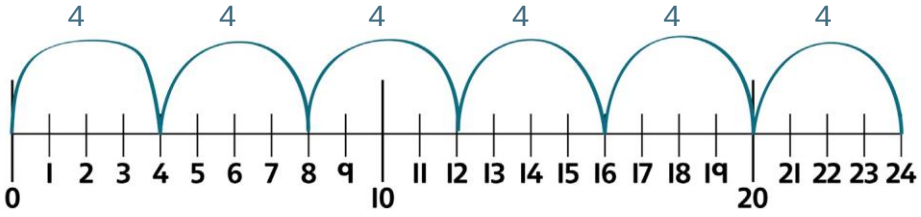
Mental Division

Year 3

Counting in steps ('clever' counting)

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

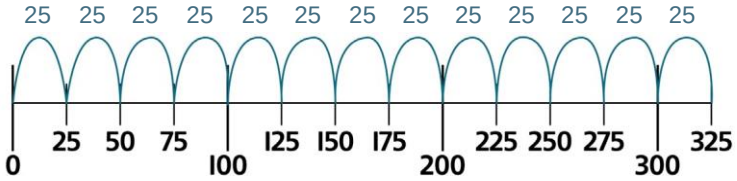
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Year 4

Counting in steps (sequences)

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



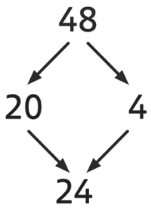
Mental Division

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*

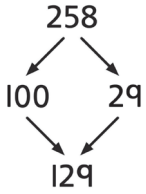
Find half of odd numbers

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*

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

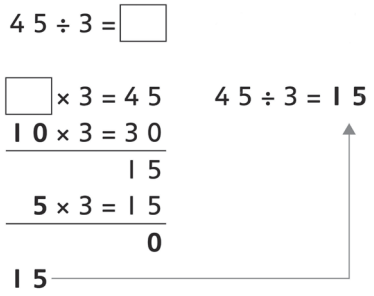
e.g. *52 ÷ 4 is 10 × 4 (40) and 3 × 4 (12) = 13*

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*

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

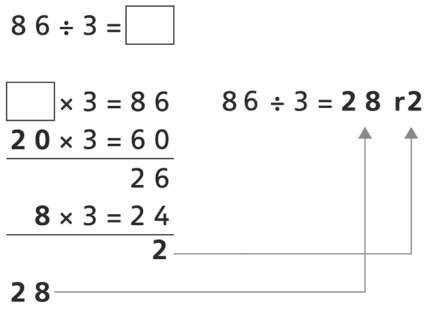
Use division facts to find unit and simple non-unit fractions of amounts within the times-tables

- 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*