● abacus

	Year 5	**Year 6**
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

PEARSON

	Year 5	Year 6

Mental Addition	**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*
		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*

● **abacus**

Year 5	Year 6
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*

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abacus

Year 5	Year 6
Taking away	**Taking away**
Use place value to subtract decimals	Use place value to subtract decimals
e.g. *4·58 – 0·08*	e.g. *7·782 – 0·08*
e.g. *6·26 – 0·2*	e.g. *16·263 – 0·2*
Take away multiples of powers of 10	Take away multiples of powers of 10
e.g. *15 672 – 300*	e.g. *132 956 – 400*
e.g. *4·82 – 2* e.g. *2·71 – 0·5*	e.g. *686 109 – 40 000*
e.g. *4·68 – 0·02*	e.g. *7·823 – 0·5*
Partitioning or counting back	Partitioning or counting back
e.g. *3964 – 1051*	e.g. *3964 – 1051*
e.g. *5·72 – 2·01*	e.g. *5·72 – 2·01*
Subtract near multiples of 1, 10, 100, 1000, 10 000 or £1	Subtract near multiples of powers of 10
e.g. *86 456 – 9999*	e.g. *360 078 – 99 998*
e.g. *3·58 – 1·99*	e.g. *12·831 – 0·99*

Mental Subtraction

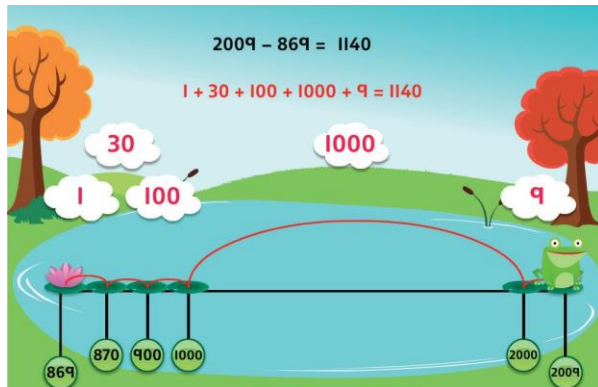**Counting up**

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*


```
2009 – 869 = 1140
1 + 30 + 100 + 1000 + 9 = 1140
        30              1000
   1    100                    9

  869  870 900 1000         2000 2009
```

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Year 5	Year 6

Mental Subtraction

Year 5

Find change using shopkeepers' addition

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

£10·00 – £6·89 = £3·11

1p + 10p + £3·00 = £3·11

10p

1p

£3·00

£6·90 £7·00

£6·89

£10·00
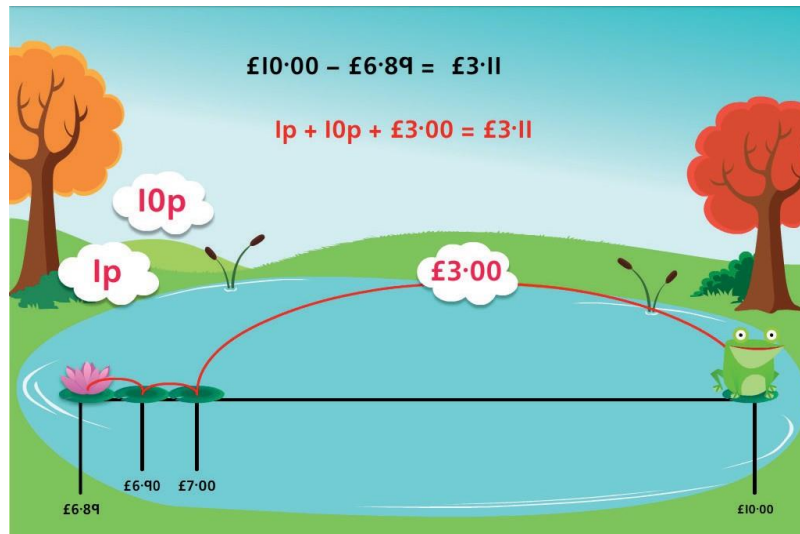
Find a difference between two amounts of money by counting up

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*

0.14

2

0·86   1   3
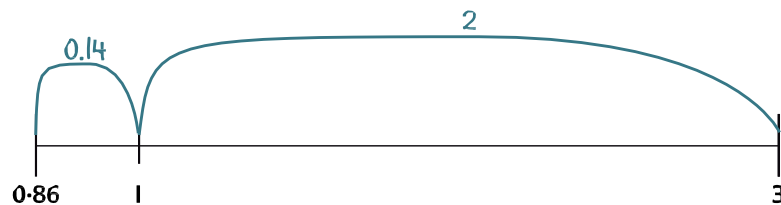
Number bonds to £1, £10 and £100

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*

1·2 – 0·87 = 0·33

0·03 + 0·1 + 0·2 = 0·33

0·1

0·03

0·2

0·87   0·9   1   1·2
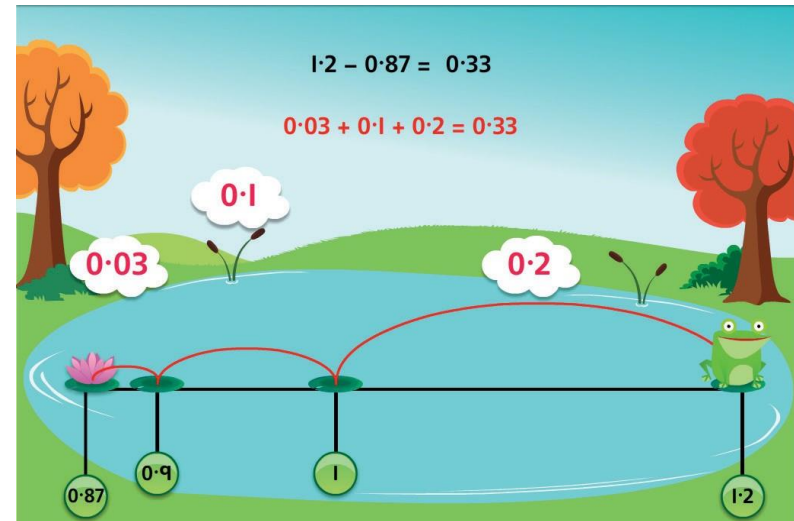
Using number facts

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*

0·35

4

0·65   1   5
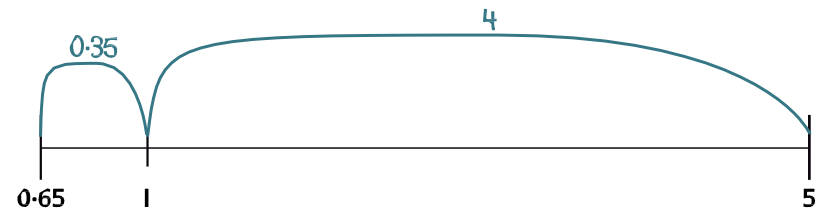
Number bonds to £1, £10 and £100

e.g. *£7·00 – £4·37*

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

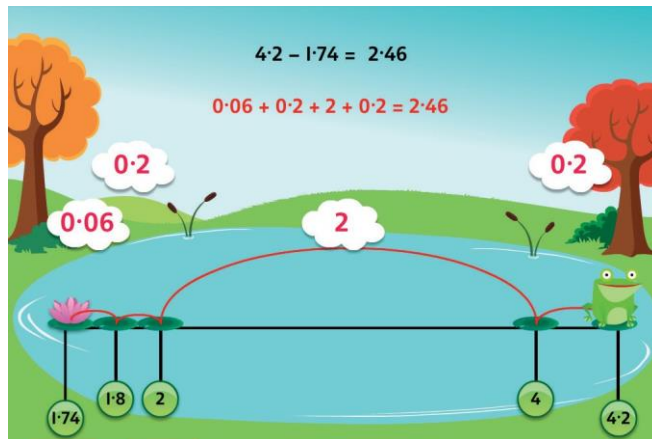| Year 5	Year 6

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

$$4·2 – 1·74 = 2·46$$
$$0·06 + 0·2 + 2 + 0·2 = 2·46$$
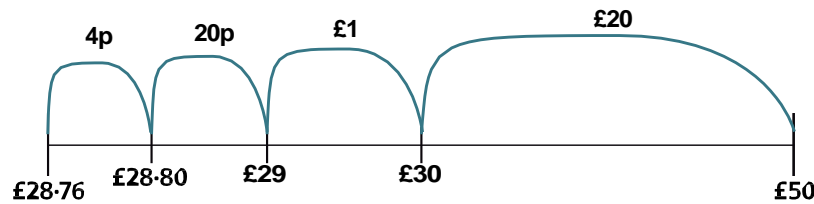
  e.g. *4·2 – 1·74*

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*
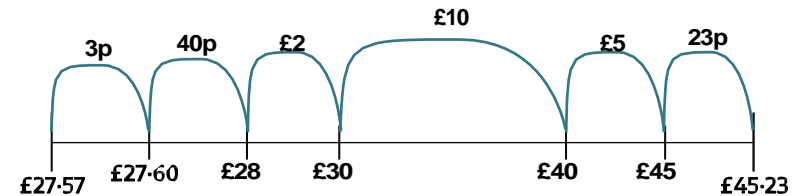
Use counting up subtraction to subtract decimal numbers
  e.g. *13·1 – 2·37*
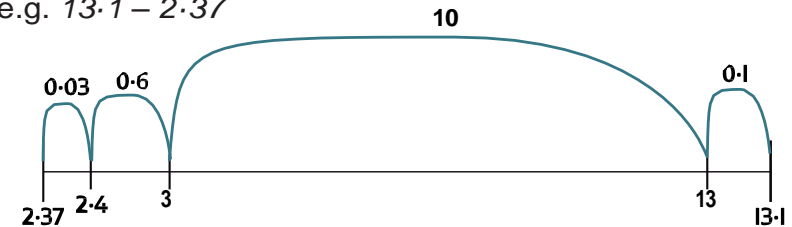
Subtract unlike fractions, including mixed numbers

            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

Mental Multiplication

Year 5	Year 6

Year 5

Doubling and halving

Double amounts of money using partitioning

e.g. *double £6·73*

£6·73

£12   £1·46

£13·46
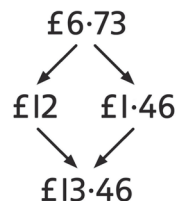
Use doubling and halving as a strategy in multiplying by 2, 4, 8, 5 and 20

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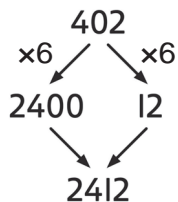
Use partitioning to multiply 'friendly' 2- and 3-digit numbers by 1-digit numbers

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

402

×6   ×6

2400   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*

36·73

72   1·46

73·46
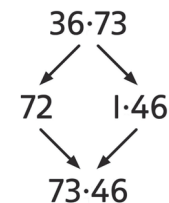
Use doubling and halving as strategies in mental multiplication

Grouping

Use partitioning as a strategy in mental multiplication, as appropriate

e.g. *3060 × 4 as 3000 × 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*

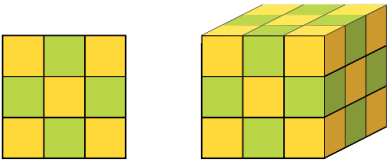|	Year 5	Year 6
Mental Multiplication	**Using number facts** Use times-tables facts up to 12 × 12 to multiply multiples of 10/100 of the multiplier e.g. *4 × 6 = 24 so 40 × 6 = 240 and 400 × 6 = 2400* Use knowledge of factors and multiples in multiplication e.g. *43 × 6 is double 43 × 3* e.g. *28 × 50 is half of 28 × 100 (2800) = 1400* Know square numbers and cube numbers	**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	Short multiplication of 2-, 3- and 4-digit numbers by 1-digit numbers
	 e.g. *435 × 8*
	
	    4 3 5
	  × 8
	    2 4
	  3 4 8 0
	
	Long multiplication of 2-, 3-and 4-digit numbers by 'teen' numbers
	 e.g. *48 × 16*
	
	      4 8
	  × 1 6
	    4 8 0
	    2 8 8
	      1
	    7 6 8
		Short multiplication of 2-, 3- and 4-digit numbers by 1-digit numbers
		 e.g. *3743 × 6*
		
		  3 7 4 3
		  × 6
		    4 2 1
		  2 2 4 5 8
		
		Long multiplication of 2-, 3- and 4-digit numbers by 2-digit numbers
		
		      4 5 6
		  × 3 8
		  1 3 6 8 0
		    3 6 4 8
		      1 1
		  1 7 3 2 8
		 e.g. *456 × 38*

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Year 5	Year 6

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*
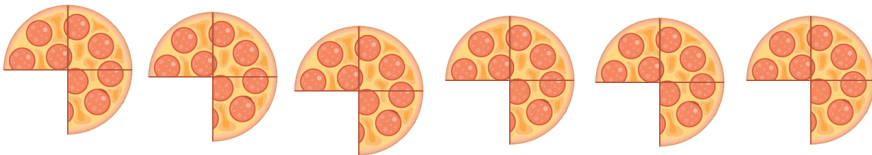
NB Grid multiplication provides a default method for ALL children

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

abacus

Year 5	Year 6

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)*

£14·84

£7   42p

£7·42
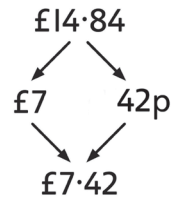
Use doubling and halving as a strategy in dividing by 2, 4, 8, 5 and 20

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

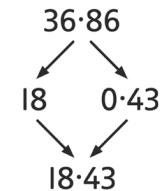e.g. *186 ÷ 6 as 30 × 6 (180) and 1 × 6 (6)*

1 8 6 ÷ 6 = ☐

☐ × 6 = 1 8 6   1 8 6 ÷ 6 = **3 1**

3 0 × 6 = 1 8 0

6

1 × 6 =   6

0

3 1

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)*

36·86

18   0·43

18·43

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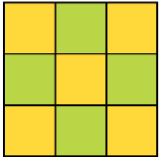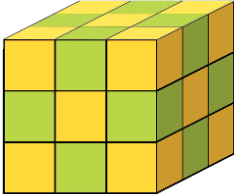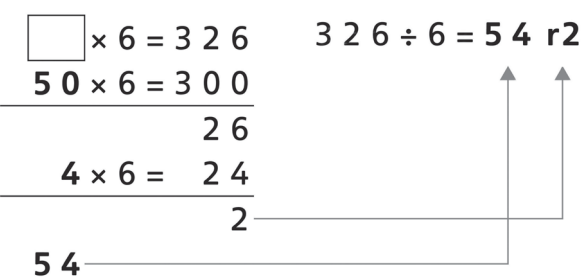
e.g. *378 ÷ 9 as 40 × 9 (360) and 2 × 9 (18), remainder 2*

3 7 8 ÷ 9 = ☐

☐ × 9 = 3 7 8   3 7 8 ÷ 9 = **42 r2**

4 0 × 9 = 3 6 0

1 8

2 × 9 =   1 8

2

4 2

Use tests for divisibility

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

Overview of Strategies and Methods – Division

	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* $326 ÷ 6 =$ $\square × 6 = 326 \quad 326 ÷ 6 = \mathbf{54\ r2}$ $\mathbf{50} × 6 = 300$ 26 $4 × 6 = 24$ 2 $\mathbf{54}$	Short division of 3- and 4-digit numbers by 1-digit numbers e.g. *139 ÷ 3* $$\begin{array}{r} 4\ 6\ r1 \\ 3\overline{)1\ 3\ ^19} \end{array}$$ Long division of 3- and 4-digit numbers by 2-digit numbers e.g. *4176 ÷ 13* $300 + 20 + 1, r3 \quad 4176 ÷ 13 = 321\ r3$ $$\begin{array}{r} 13\overline{)4176} \\ -3900 \\ \hline 276 \\ -260 \\ \hline 16 \\ -13 \\ \hline 3 \end{array}$$

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Year 5	Year 6
Written Division	
Short division of 3- and 4-digit numbers by 1-digit numbers e.g. *139 ÷ 3*	Give remainders as whole numbers, fractions or decimals
	Use place value to divide 1- and 2-place decimals by numbers ≤ 12
$$4 \ 6 \ \text{r } 1$$ $$3 \quad 1 \ 3 \ {}^19$$	e.g. *3.65 ÷ 5 as (365 ÷ 5) ÷ 100 = 0·73*
	Divide proper fractions by whole numbers
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	