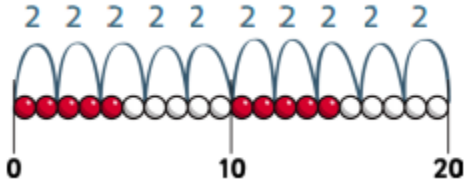
Stage 1-Mental Multiplication

Counting in steps ('clever' counting)

Count in 2s



Count in 10s

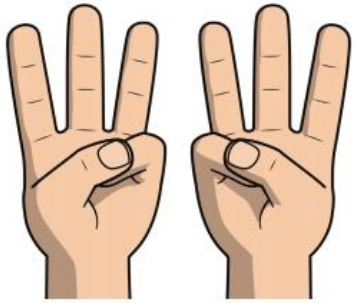
1	2	3	4	5	6	7	8	9	
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Stage 1-Mental Multiplication

Doubling and halving

Find doubles to double 5 using fingers

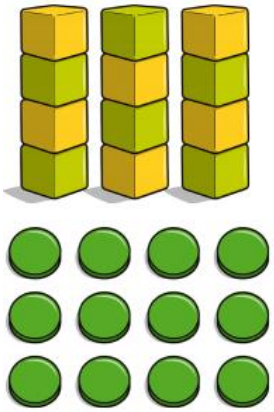
e.g. double 3



Grouping

Begin to use visual and concrete arrays and sets of objects to find the answers to 'three lots of four' or 'two lots of five'

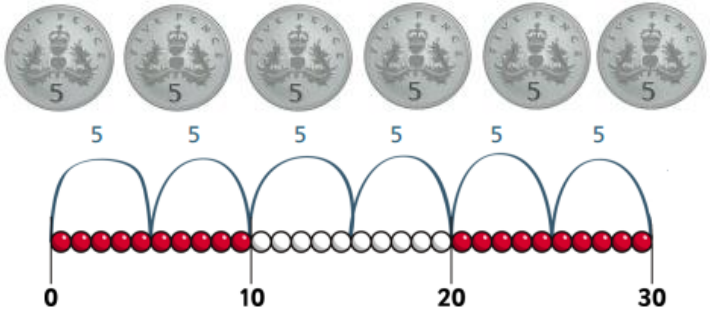
e.g. three lots of four



Stage 2-Mental Multiplication

Counting in steps ('clever' counting)

Count in 2s, 5s and 10s

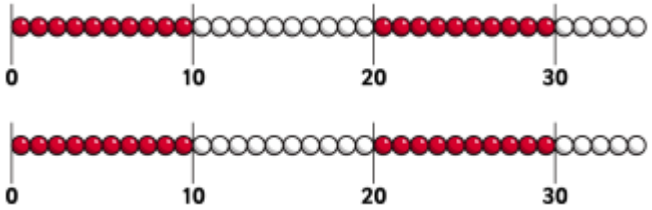


Begin to count in 3s

Doubling and halving

Begin to know doubles of multiples of 5 to 100

e.g. double 35 is 70



Begin to double 2-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5

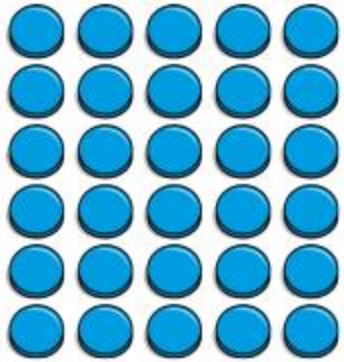
Stage 2-Mental Multiplication

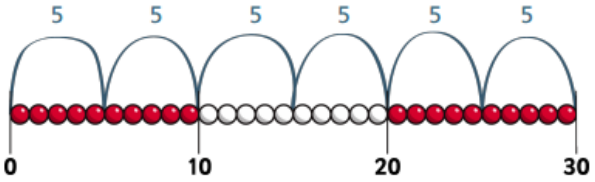
Grouping

Use arrays to find answers to multiplication and relate to 'clever' counting

e.g. 3 × 4 as three lots of four things

e.g. 6 × 5 as six steps in the 5s count as well as six lots of five





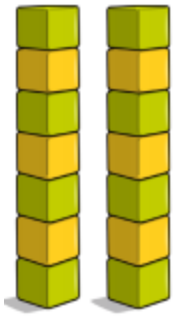
Understand that 5 × 3 can be worked out as three 5s or five 3s

Stage 2-Mental Multiplication

Using number facts

Know doubles to double 20

e.g. double 7 is 14



Start learning ×2, ×5, ×10 tables, relating these to 'clever' counting in 2s, 5s, and 10s

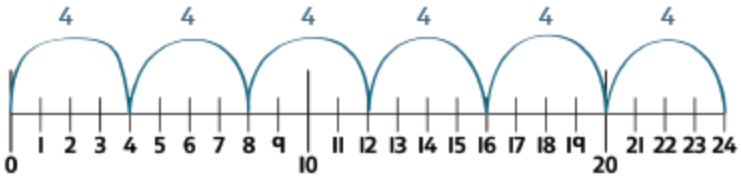
e.g. 5 × 10 = 50, and five steps in the 10s count = 10, 20, 30, 40, 50

Stage 3-Mental Multiplication

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

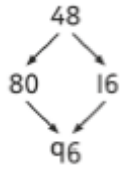


Stage 3-Mental Multiplication

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

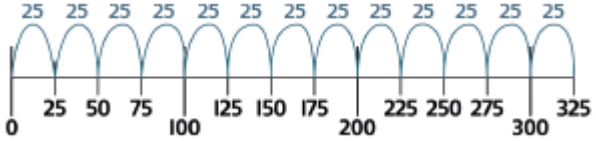
e.g. *double 85 is 170*

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

Stage 4-Mental Multiplication

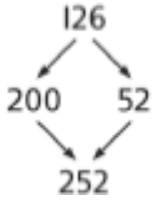
Counting in steps (sequences)

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

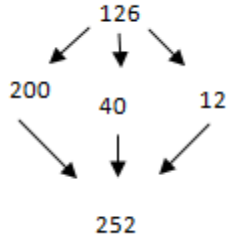


Doubling and halving

Find doubles to double 100 and beyond using partitioning
e.g. *double 126*



or



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*

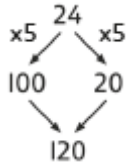
Stage 4-Mental Multiplication

Grouping

Use partitioning to multiply 2-digit numbers by 1-digit numbers e.g. *24 × 5*

20 x 5 = 100
4 x 5 = 20
24 x 5 = 120

or



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

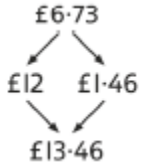
Know times-tables up to 12 × 12

×	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

Stage 5-Mental Multiplication

Doubling and halving

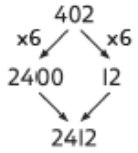
Double amounts of money using partitioning
e.g. *double £6·73*



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*



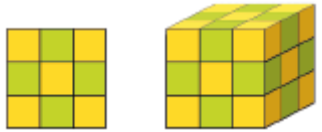
Use partitioning to multiply decimal numbers by 1-digit numbers e.g. *4·5 × 3 as 4 × 3 (12) and 0·5 × 3 (1·5) = 13·5*
Multiply near multiples by rounding
e.g. *32 × 29 as (32 × 30) – 32 = 928*

Stage 5-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

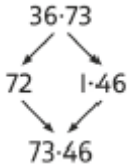


Stage 6-Mental Multiplication

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

×6 ×6 e.g. *4·3 × 19 as (4·3 × 20) – 4·3 = 81·7*

Stage 6-Mental Multiplication

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*

Stage 1 – Written Multiplication

Build on partitioning to develop grid multiplication
e.g. *23 × 4*

×	20	3	
4	80	12	= 92

Stage 2 – Written Multiplication

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

Stage 3 – Written Multiplication

Short multiplication of 2-, 3- and 4-digit numbers by 1-digit numbers e.g. *435 × 8*

```
  4 3 5
×     8
-------
3 4 8 0
-------
  2 4
```

Long multiplication of 2-, 3-and 4-digit numbers by 'teen' numbers e.g. *48 × 16*

```
    4 8
× 1 6
-------
2 8 8
  4
4 8 0
-------
7 6 8
-------
  1
```

Stage 3 – Written Multiplication

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. $\frac{3}{4} \times 6 = \frac{18}{4} = 4\frac{2}{4} = 4\frac{1}{2}$

NB Grid multiplication provides a default method for ALL children

Stage 4 – Written Multiplication

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

e.g. *3743 × 6*

```
  3 7 4 3
×       6
---------
2 2 4 5 8
---------
  4 2 1
```

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

e.g. *456 × 38*

```
    4 5 6
×     3 8
-----------
  3 6 4 8
    4 4
1 3 6 8 0
  1 1
-----------
1 7 3 2 8
1 1
```

Stage 4 – Written Multiplication

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
-----------
£ 8 2·3 2
-----------
  2 4 1
```

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. $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$

NB Grid multiplication provides a default method for ALL children