Calculation Policy

The document is broken down into the four operations of addition, subtraction, multiplication and division and also covers the teaching of the times tables. It shows progression throughout the school from Early Years through to Year 6 and allows the children the opportunity to develop a secure understanding of number, in order to transfer their skills to other concepts and areas of the Maths curriculum. It outlines the key representations for Early Years that they can use to develop their understanding of what a number means.
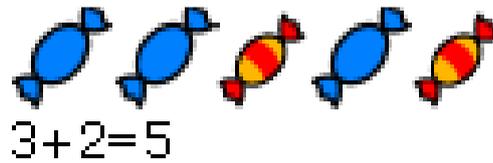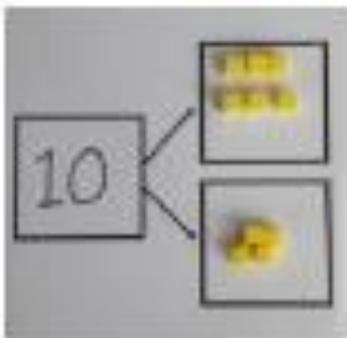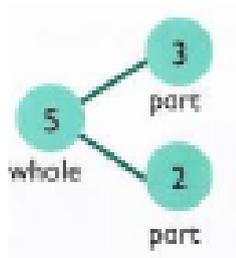
Early Years

Before addition can be introduced, children need to have a secure knowledge of number. In Nursery, children are introduced to the concept of counting, number order and number recognition through practical activities and games. This is taught through child-initiated games such as hide and seek and I spy. Children also learn how to count 1-1 (pointing to each object as they count) and that anything can be counted, e.g. claps, steps and jumps. This is reinforced by opportunities provided in the outdoor area for the children to count, e.g. counting building blocks, twigs etc.

Nursery and Reception

Key Representations

Addition

\+

Reception

Skill: Combining 2 groups to make a whole.

3+2=5
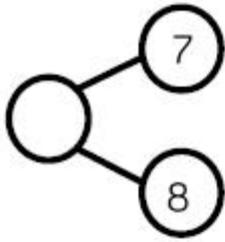
Skill: Counting on.

3 + 4 =

Year 1

Skill: Add 1-digit numbers within 10
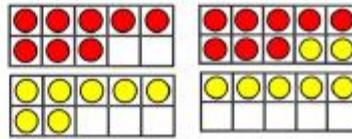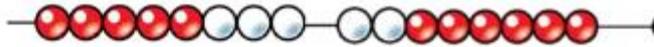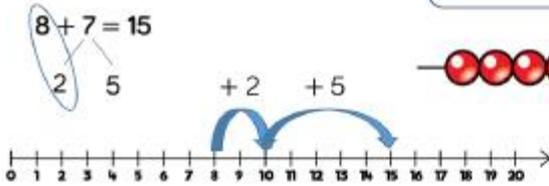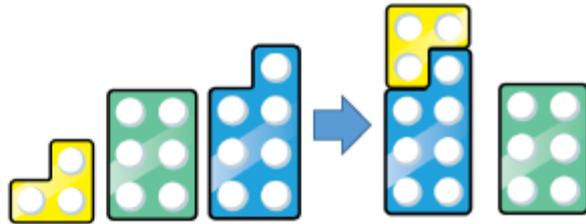
$$4 + 3 = 7$$
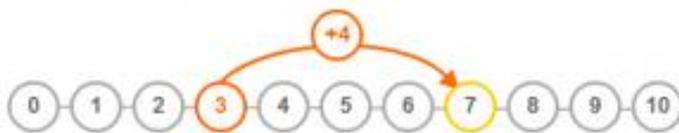
Year 1 and 2

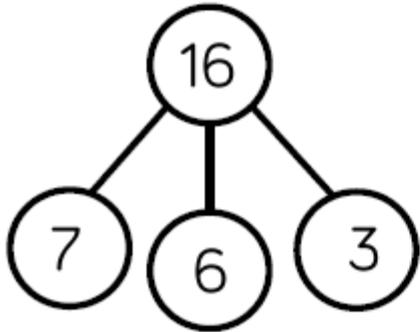Skill: Add 1- and 2-digit numbers to 20.
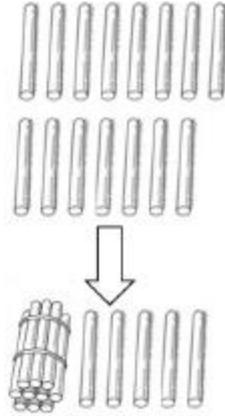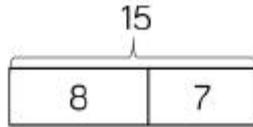
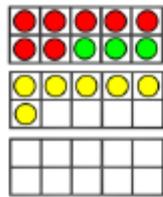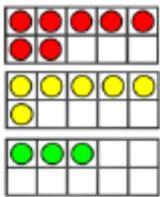$$8 + 7 = 15$$

$$8 + 7 = 15$$

$+2$ $+5$

$8 + 7 = 15$

Year 2

Skill: Add three 1-digit numbers.

7 + 6 + 3 = 16

7 + 6 + 3 = 16

7 + 6 + 3 = 16

10

16
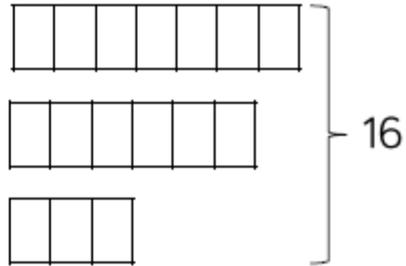
Year 2/3

Skill: Add 1-digit and 2-digit numbers to 100.

$$38 + 5 = 43$$

Year 2/3

Skill: Add two 2-digit numbers to 100.

$$38 + 23 = 61$$

Tens	Ones

	Tens	Ones

Year 3

Skill: Add numbers with up to 3 digits.

$$265 + 164 = 429$$

Hundreds	Tens	Ones

$$\begin{array}{r} 265 \\ + 164 \\ \hline 429 \\ {\scriptstyle 1} \end{array}$$

Hundreds	Tens	Ones

Year 4

Skill: Add numbers with up to 4 digits.

1,378

?

2,148

?

2,138 | 1,378

2,138

1,378

?

```
  1 3 7 8
+ 2 1 4 8
  3 5 2 6
    1 1
```

$$1{,}378 + 2{,}148 = 3{,}526$$

Thousands	Hundreds	Tens	Ones

Thousands	Hundreds	Tens	Ones

Year 5/6

Skill: Add numbers with more than 4 digits.

$$104{,}328 + 61{,}731 = 166{,}059$$

HTh	TTh	Th	H	T	O

1	0	4	3	2	8
+	6	1	7	3	1
1	6	6	0	5	9
	1				

Year 5
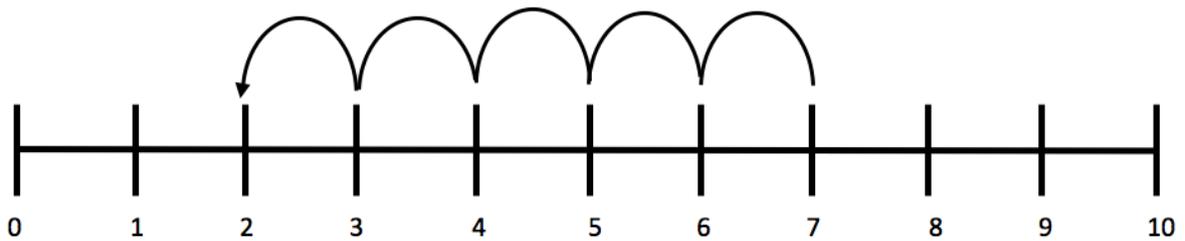
Skill: Add with up to 3 decimal places.

$$3.65 + 2.41 = 6.06$$
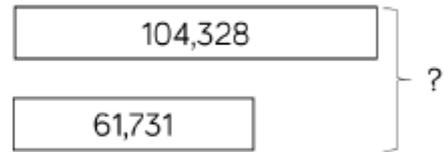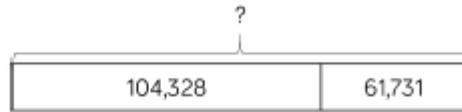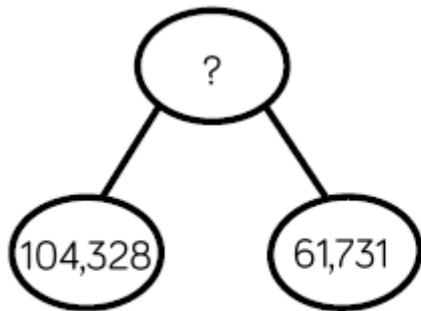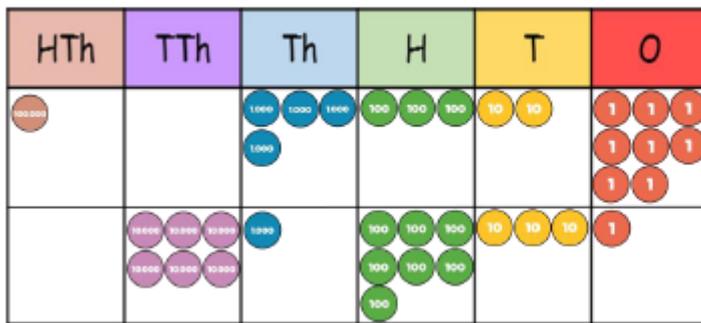
Subtraction

−

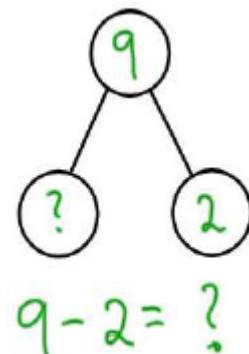# Reception
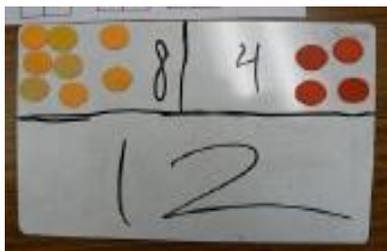
Skill: Taking away ones.
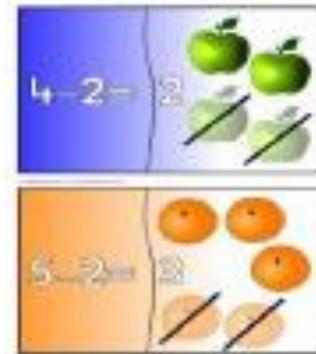
Skill: Counting back.
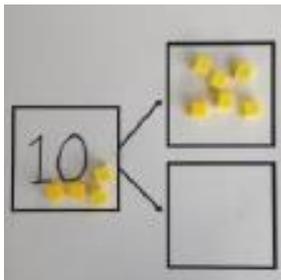
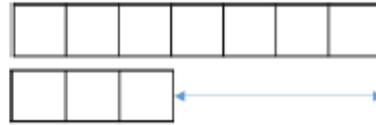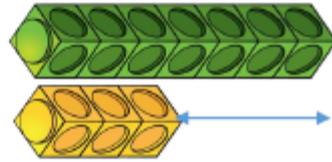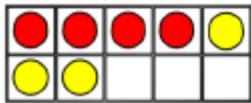Use counters/objects to move away from the group as they are counted.

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

Skill: Part, whole model.

9 - 2 = ?

Year 1

Skill: Subtract 1-digit numbers within 10.

$$7 - 3 = 4$$

First   Then   Now

7

?   3

7

?   3

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
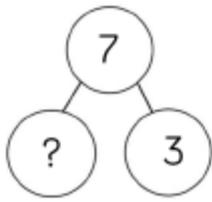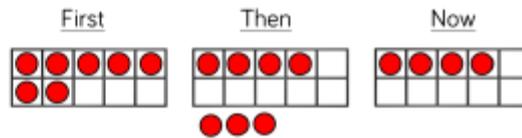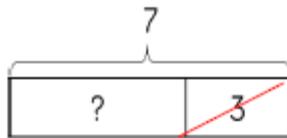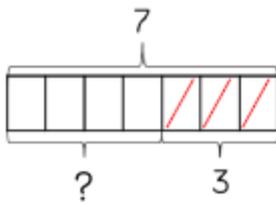
Year 1/2

Skill: Subtract 1- and 2-digit numbers to 20.

$$14 - 6 = 8$$

Year 2

Skill: Subtract 1- and 2-digit numbers to 100.

+2   +30   +5

28   30   60   65

$$65 - 28 = 37$$

65
?	28

Tens	Ones

$$\begin{array}{r} {}^{5}\!\!\!6{}^{1}\!5 \\ -\ 28 \\ \hline 37 \end{array}$$

Tens	Ones

Year 3

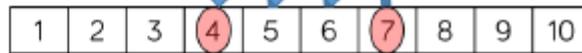Skill: Subtract numbers with up to 3 digits.
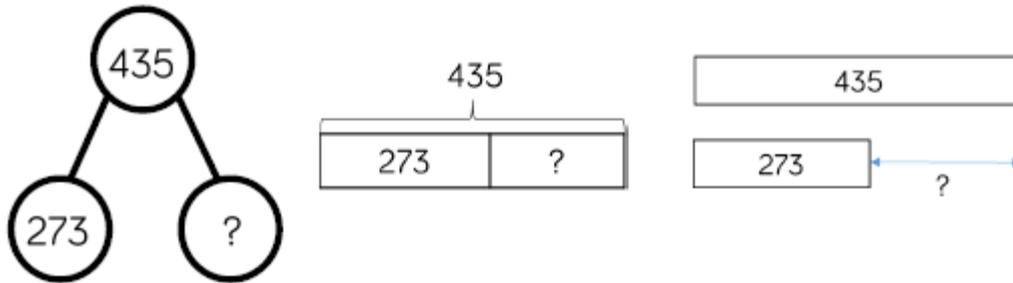
$$435 - 273 = 262$$
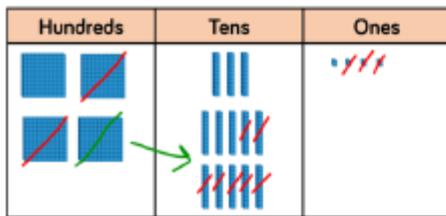
Hundreds	Tens	Ones
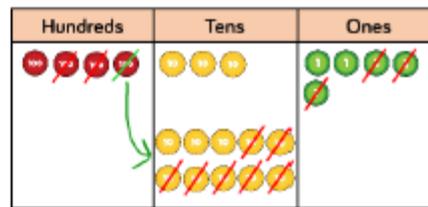
Hundreds	Tens	Ones

Year 4

Skill: Subtract numbers with up to 4 digits.

4,357

2,735   ?

4,357

2,735 | ?

4,357

2,735 →
?

$$3 \quad 1$$
$$4357$$
$$- 2735$$
$$1622$$
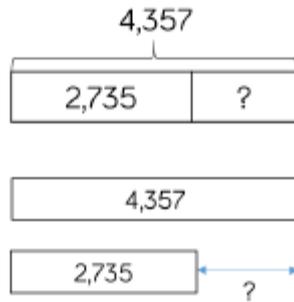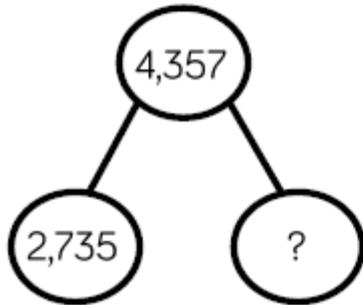
$$4{,}357 - 2{,}735 = 1{,}622$$

Thousands	Hundreds	Tens	Ones

Thousands	Hundreds	Tens	Ones

Year 5/6

Skill: Subtract numbers with more than 4 digits.
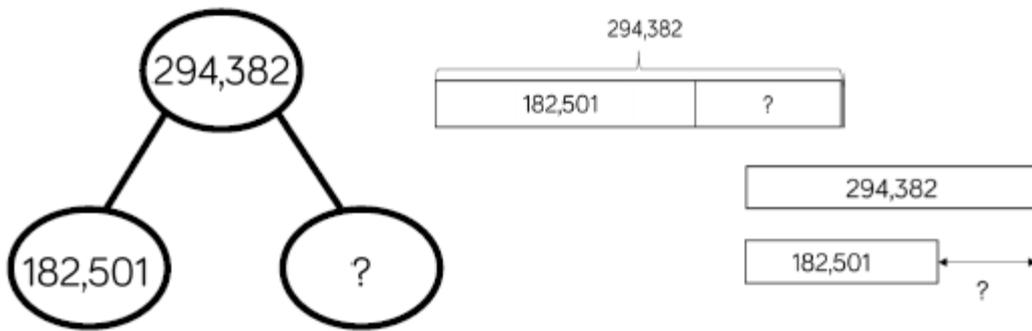
$$294{,}382 - 182{,}501 = 111{,}881$$

HTh	TTh	Th	H	T	O

		2	9	$^3\!\!\!\!/\,^1 3$	8	2
−		1	8	2	5	0	1
		1	1	1	8	8	1

Year 5

Skill: Subtract with up to 3 decimal places.

$$5.43 - 2.7 = 2.73$$

Times Tables

Year 2

Skill: 2 times table.
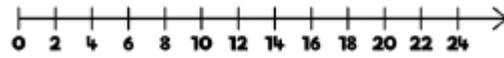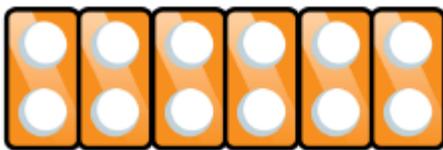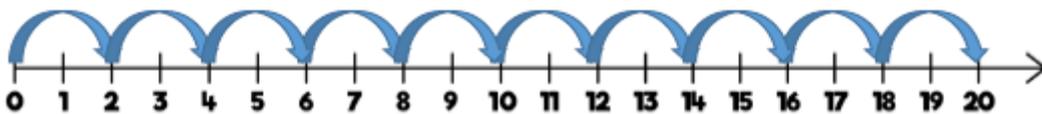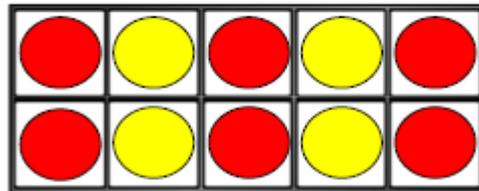
Year 2

Skill: 5 times table.
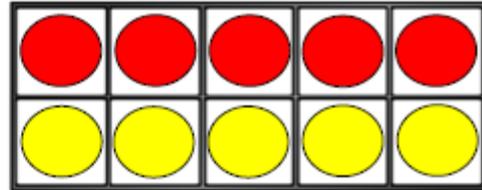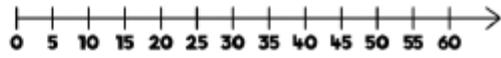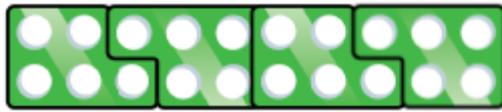
Year 2

Skill: 10 times table.

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 3

Skill: 3 times table.

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

3   6   9   12

0 3 6 9 12 15 18 21 24 27 30 33 36

Year 3

Skill: 4 times table.

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

4	8	12	16	20
24	28	32	36	40
44	48	52	56	60

4   8   12   16

0 4 8 12 16 20 24 28 32 36 40 44 48

Year 3

Skill: 8 times table.

8	16	24	32	40
48	56	64	72	80

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
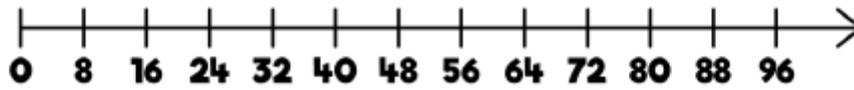
Year 4

Skill: 6 times table.

6	12	18	24	30
36	42	48	54	60
66	72	78	84	90

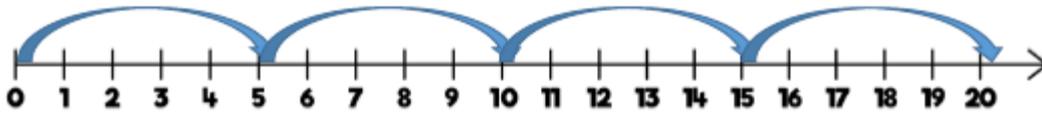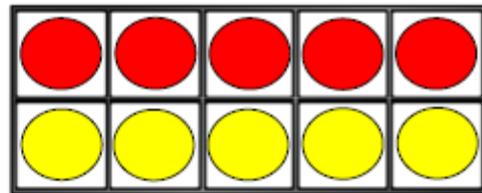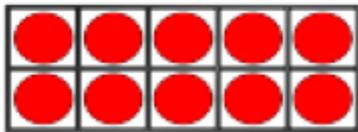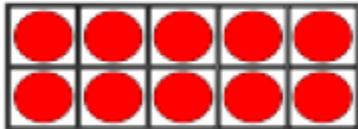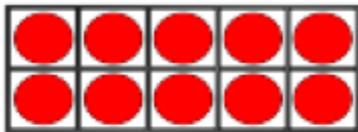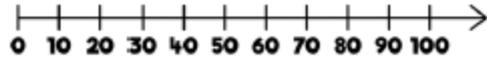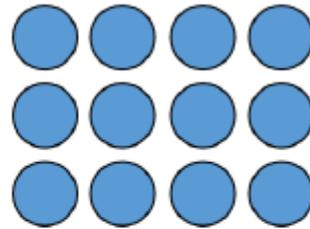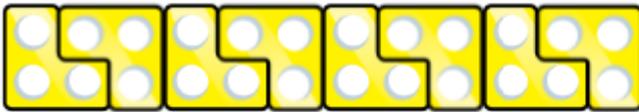| 1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

0   6   12   18   24   30   36   42   48   54   60   66   72

Year 4

Skill: 9 times table.

9	18	27	36	45
54	63	72	81	90

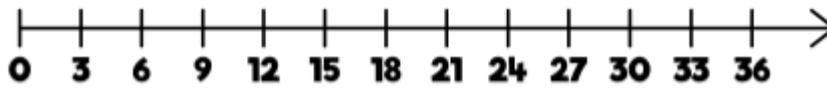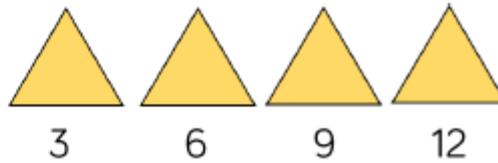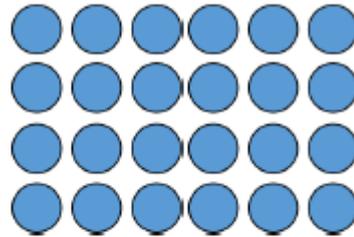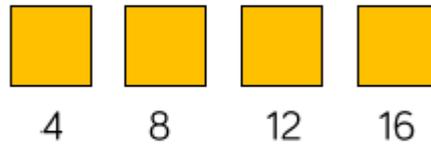| 1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

0 9 18 27 36 45 54 63 72 81 90 99 108

Year 4

Skill: 7 times table.

7	14	21	28	35
42	49	56	63	70

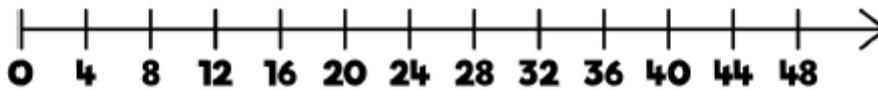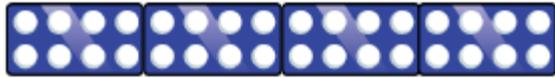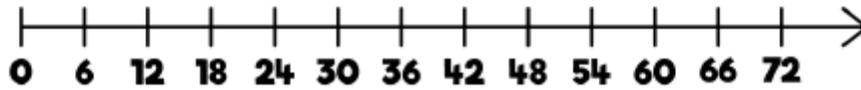| 1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

0   7   14   21   28   35   42   49   56   63   70   77   84

Year 4

Skill: 11 times table.

11	22	33	44	55	66
77	88	99	110	121	132

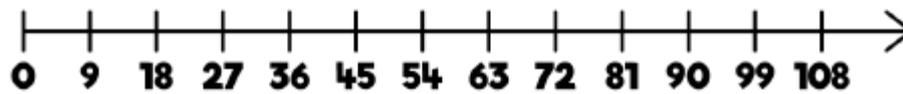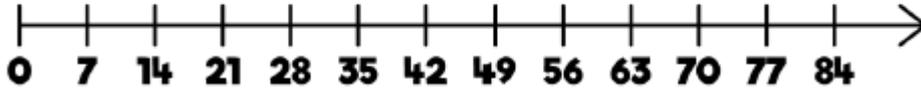| 1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Year 4

Skill: 12 times table.

12	24	36	48	60
72	84	96	108	120
132	144			

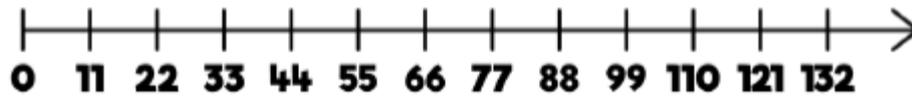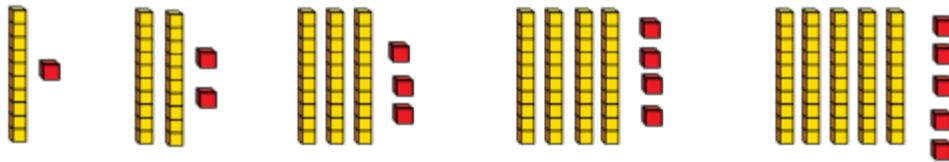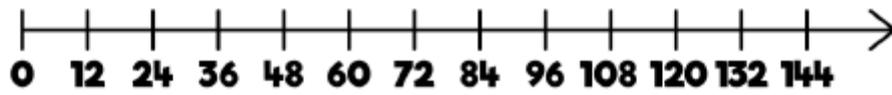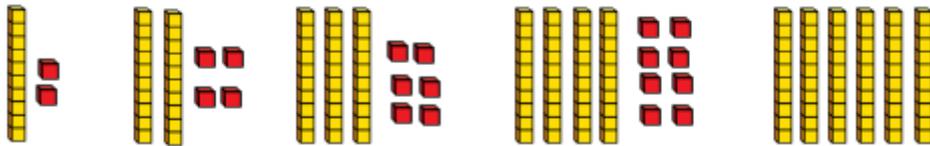| 1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

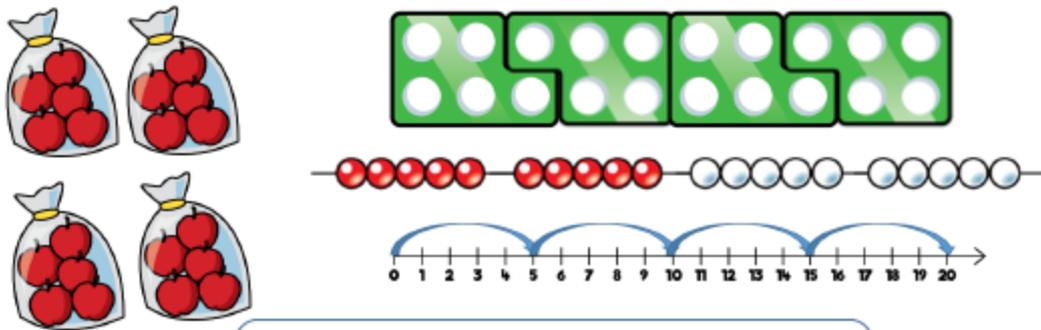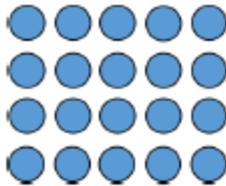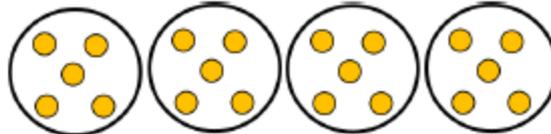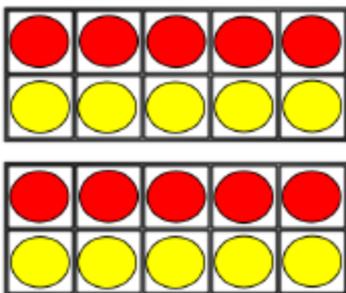0 12 24 36 48 60 72 84 96 108 120 132 144

Multiplication

X

Year 1/2

Skill: Solve 1-step problems using multiplication.

One bag holds 5 apples.
How many apples do 4 bags hold?

$5 + 5 + 5 + 5 = 20$

$4 \times 5 = 20$

$5 \times 4 = 20$

Year 3/4

Skill: Multiply 2-digit numbers by 1-digit numbers.

Hundreds	Tens	Ones
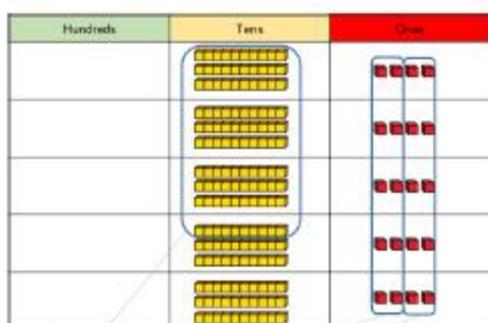
	H	T	O	
		3	4	
×			5	
		2	0	(5 × 4)
+	1	5	0	(5 × 30)
	1	7	0	

$$34 \times 5 = 170$$

	H	T	O	
		3	4	
×			5	
	1	7	0	
	1	2		

Hundreds	Tens	Ones

Year 3/4

Skill: Multiply 3-digit numbers by 1-digit numbers.

$$245 \times 4 = 980$$

Year 5

Skill: Multiply 4-digit numbers by 1-digit numbers.

$$1,826 \times 3 = 5,478$$

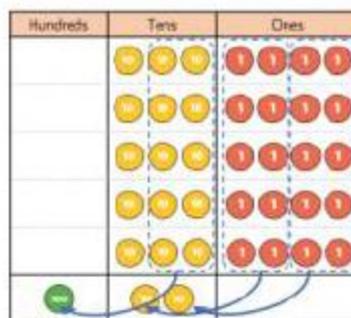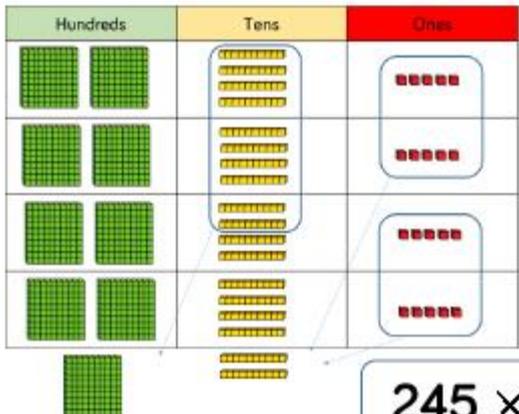|	Th	H	T	O
	1	8	2	6
×				3
	5	4	7	8
	2		1	

Year 5

Skill: Multiply 2-digit numbers by 2-digit numbers.

×	20	2
30	600	60
1	20	2

	H	T	O
		2	2
×		3	1
		2	2
	6	6	0
	6	8	2

$$22 \times 31 = 682$$

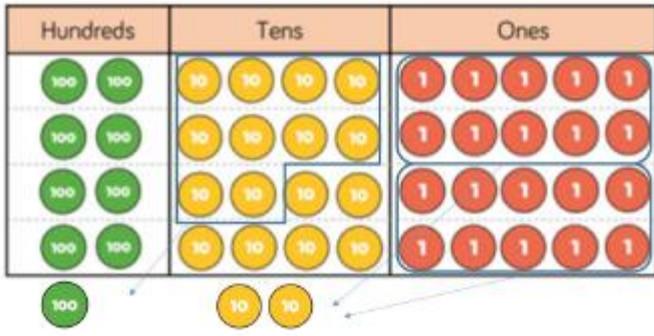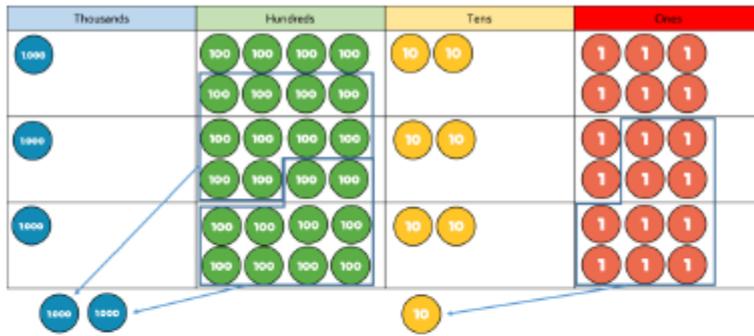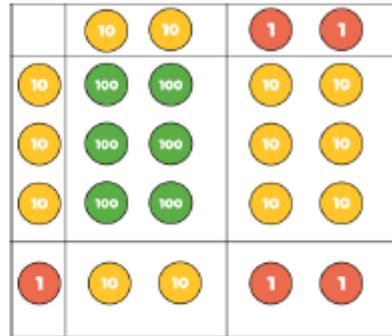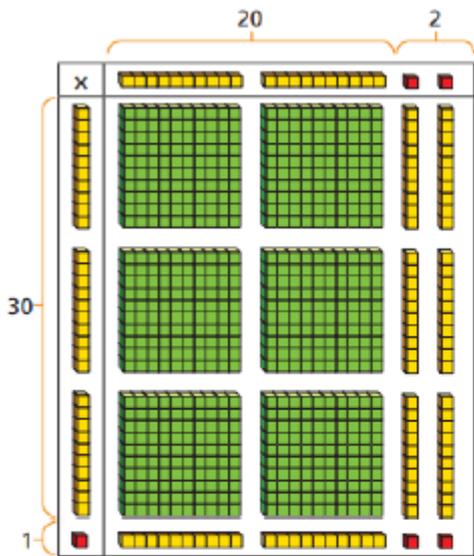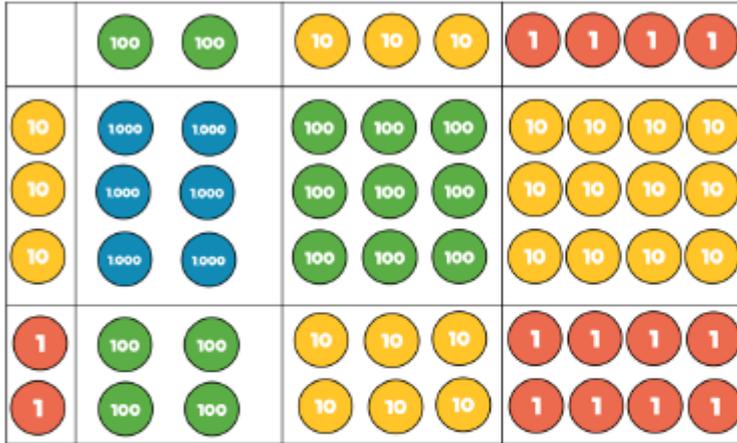# Year 5

Skill: Multiply 3-digit numbers by 2-digit numbers.

Th	H	T	O
	2	3	4
×		3	2
	4	6	8
$_1$7	$_1$0	2	0
7	4	8	8

$$234 \times 32 = 7{,}488$$

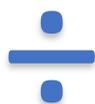| ×	200	30	4
30	6,000	900	120
2	400	60	8

Year 5/6

Skill: Multiply 4-digit numbers by 2-digit numbers.

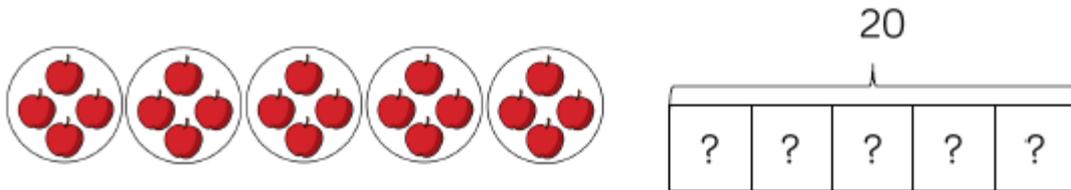| TTh	Th	H	T	O
	2	7	3	9
×			2	8
2 ₂	1 ₅	9 ₃	1 ₇	2
5 ₁	4	7 ₁	8	0
7	6	6	9	2
		1		

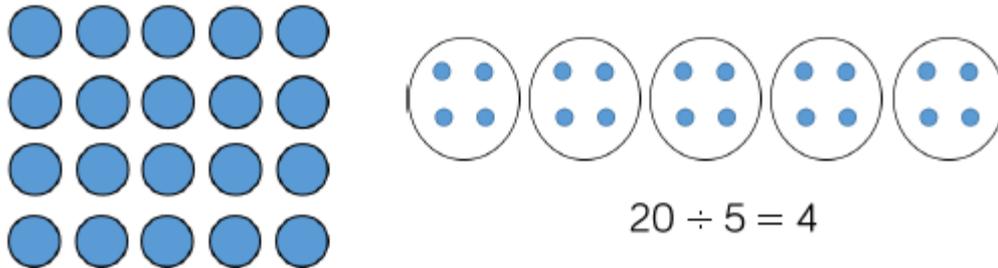$2,739 \times 28 = 76,692$

Division

÷

Year 1/2

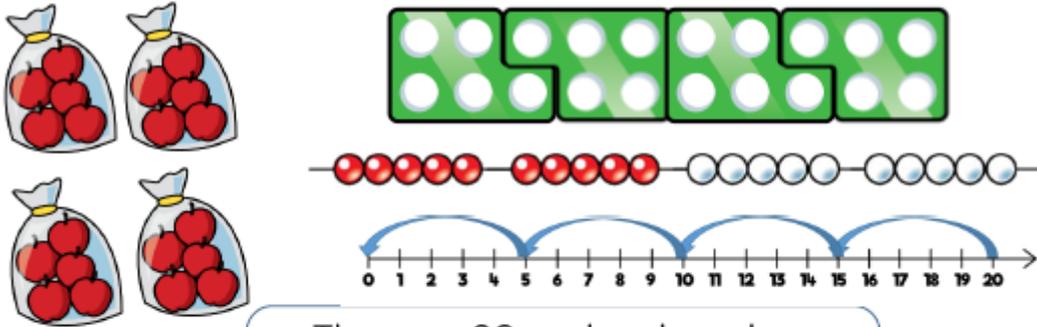Skill: Solve 1-step problems using multiplication (sharing).

20

? ? ? ? ?

There are 20 apples altogether.
They are shared equally between 5 bags.
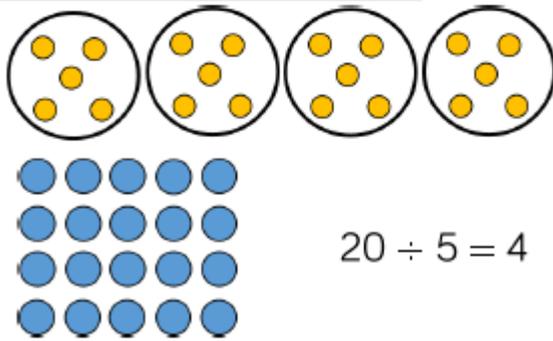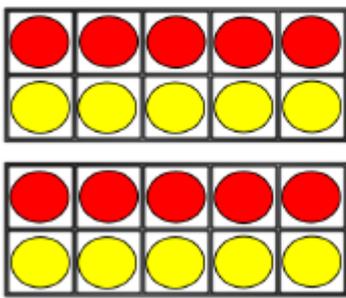How many apples are in each bag?

$20 \div 5 = 4$

Year 1/2

Skill: Solve 1-step problems using division (grouping).

There are 20 apples altogether.
They are put in bags of 5.
How many bags are there?

$20 \div 5 = 4$

Year 1/2

Skill: Divide 2-digits by a 1-digit (sharing with no exchange).

Tens	Ones
10 10	1 1 1 1
10 10	1 1 1 1

$$48 \div 2 = 24$$

48
40   8
÷ 2   ÷ 2
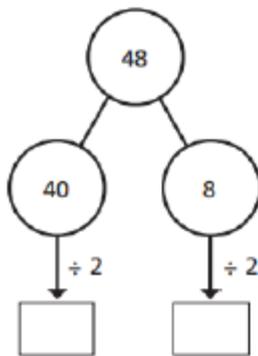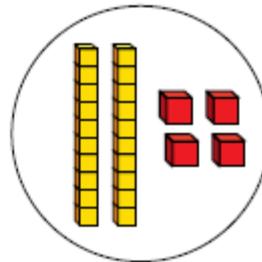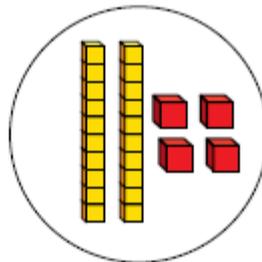
Year 3/4

Skill: Divide 2-digits by a 1-digit (sharing with exchange).

$$52 \div 4 = 13$$

$$10 + 3 = 13$$

Year 3/4

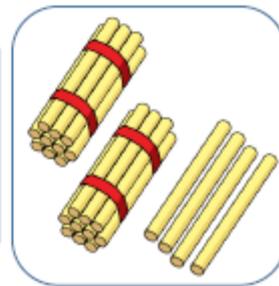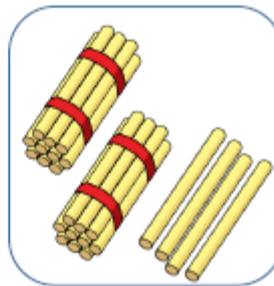Skill: Divide 2-digits by a 1-digit (sharing with remainders).
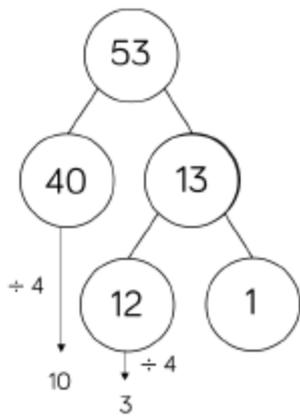
$$53 \div 4 = 13 \, r1$$

Year 4/5

Skill: Divide 2-digits by a 1-digit (grouping).
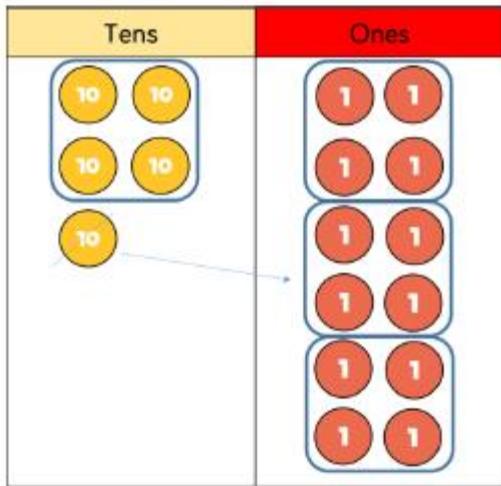
$$52 \div 4 = 13$$
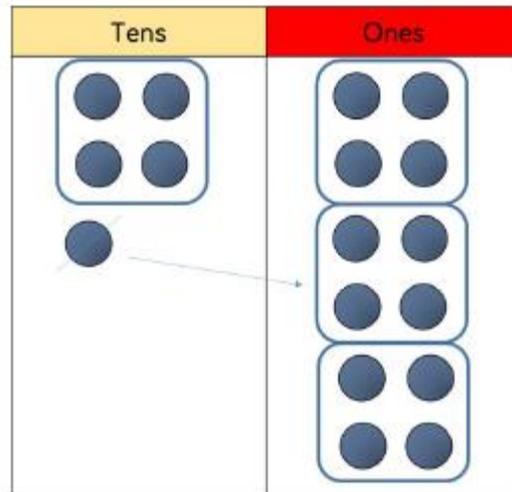
Year 4

Skill: Divide 3-digits by a 1-digit (sharing).

$$844 \div 4 = 122$$

844

| ? | ? | ? | ? |

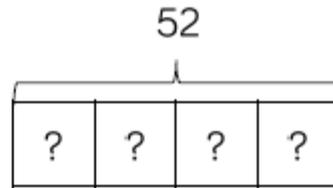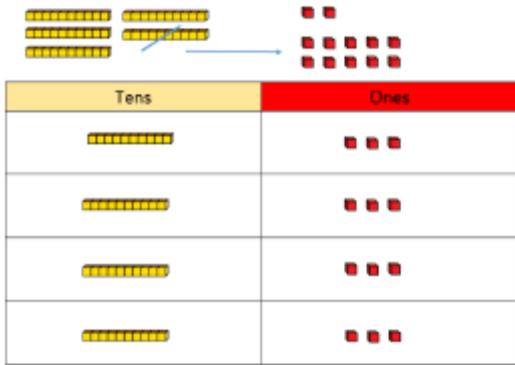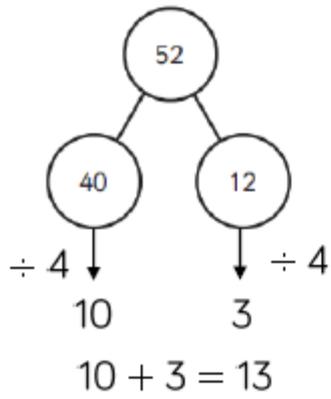| H	T	O
100 100	10	1
100 100	10	1
100 100	10	1
100 100	10	1

844
800   40   4
÷ 4   ÷ 4   ÷ 4

$$844 \div 4 = 122$$

856
800   40   16
÷ 4   ÷ 4   ÷ 4
200   10   4
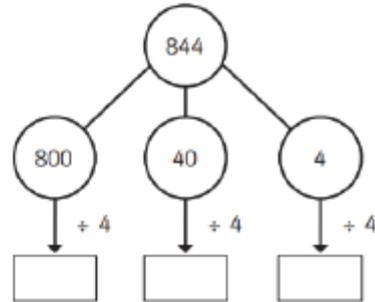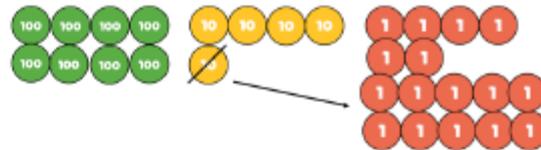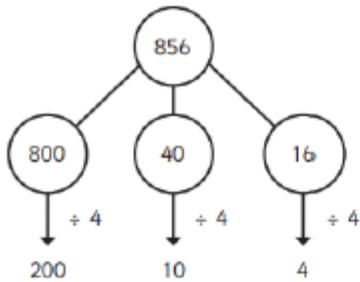
Hundreds	Tens	Ones
100 100	10	1 1 1 1
100 100	10	1 1 1 1
100 100	10	1 1 1 1
100 100	10	1 1 1 1

Year 5

Skill: Divide 3-digits by a 1-digit (grouping).
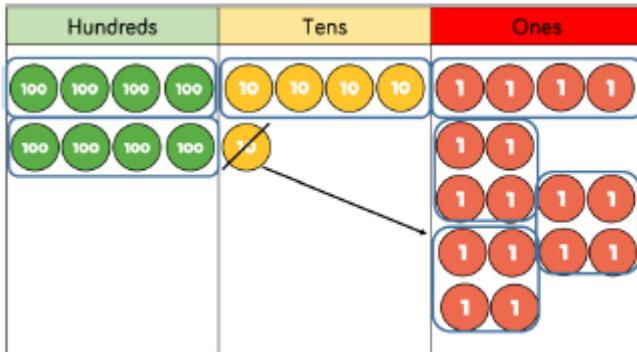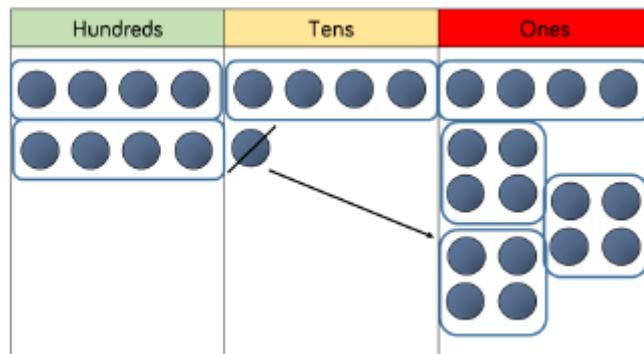
$$856 \div 4 = 214$$

Year 5

Skill: Divide 4-digits by a 1-digit (grouping).
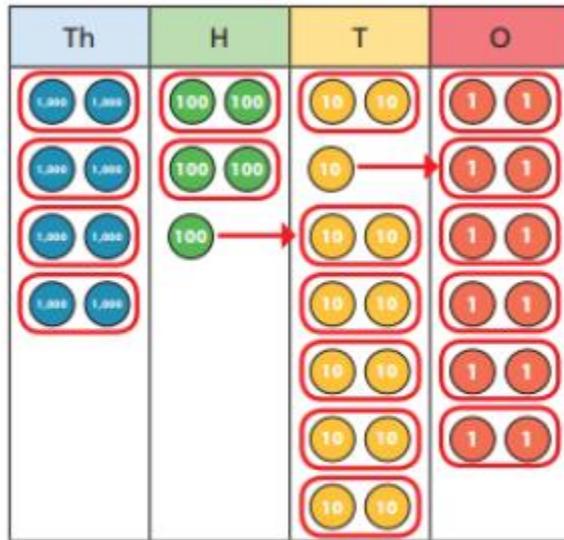
		4	2	6	6
2	8	5	^{1}3	^{1}2	

$$8{,}532 \div 2 = 4{,}266$$

Year 6

Skill: Divide multi digits by 2-digits (short division).

		0	3	6
12	4	4³	7²	

$$432 \div 12 = 36$$

$$7{,}335 \div 15 = 489$$

		0	4	8	9
15	7	7³	13³	13⁵	

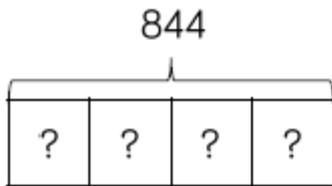| 15	30	45	60	75	90	105	120	135	150

Year 6

Skill: Divide multi digits by 2-digits (long division).

		0	3	6		$12 \times 1 = 12$
1	2	4	3	2	(×30)	$12 \times 2 = 24$
	−	3	6	0		$12 \times 3 = 36$
			7	2	(×6)	$12 \times 4 = 48$
	−		7	2		$12 \times 5 = 60$
				0		$12 \times 6 = 72$

$12 \times 7 = 84$
$12 \times 8 = 96$
$12 \times 7 = 108$
$12 \times 10 = 120$

$$432 \div 12 = 36$$

$$7,335 \div 15 = 489$$

	0	4	8	9		
15	7	3	3	5		$1 \times 15 = 15$
−	6	0	0	0	(×400)	$2 \times 15 = 30$
	1	3	3	5		$3 \times 15 = 45$
−	1	2	0	0	(×80)	$4 \times 15 = 60$
		1	3	5		$5 \times 15 = 75$
−		1	3	5	(×9)	$10 \times 15 = 150$
				0		

Year 6

Skill: Divide multi digits by 2-digits (long division).

$$372 \div 15 = 24 \; r12$$

		2	4	r	1	2
1	5	3	7	2		
	−	3	0	0		
			7	2		
	−		6	0		
			1	2		

$1 \times 15 = 15$

$2 \times 15 = 30$

$3 \times 15 = 45$

$4 \times 15 = 60$

$5 \times 15 = 75$

$10 \times 15 = 150$

		2	4	$\frac{4}{5}$
1	5	3	7	2
	−	3	0	0
			7	2
	−		6	0
			1	2

$$372 \div 15 = 24\frac{4}{5}$$