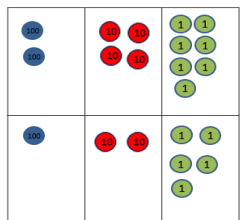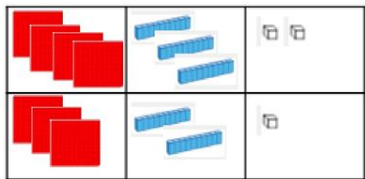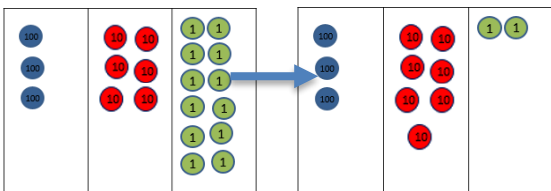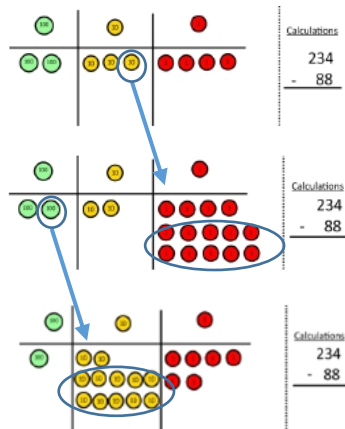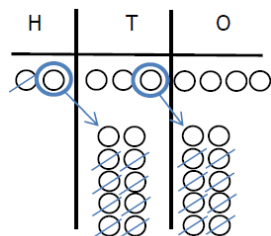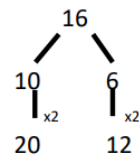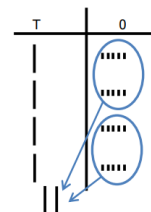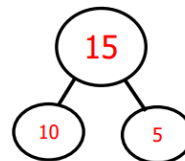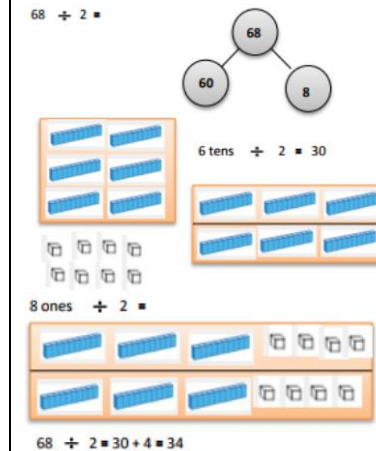| Addition	Subtraction	Multiplication	Division
Mental methods These should continue to develop, supported by a range of models and images, including the number line. Part-part-whole and bar models should continue to be used to help with calculating. **Addition of numbers with up to 3-digits using expanded column addition** Start with calculations without regrouping before introducing numbers that require regrouping in an expanded column method. **Concrete** Leading into the understanding of regrouping 	**Subtraction of numbers with up to 3-digits using expanded column subtraction** Start with calculations without regrouping with 3-digits to consolidate year 2 knowledge before introducing numbers that require regrouping in an expanded column method. **Concrete** **Pictorial** $234 - 188 =$ **Abstract** Step 1	**Mental methods** Doubling 2 digit numbers using partitioning **Multiplication of 2 digit by a 1 digit using partitioning** **Concrete** Use resources to partition and rearrange $4 \times 15 =$ **Pictorial** $4 \times 15 =$ **Abstract** $4 \times 15 =$ $10 \times 4 = 40$ $5 \times 4 = 20$ $40 + 20 = 60$	**Division using partitioning** Becoming more efficient using a number line. **Concrete** $68 \div 2 =$ 6 tens ÷ 2 = 30 8 ones ÷ 2 = $68 \div 2 = 30 + 4 = 34$ **Pictorial** $48 \div 4 = 12$ +40 10 groups +8 2 groups **Abstract** $48 \div 4 =$ $40 \div 4 = 10$ $8 \div 4 = 2$ So, $48 \div 4 = 12$ **Division with remainders** **Concrete**
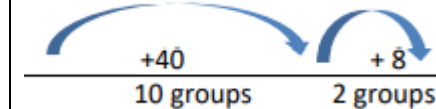
Pictorial

H	T	O
● ● ●	● ● ●	● ●
+ ●	● ●	● ● ●
● ● ● ●	● ● ●	● ●
	● ●	● ● ●

H	T	O
●	● ● ●	● ● ● ●
		● ● ● ●
+ ●	● ● ●	● ●
● ●		● ●
	● ● ●	
	● ● ●	● ●
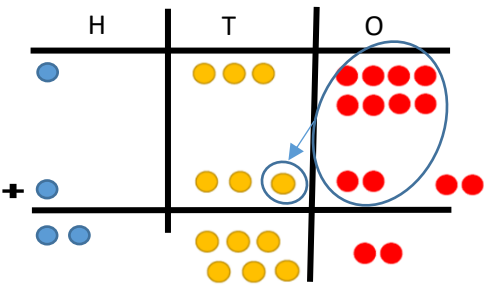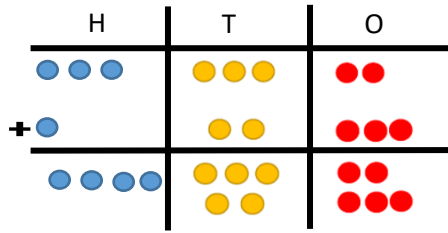
Abstract

400	90	4
+ 300	60	8
700	150	12

400	90	4
+ 300	60	8
800	60	2
100	10	

700	20	3
- 300	40	6

Step 2

	10	13
700	~~20~~	~~3~~
- 300	40	6
		7

Step 3

600	110	13
~~700~~	~~20~~	~~3~~
- 300	40	6
300	70	7

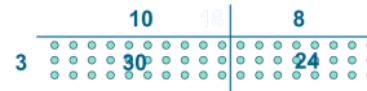**Multiplication of 2 digit by a 1 digit using an informal written method – grid method**

Concrete

Use counters, place value counters and base 10 to represent calculations in a grid layout

13 x 4 =

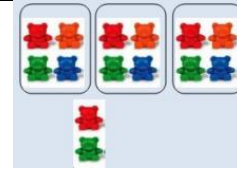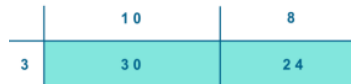| x	Tens	Ones
4	(10)(10)(10)(10)	(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)

x	Tens	Ones
4	(base ten rods)	(unit cubes)
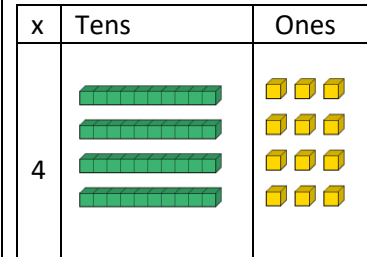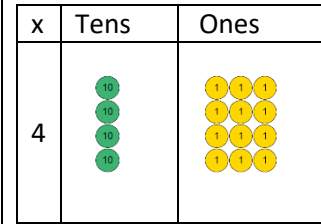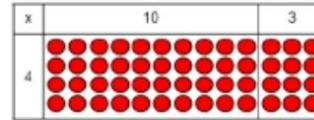
Pictorial

Represent the grid method by drawing versions of the concrete in books

	10	8
3	30	24

Abstract

	10	8
3	30	24

Pictorial

13 ÷ 4 = 3 r1

49 ÷ 4 = 12 r1

+40 ... + 8 ... + 1

10 groups ... 2 groups
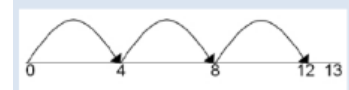
Abstract

49 ÷ 4 =

40 ÷ 4 = 10

9 ÷ 4 = 2 r 1

So, 49 ÷ 4 = 12 r 1

Sharing – 49 shared between 4. How many left over? Grouping – How many 4s make 49? How many are left over?