

Mountfields Lodge  
Year 5 Calculation Policy for  
Parents  
March 2016



## Addition: Year 5

Missing number/digit problems:

**Mental methods** should continue to develop, supported by a range of models and images, including the number line. The bar model should continue to be used to help with problem solving. Children should practise with increasingly large numbers to aid fluency  
e.g.  $12462 + 2300 = 14762$

### Written methods (progressing to more than 4-digits)

As year 4, progressing when understanding of the expanded method is secure, children will move on to the formal columnar method for whole numbers and decimal numbers as an efficient written algorithm.

$$\begin{array}{r} 172.83 \\ + 54.68 \\ \hline 227.51 \\ 111 \end{array}$$

Place value counters can be used alongside the columnar method to develop understanding of addition with decimal numbers.

## Subtraction: Year 5

Missing number/digit problems:  $6.45 = 6 + 0.4 + \square$ ;  $119 - \square = 86$ ;  $1\,000\,000 - \square = 999\,000$ ;  $600\,000 + \square + 1000 = 671\,000$ ;  $12\,462 - 2\,300 = \square$

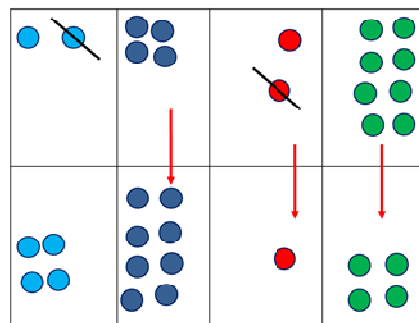
**Mental methods** should continue to develop, supported by a range of models and images, including the number line. The bar model should continue to be used to help with problem solving.

### Written methods (progressing to more than 4-digits)

When understanding of the expanded method is secure, children will move on to the formal method of decomposition, which can be initially modelled with place value counters.

### Expanded subtraction method

$$\begin{array}{r} 600 \quad 120 \\ 700 \quad 30 \quad 14 \\ - 200 \quad 60 \quad 7 \\ \hline 400 \quad 60 \quad 7 = 467 \end{array}$$



$$\begin{array}{r} \overset{5}{\cancel{6}} \overset{1}{\cancel{2}} \overset{2}{\cancel{3}} \overset{1}{\cancel{2}} \\ - 4814 \\ \hline 1418 \end{array}$$

Progress to calculating with decimals, including those with different numbers of decimal places.

## Multiplication: Year 5

Continue with a range of equations as in Year 2 but with appropriate numbers. Also include equations with missing digits

### Mental methods

X by 10, 100, 1000 using moving digits ITP

Use practical resources and jottings to explore equivalent statements (e.g.  $4 \times 35 = 2 \times 2 \times 35$ )

Recall of prime numbers up to 19 and identify prime numbers up to 100 (with reasoning)

Solving practical problems where children need to scale up. Relate to known number facts.

Identify factor pairs for numbers

### Written methods (progressing to 4d x 2d)

Long multiplication using place value counters

Children to explore how the grid method supports an understanding of long multiplication (for 2d x 2d)

	10	8	
10	100	80	
3	30	24	

Secure grid multiplication needed before long multiplication method used.

		1	8		
	✓	1	3		
		1	8	0	
			5	4	
		2	3	4	

## Division: Year 5

### + = signs and missing numbers

Continue using a range of equations as in year 3 but with appropriate numbers.

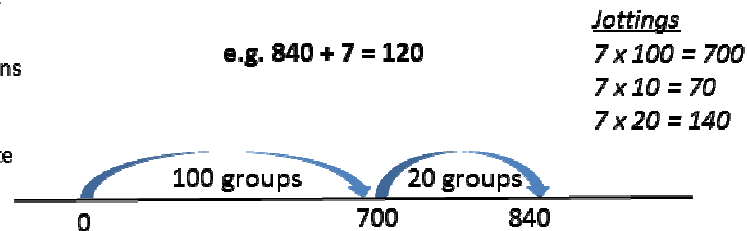
### Sharing, Grouping and using a number line

Children will continue to explore division as sharing and grouping, and to represent calculations on a number line until they have a secure understanding. Children should progress in their use of written division calculations:

- Using tables facts with which they are fluent
- Experiencing a logical progression in the numbers they use, for example:
  1. Dividend just over 10x the divisor, e.g.  $84 \div 7$
  2. Dividend just over 10x the divisor when the divisor is a teen number, e.g.  $173 \div 15$  (learning sensible strategies for calculations such as  $102 \div 17$ )
  3. Dividend over 100x the divisor, e.g.  $840 \div 7$
  4. Dividend over 20x the divisor, e.g.  $168 \div 7$

All of the above stages should include calculations with remainders as well as without.

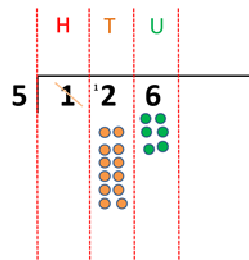
Remainders should be interpreted according to the context. (i.e. rounded up or down to relate to the answer to the problem)



### Formal Written Methods

Formal short division should only be introduced once children have a good understanding of division, its links with multiplication and the idea of 'chunking up' to find a target number (see use of number lines above)

Short division to be modelled for understanding using place value counters as shown below. Calculations with 2 and 3-digit dividends. E.g. fig 1

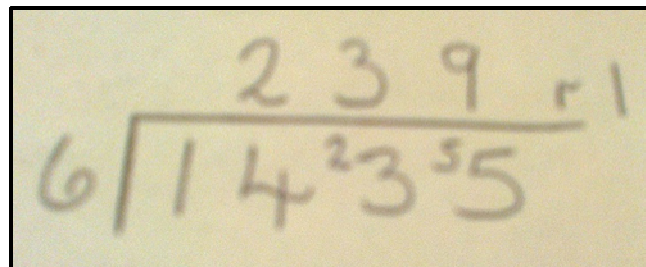


Teach bus stop method to Year 4 HAPs in Summer term

### Formal Written Methods

Continued as shown in Year 4, leading to the efficient use of a formal method. The language of grouping to be used (see link from fig. 1 in Year 4)

E.g.  $1435 \div 6$



Children begin to practically develop their understanding of how express the remainder as a decimal or a fraction. Ensure practical understanding allows children to work through this (e.g. what could I do with this remaining 1? How could I share this between 6 as well?)