

# Ladywood Primary School



Maths Written Methods Policy  
February 2017

*The policy has been written according to the National Curriculum 2014 and the written calculations for all four operations are as outlined on the appendices of the Programmes of Study. The purpose of this policy is to ensure consistency of the teaching of written methods (in line with the The Programmes of Study set out by The National Curriculum) throughout the school.*

### Key Stage 1

The main focus of maths teaching in KS1 is to ensure pupils develop confidence and fluency with the key areas of: counting, place value and mental calculations involving all four operations. Children should be building familiarity with key mathematical vocabulary and symbols. *The introduction of formal written methods should not be undertaken until KS2.*

### Lower Key Stage 2

The main focus of teaching and learning is upon building fluency with whole numbers, number facts and place value. These elements of maths will provide secure 'building blocks' for accurate written calculations. Pupils will solve problems and puzzles and by the end of Y4 should be confident with their multiplication tables and associated division facts.

### Upper Key Stage 2

In UKS2 children should be working with larger numbers and extending their knowledge of place value and the number system. Pupils solve problems and puzzles drawing on comprehensive arithmetic skills and are introduced to algebra. By the end of Y6 children should be confident with written methods for all four operations including long multiplication and division and in calculating with decimals, fractions and percentages.

## Year 3

Children will be taught to add and subtract numbers with up to 3 digits using formal written methods of columnar addition.

$$\begin{array}{r} 597 \\ + 39 \\ \hline 636 \\ \hline \end{array}$$

$$\begin{array}{r} 792 \\ + 386 \\ \hline 1178 \\ \hline \end{array}$$

$$\begin{array}{r} 536 \\ - 421 \\ \hline 115 \\ \hline \end{array}$$

$$\begin{array}{r} 67137 \\ - 592 \\ \hline 145 \\ \hline \end{array}$$

$$\begin{array}{r} 12189 \\ - 92 \\ \hline 197 \\ \hline \end{array}$$

Children will begin to use short division which applies to multiplication facts which they have already learnt. (x3 x4 x8)

$$4 \overline{) 52}$$

$$3 \overline{) 14}$$

Children will begin to use short multiplication which applies to multiplication facts which they have already learnt. (x3 x4 x8)

$$\begin{array}{r} 36 \\ \times 4 \\ \hline 144 \\ \hline \end{array}$$

$$\begin{array}{r} 142 \\ \times 3 \\ \hline 426 \\ \hline \end{array}$$

## Year 4

Children will begin to make decisions on whether a formal method is appropriate or if calculating mentally or with jottings would be more efficient.

$$4 \overline{)88} \longrightarrow \begin{array}{l} 10 \times 4 = 40 \\ \text{so} \\ 20 \times 4 = 80 \\ \text{and} \\ 2 \times 4 = 8 \end{array} \quad 88 \div 4 = 22$$

Children will develop their knowledge of written addition and subtraction calculating with numbers to four digits.

$$\begin{array}{r} 7234 \\ + 987 \\ \hline 8221 \\ \hline + \quad + \quad + \end{array}$$

$$\begin{array}{r} 8 \cancel{)1364} \\ - 813 \\ \hline 8551 \\ \hline \end{array}$$

They will use short multiplication to multiply two and three digit numbers by a single digit. (Children should be familiar to multiplication tables to x12)

$$\begin{array}{r} 743 \\ \times 6 \\ \hline 4458 \end{array}$$

As in Y3 children may progress to short division for known multiplication tables. (Children should be familiar to multiplication tables to x12)

$$3 \overline{)124} \\ \underline{372}$$

## Year 5

In year 5 children will add and subtract whole numbers with more than four digits using a formal written method.

$$\begin{array}{r} 2937 \\ + 582 \\ \hline 3519 \\ \hline \end{array}$$

+ +

$$\begin{array}{r} \overset{7}{8} \overset{1}{2} \overset{5}{6} \overset{1}{4} \\ - 725 \\ \hline 7539 \\ \hline \end{array}$$

Children will use estimation and rounding to check calculations.

$$\begin{array}{r} 2984 \\ + 882 \\ \hline 3866 \\ \hline \end{array}$$

+ +

$$3000 + 900 = 3900$$

ESTIMATION USING ROUNDING

Children will multiply numbers to four digits by a one or two digit number using long and short multiplication.

$$\begin{array}{r} 274 \\ \times 4 \\ \hline 1096 \\ \hline \end{array}$$

2 +

$$\begin{array}{r} 5236 \\ \times 43 \\ \hline 15708 \\ 209440 \\ \hline 225148 \\ \hline \end{array}$$

+ +

PLACEHOLDER

Children will also divide numbers up to four digits by using short division.

$$5 \overline{) 0847 \text{ r.1}}$$

4<sup>4</sup> 2<sup>2</sup> 3<sup>3</sup> 6

## Year 6

In year 6 children will continue to utilise and apply their knowledge of written methods for addition and subtraction to support them in solving problems and puzzles.

Children will use their knowledge of the order of operations to carry out calculations involving multiple operations.

B ( )  
 O <sup>2 3</sup>  
 D ÷  
 M ×  
 A +  
 S -

$$20 - 4 \times 2 = 12$$

MULTIPLICATION  
 TAKES  
 PRIORITY OVER  
 SUBTRACTION

A secure knowledge of place value will ensure children can apply written methods to decimal number calculations.

$$28.3 \times 4.5 =$$

TWO DIGITS AFTER  
 DECIMAL POINT

$$\begin{array}{r} 283 \\ \times 45 \\ \hline 1415 \\ 11320 \\ \hline 12735 \end{array}$$

Children will multiply multi-digit numbers by a two digit whole number using long multiplication.

$$\begin{array}{r} 2836 \\ \times 32 \\ \hline 5672 \\ 85080 \\ \hline 90752 \end{array}$$

Children will use long and short division to share numbers up to 4 digits by one and two digit numbers choosing which method is most appropriate.

CHILDREN SHOULD USE  
 LONG DIVISION WHEN  
 THEY ARE NOT  
 CONFIDENT TO RECALL  
 MULTIPLES OF THE  
 NUMBER THEY ARE  
 SHARING BY.

- 17 × 1
- 34 × 2
- 51 × 3
- 68 × 4
- 85 × 5
- 102 × 6
- 119 × 7
- 136 × 8

$$17 \overline{) 21372} \begin{array}{l} 126 \text{ r. } 9 \\ \underline{17} \phantom{0} \\ 67 \\ \underline{51} \phantom{0} \\ 162 \\ \underline{153} \\ 9 \end{array}$$