

# Written Calculation and the National Curriculum 2014

The Pupil Books may be used flexibly, according to your own preferences and to fit in with your school's approach to maths teaching. For example, you may wish to use certain books to support specific key points only. However, the best possible results will be obtained if pupils work systematically through the 18 steps in each Pupil Book, progressing towards mastery of each written method. It is recommended that you start with the **Addition** and **Subtraction** Pupil Books in Year 3, focusing on the early steps in these books before introducing the early steps from the other **Written Calculation** Pupil Books. You, as the teacher, will know best when to introduce each Pupil Book and how to provide a differentiated learning experience for your class that matches individual needs and targets.

Learning objectives, aligning to the National Curriculum 2014, are outlined in the *Teaching notes* within each *Planning* section of this Teacher's Guide. Where appropriate, specific learning objectives are identified within the corresponding step of the *Teaching notes*. These objectives relate to the requirements of the National Curriculum 2014. All learning objectives appear in green text and thus act as a guide to when each step of **Written Calculation** may be introduced.

## A comparison of the methods used with those exemplified in the National Curriculum 2014 Mathematics Appendix I

A range of different methods of written calculation may be used for all four operations. The methods used throughout **Written Calculation** are in line with those recommended by the National Curriculum 2014 and are described briefly below with examples taken from the National Curriculum 2014 Mathematics Appendix I.

### Addition

The method used for addition in **Written Calculation** is exactly as demonstrated in the National Curriculum. The position of any carried digits may vary in different methods, but in **Written Calculation** they are placed below the answer. This matches the position in which they are shown in the National Curriculum Mathematics Appendix I and in this example.

	7	8	9
+	6	4	2
<hr/>			
1	4	3	1
	1	1	

### Subtraction

Subtraction in **Written Calculation** is taught using the method known as 'decomposition'. This method has been taught widely in recent decades. This matches the first two subtraction examples given in the National Curriculum Mathematics Appendix I.

	8	12	
	9	3	2
-	4	5	7
<hr/>			
	4	7	5

The 'equal additions' method (that is, the third subtraction example in the National Curriculum Mathematics Appendix I) is not used in **Written Calculation**.

## Written Calculation and the National Curriculum 2014 continued

### Short multiplication

The short multiplication method is used in **Written Calculation** for one-digit multiplication only. When a number has to be multiplied by a two-digit number, pupils are taught to use long multiplication. The method of short multiplication exactly follows the method shown in the National Curriculum Mathematics Appendix I (first example).

	2	4
×		6
1	4	4
		2

### Long multiplication

The only difference between the method of long multiplication shown in **Written Calculation** and that which is demonstrated in the third example in the National Curriculum Mathematics Appendix I is in the position of the carried digits resulting from the multiplications. In **Written Calculation** (and in the example here) they are written as small digits beside in the column to the left.

		1	2	4
	×		2	6
		7 <sub>1</sub>	4 <sub>2</sub>	4
+	2	4	8	0
	3	2	2	4

### Short division

In **Written Calculation**, the short division method is used for dividing by one-digit numbers only. When a number has to be divided by a two-digit number, pupils are taught to use long division. The short division method used in **Written Calculation** exactly follows that shown in the first two examples in the National Curriculum Mathematics Appendix I.

	1	4
7	)	9 28

### Long division

The method for teaching long division in **Written Calculation** is as shown in the third example in the National Curriculum Mathematics Appendix I. This method is used for giving answers with remainders, as fractions and as decimals. Teaching pupils to treat all long division questions in the same way, using this more traditional approach, provides consistency of language and method.

			2	8	.	8
1	5	)	4	3	2	.0
	-		3	0		
			1	3	2	
	-		1	2	0	
				1	2	.0
			-	1	2	.0
						0