

Introduction

1. Busy Ant Maths

Busy Ant Maths is a mathematics course that ensures complete coverage of the 2014 Primary National Curriculum for Mathematics.

The course has at its core the following seven key principles:

- 1 To inspire **enjoyment of maths**
- 2 To assist in developing children's **conceptual understanding of maths**
- 3 To help **raise levels** of attainment for every child
- 4 To provide a **rigorous and cohesive scope and sequence** of the primary maths curriculum, while at the same time allowing for schools' own curriculum design
- 5 To promote the most **effective pedagogical methods** in the teaching of mathematics
- 6 To offer manageable strategies for **effective diagnostic, formative and summative assessment**, to inform planning and teaching
- 7 To strengthen the **home/school link**.

The Calculations Policy

This calculations policy has been written to provide schools with an understanding of when and how the four operations –addition, subtraction, multiplication and division, are taught in the Busy Ant Maths course*.

The aim of this policy is to offer schools an insight into coverage of the National curriculum 'Addition and subtraction' and 'Multiplication and division' domains in Busy Ant Maths. It is also designed to ensure consistency throughout the school and to make teachers aware of the continuity and progression in skill development across the year groups. It aims to enable staff, and parents, to see how the concepts, facts and calculation strategies and methods used in any particular year are taught, and how these build on previous learning and contribute to future learning.

The Busy Ant Maths course has been written in the belief that being able to calculate successfully is being able to:

- have a confident and competent understanding of numbers and the number system
- have instant recall of a set of basic number facts
- use a range of mental calculation strategies effectively, efficiently and flexibly
- use a range of written calculation methods accurately and appropriately
- use and apply all of the above in order to solve problems and reason mathematically.

Structure of the document

For each year group, years 1 to 6, the Busy Ant Maths Calculations Policy begins with an outline of the key knowledge and understanding of number and the number system, including place value, that pupils are taught in Busy Ant Maths in order to calculate successfully.

NUMBER AND PLACE VALUE

To add, subtract, multiply and divide successfully, pupils need to:

- read and write numbers up to 1000 in numerals and in words
- count from 0 in multiples of 1, 2, 3, 4, 5, 8, 10, 50 and 100, forwards and backwards

Taken from Year 3 Calculations Policy

* This policy also reflects the pupil consolidation activities contained in Fluency in Number Facts, the Collins Maths series that accompanies the Busy Ant Maths course.

Seamer & Irton Primary School Maths Calculation Policy

Then, for each year group, a detailed summary is provided of how each of the four operations: addition, subtraction, multiplication and division – is taught in Busy Ant Maths. This summary includes information on the following:

Conceptual understanding and procedural fluency

The key concepts pupils need to know and understand in order to calculate successfully.

The number facts that pupils need to recall with fluency.

Conceptual understanding and procedural fluency

To add successfully, pupils need to:

- continue to recall and use addition facts to 20 fluently, and derive and use related facts up to 100, e.g. $130 + 50 = 180$
- continue to add numbers mentally, including:
 - two two-digit numbers

Taken from Year 3 Calculations Policy Reason mathematically and solve problems

The problem solving and reasoning skills pupils need to develop in order to use and apply their conceptual understanding and procedural fluency.

Reason mathematically and solve problems

Pupils need to use and apply their understanding of, and fluency in, addition to:

- solve problems, including missing number problems, using number facts, place value, and more complex addition

Taken from Year 3 Calculations Policy

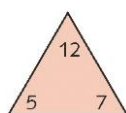
Mental strategies

The mental calculation strategies taught, including representations, and models and images used.

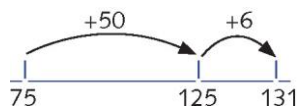
Mental strategies

- Use of models and images:

- trios
 $7 + 5 = 12$
 $5 + 7 = 12$
 $12 - 5 = 7$
 $12 - 7 = 5$



- the empty number line



Taken from Year 3 Calculations Policy

Written methods

The pencil and paper procedures taught – both informal and formal.

Written methods

- Add numbers with up to three digits (HTO + HTO)
- Estimate and check the answer to a calculation

Expanded written method

$$\begin{array}{r}
 548 + 387 \\
 548 \\
 + 387 \\
 \hline
 15 \\
 120 \\
 800 \\
 \hline
 935
 \end{array}$$

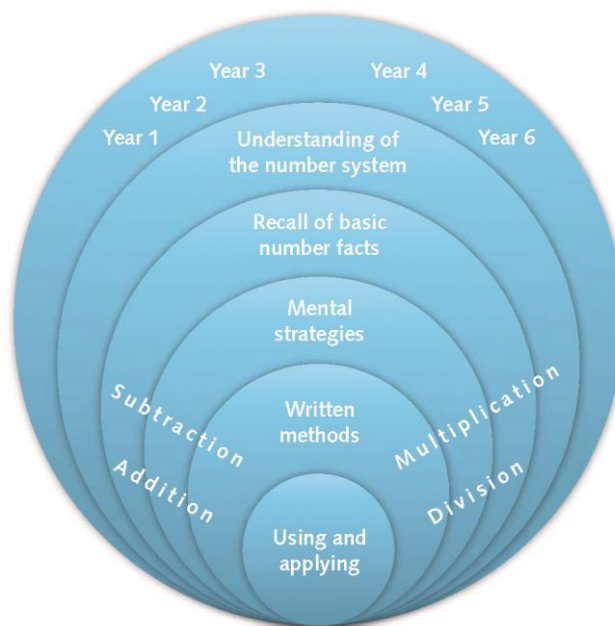
The first stage in the written method shows separately the addition of the ones to the ones, the tens to the tens and the hundreds to the hundreds. To find the partial sums either the ones or the hundreds can be added first, and the total of the

Taken from Year 3 Calculations Policy

The importance of making connections

Although the Busy Ant Maths Calculations Policy is organised by year group, then by operation, and finally by the areas outlined above, it is also vital to stress the importance of the interconnectivity between year groups, the four operations, and pupils' conceptual understanding, fluency in number facts, mental strategies and written methods, and their ability to reason mathematically and solve problems.

This calculations policy not only aims to show the continuity and progression of calculations within the Busy Ant Maths course, across the primary phase for each of the four operations, it also aims to emphasise the important link between the development of children's mental calculation strategies and the teaching of written calculation methods. Mental recall and strategies, and formal written methods must be seen as complementary to each other. Every written method has a component of mental processing so the two must constantly be developed in conjunction with each other. Pupils' mental facilities with number should be refined as they move through Key stage 2 and not focus exclusively on the written methods of calculation.



The ultimate goal of Busy Ant Maths, as for all primary schools, is to ensure that children are confident and competent in their calculation skills, and are able to use and apply these skills in the real world as autonomous problem solvers.