



*Parents' Guide to
Mathematics at
The Bythams Primary School
Year 5*

Dear Parents,

This booklet is to help you understand how the main four operations in Maths are taught at Bythams School. Each guide has the main objectives for the year group and how it is taught in the concrete, pictorial and the abstract. The concrete is all about physical things, such as cubes, bead strings and counters which the children manipulate to understand the objectives. The pictorial is when concepts are shown in a pictorial form such as photos, diagrams and number lines. The abstract moves to formal methods and word problems to understand the objectives. All three methods are used in conjunction with one another, not as a progression.

Objective and Strategies

Concrete

Pictorial

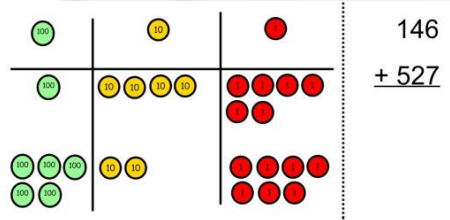
Abstract

Addition

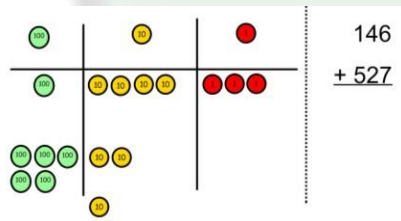
Column method- regrouping

(with more than 4 digits)
(Decimals – with the same amount of decimal places)

Make both numbers on a place value grid.



Add up the units and exchange 10 ones for one 10.

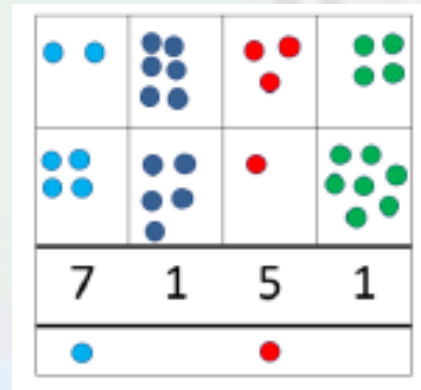


Add up the rest of the columns, exchanging the 10 counters from one column for the next place value column until every column has been added.

This can also be done with Base 10 to help children clearly see that 10 ones equal 1 ten and 10 tens equal 100.

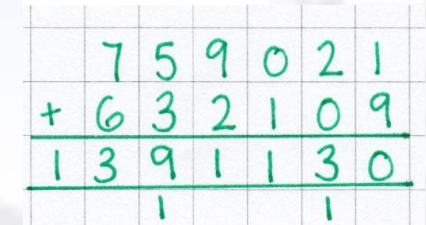
As children move on to decimals, money and decimal place value counters can be used to support learning.

Children can draw a pictorial representation of the columns and place value counters to further support their learning and understanding.



Start by partitioning the numbers before moving on to clearly show the exchange below the addition.

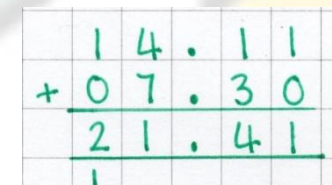
$$\begin{array}{r} 20 + 5 \\ 40 + 8 \\ 60 + 13 = 73 \end{array}$$



As the children move on, introduce decimals with the same number of decimal places and different. Money can be used here.

$$\begin{array}{r} 72.8 \\ + 54.6 \\ \hline 127.4 \end{array}$$

$$\begin{array}{r} £ 23.59 \\ + £ 7.55 \\ \hline £ 31.14 \\ 111 \end{array}$$



Objective and Strategies

Subtraction

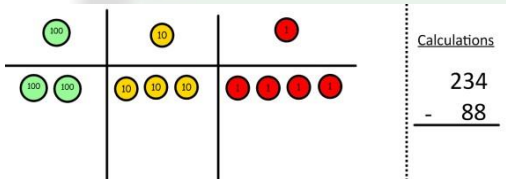
Column method with regrouping

(with more than 4 digits)
(Decimals – with the same amount of decimal places)

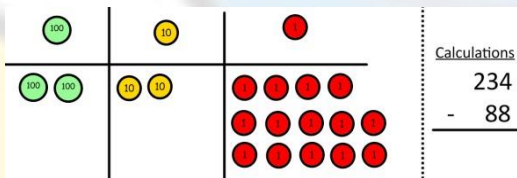
Concrete

Use Base 10 to start with before moving on to place value counters. Start with one exchange before moving onto subtractions with 2 exchanges.

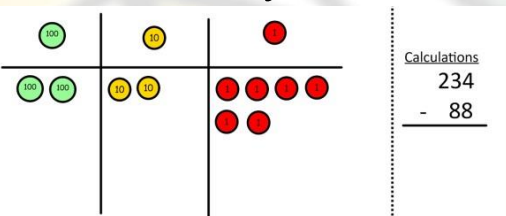
Make the larger number with the place value counters



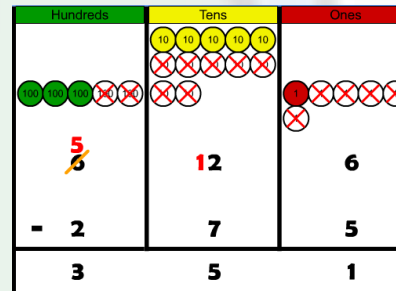
Start with the ones, can I take away 8 from 4 easily? I need to exchange one of my tens for ten ones.



Now I can subtract my ones.



Pictorial

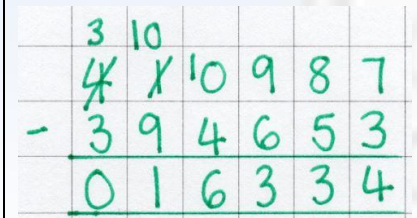


When confident, children can find their own way to record the exchange/regrouping.

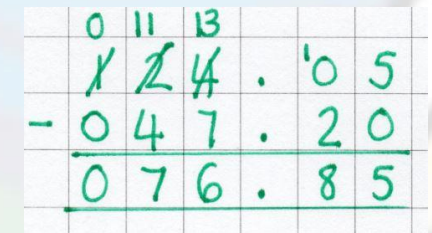
Just writing the numbers as shown here shows that the child understands the method and knows when to exchange/regroup.

Abstract

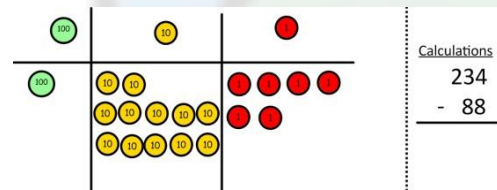
Children can start their formal written method by partitioning the number into clear place value columns.



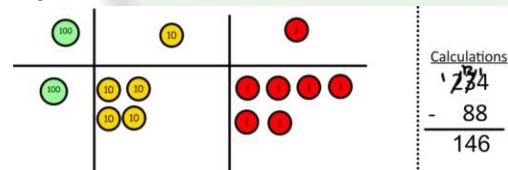
This will lead to an understanding of subtracting any number including decimals.



Now look at the tens, can I take away 8 tens easily? I need to exchange one hundred for ten tens.



Now I can take away eight tens and complete my subtraction



Show children how the concrete method links to the written method alongside your working. Cross out the numbers when exchanging and show where we write our new amount.

Objective and Strategies

Concrete

Pictorial

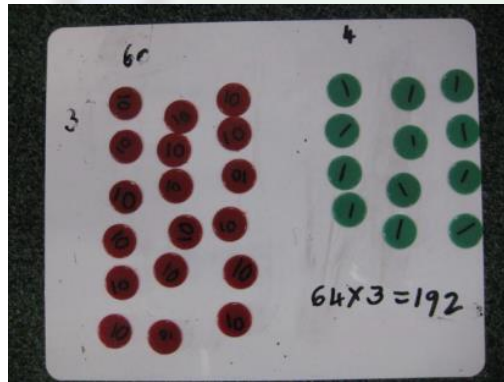
Abstract

Multiplication

Column multiplication

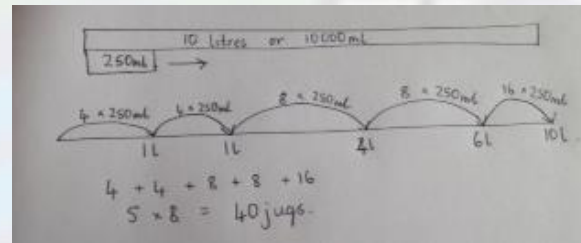
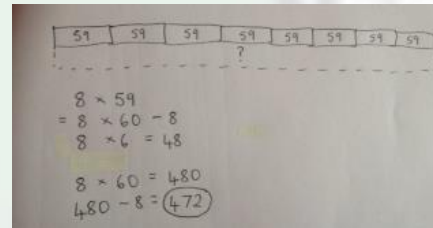
(up to 4 digit numbers multiplied by 1 or 2 digits)

Children can continue to be supported by place value counters at the stage of multiplication.

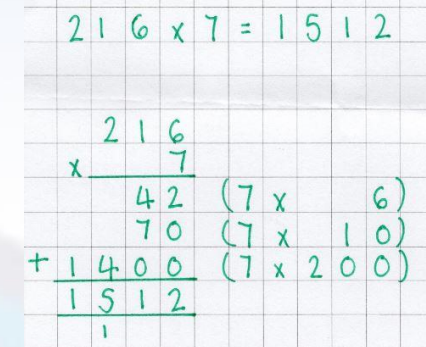


It is important at this stage that they always multiply the ones first and note down their answer followed by the tens which they note below.

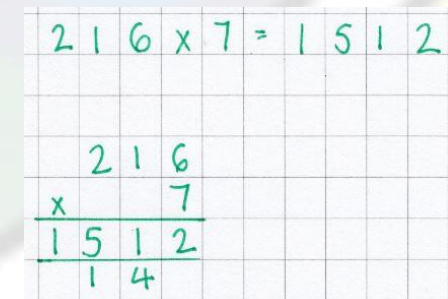
Bar modelling and number lines can support learners when solving problems with multiplication alongside the formal written methods.



Start with expanded (long) multiplication, reminding the children about lining up their numbers clearly in columns. If it helps, children can write out what they are solving next to their answer.



This moves to the more compact method of short multiplication.



This can then be applied to multiplying 4 digits by a two digit number.

$$3423 \times 14 = 47,922$$

	3	4	2	3	
x				1	4
	1	3	6	9	2
+	3	4	2	3	0
	4	7	9	2	2

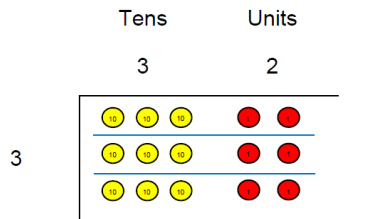
Objective and Strategies

Division

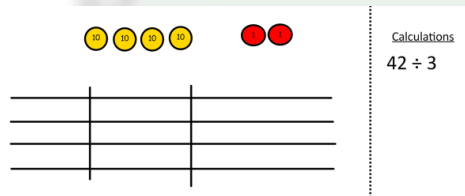
Long Division

(up to 4 digits by a 1 digit number interpret remainders appropriately for the context)

Concrete

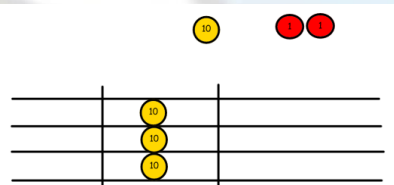


Use place value counters to divide using the bus stop method alongside

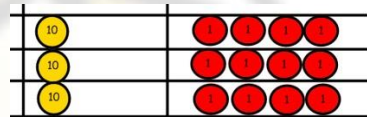


$$42 \div 3 =$$

Start with the biggest place value; we are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over.



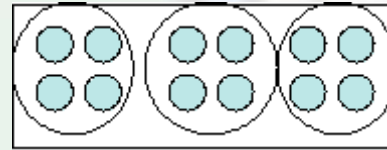
We exchange this ten for ten ones and then share the ones equally among the groups.



We look how much in 1 group so the answer is 14.

Pictorial

Students can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups.



Encourage them to move towards counting in multiples to divide more efficiently.

Abstract

Long division – expanded or ‘chunking’

Begin with divisions that divide equally with no remainder.

$$152 \div 4 = 38$$

Move onto divisions with a remainder.

$$367 \div 12 = 30 \text{ r } 7$$

↑ remainder as cannot be divided by 12.

Long Division

Use this method if dealing with increasingly larger numbers, but often long short (expanded method) is followed by short division.

$$\begin{array}{r} 0318r5 \\ 20 \overline{) 6365} \\ \underline{-60} \\ 36 \\ \underline{-20} \\ 165 \\ \underline{-160} \\ 5 \end{array}$$

(3 x 20)
(1 x 20)
(8 x 20)

Children are not required to write these multiplications, they are there to help with the explanation.

What you can do at home to help your child make progress

- look at the weather page in a local newspaper or website and find out what all the different sets of numbers/pieces of information mean
- look for and discuss the use of percentages in articles in a newspaper or on the television or discuss the percent (%) interest on a savings account
- talk about supermarket offers, for example, “3 for the price of 2”, “Buy 1 get 1 free”, “Two for £2”, “Buy one get one half price”. Work out together which is the cheapest or best value
- calculate percentage of sales discounts
- adapt recipe amounts for different numbers of people
- play the ‘estimate the size of the shopping bill’ game, that is, round every item to the nearest 50p and see how the estimated bill compares to the actual cost
- consider the probabilities of certain events happening when playing simple games with dice, for example, the chance of gaining a particular total when two dice are thrown
- read timetables and maps when planning a journey
- look at local ordnance survey maps and talk about how bearings are measured from your city, town or village to other nearby places.