

# How we teach Maths at Ellingham

## Year 3



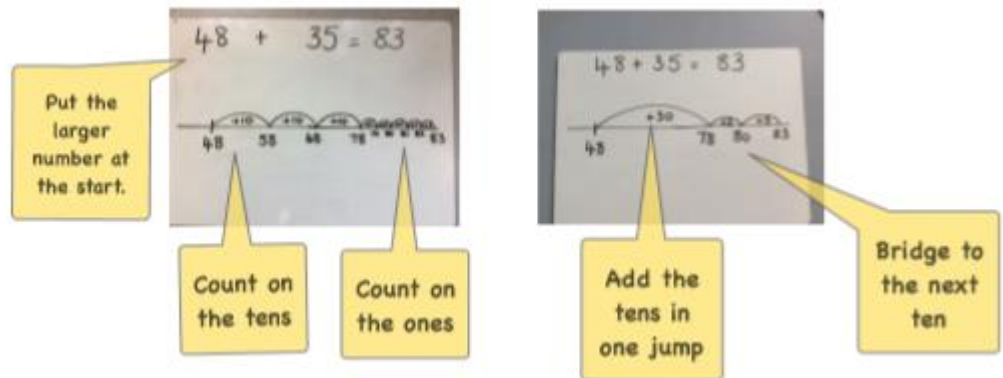
A helpful guide for  
parents

# Addition

Addition is taught in the following stages:

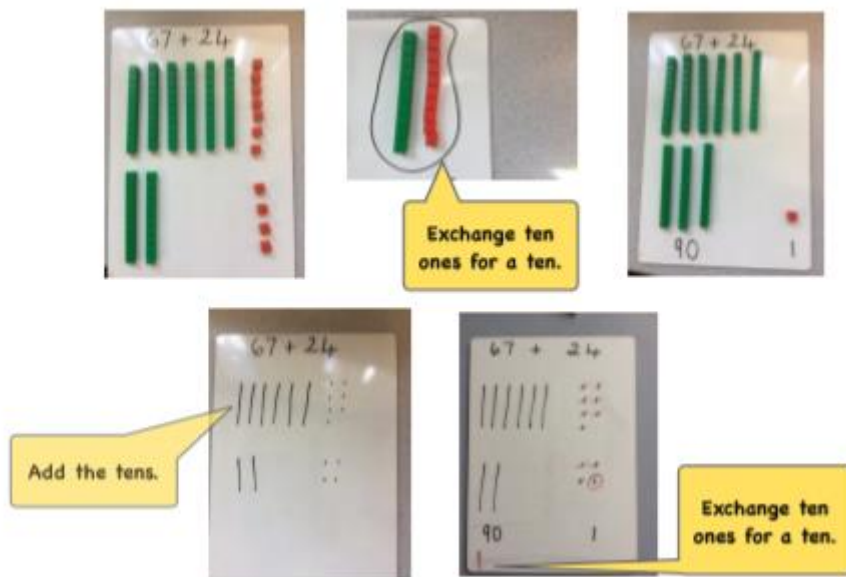
## Using a number line

These pictures show the progression in using a number line.



## Vertical partitioning (using Base 10)

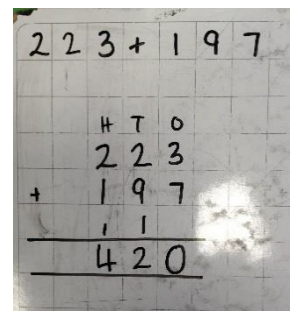
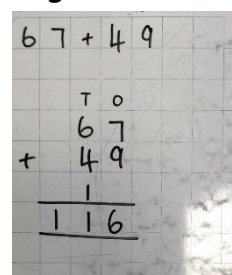
Arranging the tens and ones in columns prepares the children for formal column addition. Children may use the concrete resources or may prefer drawing the tens and ones.



## Column addition

When their place value is secure, children move on to formal written column addition. They recognise that when adding, it can change more than one column. They start by adding numbers where there is one exchange needed before learning to exchange in two different columns.

Children start by adding the ones column, then tens, then hundreds. If the sum of the digits in a column is greater than 9, exchange into the 'tens' column.

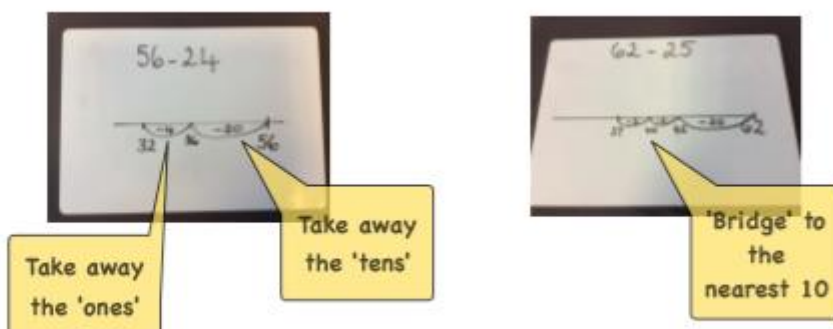


# Subtraction

Subtraction is taught in the following stages:

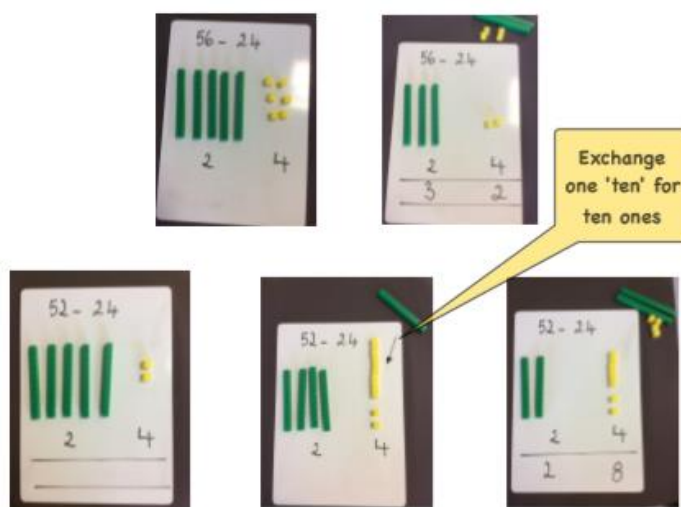
## Using a number line

Children will use number lines when subtracting. This will also involve crossing the 'tens boundary'.



## Vertical partitioning (using Base 10)

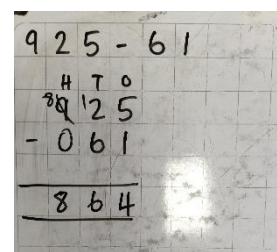
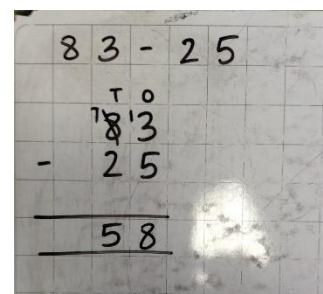
Arranging the tens and ones in columns prepares the children for formal column subtraction. Children may use the concrete resources or may prefer drawing the tens and ones.



## Column subtraction

When their place value is secure, children move on to formal written column subtraction. They start by subtracting numbers where there is no exchange needed before learning to exchange in one column, then two columns.

Children start by subtracting the ones column, then tens, then hundreds. If the upper digit is smaller than the lower digit, exchange from the column to the left.



# Multiplication

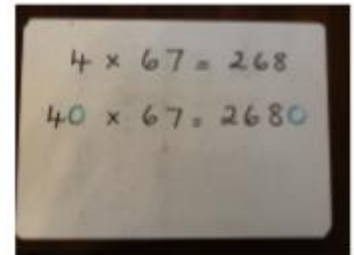
Multiplication is taught in the following stages:

## Using known facts

Children are expected to recall all the times table facts for the 2, 3, 4, 5, 8 and 10 times tables.

## Related facts

Children use known multiplication facts to solve other problems. They understand that because one of the numbers in the calculation is ten times bigger, then the answer will also be ten times bigger.



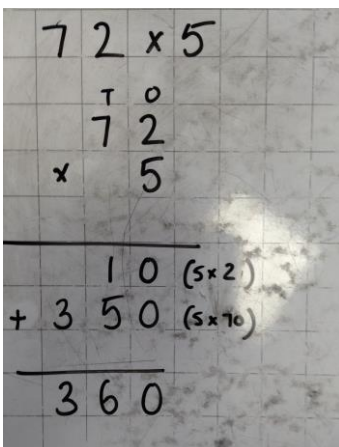
Handwritten multiplication facts on a whiteboard:

$$4 \times 67 = 268$$
$$40 \times 67 = 2680$$

## Short multiplication

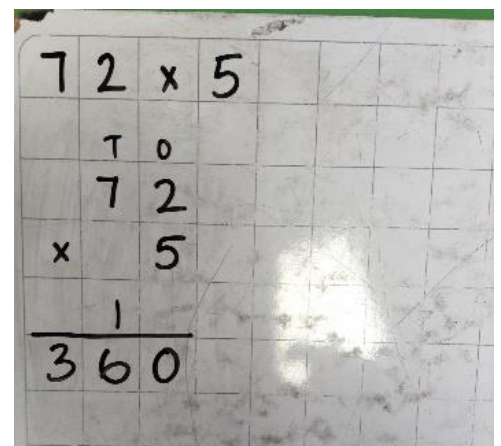
Children use the formal method of column multiplication alongside concrete representations. They explore multiplication with no exchange, then move on to multiplication with an exchange.

Children begin using the expanded method where each step of the multiplication is outlined. When they are confident with the expanded method, they move onto normal short multiplication. Start by multiplying the ones digit of the top number with the multiplier. If the total is larger than 9, exchange into the 'tens' column.



Expanded multiplication of 72 by 5 on grid paper:

$$\begin{array}{r} 72 \times 5 \\ \hline 10 \text{ (} 5 \times 2 \text{)} \\ + 350 \text{ (} 5 \times 70 \text{)} \\ \hline 360 \end{array}$$



Short multiplication of 72 by 5 on grid paper:

$$\begin{array}{r} 72 \times 5 \\ \hline 1 \\ \hline 360 \end{array}$$

# Division

Division is taught in the following stages:

## Using known facts

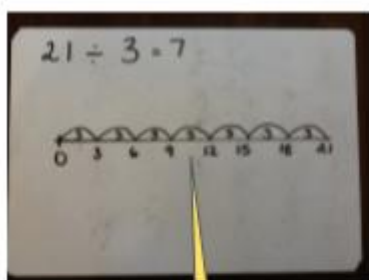
Children are expected to recall all the multiplication facts for the 2, 3, 4, 5, 8 and 10 times tables and will use their understanding of the relationship between multiplication and division to recall the division facts. If I know that  $6 \times 3 = 18$ , I also know that  $18 \div 3 = 6$  and  $18 \div 6 = 3$

## Related facts

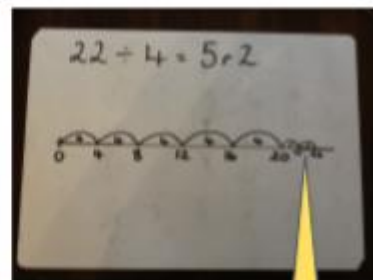
Children use known division facts to solve other problems. They understand that because one of the numbers in the calculation is ten times bigger, then the answer will also be ten times bigger.

## Using a number line

Children understand division as 'how many ... in ...?' The number line is a pictorial representation to work this out. It is useful when children start working with larger numbers, or numbers with remainders. Children understand division as 'how many ... in ...?' The number line is a pictorial representation to work this out.



How many  
'3s' in 21?



The  
'remainder'

## Partitioning

Children move on to dividing by partitioning numbers into tens and ones and sharing into equal groups. They start by dividing numbers that do not involve exchanges or remainders. They then move on to dividing numbers where they are required to exchange between the tens and ones. It is important that children divide the tens first, then the ones.

