

Bury C of E Primary School

Mathematics Calculations Progression Document

**EYFS**

At Bury CE Primary, we believe that children should be introduced to the processes of calculation through practical, oral and mental activities. As children begin to understand the underlying ideas, they develop ways of recording to support their thinking and calculation methods; use particular methods that apply to special cases and learn to interpret and use the signs and symbols involved.

Choosing the appropriate strategy, recording in mathematics and in calculation in particular is an important tool both for furthering the understanding of ideas and for communicating those ideas to others. Children use age appropriate calculations in order to become **fluent** in that strategy, they will then use calculation strategies to support their thinking and **reasoning**, making connections in their mathematical understanding and for them to become efficient at **problem solving**.

Written methods are complementary to mental methods and should not be seen as separate from them. The aim is that children use mental methods when appropriate, but for calculations that they cannot do mentally they use an efficient written method accurately and with confidence. It is important children acquire secure mental methods of calculation and one efficient written method of calculation for addition, subtraction, multiplication and division which they know they can rely on when mental methods are not appropriate.

This document identifies progression in calculation strategies.

By the end of Year 6, children should be able to choose the most appropriate approach to solve a problem: making a choice between using jottings (an extended written method), an efficient written method or a mental method.

This policy contains the key procedures that will be taught within our school alongside practical resources. It has been written to ensure consistency and progression throughout the school and reflects a whole school agreement.

For a further understanding of mathematics terminology, please see the NCETM 'mathematics glossary' on our school website for an explanation of terms used in each Key Stage.

Recommended websites/ blogs:

<https://www.bbc.co.uk/bitesize/primary>

<https://garethmetcalfe.wordpress.com/>

<http://www.mathematicshed.com/>

<https://trockstars.com/>

<https://nrich.maths.org/>

<https://www.ncetm.org.uk/>

\*Note: the terminology of 'ones' and 'units' in the following diagrams is the same concept, meaning a single value.

# ADDITION

## EYFS – Addition

**VOCABULARY:** add, more, and, make, sum, total, altogether, score, double, one more, two more, ten more..., how many more to make... ?, how many more is... than...?

Across all year groups, the questions 'what is the same/ different?' is asked. This supports children with noticing patterns, making connections and making comparisons.

### Method

Using a range of practical resources and real life contexts, pupils develop their understanding of the concept of addition through counting activities

### Example/Representation

How many dinosaurs are there?



What about if I give you two more? How many are there now?



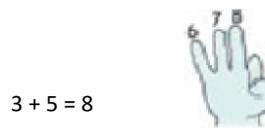
Children are introduced to the addition symbol (+) and use pictures/diagrams to represent the calculation

There are 2 birds. Another bird flies in. How many are there altogether?



Store the larger number mentally and use fingers to count on

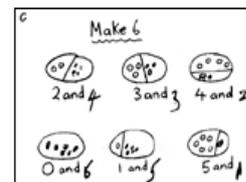
Count on from the larger number. A child will choose the larger number, even when it is not the first and count on from there; (5 in your head) 'six, seven, eight' using their fingers:



Children represent an addition number sentence in picture form and are able to solve simple addition number sentences using objects or fingers  
Children will begin to explain their reasoning and explore the different possibilities.

$5 + 2 = 7$

Find all the possibilities:



Use diagrams as an early introduction to a number track  
This will help children develop their understanding of addition



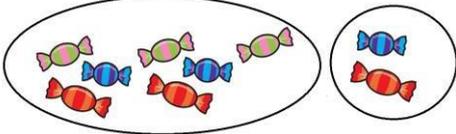
### EXPECTATIONS:

- Understand the value of a number and represent quantities using fingers.
- Recognise and order numbers 1 – 10 in different ways, e.g. items, words, numerals, position on a number line.
- Counting forwards and backwards
- Encourage the use of mark making to support mental processes.

# SUBTRACTION

## EYFS – Subtraction

**VOCABULARY:** take (away), leave, how many are left/left over?, how many have gone?, one less, two less... ten less..., how many fewer is... than...?, difference between, is the same as  
 Across all year groups, the questions 'what is the same/ different?' is asked. This supports children with noticing patterns, making connections and making comparisons.

Method	Example/Representation
Using a range of practical resources and real life contexts, pupils develop their understanding of the concept of subtraction as taking away through counting activities.	<p>I had 9 sweets and I ate 2. How many have I got left?</p> 
Children will use counting objects, toys or their fingers to answer simple subtraction number sentences	<p>e.g. <math>5 - 2 = 3</math></p> 
With modelling, children will listen to a subtraction story and draw a set of objects (jottings) on whiteboards and cross some off - drawing a picture helps children to visualise the subtraction.	
Children will use their fingers to help with subtraction, e.g. $5 - 2 = 3$ . A child will start with the biggest number in their head '5' and hold 5 fingers up They will count back saying '5' (touching their head) '4, 3' (curling one finger down at a time), then count how many fingers are left.	
Children can use number tracks to help develop their understanding of subtraction.	

**EXPECTATIONS:**

- Develop a mental image of the number system e.g. fluency of ordering numbers 0 – 10.
- To count objects that cannot be held mentally using one-to-one correspondence.
- To use quantities and objects to subtract one digit numbers by counting back.
- To find the difference in number of items in two groups..
- Children to see parts and the whole number in a practical context.
- Children count backwards using familiar number rhymes (e.g '10 Green Bottles', '5 Fat Sausages')
- Count backwards from different starting points

# Multiplication

## EYFS – Multiplication

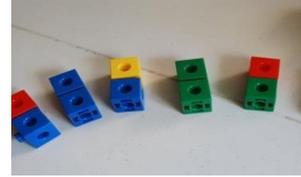
**VOCABULARY:** group, lots of, double.

### Method

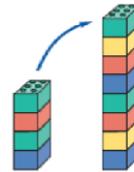
Children will count groups of the same number of objects and add them together  
The children learn about grouping in practical contexts and through pictorial representations

### Example/Representation

Count groups of 2 and then count all objects to add them together.



Children will solve simple problems involving doubling



Double 4 is 8

### EXPECTATIONS:

- Develop a mental image of the number system.
- Understand the value of a number
- Counting in 2s,
- To solve problems including doubling
- Number patterns on a number line and on a hundred square – 2's, 5's and 10's.

# DIVISION

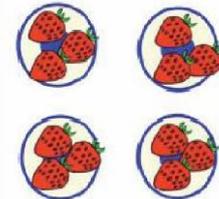
## EYFS - Division

**VOCABULARY:** halve, half, share, share equally, groups

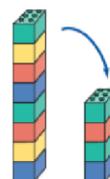
### Method:

Children **experience early division** by sharing objects and counting how many in each group within their play opportunities as part of continuous provision.

### Example/Representation:



Children will **solve problems including halving and sharing** within their play opportunities as part of continuous provision.



What is half of 8?  
Half of 8 is 4

### EXPECTATIONS:

- Develop a mental image of the number system
- Understand the value of a number
- Solve problems including sharing
- Solve problems including halving