Reviewed: September 2026

Abbey CofE Infant School and Nursery

Calculation Policy

At Abbey Infant School we follow a CPA (Concrete, pictorial, abstract) approach to teaching Maths. It helps develop a deep and lasting understanding of Maths.

Concrete

The concrete, is the practical, 'doing' stage. Children use objects to model and solve problems. These could be cubes, counters, plastic fruit/veg or real life objects. This helps problems come to life allowing children to experience the problems by being able to physically touch and move the objects. It helps them to make sense of the problem and to see patterns.

Pictorial

This allows children to 'draw' the problem they have just solved physically. Lines, dots and pictures are used to represent the objects in the problem. This helps children move from the physical towards the abstract. It also allows them to visualise the problem and make connections.

Abstract

This stage is when children use symbols to represent the problem. Children will use only numbers and symbols to represent the problem. However, they need to be secure in the concrete and pictorial stages before they can work in the abstract.

Some children will use all these stages in one lesson. On occasions children may need to revisit the concrete representation before moving to the abstract. Materials should always be available for all children to use at any time.

Resources to support the concrete stage

At Abbey the main resources for children to work with physically is the use of multilink cubes and Base 10. These are used for addition, subtraction, division, multiplication and fractions.

Pictorial - The Bar Model and Part Whole Method

The Bar Model is a drawing used by children to represent a problem. Children draw rectangular bars to represent the ideas

e.g. **Sam had 10 red marbles and 12 blue marbles.**

How many marbles did he have altogether?

The child starts to understand the problem by physically using cubes to represent the problem.

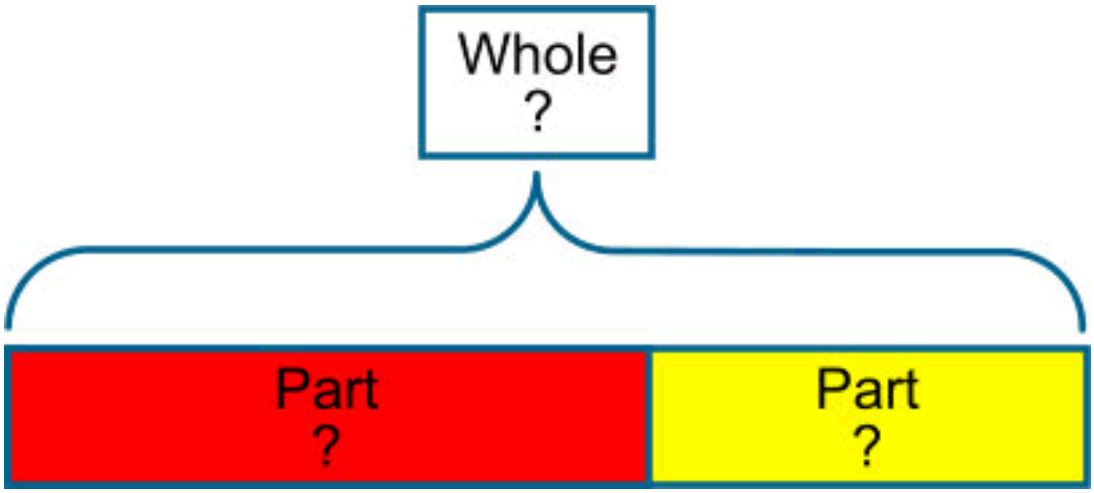




10 + 12 = 22

They then draw the bar before moving to the abstract.

In problems involving addition and subtraction there are three possible unknowns as illustrated below and when given the value of two of them the third can be found.

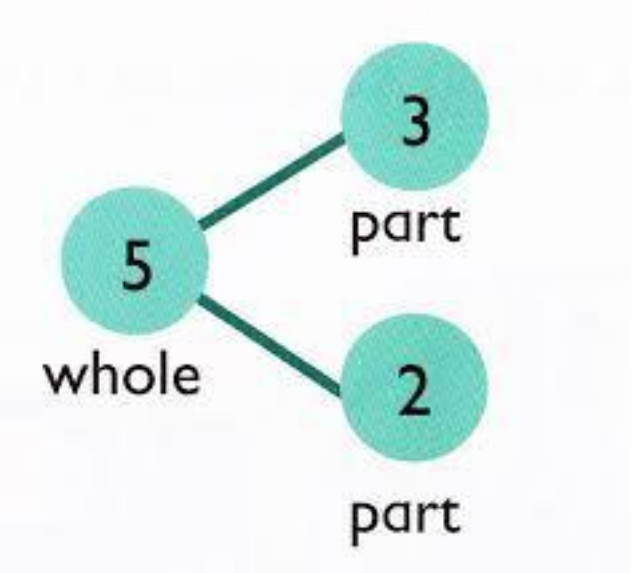


The Part-Part-Whole Method

Part-part-whole thinking refers to how numbers can be split into parts. It allows children to see the relationship between a number and its component parts.

It is vital in understanding the inverse operation. It can help children see the connections between addition and subtraction and multiplication and division.

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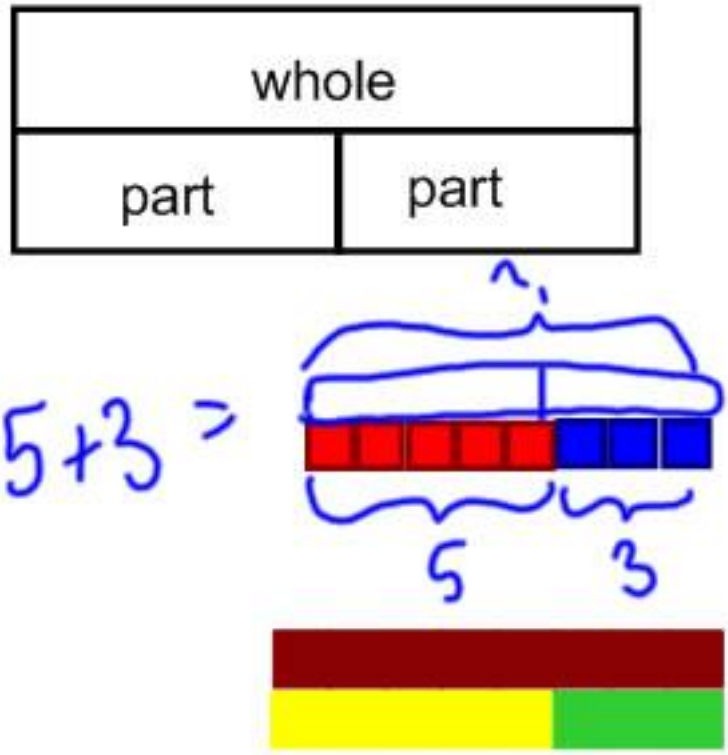


5 = 3 + 2

2 + 3 = 5

5 - 3 = 2

5 - 2 = 3



These strategies are used consistently across the school from Nursey onwards.