

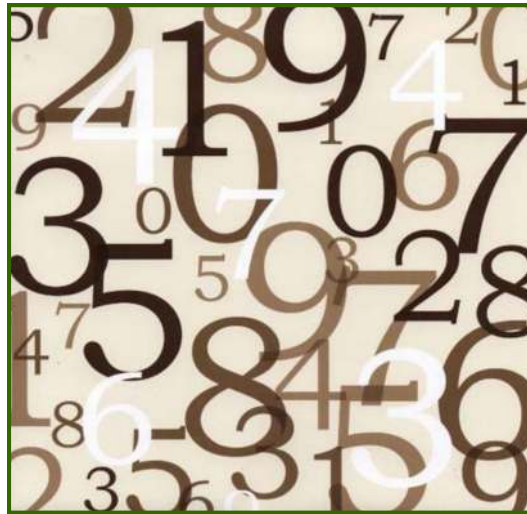


WORKING TOGETHER



Abbey Schools Cluster Area

Calculation Methods at Key Stage 1



This booklet has been written in order to help you understand how the four rules of addition, subtraction, multiplication and division are taught in our school and to give you some ideas of how to help your child with their work.

Maths in the Foundation Stage and Key Stage 1

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Maths is taught using the objectives in the Foundation Stage Curriculum and the National Numeracy Strategy. The emphasis is on children becoming confident in using the key skills which include counting, sorting, looking for patterns and relationships and working with numbers. Understanding is developed through stories, songs, games and play so that children enjoy experimenting and using numbers larger than 10.

Numbers can be seen as 'labels', whether for house numbers, car number plates, television channels or other examples. The children are taught to recognise the names of numbers and to match them to objects when counting.

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At this stage, calculating is about using numbers in practical situations. This may involve comparing numbers of objects (subtraction), combining numbers of objects (addition), sharing objects equally between members of a group (division) and adding the same number of objects (multiplication). The objects could be actual items, e.g. pencils, but they could also be actions, e.g. the number of jumps.

Regular practice is essential to help children develop an understanding of number patterns and relationships. Much of the work is through structured opportunities to experiment and question, e.g. how many times will this small bottle fill the larger one?

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As the children progress through the Key Stage, they will work with numbers mentally and also begin to record their methods as appropriate. Calculations are recorded in a variety of ways as the ultimate aim is for them to be able to work mentally.

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Addition and Subtraction

A lot of work in Key Stage 1 is done on adding pairs of single digit numbers together mentally so that the children know their number bonds to 10 or 20 and so on. The knowledge of these number bonds underpins much of the mathematical learning that your child will experience throughout their time in Primary School. They need to understand the relationship between pairs of numbers, such as:

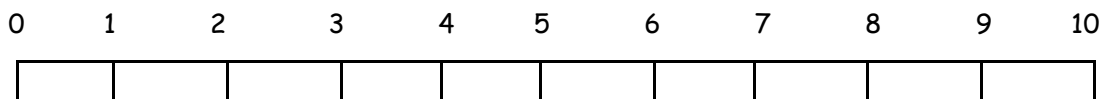
$$2 + 3 = 5$$

$$3 + 2 = 5$$

$$5 - 3 = 2$$

$$5 - 2 = 3$$

They will also use a numberline to help them with their work. A numberline may look like this:



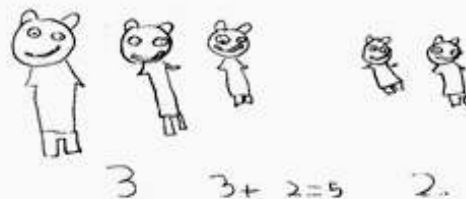
When children are in Years 1 and 2 they are **not** expected to do vertical sums like

$$\begin{array}{r} 6 \\ + 4 \\ \hline 10 \end{array}$$

but they will learn that $6 + 4 = 10$.

The children do a daily mixture of practical, mental and oral work including lots of counting, talking about numbers and using numbers in real life activities. They will begin to record what they've done with pictures and numbers. These recordings will help them to understand what is happening and to show how they've worked something out. Here is an example of early recording.

Jane had 3 bears. She was given 2 more. How many does she have now?



Addition and Subtraction continued

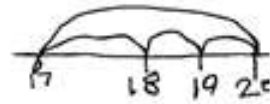
Diagrams and jottings help the children to see what is happening to the numbers and to use some facts they already know to help them work out others.

This next example shows how different children have worked out and recorded the answer to the same problem about the children in the class.

There are 20 children in our class. Three are away today. How many are here?



$$\begin{array}{r} 10 - 7 = 3 \\ 20 - 3 = 17 \end{array}$$



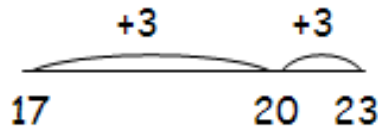
2 away would be 18
so 3 away must
be 17.

$$20 - 3 = 17$$

Numberlines may be used as a method of recording, for example:

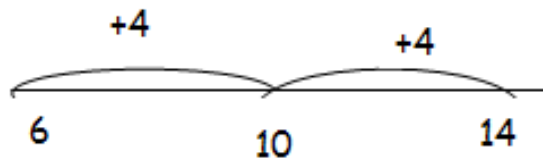
e.g. $17 + 6$

$(6 = 3 + 3)$



Children need to be able to carry out simple 1 digit and 2 digit subtractions mentally as well as being able to record their methods.

e.g. $14 - 6 = 8$



Counting up
to find the
difference

Multiplication and Division

Multiplication is introduced as repeated addition and division is explained as repeated subtraction, e.g. $4 \times 2 = 2+2+2+2$.

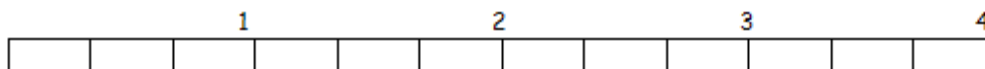
By the end of Year 2, the children should know how to halve and double a number as well as being able to recall multiplication facts for the 2 and 10 times table.

In Years 1 and 2 the children will be recording to demonstrate how they have done something and to show that they've understood what is happening:

Hand-drawn student work showing multiplication and division concepts:

- Left side: A grid of 6 cats (2 rows of 3). Below it: $2 \times 3 \text{ cats} = 6 \text{ cats}$ or $3 \times 2 \text{ cats} = 6 \text{ cats}$.
- Middle: A drawing of 6 dots and a circle. Text: "2 lots of 3 apples makes 6 apples."
- Right side: A circle with 12 dots, a triangle with 9 dots, and a square with 20 dots. Equations: $12 = 2 \times 6$, $9 = 3 \times 3$, $20 = 4 \times 5$, $20 \div 4 = 5$, $20 \div 20 = 1$.

Some children may also have experience of sharing, e.g. $12 \div 3 = 4$ and of grouping (repeated subtraction), e.g. $12 \div 3 = \text{how many 3's make 12?}$



Children need to feel confident with numbers and to enjoy playing with them and using them. If you have any questions on any of the issues raised in these notes, please do not hesitate to contact your child's teacher at school.

Further information can be found on the following websites:

www.education.gov.uk and search for 'Help for Parents'.

www.mathsnet.net which includes games and puzzles for children to play.

www.bbc.co.uk/schools/ the schools section of the bbc website has a whole range of fun activities for children to do on the computer.

This document is adapted from a leaflet produced by Brington C of E Primary School

and we would like to thank Peter Allen, for sharing it.