# St. Bartholomew's C of E Primary School: Addition Calculation

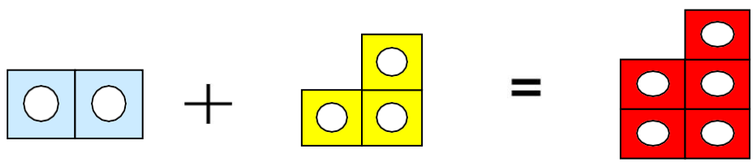
## Stage 1 Addition– adding by combining sets and prepared number lines.

The children should understand the concept of addition by combining two or more sets of objects and should use the (+) and (=) signs accurately. The children's calculation should be written on either side of the equals sign so that (=) is not just interpreted as an answer.

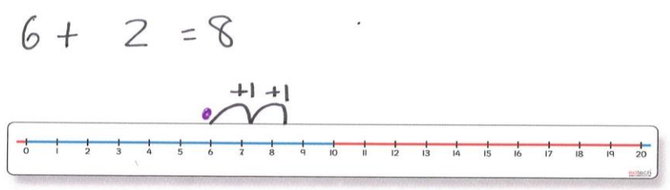
e.g. 2+ 3 = 5 so 5 = 2+ 3

The children should use a range of objects to support visual representations to add two or more amounts to form visual number sentences. The children should then use jottings.

**2 + 3 = 5**



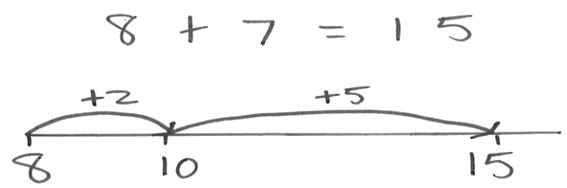

Once the children are secure when adding using objects, they should count up in ones using a prepared number line, emphasising the first number as the starting position i.e. using a coloured dot.



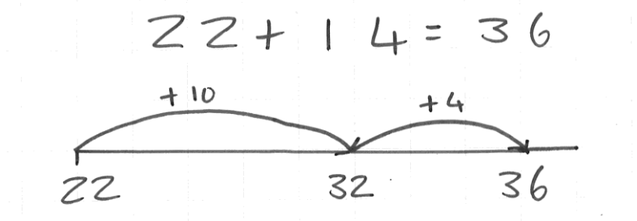

Vocabulary: add, more than, one more,, count one makes and altogether.

## Stage 2 Addition- with an empty number line

Initially the children should be introduced to drawing their own number line to show their thought processes by adding tens and ones by bridging through 10. This can be supported by using a bead string.




Once the children are secure using a number line bridging through ten, they should be introduced to adding TO + TO using a number line adding the tens first then the ones.

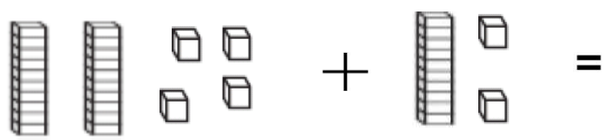



**Models and images.**

Throughout this stage the children should be encouraged to use a variety of models and images as a supporting tool when working with number lines.

For example .

24 + 12= 36

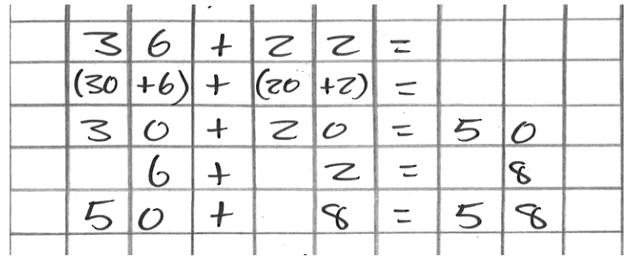


**Using a 100 square, Numicon, or arrow cards should also be used as models and images at this stage .**

Vocabulary in addition to previous stage: plus addition, number line, total, partition and boundary of 10.

## Stage 3 Addition– expanded addition with tens and ones

Initially the children need to use expanded addition not crossing the boundaries of 10 by partitioning and recombining.

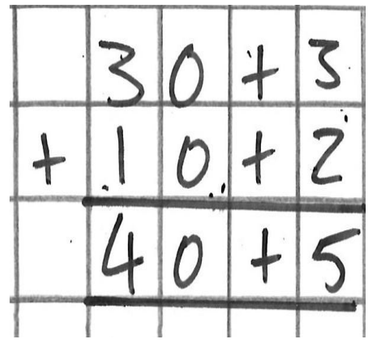


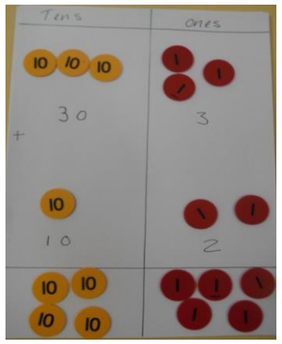
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 36 | + | 22 | = | | | | |
| | (30 | +6) | + | (20 | +2) | = | | |
| | 30 | + | 20 | = | 50 | | | |
| | 6 | + | | 2 | = | | 8 | |
| | 50 | + | | 8 | = | 58 | | |

**Models and Images**

As with Stage 2 the children should be provided with the opportunity to use models and images to support their understanding if required. For example, arrow cards and dienes.

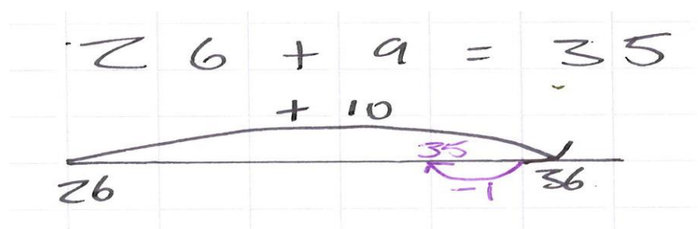
Once the children are secure with expanded addition, they should be introduced to column expanded addition again not crossing the boundaries of 10. This should be taught alongside models and images using tens and one's gird and practical apparatus.




Jottings

Children should use jotting to support mental calculations for example adding 9 or 11 by adding 10 then adjusting.

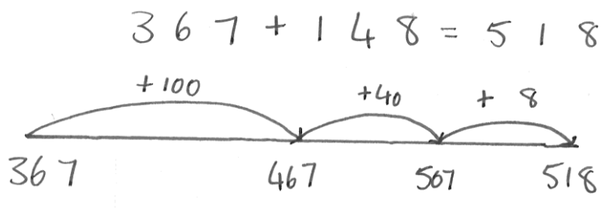



Vocabulary in addition to previous stages: the sum of, vertical, column, expanded

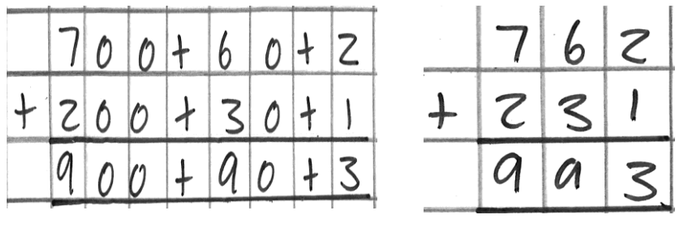
# St. Bartholomew's C of E Primary School: Addition Calculation

## Stage 4 Addition– adding up to 3-digit numbers

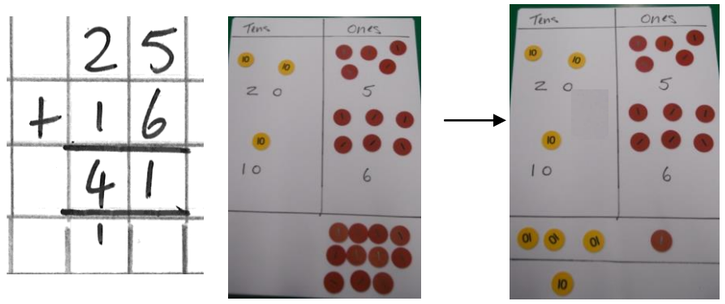
The children should continue their understanding of using formal written methods initially using the models and images they have used in an earlier stage. The National Curriculum restricts Year 2 children progressing onto three-digit numbers. The children Year 2 should be taught **Part 3** of this stage when crossing the boundary of 10.




Once the children are secure with using number lines they should be taught expanded column addition and column addition alongside each other so that they have a secure understanding of place value initially not crossing the boundary of 10.




Once the children are secure with this, they should cross the boundary of 10. Initially place value counters should be used as a model and image to show the carry using TO then extending to HTO using practical apparatus.



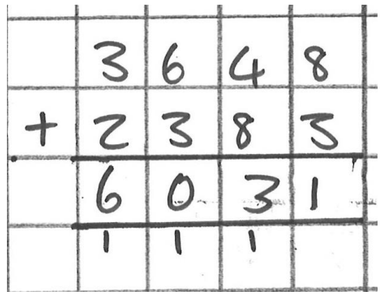

**Jottings**

Encourage the children to estimate their answers before using column addition by rounding to the nearest 1000 or whole number.

Vocabulary in addition to previous stages: increase, column addition, and carry.

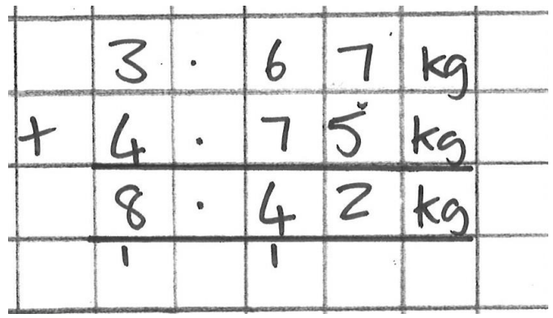
## Stage 5 Addition- Adding 4-digit numbers

The children should use the formal method of column addition using carrying. The carrying digit should be written underneath the equal's box.




Once the children are secure with this, they should use this formal method of addition in real life contexts using

decimal numbers




If the children have difficulties adding 4-digit numbers or decimal numbers in context, this should be taught alongside expanded addition and models and images from Stage 4.

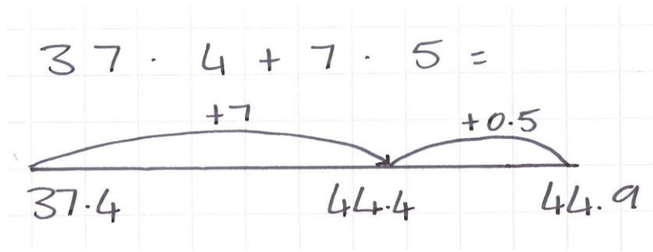
**Jottings**

Encourage the children to estimate their answers before using column addition by rounding to the nearest 1000 or whole number.

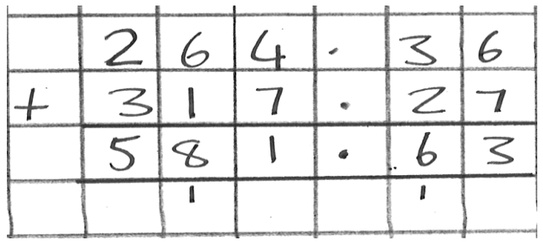
Vocabulary in addition to previous stages: decimal point, tenths, hundredths

## Stage 6 Addition - decimal numbers

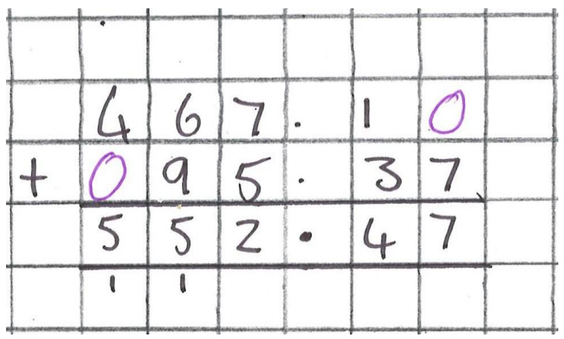
The children should add decimal numbers initially by reverting back to models and images from stage 4 to secure their understanding of place value. The children should add the whole number first then the decimal number




Once the children are secure with this the children should use column addition with numbers that have the same amount of decimal numbers.




Once the children are secure with this, they can be introduced to adding mixed decimal numbers using '0' as a place holder.




**Jottings**

Encourage the children to estimate their answers before using column addition by rounding to the nearest 10th or whole number.

Vocabulary in addition to previous stages: mixed numbers, zero and place holder.