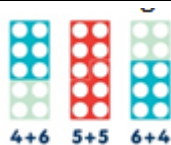


Stage 1:

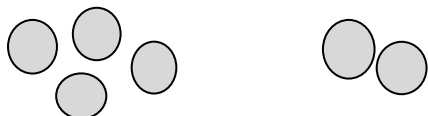
End of Stage Objective:

Using quantities and objects, children add two single-digit numbers and count on to find the answer.

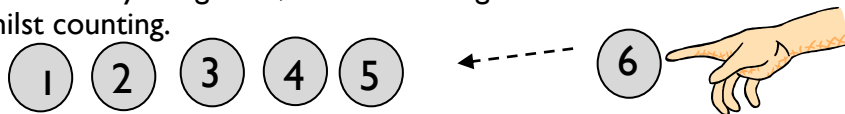
Children should experience practical calculation opportunities using a wide variety of practical equipment, including small world play, role play, counters, cubes and numicon etc.



Children will begin to develop their ability to add by counting out the correct amount for each number in the calculation and then combine them to find the total. For example, when calculating $4 + 2$, they are encouraged to count out four counters and count out two counters.

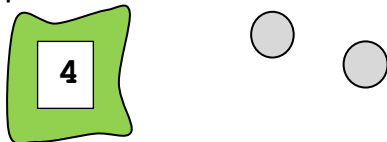


To find how many altogether, touch and drag them into a line one at a time whilst counting.



Counting on method

To support children in moving from a counting all strategy to one involving counting on, children should still have two groups of objects but one should be covered so that it cannot be counted. For example, when calculating $4 + 2$, count out the two groups of counters as before. Cover up the larger group with a cloth.



Place the digit card on top of the cloth to remind the children of the number of counters underneath. They can then start their count at 4, and touch count 5 and 6 in the same way as before, rather than having to count all of the counters separately as before.

Those who are ready may record their own calculations by drawing pictures and beginning to use mathematical symbols; =, +.

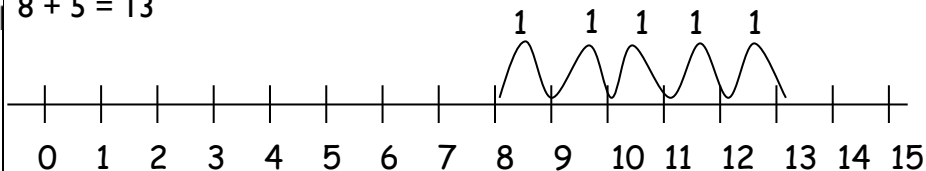
Stage 2:

End of Stage Objective:

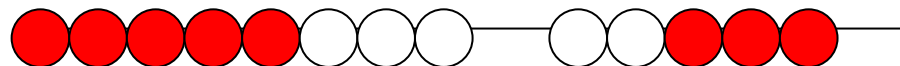
Add numbers using concrete objects, pictorial representations, and number lines, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; three one-digit numbers.

Children use number lines and practical resources to support calculation and teachers demonstrate the use of the number line. Children then begin to use numbers lines to support their own calculations using a numbered line to count on in ones.

$8 + 5 = 13$

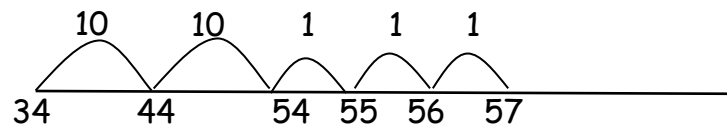


Bead strings or bead bars can be used to illustrate addition including bridging through ten by counting on 2 then counting on 3.



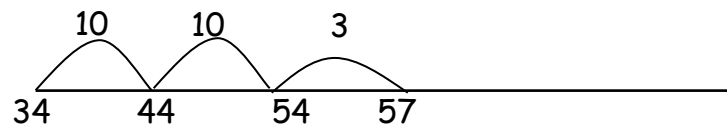
Move onto counting on in tens and ones.

$34 + 23 = 57$



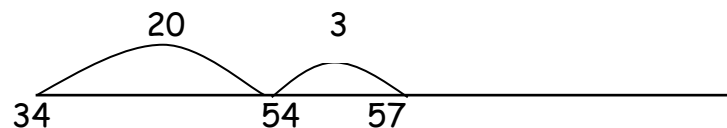
Then helping children to become more efficient by adding the units in one jump (by using the known fact $4 + 3 = 7$).

$34 + 23 = 57$



Followed by adding the tens in one jump and the units in one jump

$34 + 23 = 57$



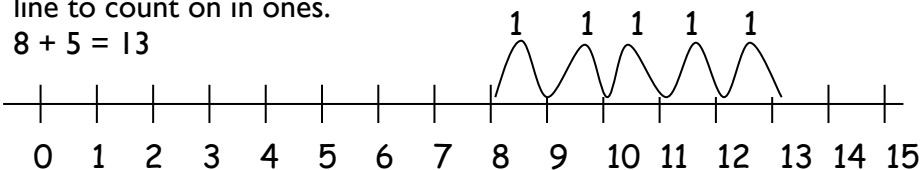
Stage 2:

End of Stage Objective:

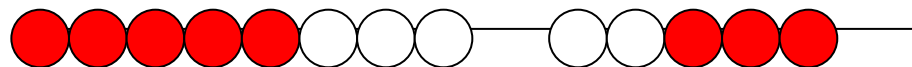
Add numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; three one-digit numbers.

Children use number lines and practical resources to support calculation and teachers demonstrate the use of the number line. Children then begin to use number lines to support their own calculations using a numbered line to count on in ones.

$8 + 5 = 13$

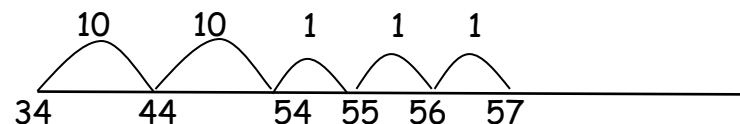


Bead strings or bead bars can be used to illustrate addition including bridging through ten by counting on 2 then counting on 3.



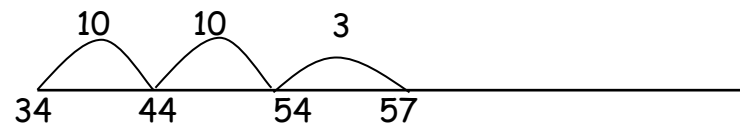
Move onto counting on in tens and ones.

$34 + 23 = 57$



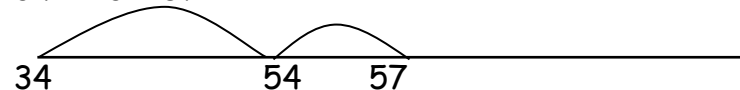
Then helping children to become more efficient by adding the units in one jump (by using the known fact $4 + 3 = 7$).

$34 + 23 = 57$



Followed by adding the tens in one jump and the units in one jump.

$34 + 23 = 57$



Stage 3:

End of Stage Objective:

Children will begin to use informal pencil and paper methods (jottings) to support, record and explain partial mental methods building on existing mental strategies.

Children will continue to use empty number lines with increasingly large numbers, including compensation where appropriate.

$49 + 73 = 122$



In preparation for efficient / formal written methods, partitioning using informal jottings is developed.

$23 + 45$

$20 + 40 = 60$

$3 + 5 = 8$

$60 + 8 = 68$

Adding most significant digits first, then quickly moving to adding least significant digits.

$$\begin{array}{r} 67 \\ + 24 \\ \hline 80 \\ \underline{11} \\ \hline 91 \end{array}$$

$$\begin{array}{r} 267 \\ + 85 \\ \hline 200 \\ \underline{140} \\ \hline 352 \end{array}$$

Moving to adding the least significant digits first in preparation for 'carrying'.

$$\begin{array}{r} 67 \\ + 24 \\ \hline 11 \\ \underline{80} \\ \hline 91 \end{array}$$

$$\begin{array}{r} 267 \\ + 85 \\ \hline 12 \\ \underline{140} \\ \hline 200 \\ \hline 352 \end{array}$$

Stage 4:

End of Stage Objective:

Add numbers with up to 4 digits and decimals with one decimal place using the formal written method of columnar addition where appropriate.

From this, children will begin to carry below the line.

$$\begin{array}{r} 625 \\ + 48 \\ \hline 673 \\ | \end{array} \qquad \begin{array}{r} 783 \\ + 42 \\ \hline 825 \\ | \end{array} \qquad \begin{array}{r} 367 \\ + 85 \\ \hline 452 \\ | | \end{array}$$

Children should extend the carrying method to numbers with at least four digits.

$$\begin{array}{r} 587 \\ + 475 \\ \hline 1062 \\ | | \end{array} \qquad \begin{array}{r} 3587 \\ + 675 \\ \hline 4262 \\ | | | \end{array}$$

Children should also be able to add numbers to include one decimal place.

$$\begin{array}{r} 72.8 \\ + 54.6 \\ \hline 127.4 \\ | | \end{array}$$

By the end of stage 4, children should be using the written method confidently and with understanding. They will also be adding:

- Several numbers with different numbers of digits, understanding the place value;
- *Decimals with one decimal place, knowing that the decimal points line up under one another.*

Stage 5:

End of Stage Objective:

Add whole numbers with more than 4 digits and decimals with two decimal places, including formal written methods (columnar addition).

Children should continue to use the carrying method to solve calculations such as:

$$\begin{array}{r} 3364 \\ + 247 \\ \hline 3611 \\ | | \end{array} \qquad \begin{array}{r} 3121 \\ + 148 \\ \hline 3306 \\ | | \end{array}$$

$$\begin{array}{r} 3.56 \\ + 2.47 \\ \hline 6.03 \\ | \end{array}$$

Children should also be able to add numbers with two decimal places- e.g. money.

$$\begin{array}{r} £3.48 \\ + £0.78 \\ \hline £4.26 \\ | | \end{array}$$

They will also be adding:

- Several numbers with different numbers of digits, understanding the place value;
- *Decimals with up to two decimal places (with each number having the same number of decimal places), knowing that the decimal points line up under one another. e.g. £3.59 + 78p.*
- Amounts of money and measures, including those where they have to initially convert from one unit to another. E.g. I have 125p and get given £3.45 for doing my jobs. How much money do I have?

Stage 5:

End of Stage Objective:

Add whole numbers with more than 4 digits and decimals with two decimal places, including formal written methods (columnar addition).

Children should continue to use the carrying method to solve calculations such as:

$$\begin{array}{r} 3364 \\ + 247 \\ \hline 3611 \\ \hline \end{array}$$

$$\begin{array}{r} 3121 \\ + 37 \\ \hline 3306 \\ \hline \end{array}$$

$$\begin{array}{r} 3.56 \\ + 2.47 \\ \hline 6.03 \\ \hline \end{array}$$

Children should also be able to add numbers with two decimal places- e.g. money.

$$\begin{array}{r} £3.48 \\ + £0.78 \\ \hline £4.26 \\ \hline \end{array}$$

They will also be adding:

- Several numbers with different numbers of digits, understanding the place value;
- *Decimals with up to two decimal places (with each number having the same number of decimal places), knowing that the decimal points line up under one another. e.g. £3.59 + 78p.*

Amounts of money and measures, including those where they have to initially convert from one unit to another. E.g. I have 125p and get given £3.45 for doing my jobs. How much money do I have?

Stage 6:

End of Stage Objective:

Add whole numbers and decimals using formal written methods (columnar addition).

The same method as stage 5 but now looking at adding lots of numbers together and to include numbers with different numbers of decimal places.

Children should extend the carrying method and use it to add whole numbers and decimals with any number of digits.

$$\begin{array}{r} 42 \\ 6432 \\ 786 \\ 3 \\ + 4681 \\ \hline 11944 \\ \hline \end{array}$$

$$\begin{array}{r} 1121 \\ 401.20 \\ 26.85 \\ + 0.71 \\ \hline 428.76 \\ \hline \end{array}$$

When adding decimals with different numbers of decimal places, children should be taught and encouraged to make them the same through identification that 2 tenths is the same as 20 hundredths, therefore, 0.2 is the same value as 0.20.

They will also be adding:

- Several numbers with different numbers of digits, understanding the place value;
- *Decimals with up to two decimal places (with mixed numbers of decimal places), knowing that the decimal points line up under one another.*
- Amounts of money and measures, including those where they have to initially convert from one unit to another. E.g. A shopkeeper sells apples for 55p per 1kg and pears for 60p for 1 kg. A customer buys 2 kg of apples and 1 kg of pears. How much do they spend?

(Do they add in pence or pounds and pence?)

