

At Abbey Village, we believe it is important that children understand the concept of subtraction, in that it is:

- Removal of an amount from a larger group (**take-away**)
- Comparison of two amounts (**difference**)

We also believe the need to understand and work with certain principles i.e. that it is:

- The inverse of addition
- Not commutative i.e. $5-3$ is not the same as $3-5$
- Not associative i.e. $10-3-2$ is not the same as $10 - (3-2)$

At Abbey Village we use a '5 style' approach when it comes to the teaching of Mathematics. This means that our pictorial representation, concrete representation, and written representations are in rows/ lines of 5. E.g., counters are placed in rows of 5, our written representations such as our dots that show the value of 1's are also in lines of 5.

YR

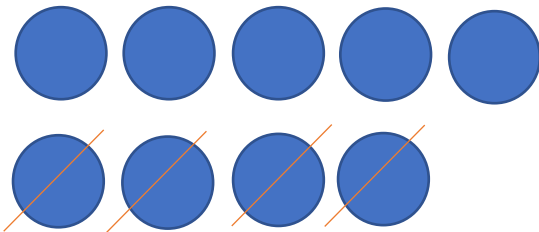
Early Learning Goal:

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

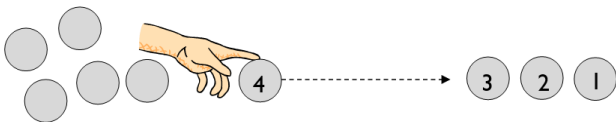
Children are encouraged to develop a mental picture of the number system in their heads to use for calculation. They should experience practical calculation opportunities using a wide variety of practical equipment, including small world play, role play, counters, cubes etc.

Taking away

Children will begin to develop their ability to subtract by using practical equipment to count out the first number and then remove or take away the second number to find the solution by counting how many are left e.g. $9 - 4$.



Children are encouraged to physical remove the counters using touch counting throughout the teaching of mathematics.



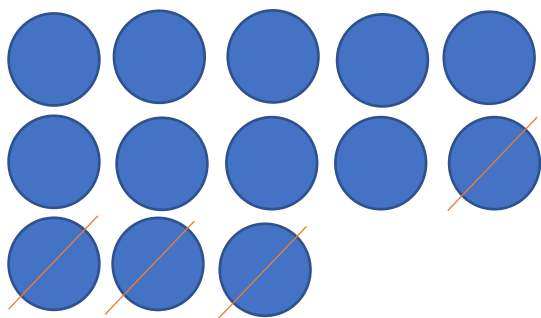
By touch counting and dragging in this way, it allows children to keep track of how many they are removing so they don't have to keep recounting. They will then touch count the amount that are left to find the answer. At Abbey Village, those who are ready may record their own calculations.

Y1

End of Year Objective:

Subtract one-digit and two-digit numbers to 20, including zero (using concrete objects and pictorial representations).

Children will continue to use practical equipment and taking away strategies. To avoid the need to exchange for subtraction at this stage, we continue to use equipment such as counters, cubes and the ones from our base 10 equipment, but not the tens, e.g. $13 - 4 =$



We use our '5 style' when subtracting numbers as it allows the children to spot relationships, whilst also embedding the knowledge of their number bonds.

For this they can see and recognise subtracting 3 from 13 will give them 10, removing the extra one to make 4 would give them 9.

We would encourage our children to touch count and remove the number to be taken away, in this case 4, and then also touch count to find the number that remains.

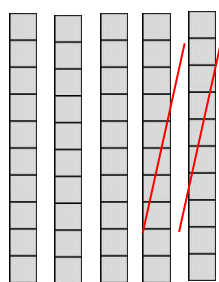
Y2

End of Year Objective:

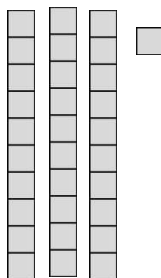
Subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers.

In Year 2 at Abbey Village, our children will begin to use the Base 10 equipment to support their calculations, still using a take-away or removal method. They need to understand that the number being subtracted does not appear as an amount on its own, but rather as part of the larger amount. For example, to calculate $54 - 23$, children would count out 54 using the Base 10 equipment (5 tens and 4 units). They need to consider whether there are enough units/ones to remove 3, in this case there are, so they would remove 3 units and then two tens, counting up the answer of 3 tens and 1 unit to give 31.

Throughout this teaching, the class teacher, may also introduce an expanded column method when there is a calculation that does not include an exchange. In Year 2, these specific headings will be known as tens and ones.

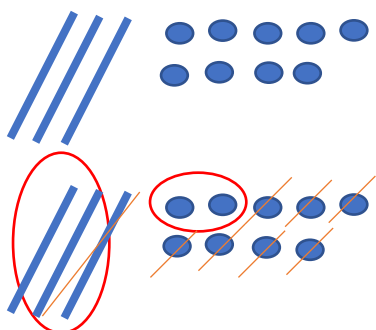


which leaves



so $54 - 23 = 31$

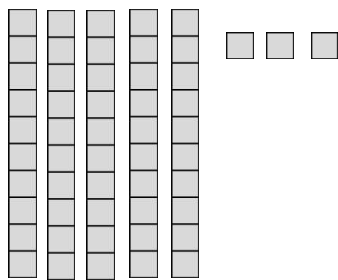
At Abbey Village, our children will record the calculations using their own drawings of Base 10 equipment (as slanted lines for the 10 rods and dots for the ones blocks) e.g. to calculate $39 - 17$ children would draw 39 as 3 tens (lines) and 4 ones (dots) and would cross out 7 ones and then one ten, counting up the answer of 2 tens and 2 ones to give 22.



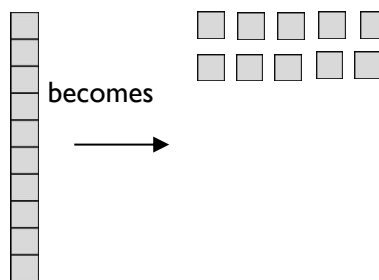
By circling the tens and ones that remain will help children to identify how many remain.

When the amount of ones to be subtracted is greater than the ones in the original number, an exchange method is required. This relies on children's understanding of ten ones being an equivalent amount to one ten. To calculate $53 - 26$, by using practical equipment, they would count out 53 using the tens and ones, as in Step 1. They need to consider whether there are enough ones to remove 6. In this case there are not so they need to exchange a ten into ten ones to make sure that there are enough, as in step 2.

Step 1

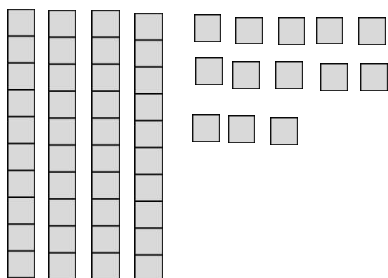


Step 2

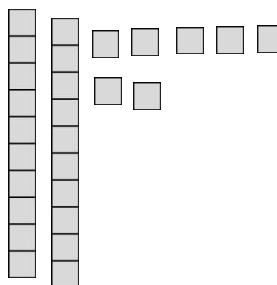


The children can now see the 53 represented as 40 and 13, still the same total, but partitioned in a different way, as in step 3 and can go on to take away the 26 from the calculation to leave 27 remaining, as in Step 4.

Step 3

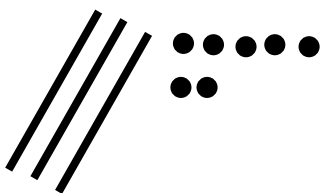


Step 4

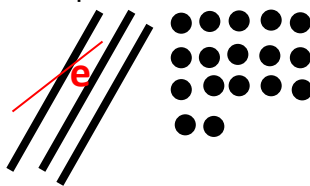


When recording their own drawings, when calculating $37 - 19$, children would cross out a ten and exchange for ten ones. The exchanged ten is denoted with an **e** so children recognise this has not been subtracted. Drawing the ones in a vertical line, as in Step 2, ensures that children create ten ones and do not get them confused with the units that were already in place.

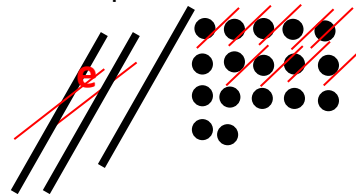
Step 1



Step 2



Step 3



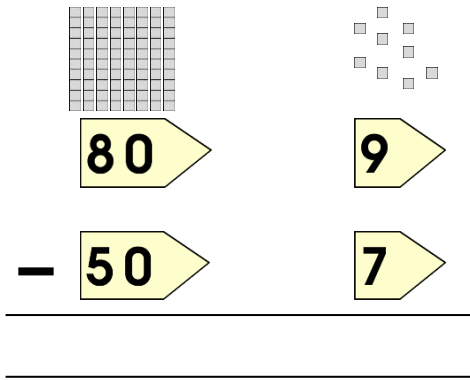
Y3

End of Year Objective:

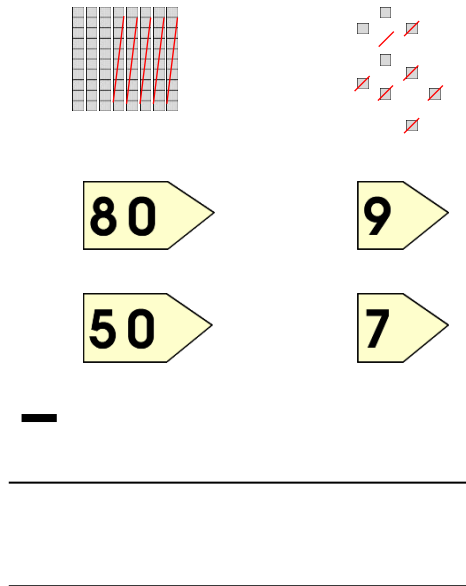
Subtract numbers with up to three digits, using formal written method of columnar subtraction.

Children will build on their knowledge of using Base 10 equipment from year 2 and continue to use the idea of exchange. This process should be demonstrated using arrow cards to show the partitioning and Base 10 materials to represent the first number, removing the units and tens as appropriate (as with the more informal method in year 2).

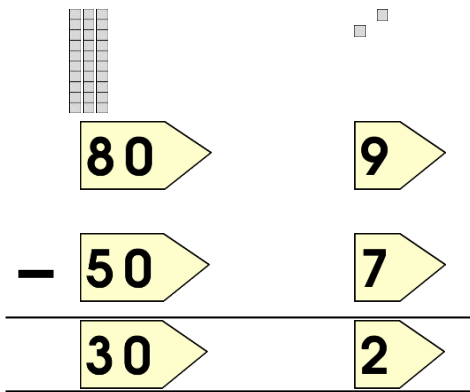
Step 1



Step 2



Step 3

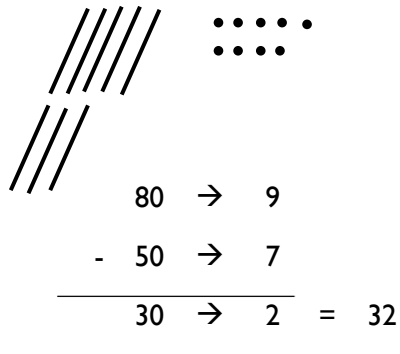


Emphasise that the second (bottom) number is being subtracted from the first (top) number rather than the lesser number from the greater.

This will be recorded by the children as:

$$\begin{array}{r}
 80 \rightarrow 9 \\
 - 50 \rightarrow 7 \\
 \hline
 30 \rightarrow 2 = 32
 \end{array}$$

Children can also use jottings of the Base 10 materials (as in year 2) to support with their calculation, as in the example below.



From this the children will begin to solve problems which involve exchange. Children need to consider whether there are enough units to remove 6. In this case there are not (Step 1) so they need to exchange a ten into ten units to make sure that there are enough, as they have been doing in the method for year 2 (Step 2). They should be able to see that the number is just partitioned in a different way, but the amount remains the same ($71 = 70 + 1 = 60 + 11$).

Step 1

$$\begin{array}{r} 70 \\ - 40 \\ \hline \end{array} \qquad \begin{array}{r} 1 \\ - 6 \\ \hline \end{array}$$

Step 2

$$\begin{array}{r} 60 \\ - 40 \\ \hline \end{array} \qquad \begin{array}{r} 11 \\ - 6 \\ \hline \end{array}$$

Step 3

$$\begin{array}{r} 60 \\ - 40 \\ \hline \end{array} \qquad \begin{array}{r} 11 \\ - 6 \\ \hline \end{array}$$

Step 4

$$\begin{array}{r} 60 \\ - 40 \\ \hline 20 \end{array} \qquad \begin{array}{r} 11 \\ - 6 \\ \hline 5 \end{array}$$

This will be recorded by the children as:

$$\begin{array}{r} 60 \\ 70 \rightarrow 11 \\ - 40 \rightarrow 6 \\ \hline 20 \rightarrow 5 = 25 \end{array}$$

By the end of year 3, children should also extend this method for three-digit numbers.

Y4

End of Year Objective:

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

Children will move to year 4 using whichever method they were using as they transitioned from year 3.

Step 1

$$\begin{array}{r} 700 \rightarrow 50 \rightarrow 4 \\ - 200 \rightarrow 80 \rightarrow 6 \\ \hline \end{array}$$

Step 2 (exchanging from tens to units)

$$\begin{array}{r} 40 \\ 700 \rightarrow 50 \rightarrow 14 \\ - 200 \rightarrow 80 \rightarrow 6 \\ \hline \end{array}$$

Step 3 (exchanging from hundreds to tens)

$$\begin{array}{r}
 \begin{array}{ccc}
 \begin{array}{c} 600 \\ \hline 700 \end{array} & \rightarrow & \begin{array}{c} 140 \\ \hline 50 \end{array} & \rightarrow & 14 \\
 - 200 & \rightarrow & 80 & \rightarrow & 6 \\
 \hline
 \end{array}
 \end{array}$$

Step 4

$$\begin{array}{r}
 \begin{array}{ccc}
 \begin{array}{c} 600 \\ \hline 700 \end{array} & \rightarrow & \begin{array}{c} 140 \\ \hline 50 \end{array} & \rightarrow & 14 \\
 - 200 & \rightarrow & 80 & \rightarrow & 6 \\
 \hline
 400 & \rightarrow & 60 & \rightarrow & 8 & = & 468 \\
 \hline
 \end{array}
 \end{array}$$

This would be recorded by the children as:

$$\begin{array}{r}
 \begin{array}{ccc}
 \begin{array}{c} 600 \\ \hline 700 \end{array} & \rightarrow & \begin{array}{c} 140 \\ \hline 50 \end{array} & \rightarrow & 14 \\
 - 200 & \rightarrow & 80 & \rightarrow & 6 \\
 \hline
 400 & \rightarrow & 60 & \rightarrow & 8 & = & 468 \\
 \hline
 \end{array}
 \end{array}$$

When children are ready, this leads on to the compact method of decomposition:

$$\begin{array}{r}
 \begin{array}{cccc}
 & 6 & 14 & \\
 4 & \diagdown & \diagdown & 14 \\
 & 7 & 5 & \\
 - & 3 & 2 & 8 & 6 \\
 \hline
 & 1 & 4 & 6 & 8 \\
 \hline
 \end{array}
 \end{array}$$

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

- 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.*

Y5

End of Year Objective:

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

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

$$\begin{array}{r}
 \begin{array}{cccc}
 & 6 & 6 & \\
 7 & \diagdown & \diagdown & 12 \\
 & 10 & 7 & \\
 - & 3 & 2 & 2 & 6 \\
 \hline
 & 3 & 8 & 4 & 6 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \begin{array}{cccc}
 & 2 & 13 & \\
 3 & \diagdown & \diagdown & 12 \\
 & . & 4 & \\
 - & 1 & . & 7 & 6 \\
 \hline
 & 1 & . & 6 & 6 \\
 \hline
 \end{array}
 \end{array}$$

They will also be subtracting:

- 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.*

- amounts of money and measures, including those where they have to initially convert from one unit to another

Y6

End of Year Objective:

Subtract whole numbers and decimals using formal written methods (columnar subtraction).

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

$$\begin{array}{r}
 \begin{array}{r}
 \cancel{5} \quad \cancel{13} \\
 6 \quad 4 \quad 13 \quad 2 \\
 - \quad 4 \quad 6 \quad 8 \quad 1 \\
 \hline
 1 \quad 7 \quad 5 \quad 1
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \begin{array}{r}
 \cancel{3} \quad \cancel{6} \quad \cancel{11} \\
 4 \quad 1 \quad 7 \quad . \quad 2 \quad 10 \\
 - \quad \quad 3 \quad 4 \quad . \quad 7 \quad 1 \\
 \hline
 3 \quad 8 \quad 2 \quad . \quad 4 \quad 9
 \end{array}
 \end{array}$$

When subtracting 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 subtracting:

- 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.