

National Curriculum Programme of Study;

- subtract numbers with up to three digits, using formal written methods of columnar subtraction



Y3

Subtraction

BY THE END OF YEAR 3...

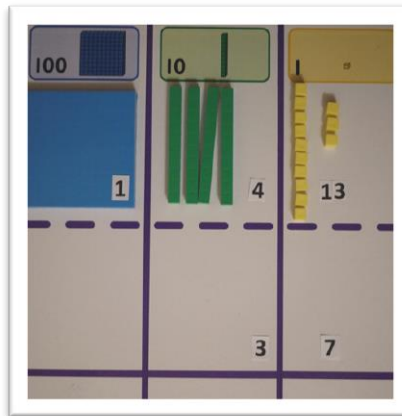
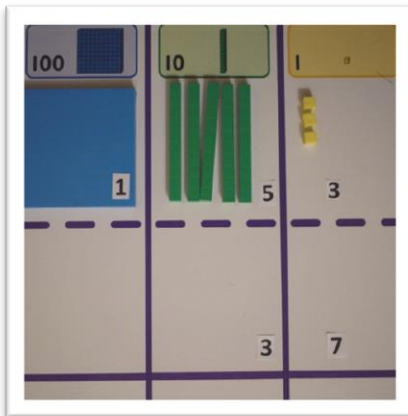
By the end of Year 3, children will be able to show their understanding as;

$$\begin{array}{r}
 8 \quad 12 \\
 \cancel{8} \quad \cancel{12} \quad 12 \\
 - \quad 4 \quad 5 \quad 7 \\
 \hline
 4 \quad 7 \quad 5
 \end{array}$$

Following on from year 2...

Using grouped objects for subtraction, with exchanging, and matched recording

Continue the good practice from Year 2, modelling the subtraction of two numbers (HTU – TU, then HTU - HTU) using base 10 equipment and a baseboard.



In the example here, showing 153 – 37, the equipment is placed on the baseboard, with annotated digits alongside.

Discuss the fact that there are not enough separate ones to subtract 7 easily, so you will need to exchange a ten for ten ones.

Reinforce that this number can now be read as 'one hundred and forty, thirteen'.

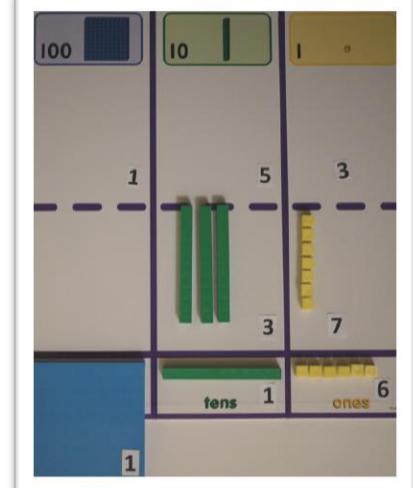
Once the exchange is made, the 7 ones can be subtracted (moved down), followed by the 3 tens. The remaining equipment is brought down to the bottom of the grid, to the answer bar. The value of the digits should be written on the baseboard throughout the calculation, to enable children to see the links between the practical model and the formal written method.

Initially, calculations should only involve exchanging between the tens and ones.

The formal written method should be introduced alongside the annotated base board displaying the apparatus, and children should be encouraged to find the similarities at all stages. Refer to each part of the calculation and ensure the children make links between the two

representations. *How have I shown the one ten exchanged for ten ones in the written method? Why have I changed the 5 to a 4 in the tens column? How did this look with the practical equipment?*

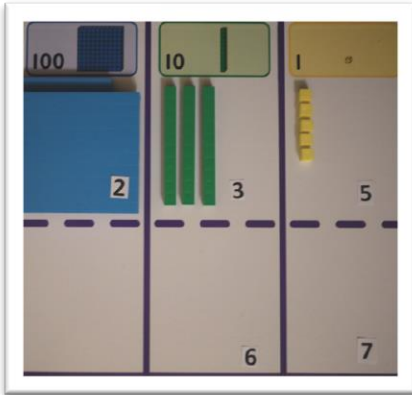
$$\begin{array}{r}
 4 \quad 13 \\
 1 \quad \cancel{5} \quad 13 \\
 - \quad 3 \quad 7 \\
 \hline
 1 \quad 1 \quad 6
 \end{array}$$



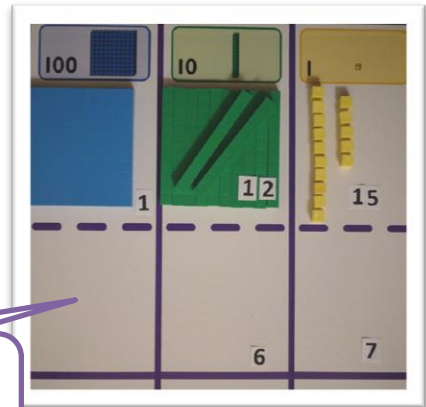
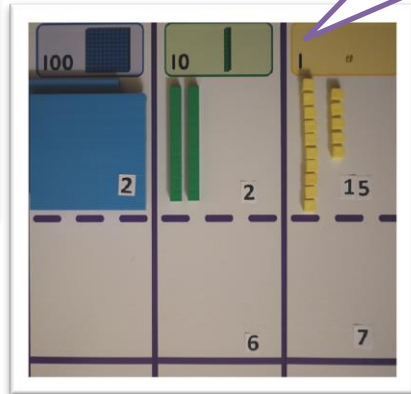
Using grouped objects for subtraction, with exchanging

Continue to integrate the concept of addition and subtraction being the inverse of each other with questions such as; 'If I had 126 in my answer bar at the bottom of the grid, and I had subtracted 37 as we have done here, what must my starting number have been? Did I still need to exchange?'

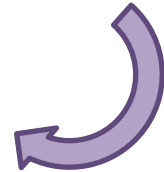
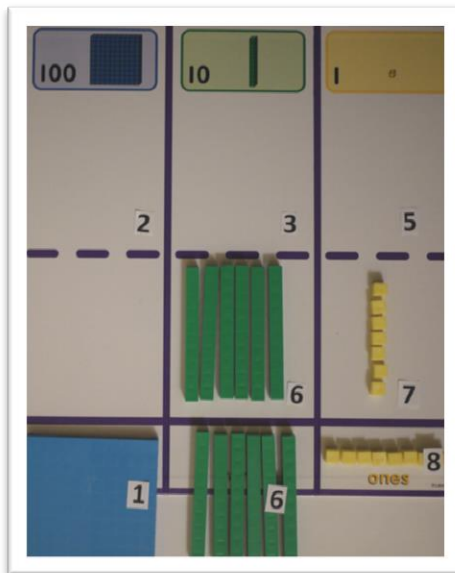
Once confident, children should be introduced to examples requiring exchange from hundreds to tens as well as tens to ones, such as 235-67 shown here.



'two hundred and twenty and fifteen, subtract sixty seven'

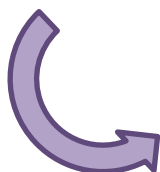


'one hundred and twelve tens and fifteen, subtract sixty seven'



Base 10 Dienes equipment can be substituted with 'Place Value Counters' once children are completely secure in the value of the digits and the base ten nature of our number system. These should be introduced in the same way as other resources, making use of the baseboard and with careful modelling of exchange

$$\begin{array}{r}
 1 \quad 12 \quad 15 \\
 \cancel{2} \quad \cancel{3} \quad 5 \\
 - \quad \quad 6 \quad 7 \\
 \hline
 \quad \quad \quad 8 \\
 \quad \quad 6 \quad 0 \\
 1 \quad 0 \quad 0 \\
 \hline
 1 \quad 6 \quad 8
 \end{array}$$



$$\begin{array}{r}
 1 \quad 12 \quad 15 \\
 \cancel{2} \quad \cancel{3} \quad 5 \\
 - \quad \quad 6 \quad 7 \\
 \hline
 1 \quad 6 \quad 8
 \end{array}$$