

SUBTRACTION

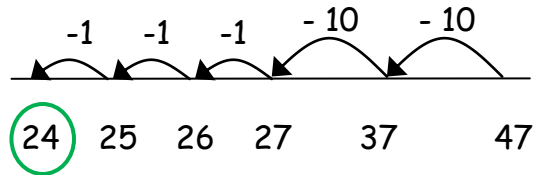
YEAR 2

Subtract numbers using concrete objects, pictorial representations, and mentally, including two two-digit numbers.

Counting back

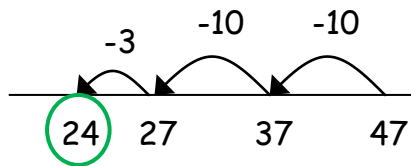
✓ First counting back in tens and ones.

$$47 - 23 = 24$$



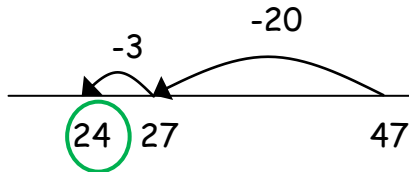
✓ Then, help children to become more efficient by subtracting the ones in one jump (by using the known fact $7 - 3 = 4$).

$$47 - 23 = 24$$



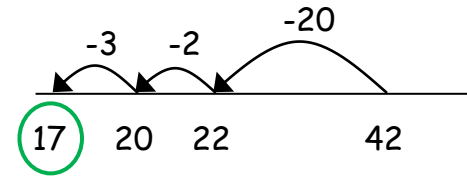
✓ Subtracting the tens in one jump and the ones in one jump.

$$47 - 23 = 24$$



✓ Bridging through ten can help children become more efficient.

$$42 - 25 = 17$$



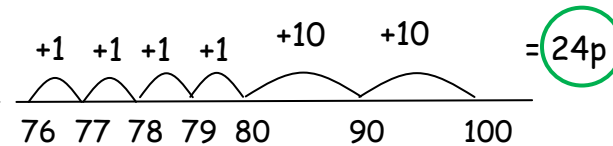
Counting on

If the calculation involves a multiple of 10, 100, money or measures then it can be more efficient to count on.

E.g., I have £1.00 and spend 76p, how much change do I have?

Count up from 76p to 100p (£1.00) in jumps of 10 and jumps of 1.

$$100\text{p} - 76\text{p} = 24\text{p}$$



1. Draw an empty number line with the smallest number at the beginning and the target number at the end.
2. Start at the smallest number and count on in 1s to reach the next multiple of 10.
3. Count on in 10s to the target number.
4. Mentally add the jumps to calculate the answer and circle it.

YEAR 3

Subtract numbers with up to three digits, using written methods of column subtraction.

Children will use the informal expanded method to subtract up to 3 digit numbers.

$$\begin{array}{r} 89 = 80 + 9 \\ - 57 \quad - 50 + 7 \\ \hline \quad \quad 30 + 2 = 32 \end{array}$$

Initially, the children will be taught using examples that do not involve decomposition (taking from the next column).

From this the children will begin to use decomposition.

$$\begin{array}{r} 71 \\ - 46 \\ \hline \end{array}$$

Step 1

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

The calculation should be read as e.g. 1 take away 6. We can't take 6 away from 1 so we need to go to the next column and take a 10 and add it to the 1s column, making 11.

Once the children are secure with this method, they move onto a simpler form.

$$\begin{array}{r} 60 \\ \cancel{70} + 1 \\ - 40 + 6 \\ \hline 20 + 5 = 25 \end{array}$$

$$754 - 86$$

This would be recorded by the children as

$$\begin{array}{r} 600 \quad 140 \\ \cancel{700} + \cancel{50} + 14 \\ - \quad \quad 80 + 6 \\ \hline 600 + 60 + 8 = 668 \end{array}$$

This is how the calculation is broken down into steps:

Step 1

$$\begin{array}{r} 700 + 50 + 4 \\ - \quad \quad 80 + 6 \\ \hline \end{array}$$

Step 2

$$\begin{array}{r} 700 + 40 + 14 \quad (\text{Take a 10}) \\ - \quad \quad 80 + 6 \\ \hline \quad \quad \quad 8 \end{array}$$

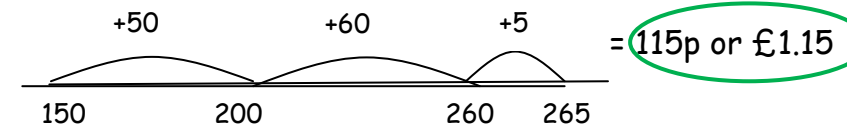
Step 3

$$\begin{array}{r} 600 + 140 + 14 \quad (\text{Take a 100}) \\ - \quad \quad 80 + 6 \\ \hline 600 + 60 + 8 = 668 \end{array}$$

Counting on

When the numbers involved in the calculation are close together or near to multiples of 10, 100 etc. counting on using a number line should be used.

E.g., I have £2.65 and spend £1.50, how much change do I have?
265p - 150p = 115p



YEAR 4

Subtract numbers with up to four digits, using the formal written methods of column subtraction where appropriate.

Children will continue to use and consolidate the informal expanded method of subtraction.

863 - 74

This would be recorded by the children as

$$\begin{array}{r} \begin{array}{r} 700 \\ \cancel{800} \end{array} + \begin{array}{r} 150 \\ \cancel{60} \end{array} + 13 \\ - \quad \quad \quad \begin{array}{r} 70 \\ 4 \end{array} \\ \hline \underline{700} + \underline{80} + \underline{9} = 789 \end{array}$$

YEAR 5

Subtract whole numbers with more than 4 digits, including using formal written methods.

Children will practise subtracting decimals, including a mix of whole numbers and decimals with different numbers of decimal places, and complements of 1.

Children will use formal column subtraction to subtract up to 4 digit numbers.

1) $794 - 86 = 708$

$$\begin{array}{r} ^8 ^1 \\ 794 \\ - 86 \\ \hline 708 \end{array}$$

2) $754 - 86 = 668$

$$\begin{array}{r} ^6 ^{14} ^1 \\ 754 \\ - 86 \\ \hline 668 \end{array}$$

3) $3262 - 439 = 2823$

$$\begin{array}{r} ^2 ^1 ^5 ^1 \\ 3262 \\ - 439 \\ \hline 2823 \end{array}$$

4) $16467 - 2684 = 13783$

$$\begin{array}{r} ^5 ^{13} ^1 \\ 16467 \\ - 2684 \\ \hline 13783 \end{array}$$

N.B: when teaching formal column subtraction, children should have a secure knowledge of place value. Therefore, the digits in each calculation should be treated as ones.

E.g, example 1:

$$4 - 6$$

$$8 \text{ (tens)} - 8 \text{ (tens)}$$

$$7 \text{ (hundreds)} - 0 \text{ (hundreds)}$$

The words in brackets do not need to be said.

When subtracting decimals, children will revert to the expanded column subtraction method using their place value knowledge.

$$32.4 - 11.2 = 21.2$$

$$\begin{array}{r} 30 + 2 + 0.4 \\ - 10 + 1 + 0.2 \\ \hline 20 + 1 + 0.2 \end{array} = 21.2$$

When secure, children will then begin to use decomposition.

$$8.95 - 4.38 = 4.57$$

$$\begin{array}{r} 8.95 \\ - 4.38 \\ \hline \end{array} = \begin{array}{r} 8 + 0.9 + 0.05 \\ - 4 + 0.3 + 0.08 \\ \hline \end{array} \quad \text{leading to}$$

$$= \begin{array}{r} 8 + 0.8 + 0.15 \\ - 4 + 0.3 + 0.08 \\ \hline 4 + 0.5 + 0.07 \end{array} \quad (\text{take from tenths})$$

This would be recorded by the children as:

$$\begin{array}{r} 8 15 \\ 8 + \cancel{0.9} + \cancel{0.05} \\ - 4 + 0.3 + 0.08 \\ \hline 4 + 0.5 + 0.07 \end{array} = 4.57$$

YEAR 6

Subtract whole numbers with more than 4 digits, including using formal written methods.

Children will practise subtracting decimals, including a mix of whole numbers and decimals with different numbers of decimal places, and complements of 1 e.g., $0.83 + 0.17 = 1$.

Children will continue to use the formal column subtraction method when subtracting whole numbers.

When subtracting decimals, children (if confident and secure) will begin to use the decomposition method.

$$7.82 - 3.54 = 4.28$$

$$\begin{array}{r} 7.82 \\ - 3.54 \\ \hline 4.28 \end{array}$$

$$3.42 - 1.76 = 1.66$$

$$\begin{array}{r} 3.42 \\ - 1.76 \\ \hline 1.66 \end{array}$$

When subtracting whole numbers and decimals, children will continue to use the column subtraction method.

$$24 - 12.7 =$$

$$\begin{array}{r} 24.0 \\ - 12.7 \\ \hline 11.3 \end{array}$$

NB: Good practice is to 'fill in' any gaps with 0s to ensure that the digits line up correctly.