SUBTRACTION

In order to support written calculations, the following mental strategies are essential.

To subtract successfully, children need to be able to:

- recall all addition and subtraction facts to 20;
- partition of single-digit numbers in order to bridge multiples of 10, knowing for example that 7 can be split into 5 and 2 when working out 35 - 7
- subtract multiples of 10 (such as 160 – 70) using the related subtraction fact, 16 – 7, and their knowledge of place value;
- derive complements to multiples of 10, 100 and 1000 (36 + □ = 40, 74 + □ = 100)
- partition two-digit, three-digit and four-digit numbers into multiples of one thousand, one hundred, ten and one in different ways (e.g. partition 74 into 70 + 4 or 60 + 14).
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Note: It is important that children's mental methods of calculation are practised and secured alongside their learning and use of an efficient written method for subtraction.

Key Vocabulary Related to Subtraction

Foundation Stage

Minus, subtract, less than, take away, left.

Key Stage One

Smaller, least, count back, difference between, count on.

Lower Key Stage Two

Subtraction, take away

Upper Key Stage Two

Negative, decrease.

Subtraction

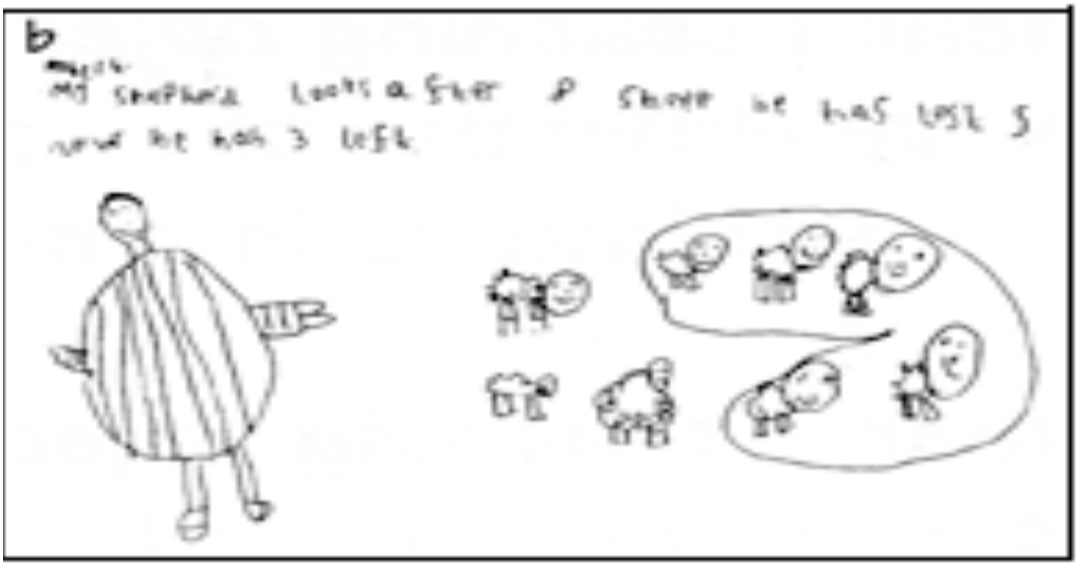
Foundation Stage

Subtract two single-digit numbers

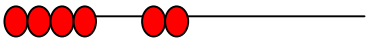
Counting forwards and backwards
Counting sets of objects removing objects from the set
More/less bigger/smaller

1 **less** than 10 is 9
10 **subtract** 1 equals 9
10 – 1 = 9

Children are encouraged to develop a mental picture of the number system in their heads to use for calculation.
They develop ways of recording calculations using pictures etc.



Bead strings or bead bars can be used to illustrate subtraction by counting back a single digit, subtract a single digit



6-2=4

They use numberlines and practical resources to support calculation.
Teachers *demonstrate* the use of the numberline. They develop ways of recording calculations using pictures and objects.

Year 1

Subtract from numbers up to 20

Consolidate understanding of subtraction practically, showing subtraction on bead strings, using cubes etc. and in familiar contexts.

Subtract by taking away

Number tracks, moving to numbered lines. Count back, first in ones, then using number facts.

One less than 6

Read, write and interpret number sentences with - and = signs.

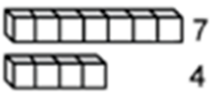
2 digits take 1 digit
Also bridge ten

7 – 4 =3

Find the difference

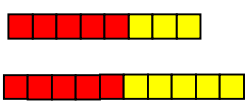
Introduced practically using language such as 'Find the distance between' and 'How many more?'

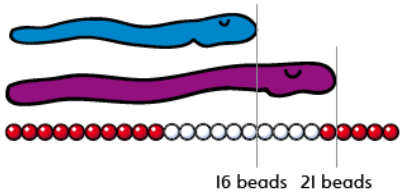
e.g. 'Seven is 3 more than 4'



Children should start recalling subtraction facts up to **and within** 10 and 20, and should be able to subtract zero.

Compare quantities, find a difference





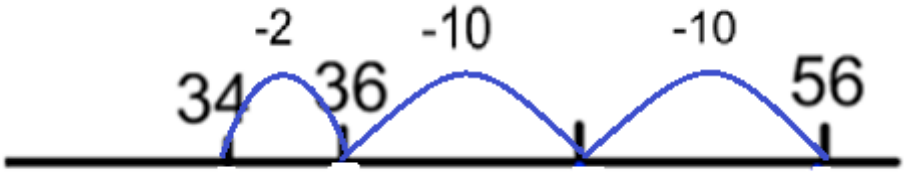
Year 2

Subtract with two digit numbers

Subtract a number by counting back
(aiming to develop mental subtraction skills)

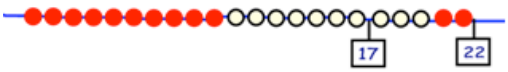
- Two digit numbers subtract units e.g. 47-6
- Two digit numbers subtract tens e.g. 78 – 30
- Subtracting pairs of two digit numbers

56-22 = 34

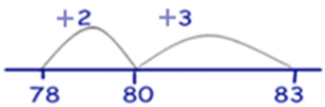


(landmarked number lines moving to empty number lines)

Find a difference by counting on
22-17 = 5



83-78 = 5



This important method is taught so that children realise when numbers are close together, it is more efficient to count on.

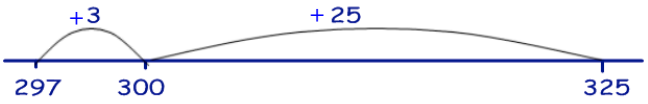
Year 3

Subtracting with two and three digit numbers

Continue to reinforce counting **on** as a strategy for **close-together numbers** (e.g. 121—118), and also for numbers that are 'nearly' multiples of 10, 100, 1000 or £s, which make it easier to count on (e.g. 102-89, 131—79, or calculating change from £1 etc.).

Count up with numberline to find the difference

325 - 297 = 28



Introduce expanded subtraction method

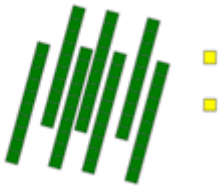
STEP 1: introduce this method with examples where **no exchanging** is required.

89 - 35 = 54

80 9
- 30 5
50 4

STEP 2: introduce 'exchanging' through practical subtraction.

72 - 47



60 12
70 2
- 40 7
20 5 = **25**

Make the larger number with Base 10, then subtract 47 from it. Before subtracting '7' from the 72 blocks, they will need to exchange a stick of 10 for ten units.

STEP 3: **use partitioned column method for any 2 & 3 digit numbers.**

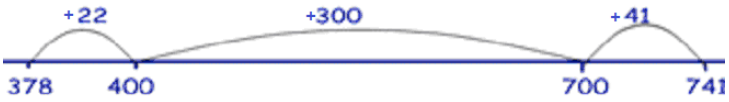
Move from expanded…	To compact method
200 2030 13 -100 10 5 = 100 + 10 + 8 118	2 23 13 - 1 1 5 = 1 1 8 118

Year 4

Subtracting with up to four digit numbers

Continue practising counting on to find the difference where numbers are close together or a number line would be most appropriate.

741 - 378 = 363



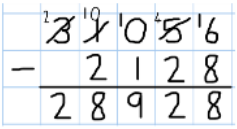
Model expanded method for those pupils who still need it.	Teach compact method
2000 200 300 130 9 -1000 100 50 4 = 1000 +100 + 80 5	2 2 3 1 3 9 - 1 1 5 4 = 1 1 8 5

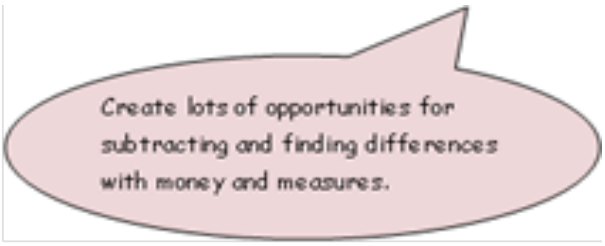
Year 5

Subtract with at least four digit numbers and up to two decimal places

e.g. 25.63 – 13.38 =

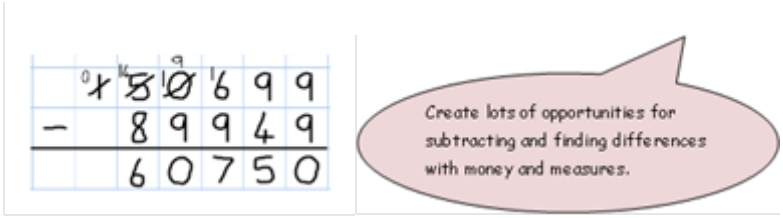
5 1
25.63
-13.38
12.25





Year 6

Subtracting with increasingly large and more complex numbers and decimals



Including **decimals with a different number of places:**
e.g. 25.6 – 13.38 =

5 1
25.~~6~~0
-13.38
12.22

Empty decimal places can be filled with **zero** to show the place value in each column.