

Keep Hatch Primary School
Calculation Policy
Subtraction – Years 1-3

Obj **Gui** **Year 1** **Vid** **Ex**

Missing number problems e.g. $7 = \square - 9$; $20 - \square = 9$;
 $15 - 9 = \square$; $\square - \square = 11$; $16 - 0 = \square$

Use concrete objects and pictorial representations.

Understand subtraction as take-away:

Children will continue to practise counting back from a given number.

Initially use a number track to count back for subtraction:

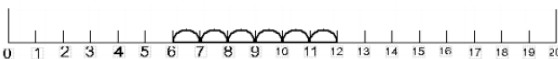
$9 - 5 = 4$



'Put your finger on number nine. Count back five.'

Then progress to a marked number line:

$12 - 6 = 6$



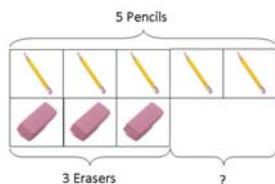
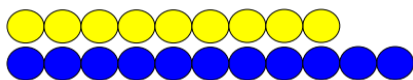
Introduce complementary addition to find differences (only use for small differences).

The use of models is extremely important here to understand the idea of "difference".

Count up from the smallest number to the largest to find the difference using resources, e.g. cubes, beads, number tracks/lines:

$11 - 9 = 2$

The difference between nine and eleven is two



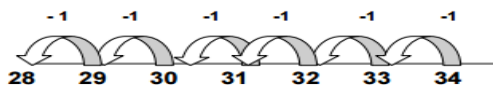
Obj **Gui** **Year 2** **Vid** **Ex**

Missing number problems e.g. $52 - 8 = \square$; $\square - 20 = 25$; $22 = \square - 21$; $6 + \square + 3 = 11$

It is valuable to use a range of representations (also see Y1).

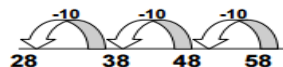
Counting back using an empty number line within 100, in ones...

$34 - 6 = 28$



...and in tens:

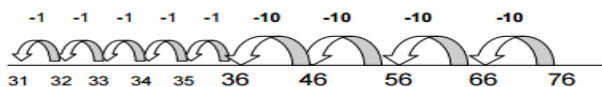
$58 - 30 = 28$



Use in conjunction with a 100 square to show jumps of tens.

Subtraction, using partitioning, on an empty number line:

$76 - 45 = 31$



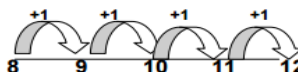
Use in conjunction with a 100 square to show jumps of tens and ones.

Counting on to find a small difference

Introduce complementary addition to find differences (only use for small differences). The use of models is extremely important here to understand the idea of "difference" (see Y1 guidance).

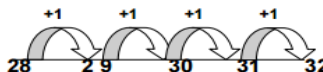
Count up from the smallest number to the largest to find the difference.

$12 - 8 = 4$



'The difference between 8 and 12 is 4.'

$32 - 28 = 4$



'The difference between 28 and 32 is 4.'

If confident children should move on to setting their work in columns. (See year 3)

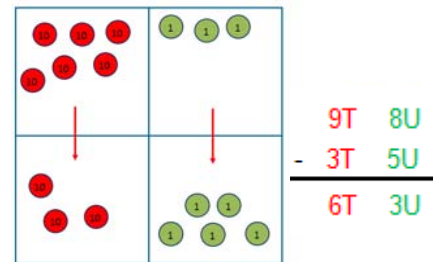
Obj **Gui** **Year 3** **Vid** **Ex**

Missing number problems e.g. $\square = 43 - 27$; $145 - \square = 138$; $274 - 30 = \square$; $245 - \square = 195$; $532 - 200 = \square$; $364 - 153 = \square$

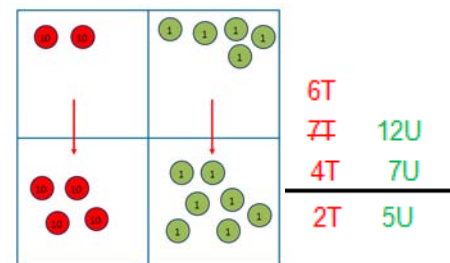
Mental methods should continue to develop, supported by a range of models and images, including the number line. The bar model should continue to be used to help with problem solving (see Y1 and Y2). Children should make choices about whether to use complementary addition or counting back, depending on the numbers involved.

Written methods (progressing to 3-digits)

Introduce expanded column subtraction with no decomposition, modelled with place value counters or dienes.



For some children this will lead to exchanging, modelled using dienes or place value counters.



A number line and expanded column method may be compared next to each other.

Some children may begin to use a formal columnar method, initially introduced alongside the expanded method. The formal method should be seen as a more streamlined version of the expanded method, not a new method.

Year 1 objectives

Statutory requirements

Pupils should be taught to:

- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$.



Year 1 guidance

Notes and guidance (non-statutory)

Pupils memorise and reason with number bonds to 10 and 20 in several forms (for example, $9 + 7 = 16$; $16 - 7 = 9$; $7 = 16 - 9$). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.

Pupils combine and increase numbers, counting forwards and backwards.

They discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.



Year 2 objectives

Statutory requirements

Pupils should be taught to:

- solve problems with addition and subtraction:
 - using concrete objects and pictorial representations, including those involving numbers, quantities and measures
 - applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and 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
 - adding three one-digit numbers
- show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Year 2 guidance

Notes and guidance (non-statutory)

Pupils extend their understanding of the language of addition and subtraction to include sum and difference.

Pupils practise addition and subtraction to 20 to become increasingly fluent in deriving facts such as using $3 + 7 = 10$; $10 - 7 = 3$ and $7 = 10 - 3$ to calculate $30 + 70 = 100$; $100 - 70 = 30$ and $70 = 100 - 30$. They check their calculations, including by adding to check subtraction and adding numbers in a different order to check addition (for example, $5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5$). This establishes commutativity and associativity of addition.

Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers.



Year 3 objectives

Statutory requirements

Pupils should be taught to:

- add and subtract numbers mentally, including:
 - a three-digit number and ones
 - a three-digit number and tens
 - a three-digit number and hundreds
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- estimate the answer to a calculation and use inverse operations to check answers
- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.



Notes and guidance (non-statutory)

Pupils practise solving varied addition and subtraction questions. For mental calculations with two-digit numbers, the answers could exceed 100.

Pupils use their understanding of place value and partitioning, and practise using columnar addition and subtraction with increasingly large numbers up to three digits to become fluent (see [Mathematics Appendix 1](#)).

