

Sea Mills Primary School

Sea Mills Calculation Policy

[Document subtitle]

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Addition		
	Strategies:	Guidance:
<p>Year 1</p> <p>Add 1 digit numbers within 10</p>	<p>$4 + 3 = 7$</p>	<p>In Year 1, the following representations should be introduced and used by children:</p> <ul style="list-style-type: none"> • Part-Whole Model • Bar Model • Number Shapes • Tens Frames (within 10) • Bead strings (10) • Number tracks <p>Children should explore:</p> <ul style="list-style-type: none"> • Augmentation (combining two sets) • Augmentation (adding to a set)
<p>Year 1/2</p> <p>Add 1 and 2 digit numbers up to 20</p>	<p>$8 + 7 = 15$</p>	<p>As children progress to bridging in year 2, they should be using the following representations and models to support understanding of bridging over 10.</p> <ul style="list-style-type: none"> • Part-Whole Model • Bar Model • Tens Frames (within 20) • Bead strings (within 20) • Number Lines (labelled) • Straws

Year 1	
Add 1 digit numbers within 10	

In Year 1, the following representations should be introduced and used by children:

- Part-Whole Model
- Bar Model
- Number Shapes
- Tens Frames (within 10)
- Bead strings (10)
- Number tracks

Children should explore:

- Augmentation (combining two sets)
- Augmentation (adding to a set)

Year 1/2

Add 1 and 2 digit numbers up to 20

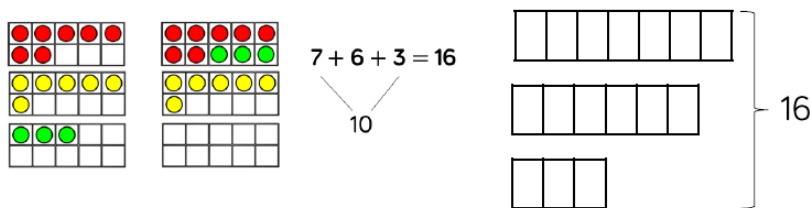
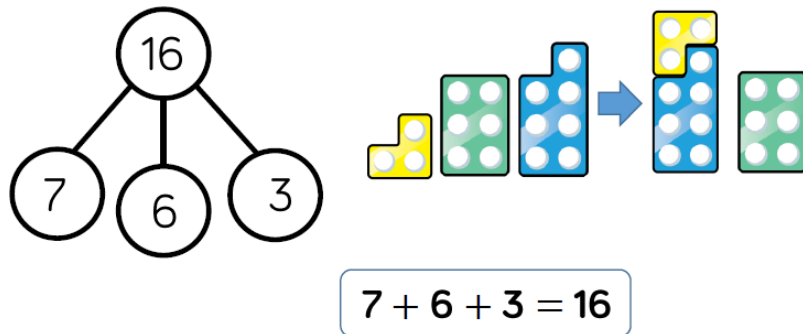
$$8 + 7 = 15$$

As children progress to bridging in year 2, they should be using the following representations and models to support understanding of bridging over 10.

- Part-Whole Model
- Bar Model
- Tens Frames (within 20)
- Bead strings (within 20)
- Number Lines (labelled)
- Straws

Year 2

Add three 1 digit numbers

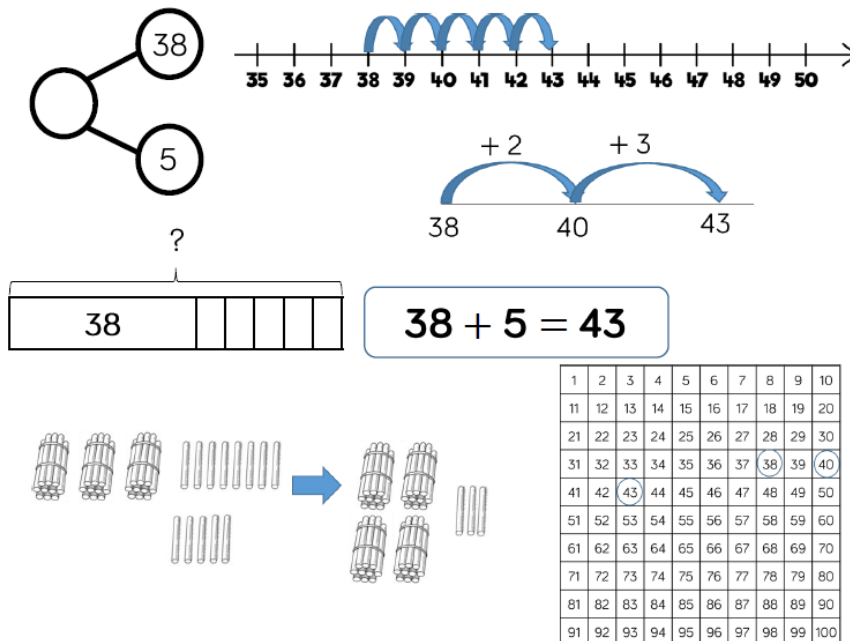


In Year 2, children should continue to use the previous representations.

Children should be encouraged to look for number bonds to 10 or doubles to add more effectively. This will support children to understand commutativity.

Year 2/3

Add 1 and 2 digit numbers to 100



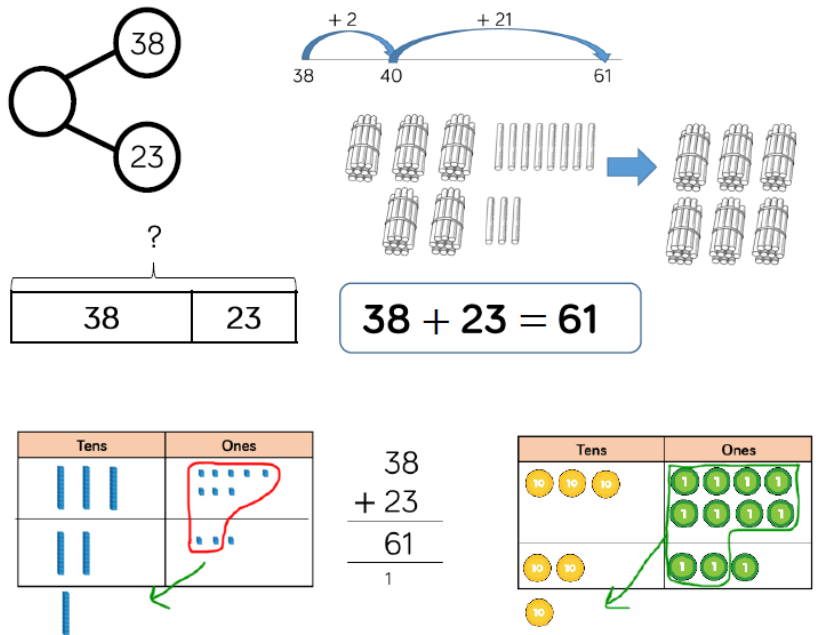
When adding single digits to a two digit number, children should be encouraged to count on from the larger number.

Encourage children to apply their knowledge of number bonds to add more efficiently, e.g. $6+5=11$ so $56+5=61$

Introduce number squares.

Year 2/3

Add two 2-digit numbers to 100.



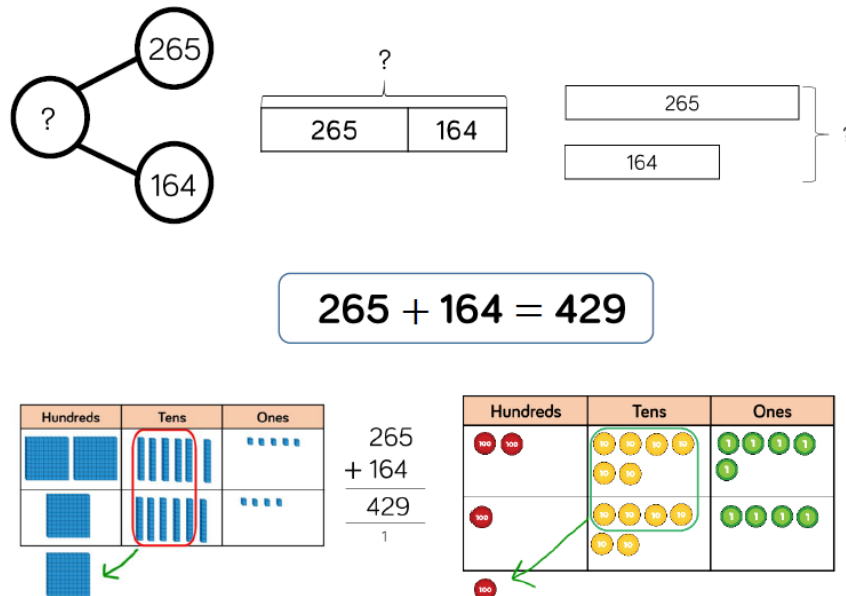
During Year 2 and in Year 3, children should begin to use the formal column method when calculating alongside base 10 or place value counters.

Exchanging should also be introduced at this stage.

A number line may also be used to count on to find the total. Encourage jumping to multiples of 10.

Year 3

Add numbers with up to three digits.



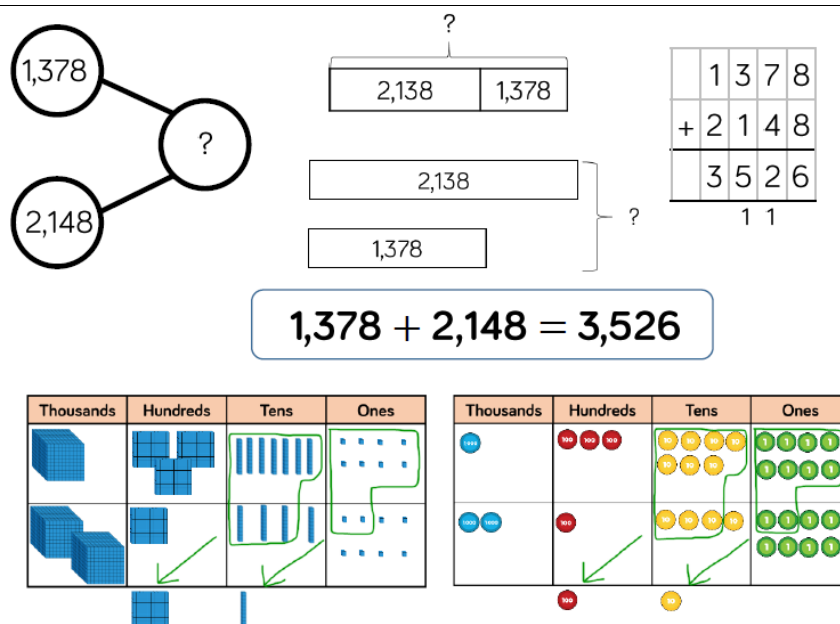
PV Counters and base 10 are effective manipulatives when used alongside the formal method.

Encourage children to write the calculation alongside any concrete resources. Children should use concrete resources whenever they feel they need it but do encourage to move to just the abstract

Plain counters can also be used to develop understanding.

Year 4

Add numbers with up to 4 digits

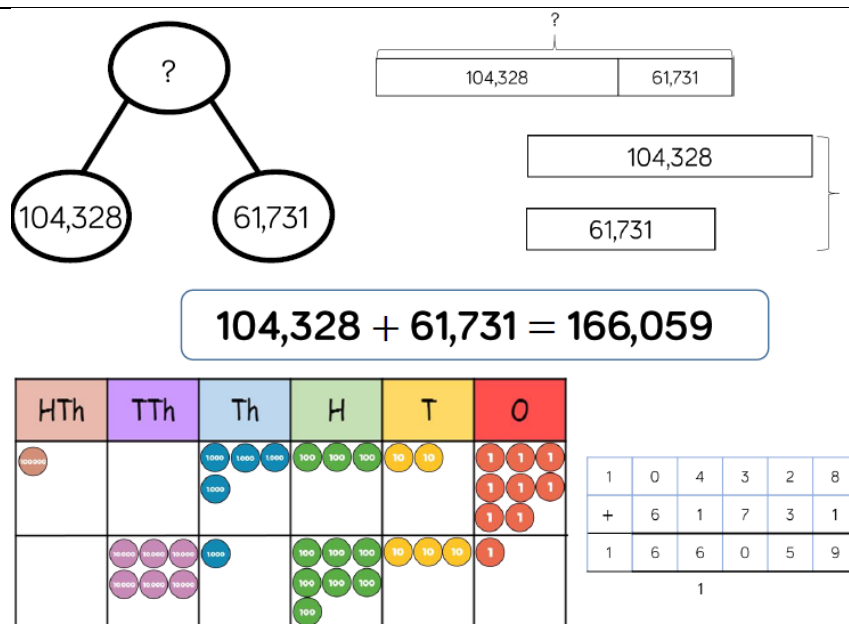


Building on knowledge and resources of previous year, use concrete resources to support understanding.

Children should be able to work on just the abstract by the end of this year.

Year 5/6

Add numbers with more than 4 digits

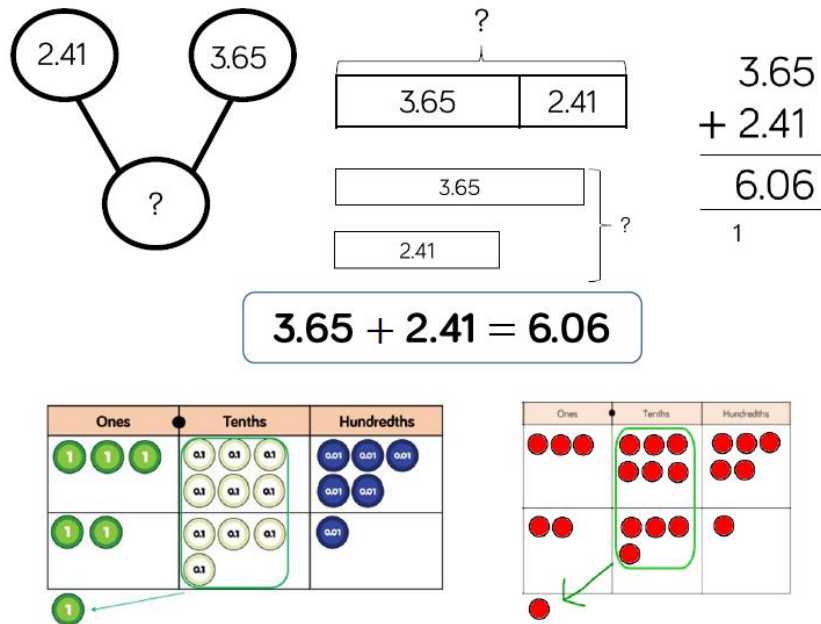


Children should continue to use place value grids to support understanding of abstract methods.

At this stage, children should be encouraged to work in the abstract using column methods to add larger numbers effectively.

Year 5

Add with
up to 3
decimal
places



Plain counters on a place value grid are most effective when adding decimals. Ensure good understand of decimal numbers before moving on to adding.

Include various contexts to support understanding:

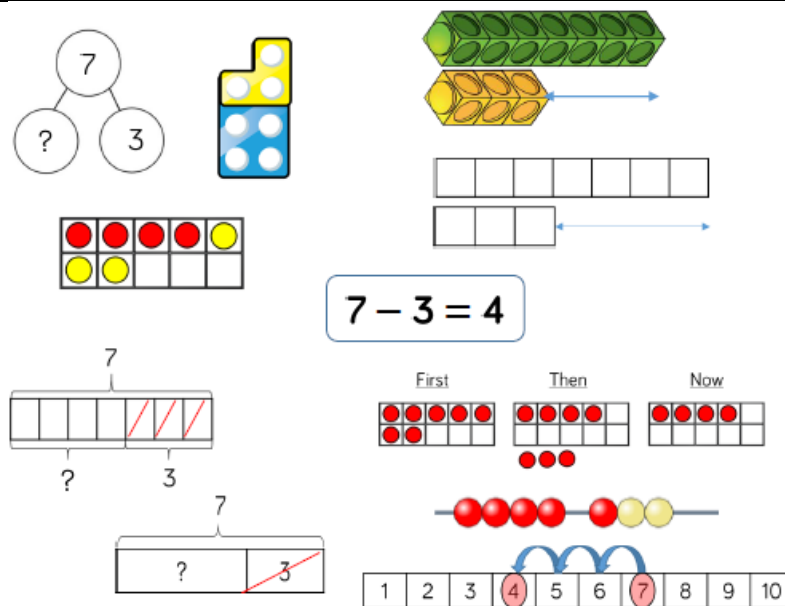
- Money
- Measures

Subtraction

Strategies:

Guidance:

Year 1
Subtract 1 digit numbers within 10



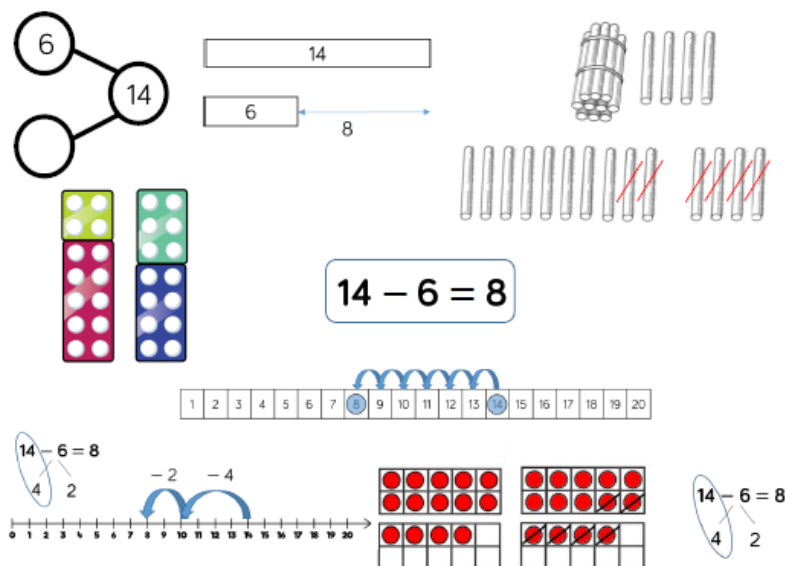
In Year 1, the following representations should be introduced and used by children:

- Part-Whole Model
- Bar Model
- Number Shapes
- Tens Frames (within 10)
- Bead strings (10)
- Number tracks

Children should explore:

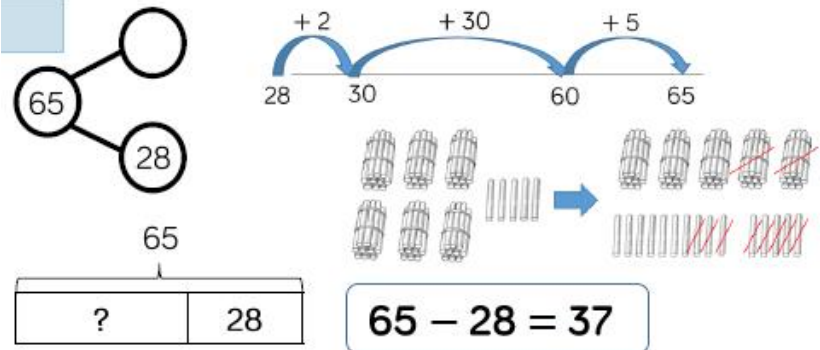
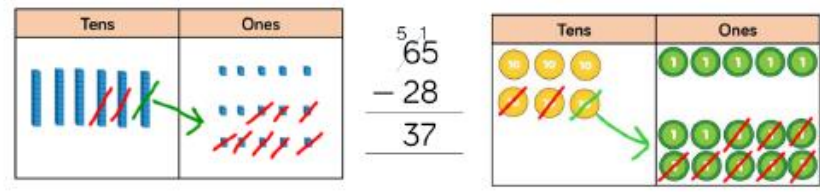
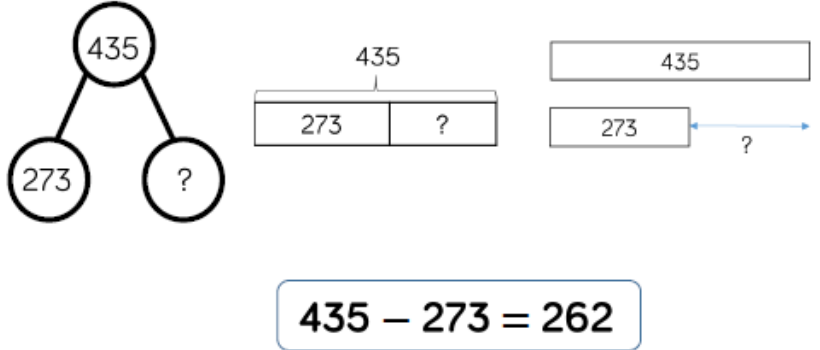
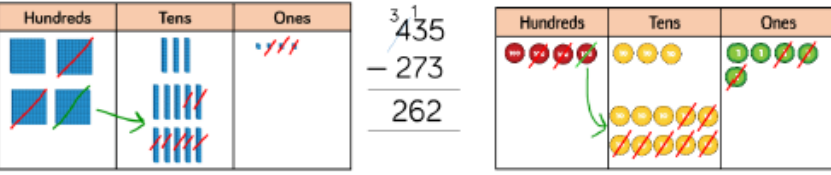
- Partitioning
- Reduction

Year 1/2
Subtract 1 and 2 digit numbers up to 20



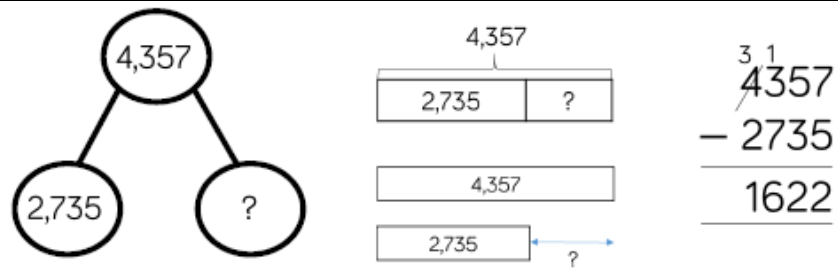
When subtracting 1-digit numbers that cross 10, it is important to highlight the importance of ten ones equalling one ten.

Children should be encouraged to find the number bond to 10 when partitioning.

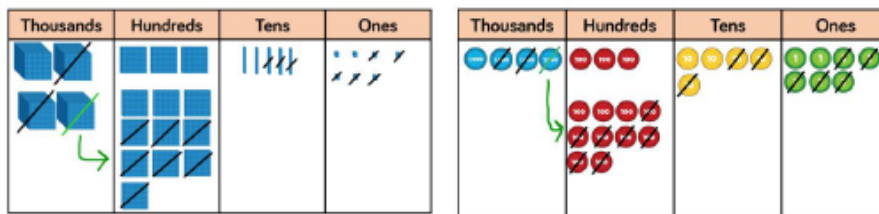
<p>Year 2</p> <p>Subtract 1 and 2 digit numbers to 100</p>	 <p>The diagram illustrates the subtraction of 28 from 65. At the top left, a tree diagram shows 65 branching into 60 and 5, which then branches into 30 and 28. To the right, a number line shows jumps from 28 to 30 (+2), 30 to 60 (+30), and 60 to 65 (+5). Below the number line, base 10 blocks represent 65 (6 tens rods and 5 ones units) and 28 (2 tens rods and 8 ones units). The blocks are shown being removed to find the difference. A box contains the equation $65 - 28 = 37$.</p>  <p>Two place value charts are shown. The first chart has columns for Tens and Ones. The Tens column has 6 tens rods, and the Ones column has 5 ones units. The second chart has columns for Tens and Ones. The Tens column has 5 tens rods and 1 one unit, and the Ones column has 7 ones units. A formal column method is shown below the charts:</p> $\begin{array}{r} 65 \\ - 28 \\ \hline 37 \end{array}$	<p>At this stage, introduce the formal column method to children alongside concrete resources such as base 10 or place value counters.</p> <p>Children can also use a blank number line to count on to find the difference. Encourage to jump to the next multiple of 10.</p>
<p>Year 3</p> <p>Subtract numbers with up to 3 digits.</p>	 <p>The diagram illustrates the subtraction of 273 from 435. At the top left, a tree diagram shows 435 branching into 400 and 35, which then branches into 273 and 177. To the right, a place value chart shows 435 (4 hundreds, 3 tens, 5 ones) and 273 (2 hundreds, 7 tens, 3 ones). The chart is shown being removed to find the difference. A box contains the equation $435 - 273 = 262$.</p>  <p>Two place value charts are shown. The first chart has columns for Hundreds, Tens, and Ones. The Hundreds column has 4 hundreds blocks, the Tens column has 3 tens rods, and the Ones column has 5 ones units. The second chart has columns for Hundreds, Tens, and Ones. The Hundreds column has 2 hundreds blocks, the Tens column has 6 tens rods, and the Ones column has 2 ones units. A formal column method is shown below the charts:</p> $\begin{array}{r} 435 \\ - 273 \\ \hline 262 \end{array}$	<p>Base 10 and PV counters are most effective at this stage.</p> <p>Ensure children write out their calculation alongside any concrete resources.</p> <p>Plain counters can be used to support learning</p>

Year 4

Subtract numbers with up to 4 digits.



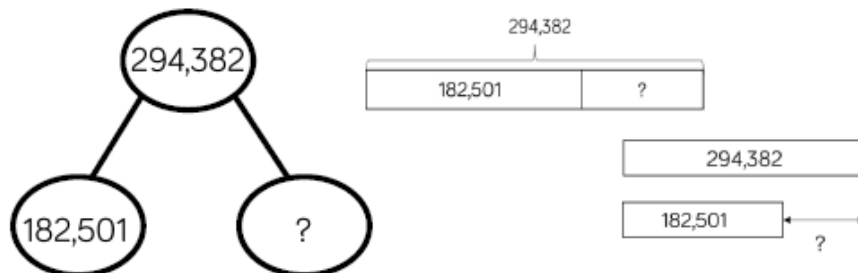
$$4,357 - 2,735 = 1,622$$



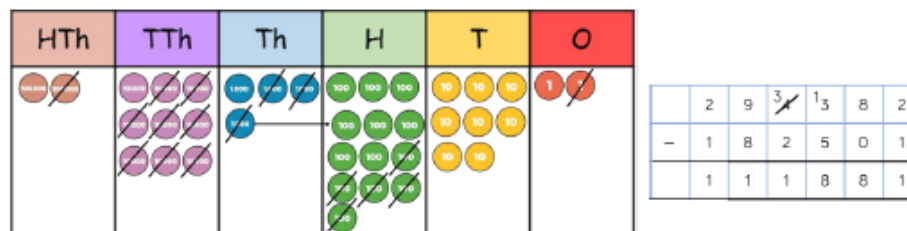
Build on year 3 guidance.

Year 5/6

Subtract numbers with more than 4 digits



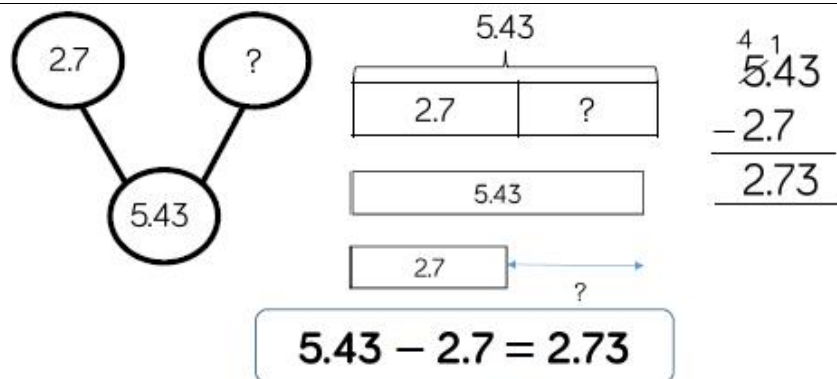
$$294,382 - 182,501 = 111,881$$



Continue to encourage children at this stage to work in the abstract

Year 4

Subtract
with up to
3 decimal
places



Place value counters should be used to support understanding.

