SUBTRACTION CALCULATION GUIDANCE

Year 1

Pupils should be taught to:

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

Year 2

Pupils should be taught to:

solve problems with… 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 … subtraction facts to 20 fluently, and derive and use related facts up to 100
- … 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 missing number problems.

Year 3

Pupils should be taught to:

- … subtract numbers mentally, including:

- a three-digit number and ones
- a three-digit number and tens
- a three-digit number and hundreds

- … subtract numbers with up to three digits, using formal written methods of columnar … subtraction
- estimate the answer to a calculation and use inverse operations to check answers

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- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Year 4

Pupils should be taught to:

- … subtract numbers with up to 4 digits using the formal written methods of columnar … subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation
- solve …subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Year 5

Pupils should be taught to:

- … subtract whole numbers with more than 4 digits, including using formal written methods (columnar subtraction)
- … subtract numbers mentally with increasingly large numbers
- use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- solve … subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Year 6

Pupils should be taught to:

- perform mental calculations, including with mixed operations and large numbers.
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve … subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

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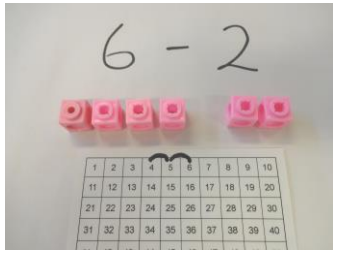
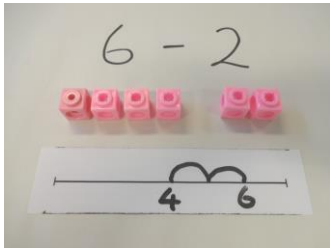
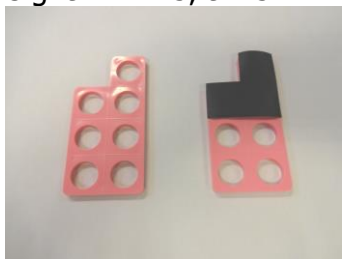
STAGE 1

Count back using number tracks / number lines / 100 grids to support the development of the concept of subtraction as take away.





Develop subtraction facts initially to ten and then to 20.
Record related number facts (and make links to related addition facts)
e.g. 9 - 4 = 5, 9 - 5 = 4



STAGE 2

Develop understanding of the equals sign / equality and the concept of 'empty box' questions.
Record solutions to calculations such as 9 - = 5.

Use understanding of patterning, place value and partitioning to derive number facts.
e.g. 7 - 3 = 4 (known fact)
17 – 3 – 14
27 – 3 = 24

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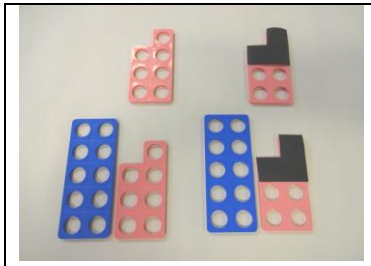
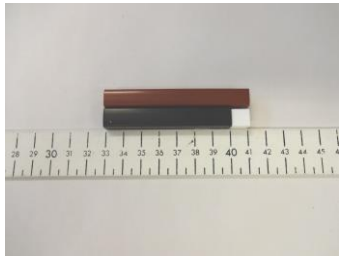


Begin to use understanding of place value and partitioning to support subtraction of one-digit and two-digit numbers.

STAGE 3

TU + U
Continue to develop understanding of partitioning and place value and use this to support subtraction.
41 - 8
40 - 1 - 7
40 – 8 = 33

Practical apparatus are used to support this, as are number tracks /100 squares and number lines.
Record the outcomes of calculations in horizontal format.



41 – 8 = 33

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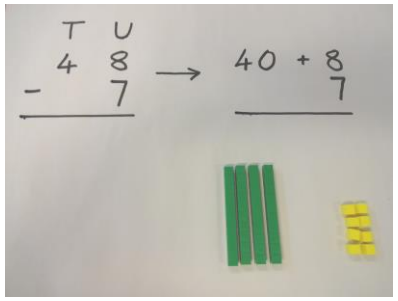
STAGE 4

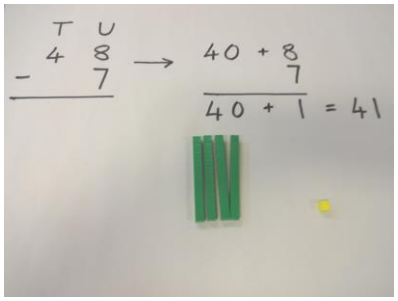
Pupils continue to continue to determine when calculations are best carried out using mental strategies.

Horizontal recording can begin to be replaced with recording in columns with a focus on place value. Use expanded recording and apparatus to illustrate concept initially if required before moving towards the formal written method.

No exchange

```
  T  U                 
  4  8    ------->    40  +  8
-    7              -        7
                     ---------
                     40  +  1 = 41
```





becomes

```
  T  U
  4  8
-    7
  ----
  4  1
```

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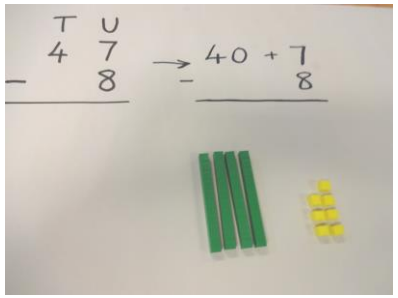
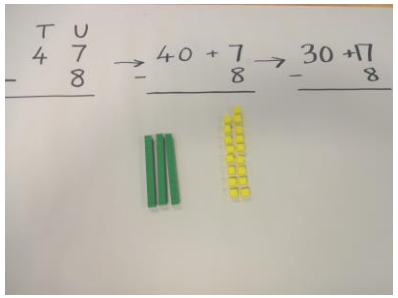
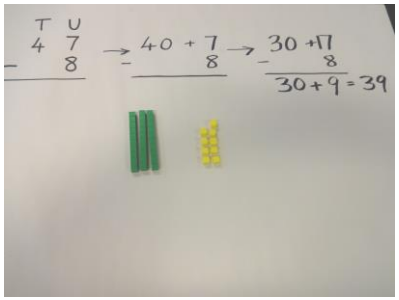
Exchange

```
  T  U
  4  7  ⟶   40 + 7  ⟶  30 + 17
- 1  8        - 1 8       - 1 8
                          ------
                          30 + 9 = 39
```







becomes

```
  T  U
  4  7  ⟶   T  U
- 1  8      3 4 1 7
            - 1 8
            -------
            4  1
```

STAGE 5

TU + TU

Continue to determine when calculations are best carried out using mental strategies.

Develop use of the formal written method. Use expanded recording and apparatus to illustrate concept initially if required before moving towards the formal written method.

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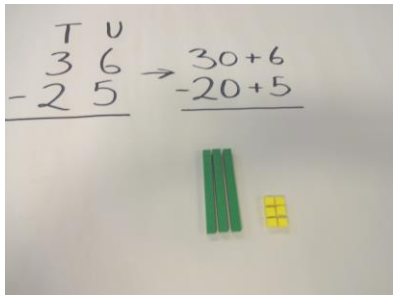
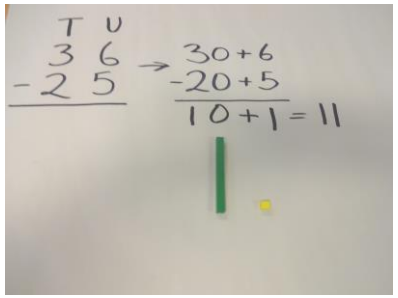
No exchange

```
   T  U
   3  6      ⟶    30 + 6
-  2  5           -20 + 5
                   10 + 1  = 11
```



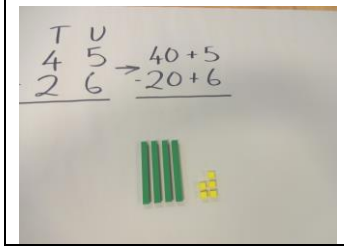


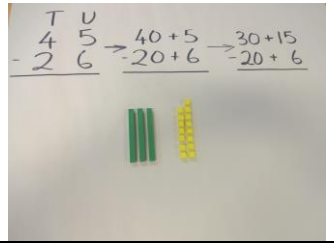
becomes

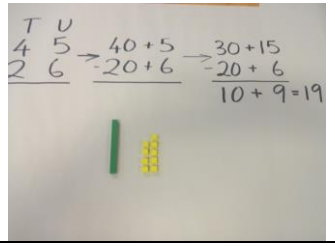
```
   T  U
   3  6
-  2  5
   1  1
```

Exchange

```
   T  U
   4  5      ⟶    40 + 5          30 + 15
-  2  6           -20 + 6      -  20 +  6
                                 10 +  9  = 19
```







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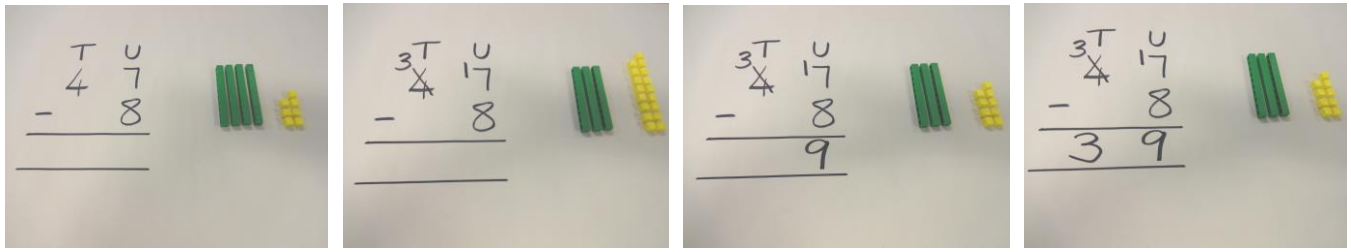
becomes

```
  T  U                T  U
  4  5              3 4  1 5
- 2  6      ⟶     -  2  6
                    3  9
```



STAGE 6

HTU - HTU
Continue to determine when calculations are best carried out using mental strategies.

Develop use of the formal written method. Use expanded recording and apparatus to illustrate concept initially if required before moving towards the formal written method.

Explore how the process relates to numbers with zeros as place holders.

No exchange
Using an expanded method of recording if appropriate before moving to formal method

```
   H  T  U
   3  3  6                 3 0 0  +  3 0  +  6
-  2  2  5      ⟶       - 2 0 0  +  2 0  +  5
                          1 0 0  +  1 0  +  1 = 1 1 1
```

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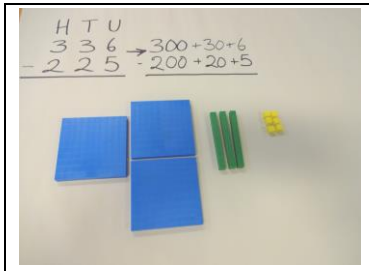

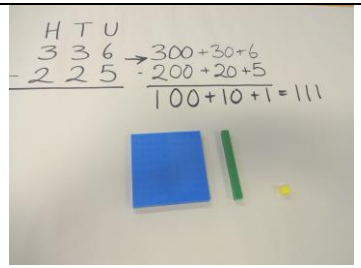

becomes

	H	T	U
	3	3	6
-	2	2	5
	1	1	1

Exchange

	H	T	U							
	4	4	5	→		400	+	40	+	5
-	2	6	3		-	200	+	60	+	3
										2

	300	+	140	+	5	→		300	+	140	+	5
-	200	+	60	+	3		-	200	+	60	+	3
			80	+	2			100	+	80	+	2 = 182

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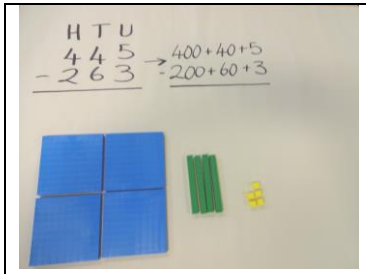
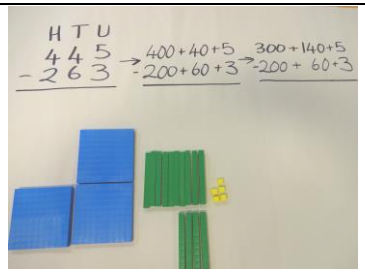
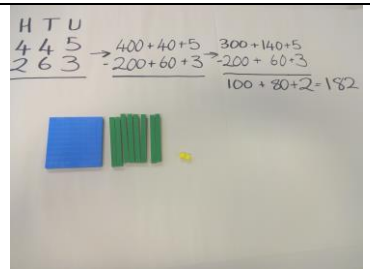
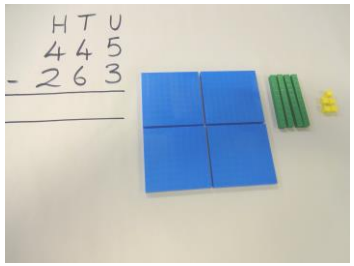


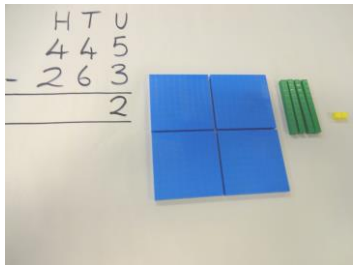


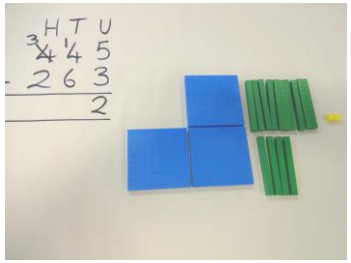


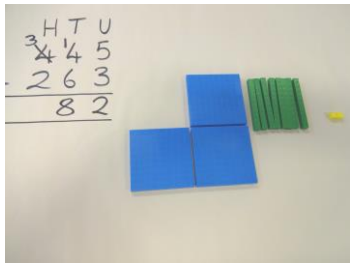
becomes

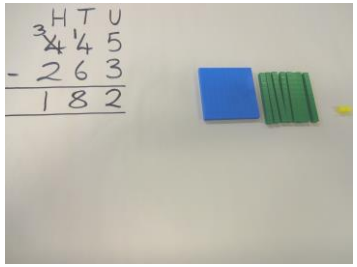
	H	T	U
	~~3~~ 4	1 4	5
-	2	6	3
	1	8	2











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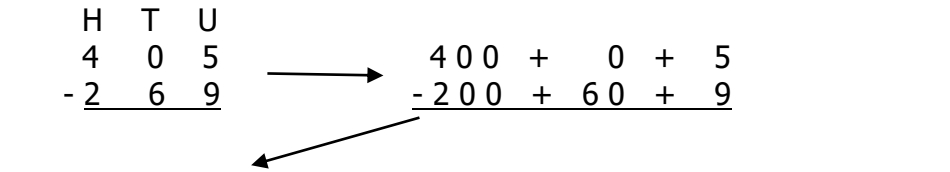
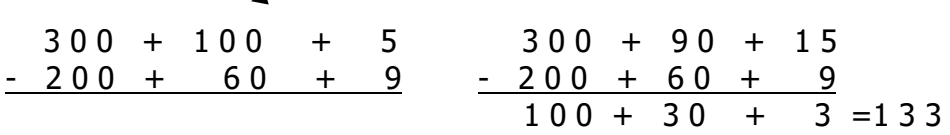
Exchange with place holders





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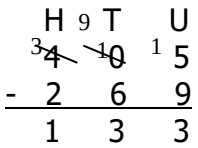

STAGE 7

Continue to determine when calculations are best carried out using mental strategies.

Develop use of the formal written method to subtraction of increasingly large numbers. Use expanded recording and apparatus as above to illustrate concept initially if required before moving towards the formal written method.

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