Shotton Hall Primary School
Working together to
S H I N E
Successful, Happy, Inspired and Nurtured towards Excellence

Reviewed and Amended: 21.09.18
Next review: September 2019
Ratified by the governing body on: 24th November 2017
Signed:

RRSA Links

- **Article 28 - Every child has the right to an education.**
- **Article 29 - Education must develop every child's personality, talents and abilities to the full. It must encourage the child's respect for human rights, as well as respect for their parents, their own and other cultures and the environment.**

The following strategies are used in the teaching of subtraction in Maths. They are also supported by additional strategies which are suggested in the White Rose Teaching for Mastery documents.

PROGRESSION THROUGH CALCULATIONS FOR SUBTRACTION

MENTAL CALCULATIONS

(ongoing)
These are a **selection** of mental calculation strategies:

Mental recall of addition and subtraction facts

10 – 6 = 4 17 - □ = 11
20 - 17 = 3 10 - □ = 2

Find a small difference by counting up

82 – 79 = 3

Counting on or back in repeated steps of 1, 10, 100, 1000

86 - 52 = 34 (by counting back in tens and then in ones)
460 - 300 = 160 (by counting back in hundreds)

Subtract the nearest multiple of 10, 100 and 1000 and adjust

24 - 19 = 24 - 20 + 1 = 5
458 - 71 = 458 - 70 - 1 = 387

Use the relationship between addition and subtraction

36 + 19 = 55 19 + 36 = 55
55 – 19 = 36 55 – 36 = 19

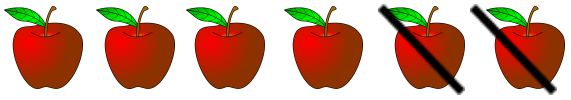
MANY MENTAL CALCULATION STRATEGIES WILL CONTINUE TO BE USED. THEY ARE NOT REPLACED BY WRITTEN METHODS.

THE FOLLOWING ARE STANDARDS THAT WE EXPECT THE MAJORITY OF CHILDREN TO ACHIEVE.

YR and Y1

EARLY STAGES (EYFS)

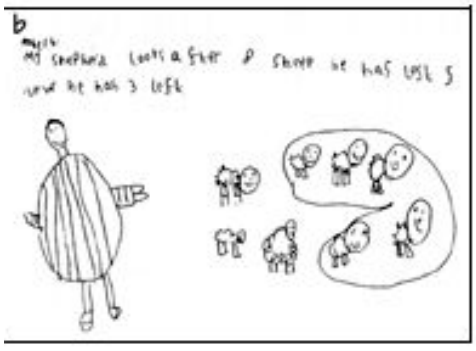
Children will engage in a variety of counting songs and rhymes and practical activities.
In practical activities and through discussion they will begin to use the vocabulary associated with subtraction.
They will find one less than a given number.
They will begin to relate subtraction to 'taking away' using objects to count 'how many are left' after some have been taken away.
6 – 2 = 4



Take two apples away. How many are left?'

Children will begin to count back from a given number.

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.



In Reception children use numbertracks and practical resources as they are introduced to calculation.

8 – 2 = 6

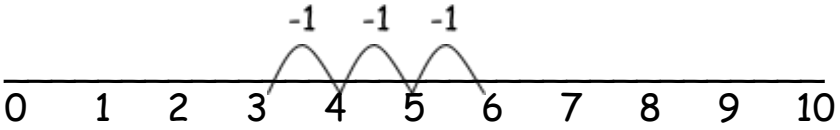
***Be mindful of ELG expectations but don't be limited by this.**

Y1

Statutory requirements
Pupils should be taught to: • read, write and interpret mathematical statements involving subtraction (–) and equals (=) signs • subtract one-digit and two-digit numbers to 20, including zero

In Year 1, children will move to using numberlines (as well as practical resources) to support calculation and teachers *demonstrate* the use of the numberline.
By the end of Year 1, some children may be able to draw their own numberlines in books.

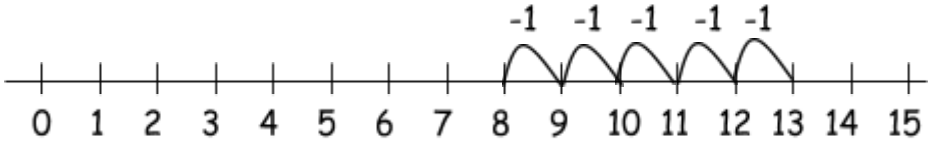
6 – 3 = 3



The numberline should also be used to show that 6 - 3 means the 'difference between 6 and 3' or 'the difference between 3 and 6' and how many jumps they are apart.

Children then begin to use numbered lines to support their own calculations - using a numbered line to count back in ones.

13 – 5 = 8



Y2

Statutory requirements

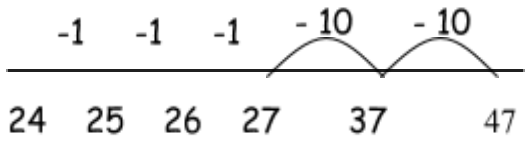
Pupils should be taught to:
• subtract numbers using concrete objects, pictorial representations, and mentally, including:
  • a two-digit number and ones
  • a two-digit number and tens
  • two two-digit numbers

Children will begin to use empty number lines to support calculations.

Counting back

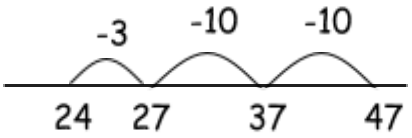
✓ First counting back in tens and ones.

47 – 23 = 24



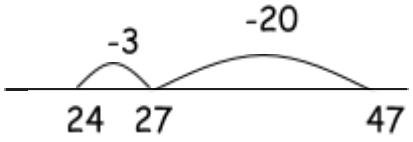
✓ Then helping children to become more efficient by subtracting the units in one jump (by using the known fact 7 – 3 = 4).

47 – 23 = 24



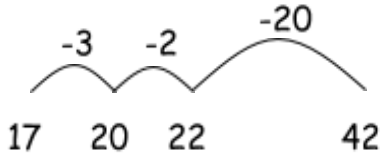
✓ Subtracting the tens in one jump and the units in one jump.

47 – 23 = 24



✓ Bridging through ten can help children become more efficient.

42 – 25 = 17



Counting on

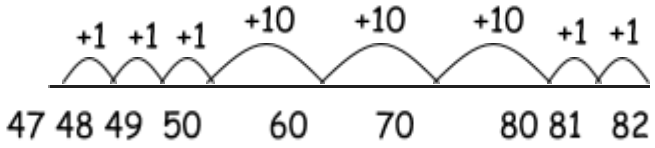
This will be used as a mental method, or as jottings to support a mental method.

If the numbers involved in the calculation are close together or near to multiples of 10, 100 etc, it can be more efficient to count on.

Count up from 47 to 82 in jumps of 10 and jumps of 1.

The number line should still show 0 so children can cross out the section from 0 to the smallest number. They then associate this method with 'taking away'.

82 - 47



Help children to become more efficient with counting on by:

✓ Subtracting the units in one jump;
✓ Subtracting the tens in one jump and the units in one jump;
✓ Bridging through ten.

Partitioning/expanded decomposition
This process should be demonstrated using arrow cards to show the partitioning.

89	=	80	9		
- 57		50	7		
		30	2	=	32

Use this model as an example of place value to children, only. **Do not use this in books**.

Initially, the children will be taught using examples that do not need the children to exchange.

From this the children will begin to exchange.

7	1
- 4	6

This would be recorded by the children as 71 – 46 = 25

	70	^{60}1^{11}	
- 40	6		
	20	5	

Children should know that units line up under units, tens under tens, and so on.

Extend subtraction to three digit numbers if children are working at this level.

Y3

Statutory requirements
Pupils should be taught to:
• subtract numbers with up to three digits, using formal written methods of columnar subtraction

Children should be confident in carrying out subtraction by counting back or on, using a numberline, before being introduced to the formal method of decomposition. Some children find decomposition difficult.

Decomposition

Before the introduction of the formal written method for subtraction (decomposition), children should be able to:

1. recall all subtraction facts to 20;
2. subtract multiples of 10 (such as 160 – 70) using the related subtraction fact,16 – 7, and their knowledge of place value;
3. partition two-digit and three-digit numbers into multiples of one hundred, ten and one in different ways (e.g. partition 74 into 70 + 4 or 60 + 14).

Teach the decomposition method in this order:-

1. TU – TU, then HTU – TU and HTU – HTU, exchange from tens to units, e.g. 71 – 46, 173 – 38, 774 - 248
2. HTU – HTU, exchange from hundreds to tens, e.g. 553 - 272
3. HTU – HTU, exchange from tens to units and from hundreds to tens, e.g. 635 – 278

71 – 46 =

This should be formally recorded.

$$\begin{array}{r} 3\,{}^{6}\!\not{7}\,{}^{1}1 \\ -\,2\;4\;6 \\ \hline 1\;2\;5 \end{array}$$

Y4

Statutory requirements
Pupils should be taught to: • subtract numbers **with up to 4 digits** using the formal written methods of columnar subtraction where appropriate

Continue, or begin, with the formal written method of decomposition as set out in Y3. Extending this to

- Subtract numbers with up to four digits, including numbers with different numbers of digits
- Subtraction with numbers involving zeros e.g 5001 - 2345
- Subtract decimals, money and measures

874 – 523 becomes	932 – 457 becomes
8 7 4 – 5 2 3 3 5 1	8 12 1 9 3 2 – 4 5 7 4 7 5
Answer: 351	Answer: 475

***Examples taken straight from new National Curriculum**

Y5

Statutory requirements
Pupils should be taught to: • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)

Children will continue to use compact method of subtraction with decomposition.

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  8  9  1
  9  0  2
- 3  7  4
  5  2  8
```

1

Children should:

- ✓ *be able to subtract numbers with different numbers of digits;*
- ✓ *begin to find the difference between two decimal fractions with up to three digits and the same number of decimal places;*
- ✓ *know that decimal points should line up under each other.*

Y6

NO STATUTORY REQUIREMENTS

Children will continue to use compact method of subtraction with decomposition and be able to apply this when problem solving.

Children should:

- ✓ *be able to subtract numbers with different numbers of digits;*
- ✓ *be able to subtract two or more decimal fractions with up to three digits and either one or two decimal places;*
- ✓ *know that decimal points should line up under each other.*

+ - + - + - + - + - + - +

By the end of year 6, children will have a range of calculation methods, mental and written. Selection will depend upon the numbers involved.

Children should not be made to go onto the next stage if:

1) **they are not ready.**
2) **they are not confident.**

Children should be encouraged to approximate their answers before calculating.
Children should be encouraged to check their answers after calculation using an appropriate strategy.
Children should be encouraged to consider if a mental calculation would be appropriate before using written methods.