Calculations Policy 2019

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This policy, having been presented to, and agreed upon by the whole staff and Governors, will be distributed to:

- All teaching staff
- School governors

A copy of the policy will also be available in:

- The staffroom
- The Head's office
- School web site

This will ensure that the policy is readily available to visiting teachers, support staff and parents.

Written Methods of Calculation Policy

This policy has been updated to take into account The Primary Framework and the changes in progression that are found in the New Primary Curriculum (2014). It outlines the standards that we expect the children to adhere to in each year group.

This policy contains the key written methods of calculation that are to be taught throughout the school. It has been written to ensure consistency and progression throughout the school.

The overall aim is that when children leave primary school they:

• have a secure knowledge of number facts and a good understanding of the

four operations;

• make use of diagrams and informal notes to help record steps and part answers when using mental methods that generate more information than can be kept in their heads;

• have an efficient, reliable, formal, written method of calculation for each operation that they can apply with confidence when undertaking calculations that they cannot carry out mentally.

They can select the method by asking themselves:

'Can I do this in my head?'

'Can I do this in my head using drawings or jottings?'

'Do I need to use a written method?'

Although the main focus of this policy is on formal written methods, it is important to recognise that the ability to calculate mentally lies at the heart of numeracy as in every written method there is an element of mental processing.

Early Years Foundation Stage (EYFS)

Whilst EYFS works developmentally to support the children to play and explore, actively learn, create and think critically the expectation is that children will meet the Early Learning Goals (ELGs) in Mathematics by the end of EYFS. In acknowledging this we realise, that if children are not ready to meet these requirements, further provision at this level is needed to ensure a smooth transition.

Key Stage One and Two

Using Written Methods

Written methods enable children to demonstrate their approach to calculations for the four operations which they cannot complete mentally and help pupils to improve their methods of working out;

- It is good practice when first introducing a method for the range of numbers to be within what the pupil can calculate mentally so that they can self-assess their success at using a method.
- Once pupils are able to perform a written method successfully they should be encouraged to complete calculations independently choosing the most appropriate way of doing so.

Progression of Written Methods

Taking account of visual, auditory and kinaesthetic (VAK) learning approaches, the written methods for each of the four operations demonstrate progression by building upon skills and knowledge learnt in each year at school;

- A pupil should not be targeted at achieving an age-expected method if they are not able to successfully use the method for a previous age-group.
- As a school we are taking an approach which ensures consistency across the school using the same few methods across both key stages.
- With this in mind, it should be easier for pupils to work on calculations using the method for their appropriate ability.

PROGRESSION THROUGH CALCULATIONS FOR ADDITION

MENTAL CALCULATIONS (ongoing)

These are a **selection** of mental calculation strategies:

Mental recall of number bonds

6 + 4 = 10 ☐ + 3 = 10

25 + 75 = 100 19 + ☐ = 20

Use near doubles

6 + 7 = double 6 + 1 = 13

Addition using partitioning and recombining

34 + 45 = (30 + 40) + (4 + 5) = 79

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

86 + 57 = 143 (by counting on in tens and then in ones)

460 - 300 = 160 (by counting back in hundreds)

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

24 + 19 = 24 + 20 – 1 = 43

458 + 71 = 458 + 70 + 1 = 529

Use the relationship between addition and subtraction

36 + 19 = 55 19 + 36 = 55

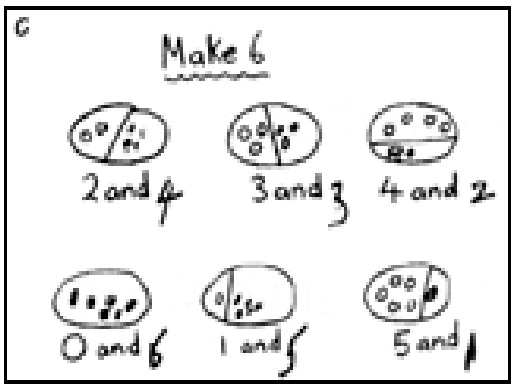
55 – 19 = 36 55 – 36 = 19

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.

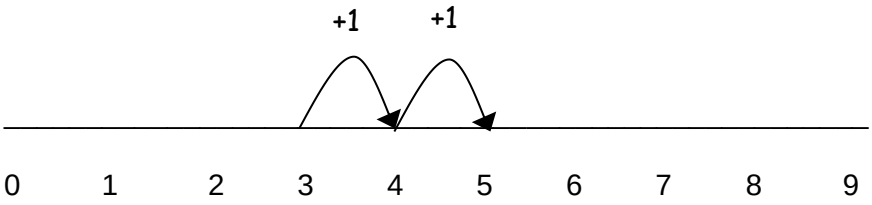
EYFS and Y1

- ✓ 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.



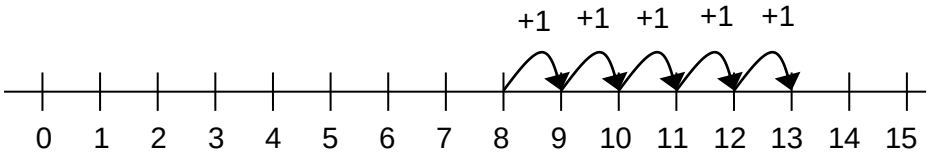
- ✓ They use number lines and practical resources such as Numicon to support calculation and teachers *demonstrate* the use of the number line.

3 + 2 = 5

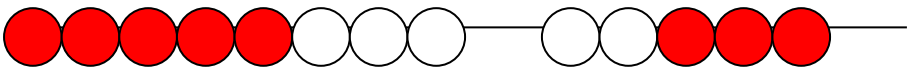


- ✓ Children then begin to use numbered lines to support their own calculations using a numbered line to count on in ones.

8 + 5 = 13



- ✓ Bead strings or bead bars can be used to illustrate addition including bridging through ten by counting on 2 then counting on 3.

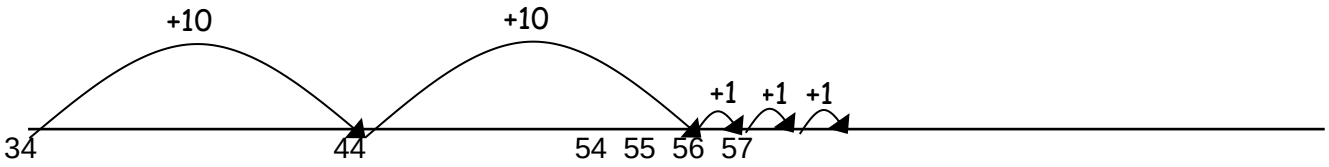


Y2

Children will begin to use 'empty number lines' themselves starting with the larger number and counting on;

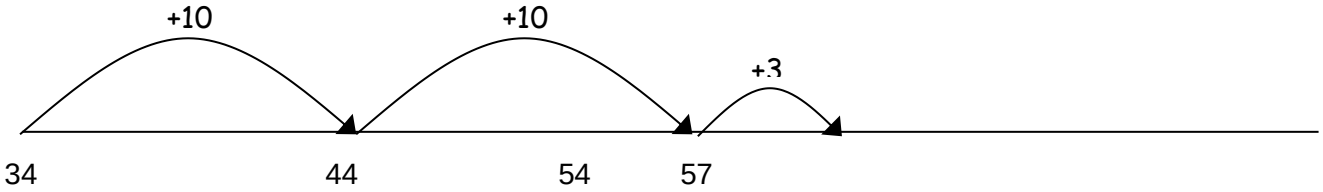
- ✓ First counting on in tens and ones.

34 + 23 = 57



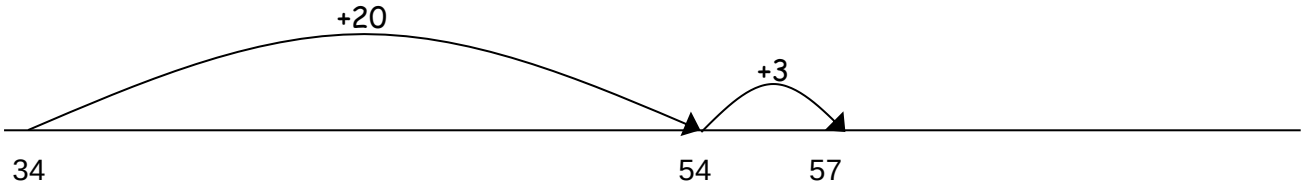
- ✓ Then helping children to become more efficient by adding the units in one jump (by using the known fact 4 + 3 = 7).

34 + 23 = 57



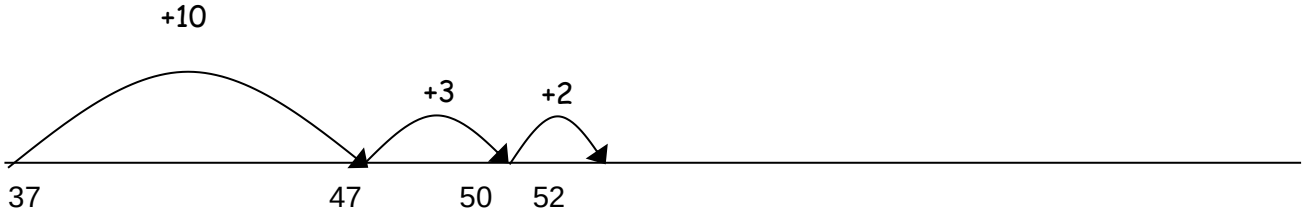
- ✓ Followed by adding the tens in one jump and the units in one jump.

34 + 23 = 57



- ✓ Bridging through ten can help children become more efficient.

37 + 15 = 52

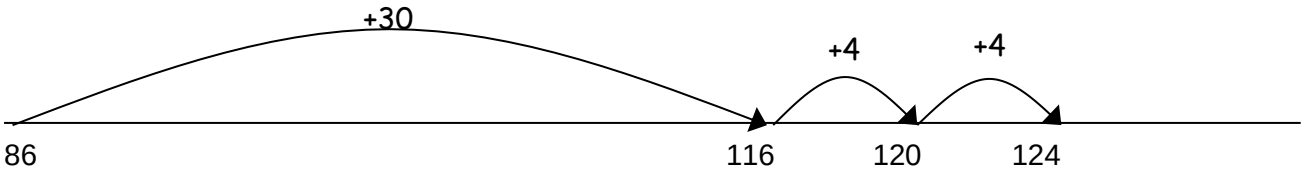


Y3

Children will continue to use empty number lines with increasingly large numbers, including compensation where appropriate.

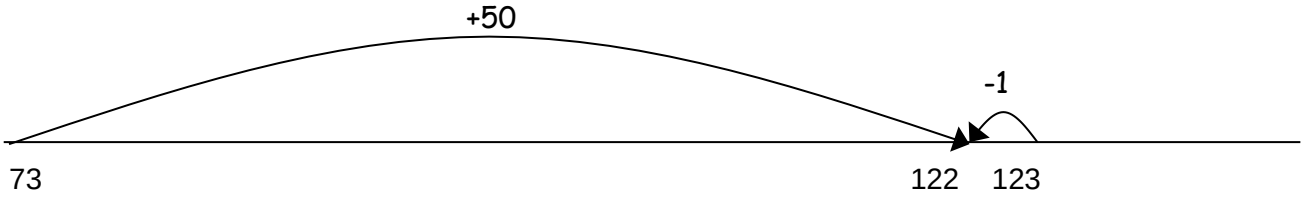
- ✓ Count on from the largest number irrespective of the order of the calculation.

38 + 86 = 124



- ✓ Compensation

49 + 73 = 122



- ✓ Children will begin to use informal pencil and paper methods (jottings) to support, record and explain partial mental methods building on existing mental strategies.

Option 1 – Adding most significant digits first, then moving to adding least significant digits.

```
  67
+ 24
  80  (60 + 20)
  11  (7 + 4)
  91
```

```
  267
+ 85
  200
  140  (60 + 80)
   12  (7 + 5)
  352
```

- ✓ Moving to adding the least significant digits first in preparation for 'carrying'.

```
  67
+ 24
  11  (7 + 4)
  80  (60 + 20)
  91
```

```
  267
+ 85
   12  (7 + 5)
  140  (60 + 80)
  200
  352
```

Option 2 - Adding the least significant digits first

```
  67
+ 24
  11  (7 + 4)
  80  (60 + 20)
  91
```

```
  267
+ 85
   12  (7 + 5)
  140  (60 + 80)
  200
  352
```

Y4

From this, children will begin to carry below the line.

625	783	367
+ 48	+ 42	+ 85
673	825	452
1	1	1 1

Using similar methods, children will;

- ✓ Add several numbers with different numbers of digits.
- ✓ Begin to add two or more three-digit sums of money, with or without adjustment from the pence to the pounds.
- ✓ Know that the decimal points should line up under each other, particularly when adding or subtracting mixed amounts, e.g. £3.59 + 78p.

Y5

Children should extend the carrying method to numbers with at least four digits.

587	3587
+ 475	+ 675
1062	4262
1 1	1 1 1

Using similar methods, children will;

- ✓ Add several numbers with different numbers of digits.
- ✓ Begin to add two or more decimal fractions with up to three digits and the same number of decimal places.
- ✓ Know that decimal points should line up under each other, particularly when adding or subtracting mixed amounts, e.g. 3.2 m – 280 cm.

Y6

Children should extend the carrying method to number with any number of digits.

7648	6584	42
+1486	+5848	+6432
9134	12432	786
1 1 1	1 1 1	3
		4681
		11944
		12 1

Using similar methods, children will;

- ✓ Add several numbers with different numbers of digits.
- ✓ Begin to add two or more decimal fractions with up to four digits and either one or two decimal places.
- ✓ Know that decimal points should line up under each other, particularly when adding or subtracting mixed amounts, e.g. 401.2 + 26.85 + 0.71.

PROGRESSION THROUGH CALCULATIONS FOR SUBTRACTION

MENTAL CALCULATIONS (ongoing)

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.

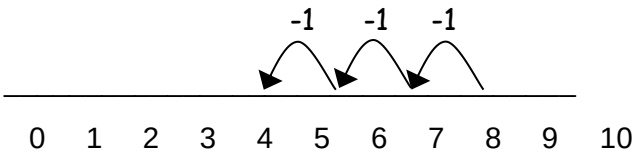
The following are standards that we expect the majority of children to achieve.

EYFS and Y1

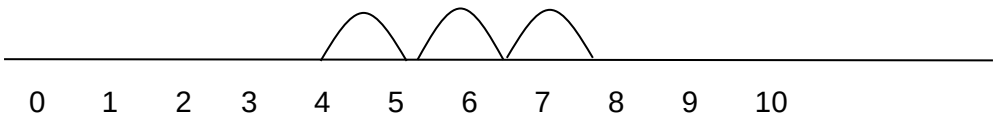
Children are encouraged to develop a mental picture of the number system in their heads to use for calculation. They develop ways of recording calculations using pictures etc.

- ✓ They use number lines and practical resources such as Numicon to support calculation. Teachers *demonstrate* the use of the number line.

6 – 3 = 3

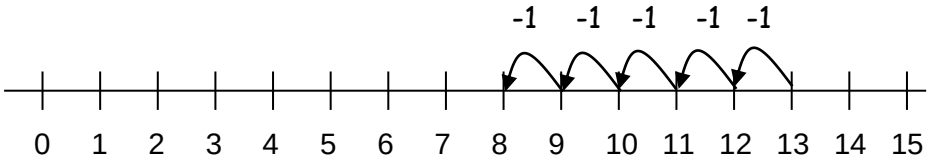


- ✓ The number line should also be used to show that 6 - 3 means the 'difference between 6 and 3' or 'the difference between 3 and 6' and how many jumps they are apart.



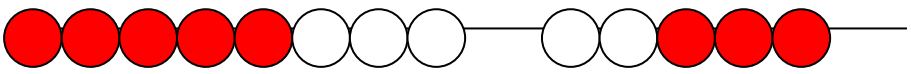
- ✓ Children then begin to use numbered lines to support their own calculations - using a numbered line to count back in ones.

13 – 5 = 8



- ✓ Bead strings or bead bars can be used to illustrate subtraction including bridging through ten by counting back 3 then counting back 2.

13 – 5 = 8



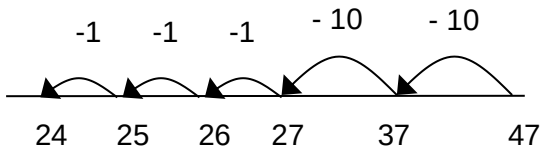
Y2

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

Counting back

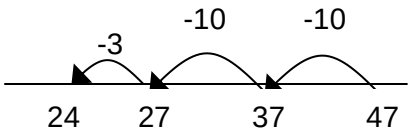
- ✓ First counting back in tens and ones.

47 – 23 = 24



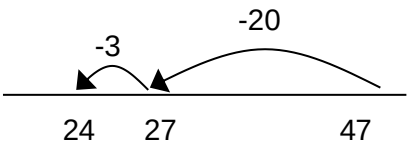
- ✓ Then helping children to become more efficient by subtracting the units in one jump (by using the known fact 7 – 3 = 4).

47 – 23 = 24



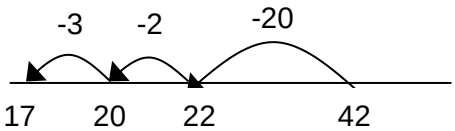
- ✓ Subtracting the tens in one jump and the units in one jump.

47 – 23 = 24



- ✓ Bridging through ten can help children become more efficient.

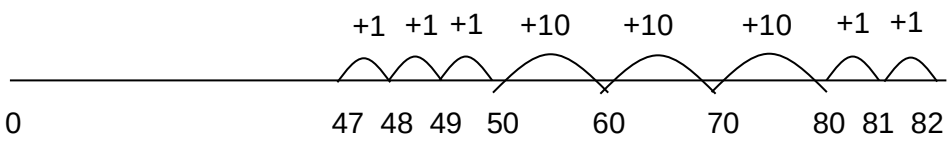
42 – 25 = 17



Counting on

- ✓ 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



Y3

- ✓ Children will continue to use empty number lines with increasingly large numbers.
- ✓ Children will begin to use informal pencil and paper methods (jottings) to support, record and explain partial mental methods building on existing mental strategies.

Partitioning and decomposition

- ✓ This process should be demonstrated using arrow cards to show the partitioning and base 10 materials to show the decomposition of the number.

NOTE When solving the calculation 89 – 57, children should know that 57 **does NOT EXIST AS AN AMOUNT** it is what you are subtracting from the other number. Therefore, when using base 10 materials, children would need to count out only the 89.

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

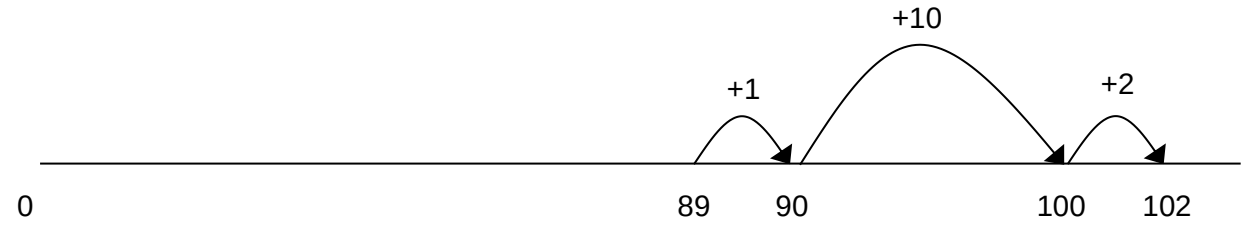
- ✓ Initially, the children will be taught using examples that do not need the children to exchange.

From this the children will begin to exchange.

71	$\overset{60}{\cancel{70}}$ + $^{1}1$
- 46	- 40 + 6
25	20 + 5 = 25

- ✓ Children should know that units line up under units, tens under tens, and so on.
- ✓ Where the numbers are involved in the calculation are close together or near to multiples of 10, 100 etc. counting on using a number line should be used.

102 – 89 = 13



Y4

Partitioning and decomposition

		600		140					
754		~~700~~	+	~~50~~	+	$^{1}4$			
- 86	-			80	+	6			
668		600	+	60	+	8	=	668	

See the calculation step-by-step below;

Step 1

754		700	+	50	+	4			
- 86	-			80	+	6			
668									

Step 2

754		700	+	40	+	14	(adjust from T to U)		
- 86	-			80	+	6			
668									

Step 3

754		600	+	140	+	14	(adjust from H to T)		
- 86	-			80	+	6			
668		600	+	60	+	8	=	668	

Decomposition

$^{614\ 1}$
~~754~~
- 86
668

Children should;

- ✓ Be able to subtract numbers with different numbers of digits.
- ✓ Using this method, children should also begin to find the difference between two three-digit sums of money, with or without 'adjustment' from the pence to the pounds.
- ✓ Know that decimal points should line up under each other.

For example:

£8.95		8	+	0.9	+	0.05	leading to		
- £4.38	-	4	+	0.3	+	0.08			

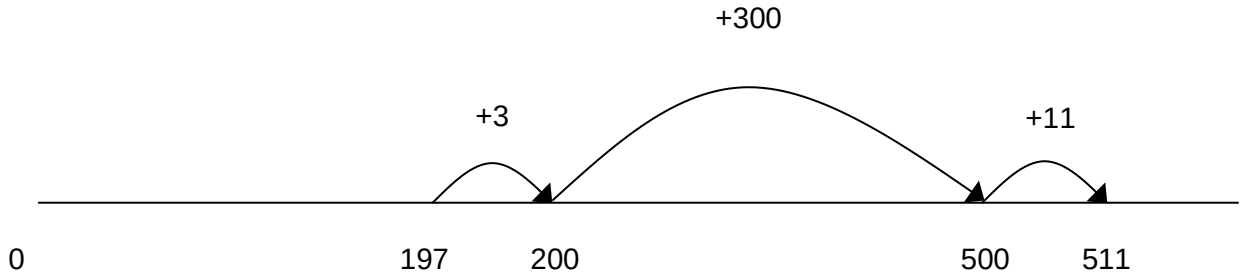
								^{1}	
	8	+	0.8	+	0.15	*(adjust from T to U)*		8.85	
-	4	+	0.3	+	0.08			- 4.38	
	4	+	0.5	+	0.07			£4.57	

- ✓ Alternatively, children can set the amounts to whole numbers, i.e. 895 – 438 and convert to pounds after the calculation.

NB: If your children have reached the concise stage they will then continue this method through into years 5 and 6. They will not go back to using the expanded methods.

- ✓ Where the numbers are involved in the calculation are close together or near to multiples of 10, 100 etc. counting on using a number line should be used.

511 – 197 = 314



Y5

Partitioning and decomposition

		600		140			
754		~~700~~	+	~~50~~	+	$^{1}4$	
- 286		- 200	+	80	+	6	
468		400	+	60	+	8	= 468

See the calculation step-by-step below;

Step 1

754		700	+	50	+	4	
- 286		- 200	+	80	+	6	
468							

Step 2

754		700	+	40	+	14	(adjust from T to U)
- 286		- 200	+	80	+	6	
468							

Step 3

754		600	+	140	+	14	(adjust from H to T)
- 286		- 200	+	80	+	6	
468		400	+	60	+	8	= 468

Decomposition

614 1	
~~7~~5~~4~~	
-286	
468	

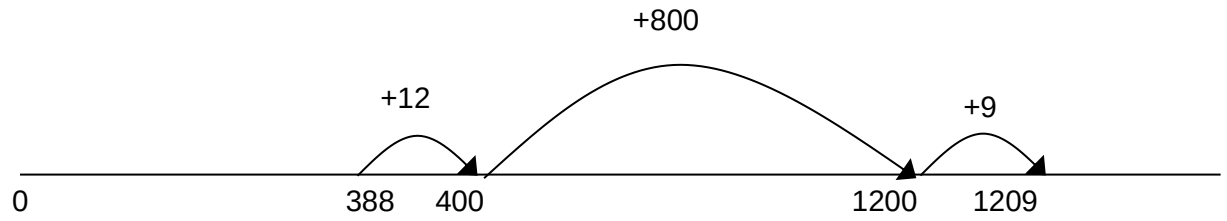
Children should;

- ✓ 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.

NB: If your children have reached the concise stage they will then continue this method through into year 6. They will not go back to using the expanded methods.

Where the numbers are involved in the calculation are close together or near to multiples of 10, 100 etc. counting on using a number line should be used.

1209 – 388 = 821



Y6

Decomposition

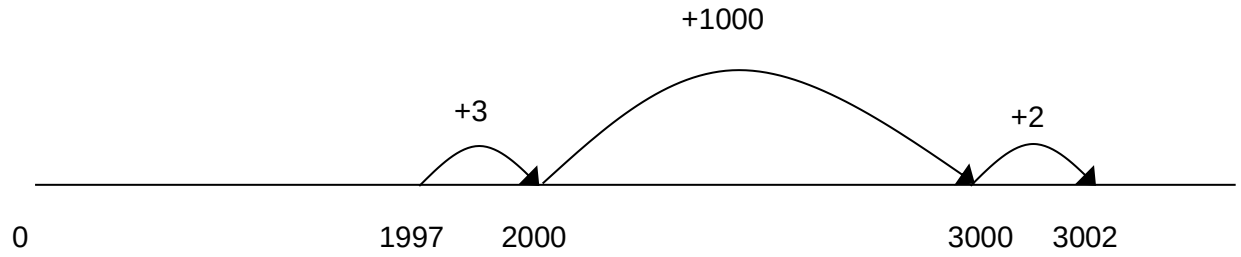
5 13 1
~~6~~ ~~4~~67
- 2684
3783

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.

Where the numbers are involved in the calculation are close together or near to multiples of 10, 100 etc. counting on using a number line should be used.

3002 – 1997 = 1005



PROGRESSION THROUGH CALCULATIONS FOR MULTIPLICATION

MENTAL CALCULATIONS (ongoing)

Doubling and halving

Applying the knowledge of doubles and halves to known facts e.g. 8 x 4 is double 4 x 4

Using multiplication facts

Tables should be taught every day from Y2 onwards, either as part of the mental oral starter or other times as appropriate within the day.

Year 2

2 times table	5 times table	10 times table

Year 3

2 times table	3 times table	4 times table
5 times table	6 times table	8 times table
		10 times table

Year 4

Derive and recall all multiplication facts up to 12 x 12

Years 5 and 6

Derive and recall quickly all multiplication facts up to 12 x 12. Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers.

Using and applying division facts

Children should be able to utilise their times tables knowledge to derive other facts e.g. If I know 3 x 7 = 21, what else do I know?

30 x 7 = 210

300 x 7 = 2100

3000 x 7 = 21 000

0.3 x 7 = 2.1 etc.

Use closely related facts already known

13 x 11 = (13 x 10) + (13 x 1)

= 130 + 13

= 143

Multiplying by 10 or 100

Knowing that the effect of multiplying by 10 is a shift in the digits one place to the left.

Knowing that the effect of multiplying by 100 is a shift in the digits two places to the left.

Partitioning

23 x 4 = (20 x 4) + (3 x 4)

= 80 + 12

= 102

Use of factors

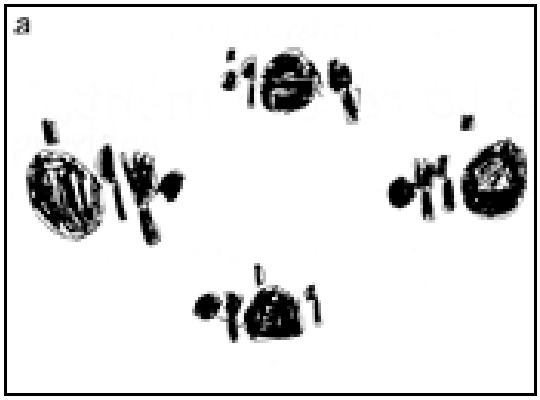
8 x 12 = 8 x 4 x 3

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.

EYFS and Y1

Children will experience equal groups of objects and will count in 2s and 10s and begin to count in 5s. They will work on practical problem solving activities involving equal sets or groups.



Y2

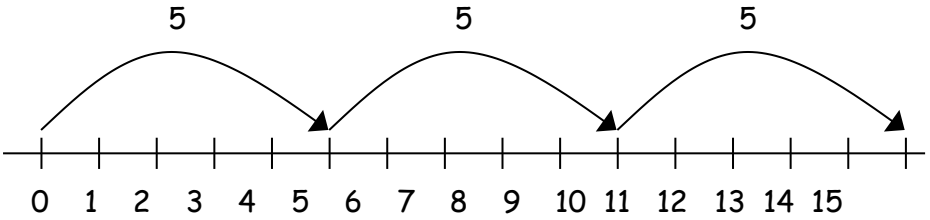
Children will develop their understanding of multiplication and use jottings to support calculation:

✓ **Repeated addition**

3 times 5 is 5 + 5 + 5 = 15 or 3 lots of 5 or 5 x 3

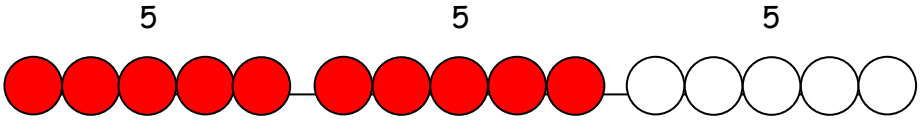
Repeated addition can be shown easily on a number line;

5 x 3 = 5 + 5 + 5



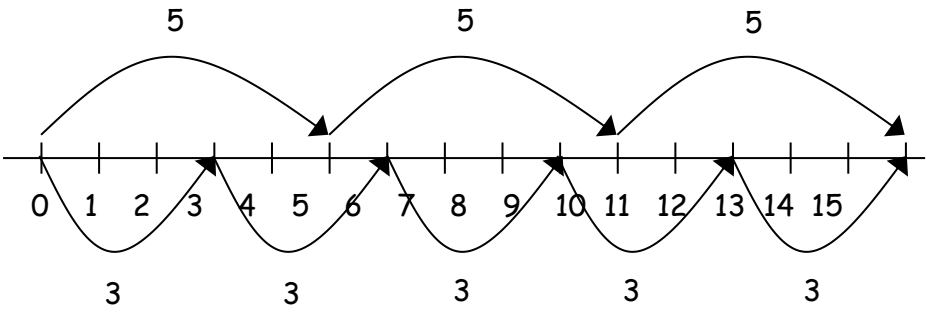
…and on a bead bar:

5 x 3 = 5 + 5 + 5



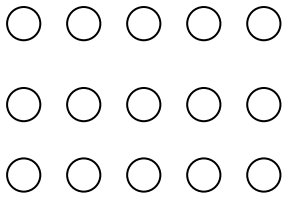
✓ **Commutativity**

Children should know that 3 x 5 has the same answer as 5 x 3. This can also be shown on the number line.



✓ **Arrays**

Children should be able to model a multiplication calculation using an array. This knowledge will support with the development of the grid method.



5 x 3 = 15

3 x 5 = 15

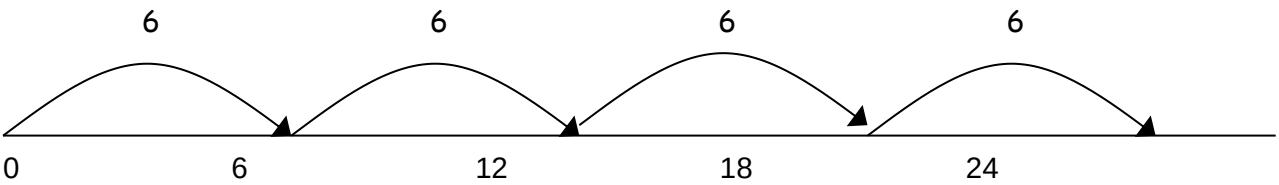
Y3

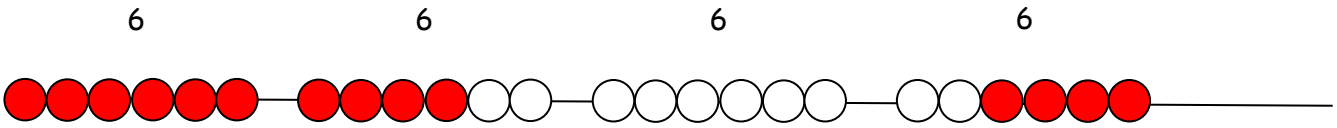
Children will continue to use:

- ✓ **Repeated addition**

4 times 6 is 6 + 6 + 6 + 6 = 24 or 4 lots of 6 or 6 x 4

Children should use number lines or bead bars to support their understanding.





- ✓ **Arrays**

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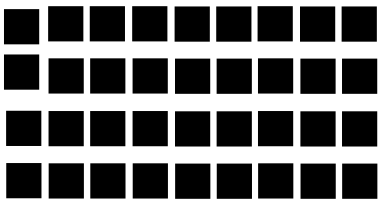


9 x 4 = 36

9 x 4 = 36

Children will also develop an understanding of

- ✓ **Scaling**

e.g. Find a ribbon that is 4 times as long as the blue ribbon

5 cm

20 cm

- ✓ **Using symbols to stand for unknown numbers to complete equations using inverse operations**

☐ x 5 = 20 3 x △ = 18 ☐ x O = 32

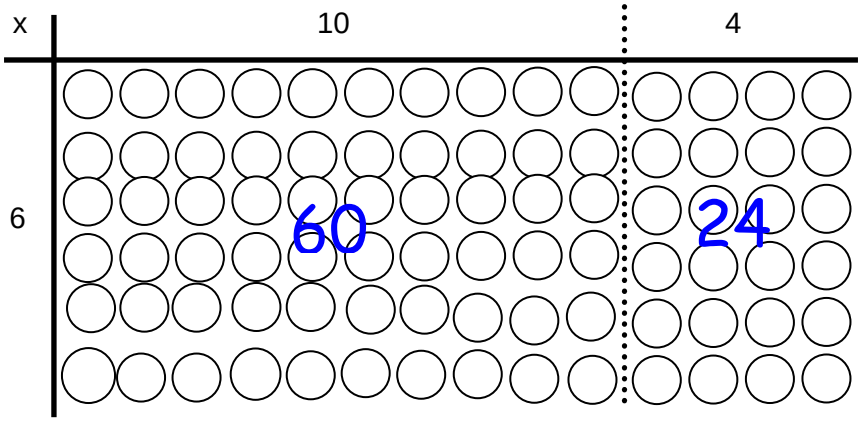
- ✓ **Partitioning**

38 x 5 = (30 x 5) + (8 x 5)

= 150 + 40

Y4

Children will continue to use arrays where appropriate leading into the grid method of multiplication.



(6 x 10) + (6 x 4)

60 + 24

84

Grid method

TU x U - Short multiplication – multiplication by a single digit

23 x 8 = 184

Children will approximate first, 23 x 8 is approximately 25 x 8 = 200

X	20	3
8	160	24

160
+ 24
184

Y5

Grid method

HTU x U - Short multiplication – multiplication by a single digit

346 x 9 = 3114

Children will approximate first, 346 x 9 is approximately 350 x 10 = 3500

X	300	40	6
9	2700	360	54

2700
+ 360
54
3114
1 1

TU x TU **-** Long multiplication – multiplication by more than a single digit

72 x 38 = 2736

Children will approximate first, 72 x 38 is approximately 70 x 40 = 2800

X	70	2
30	2100	60
8	560	16

2100
+ 560
60
16
2736
1

Using similar methods, they will be able to multiply decimals with one decimal place by a single digit number, approximating first. They should know that the decimal points line up under each other.

4.9 x 3 = 14.7

Children will approximate first, 4.9 x 3 is approximately 5 x 3 = 15

X	4	0.9
3	12	2.7

12
+ 2.7
14.7

Y6

Grid Method

ThHTU x U - Short multiplication – multiplication by a single digit

4346 x 8 = 34768

Children will approximate first, 4346 x 8 is approximately 4346 x 10 = 43460

X	4000	300	40	6
8	32000	2400	320	48

32000
+ 2400
320
48
34768

HTU x TU - Long multiplication – multiplication by more than a single digit)

372 x 24 = 8928

Children will approximate first, 372 x 24 is approximately 400 x 25 = 10000

X	300	70	2
20	6000	1400	40
4	1200	280	8

6000
+1400
1200
280
40
8
8928
1

Using similar methods, they will be able to multiply decimals with up to two decimal places by a single digit number and then two digit numbers, approximating first. They should know that the decimal points line up under each other.

4.92 x 3 = 12.76

Children will approximate first, 4.92 x 3 is approximately 5 x 3 = 15

X	4	0.9	0.02
3	12	2.7	0.06

12
+ 2.7
0.06
12.76

PROGRESSION THROUGH CALCULATIONS FOR DIVISION

MENTAL CALCULATIONS (ongoing)

These are a **selection** of mental calculation strategies:

Doubling and halving

Knowing that halving is dividing by 2

Tables should be taught every day from Y2 onwards, either as part of the mental oral starter or other times as appropriate within the day.

Year 2

2 times table	5 times table	10 times table

Year 3

2 times table	3 times table	4 times table
		8 times table
5 times table	6 times table	10 times table

Year 4

Derive and recall all multiplication facts up to 12 x 12.

Years 5 and 6

Derive and recall quickly all multiplication facts up to 12 x 12

Derive and recall quickly all multiplication facts up to 12 x 12. Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers.

Using and applying division facts

Children should be able to utilise their times tables knowledge to derive other facts e.g. If I know 3 x 7 = 21, what else do I know?

30 x 7 = 210

300 x 7 = 2100

3000 x 7 = 21 000

0.3 x 7 = 2.1 etc.

Dividing by 10 or 100

Knowing that the effect of dividing by 10 is a shift in the digits one place to the right.

Knowing that the effect of dividing by 100 is a shift in the digits two places to the right.

Use of factors

378 ÷ 21 378 ÷ 3 = 126 378 ÷ 21 = 18 126 ÷ 7 = 18

Use related facts

Given that 1.4 x 1.1 = 1.54

What is 1.54 ÷ 1.4, or 1.54 ÷ 1.1?

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

The following standards are what we expect the majority of children to achieve.

EYFS and Y1

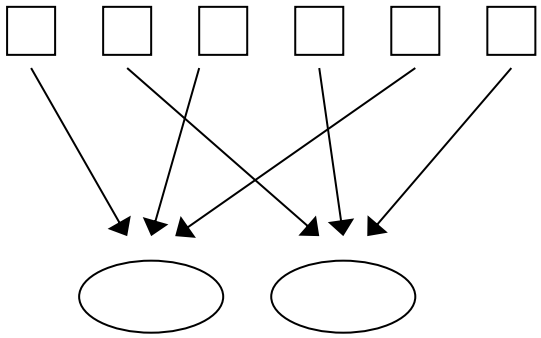
Children will understand equal groups and share items out in play and problem solving. They will count in 2s and 10s and later in 5s.

Y2

Children will develop their understanding of division and use jottings to support calculation

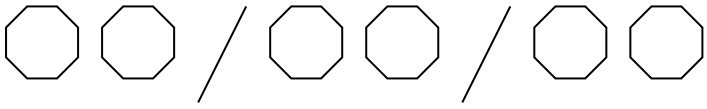
- ✓ **Sharing equally**

6 sweets shared between 2 people, how many do they each get?



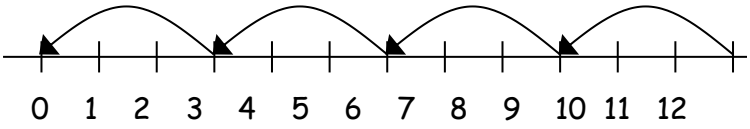
- ✓ **Grouping or repeated subtraction**

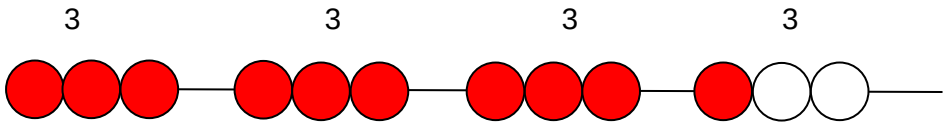
There are 6 sweets, how many people can have 2 sweets each?



✓ **Repeated subtraction using a number line or bead bar**

12 ÷ 3 = 4





The bead bar will help children with interpreting division calculations such as 10 ÷ 5 as 'how many 5s make 10?'

✓ **Using symbols to stand for unknown numbers to complete equations using inverse operations**

☐ ÷ 2 = 4 20 ÷ △ = 4 ☐ ÷ △ = 4

Y3

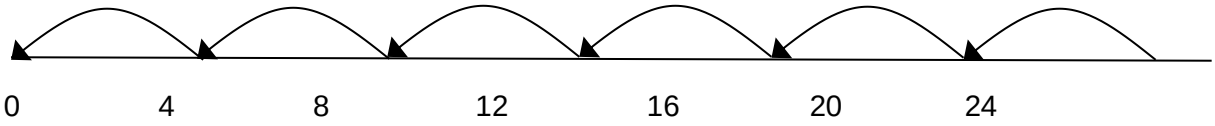
Ensure that the emphasis in Y3 is on grouping rather than sharing.

Children will continue to use:

✓ **Repeated subtraction using a number line**

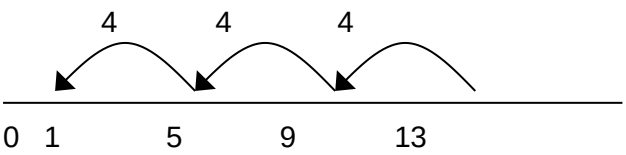
Children will use an empty number line to support their calculation.

24 ÷ 4 = 6



Children should also move onto calculations involving remainders.

13 ÷ 4 = 3 r 1



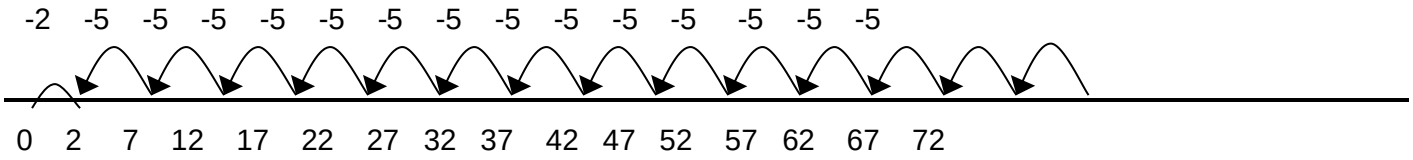
✓ **Using symbols to stand for unknown numbers to complete equations using inverse operations**

26 ÷ 2 = ☐ 24 ÷ △ = 12 ☐ ÷ 10 = 8

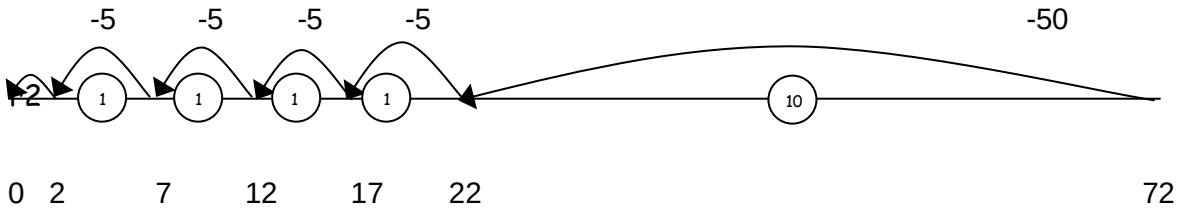
Y4

Children will develop their use of repeated subtraction to be able to subtract multiples of the divisor. Initially, these should be multiples of 10s, 5s, 2s and 1s – numbers with which the children are more familiar.

72 ÷ 5



Moving onto:



Then onto the vertical method:

Short division TU ÷ U

72 ÷ 3 = 24

3 | 72
- 30 (10 x 3)
42
- 30 (10 x 3)
12
- 6 (2 x 3)
6
- 6 (2 x 3)
0

Answer = 24

Any remainders should be shown as integers, i.e. 14 remainder 2 or 14 r 2.

Children need to be able to decide what to do after division and round up or down accordingly. They should make sensible decisions about rounding up or down after division. For example 62 ÷ 8 is 7 remainder 6, but whether the answer should be rounded up to 8 or rounded down to 7 depends on the context.

E.g. I have 62p. Sweets are 8p each. How many can I buy?

Answer: 7 (the remaining 6p is not enough to buy another sweet)

Apples are packed into boxes of 8. There are 62 apples. How many boxes are needed?

Answer: 8 (the remaining 6 apples still need to be placed into a box)

Y5

Children will continue to use written methods to solve short division TU ÷ U.

Children can start to subtract larger multiples of the divisor, e.g. 30x

Short division HTU ÷ U

196 ÷ 6 = 32 r 4

```
6        196
       - 180     (30 x 6)
         16
       -  12     (2 x 6)
          4
                 Answer = 32 r 4
```

Any remainders should be shown as integers, i.e. 14 remainder 2 or 14 r 2.

Children need to be able to decide what to do after division and round up or down accordingly. They should make sensible decisions about rounding up or down after division. For example 240 ÷ 52 is 4 remainder 32, but whether the answer should be rounded up to 5 or rounded down to 4 depends on the context.

Y6

Children will continue to use written methods to solve short division TU ÷ U and HTU ÷ U.

Long division HTU ÷ TU

972 ÷ 36 = 27

```
36       972
       - 720     (20 x 36)
         252
       - 252     (7 x 36)
           0
                 Answer = 27
```

Any remainders should be shown as fractions, i.e. if the children were dividing 32 by 10, the answer should be shown as $3\ ^{2}/_{10}$ which could then be written as $3\ ^{1}/_{5}$ in its lowest terms.

Extend to decimals with up to two decimal places. Children should know that decimal points line up under each other.

87.5 ÷ 7 = 12.5

```
7        87.5
       - 70.0    (10 x 7)
         17.5
       - 14.0    (2 x 7)
          3.5
       -  3.5    (0.5 x 7)
           0              Answer = 12.5
```

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.