A PARENTS' GUIDE TO CALCULATION

Bure Park Primary School

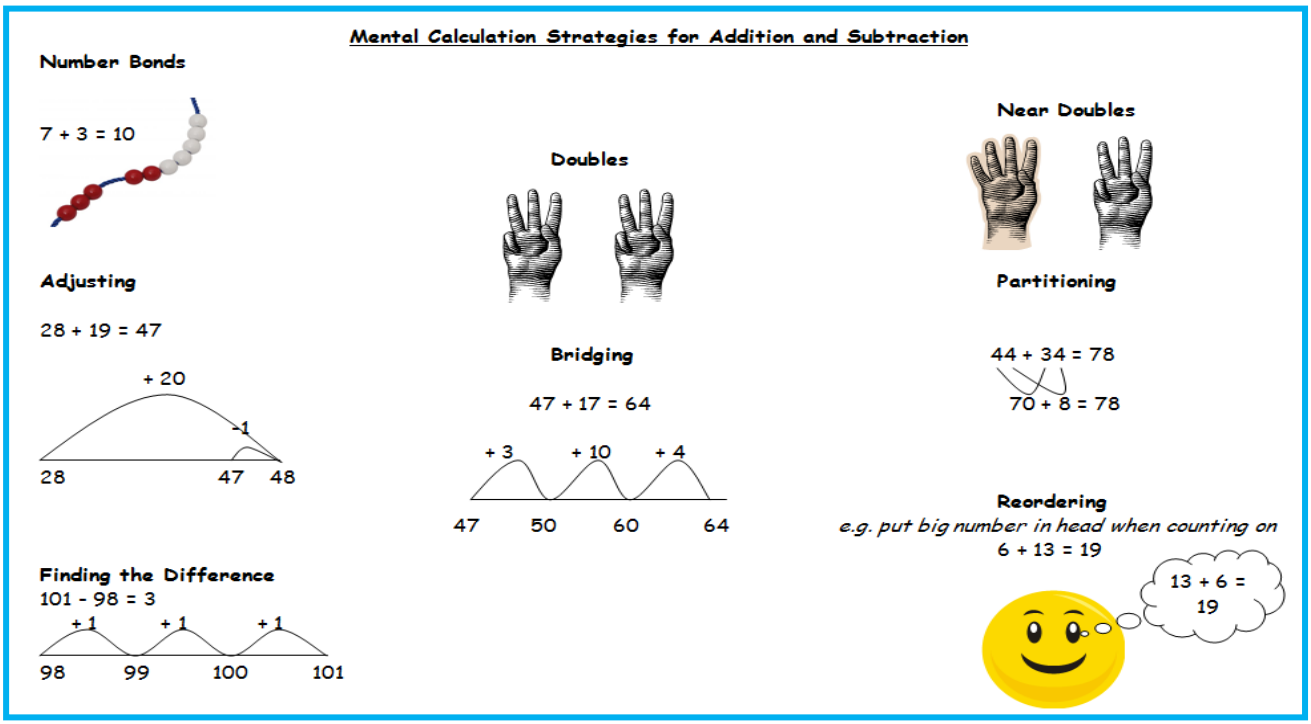
Many parents and carers are keen to support their children in Mathematics as they progress through primary school. Therefore, we have produced this booklet which we hope will explain the progression of the calculation methods used, in line with our policy and the statutory requirements of the new curriculum.

Even though the strategies for calculations are set out in yearly expectations, it is important that children are secure in a particular method before they move on to the next one. Children will be at varying stages in their move towards this efficiency.
There is an expectation that children will continue to develop their mental methods of calculation both prior to, and alongside any formal written methods.

The use of concrete apparatus and visual images help to support children with their conceptual understanding, and this continues to be the case as they move into lower and upper Key Stage Two.

We hope that this guide is a useful tool in supporting your child, as they acquire, consolidate and progress in their mathematical learning.

Addition



Key words for Addition:

Add

Increase

Sum

Total

Plus

Together

More

Year 1

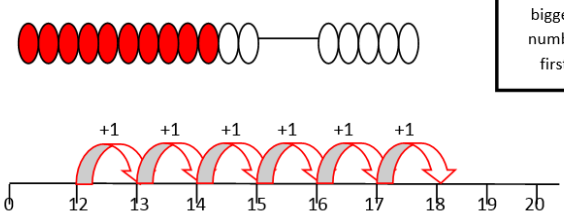
Combining 2 sets of objects into 1 group and counting practically.

Tom bought 3 cakes and then bought 2 more. How many cakes does he have now?

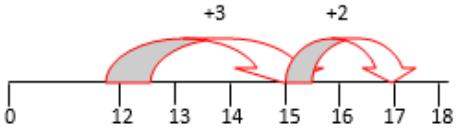
Recorded as: 3 + 2 = 5

Put the biggest number first and count on.

12 + 5 = 17



12 + 5 = 17



Partitioning recorded as:

12 + 3 = 15
15 + 2 = 17

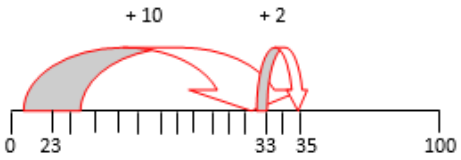
Children develop a mental picture of the number system for use with calculation. A range of key models and images support this, alongside practical equipment.

Pictures/Symbols – Base-Ten apparatus

23 + 12 = 35

Year 2

23 + 12 = 35



Partitioning recorded as:

20 + 10 = 30
3 + 2 = 5
30 + 5 = 35

Children begin to use numbered lines to support their own calculations, initially counting in ones before beginning to work more efficiently.

Make connections between partitioning both numbers using structured apparatus and partition the second number only, using a number line.

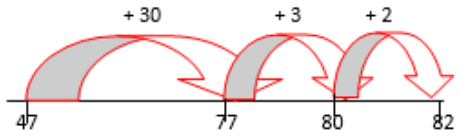
Expanded written algorithm <u>without</u> carrying

35 + 42 30 + 5
40 + 2

70 + 7 = 77

Year 3

35 + 47 = 82



Jumps can also be in tens and ones

Partitioning recorded as:

30 + 40 = 70
5 + 7 = 12
70 + 12 = 82

Expanded Column without carrying leading to compact column

235 + 123 =

200 + 30 + 5
100 + 20 + 3
300 + 50 + 8 = 358

→

235
123
358

Expanded written algorithm

135 + 147 = 621

100 + 30 + 5
100 + 40 + 7

200 + 70 + 12 = 282

Year 4

Expanded column with carrying leading to compact column

1576 + 858 = 2434

1000 + 500 + 70 + 6
800 + 50 + 8

1000 + 1300 + 120 + 14 = 2434

→

1576
858
2434
1 1

Add numbers using structured apparatus to support understanding of place value.

Years 5 and 6

Expanded column with carrying leading to compact column

3.243 + 8.327 = 11.57

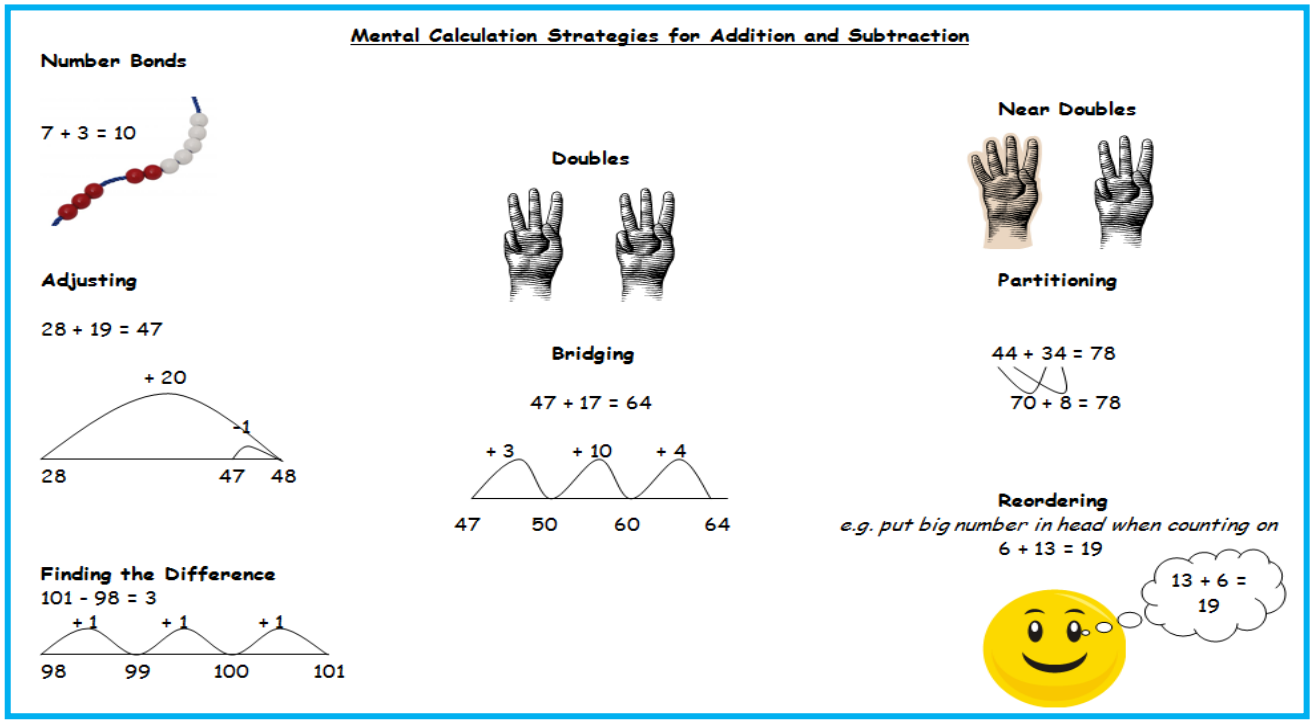
3 + 0.2 + 0.04 + 0.003
8 + 0.3 + 0.02 + 0.007

11 + 0.5 + 0.06 + 0.01 = 11.57

→

3.243
8.327
11.570
1

Subtraction



Key words for Subtraction:

Difference between

Take-away

Minus

Fewer

Reduce

Take from

Decrease

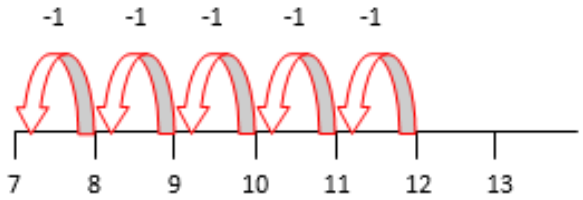
Year 1

Counting on/back to find answer.
Drawing pictures/dots – informal jottings.

Mum baked 9 biscuits. I ate 5. How many were left?

Might be recorded as: 9 – 5 = 4

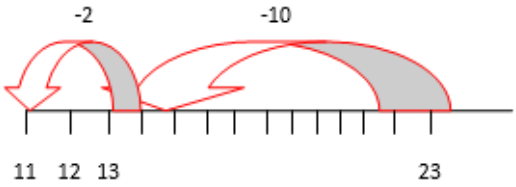
12 – 5 = 7



Year 2

23 - 12 = 11

23 - 12 = 11

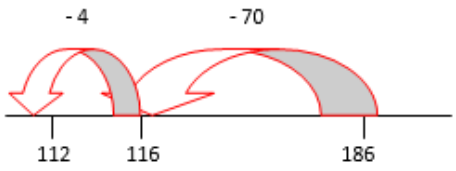


Partitioning recorded as:

23 - 10 = 13
13 - 2 = 11

Year 3

186 – 74 = 248



Partitioning recorded as:

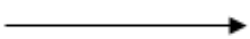
186 – 70 = 116
112 – 4 = 112

Finding the difference is often the most efficient way of solving a subtraction.

186 – 74 = 112

100 + 80 + 6
70 + 4 -

100 + 10 + 2 = 112



1 8 6
7 4 -

1 1 2

Year 4

567 – 352 = 215

500 + 60 + 7 − 300 + 50 + 2 = 200 + 10 + 5 = 215

5 6 7 − 3 5 2 = 2 1 5

Years 5 and 6

72.14 – 23.07 = 49.07

60 12 0 0.14
70 + 2 + 0.1 + 0.04
20 + 3 + 0 + 0.07 −

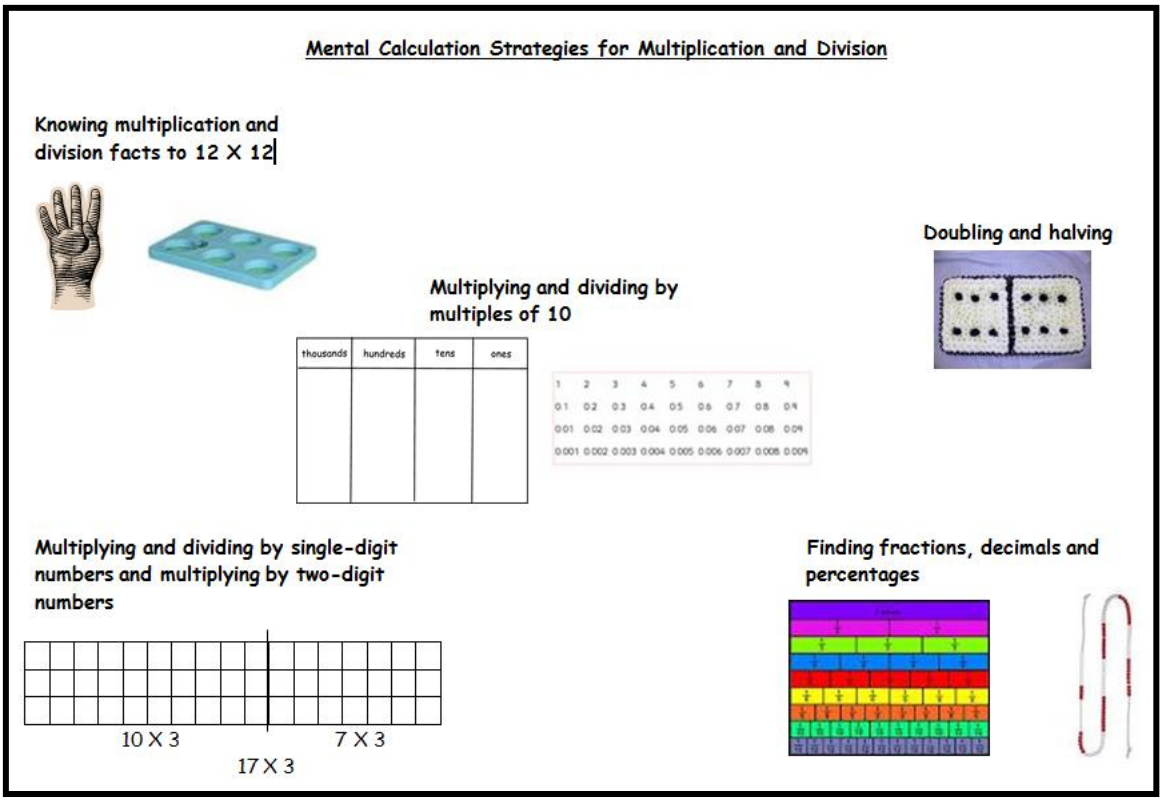
40 + 9 + 0 + 0.07 = 49.07

72.14 – 23.07 = 49.07

6 12 0 14
7 2 . 1 4
2 3 . 0 7 −

4 9 . 0 7

Multiplication



Key words for Multiplication:

Multiplied by

Groups of

Times

Product

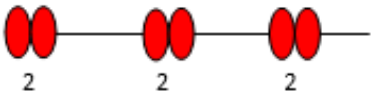
Lots of

Year 1

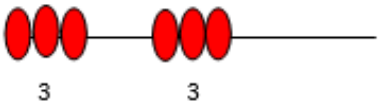
Objects/Pictorial Representations - Count repeated groups of the same size using natural groupings

Counting in groups rather than counting individual items.

3 x 2 = 6



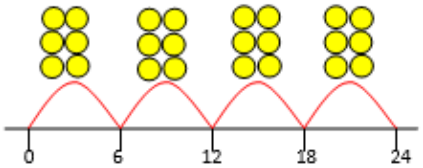
2 x 3 = 6



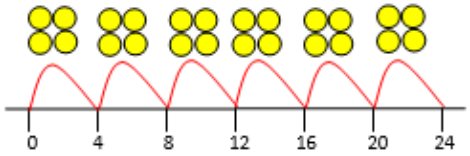
Year 2

Number lines – understanding multiplication as repeated addition

4 x 6 = 24

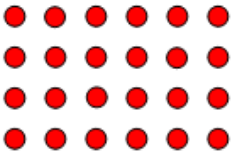


6 x 4 = 24

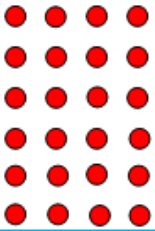


Arrays

4 x 6



6 x 4



Year 3

13 x 4

10 x 4 = 40

3 x 4 = 12

40 + 12 = 52

x	10	3
4		

x	10	3
4		

4 x 10 = 40 4 x 3 = 12

40 + 12 = 52

Year 4

Array - The Grid Method

146 x 6

x	100	40	6
6	600	240	36

600 + 240 + 36 = 876

Year 5

Array – The Grid Method

47 x 36

x	40	7
30	1200	210
6	240	42

1200 + 210 + 240 + 7 = 1,692

Years 5 and 6

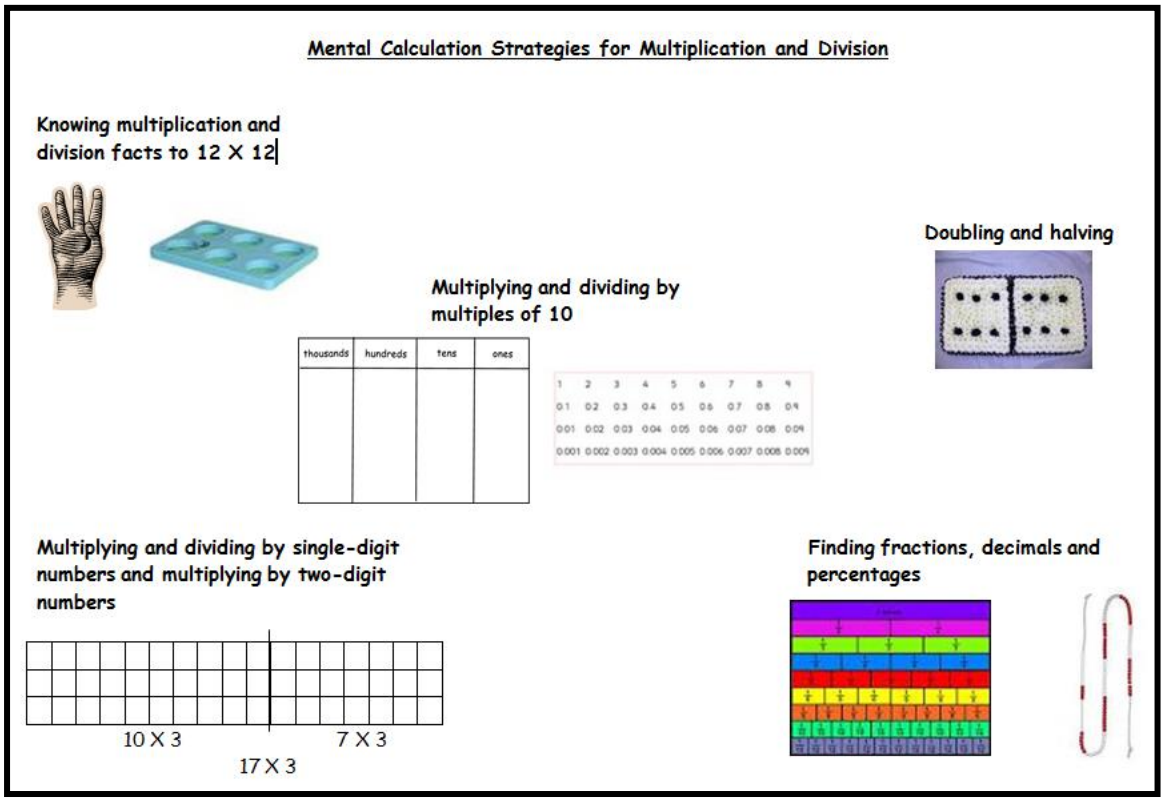
47 x 36

```
  47
  36  x
 ----
  42   (6 x 7)
 240   (6 x 40)
 210   (30 x 7)
1200   (30 x 40)
 ----
1692
```


47 x 36

```
  47
  36  x
 ----
 282
1410
 ----
1692
```

Division



Key words for Division:

Share equally

Divide by

Group

Share

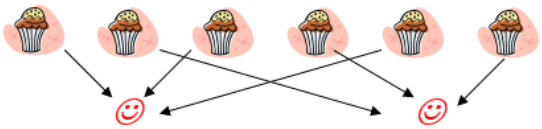
Divide into

Divisible by

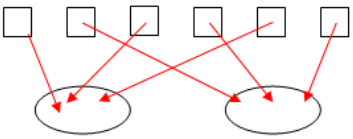
Year 1

Objects/Pictorial Representations/Symbols – division as sharing

6 cakes shared between 2 people

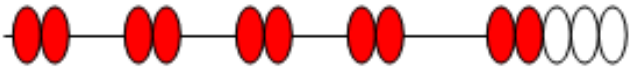


6 sweets shared between 2 people, how many do they get each?



Bead Strings – division as grouping

Eight children are asked to get in to four equal groups.



The structure of grouping and sharing will be considered.

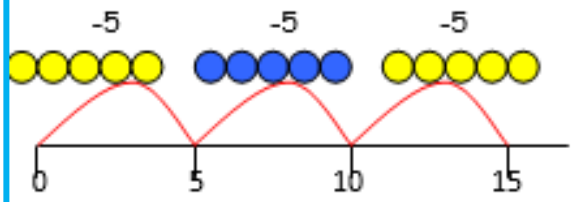
Year 2

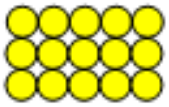
4 eggs fit in a box. How many boxes would you need to pack 20 eggs?

Recorded as: 20 ÷ 5 = 4

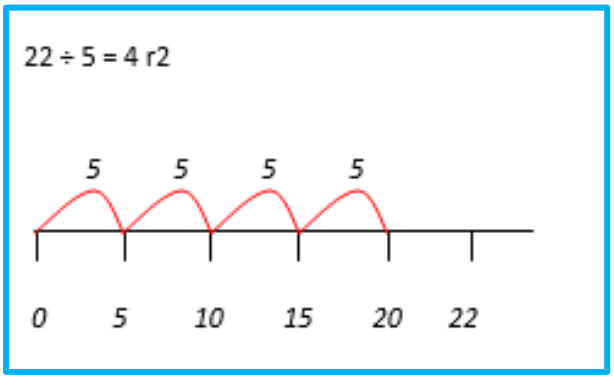
Number lines/Arrays – investigate division as repeated subtraction

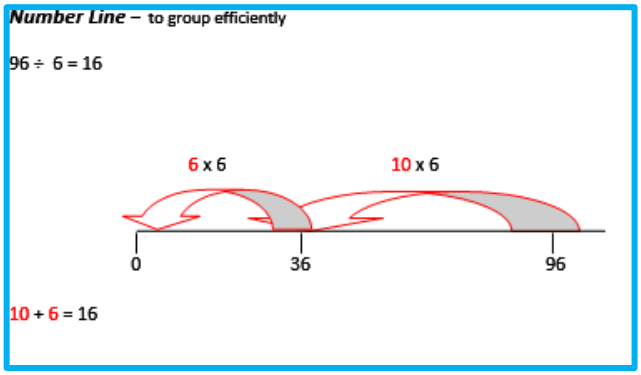
15 ÷ 5 = 3



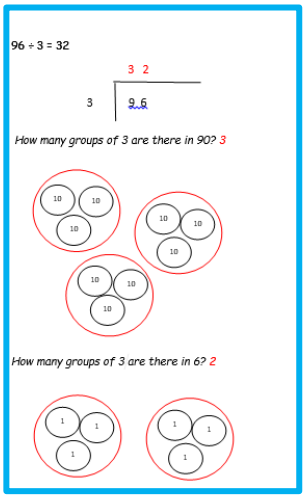


Year 3





Year 4



Remainders should be interpreted in the following ways: as whole numbers; as fractions; and through rounding in an appropriate way to the context.

Years 5 and 6