Lyppard Grange Primary School – Progression in Calculation

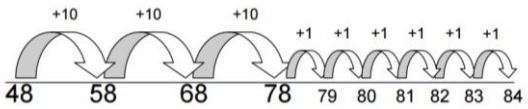
Year 2

Addition

Blank number lines (2)

Children continue to use blank number lines in order to add 2 digit numbers and beyond.

E.g. 48+36=

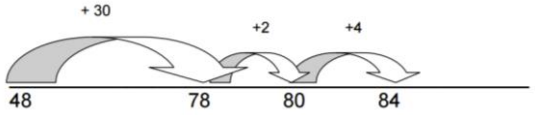


Children will add 3 lots of 10 before adding 6 single units.

Blank number lines (3)

Children continue to use blank number lines in order to add 2 digit numbers and beyond.

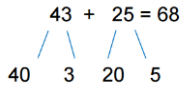
E.g. 48+36=



Use in conjunction with a **100 square** to show jumps of tens and ones/units.

Children will add in 1 chunk of 30 before adding a chunk of 2 single units to bridge to 10 then a chunk of 4 single units.

Partitioning



40 + 20 = 60
3 + 5 = 8
60 + 8 = 68

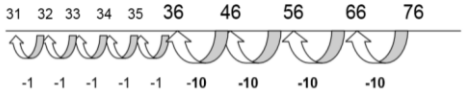
Partition the numbers into tens and units, add the tens together then add the units together before recombining to give the answer.

Subtraction

Blank number lines (2)

Children continue to use blank number lines in order to subtract 2 digit numbers and beyond.

E.g. 76-45=

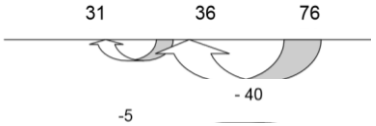


Children will subtract 4 lots of 10 before subtracting 5 single units.

Blank number lines (3)

Children continue to use blank number lines in order to subtract 2 digit numbers and beyond by using more efficient jumps.

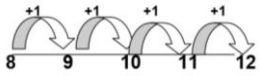
E.g. 76-45=



Children will subtract in 1 chunk of 40 before subtracting a chunk of 5 single units. If they are having difficulty bridging 10 encourage the children to subtract to the nearest multiple.

Subtraction of a small difference by counting on

12 - 8 = 4



'The difference between 8 and 12 is 4.'

Children should be taught to look at the numbers in their subtraction problem carefully and if the numbers are close together they should simply

Multiplication

Number arrays/start of repeated addition

Children continue to use arrays to show repeated addition.

6 x 5 = 30

'5 + 5 + 5 + 5 + 5 + 5 = 30'

'6 rows of 5'

'6 groups of 5'

'5 groups of 6'

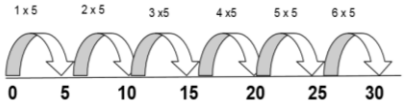
'5 x 6 = 30'

'6 x 5 = 30'

Blank number lines (1)

Children begin to construct a blank number line in order to use a repeated addition method to solve simple multiplication.

e.g. 6 x 5 =

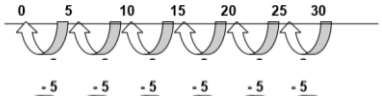


Division

Blank number lines (1)

Children begin to construct a blank number line in order to use a repeated subtraction method to solve simple division. Children are taught that you subtract chunks or groups in order to divide.

e.g. 30 ÷ 5 =



You then count up how many chunks of 5 you have subtracted to find the answer.

Children should also be taught to use this method when being introduced to the concept of remainders.

Children will then move on to calculations that bridge the tens.	count up. Children can use a blank number line to help them with this.		

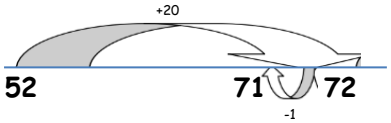
Lyppard Grange Primary School – Progression in Calculation

Year 3			
Addition	**Subtraction**	**Multiplication**	**Division**

Blank number lines (4)

Children add near multiples of 10 by rounding and adjusting. For example:

52+19 can be done as 52+20-1=



Children would start by adding 20 on the blank number line to get to 72.They would then adjust their answer by subtracting the 1 they added onto the 20.

Partition into tens and ones and recombine (1)

Partition both numbers and recombine.

42 + 23 = 40 + 2 + 20 + 3
= 60 + 5
= 65

This partitioning method can be used with 3 digit numbers.

Column addition (1 expanded)

Children are taught to add in columns using the expanded method (putting the whole number in each column.)

342+156 =
300 + 40 + 2
+ 100 + 50 + 6
400 + 90 + 8 = 498

This method can be used to bridge 10 or 100.

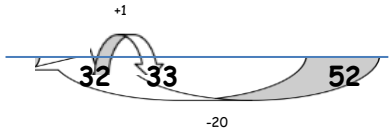
342+186 =
300 + 40 + 2
+ 100 + 80 + 6
500 + 20 + 8 = 528
100

Children to move onto formal written method as appropriate.

Blank number lines (4)

Children subtract near multiples of 10 by rounding and adjusting. For example:

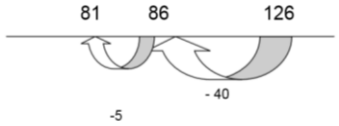
52-19 can be done as 52-20+1=



Children would start by subtracting 20 on the blank number line to get to 32. They would then adjust their answer by adding the 1 they added onto the 20.

Blank number lines (4)

Children further develop the use of the blank number line with numbers that bridge 100.



Partition into tens and units and recombine (1)

With subtraction this method will only work if you partition the 2nd number only!

87 – 32 = 87 – 30 = 57
= 57 – 2
= 55

Decomposition (1 expanded)

73 – 27 = 46

70 + 3 becomes 60 +13
- 20 + 7 - 20 + 7
40 + 6 = 46

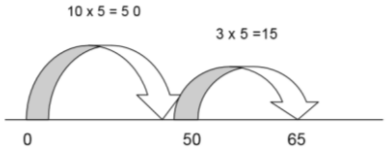
Children to move onto formal written method as appropriate.

Blank number lines (2)

Children begin to construct a blank number line in order to use their times tables knowledge to multiply larger numbers

e.g.

13 x 5 = 65



Grid method (1)

Children are taught to partition the 2 digit number and multiply the 2 parts by the single digit in grid form. They then add together the 2 separate part to get the combined total of the multiplication problem.

13 x 8 =

X	10	3
8	80	24

80 + 24 = 104

This then leads to:

Expanded short multiplication (1)

13 x 8 = 104

10 + 3
x 8
24 (3 x 8)
+ 80 (10 x 8)
104

Children to move onto formal short multiplication method as appropriate.

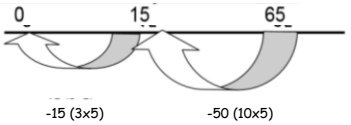
Blank number lines (1)

Children continue to use blank number lines (as outlined in y2) to divide by more challenging numbers such as 6,7,8,9. They also use this method to handle division with remainders.

Chunking (1 using a number line)

Children are taught the first stage in the chunking process by using the blank number line to subtract larger chunks when dividing.

65 ÷ 5 =



Short division (1)

Introduce the children to the formal layout for known multiplication and division facts.

24 ÷ 3 = 8

This can also be recorded as…

$$3\overline{)24}\quad 8$$