Teaching and recording the four operations at Oakfield.

Reception to Y6

TEACHING AND RECORDING THE FOUR RULES OF NUMBER

Reception to year 6

This policy contains the key methods of teaching and recording the four rules of number that will be taught across the school. It has been written to ensure consistency and progression and reflects a whole school agreement.

Although the focus of this policy is on written recording, it is important to recognise that the ability to calculate mentally lies at the heart of the National Curriculum. However mental calculation is not at the exclusion of written recording; it should be seen as complementary to and not as separate from it. Therefore all pupils will be given regular opportunities to record and explain their mathematical thinking.

WHAT RECORDING WILL BE DONE?

- Jottings
- Images and models
- Number lines
- Formal written methods

WHY WILL CHILDREN RECORD?

- To represent work done practically
- To help keep track of steps in longer tasks
- To support or explain a mental calculation
- To develop mental imagery
- To communicate their ideas
- To work out answers too difficult to tackle mentally

HOW CAN TEACHERS HELP CHILDREN TO RECORD?

Using concrete resources and pictorial images

Children need to be able to understand a problem before they can solve it. Being able to visualise a problem is a crucial step. Children can then use this visual image to help them record. Teachers should ensure they use a variety of resources to provide models and images. e.g:

- Number tracks/number lines/beadstrings/numicon/dienes/PV counters
- Part/whole models
- Bar models
- Interesting objects for counting e.g. dinosaurs/cars/play people
- A range of 100 squares
- Place value and digit cards
- Fingers

Teachers need to take care to ensure that the vocabulary they are using matches the image.

The table below shows the resources and images to be used to support the teaching of the four operations in years 1-6:

Year Group	Addition	Subtraction	Multiplication	Division
1	Part/whole model Bar model Ten frame Bead strings Number tracks Number lines (labelled) Straws Numicon	Part/whole model Bar model Ten frame Bead strings Number tracks Number lines (labelled) Straws Numicon	Bar model Ten frames Numicon Counters Bead strings Number lines Real life objects	Bar model Ten frames Numicon Counters Bead strings Number lines Real life objects
2	Part/whole model Bar model Ten frame Bead strings Number lines Hundred square Straws Base ten Place value counters Numicon	Part/whole model Bar model Ten frame Bead strings Number lines Hundred square Straws Base ten Place value counters Numicon	Bar model Ten frames Numicon Counters Bead strings Number lines Arrays	Bar model Ten frames Numicon Counters Bead strings Number lines Arrays
3	Part/whole model Bar model Base ten Place value counters	Part/whole model Bar model Base ten Place value counters	Place value counters Counters Base ten Numicon Arrays	Place value counters Counters Base ten Numicon Arrays Part/whole model Bar model
4	Part/whole model Bar model Base ten Place value counters	Part/whole model Bar model Base ten Place value counters	Place value counters Counters Base ten Arrays	Place value counters Counters Base ten Arrays Part/whole model Bar model

5	Part/whole model Bar model Place value counters Base ten	Part/whole model Bar model Place value counters Base ten	Place value counters Counters Base ten	Place value counters Counters Base ten
6	Part/whole model Bar model Place value counters Base ten	Part/whole model Bar model Place value counters Base ten	Place value counters Counters Base ten	Place value counters Counters Base ten

This list is not exhaustive but gives a guide to the appropriate images and models. More information can be found on the WRH calculation guidance documents.

DEVELOPING RECORDING SKILLS

- Teachers will model different ways of recording on a regular basis.
- Children will be given opportunities to select and use different methods of recording.
- Teachers and children will discuss the efficiency of different methods of recording.
- Teachers will support children in moving towards using more efficient methods.

Children will always be encouraged to look at a calculation/problem and then decide which the best method to use is. Our aim is for children to be able to select an efficient method of their choice that is appropriate for a given task.

They will do this by always asking themselves;

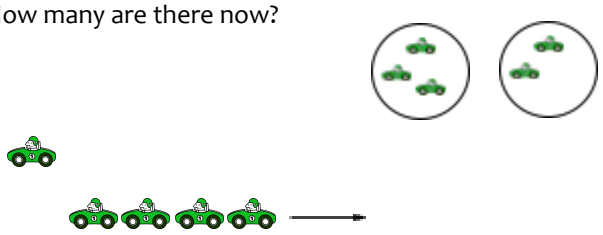
'Can I use a mental method?'

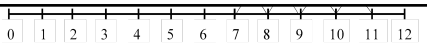
'Can I do this with support from some jottings?'

'Do I need a formal written method?'

'Have I used the most efficient method?'

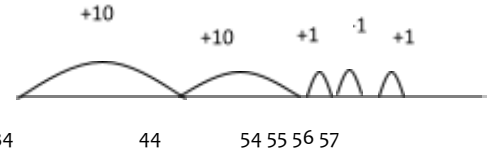
Addition

Reception	Year 1
Pictures / Marks/Real Objects 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. There are 3 cars in the garage. 2 more arrive. How many are there now? 	**Pictures / Marks/Real Objects** Children continue to develop their own ways of recording calculations using pictures and marks. Lisa has 4 lollies and Tim has 2 lollies. How many lollies do they have altogether? 
Signs and Symbols The children begin to investigate their own methods of recording using signs and symbols.	**Signs and Symbols** Children need to understand the concept of equality before using the '=' sign. Calculations should be written either side of the equality sign so that the sign is not just interpreted as 'the answer'. Rapid recall, based on facts to 5: 3 + 2 = □ = 3 + 2 □ □ □ 3 □ = 5 5 = + 2 □ □ □ □ □ □ + 2 = 5 5 = 3 + + = 5 5 = + Using 10p and 1p coins, counters or a number line, then mental strategies extend to: 11 + 4 = □ = 17 + 6 □ □ = □
Number Tracks/Lines Children physically jump along number tracks to support addition calculations. They use toys to jump forwards along number lines.	**Number Lines** (numbered/empty) Children begin to use numbered number lines to support addition calculations with 1 and 2 digit numbers using number bonds to 20 by counting on in ones. 7 + 4

Teachers demonstrate the use of the number line e.g. to represent 3 + 2 = 5 by counting on in ones from 3	 Record by - drawing jumps on prepared lines - constructing own unstructured lines
Other Jottings/Equipment Children look for patterns and relationships using practical apparatus. They use songs, rhymes, games, stories and investigations to develop concepts.	**Other Jottings/Equipment** Bead strings and other concrete resources used to illustrate addition using number facts to 20, including bridging through ten by counting on 2 then counting on 3 8 + 5=13  Children look for patterns and relationships using practical apparatus. They use songs, rhymes, games, stories and investigations to develop concepts.
Vocabulary add, more, and, make, sum, total, altogether, double, one more, two more, ten more, how many more to make? how many more is… than …?	**Vocabulary** add, more, plus, and, make, sum, total, altogether, double, one more, two more, ten more, how many more to make? how many more is… than …? score, near double, how much more is, is the same as, equals, sign

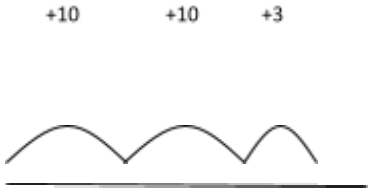
Addition

Year 2	Year 3
Pictures / Marks Children are encouraged to use marks e.g. tally marks to represent objects in addition calculations e.g. There are 7 people on the bus. 8 more get on. How many people are on the bus. ||||||| ||||||||	**Pictures / Marks** As Year 2 Numbers are often too large for pictures to be efficient but pictures/diagrams will continue to be used where appropriate.
Signs and Symbols Continue to use a range of equations as in Year 1 but with appropriate larger numbers. Rapid recall based on facts to 10, pairs to 20 and multiples of 10 up to 100: 5 + 4 = □ = 5 + 4 □ 5 + □ = 9 9 = □ + 4 □ + 4 = 9 9 = 5 + □ □ + □ = 9 9 = □ + □ Using 10p and 1p coins, a number line or square, then mental strategies extend to: 14 + 5 = 10 + □ 100 = 35 + □ + □ 61 + 14 = □ □ + □ = 50 Adding three numbers 1 + □ + 5 = 17	**Signs and Symbols** Continue to use a range of equations as in Year 2 but with appropriate larger numbers. Rapid recall based on facts to 20: 13 + 6 = □ = 13 + 6 □ 13 + □ = 19 19 = □ + 6 □ + 6 = 19 19 = 13 + □ □ + □ = 19 19 = □ + □ Using 10p and 1p coins, a number line or square, then mental strategies extend to: 21 + 6 = □ + 1 36 + 58 = □ 100 = □ □ Adding three or more numbers 14 + □ + □ = 37
Number Lines (partly numbered - empty) Children will begin to use empty number lines to add 2 digit numbers and ones, 2 digit numbers and tens and two 2 digit numbers themselves starting with the larger number and counting on. First counting on in tens and ones 34 +23 = 57	**Number Lines** (empty) Children will continue to use empty number lines with increasingly large numbers, including compensation where appropriate. Initially counting on in tens and ones (see 1st yr 2 example) then adding tens in one jump and ones in one jump (see last yr 2 example). Children to start with the largest number irrespective of the order of the calculation (initially not crossing H or T boundary) e.g.



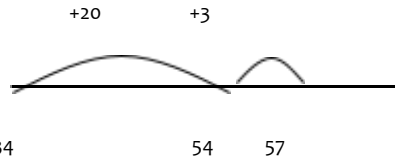
Then helping children to become more efficient by adding the ones in one jump (by using known facts)

34 +23 =57



Then add the tens in one jump and the ones in one jump

34 + 23 = 57



Year 2

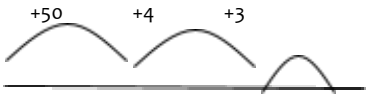
36 + 53 +30 +6

(partition)

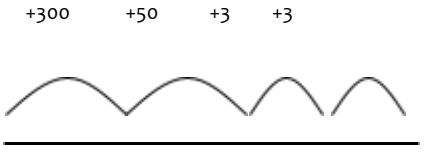
53 83 89

Then children to count on in multiples of 100, 10 or 1, crossing H or T boundaries e.g.

86 +57 =143



356 + 427 =783 (start with largest number):

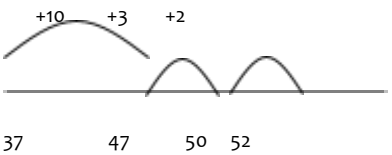


Year 3

Number Lines (continued)

Introduce bridging through ten to help the children become more efficient

37 + 15 = 52



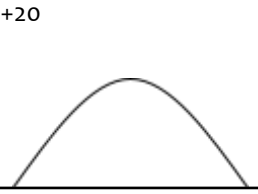
Number Lines (continued)

Add near multiples of ten by adding multiples

of ten and adjusting:

35 + 19

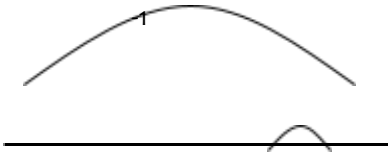
(compensate)



Add 9 or 11 by adding 10 and adjusting:

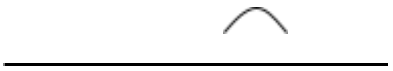
35 + 9 +10

(compensate) -1



35 44 45

-1



35 54 55

Other Jottings

Partition one number:

23 + 12 = 23 + 10 + 2

= 33 + 2

= 35

Look for number bonds:

3 + 8 + 7 = 10 + 8

= 18

10

Other Jottings

Partition one number:

42 + 27 = 42 + 20 + 7

= 62 + 7

= 69

Look for number bonds:

4 + 8 + 16 + 2 = 20 + 10

= 30

Pencil and Paper Procedures

Record steps in addition using partitioning:

47	=	40 + 7
+ 76		70 + 6
		110 + 13 = 123

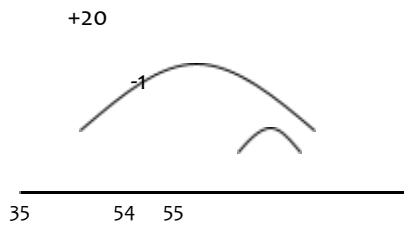
Begin to record calculations in preparation for an efficient standard method. TO + TO developing to TO + HTO and HTO + HTO.

Know that ones line up under ones, tens under tens and so on. **Add the least significant digits first:**

75	267
+ 48	+ 85
13	12
110	140
123	200

	352 Introduce compact standard addition by end of year 3: 625 + 48 673 1
Vocabulary add, addition, more, plus, make, sum, total, altogether, score, double, near double, one more, two more, ten more, one hundred more, how many more to make? how many more is… than? how much more is?	**Vocabulary** add, addition, more, plus, make, sum, total, altogether, score, double, near double, one more, two more, ten more, one hundred more, how many more to make? how many more is… than? how much more is?

Addition

Year 4	Year 5
Signs and Symbols Continue to use a range of equations as in year 3 but with appropriate numbers.	**Signs and Symbols** Continue to use a range of equations as in year 3 but with appropriate numbers.
Number Lines (empty) Use to support adding near multiples of ten by adding multiples of ten and adjusting: 35 + 19  	**Number Lines**
Pencil and Paper Procedures Briefly revise vertically expanded addition, as introduced in year three, **adding the least significant digits first:** 685 + 78 13 150 600 763 Consolidate standard method, initially with no carrying then including carrying below the line. Include HTO + TO and HTO + HTO including crossing tens or hundreds boundaries, extending to crossing both boundaries and using up to 4 digit numbers: 625 + 48 673 1	**Pencil and Paper Procedures** Consolidate the carrying method to numbers with more than four digits and use rounding to estimate answers: 587 + 475 ≈ 1100 587 + 475 1062 1 1 23587 + 675 24262 1 1 1 Using similar methods, children will: ✔ add several numbers with different numbers of digits ✔ begin to add two or more decimal numbers with up to 3 decimal places ✔ know that decimal points should line up under each other, particularly when adding mixed amounts e.g. 3.2m + 280cm

783 + 42 825 1 5 367 + 885 6252 1 1 1 **This should be the main strategy for addition in year 4.** Using similar methods, children will begin to add two or more three digit sums of money, knowing that decimal points should line up under each other. Include calculations involving adjustment from pence to pounds. For example: £4.21 + £3.87 £3.59 + 78p	For example: £6.72 + £8.56 + £2.30 72.5km + 54.6km
Vocabulary add, addition, more, plus, increase, sum, total, altogether, score, double, near double, how many more to make?	**Vocabulary** add, addition, more, plus, increase, sum, total, altogether, score, double, near double, how many more to make? inverse

Addition

Year 6

Signs and Symbols

Continue to use a range of equations as in year 3 but with appropriate numbers.

Pencil and Paper Procedures

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

```
  7648          6584          42
+ 1486        + 5848        6432
  9134         12432         786
 1 11          1 11           3
                           + 4681
                            11944
                            1 2 1
```

Using similar methods, children will:

- ✔ add several numbers with different numbers of digits
- ✔ add two or more decimal numbers 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 mixed amounts e.g. 14.5kg + 750g

For example:

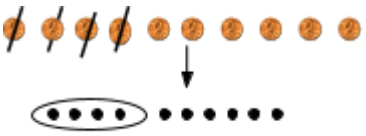
124.9 + 7.25

401.2 + 26.85 + 0.71

Vocabulary

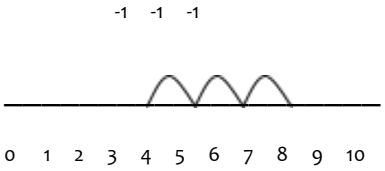
add, addition, more, plus, increase, sum, total, altogether, score, double, near double, how many more to make? inverse, is the same as, equals

Subtraction

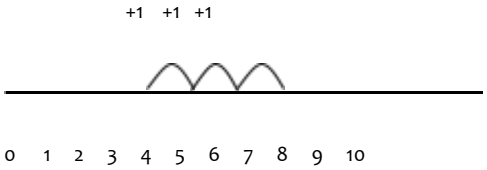
Reception	Year 1
Pictures / Marks/Real Objects Children are encouraged to develop a mental picture of the number system in their heads to use for calculation. They develop ways of recording calculations using pictures etc. We made 6 cakes. We ate 2 of them. How many cakes are left? 	**Pictures / Marks/Real Objects** Children continue to develop their own ways of recording calculations using pictures and marks. Sam spent 4p. What was his change from 10p? 
Signs and Symbols The children begin to investigate their own methods of recording using signs and symbols.	**Signs and Symbols** Children need to understand the concept of equality before using the '=' sign. Calculations should be written either side of the equality sign so that the sign is not just interpreted as 'the answer'. Rapid recall, based on facts to 5: 5 - 2 = □ = 5 - 2 □ 5 - □ 3 = - 2 □ □ 2 = 3 3 = 5 - □ □ = □ 3 = - □ □ Using 10p and 1p coins, counters or a number line, then mental strategies extend to: 15 - 8 = □ 10 = 21 - □ □ = □
Number Tracks/Lines Children physically jump back on number tracks to support subtraction calculations. They use toys to jump backwards along number lines.	**Number Lines** (numbered/empty) Children use number lines to support their own subtraction calculations with 1 and 2 digit numbers using number bonds to 20 by counting back in ones: I have 11 toy cars. That's 7 too many to fit in the garage. How many cars fit in the garage? 11 – 7

Teachers demonstrate the use of the number line e.g. to represent 6 - 3 = 3 by counting back in ones from 6.

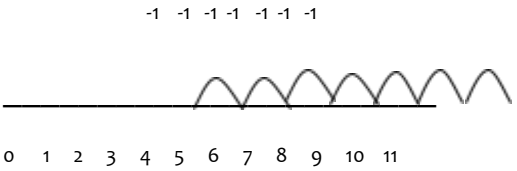
6 – 3 = 3



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



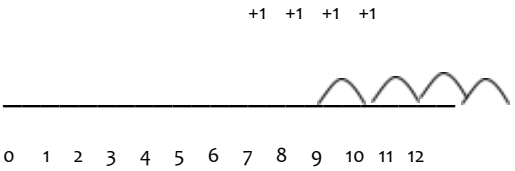
Reception



Also use number lines to find differences when the numbers are close together by counting up:

I have saved 7p. The sticker I want to buy costs 11p. How much more do I need in order to buy the sticker?

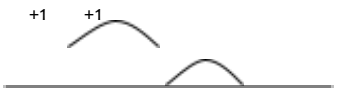
The difference between 7 and 11



Children to record by:

-drawing jumps on prepared number lines

-constructing own lines e.g. for finding the difference between 6 and 8:



6 7 8

Year 1

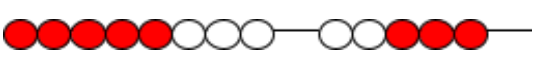
Other Jottings

Children look for patterns and relationships using practical apparatus. They use songs, rhymes, games, stories and investigations to develop concepts.

Other Jottings/Equipment

Bead strings and other concrete resources used to illustrate subtraction using number facts within 20, including bridging through ten, e.g. for 13 – 5 by counting back 3 then counting back 2:

13 - 5

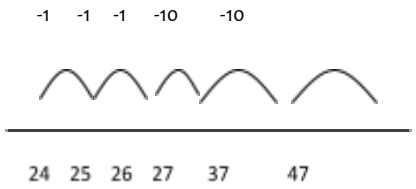


	Children look for patterns and relationships using practical apparatus. They use songs, rhymes, games, stories and investigations to develop concepts.
Vocabulary take (away), leave, how many are left/left over? how many have gone? one less, two less, ten less, how many fewer is… than… ?difference between	**Vocabulary** subtract, subtraction, minus, take away, leave, how many are left/left over? how many have gone? one less, two less, ten less, how many fewer is… than…? how much less is… than? difference between, half, halve, is the same as, equals, sign

Subtraction

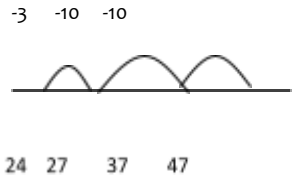
Year 2	Year 3
Pictures / Marks Children are encouraged to use marks e.g. dots to represent objects in subtraction calculations e.g. There were 17 bean bags in a bucket. Luke took 9. 	**Pictures / Marks** As Year 2 Numbers are often too large for pictures to be efficient but pictures/diagrams will continue to be used where appropriate.
Signs and Symbols Continue to use a range of equations as in Year 1 but with appropriate larger numbers. Rapid recall based on facts to 10, pairs to 20 and multiples of 10 up to 100: 9 - 4 = □ = 9 - 4 □ 9 - = 5 5 = - 4 □ □4 = 5 5 = 9 - □ □ =□ 5 = - □ □ Using 10p and 1p coins, a number line or square, then mental strategies extend to: 25 - 8 = □ 25 - = 16 □ □ □ □ - = 16 86 – 50 = □40 =28 - = 4□ □	**Signs and Symbols** Continue to use a range of equations as in Year 2 but with appropriate larger numbers. Rapid recall based on facts to 20: 19 - 6 = □ = 19 - 6 □ 19 - = □ 13 = - 6 □ □ = 13 13 = 19 - □ □ = □ 13 = - □ □ Using 10p and 1p coins, a number line or square, then mental strategies extend to: 36 - 15 = □ -15 = 19 □ □ □19 178 – 56 = □
Number Lines (partly numbered - empty) **Counting Back:** Children should subtract 2 digit numbers and ones, 2 digit numbers and tens and two 2 digit numbers. For calculations which do not involve bridging through ten, children use number lines to support their own subtraction calculations first by counting back in tens and ones:	**Number Lines** (empty) Children will continue to use empty number lines with increasingly large numbers, with the focus being on finding differences by counting up from the smaller number to the larger one. Encourage pupils to look for landmark numbers to increase efficiency of jumps:

47 – 23 = 24



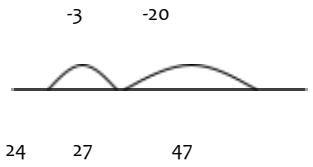
Then helping children to become more efficient by subtracting the ones in one jump (by using the known fact 7 – 3 = 4):

47 – 23 = 24



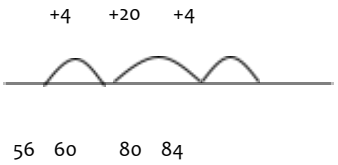
Then by subtracting the tens in one jump and the ones in one jump:

47 – 23 = 24

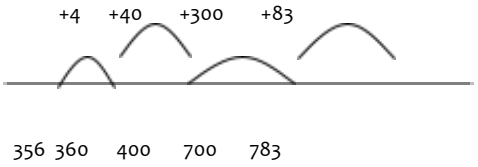


Year 2

84 – 56 = 28



783 – 356= 427



300
83
40
+ 4
7
120
300
427

Number Lines (continued)

Compensation:

For subtracting 9, use a compensation strategy:

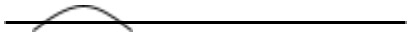
34 – 9 = 25

As this method now requires several steps, use as prompt for introducing more efficient method (see pencil and paper section).

Year 3

Number Lines (continued)

Where numbers involved in the calculation are close together or near to multiples of 10, 100 etc children should be encouraged to use a number line:

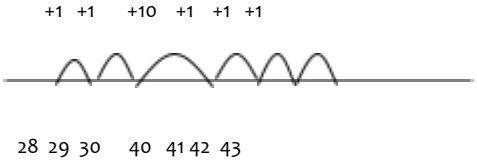


24 25 34

Counting on:

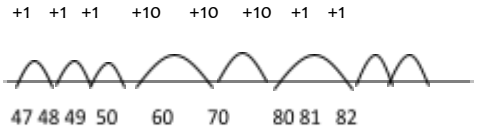
For examples which involve bridging through ten, introduce the strategy of counting up in order to find the difference:

43 – 28 = 15



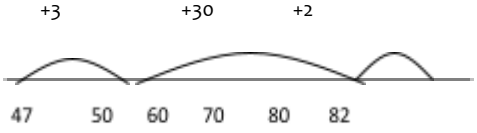
Introduce larger differences:

82 – 47

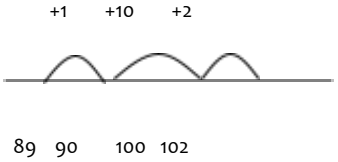


Help the children to become more efficient by

adding on the ones in bigger jumps then adding on the tens in bigger jumps:



102 -89 = 13



Pencil and Paper Procedures

Partitioning:

This procedure should be demonstrated using place value cards or dienes.

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

89 = 80 + 9

- 57 50 + 7

30 + 2 = 32

Year 3

Year 2

Pencil and Paper Procedures (continued)

Exchange:

Introduce examples involving exchange, using base ten materials and place value cards to provide a visual image;

71

- 46

Demonstrate as follows:

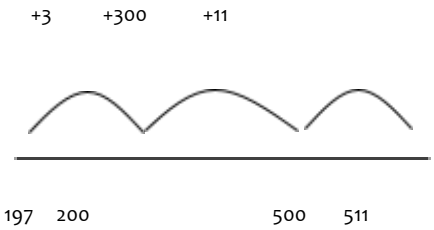
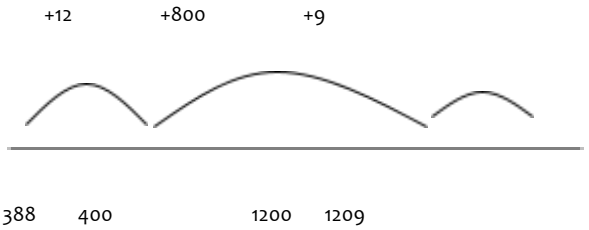
Step 1 70 + 1

- 40 + 6

The calculation should be read as take 6 from 1.

	Step 2 60 + 11 - 40 + 6 20 + 5 = 25 This would be recorded by the children as 60 ~~70~~ + 11 - 40 + 6 20 + 5 = 25 Children should know that the ones line up under ones, tens under tens and so on. Introduce compact standard subtraction with up to 3 digit numbers by end of year 3 (use base 10 materials to model): 4 ~~45~~ 1 -128 323
Vocabulary subtract, take away, minus, leave, how many are left/left over? one less, two less, ten less, one hundred less, how many less is… than…? how much fewer is…? difference between, half, halve, is the same as, equals, sign, bridging	**Vocabulary** subtract, take (away), minus, leave, how many are left/left over? one less, two less, ten less, one hundred less, how many fewer is… than…? how much less is…? difference between, half, halve, is the same as, equals, sign, tens boundary, bridging one hundred, landmark numbers, inverse

Subtraction

Year 4	Year 5
Signs and Symbols Continue to use a range of equations as in year 3 but with appropriate numbers.	**Signs and Symbols** Continue to use a range of equations as in year 3 but with appropriate numbers.
Number Lines Where the numbers involved in the calculation are close together or near to multiples of 10,100 etc, mental calculation or counting on using a number line could be used. 511 – 197 = 314  	**Number Lines** Where the numbers involved in the calculation are close together or near to multiples of 10,100 etc, counting on using a number line could be used: 1209 – 388 = 821 
Pencil and Paper Procedures **Partitioning and Exchange:** Briefly recap partitioning and exchange method. Initially no exchange, then just involving exchange from tens to ones column, then just from hundreds to tens, moving on to exchanging from tens to ones and hundreds to tens. For example: **No exchange:** 578 = 500 + 70 + 8 - 343 = 300 + 40 + 3 200 + 30 + 5 = 235	**Pencil and Paper Procedures** **Partitioning and Exchange:** Only continue to use expanded methods if children are not yet secure with decomposition. Include dealing with zeros. For example: 503 - 278 Step 1

Exchange:

754

- 86

Step 1

700 + 50 + 4

- 80 + 6

Step 2

700 + 40 + 14 *(adjust from T to O)*

- 80 + 6

Step 3

600 + 140 + 14 *(adjust from H to T)*

- 80 + 6

600 + 60 + 8 = 668

Year 4

500 + 0 + 3

- 200 + 70 + 8

Step 2

400 + 100 + 3 *(adjust from H to T)*

- 200 + 70 + 8

Step 3

400 + 90 + 13 *(adjust from T to O)*

- 200 + 70 + 8

200 + 20 + 5 = 225

This would be recorded by the children as

90

400 100 ~~/~~

~~500~~ + 0 + ~~/~~3

- 200 + 70 + 8

200 + 20 + 5 = 225

Year 5

Pencil and Paper Procedures (continued)

This would be recorded by the children as

600 140

~~700~~ + 50 + ~~/~~4

- 80 + 6

Pencil and Paper Procedures (continued)

Decomposition:

This should be the main strategy for subtraction for the majority of children in year 5 and should include

600 + 60 + 8 = 668

Decomposition:

Extend the more efficient way of recording by decomposition, introduced in year 3, using base ten material to model the process:

$^{6}14\ ^{1}$ //
754
- 86
668

This should be the main strategy for subtraction by the end of year 4.

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.*
- ✔ *subtract numbers with up to 4 digits.*

For example £8.95 - £4.38

£7.50 - £2.84

numbers with more than 4 digits. Rounding should be used to estimate answers.

$^{6}14\ ^{1}$ //
754
- 286
468

Include examples with zeros:

804 - 286

9
$^{7}10\ ^{1}$ / /
8 0 4
- 2 8 6
5 2 8

Children should:

- ✔ *be able to subtract numbers with different numbers of digits;*
- ✔ *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.*

For example £9.42 - £6.78

72.5km – 4.6km

Vocabulary subtract, take away, minus, decrease, leave, how many are left/left over? difference between, half, halve, how many more/fewer is… than…? how much more/less is…? is the same as, equals, sign, tens boundary, bridging one hundred, landmark numbers, inverse	**Vocabulary** subtract, take away, minus, decrease, how many are left/left over? difference between, half, halve, how many more/fewer is … than…? how much more/less is…? inverse, is the same as, equals

Subtraction

Year 6

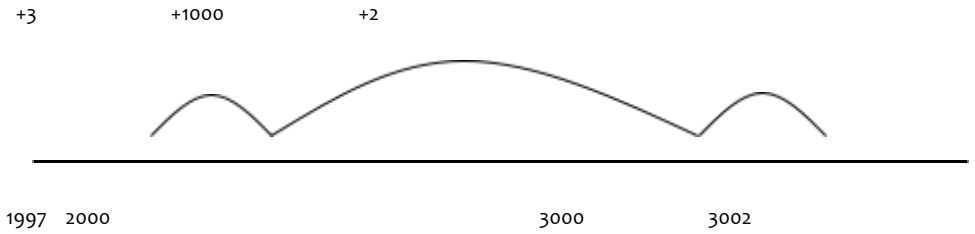
Signs and Symbols

Continue to use a range of equations as in year 3 but with appropriate numbers.

Number Lines

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

3002 – 1997



Pencil and Paper Procedures

Decomposition:

This should be the main strategy for subtraction in year 6.

5 13 1

6467

//- 2684

3783

Children should:

- ✔ *be able to subtract numbers with different numbers of digits;*
- ✔ *be able to subtract decimal numbers with different numbers of decimal places;*
- ✔ *know that decimal points should line up under each other.*

For example:

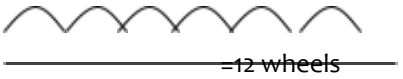
324.9 – 7.25

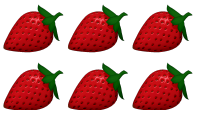
14.24 – 8.7

Vocabulary

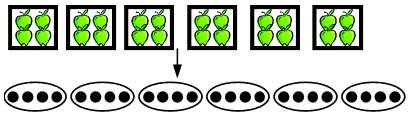
subtract, take away, minus, decrease, how many are left/left over? difference between, half, halve, how many more/fewer is … than…? how much more/less is…? inverse, is the same as, equals

Multiplication

Reception	Year 1
Pictures / Marks 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. How many wheels do we need to make three lego cars? 	**Pictures / Marks** Children continue to develop their own ways of recording calculations using pictures and marks. There are 3 sweets in one bag. How many sweets are there in 5 bags? 
Number Lines	**Number Lines** (numbered) Recording on a number line modelled by the teacher when solving problems e.g. If I have 6 bicycles, how many wheels would there be? +2 +2 +2 +2 +2 +2  0 1 2 3 4 5 6 7 8 9 10 11 12
Other Jottings/Equipment Children look for patterns and relationships using practical apparatus. They use songs, rhymes, games, stories and investigations to develop concepts. The children experience equal groups of objects and count in 2s and 10s and begin to count in 5s. **Counting using a variety of practical resources:**	**Other Jottings/Equipment** The children experience equal groups of objects and count in 2s and 10s and begin to count in 5s. They work on practical problem solving activities involving equal sets or groups. **Counting using a variety of practical resources:** Counting in 2s e.g. counting socks, shoes, animal's legs… Counting in 10s e.g. fingers, toes…

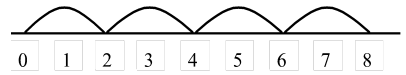
Counting in 2s e.g. counting socks, shoes, animal's legs… Counting in 10s e.g. fingers, toes… Counting in 5s e.g. counting fingers, fingers in gloves, toes…	Counting in 5s e.g. counting fingers, fingers in gloves, toes… Multiplication is related to doubling and counting groups of the same size.  Looking at columns Looking at rows 2 + 2 + 2 3 + 3 3 groups of 2 2 groups of 3
Reception	Year 1
Tables Facts Children should count on (and back) in 1s, and count in 2s, 5s and 10s.	**Tables Facts** Children should count on (or back) in 1s, 2s, 5s and 10s and use this knowledge to derive the multiples of 2, 5 and 10 to the tenth multiple. Children should recall doubles of all numbers to at least 10.
Vocabulary double	**Vocabulary** double

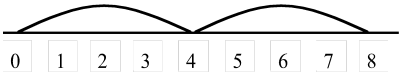
Multiplication

Year 2	Year 3
Pictures / Marks Children are encouraged to use marks e.g. dots to represent objects in multiplication calculations e.g. There are 4 apples in one box. How many apples in 6 boxes? 	**Pictures / Marks** As Year 2 Numbers are often too large for pictures to be efficient but pictures/diagrams will continue to be used where appropriate. A spider has 8 legs. How many legs do 4 spiders have? 
Signs and Symbols Children need to understand the concept of equality before using the '=' sign. Calculations should be written either side of the equality sign so that the sign is not just interpreted as 'the answer'. Use rapid recall for calculations such as: 6 x 2 = □ = 2 x 6 □ 6 x □ = 12 12 = □ x 6 □ □ × 2 = 12 12 = 2 x □ □ = □ × 2 12 = □ x □ □ Use diagrams e.g. arrays then mental strategies to complete calculations such as: 5 x 4 = □ 6 x 10 = □ 5 x □ = 15 □ x □ = 12 □ □ × 4 = 8 Extend to 4 x 5 = 10 x □	**Signs and Symbols** Continue to use a range of equations for rapid recall of multiplication facts as in year 2 but with larger numbers e.g. 6 x 5 = □ = 5 x 6 □ 6 x □ = 30 30 = □ x 6 □ □ × 5 = 30 30 = 5 x □ □ = □ × 6 30 = □ x □ □ Use diagrams e.g. arrays or number lines then mental strategies to complete calculations such as: □ × 9 = 45 34 x 2 = □ × 2 = 86 8 x □ = 40 26 = 13 x □ 6 x 20 = Extend to 4 x 3 = □ x 2
Number Lines	**Number Lines** **Repeated addition:**

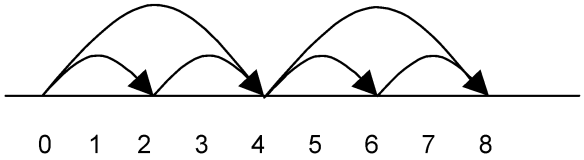
Commutativity:

Children should know that 2 x 4 has the same answer as 4 x2. This can be shown on the number line:





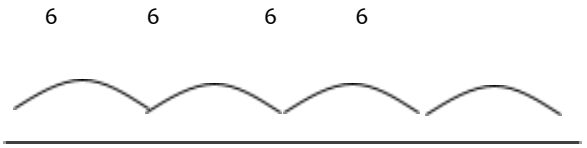
or:



Year 2

Children should continue to use number lines to support their understanding:

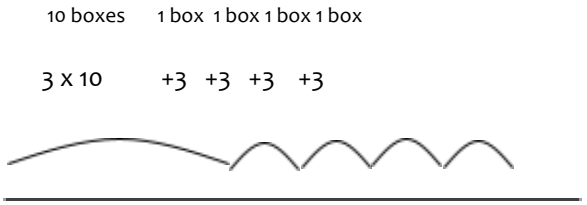
6 x 4 = 6 + 6 + 6 +6



Bead strings should also be used to model this concept (see next section).

Using known facts to multiply a 'teens number' by a single digit:

There are 3 cakes in one box. How many cakes in 14 boxes?



3 x30 =30

3 x 4 =12

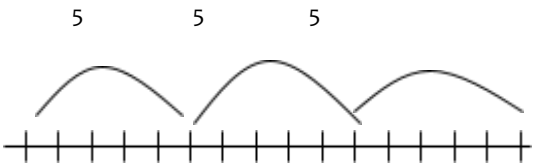
30 + 12 = 42 cakes

Year 3

Repeated addition:

Repeated addition should be modelled using number lines:

5 x 3 = 5 + 5 + 5



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Recording by - drawing jumps on prepared line
- constructing own lines

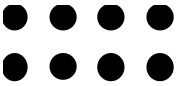
Other Jottings/Equipment

Children will develop their understanding of multiplication and use jottings to support calculations.

Arrays:

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

2 x 4 or 4 x 2



Repeated addition:

Bead strings used to model repeated addition:

5 x 3 = 5 + 5 + 5

Doubling by partitioning:

Children need to be secure with partitioning numbers into 10s and 1s and partitioning in different ways 6 = 5 + 1 and so on. E.g. Double 6 is the same as double 5 add double 1.

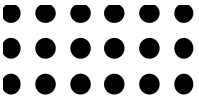
Double 15:

Other Jottings/Equipment

Arrays:

Children should continue to model multiplication calculations using arrays. This knowledge will support with the development of the grid method.

3 x 6 or 6 x 3

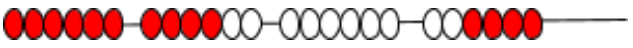


Repeated addition:

Children should use bead bars to support their understanding:

6 x 4 = 6 + 6 + 6 + 6

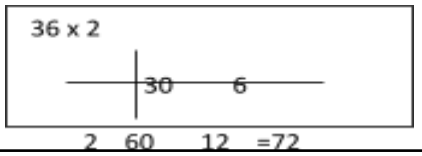
6 6 6 6

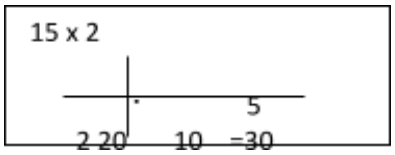


Doubling by partitioning:

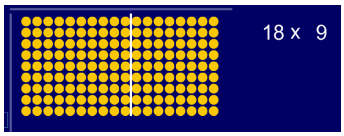
Children need to understand that two-digit numbers can be multiplied by partitioning them into tens and ones first:

36 x 2 = (30 x 2) + (6 x 2)



10 + 5 ↓ ↓ 20 + 10 = 30 or:  	**Scaling:** Children begin to develop an understanding of scaling using practical resources e.g. ● Make a red tower 5 cubes high. Make a blue tower 3 times as high. ● Take this blue ribbon. Find the ribbon that is 4 times as long.
Year 2	Year 3
Tables Facts Children should recall doubles of all numbers to 20 (and the corresponding halves). Derive and recall multiplication facts for the 2, 5 and 10 times tables (and the related division facts). Recognise multiples of 2, 5 and 10 and begin to use other multiplication tables.	**Tables Facts/Place Value** Children should derive and recall multiplication facts for the 2, 3, 4, 5, 6, 8 and 10 times tables (and the corresponding division facts). Recognise multiples of 2, 5 or 10 up to 1000. Multiply one-digit numbers by 10 or 100 and describe the effect.
Vocabulary lots of, groups of, times, multiply, multiplied by, multiple of, once, twice, three times, four times, five times… ten times, times as (big, long, wide and so on), repeated addition, array, row, column, double	**Vocabulary** lots of, groups of, times, product, multiply, multiplied by, multiple of, once, twice, three times, four times, five times… ten times, times as (big, long, wide and so on), repeated addition, array, row, column, double

Multiplication

Year 4	Year 5
Signs and Symbols Continue to use a range of equations as in year 3 but with appropriate numbers.	**Signs and Symbols** Continue to use a range of equations as in year 3 but with appropriate numbers.
Other Jottings/Equipment Arrays will continue to be demonstrated as a model for multiplication where appropriate leading to the expanded short method of multiplication:  18 x 9 = 162 18 x 9 = (10 x 9) + (8 x9) = 162	**Other Jottings/Equipment**
Pencil and Paper Procedures **Expanded short multiplication:** The next step is to represent the method of recording in a column format, but showing the working. Draw attention to the links with the grid method. Children should describe what they do by referring to the actual values of the digits in the columns. For example, 30 x 7 not 3 x 7 Start by multiplying the ones digit as this will ease transition to short multiplication. 38 x 7 56 (8 x 7) 210 (30 x 7) 266 Lead on to recording without the multiplications stated in brackets when ready. By the end of year 4 children should be confident with compact or expanded multiplication for 2 and 3 digit numbers:	**Pencil and Paper Procedures** **Short multiplication:** **Revise expanded** short multiplication as introduced in year 4 but main focus for short multiplication to be on reducing recording still further by consolidating compact method of recording with up to 4 digit numbers: 5364 x 8 42912 2 5 3 **Short multiplication for decimals:** Extend children's use of short multiplication by using decimal numbers. This compact method should be the main method used. Children should know that decimal points line up under each other: 4.9 x 3

254 x 8 2032 43	14.7 2 **Expanded long multiplication:** The next step is to represent the method of recording in a column format, but showing the working. Draw attention to the links with the grid method. Children should describe what they do by referring to the actual values of the digits in the columns. For example, 30 x 70 not 3 x 7 72 x 38 16 (2 x 8) 560 (70 x8) 60 (2 x 30) 2100 (70 x 30) 2736 1 Lead on to recording without the multiplications stated in brackets: 72 x 38 16 560 60 2100 2736 1 Children should use this method for multiplying up to 4 digit numbers by 2 digit numbers. If children are ready, introduce more compact method taught in year 6.

Tables Facts/Place Value Children should derive and recall multiplication facts up to 12 x 12 (and the corresponding division facts) and multiples of numbers to 10 up to the tenth multiple. Identify the doubles of two-digit numbers; use these to calculate doubles of multiples of 10 and 100 (and derive the corresponding halves). Find the effect of dividing a one or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths.	**Tables Facts/Place Value** Children should recall quickly multiplication facts up to 12 x 12 and use them to multiply pairs of multiples of 10 and 100; (derive quickly corresponding division facts). Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. Recognise and use square numbers and cube numbers and the notation for showing these. Extend mental methods for whole number calculations, for example to multiply a two-digit by a one-digit number (e.g. 12 x 9), to multiply by 25. Use understanding of place value to multiply (and divide) whole numbers and decimals by 10, 100 or 1000.
Vocabulary lots of, groups of, times, product, multiply, multiplied by, multiple of, once, twice, three times, four times, five times… ten times, times as (big, long, wide and so on), repeated addition, array, row, column, double	**Vocabulary** lots of, groups of, times, product, multiply, multiplied by, multiple of, once, twice, three times, four times, five times… ten times, times as (big, long, wide and so on), repeated addition, array, row, column, double

Multiplication

Year 6

Signs and Symbols

Continue to use a range of equations as in year 3 but with appropriate numbers.

Pencil and Paper Procedures

Short multiplication for decimals:

Focus on securing use of standard method for short multiplication of decimals:

4.92

x 6

29.52

5 1

Year 6

Standard method for long multiplication:

Revise expanded method for long multiplication as introduced in year 5. Extend by reducing the recording further:

56

x 27

392 (56 x 7)

1120 (56 x 20)

1512

1

Extend this to HTO x TO and to ThHTO x TO and leaving out the detail in brackets.

4286

x 29

38574

85720

124294

11

N.B. If, after practice, children cannot use the standard method without making errors, they should return to using grid multiplication.

Tables Facts/Place Value

Children should use knowledge of multiplication facts to derive quickly squares of numbers to 12 x 12 and the corresponding squares of multiples of 10.

Children should be able to identify common factors and common multiples of numbers.

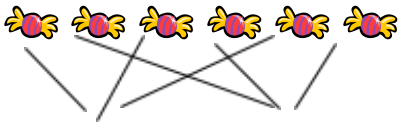
Use knowledge of place value and multiplication facts to 12 x 12 to derive related multiplication (and division) facts involving decimals (e.g. 0.8 x 7, 4.8÷6).

Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit numbers.

Vocabulary

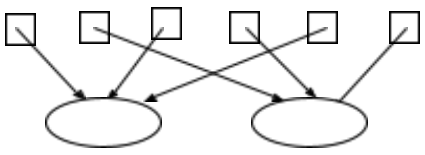
lots of, groups of, times, product, multiply, multiplied by, multiple of, once, twice, three times, four times, five times… ten times, times as (big, long, wide and so on), repeated addition, array, row, column, double

Division

Reception	Year 1
Pictures / Marks In play, practical investigations and problem solving activities children will share objects into equal groups and count how many there are in each group e.g. **Sharing:** 6 sweets are shared between 2 people. How many do they have each?  	**Pictures / Marks** **Sharing:** Children continue to experience practical activities involving sharing e.g. distributing cards when playing a game, putting objects onto plates etc. **Grouping:** In practical tasks, children will experience sorting objects into 2s, 3s, 4s etc. e.g. Sort the socks into pairs. How many pairs of socks are there?  12 children get into teams of 4 to play a game. How many teams are there?  Find combinations of groups of equal numbers e.g. How many pencils are there if there are 3 groups of 5 pencils? Children begin to develop their own ways of recording calculations using pictures and marks.
Tables Facts Children should count on and back in 1s, and count in 2s, 5s and 10s.	**Tables Facts** Children should count on or back in 1s, 2s, 5s and 10s to 100 and use this knowledge to derive the multiples of 2, 5 and 10 to the tenth multiple.

	Children should recall doubles of all numbers to at least 10.
Vocabulary share	**Vocabulary** half, halve, quarter share

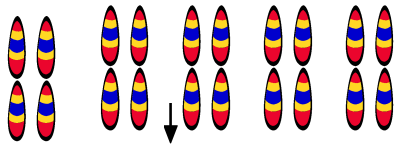
Division

Year 2	Year 3
Pictures / Marks Children need to continue to experience practical activities involving sharing equally or forming groups of equal size through repeated subtraction. **Sharing:** 6 sweets shared between 2 people, how many do they each get?  Children should recognise that division can result in remainders and interpret these in the context of the problem e.g. When they share 13 biscuits between 5 children, they know they each have 2 biscuits and there are 3 left over.	**Pictures / Marks** **N.B. Focus in year 3 should be on grouping rather than sharing** Continue to develop understanding of division through practical tasks and pictorial representation. Include problems involving remainders where children have to decide whether to round up or down. Also link to finding fractions of numbers and quantities e.g. find 1/6 of £24 by dividing 24 by 6.

Grouping:

4 eggs fit in a box.

How many boxes would you need to pack 20 eggs?



Children should also experience grouping through practical tasks such as forming different sized groups in P.E.

They should continue to develop methods of recording what they have done.

8 children can travel in a minibus.

How minibuses would you need to take 29 children to a football match?

Signs and Symbols

Children need to understand the concept of equality before using the '=' sign. Calculations should be written either side of the equality sign so that the sign is not just interpreted as 'the answer'. Use rapid recall for calculations such as:

12 ÷ 2 = □ = 12 ÷ □

12 ÷ □ = 6 6 = □ ÷ 2

□ ÷ 2 = 6 6 = 12 ÷ □

□ = □ 6 = □ ÷ □

Use counters (for sharing) or a number line (for repeated subtraction) then mental strategies to complete calculations such as:

16 ÷ 4 = □ 24 ÷ □ = 6

□ ÷ 3 = 8 70 ÷ 10 = □

Signs and Symbols

Continue to use a range of equations for rapid recall of multiplication facts as in year 2 but with larger numbers e.g.

30 ÷ 5 = □ = 30 ÷ 5 □

30 ÷ □ = □ 6 = □ ÷ 5 □

□

□ ÷ 5 = 6 6 = 30 ÷ □

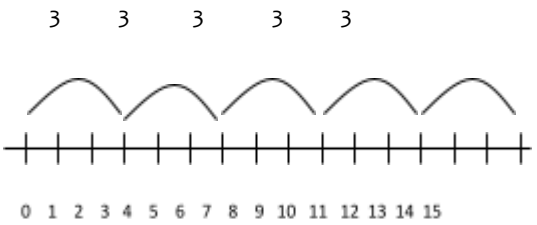
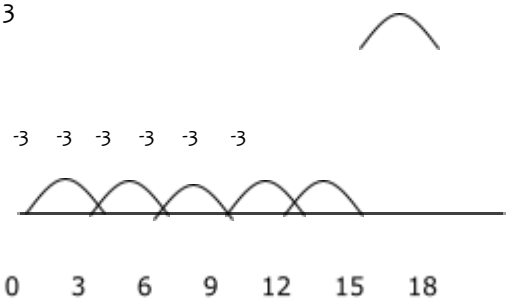
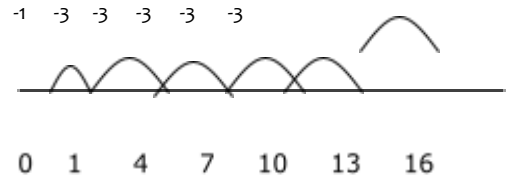
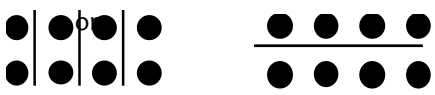
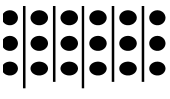
□ = □ 6 = □ ÷ □ □

Use counters (for sharing) or a number line (for repeated subtraction) then mental strategies to complete calculations such as:

16 ÷ 4 = □ 24 ÷ □ = 6 □

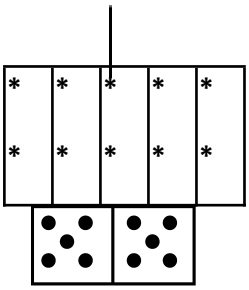
□ ÷ 3 = 8 26 ÷ 2 = □

24 ÷ □ = 2 □ ÷ 10 = 8

Year 2	Year 3
Number Lines Children need to develop their understanding of division as sharing equally or forming groups of equal size through repeated subtraction. Number lines are a good way to model this. e.g. 15 ÷ 3 = 5  Recording by - drawing jumps on prepared lines - constructing own lines	**Number Lines** Children should count back in repeated steps using a number line to help them work out the answers to calculations that they cannot recall. 18 ÷ 3  Include examples which involve remainders: 16 ÷ 3 
Other Jottings/Equipment **Arrays:** Children need to understand that 8 ÷ 2 can be interpreted as how many objects will each person have if 8 objects are shared equally between 2 people AND how many groups of 2 can be made from 8 objects? Arrays are a useful way to model this idea. 	**Other Jottings/Equipment** **Arrays:** Continue to use arrays to model number sentences and model fact families e.g. 18 ÷ 3 

8 ÷ 2

Sharing 10 ÷ 2 Grouping 10 ÷ 2



Repeated subtraction:

Bead strings and other concrete resources should be used to model repeated subtraction. They will help children with interpreting division calculations such as 12 ÷ 3 as 'how many 3s make 12?'

e.g. 12 ÷ 3

3 3 3 3

Halving by partitioning:

Children need to be secure with partitioning numbers into 10s and 1s and partitioning in different ways 6 = 5 + 1 and so on. E.g. Half 16 is the same as half 10 add half 6.

Half 16:

16 = 10 + 6

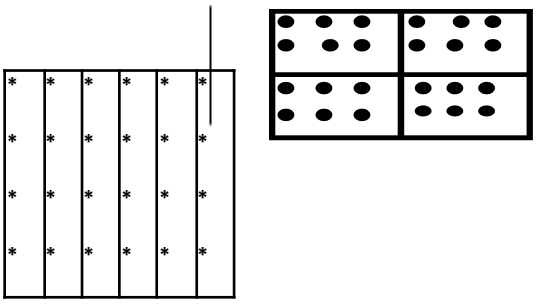
5 + 3 = 8

Year 2

and related facts: 18 ÷ 6, 3 x 6, 6 x 3

Arrays can also show the difference between sharing and grouping (see year 2 statement):

Sharing 24 ÷ 4 Grouping 24 ÷ 4



Halving by partitioning:

Continue to practise halving numbers by

partitioning into tens and ones:

26 = 20 + 6

10 + 3 = 13

	Year 3
Tables Facts Children should recall doubles of all numbers to 20 and the corresponding halves. Derive and recall multiplication facts for the 2, 5 and 10 times tables and the related division facts. Recognise multiples of 2, 5 and 10.	**Tables Facts/Place Value** Children should derive and recall multiplication facts for the 2, 3, 4, 5, 6 and 10 times tables and the corresponding division facts. Recognise multiples of 2, 5 or 10 up to 1000. Multiply one-digit numbers by 10 or 100 and describe the effect.
Vocabulary halve, share, share equally, one each, two each, three each…, group in pairs, threes… tens, equal groups of, divide, divided by, divided into, left, left over	**Vocabulary** halve, share, share equally, one each, two each, three each…, group in pairs, threes… tens, equal groups of, divided, divided by, divided into, left, left over

Division

Year 4	Year 5
Signs and Symbols Continue to use a range of equations as in year 3 but with appropriate numbers.	**Signs and Symbols** Continue to use a range of equations as in year 3 but with appropriate numbers.
Number Lines Develop use of repeated subtraction by subtracting multiples of the divisor: 32 ÷ 5 -2 -30 (3 x 10)	**Number Lines**

0 2 32

Other Jottings/Equipment

Link division to fractions and use practical resources or diagrams to find proper fractions For example, use squared paper or interactive whiteboard to find 5/8 of a 12 by 4 rectangle, first working out and colouring in the squares that represent 1/8 of the rectangle, then finding and colouring in four more such groups.

Other Jottings/Equipment

Pencil and Paper Procedures

Give different contexts for problems involving remainders so children have to decide whether to round up or down.

Short division:

Short division will be introduced to children by the end of year 4.

To help pupils understand use base ten apparatus to model steps.

Record as follows (label the columns). Demonstrate using place value counters to show how also how remainders are moved to the next column, exchanging counters as they go.

Short division method:

T O

2 7

3)8²1

Pencil and Paper Procedures

They begin to express remainders as whole numbers, fractions or decimals, depending on the context of the problem. For example they give the answer to 23 ÷ 4 as 5 r3, 5 ¾ or 5.75 in the following contexts:

- Tennis ball are packed in boxes of fours. How many boxes can I fill with 23 balls?
- I have 23 pizzas to share between 4 hungry children. How much pizza will each child get?
- Four people are going on a trip. They share they cost of the petrol. The petrol costs £23. How much does each person pay?

Short division:

Children will continue to use formal written methods to solve division problems involving dividing by a single digit, but will start to subtract larger multiples of the divisor and will also extend to HTO ÷ O

N.B. This should be the main form of division for most children in year 5.

They should estimate first.

257 ÷ 7 ≈ 280 ÷ 7 = 40

Initially show HTO but work towards leaving these out:

HTO

036 r5

	$7\overline{)2^{2}5^{4}7}$ Use numbers up to 4 digits divided by a single digit. Also include examples where remainders are given as decimals rather than remainders: $258 \div 4 \approx 240 \div 4 = 60$ $4\overline{)2^{2}5^{1}8.^{2}0}$ (0 6 4 . 5) Relate division to finding fractions of quantities. For example, find 3/5 of £3.50 by dividing £3.50 by 5 to get one fifth = £0.70, then multiply this by 3 to get the answer £2.10 and 7/10 of 2 litres by dividing by 10 to get one tenth = 0.2 litres, then multiplying this by 7.
Tables Facts/Place Value Children should derive and recall multiplication facts up to 10 x 10 and the corresponding division facts and multiples of numbers to 10 up to the tenth multiple. Identify the doubles of two-digit numbers; use these to calculate doubles of multiples of 10 and 100 and derive the corresponding halves. Multiply and divide numbers to 1000 by 10 and then 100 (whole number answers), understanding the effect; relate to scaling up or down.	**Tables Facts/Place Value** Children should recall quickly multiplication facts up to 12 x 12 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts. Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9). Extend mental methods for whole number calculations, for example to multiply a two-digit by a one-digit number (e.g. 12 x 9), to multiply by 25. Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000.
Vocabulary halve, share, share equally, one each, two each, three each…, group in pairs, threes… tens, equal groups of, divide, divided by, divided into, divisible by, remainder, factor, quotient, inverse	**Vocabulary** halve, share, share equally, one each, two each, three each…, group in pairs, threes… tens, equal groups of, divide, divided by, divided into, divisible by, remainder, factor, quotient, inverse

Division

Year 6

Signs and Symbols

Continue to use a range of equations as in year 3 but with appropriate numbers.

Pencil and Paper Procedures

Short division:

Continue to develop use of short division as established in year 5. Extend to decimal calculations with up to two decimal places:

238.44 ÷ 6

$$\begin{array}{r} 0\,3\,9.\,7\,4 \\ \hline 6\overline{)2^{2}3^{5}8.^{4}4^{2}4} \end{array}$$

Also include examples where children have to add extra zeros.

Interpret remainders as whole number remainders, fractions, decimals or by rounding according to the context.

Move on to the traditional method of long division :

To calculate 748 divided by 51,

First, set the calculation out as shown:

$$51\overline{)748}$$

At this stage, it is useful to list the first few multiples of 51.

We work out 74 divided by 51, and write the answer 1 above the 4.

1 × 51 = 51, so we write this underneath 74.

Subtract 51 from 74 to get the remainder 23.

$$\begin{array}{r} 1 \\ 51\overline{)748} \\ -51 \\ \hline 23 \end{array}$$

We now bring down the next digit 8 and write it on the end of the 23.

```
    1
51)748
  -51
  238
```

We now work out 238 divided by 51, and write the answer 4 above the 8. You refer to your list of multiples of 51 here.

We write 204 underneath the 238 and subtract to find the remainder. There are no more digits to bring down, so we have our answer:

```
    14
51)748
  -51
  238
 -204
   34
```

So the answer is **14 remainder 34.**

Children will usually need plenty of practise with this method and need to be able to quickly add multiples of larger numbers.

Children should use fractions as operators to find fractions of numbers and quantities, recognising for example that 3/10 of 2 metres is equivalent to three times 1/10 of 200cm, or 60cm.

Tables Facts/Place Value

Children should use knowledge of multiplication facts to derive quickly squares of numbers to 12 x 12 and the corresponding squares of multiples of 10.

Use knowledge of place value and multiplication facts to 12 x 12 to derive related multiplication and division facts involving decimals (e.g. 0.8 x 7, 4.8÷6).

Use tests of divisibility to decide if calculations will have a remainder e.g. 681 ÷ 3 has no remainder as the sum of the digits is divisible by 3.

Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit numbers.

Vocabulary

halve, share, share equally, one each, two each, three each…, group in pairs, threes… tens, equal groups of, divide, divided by, divided into, divisible by, remainder, factor, quotient, inverse

Appendix:

Year R Intent

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically.

Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.

By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built.

In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures.

It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

Year R New Framework ELG Objectives

1. N: I have a deep understanding of number to 10
2. N: I have an understanding of the composition of each number
3. N: I can subitise up to 5
4. N: I can recall number bonds up to 5 (inc subtraction facts) without reference to rhymes, counting or aids
5. N: I can recall some number bonds to 10, including doubling facts
6. NP: I can verbally count beyond 20, recognising the pattern of the counting system
7. NP: I can compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity
8. NP: I can demonstrate and represent patterns within numbers up to 10 including evens and odds
9. NP: I can demonstrate and represent patterns within numbers up to 10 including double facts
10. NP: I can demonstrate and represent patterns within numbers up to 10 including how quantities can be distributed evenly