



Ranelagh Primary School
Pauls Road Ipswich IP2 0AN
Telephone: (01473) 251608
Email: admin@ranelagh.suffolk.sch.uk

Headteacher: Mrs N Ling

Calculation Policy

Reviewed on: 22nd May 2023

Next Review due: Spring 2025

Signed by:

A handwritten signature in black ink, appearing to be 'J. A.', written over a horizontal line.

Chair of Committee

Signed by:

A handwritten signature in black ink, reading 'N. Y. Ling', written over a horizontal line.

Headteacher

Background to our calculation policy

Although the focus of this policy is on pencil and paper procedures, it is important to recognise that the ability to calculate mentally lies at the heart of mathematics. Mental methods will be taught systematically from Reception onwards and pupils will be given regular opportunities to develop these necessary skills, through a number of methods, examples of which are: daily mental calculation activities, e.g. counting stick, daily/weekly maths meetings, use of tens frames. However, mental calculation is not at the exclusion of written recording and should be seen as complementary to and not as separate from it.

In KS1 and KS2, pupils will be given regular/weekly access to the online multiplication tool, TimesTables RockStars.

In KS2, daily open ended maths activities are also part of regular practice. These are open-ended investigations which support our pupils in their ability to apply their maths as well as encouraging development of their oracy skills.

This policy concentrates on the introduction of standard symbols, the use of the empty number line as a jotting to aid mental calculation and on the introduction of pencil and paper procedures. It is important that children do not abandon jottings and mental methods once pencil and paper procedures are introduced. Therefore, children will always be encouraged to look at a calculation or problem and then decide which is the best method to choose – pictures, mental calculation (with or without jottings) or structured recording. Our long-term aim is for children to be able to select an efficient method that is appropriate for a given task. They will do this by always 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 pencil and paper calculation?

Addition

EYFS

In Nursery, addition will be introduced in meaningful ways such as at snack time or through play. An example would be when choosing their snack and the adult may suggest “would you like *another one*?” Similarly when the children come in in the morning and self-register the adult may say, “You’ll make *one more* on the five frame.”

Our enabling environment for Nursery and Reception both inside and outside, facilitates adults being able to observe children in their play and provide a teachable moment that is relevant to them there and then. We have maths ‘grab boxes’ so resources are to hand in that moment.

Stories and rhymes involving maths are also introduced and children may join in holding up their fingers and adding one/subtracting one dependent on the rhyme/story.

In Reception children are encouraged to build on their knowledge of subitising and construct visual concrete images of amounts when adding one or more.

Once children have a secure knowledge of abstract concepts such as the digits themselves and of concrete skills in physically adding/subtracting, they will be introduced to more formal recording of these methods. Practical resources are always used alongside this such as tens frames, counters, number tracks and objects to support their learning.

Addition is taught as the opposite (or inverse) to subtraction

Children are taught that there are two different ways we can add things. These are ‘joining’ and ‘increasing.’ Addition may also be referred to as ‘plus.’

Joining: Children are taught they can join two or more groups of things together. E.g. “There are two bananas in the bowl and there are 3 more in the shopping bag. How many bananas are there altogether?”



$$2 + 3 = 5$$

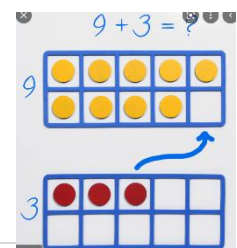


Increasing: Children are taught that they can make an amount more increase the size of something e.g. “I added more water to my glass so now I have MORE water.”

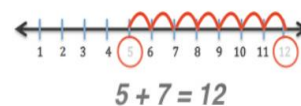


or

Adding using five/ten frames: Children are taught to use ten frames to combine two amounts. Formal calculation symbols are introduced when a child is developmentally ready to understand them.



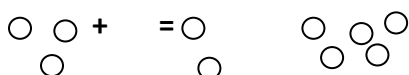
Addition using a number line: This strategy is only taught when the child is ready. They are taught to find the larger number then count on to find the total.



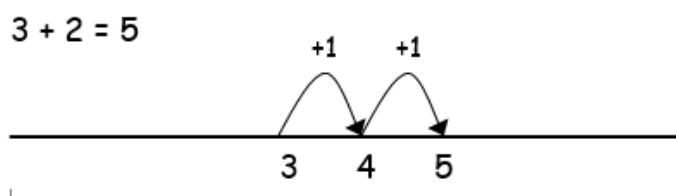
Solving problems involving addition: Children are given a wide range of opportunities to apply their understanding through everyday problem solving. E.g. We have 3 chairs at this table, if we bring over those 2, how many children can sit at the table?

Year 1

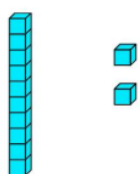
- Combining groups of objects such as cubes, counters or toy figures.
- Develop and build upon EYFS practice and continue use of tens frames to represent number and combine two amounts
- Pictorial representations – early stages of recording



- Structured number lines – counting on



- Using the symbols + and = to record.
- Counting up to and over 100.
- Partitioning numbers into tens and units/ones.



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Vocabulary Year 1

Put together
Add
Altogether

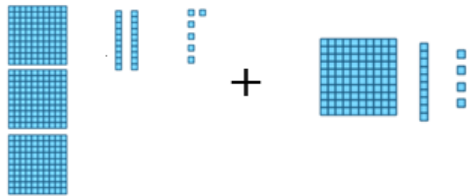
Plus
How many more?
Equals

Total More than Sum	Equal to Same as Hundreds, tens, ones/units Partitioning Place value
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YEAR 2

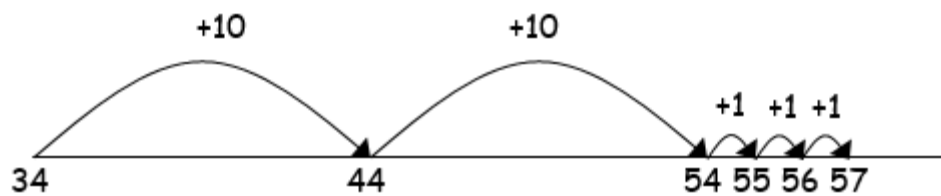
- Partitioning numbers into hundreds, tens and units using equipment such as base ten and combining these to find a total.

E.g. $326 + 114 =$



- Adding two 2-digit numbers using an empty number line- adding the tens first then the ones/units.

$$34 + 23 = 57$$



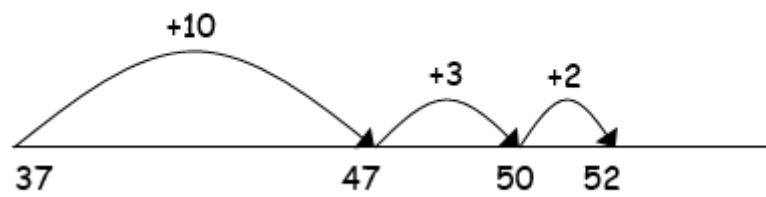
- Children then become more efficient by adding the units in one jump (by using the known fact $4 + 3 = 7$). Then progressing further by adding the tens together.

$$34 + 23 = 57$$



- Bridging through ten can help children become more efficient too

$$37 + 15 = 52$$



Vocabulary For Year 2

Put together
Add
Altogether
Total
More than
Sum

Plus
How many more?
Equals
Equal to
Same as
Hundreds, tens, ones/units
Partitioning
Place value

YEAR 3

- Children will continue to use empty number lines with increasingly large numbers, counting on from the largest number irrespective of the order of the calculation.

$$38 + 86 = 124$$



- Begin to develop more formal written methods

$$\begin{array}{r} 367 = 300 + 60 + 7 \\ + 185 = 100 + 80 + 5 \\ \hline 400 + 140 + 12 = 552 \end{array}$$

- Leading to:

$$\begin{array}{r} 367 \\ +185 \\ \hline 12 \\ 140 \\ 400 \\ \hline 552 \end{array}$$

- Children will then begin to carry below the line

$$\begin{array}{r} 789 \\ + 642 \\ \hline 1431 \\ 11 \end{array}$$

Vocabulary for Year 3

Put together

Add

Altogether

Total

More than

Sum

Plus

How many more?

Increase

Increase by

Equals

Hundreds, tens, ones/units

Partitioning

Place value

column

carry

carrying

Equal to

Same as

YEAR 4

- Extend written methods for addition to include numbers with one and two decimal places. They use their understanding that 10 tenths make one whole and 10 hundredths make one tenth.

$$\begin{array}{r} 72.8 \\ + 54.6 \\ \hline 127.4 \\ \hline 1 \end{array}$$

- Addition linked to measures and money for understanding place value.

$$\begin{array}{r} £5.60 \\ + \quad 90p \\ \hline \hline \end{array}$$

Vocabulary for Year 4

Put together	Partitioning
Add	Increase
Altogether	Increase by
Total	Place value
More than	column
Sum	carry
Plus	carrying
How many more?	hundredths
Equals	tenths
Equal to	decimal/s place/s
Same as	Hundreds, tens, ones/unit

YEAR 5

- Have to know place value up to 1,000,000
- Children need to add several numbers together with different numbers of digits.

$$\begin{array}{r} 241.5 \\ 23.4 \\ + \quad 1.09 \\ \hline \end{array}$$

- Column method involving up to 3 decimal places.

$$\begin{array}{r} TU.TthHthTHth \\ + \quad TU.TthHthTHth \\ \hline \end{array}$$

Vocabulary For Year 5

Put together	Partitioning
Add	Place value
Altogether	Increase by
Total	Increase
More than	column
Sum	carry
Plus	carrying
How many more?	thousandths
Equals	hundredths
Equal to	tenths
Same as	decimal place/s
Hundreds, tens, ones/units	decimal/s

YEAR 6

- To know place value up to 10,000,000
- To be secure with column method, adding more than 2 numbers
- See end of policy for additional methods of calculation for addition

Vocabulary

Put together	Partitioning
Add	Place value
Altogether	Increase by
Total	increase
More than	column
Sum	carry
Plus	carrying
How many more?	thousandths
Equals	hundredths
Equal to	tenths
Same as	decimal place/s
Hundreds, tens, ones/units	decimal/s

Subtraction

EYFS

Pupils are asked to compare objects, to look at which set of objects is fewer than and more than. These opportunities are seized upon as adults interact with children inside, outside and in more directed times too. Number rhymes and stories offer many subtraction related activities.

As children move through reception, they will again draw on their knowledge of the images of amounts on the five/ten frame to practise subtraction. Initially the focus will be on knowing what is one less than another number.

They will be developing the language of more than and fewer than.

Practical, hands on activities such as props to support number rhymes e.g. 5 frogs, will be used to model subtraction concepts alongside questioning. For example "There are 4 frogs on the log, if 2 jump off, how many will be left?"

Subtraction is taught as the opposite (or inverse) to addition

Children are taught there are two different ways we can subtract things. These are partitioning and decreasing. Subtracting is also referred to as 'taking away'.

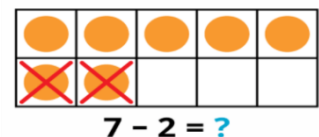
Partitioning: Children are taught they can take away a part or parts of a group. E.g. "Here are 7 elves, if we take away 2 elves, we'll only have 5 left."



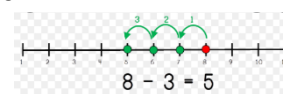
Decreasing: Children are taught they can make an amount less than it was before. E.g. I have drunk some water, so now I have less water.



Subtracting using five/ten frames: Children are taught to use ten frames to take away part of a number. Formal calculation methods are introduced when a child is developmentally ready to understand them.



Subtracting using a numberline: This strategy is only taught when the child is ready. They are taught to find the larger number then count back to find the total.



Solving problems involving subtraction: Children are given a wide range of opportunities to apply their understanding through everyday problem solving. E.g. 6 children are at the water tray, if two of them go to use the slide, how many are left at the water tray?

YEAR 1

- Have to count up to and beyond 100
- Objects – practical taking away amounts

$$10 - 2 = 8$$

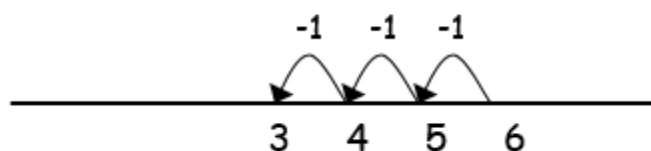


- Develop and build upon EYFS practice through use of five/tens frame to represent number and take away a part of a number
- Pictorial representations – early recording

$$6 - 2 = 4$$

- Structured number lines – counting back in ones

$$6 - 3 = 3$$



- Using the symbols - and = to record.

Vocabulary for Year 1

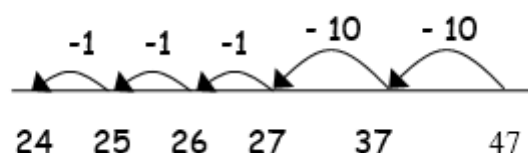
Put together	Subtraction
Add	Minus
Altogether	Distance between
Total	Fewer
More than	Take away
Sum	Difference
	Between
	Less than
	Subtract

YEAR 2

Children will begin to use empty number lines to support calculations. The children also work lots using multilink and other practical resources. Where possible practical activities like a shop are used to practise their calculation skills.

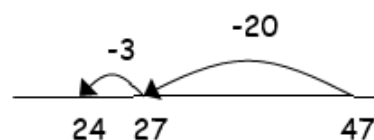
- Partitioning numbers into hundreds, tens and units/ones
- Subtracting 2-digit numbers on a number line, taking away the tens first then the ones/units.

$$47 - 23 = 24$$

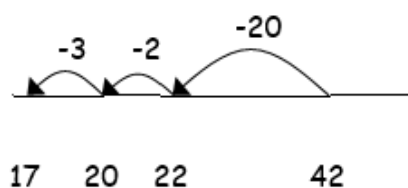


- Subtracting the tens in one jump and the units in one jump.

$$47 - 23 = 24$$

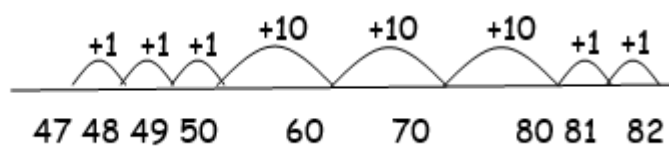


- Finally, bridging through the ten to make the children more efficient
- $$42 - 25 = 17$$



- Children begin to identify subtraction as an inverse of addition by counting on.

$$82 - 47$$



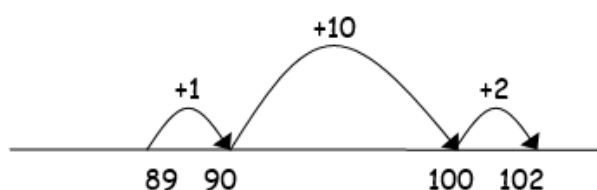
Vocabulary for Year 2	
Take away Difference Between Less than Subtract Subtraction Minus Distance between Fewer	Partitioning Place value Hundreds, tens, ones/units Equals Equal to Decrease reduce

YEAR 3

Children will continue to use empty number lines with increasingly large numbers until they are secure with this method. Only then will they move onto column subtraction.

- To understand place value up to 1000.
- Where the numbers in the calculation are close together or near to multiples of 10, 100 etc., counting on using an ENL should be used

$$102 - 89 = 13$$



- Children should begin to set out calculations in columns, partition the numbers and calculate the answers (no exchanging)

$$\begin{array}{r} 89 \\ - 57 \\ \hline \end{array} = \begin{array}{r} 80 + 9 \\ 50 + 7 \\ \hline 30 + 2 = 32 \end{array}$$

- Begin to set calculations out in a column if secure with above

$$\begin{array}{r} \text{ThHTU} \\ - \text{ThHTU} \\ \hline \end{array}$$

Vocabulary for Year 3

Take away
Difference
Between
Less than
Subtract
Subtraction
Minus
Distance between
Fewer

Partitioning
Place value
Hundreds, tens, ones/units
Equals
Equal to
Decrease
Column
reduce

YEAR 4

- Begin with the decomposition method of column subtraction

$$\begin{array}{r} \text{Step 1} \quad 754 = 700 + 50 + 4 \\ - 286 \quad - 200 + 80 + 6 \end{array}$$

$$\begin{array}{r} \text{Step 2} \quad 700 + 40 + 14 \quad (\text{adjust from T to U}) \\ - 200 + 80 + 6 \end{array}$$

$$\begin{array}{r} \text{Step 3} \quad 600 + 140 + 14 \quad (\text{adjust from H to T}) \\ - 200 + 80 + 6 \\ \hline 400 + 60 + 8 = 468 \end{array}$$

This would be recorded by the children as

$$\begin{array}{r} \overset{600}{\cancel{700}} + \overset{140}{\cancel{50}} + 14 \\ - 200 + 80 + 6 \\ \hline 400 + 60 + 8 = 468 \end{array}$$

- Move onto column subtraction recording it as below, to include decimals

$$\begin{array}{r} \text{TU.TthHth} \\ - \text{TU.TthHth} \\ \hline \end{array}$$

Subtraction linked to measures and money for understanding place value.

$$\begin{array}{r} \text{£5.60} \quad 3.6\text{km} - 500\text{m} \\ - \text{£0.90} \quad 3.6\text{km} - 0.5\text{km} \\ \hline \end{array}$$

Children should be able to convert between units here so their calculations are the same units.

Vocabulary for Year 4

Take away	Partitioning
Difference	Place value
Between	Hundreds, tens, ones/units
Less than	Equals
Subtract	Equal to
Subtraction	Decrease
Minus	Column
Distance between	reduce
Fewer	Exchange
Hundredths	Reduce
tenths	Decimal/s place/s

YEAR 5

- Have to know place value up to 1,000,000
- To solve subtraction using the decomposition method as below

$$\begin{array}{r}
 5 \ 13 \ 1 \\
 \cancel{6}467 \\
 - \ 2684 \\
 \hline
 3783
 \end{array}$$

- To solve subtraction involving up to 3 decimal places.

$$\begin{array}{r}
 \text{TU.TthHthTHth} \\
 - \text{TU.TthHthTHth} \\
 \hline
 \end{array}$$

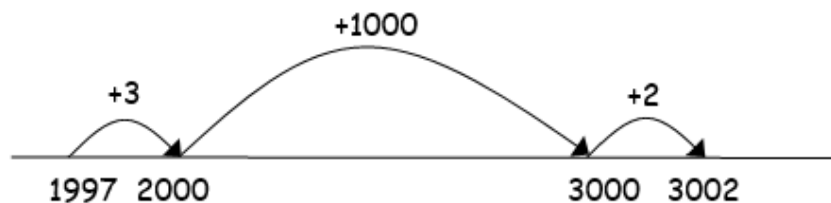
Vocabulary for Year 5

Take away	Partitioning
Difference	Place value
Between	Hundreds, tens, ones/units
Less than	Equals
Subtract	Equal to
Subtraction	Decrease
Minus	Column
Distance between	reduce
Fewer	Exchange
Hundredths	Reduce
tenths	Decimal/s place/s

YEAR 6

- To know place value up to 10,000,000
- Secure in column subtraction as in year 5
- Where numbers are close together or near to multiples of 10, 100, 1000 etc. counting on mentally or an empty number line should be used.

$$3002 - 1997 = 1005$$



- See end of policy for additional methods of calculation for subtraction

Vocabulary for Year 6

Take away	Partitioning
Difference	Place value
Between	Hundreds, tens, ones/units
Less than	Equals
Subtract	Equal to
Subtraction	Decrease
Minus	Column
Distance between	reduce
Fewer	Exchange
Hundredths	Reduce
tenths	Decimal/s place/s

Multiplication

EYFS

Pupils are asked to group sets of, lots of, etc. They are asked to line up in two's, to line up in pairs - They are asked to pair wellies, etc.

Children will experience equal groups of objects and teachers will begin to model counting in 2s and 10s. They will work on practical problem solving activities involving finding equal sets or groups etc, based where possible in real life situations. They will be involved in other practical activities like passing the ball and counting in 2's and 10's.

Multiplication is taught as the opposite (inverse) to Division

Children are taught that multiplying is a way of adding together lots of the same number, which is called repeated addition. The second definition of multiplying, which is scaling meaning to increase the size of something lots of times is not a concept taught in EYFS but it is taught later on.

Repeated addition:

A group of 6 shells can be made up of 3 groups of 2 shells, or 2 groups of 3 shells

$$2 \times 3 = 6 \text{ and } 3 \times 2 = 6$$

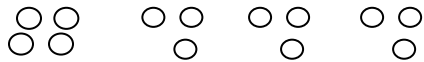
The word 'groups' may be interchanged with 'lots of.'



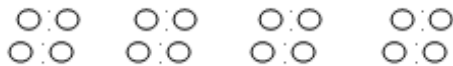
Year 1

- Count forwards and backwards in 2s, 5s and 10s.
- Concrete objects – counting groups of
- Pictorial representation.

$4 \times 3 = 12$ is the same as 4 groups of 3

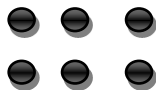


Or 3 groups of 4



- Arrays – with objects and pictorially.

$$3 \times 2 = 6$$



$$2 \times 3 = 6$$

- Using the symbols x and = to record
- Learning doubles from 1 to 10.

Vocabulary for Year 1

Multiply
Lots of
Groups
Times
Multiplying
Array/s
Equal/s

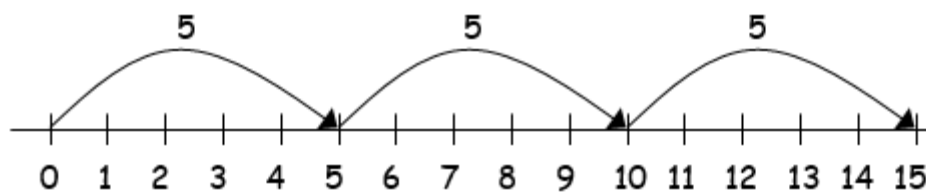
YEAR 2

- Recall multiplication facts for 2, 5 and 10 times table
- Repeated addition on a structured number line

3 times 5 is $5 + 5 + 5 = 15$ or 3 lots of 5 or 5×3

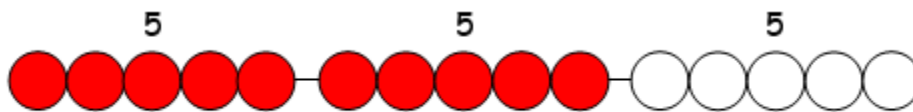
Repeated addition can be shown easily on a number line:

$$5 \times 3 = 5 + 5 + 5$$

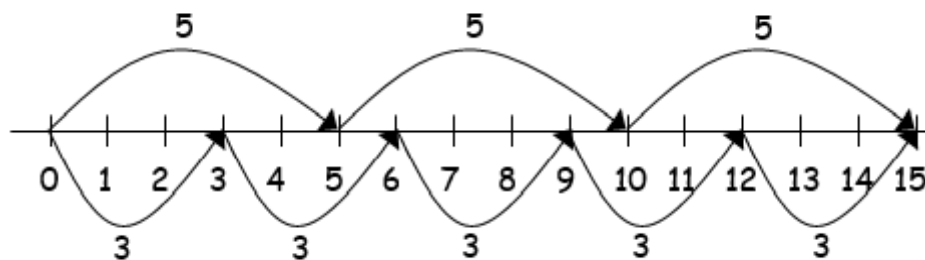


- This can also be shown on a bead bar

$$5 \times 3 = 5 + 5 + 5$$



- Children should know that 3×5 has the same answer as 5×3 . This can also be shown on the number line. (commutative)



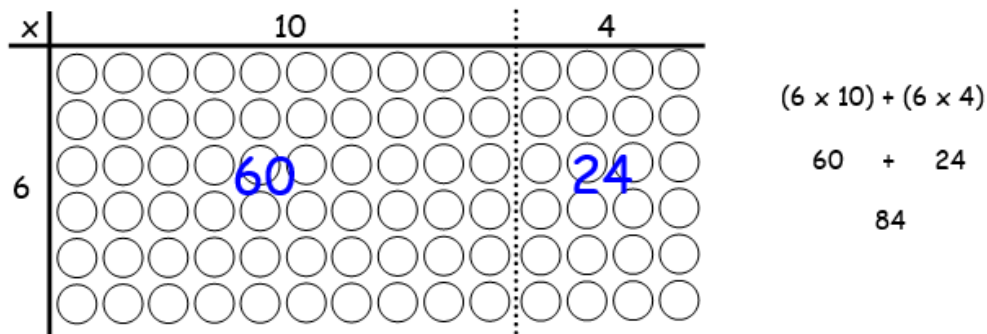
Vocabulary for Year 2	
Partitioning Place value Multiply Lots of Groups Times Multiplying Array/s Equal/s	Repeated addition Number line Tens and ones/units Multiples

YEAR 3

- Recall multiplication facts for 3, 4 and 8 times table including inverses

E.g. $3 \times 8 = 24$ so $24 \div 8 = 3$ and $24 \div 3 = 8$

- Continue to use arrays, leading onto partitioning numbers into a grid



- Moving onto a more formal grid to solve TU x U

$23 \times 8 =$

$\times$	20	3
8	160	24

$$\begin{array}{r} 160 \\ + 24 \\ \hline 184 \end{array}$$

Vocabulary for Year 3

Partitioning
 Place value
 Multiply
 Lots of
 Groups
 Times
 Multiplying
 Array/s
 Equal/s
 Repeated addition

Number line
 Hundreds
 Tens and ones/units
 Multiples
 Column
 Carry/ing

YEAR 4

- Solving HTU x U using the grid method

E.g. $346 \times 9 =$

×	300	40	6	
9	2700	360	54	

2700
+ 360
+ 54
<u>3114</u>
1 1

Vocabulary for Year 4

Partitioning	Number line
Place value	thousands
Multiply	Hundreds
Lots of	Tens and ones/units
Groups	Multiples
Times	Column
Multiplying	Carry/ing
Array/s	
Equal/s	
Repeated addition	

YEAR 5

- Multiplying decimals by a whole number

£4.90 x 3 =

$$\begin{array}{r} \times \quad 4 \quad 0.9 \\ 3 \quad \boxed{12} \quad \boxed{2.7} \end{array}$$

$$\begin{array}{r} 12 \\ + \quad 2.7 \\ \hline 14.7 \end{array}$$

Children can also take the decimal place out (multiply the number by 10 in this case) for multiplication and put it back into the answer (divide the answer by 10)

- Multiplying TU x TU

E.g. 72 x 38 =

$$\begin{array}{r} \times \quad 70 \quad 2 \\ 30 \quad \boxed{2100} \quad \boxed{60} \\ 8 \quad \boxed{560} \quad \boxed{16} \end{array}$$

$$\begin{array}{r} 2100 \\ + \quad 560 \\ + \quad 60 \\ + \quad 16 \\ \hline 2736 \\ 1 \end{array}$$

- Multiplying ThHTU x U

E.g. 4346 x 8 =

x	4000	300	40	6
8	32000	2400	320	48

$$\begin{array}{r}
 32000 \\
 + 2400 \\
 + 320 \\
 + 48 \\
 \hline
 34768
 \end{array}$$

- When children are secure with the grid method of multiplication, they can begin to move onto long multiplication in a column as below:

$ \begin{array}{r} 324 \\ \times 6 \\ \hline 24 \\ 120 \\ \hline 1,800 \\ 1,944 \end{array} $	$300 + 20 + 4$
	6×4
	6×20
	6×300

Vocabulary for Year 5

Partitioning	Number line
Place value	thousands
Multiply	Hundreds
Lots of	Tens and ones/units
Groups	Multiples
Times	Column
Multiplying	Carry/ing
Repeated addition	Decimal/s place/s
Array/s	hundredths
Equal/s	tenths

YEAR 6

- When children are secure with the grid method of multiplication, they can move on to a column method as below

$$\begin{array}{r} 324 \\ \times 7 \\ \hline 2268 \\ 12 \end{array}$$

- Column method – 2-digit x 2 digit *

$$\begin{array}{r} 37 \\ \times 65 \\ \hline 1835 \\ 22420 \\ \hline 2405 \\ 1 \end{array}$$

Note – Teach children to multiply with the units first. Numbers carried forward should be on the same row as the answer. As they are used (added) they should be crossed out to avoid confusion when calculating final total.

- See end of policy for additional methods of calculation for multiplication

Vocabulary for Year 6

Partitioning	Number line
Place value	thousands
Multiply	Hundreds
Lots of	Tens and ones/units
Groups	Multiples
Times	Column
Multiplying	Carry/ing
Repeated addition	Decimal/s place/s
Array/s	hundredths
Equal/s	tenths

Division

EYFS

Pupils will be asked to practically group objects, and share out objects equally.

The children will build on the practical activities experienced in the Nursery. They will be sharing and grouping objects in play based and problem solving situations. They will begin to count in 2s and 10s.

Division is taught as the opposite (inverse) to Multiplication

Children are taught that dividing is splitting up an amount into smaller, equal amounts. If you know how many you want in each of the smaller groups, this is called 'grouping'. If you know how many smaller groups you want it is called 'sharing'.

Grouping: Children are taught that if they want to split an amount into groups they can do this practically e.g. I have 9 shells and decide to split them into groups of 4. I have 2 groups of 4 and one left over.

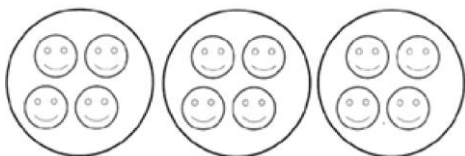
Sharing: Children are taught if they want to share an amount into 2 equal amounts, this is sharing e.g. I have 10 shells and I want to share them with my friend. We each get 5 shells. Sharing into two groups is also called halving.



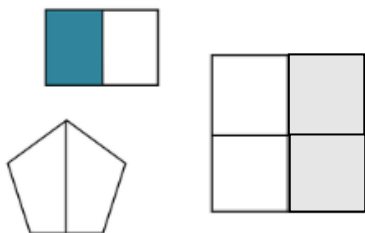
Year 1

- Concrete objects used for sharing into a number of groups

$$12 \div 3 =$$

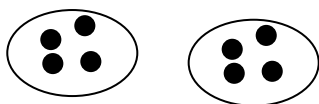


- Using the symbols $\div$ and $=$ to record
- Count forwards and backwards in 2s, 5s and 10.
- Doubling and halving of shapes and numbers.



- Begin to use their own pictorial representations to solve sharing problems

$$8 \div 2 = 4$$



- Begin to understand the relationship between multiplication and division.
 $3 \times 2 = 6$ so $6 \div 3 = 2$ (fact families)

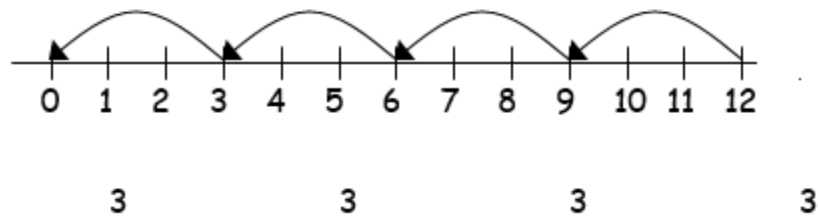
Vocabulary for Year 1

Division Divide Arrays Sharing Share Share equally Grouping Group How many...?	one each, two each, three each... group in pairs, threes... tens equal groups of divided by divided into
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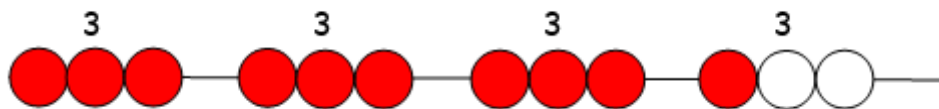
YEAR 2

- Recall multiplication facts for the 2, 5 and 10 times table.
- Repeated subtraction on a structured number line

$$12 \div 3 = 4$$



- Children use bead strings and jottings to solve division

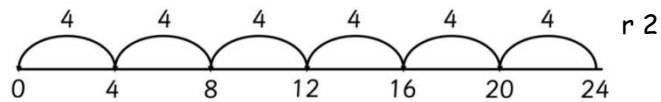


Vocabulary for Year 2

Division Divide Arrays Sharing Share Share equally Grouping Group How many...?	one each, two each, three each... group in pairs, threes... tens equal groups of divided by divided into repeated subtraction Number line Left Left over remainder
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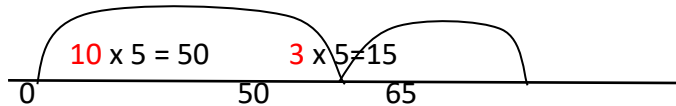
YEAR 3

- Children continue to use an empty number line to solve division with remainders
 $26 \div 4 = 6 \text{ r } 2$



26

- Begin to chunk larger numbers on an empty number line using multiplication
 $65 \div 5 = 13$



Vocabulary for Year 3

Division Divide Arrays Sharing Share Share equally Grouping Group How many...?	one each, two each, three each... group in pairs, threes... tens equal groups of divided by divided into repeated subtraction Number line Left Left over remainder
--	---

YEAR 4

- Begin to move onto chunking method as below

$$72 \div 3$$

$$\begin{array}{r}
 3 \overline{) 72} \\
 - 30 \\
 \hline
 42 \\
 - 30 \\
 \hline
 12 \\
 - 6 \\
 \hline
 6 \\
 - 6 \\
 \hline
 0 \\
 \text{Answer: } 24
 \end{array}$$

10×3
 10×3
 2×3
 2×3
 $\downarrow$
 24

- If children are confident with the chunking method, begin to move onto short division

Vocabulary for Year 4

Division Divide Arrays Sharing Share Share equally Grouping Group How many...? one each, two each, three each...	equal groups of divided by divided into repeated subtraction Number line Left Left over Remainder Chunking Chunks group in pairs, threes... tens Short division
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YEAR 5

- Children to begin to solve short division as below

$98 \div 7$ becomes

$$\begin{array}{r} 14 \\ 7 \overline{) 98} \end{array}$$

Answer: 14

- Children to use short division to solve division with remainders

$432 \div 5$ becomes

$$\begin{array}{r} 86 \text{ r } 2 \\ 5 \overline{) 432} \end{array}$$

Answer: 86 remainder 2

Vocabulary for Year 5

Division	equal groups of
Divide	divided by
Arrays	divided into
Sharing	repeated subtraction
Share	Number line
Share equally	Left
Grouping	Left over
Group	Remainder
How many...?	Chunking
one each, two each, three each...	Chunks
Short division	group in pairs, threes... tens

YEAR 6

- Solving division with remainder as a decimal

E.g. $432 \div 5 =$

$$\begin{array}{r} 0 \ 8 \ 6 \ . \ 4 \\ 5 \overline{) 4 \ 3 \ 2 \ . \ 0} \\ \underline{4 \ 3} \\ 0 \end{array}$$

Answer: 86.4

- Solving HTU $\div$ TU

$\begin{array}{r} 0 \ 2 \ 8 \ . \ 8 \\ 15 \overline{) 4 \ 3 \ 2 \ . \ 0} \\ \underline{- 3 \ 0} \\ 1 \ 3 \ 2 \\ \underline{- 1 \ 2 \ 0} \\ 1 \ 2 \ 0 \\ \underline{- 1 \ 2 \ 0} \\ 0 \end{array}$	<u>Key facts</u> $2 \times 15 = 30$ $6 \times 15 = 90$ $8 \times 15 = 120$
---	---

- See end of policy for additional methods of calculation in division

Vocabulary for Year 6

Division	equal groups of
Divide	divided by
Arrays	divided into
Sharing	repeated subtraction
Share	Number line
Share equally	Left
Grouping	Left over
Group	Remainder
How many...?	Chunking
one each, two each, three each...	Chunks
	group in pairs, threes... tens
	Short division

By Spring term year six, pupils will have had experience of the following methods in all four operations. They will have developed confidence and become proficient in particular areas - choosing their preferred methods to solve and apply to calculation. These examples have been taken directly from the National Curriculum Mathematics programmes of study – Appendix A. They do not intend to show progression in formal written methods.

Addition and subtraction

789 + 642 becomes

$$\begin{array}{r} 789 \\ + 642 \\ \hline 1431 \\ \hline \end{array}$$

Answer: 1431

874 - 523 becomes

$$\begin{array}{r} 874 \\ - 523 \\ \hline 351 \\ \hline \end{array}$$

Answer: 351

932 - 457 becomes

$$\begin{array}{r} 8 \quad 12 \quad 1 \\ 932 \\ - 457 \\ \hline 475 \\ \hline \end{array}$$

Answer: 475

932 - 457 becomes

$$\begin{array}{r} 1 \quad 1 \\ 932 \\ - 457 \\ \hline 475 \\ \hline \end{array}$$

Answer: 475

Short multiplication

24 × 6 becomes

$$\begin{array}{r} 24 \\ \times 6 \\ \hline 144 \\ \hline \end{array}$$

Answer: 144

342 × 7 becomes

$$\begin{array}{r} 342 \\ \times 7 \\ \hline 2394 \\ \hline \end{array}$$

Answer: 2394

2741 × 6 becomes

$$\begin{array}{r} 2741 \\ \times 6 \\ \hline 16446 \\ \hline \end{array}$$

Answer: 16 446

Long multiplication

24 × 16 becomes

$$\begin{array}{r} 2 \\ 24 \\ \times 16 \\ \hline 240 \\ 144 \\ \hline 384 \\ \hline \end{array}$$

Answer: 384

124 × 26 becomes

$$\begin{array}{r} 1 \quad 2 \\ 124 \\ \times 26 \\ \hline 2480 \\ 744 \\ \hline 3224 \\ \hline \end{array}$$

Answer: 3224

124 × 26 becomes

$$\begin{array}{r} 1 \quad 2 \\ 124 \\ \times 26 \\ \hline 744 \\ 2480 \\ \hline 3224 \\ \hline \end{array}$$

Answer: 3224

Short division

98 ÷ 7 becomes

$$\begin{array}{r} 14 \\ 7 \overline{) 98} \\ \underline{7} \\ 28 \\ \underline{28} \\ 0 \end{array}$$

Answer: 14

432 ÷ 5 becomes

$$\begin{array}{r} 86 \text{ r } 2 \\ 5 \overline{) 432} \\ \underline{40} \\ 32 \\ \underline{30} \\ 2 \end{array}$$

Answer: 86 remainder 2

496 ÷ 11 becomes

$$\begin{array}{r} 45 \text{ r } 1 \\ 11 \overline{) 496} \\ \underline{44} \\ 56 \\ \underline{55} \\ 1 \end{array}$$

Answer: 45 $\frac{1}{11}$

Long division

$432 \div 15$ becomes

$$\begin{array}{r}
 \overline{) 432} \text{r } 12 \\
 \underline{300} \\
 132 \\
 \underline{120} \\
 12
 \end{array}$$

Answer: 28 remainder 12

$432 \div 15$ becomes

$$\begin{array}{r}
 \overline{) 432} \\
 \underline{300} \quad 15 \times 20 \\
 132 \\
 \underline{120} \quad 15 \times 8 \\
 12
 \end{array}$$

$$\frac{\cancel{12}}{\cancel{15}} = \frac{4}{5}$$

Answer: $28 \frac{4}{5}$

$432 \div 15$ becomes

$$\begin{array}{r}
 \overline{) 432} \cdot 8 \\
 \underline{30} \downarrow \\
 132 \\
 \underline{120} \downarrow \\
 120 \\
 \underline{120} \\
 0
 \end{array}$$

Answer: 28.8