William Austin Infant School

Mathematics Calculation Policy

Recording methods
Foundation Stage to Year 2

This calculation policy has been produced to ensure consistency in teaching mathematics throughout the school. It gives an overview of the different strategies used in our school to teach the four operations in mathematics - addition, subtraction, multiplication and division. This is also designed to highlight the clear progression through year groups, as well as what is taught in the previous and next year group. This outlines how previous learning of taught strategies can be recapped and reviewed from a previous year group, securing this taught skill or method as well as seeing how learned strategies are then built upon in the next year group.
Additional interventions may also need to take place in order to secure understanding and ensure success for ***all*** *leaners.*

Although the focus of the policy is on the written methods it is important to recognise that the ability to calculate mentally lies at the heart of the National Curriculum for mathematics. The mental methods are taught systematically from Reception onwards and children are given regular opportunities to develop the necessary skills. Building and developing our children's fluency and number sense is extremely important and is a key priority for us at William Austin Infant School. 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 every written method there is an element of mental processing. Sharing written methods with the teacher encourages children to think about the mental strategies that underpin them and to develop new ideas. This further supports the development of their explaining and reasoning skills. Therefore written recording helps children to clarify their thinking and supports and extends the development of more fluent and sophisticated mental strategies.

Reviewed November 2025

To be reviewed November 2027

In Reception, opportunities are provided for children to learn methods in practical concepts before moving onto recording mathematics formally on paper.

Reception

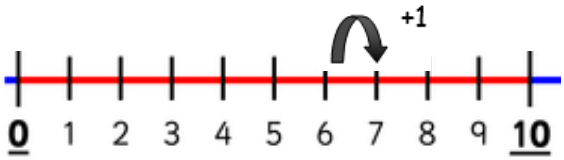
Addition

Vocabulary: add, addition, plus, count on, one more.

Adding more

To count ***one more,*** and then several more, on a number track.
Placing a counter/or their own finger over the biggest number and moving it along.
For example: 6 + 1 = 7

Progression onto a number line:

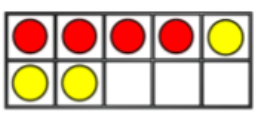


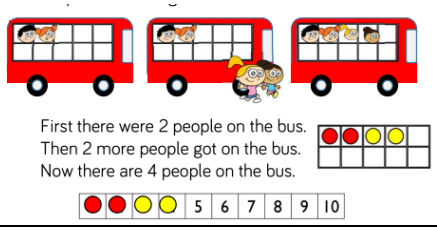
Adding several more or adding 2 groups together by counting all of them.

Understand that addition means adding 2 groups together.

4 + 3 = 7

Different manipulatives should be used to support the teaching and learning of addition and adding two amounts/groups together. Children should be encouraged to represent number stories using 10 frames, number tracks, rekenreks and their fingers. The use of 'first, then, now' will support this structure and provide children with opportunities to create mathematical stories in meaningful contexts.





In year 1 and 2 the following methods are taught. The methods are taught to children based on their ability and understanding. Additionally, at William Austin Infants we have adopted a Mastery for All approach- 'Teaching for Mastery' which supports Bruner's CPA approach (concrete, pictorial and the abstract) to learning as well as guidance and use of support materials from White Rose Maths and the National Centre of Excellence in the Teaching of Mathematics, NCETM.

Addition

Vocabulary-

Year 1: Same as Year R plus; total, plus, more than, greater than, and, altogether, increase, equals, make, sum, count forwards.

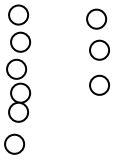
Year 2: Same as previous two years plus; addends, commutative, commutativity, sum, inverse.

Year 1

Revisit methods taught in Year R

Pictures / marks / drawings

6 + 3 = 9

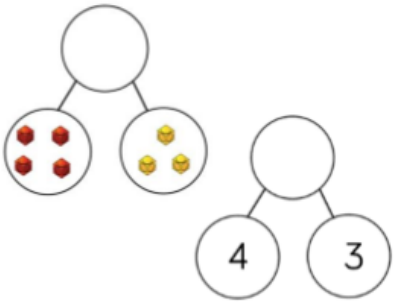


Progression then moves onto counting on.

6 + 3 = 9

Sarah has 3 lollies. Her friend gives her 2 lollies. How many lollies does she have altogether?

Use of the Part whole model



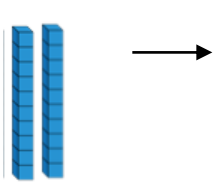
Year 2

Revisit methods taught in Year 1

To be able to add 10 or multiples of 10 to any number up to 100.

Same as Year 1.

34 + 20 = 54

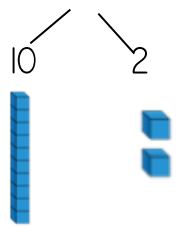


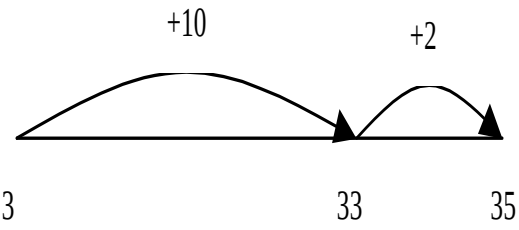
34 + 20 = 54

Partition the smaller number into tens and ones

23 + 12 =

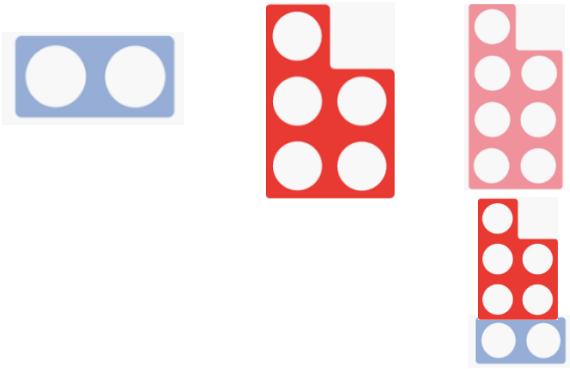
23 + 10 = 33
33 + 2 = 35



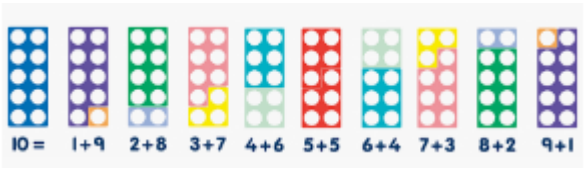


Use of Numicon

2 + 5 = 7

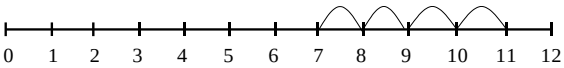


This is also a resource used to focus on number bonds.



Number lines (numbered)

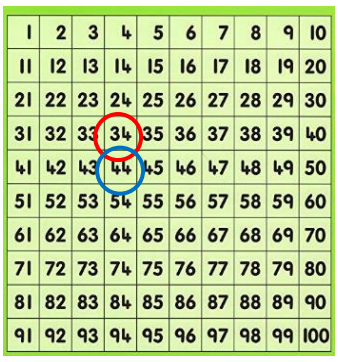
7 + 4 = 11



To be able to add 10 or multiples of 10 to any number up to 100.

Use a 100 square, find number and move down vertically.

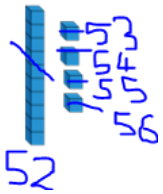
34 + 10 = 44
25 + 20 = 45



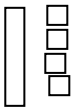
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Same as Year 1- progression onto counting on from the first addend and drawing the tens and ones

42 + 14 = 56

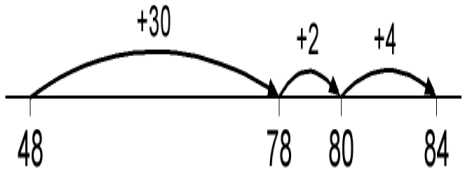


42 + 14 =



To be able to add 2 two digit numbers on an empty number line.

48 + 36 = 84



To be able to add two digit numbers by partitioning

23 + 41 =

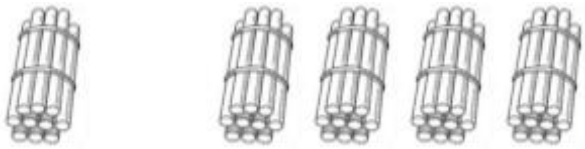
= 20 + 3 + 40 + 1
= 3 + 1 + 40 + 20
= 60 + 4
= 64

or

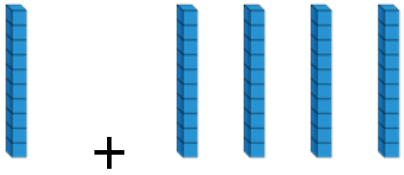
23 + 41 =

= 3 + 1 = 4
= 20 + 40 = 60
= 60 + 4 = 64

Use of bundles of straws and base 10/dienes to support adding multiples of 10.



10 + 40 = 50



Eventually this will be done mentally.

To be able to add any two digit numbers up to 100.

Use a 100 square and move down (vertically) to add tens and across (horizontally) to add units or ones.

42 + 14 =56

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

42 + 14 = 56

To be able to add 11 or 21 to a 2 digit number up to 100.

Add 10 and then 1 or add 20 then 1 to a 2 digit number.
First use 100 square by moving down (vertically) and then across (horizontally).

45+11 =
=45 + 10 + 1
= 55 + 1
= 56

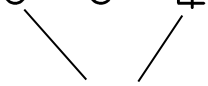
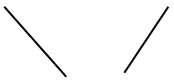
45+21 =
=45 + 20 + 1
= 65 + 1
= 66

To be able to add 9 or 19 to a 2 digit number by adding 10 or 20 and subtracting 1.

Use a 100 square by moving down vertically then horizontally. Eventually this will be done mentally.

23+9 =
= 23 + 10 - 1
= 33-1
= 32

23+19 =
= 23 + 20 - 1
= 43-1
= 42

	<u>To be able to add 3 single digit numbers using what we already know.</u> 6 + 3 + 4 =  Number bond knowledge 6 + 4 = 10 10 + 3 13 8 + 4 + 8 =  Doubles knowledge 8 + 8 = 16 16 + 4 = 20 **<u>To be able to add 3 two digit numbers by partitioning.</u>** 23 + 21 + 34 = 3 + 1 + 4 = 8 20 + 20 + 30 = 70 = 70+8 = 78

Reception

Subtraction

Vocabulary: Take away, subtract, subtraction, count back, less than, fewer, how many left.

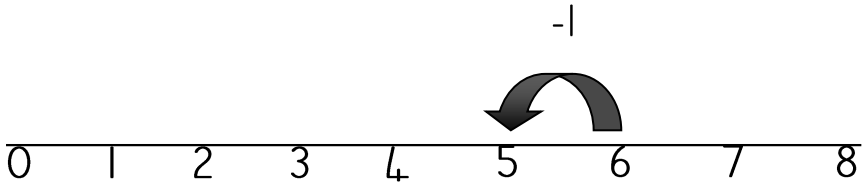
In the early stages, children will be taught to 'take away' one or two objects and find the new total.

For example: 5-3=2

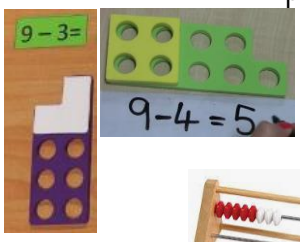
5 **take** 2 **away is** 3

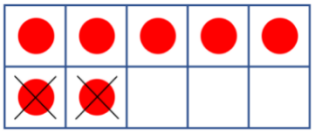
The next stage is for children to be able to work out one less or several less on a number track and then a number line.

For example: 6 – 1 = 5

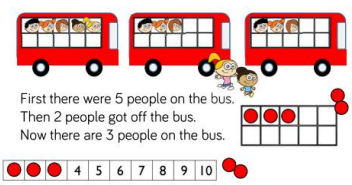


Different manipulatives should be used to support the teaching and learning of subtraction. Children should be encouraged to represent number stories using 10 frames, number tracks, rekenreks and their fingers. The use of 'first, then, now' will support this structure and provide children with opportunities to create mathematical stories in meaningful contexts.





7 – 2 = 5



Subtraction

Vocabulary:

Year 1: Same as Year R plus; minus, less than, difference, decrease, leave, count backwards, how many left?

Year 2: Same as previous two years plus; Minuend, Subtrahend, Difference, Inverse.

Year 1

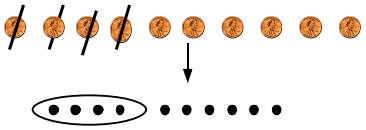
Revisit methods taught in Year R

9 - 3 = 6

Progression then moves onto counting back.

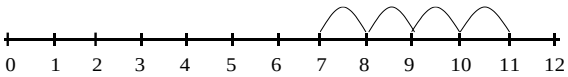
9 - 3 = 6

Sam spent 4p. What was his change from 10p?



Number lines (numbered)

The difference between 7 and 11 (Counting up)



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

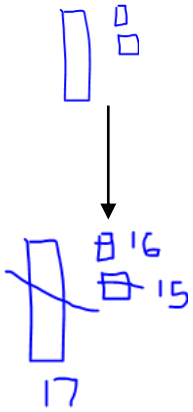
Use a 100 square to take away 2 numbers.

Year 2

Revisit methods taught in Year 1

Take away two 2-digit numbers. (Not crossing the ten).

27-12= 15



Or

27-12=15

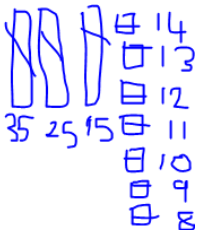
7-2=5

20-10=10

10+5=15

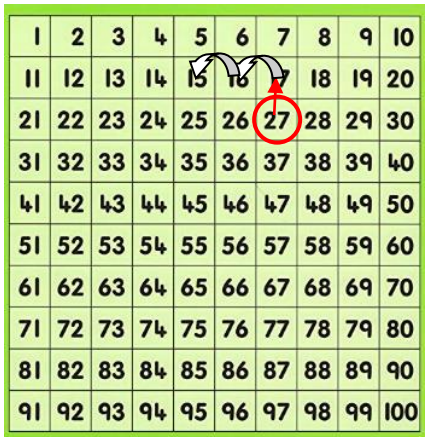
Take away two 2-digit numbers. (Crossing the ten).

45 - 37 =8



Take away tens first by moving up (vertically) and then units or ones by moving across (horizontally).

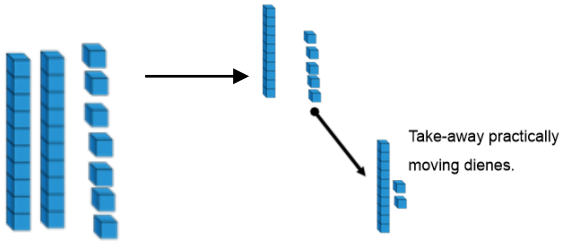
27-12= 15

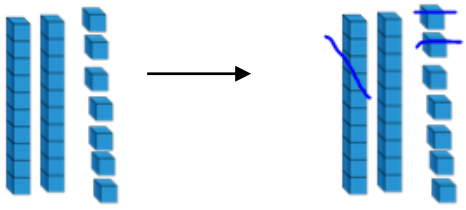


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Take away two 2-digit numbers. (Not crossing the ten).

27-12= 15

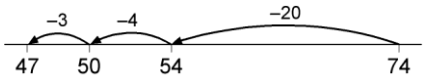




Steps in subtraction can be recorded on a number line.

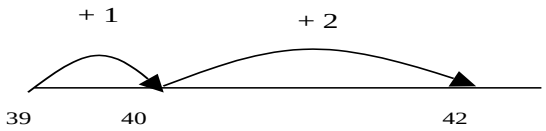
15 - 7 = 8

74 - 27 = 47 worked by counting back:



Find a small difference by counting on.

42 - 39 = 3



Use a 100 square to take away 2 numbers.

Take away tens first by moving up (vertically) and then units or ones by moving across (horizontally).

79 -42 = 37

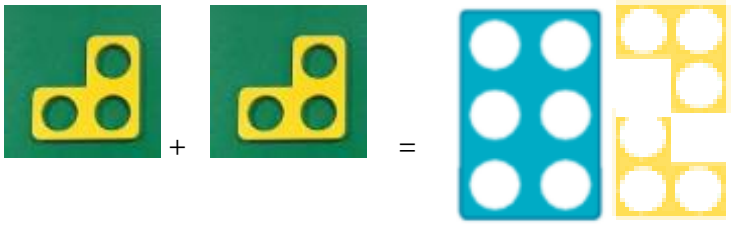
Reception

Multiplication

Vocabulary: doubling, groups of.

Doubling

Using concrete resources



Count repeated groups of the same size.

3 groups of 2 = 6

Multiplication

Vocabulary:

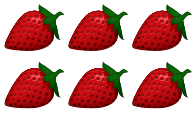
Year 1: Year R plus; Multiples, Twos, Fives, Tens, Repeated Addition, Multiply , Multiplication, Times

Year 2: Previous two years plus; Factor, Product, Arrays, Lots of, Groups of, Multiplication facts, Multiplication tables

Year 1

Revisit methods taught in Year R

Multiplication is related to doubling and counting groups of the same size.



Looking at columns 2 + 2 + 2

3 groups of 2

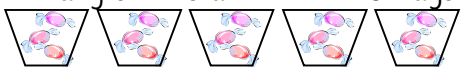
Looking at rows 3 + 3

2 groups of 3

Pictures and symbols

There are 3 sweets in one bag.

How many sweets are there in 5 bags?



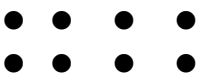
3 + 3 + 3 + 3 + 3 = 15

Manipulatives:

Year 2

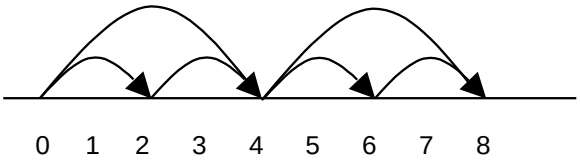
Revisit methods taught in Year 1

Arrays and repeated addition



4 x 2 or 4 + 4

2 x 4 or 2 + 2 + 2 + 2



x = signs and missing numbers

7 x 2 = □	10 x 7 = □
7 x □ = 14	70 = □ x 10
□ x 5 = 20	14 = 2 x □
□ x ∇ = 14	20 = □ x ∇

How many 2s in 12?

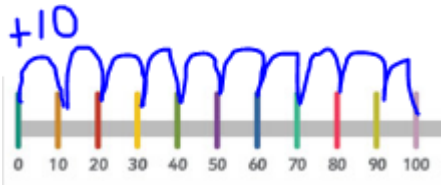
How many 5s in 40?

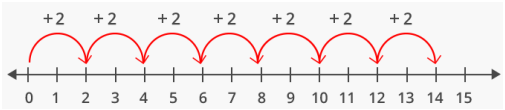
Children to use knowledge of times tables.

Numicon

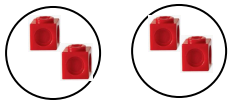
5 + 5 + 5 = 15
3 lots of 5 = 15
3 groups of 5 = 15
3 x 5 = 15

Number line



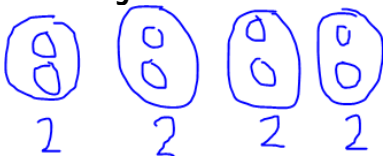


Cubes:



2 + 2 = 4 2 lots of 2 = 4
2 x 2 = 4 2 groups of 2 = 4

Drawing:



2 + 2 + 2 + 2 = 8
4 lots of 2 = 8
4 groups of 2 = 8
4 x 2 = 8

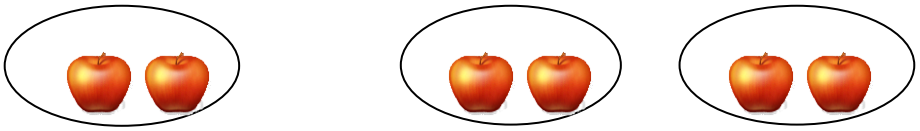
Reception.

Division

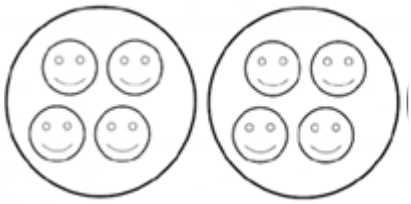
Vocabulary-: halving, share, sharing

Sharing into equal groups

Share objects into equal groups and count how many in each group.



Children will understand equal groups and share items out in play and problem solving. They will count in 2s and 10s and later in 5s. This will support them moving into Year 1 and 2.



8 shared between 2 = 4

Division

Vocabulary-:

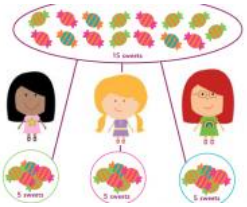
Year 1: Same as Year R plus; Divide, Division, Share, Shared equally, Groups of

Year 2: Same as previous two years plus; Lots of, Groups of, Division facts, Divisor, Dividend, Quotient.

Year 1	Year 2
Revisit methods taught in Year R **Sharing** – 6 sweets are shared between 2 people. How many do they each have?	**Revisit methods taught in Year 1** **Understand division as sharing and grouping**

6 ÷ 2 can be modelled as:

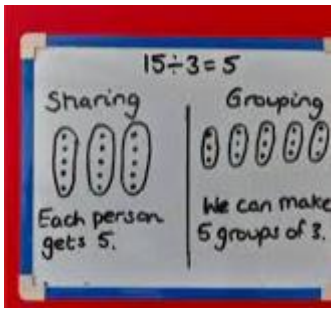
Practical activities involving sharing, distributing cards when playing a game, putting objects onto plates, into cups, hoops etc.



Grouping

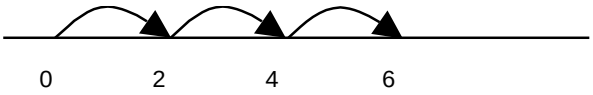
Sorting objects into 2s / 5s/ 10s.
How many pairs of socks are there?

There are 12 bulbs. Plant 3 in each pot. How many pots are there?
Jo has 12 Lego wheels. How many cars can she make?



Grouping – There are 6 sweets. How many people can have 2 each?
(How many 2's make 6?)

6 ÷ 2 = 3



÷ = signs and missing numbers

6 ÷ 2 = □
6 ÷ □ = 3
□ ÷ 2 = 3
15 ÷ ∇ = 3
25 ÷ 5 = □
12 ÷ 2 = □
3 = □ ÷ 2
50 ÷ ∇ = 5

How many 2s in 6?
How many 5s in 25?

In the context of money count forwards and backwards using 2p, 5p and 10p coins

Practical grouping e.g. in PE

12 children get into teams of 4 to play a game.
How many teams are there?