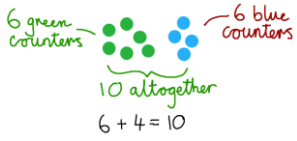
How we teach it.

Written and mental calculation in Year 1.

Written Addition in Year 1

Method:

Children will use objects or counters to support their addition. They will count out the appropriate amount of counters, add additional counters and then count how many altogether (parts and wholes). They will begin to record their work in number sentences.



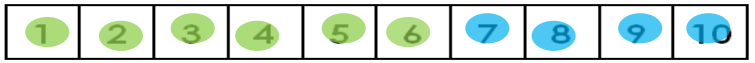
They will represent number sentences using counters and will be encouraged to count on from the larger number. They will organise their counters in a line.

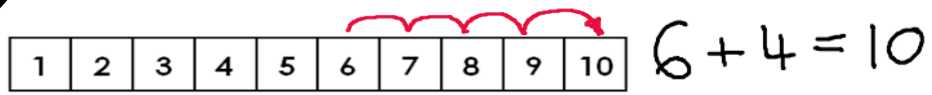
First Steps:

Children will begin learning written methods of addition by counting on from a given number. They will practise thinking of one number and continue counting on in ones. They will also learn the part- whole relationship and that addition is combining parts to make a whole.

Leading to:

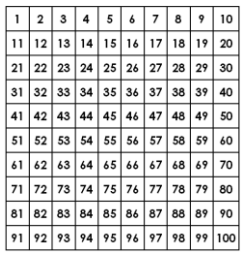
Once children are familiar with counting objects, they will then move onto using a number track (with and without counters) as well as bars models to support their addition. They will continue to record their work using number sentences.



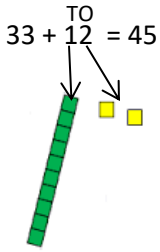


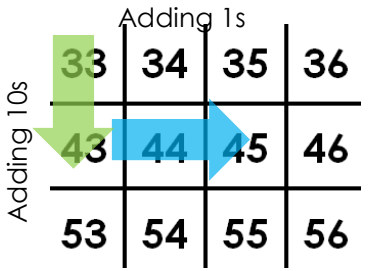
Next Steps:

When children are ready to be adding larger numbers, they will first learn to partition numbers into tens and ones using dienes and place value mats. Once they understand numbers can be partitioned into tens and ones, they will use that knowledge to add on a Hundred Square. They will begin to add in multiples of 10 and 1 by moving vertically or horizontally on the Hundred Square.



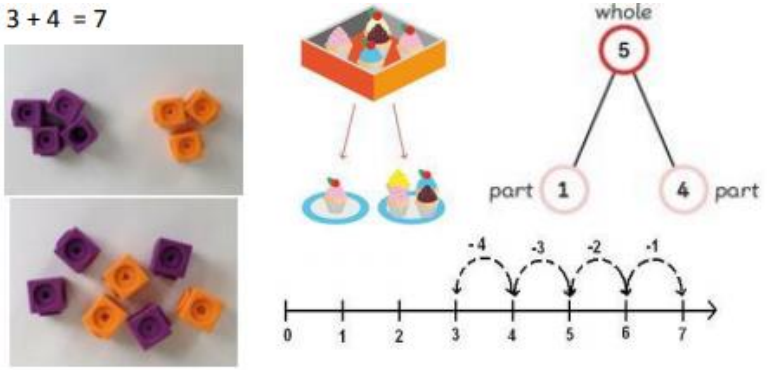
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



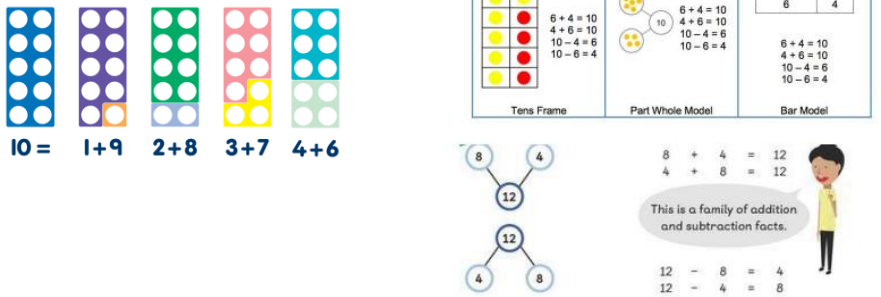


A Deeper Look:

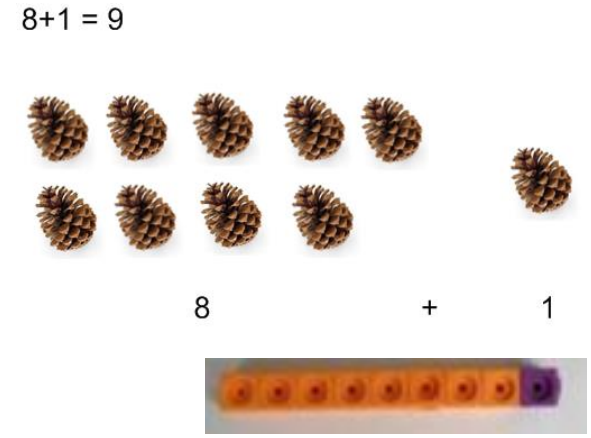
Children will learn to combine two parts to make a whole: part-whole model. They will join groups and then recount all objects. Children will practice making 10 and numbers to 10 (6 + 4 = 10 or 3 + 5 = 8)



Number Bonds: Children will learn number bonds to 10 and 20, and demonstrate the related facts. Addition and subtraction are taught alongside each other as pupils need to see the relationship between the facts.

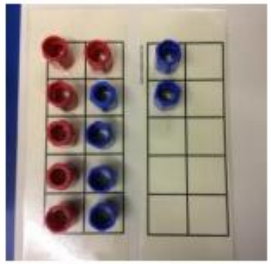


Children are given opportunities to talk about numbers and addition. They learn through real life examples and are encouraged to play with and explore number.



Bridging 10; Children use ten frames, numicon and number lines to practice adding numbers. Children start with a larger number and add a smaller number seeing what makes ten.


10 +4

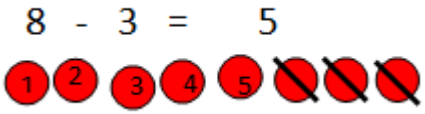

6 + 6 = 12

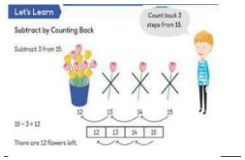
Make 9 in one and 3 in the other. Take one from the 3 to make the 9 into a ten....10+2 = 12

Written Subtraction in Year 1

Method:

Children will use objects or counters to support their subtraction. They will count out the appropriate amount of counters, and separate or take away counters. They will then count how many there are remaining. They will begin to record their work in number sentences.

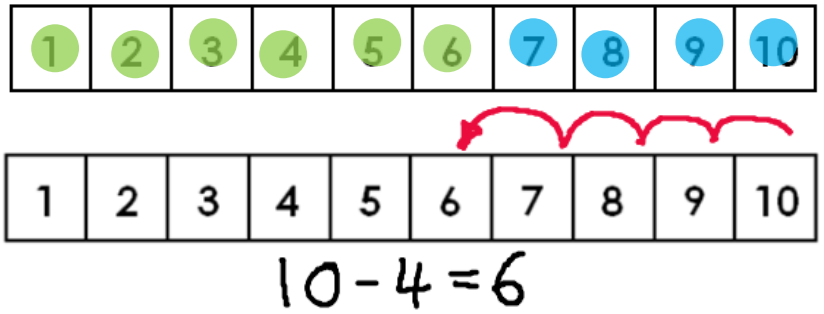




They will represent number sentences using counters and will count back while taking away objects. They will organise their counters in a line.

Leading to:

Once children are familiar with taking away objects and finding how many are left they will then move onto using a number track with and without counters to support their subtraction. They will continue to record their work using number sentences.

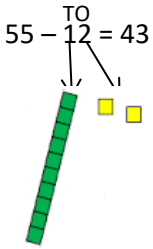


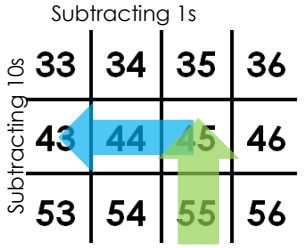
First Steps:

Children will begin learning written methods of subtraction by counting back from a given number. They will practice thinking of the first number and continue counting back in ones. The will also learn the part- whole relationship and that subtraction happens when you take a part away from a whole.

Next Steps:

When children are ready to be subtracting larger numbers, they will first learn to partition numbers into tens and ones using dienes and place value mats. Once they understand numbers can be partitioned into tens and ones, they will use that knowledge to subtract on a Hundred Square. They will begin to subtract in multiples of 10 and 1 by moving vertically or horizontally on the Hundred Square.

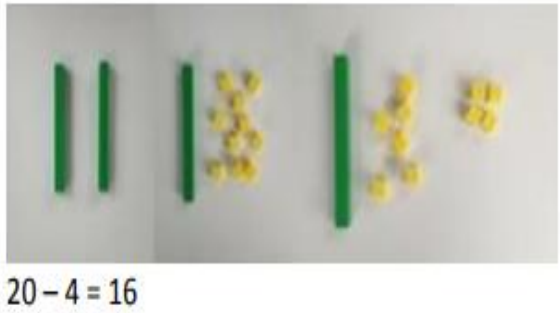




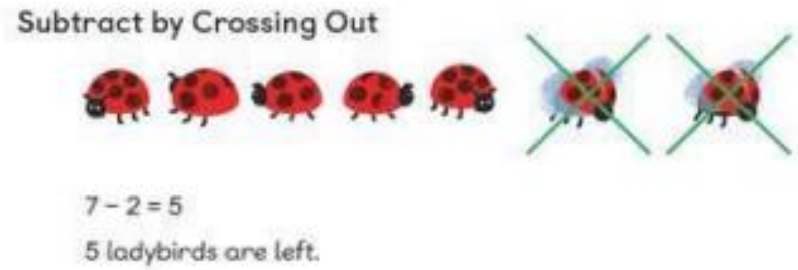
A Deeper Look:

Children will subtract using the part- part whole model including problem solving with missing digits. ___ - 5 = 2

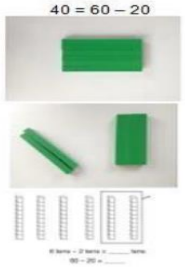
When subtracting using Dienes, children are taught to regroup (rename) a ten rod for 10 ones and then subtract from those ones

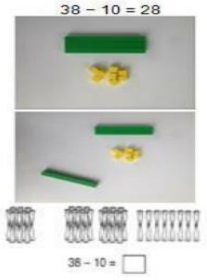


Children will subtract a single digit number from a single digit number and a single digit from a two digit by crossing out pictures.



Subtracting multiples of 10 using the vocabulary of 1 ten, 2 tens etc alongside 10, 20, 30 is very important here as pupils need to understand that it is a 10 (not 1) is being taken away



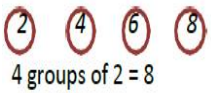


Written Multiplication in Year 1

Method:

Children will begin to understand multiplication as 'lots of' or 'groups of'. They will use objects, such as counters and numicon, to repeatedly add groups of the same size. The will also discuss group size.

6 groups of 5 = 30

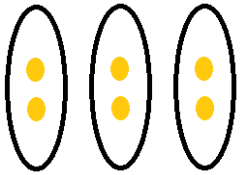


2 × 4 = 8

Leading to:

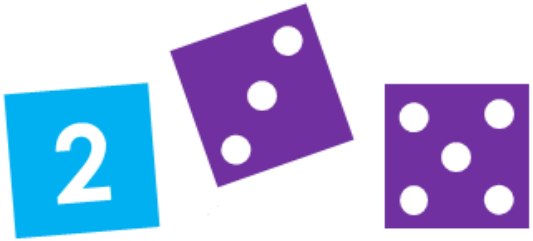
Children will use an array to support their calculation by repeatedly adding groups of the same size. Children will begin to use their knowledge of the 2, 5 and 10 times tables to skip count the groups.

3 groups of 2 = 6



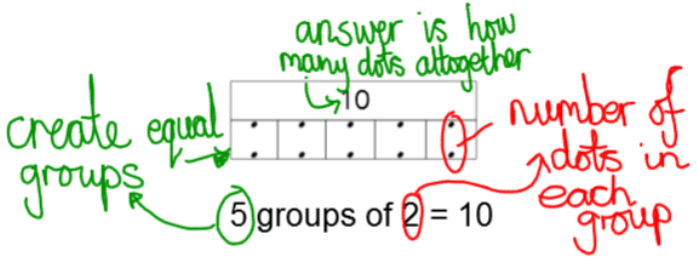
First Steps:

Children will begin learning written methods of multiplication by counting on more than once from a given number. They will practise thinking of one number, count on in ones more than once and say the final answer.



Next Steps:

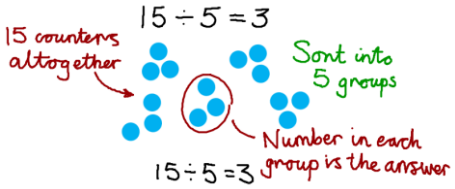
Once children are confident with using an array they with begin to use a bar model to represent their array. Children will explore the relationship between the whole and the parts.

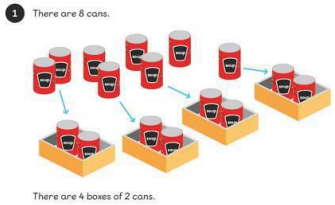


Written Division in Year 1

Method:

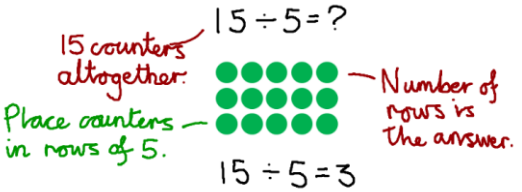
Sharing is shown below the whole to familiarize children with the concept of a whole. They will begin to explore division using grouping and sharing equally. They will start by sharing counters equally and counting the number of objects in each group. They will begin to record their work using number sentences.





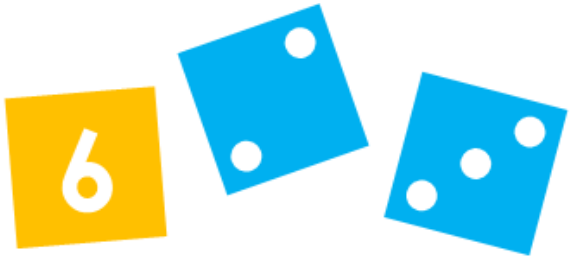
Leading to:

Children continue with grouping and sharing equally, but will now begin to organise objects in rows and columns, and bars. They will use arrays to represent division and will place counters in rows of a specific length and count the number of rows to find their answer.



First Steps:

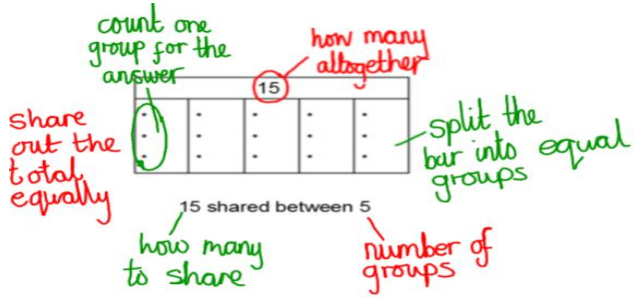
Children will begin learning written methods of division through working practically by sharing objects among a group and grouping.



Next Steps:

When children have a good understanding of division, they will use the bar model to support them when sharing. Children will create groups and share the total amount by drawing dots. This will help children understand the relationship of the whole and parts.

15 shared between 5 = 3



Mental Multiplication and Division in Year 1 and 2

Children should be able to recall:

Year 1

- Doubles of all numbers to 10, e.g. double 6
- Odd and even numbers to 20

Year 2

- Doubles of all numbers to 20 and corresponding halves
- Doubles of multiples of 10 to 50 and corresponding halves

- Multiplication facts for the 2, 3, 5 and 10 times tables, and corresponding division facts
- Odd and even numbers to 100

Working mentally, children should be able to:

Year 1

- Count on from and back to zero in ones, twos, fives or tens

Year 2

- Double any multiple of 5 up to 50, e.g. double 35
- Halve any multiple of 10 up to 100, e.g. halve 90

- Find half of even numbers to 40
- Find the total number of objects when they are organised into groups of, 2, 3, 5 or 10.

Children should know when to:

Year 1

- Use patterns of last digit, e.g. 0 and 5 when counting in 5's.

Year 2

- Partition double the tens and ones separately, then recombine
- Use knowledge that halving is the inverse of doubling and that doubling is equivalent to multiplying by two.

- Use knowledge of multiplication facts from the 2, 3, 5 and 10 times table, e.g. recognise that there are 15 objects altogether because there are three groups of five.

Mental Addition and Subtraction in Year 1

Children should be able to recall:

- Number pairs with a total of 10, e.g. 3 + 7, or what to add to a single digit number to make 10.

- Addition facts for totals to at least 5, e.g. 2 +3, 4+3

- Addition doubles for all numbers to at least 10, e.g. 8+8

Working mentally, children should be able to:

- Add and subtract a pair of single digit numbers, e.g. 4 +5, 8-3

- Add or subtract a single digit number to or from a teens number, e.g. 13 +5, 17+3
- Add or subtract a single digit to or from 10, and add a multiple of 10, and add a multiple of 10 to a single digit number, e.g. 10+7, 7 +30

- Add near doubles, e.g. 6+7

Children should know when to:

- Reorder numbers when adding, e.g. putting the largest number first
- Count on or back in ones, twos or tens

- Partition small numbers, e.g. 8+3 = 8+2+1
- Partition and combine tens and ones

- Partition: Double and adjust, e.g. 5+6 = 5+5+1

Year 1 Problems

- Ebony has 5p and Daniel has 8p. How much do they have altogether?
- A lolly costs 6p. Amrit paid with a 10p coin. How much change does he get?
- Michael says that 16 + 5 = 21. Is he correct?
- I think of a number. I subtract 5. The answer is 4. What was my number?
- I have 6 pairs of gloves. How many gloves are there altogether?
- Twelve people are split into two groups. How any are in each group?
- Mrs Morton puts five 5p coins into her purse. How much is in her purse altogether?