

Calculation Methods



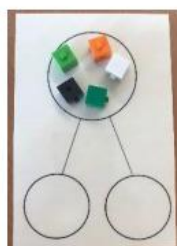
Year One

ADDITION

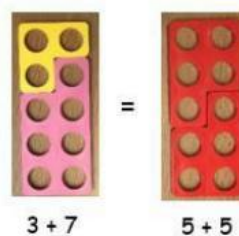
National Curriculum Objectives: Addition objectives from Addition and Subtraction Strand	Key Skills/ other linked NC Objectives (Place Value)	Key Vocabulary
- Read, Write and interpret mathematical symbols involving addition (+) and equals (=) signs. - Represent and use number bonds within 20. - Add one-digit and two-digit numbers to 20, including 0. - Solve one step problems that involve addition, using concrete objects and pictorial representations and missing number problems.	- Count forwards to and across 100, beginning with 0 or 1, or from any given number. - Count, read and write numbers to 100 in numerals. - Given a number, identify one more. - Identify and represent numbers using objects and pictorial representations including the number line. - Read and write numbers from 1-20 in numerals and words.	Addition, add, altogether, put together, sum, and, plus, total Equals, equal to, makes more than, less than, fewer, most, least

Children should:

- Have access to a wide range of counting equipment, everyday objects, number tracks and number lines, and be shown numbers in different contexts. They should explore number and the different ways the numbers can be partitioned (representing and using number bonds within 20).



- Read and write the addition (+) and equals (=) signs within number sentences. Specific learning should take place, through exploration of number, around the equals sign, ensuring children understand it's role within a number sentence and that it does not always just indicate where the answer goes.



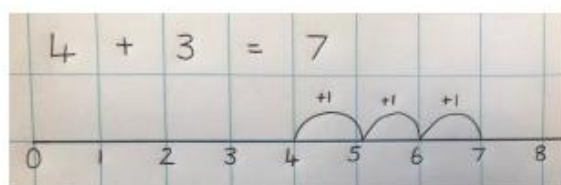
- Interpret addition number sentences and solve missing box problems, using concrete objects and number line addition to solve them: $8 + 3 = \square$, $\square = 15 + 4$ and $14 = \square + 9$.
- Where children are not yet secure in their Early Learning Goals, they should be given the opportunity to consolidate these foundations.

Mental Methods- The children should be taught to use the following mental strategies, and to use jottings to support their methods:

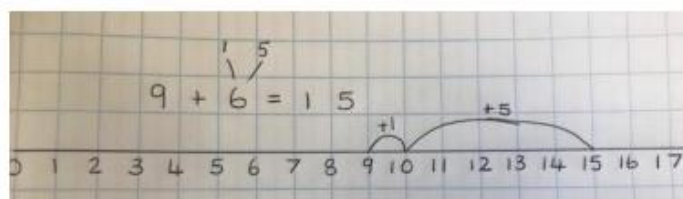
- Counting on in ones
- Re-ordering the numbers when adding e.g. put the larger number first
- Counting on and back in ones, twos and tens
- Looking for pairs of numbers that equal 10
- Partitioning small numbers to bridge tens e.g. $8 + 3 = 8 + 2 + 1$
- Partitioning using known facts e.g. double and adjust $5 + 6 = 5 + 5 + 1$
- Adding 9 to a number by adding 10 and then subtracting 1
- Recalling number bonds to 10 and 20 in several different forms (e.g. $9 + 7 = 16$, $16 - 7 = 9$ and $7 = 16 - 9$)

Written Methods: Building on the prior learning, and exploration of number outlined above, children should:

- Use numbered number lines to add, by counting on in ones. Children should be encouraged to start with the larger number.



- Once confident using a number line for addition, children should be taught to use their understanding of partitioning numbers and number bonds to bridge tens.

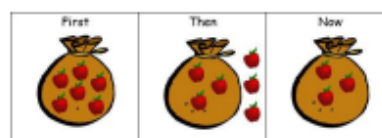


SUBTRACTION

National Curriculum Objectives: Subtraction objectives from Addition and Subtraction Strand	Key Skills/ other linked NC Objectives (Place Value)	Key Vocabulary
- Read, Write and interpret mathematical symbols involving subtraction (-) and equals (=) signs. - Represent and use related subtraction facts within 20. - Subtract one-digit and two-digit numbers to within 20, including 0 - Solve one step problems that involve subtraction, using concrete objects and pictorial representations and missing number problems.	- Count backwards from and across 100, beginning from any given number. - Count, read and write numbers to 100 in numerals. - Given a number, identify one less. - Identify and represent numbers using objects and pictorial representations including the number line. - Read and write numbers from 1-20 in numerals and words.	Subtraction, subtract, take away, minus Halve, half, Difference, distance between Less, least, few, fewest

Children should:

- Have access to a wide range of counting equipment, everyday objects, number tracks and number lines, and be shown numbers in different contexts.
- Consolidate their understanding of subtraction practically, showing subtraction on bead strings, using cubes etc. They should then use practical resources alongside pictures to make the link between concrete and pictorial representations.



- Read and write the subtraction (-) and equals (=) signs within number sentences. Specific learning should continue, through exploration of number and use of practical resources, around the equals sign, ensuring children understand it's role within a number sentence and that it does not always just indicate where the answer goes.
- Interpret addition number sentences and solve missing box problems, using concrete objects and number line subtraction to solve them: $8 - 3 = \square$ $15 - \square = 10$ and $9 = 14 - \square$
- Be introduced to finding the difference. This will be introduced practically, using the language 'find the distance between' and 'How many more?'



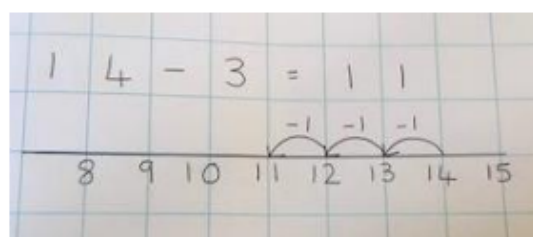
7 is 3 more than 4

Mental Methods- The children should be taught to use the following mental strategies, and to use jottings to support their methods:

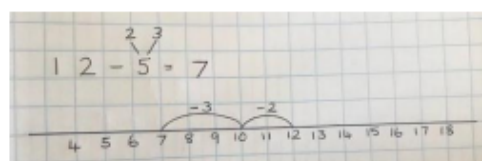
- Count back in ones
- Find one less than a number
- Find 10 less than a multiple of 10
- Take away a small number by counting back
- Find a small difference by counting on (using equipment)
- Begin to bridge through 10 when subtracting a one-digit number
- Start to recall subtraction facts up to and within 10 and 20 and understand subtracting 0.

Written Methods: Building on the prior learning, and exploration of number outlined above, children should

Use numbered number lines to subtract, by counting back in ones, marking the jumps on a number line or number track



Once confident using a number line for subtraction, children should be taught to use their understanding of partitioning numbers and number bonds to bridge tens.



MULTIPLICATION

National Curriculum Objectives: Multiplication objectives from Multiplication and Division Strand	Key Skills/ other linked NC Objectives (Place Value)	Key Vocabulary
Solve one-step problems involving multiplication, by calculating the answer using concrete objects, pictorial representations and arrays, with support from the teacher.	Count in multiple of 2, 5 and 10.	groups of, lots of, sets of times, altogether, multiply, count,

Children should:

- Begin to understand multiplication by multiplying with concrete objects, arrays and pictorial representations.
- Experience counting equal groups of objects in 2s, 5s and 10s.
- Experience practical problem-solving activities in various contexts.
- Make connections between concrete resources and pictorial representations, number patterns, arrays and counting in 2, 5 and 10s.
- Be given the opportunity to explore and understand the vocabulary of early multiplication e.g. lots of, how many altogether etc.

Mental Methods

- Counting in multiples of 2, 5, and 10s.
- Spotting number patterns when counting in 2, 5 and 10s.
- Repeated addition
- Links to doubling
- Use of arrays

How many legs will 5 children have?



$$2 + 2 + 2 + 2 + 2$$



There are _ groups of _ flowers.

There are _ flowers in total.

DIVISION

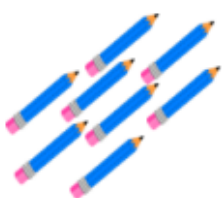
National Curriculum Objectives: Division objectives from Multiplication and Division Strand	Key Skills/ other linked NC Objectives (Place Value)	Key Vocabulary
Solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays, with support from the teacher.	Counting in 2s, 5s and 10s	share, share equally, one each, two each..., group, groups of, lots of, array

Children should:

- Be given lots of opportunity to explore division as both grouping and sharing, using practical resources and pictorial representations to solve simple problems.
- Be taught to understanding the difference between grouping objects (How many groups of 2 can you make?) and sharing objects (Share these sweets between two people).
- Be taught to find half of a group of objects by sharing into 2 equal groups.
- Children should be taught to interpret and use pictures to support their grouping and sharing, alongside the use of practical objects and resources.

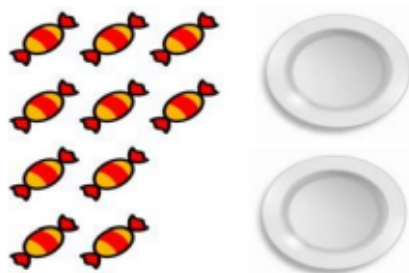
Mental Methods:

- Counting in twos, fives and tens
- Links to halving
- Use arrays
- Through grouping and sharing small quantities, children will begin to understand division and finding simple fractions of objects, numbers and quantities:



How many equal groups of 2 can you make with the Pencils? _

If you had 12 pencils, how many groups of 2 would you be able to make?



Share the sweets equally between the two plates.

___ sweets shared equally between 2 is ___.