Christleton Primary School

Maths in EYFS, Year 1 and Year 2

Welcome

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Quality Standard Approved

"I was confident at primary school but at high school I didn't really get it".

"I'm fairly confident but I'm not sure how to teach my child".

How do our experiences with maths influence how we work with our children?

"I have never been good at maths".

"I am super confident with maths".

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Progression of mathematical concepts

abstract

pictorial

concrete

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Maths in EYFS

Cardinality and counting

Subitising numbers

Number lines/ number tracks

Number bonds to 5 and then 10

Patterns and simple symmetry

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ADDITION

Year 1

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

ADDITION

Year 2

National Curriculum Objectives: Addition objectives from Addition and Subtraction Strand	Key Skills/ other linked NC Objectives (Place Value)	Key Vocabulary
Solve problems with addition • Using concrete objects and pictorial representations, including those involving numbers, quantities and measures. • Apply their increasing knowledge of mental and written methods. Add numbers using concrete objects, pictorial representations and mentally: • Add two-digit numbers and ones. • Add two-digit numbers and tens. • Add two, two-digit numbers. • Add three one-digit numbers. • Recall and use addition facts up to 20 fluently and derive and use related facts up to 100. • Show that addition can be done in any order. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing box number problems.	• Count in steps of 2, 3 and 5 and count in tens from any number • Understand the place value of 2-digit numbers (tens, ones) • Compare and order numbers to 100 and use <, > and = signs. • Read and write numbers to at least 100 in numerals and words. • Identify, represent and estimate numbers using different representations, including the number line.	Addition, add, altogether, put together, sum, and, plus, total Equals, equal to, makes more than, less than, fewer, most, least, double *N.B: Same vocabulary as Year 1, to be consolidated and extended in different contexts.*

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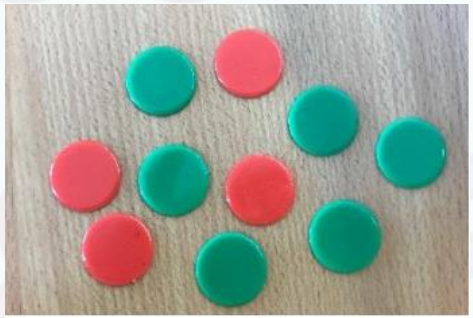
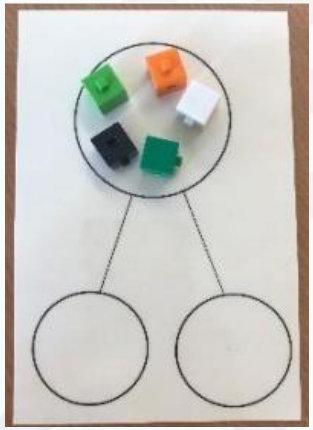
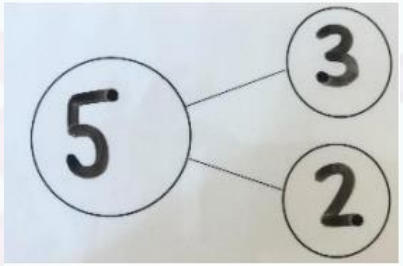
Year 1

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).







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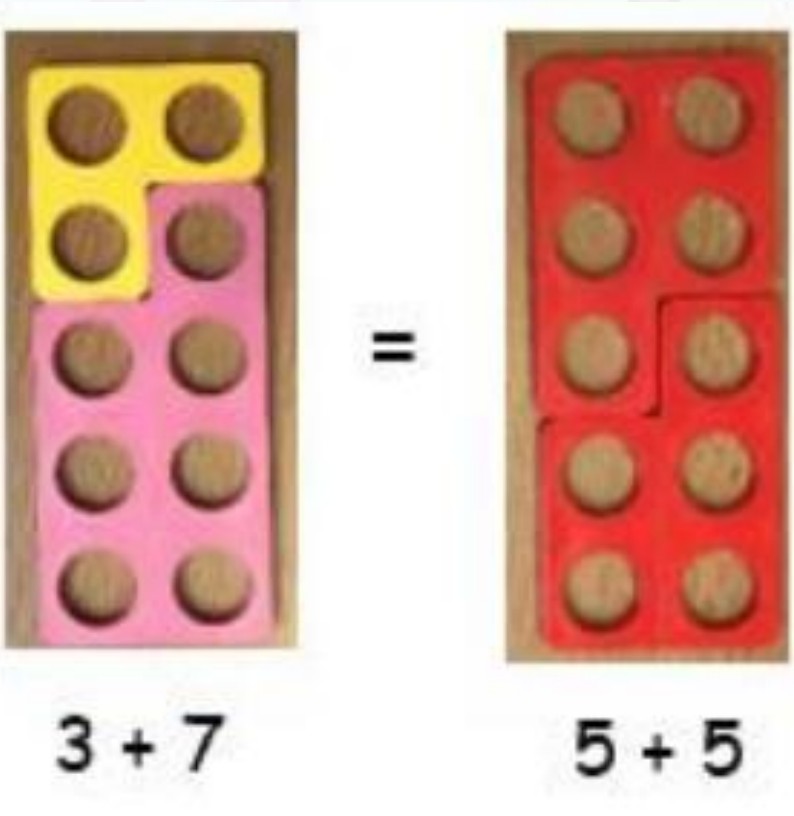
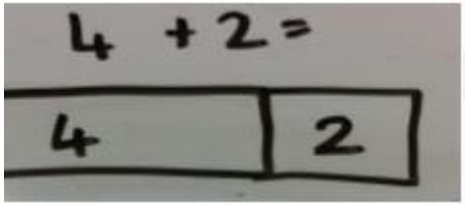
Read and write the addition (+) and equals (=) signs within number sentences.





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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)

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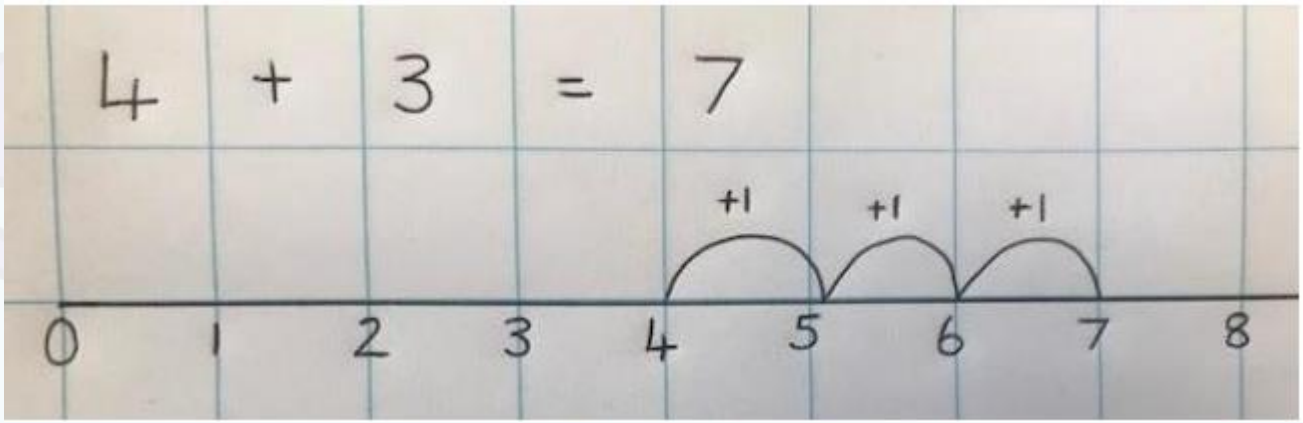
Written Methods

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

Step 1 - Use numbered number lines to add, by counting on in ones. Children should be encouraged to start with the larger number.



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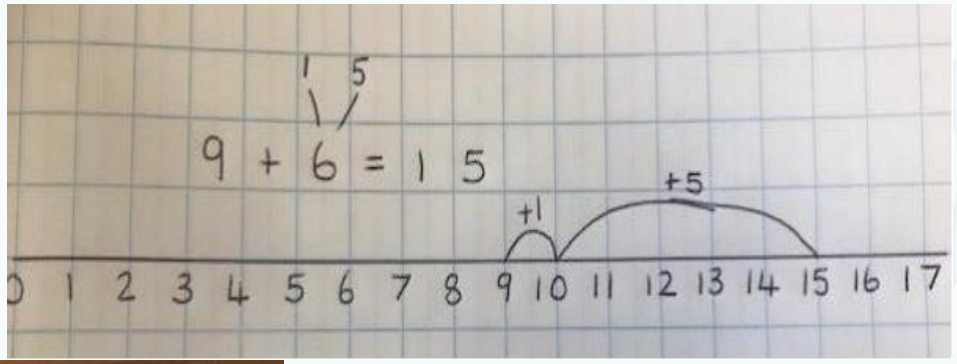
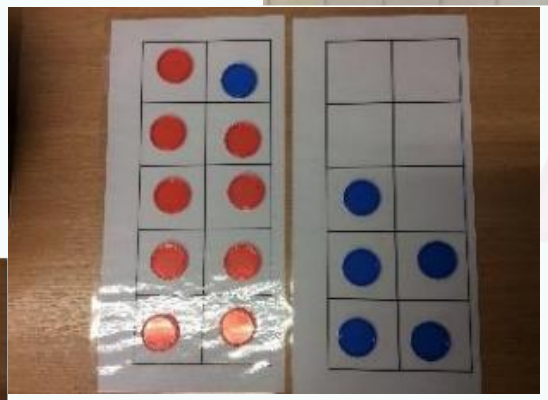
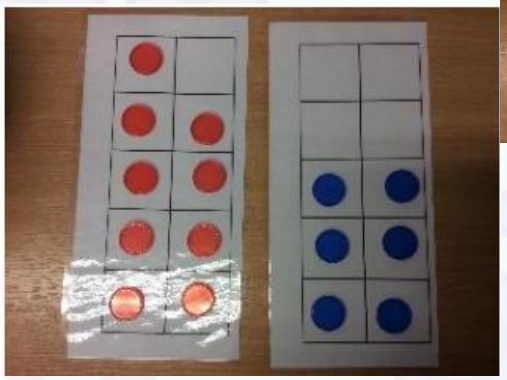
Step 2 - Once confident using a number line for addition. Children should be taught to use their understanding of partitioning numbers and number bonds to bridge tens.







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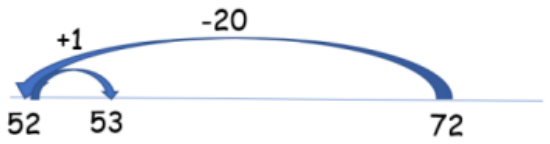
Year 2

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

- Reordering numbers when adding
- Count on in tens or ones
- Using knowledge of pairs making 10 and place value
- Compensating: add 9, 19, 11 or 21
- Compensating: doubling and adjusting.
- Partitioning: Bridge through 10 when adding.
- Partition and combine multiples of tens and ones.
- Looking for number bonds/known facts when adding 3 one-digit numbers.



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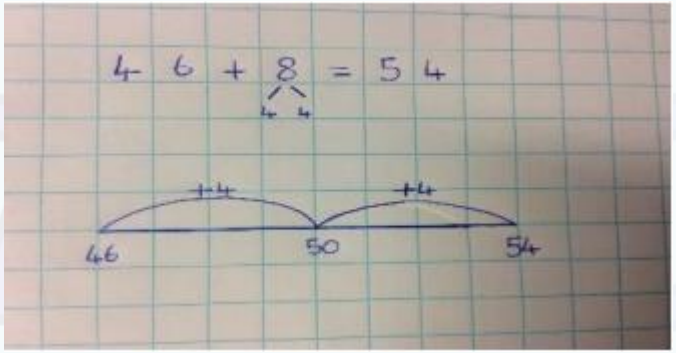
Year 2

Written methods

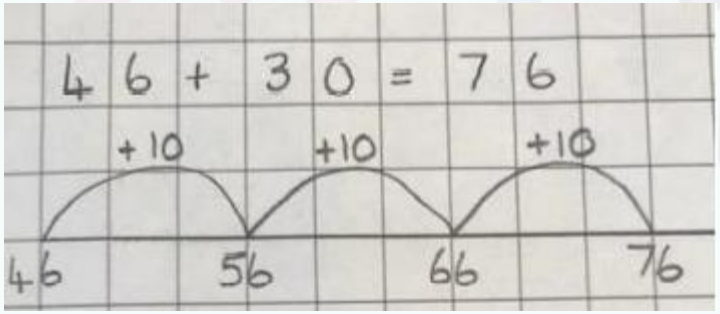
Step 1: Add two-digit numbers and ones

Children consolidate and extend their learning from year 1.



Step 2: Adding tens to a two-digit number

Children build on their previous learning and progress from adding one-digit numbers to adding multiples of 10.



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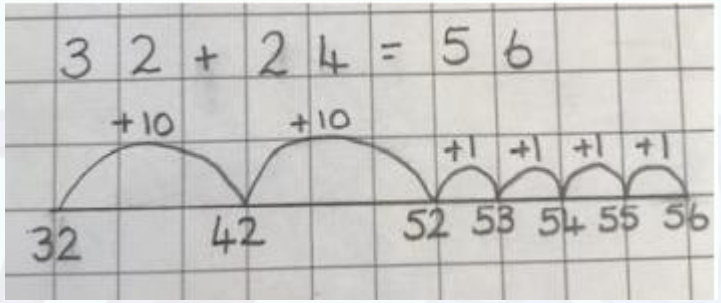
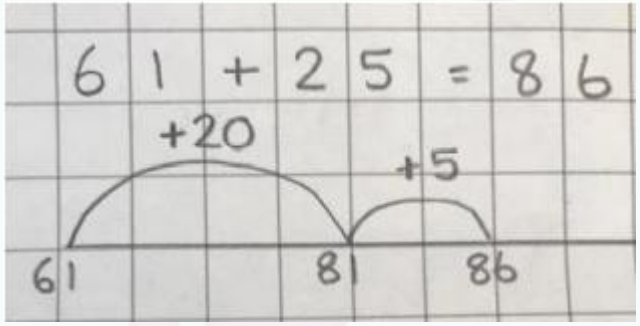
Step 3: Adding two, two-digit numbers

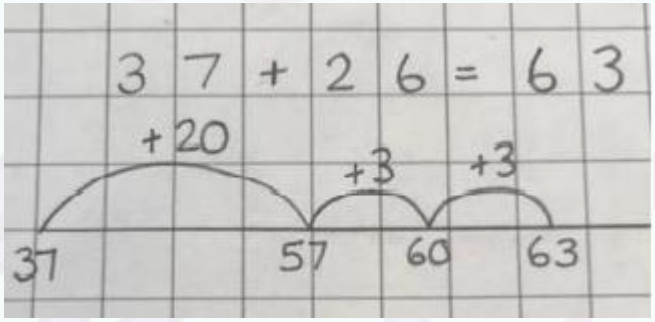
Once confident with the above, and using their ability to partition two-digit numbers into tens and ones, children add two two-digit numbers on a number line.



Step 4: Using number lines efficiently

Children build on their previous learning and progress from adding one-digit numbers to adding multiples of 10.





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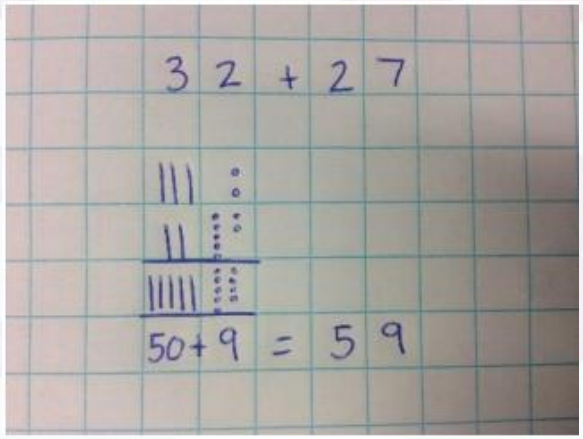
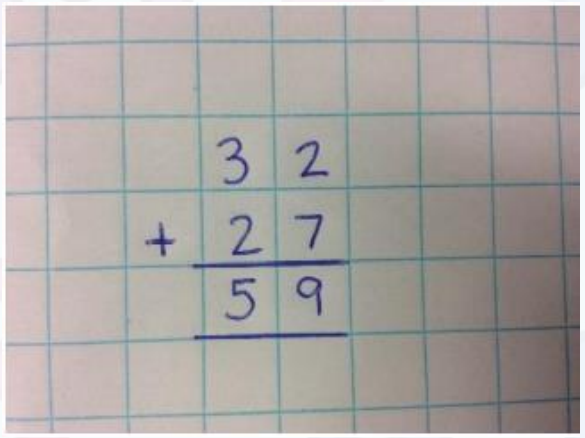
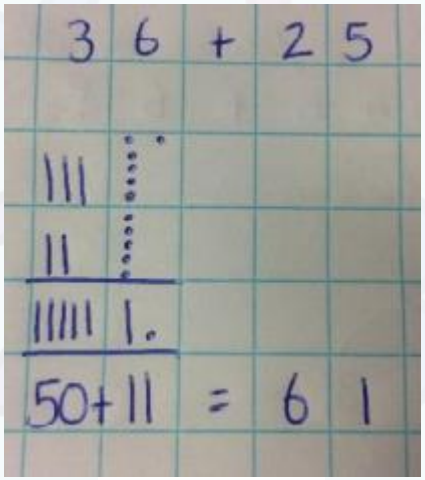
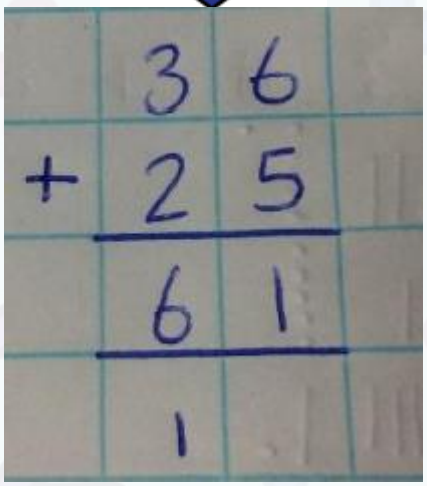
Step 5: Partitioned Column Method (Year 2 if appropriate and Year 3)









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SUBTRACTION

Year 1

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, fewer, fewest

SUBTRACTION

Year 2

National Curriculum Objectives: Subtraction objectives from Addition and Subtraction Strand	Key Skills/ other linked NC Objectives (Place Value)	Key Vocabulary
Solve problems with subtraction • Using concrete objects and pictorial representations, including those involving numbers, quantities and measures. • Apply their increasing knowledge of mental and written methods. Subtract numbers using concrete objects, pictorial representations and mentally: • Subtract two-digit numbers and ones. • Subtract two-digit numbers and tens. • Subtract two, two-digit numbers. • Recall and use subtraction facts within 20 fluently and derive and use related facts up to 100. • Show that subtraction cannot be done in any order. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing box number problems.	• Count in steps of 2, 3 and 5 and count in tens from any number • Understand the place value of 2-digit numbers (tens, ones) • Compare and order numbers to 100 and use <, > and = signs. • Read and write numbers to at least 100 in numerals and words. • Identify, represent and estimate numbers using different representations, including the number line.	Subtraction, subtract, take away, minus Halve, half, Difference, distance between Less, least, few, fewest, fewer *N.B: Same vocabulary as Year 1, to be consolidated and extended in different contexts.*

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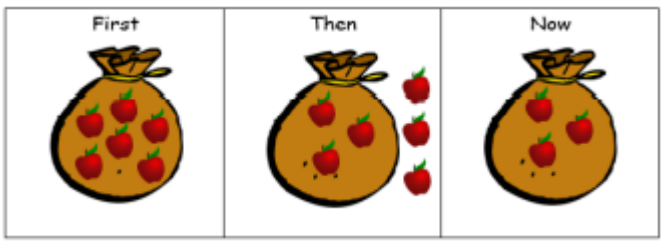
Year 1

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.



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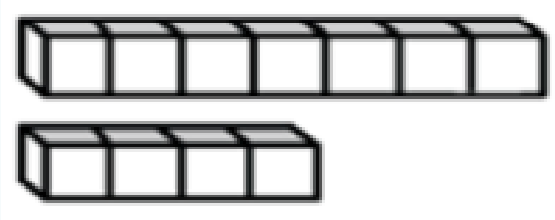
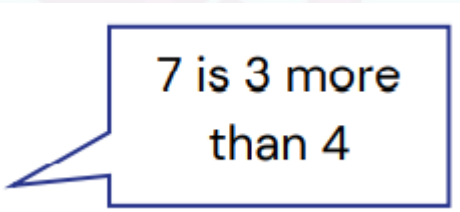
Read and write the subtraction (-) and equals (=) signs within number sentences.

Interpret addition number sentences and solve missing box problems, using concrete objects and number line subtraction to solve them.

Be introduced to finding the difference. This will be introduced practically, using the language 'find the distance between' and 'How many more?'





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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.

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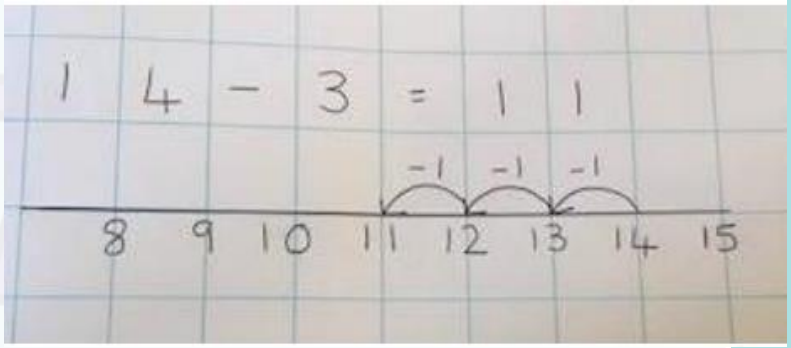
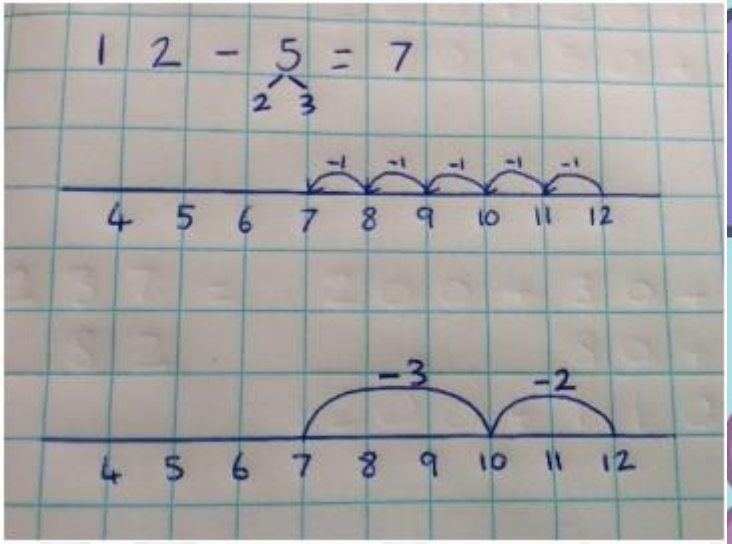
Written Methods

Step 1 Use numbered number lines to subtract
Counting back in ones, marking the jumps on a number line or number track



Step 2 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.



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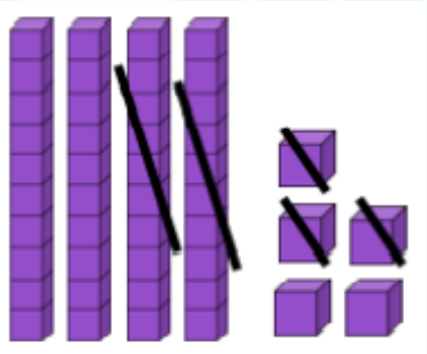
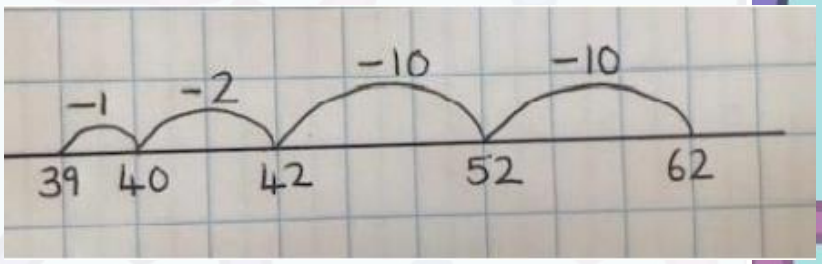
Year 2

Continue to 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.





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Mental Methods:

- Counting back in tens and ones.
- Subtract mentally a 'near multiple of 10' by subtracting and adjusting
- Subtract a small number by counting back.
- Find a small difference by counting up from the smaller to the larger number (on a number line)
- Recalling subtraction facts for numbers to 20 and using these to derive the related facts up to 100.
- Subtract by partitioning the second number and subtracting tens then ones.
- Use patterns of similar calculations.

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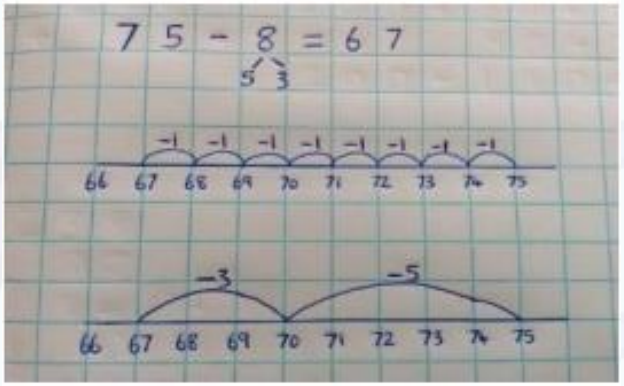
Written Methods

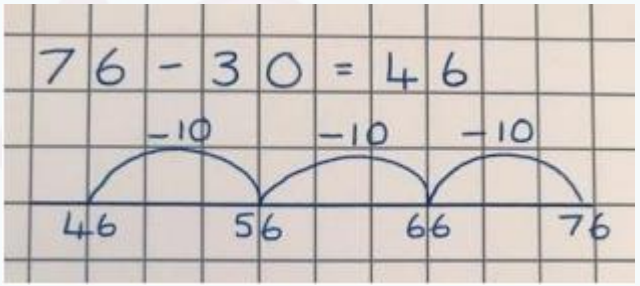
Step 1: Subtracting ones from a two-digit number

Children consolidate and extend their learning from Year 1 and extend to larger 2-digit numbers



Step 2: Subtracting two-digit numbers and tens

Children build on their previous learning and progress from subtracting one-digit numbers to subtracting multiples of 10



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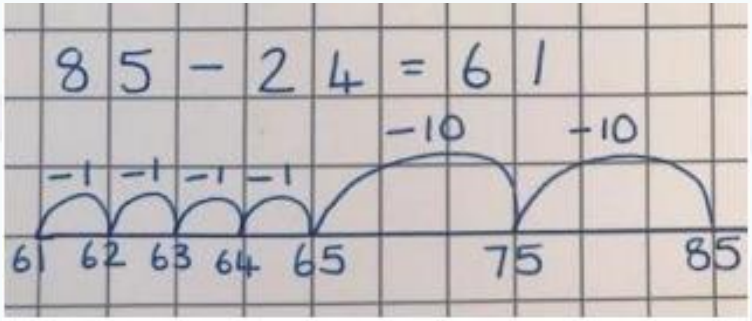
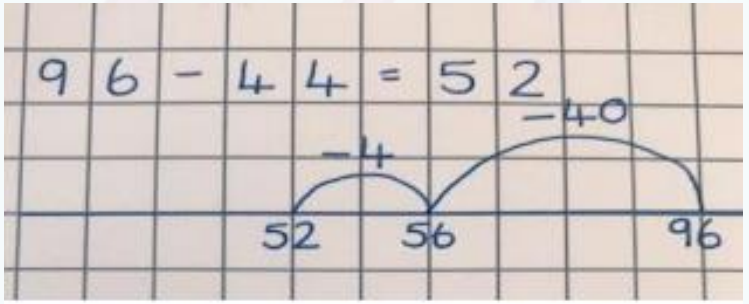
Step 3: Subtracting two, two-digit numbers

Once confident with the above, and using their ability to partition two-digit numbers into tens and ones, children subtract a two-digit number from a larger two-digit number on a number line.



Step 4: More efficient methods for subtraction.

When children are showing a secure understanding of the above steps, they should be taught to use number lines to calculate in the most efficient way. This will include partitioning numbers to bridge tens, as in the second example.



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MULTIPLICATION

Year 1

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,

MULTIPLICATION

Year 2

National Curriculum Objectives: Multiplication objectives from Multiplication and Division Strand	Key Skills/ other linked NC Objectives (Place Value)	Key Vocabulary
• Recall and use multiplication facts for the 2, 5 and 10 times tables. • Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication signs and equals signs. • Show that the multiplication of two numbers can be done in any order. • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication facts, including problems in context.	• Recognise odd and even numbers. • Count in steps of 2,3 and 5 from zero and in 10s from any number.	*Year 1 vocab plus* Array, multiplied by, repeated addition, Two times, three times, five times, ten times

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Year 1

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.

How many legs will 5 children have?

2 + 2 + 2 + 2 + 2

There are _ groups of _ flowers.

There are _ flowers altogether.

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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

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Year 2

Children should:

Develop their understanding of multiplication through the use of practical resources and pictorial representations.

Multiply using arrays and repeated addition.

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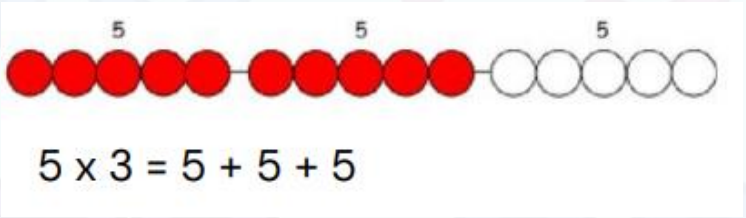
Written Methods

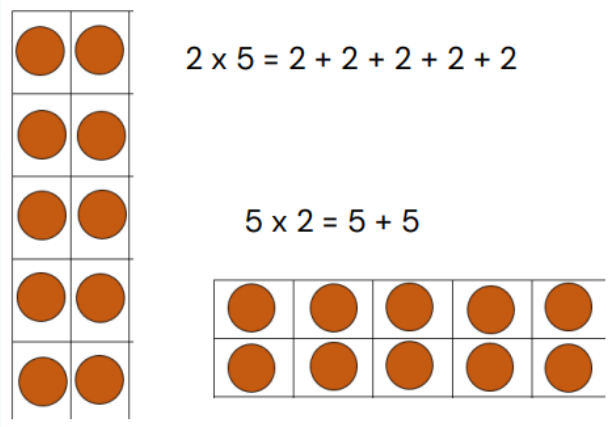
Step 1: Practical Apparatus

Children continue to explore multiplication through use of real-life problems using a range of practical equipment.



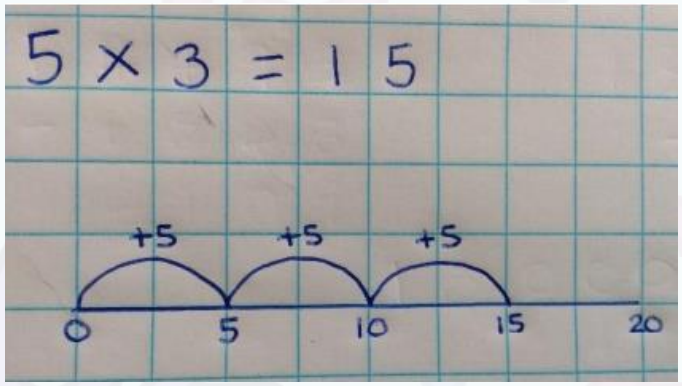
Step 2: Arrays

Use arrays to help teach the children that multiplication can be done in any order and explore examples such as 2 x ... = 10



Step 3: Repeated Addition on a number line.

Children start from 0 and make equal jumps on a number line in order to work our multiplication facts and write multiplication statements using x and = symbols.



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DIVISION

Year 1

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

DIVISION

Year 2

National Curriculum Objectives: Division objectives from Multiplication and Division Strand	Key Skills/ other linked NC Objectives (Place Value)	Key Vocabulary
• Recall and use division facts for the 2, 5 and 10 times tables. • Calculate mathematical statements for division within the multiplication tables and write them using the multiplication signs and equals signs. • Show that the division of two numbers cannot be done in any order. • Solve problems involving division, using materials, arrays, repeated addition, mental methods and multiplication facts, including problems in context.	• Counting in 2s, 5s, 10s and 3s.	*Year 1 vocabulary plus:* Division, divided by, shared by, Grouping, sharing, left, left over

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Year 1

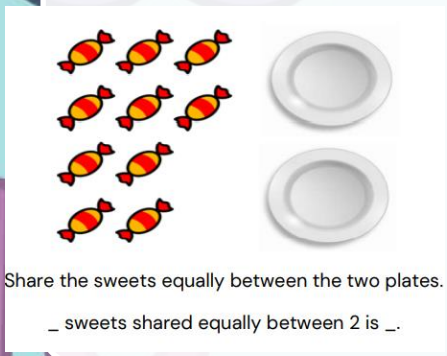
Children should:

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).

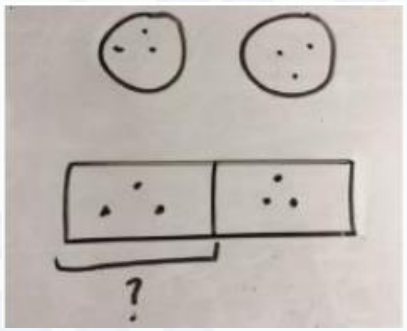
Be taught to find half of a group of objects by sharing into 2 equal groups.

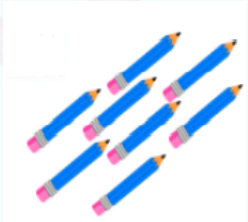
Children should be taught to interpret and use pictures to support their grouping and sharing, alongside the use of practical objects and resources.



Share the sweets equally between the two plates.

_ sweets shared equally between 2 is _.





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

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

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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:

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Year 2

Children should:

Have plenty of opportunities to use objects, arrays and pictorial representations to group and share.

Develop their understanding of the divide and equals signs through recording their practical activities and exploration.

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Mental Methods:

- Counting in 2s, 5s, 10s and 3s
- Links to arrays
- Recalling the division facts for the 2 ,5 and 10 times tables
- Using knowledge that halving is in the inverse of doubling and the same as dividing by 2.
- Use known facts and place value to divide.

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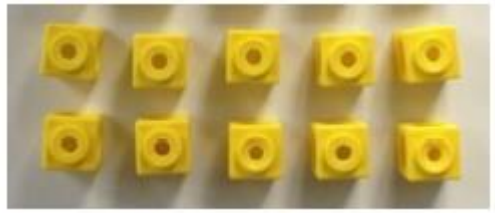
Written Methods

Step 1: Understanding Arrays and the link between multiplication and division.

Children should be taught to interpret arrays and use these to understand the link between multiplication and division. For example, by being able to generate the 4 linked multiplication and division sentences.



$10 \div 2 = 5$ $2 \times 5 = 10$

$10 \div 5 = 2$ $5 \times 2 = 10$

Step 2: Practical problem solving with a focus on recognising grouping and sharing.

Children should be given the opportunity to recap their practical work on sharing and grouping, with a focus on understanding the difference and being taught to recognise whether problems involve grouping or sharing.

Sam has 20 sweets, which she shares equally between 5 friends. How many will each friend get?

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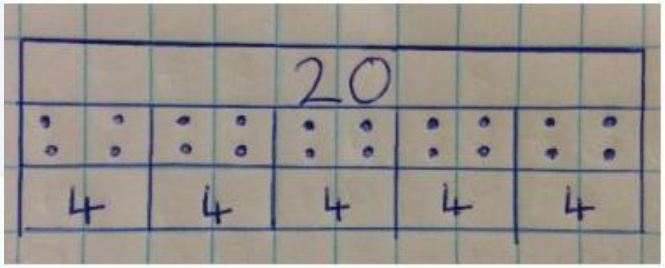
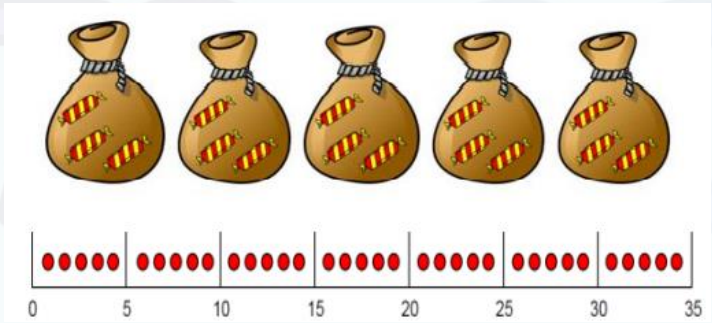
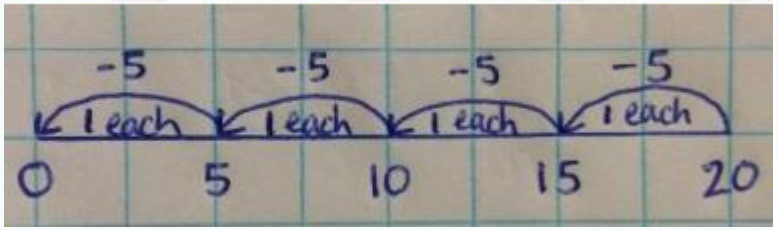
Children can use pictures or shapes to divide quantities and start to record the division number sentence alongside these.



Children to experience grouping in various different contexts, to ensure they are confident with the concept before looking at grouping using a number line



Step 3: Subtracting groups of a number, using a Number line. Children use a number line, by jumping back equal amounts to find out for example, how many groups of 5 there are in 20, as a response to questions such as: I have 20 sweets, I share them between 5 children. How many sweets do they have each?



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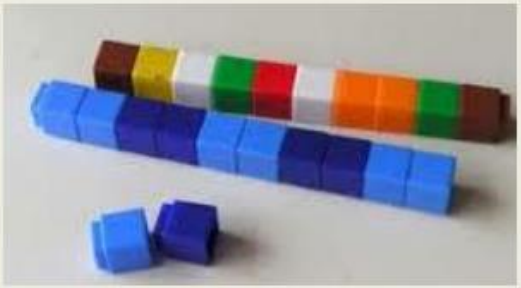
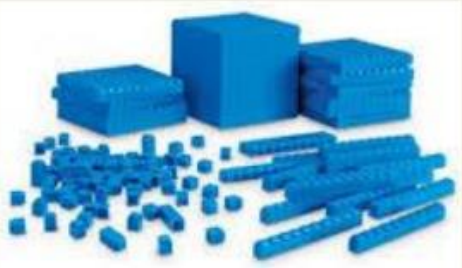
Resources

Number square

Unifix/multilink sticks 

Counters

Place value cards

Deines 

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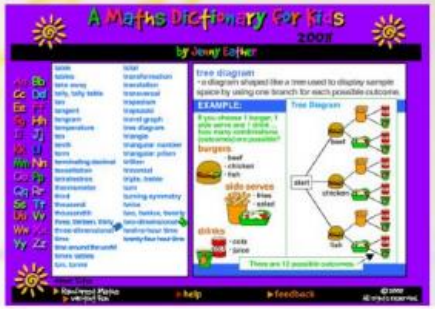
Useful websites

www.bbc.co.uk/bitesize/ks1/maths



http://amathsdictionaryforkids.com/

www.mathsisfun.com

http://games.e4education.co.uk

www.ictgames.co.uk

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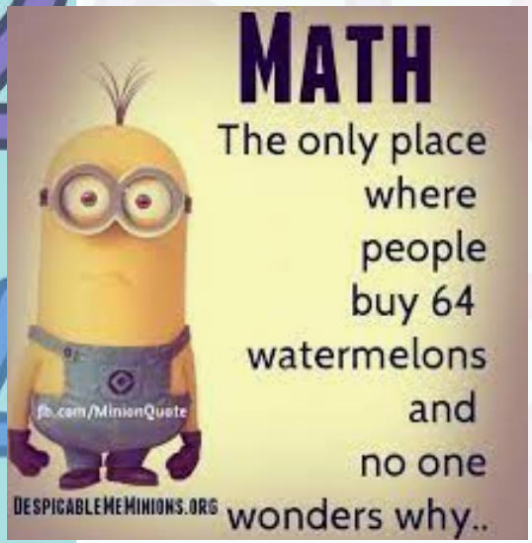
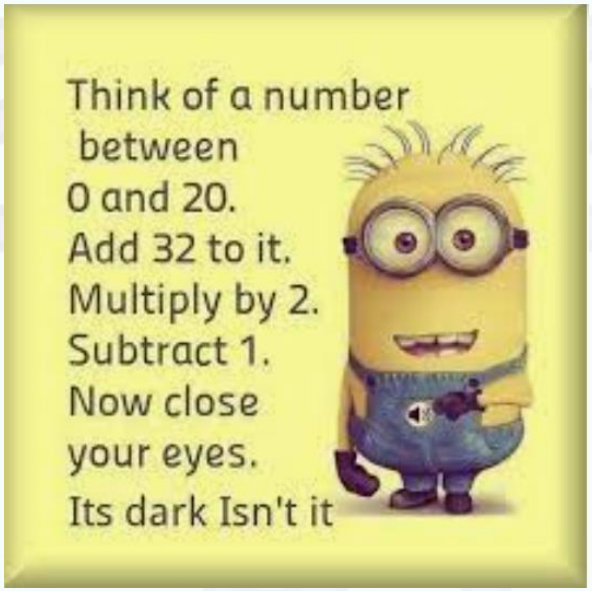
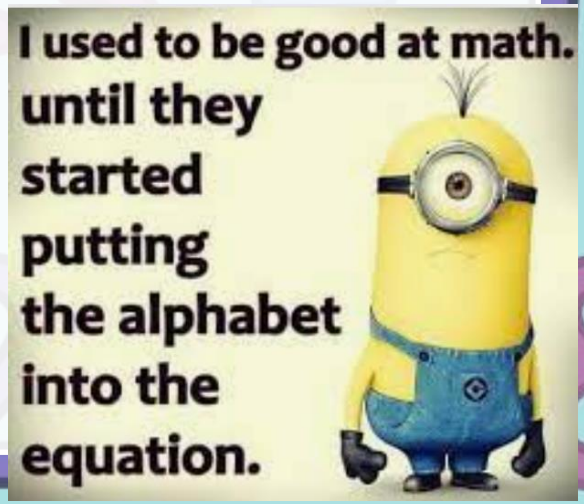
Thank you for coming







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26 + 60 10 + 57
40 23 - 72 30
35 - 38 43 +
18 - 54 62 +
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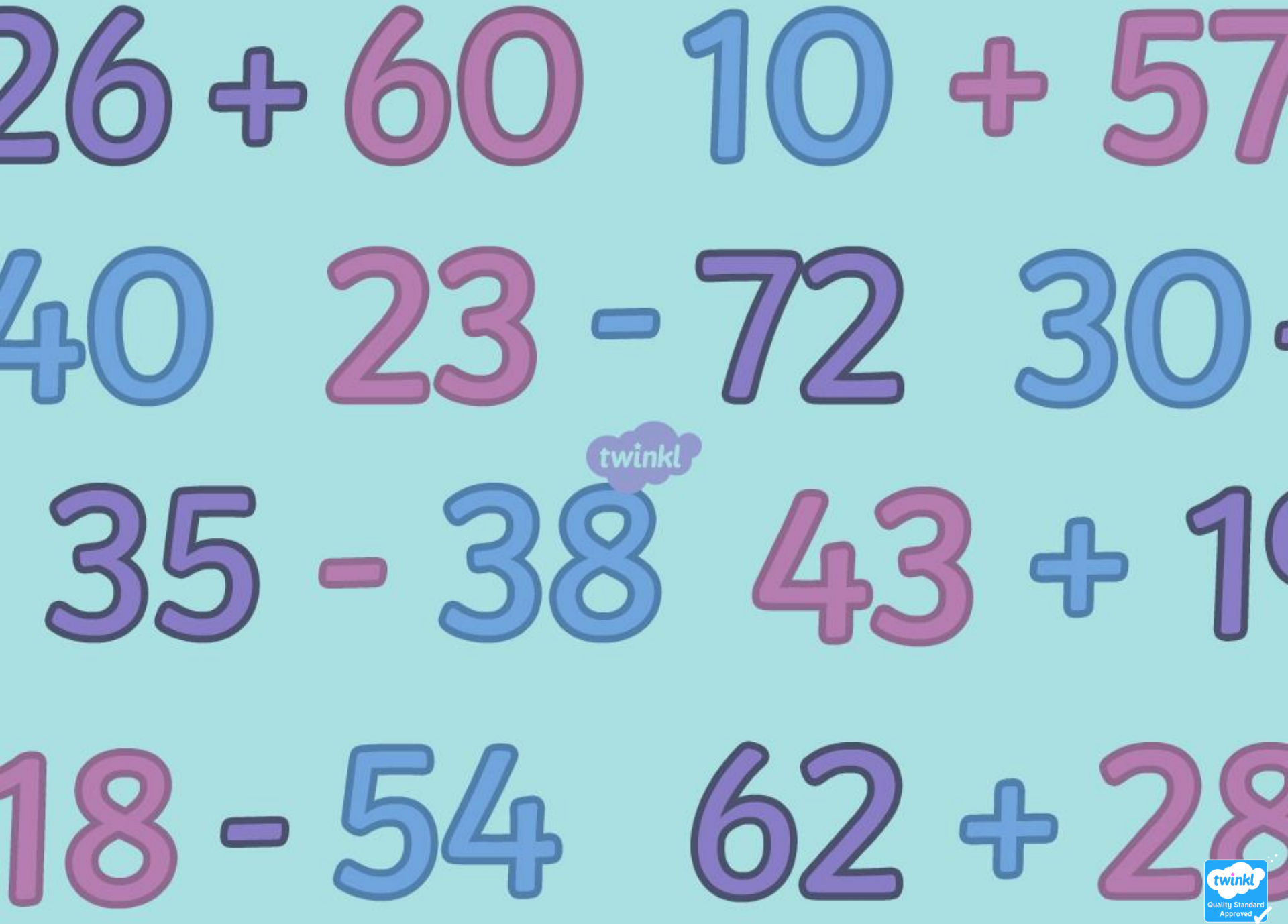
26 + 60
10 + 57
40
23 - 72
30
35 - 38
43 + 1
18 - 54
62 + 28