



MELDRETH
Primary School

About our Calculation Policy

The following calculation policy has been devised to meet requirements of the National Curriculum 2014 for the teaching and learning of mathematics, and is also designed to give pupils a consistent and smooth progression of learning in calculations across the school. Please note that early learning in number and calculation in Reception follows the 'Development Matters' EYFS document, and this calculation policy is designed to build on progressively from the content and methods established in the Early Years Foundation Stage.

Age stage expectations

The calculation policy is organised according to age stage expectations as set out in the National Curriculum 2014. However it is vital that pupils are taught according to the stage that they are currently working at, being moved onto the next level when they are ready or working at a lower stage until they are secure enough to move on.

Providing a context for calculation

It is important that any type of calculation is given a real life context or problem solving approach to help build children's understanding of the purpose of calculation, and to help them recognise when to use certain operations and methods when faced with problems. This is a priority within calculation lessons.

Choosing a calculation method

Children need to be taught and encouraged to use the following processes in deciding what approach they will take to a calculation, to ensure they select the most appropriate method for the numbers involved...

Can I do it in my head?

Could I use some jottings to help me?

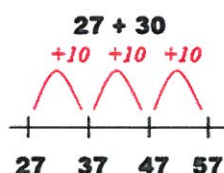
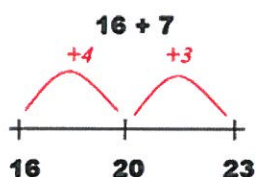
Should I use a written method to work it out?

Addition

Year 2 Add with 2-digit numbers Developing mental fluency with addition and place value involving 2-digit numbers, then establish more formal methods.

Use empty number lines, concrete equipment, hundred squares etc. to build confidence and fluency in mental addition skills

Add 2-digit numbers and tens:



Add 2-digit numbers and units:

Add pairs of 2-digit numbers, moving to the partitioned column method when secure adding tens and units:

5	0	+	8	
4	0	+	3	
9	0	+	1	1
			=	101

Key skills for addition at Y2:

- Add a 2-digit number and ones (e.g. $27 + 6$)
- Add a 2-digit number and tens (e.g. $23 + 40$)
- Add pairs of 2-digit numbers (e.g. $35 + 47$)
- Add three single-digit numbers (e.g. $5 + 9 + 7$)
- Show that adding can be done in any order (the commutative law).
- Recall number bonds to 20 and bonds of tens to 100
- Count in steps of 2, 3, 5 and tens from any number.
- Understand the place value of 2-digit numbers (tens and ones)
- Compare and order numbers to 100 using $<$ $>$ and $=$ signs.
- Read and write numbers to at least 100 in numerals and words.
- Solve problems with addition, using concrete objects, pictorial representations, involving numbers,

2	0	+	3	
+	3	0	+	4
5	0	+	7	
			=	57

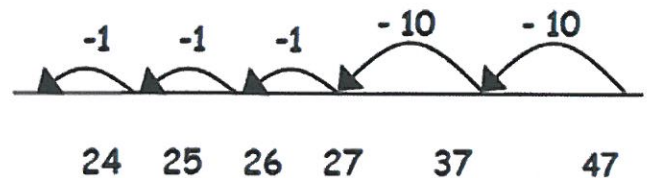
Key vocabulary: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary

Subtraction

Year 2 Subtract with 2-digit numbers Subtract on a number line by **counting back**, aiming to develop mental subtraction skills.

Subtracting pairs of 2-digit numbers on a number line

Partitioning the second number and subtracting it first in tens and units: $47 - 23 = 24$, then in more efficient way.



Mental strategy - subtract numbers close together by counting on: Children are taught to recognise that when numbers are close together, it is more efficient to **count on** the difference. They need to be clear about the relationship between addition and subtraction.

Key skills for subtraction at Y2:

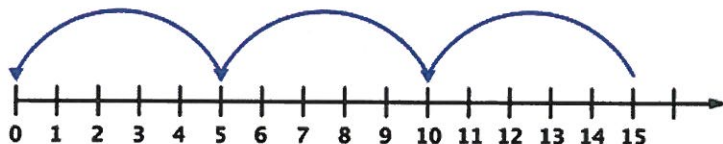
- Recognise the place value of each digit in a two-digit number.
- Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100.
- Subtract using concrete objects, pictures and mentally, including: a two-digit number and ones, a two-digit number and tens, and two two-digit numbers.
- Show that subtraction of one number from another cannot be done in any order.
- Recognise and use inverse relationship between addition and subtraction, using this to check calculations and missing number problems.
- Solve simple subtraction problems including measures, using concrete objects, pictorial representation, and also applying their increasing knowledge of mental and written methods.
- Read and write numbers to at least 100 in numerals and in words.

Key vocabulary: equal to, take, take away, less, minus, subtract, leaves, difference, distance between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is_? **count on, strategy, partition, tens, units**

Multiplication

Year 2 Multiply using arrays and repeated addition (using at least 2s, 5s and 10s)

Repeated addition on a number line



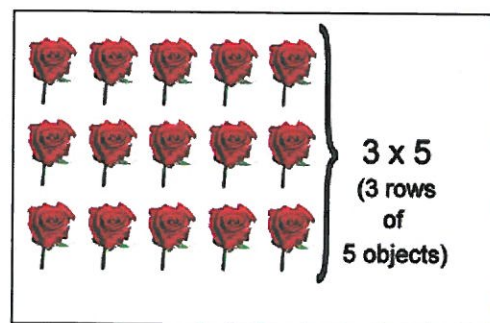
Starting from 0 make equal jumps on a numberline to work out multiplication facts.

Write multiplication statements such as $3 \times 5 = 15$

Use arrays to explore commutativity

$$5 \times 3 = 3 + 3 + 3 + 3 + 3 = 15$$

$$3 \times 5 = 5 + 5 + 5 = 15$$



Mental strategy – children should

begin to recall multiplication facts for

2, 5 and 10 times tables through practice in counting and understanding the operation.

Key skills for multiplication at Y2:

- Count in steps of 2, 3 and 5 from zero, and in 10s from any number.
- Recall and use multiplication facts from the **2, 5 and 10** multiplication tables, including recognising odds and evens.
- Write and calculate number statements using the x and = signs.
- Show that multiplication can be done in any order (commutative).
- Solve a range of problems involving multiplication, using concrete objects, arrays, repeated addition, mental methods, and multiplication facts.
- Use a variety of language to discuss and describe multiplication.

Key vocabulary: groups of, lots of, times, altogether, multiply, count, array, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times..., inverse

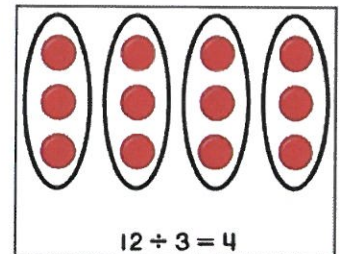
Division

Year 2 Group and share, using the \div and $=$ sign

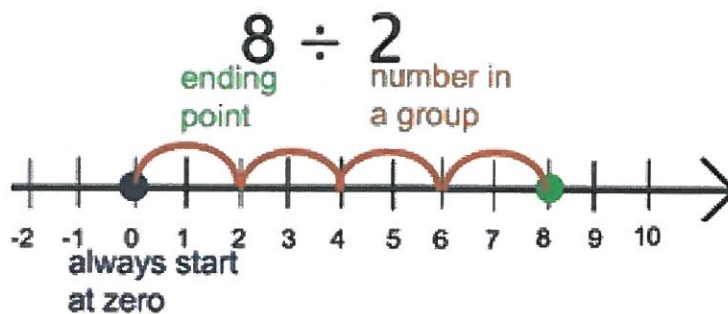
Use objects, arrays, diagrams and pictorial representations, and grouping on a number line.

Arrays This represents $12 \div 3$, posed as how many groups of 3 are in 12?

Pupils should also show that the same array can represent $12 \div 4 = 3$ if grouped horizontally.



Grouping using a numberline



Key skills for division at Y2:

- Count in steps of 2, 3, and 5 from 0
- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the \times , \div and $=$ signs.
- Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.
- Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Key vocabulary: share, share equally, one each, two each..., group, equal groups of, lots of