St Margaret Clitherow's Catholic Voluntary Primary Academy

Y4 Maths

Calculation Expectations

This booklet will explain how addition, subtraction, multiplication and division are taught in Year 4.

The methods explained are the 'end of year expectation' that children will be taught throughout the year. For those children who are still developing their understanding of the four calculations, they will practise methods from the previous year group. When children are ready, they will begin to practise the expected method.

If you have any further questions, please contact your child's class teacher.

Overview of calculation methods for Year 4

End of year expectations

Addition (+)

- Compact column method

Subtraction (-)

- Compact column method

Multiplication (x)

- Short multiplication

Division (÷)

- Short division

Addition

Year 4

Addition in Year 4

Key Vocabulary

*add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, plus, addition, column, tens boundary, hundreds boundary, increase, vertical, compact „carry", **thousands, hundreds,** expanded, **digits, inverse***

Key skills for addition at Year 4

- Select most appropriate method: mental, jottings or written and explain why.
- Recognise the place value of each digit in a four-digit number.
- Round any number to the nearest 10, 100 or 1000.
- Estimate and use inverse operations to check answers.
- Solve 2-step problems in context, deciding which operations and methods to use and why.
- Find 1000 more or less than a given number.
- Continue to practise a wide range of mental addition strategies, i.e. number bonds, add the nearest multiple of 10, 100, 1000 and adjust, use near doubles, partitioning and recombining.
- Add numbers with up to 4 digits using the formal written method of column addition
- Solve 2-step problems in contexts, deciding which operations and methods to use and why.
- Estimate and use inverse operations to check answers to a calculation.

Addition

Year 4

POS – Add numbers with up to 4-digits.

Children must be able to recognise the value of th, h, t and u without partitioning. Use and apply the compact column addition method to money and measurement values.

Key Vocabulary

*add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, plus, addition, column, tens boundary, hundreds boundary, increase, vertical, compact, „carry", **thousands, hundreds,** expanded, **digits, inverse***

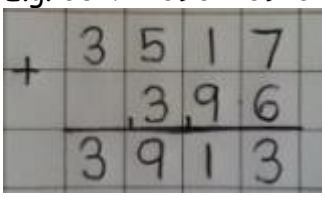
Notes:

For those children who aren't secure with understanding place value, they may need to use the expanded column method as modelled in the Year 3 strategies.

End of year expectation

Add numbers with up to 4-digits using the **compact column** method.

E.g. 3517 + 396 = 3913

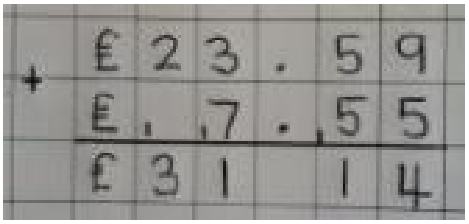


Reinforce correct place value. The actual value is 500 + 300, not 5 + 3.

Steps to success

-add the units
- add the tens
- add the hundreds
- add the thousands
- **carry 'on the doorstep'**

Solve simple addition involving decimals to two decimals places.



Reinforce correct place value of each digit.

Steps to success

- add the hundredths
- add the tenths
- add the units
- add the tens
- **carry 'on the doorstep'**

Subtraction

Year 4

Subtraction in Year 4

Key Vocabulary

equal to, take, take away, less, minus, subtract, leaves, difference between, how many more, how many fewer / less than, most, least, count back , how many left, how much less is_? difference, count on, strategy, partition, tens, units exchange, decrease, hundreds, value, digit, ***inverse, value, digit***

Key skills for subtraction at Year 4

- Subtract by counting on where numbers are close together or they are near to multiples of 10, 100 etc.
- Children select the most appropriate and efficient methods for given subtraction calculations.
- Estimate and use inverse operations to check answers.
- Solve addition and subtraction 2-step problems, choosing which operations and methods to use and why.
- Solve simple measure and money problems involving fractions and decimals to two decimal places.
- Find 1000 more or less than a given number.
- Count backwards through zero, including negative numbers.
- Recognise place value of each digit in a 4-digit number Round any number to the nearest 10, 100 or 1000
- Solve number and practical problems that involve the above, with increasingly large positive numbers.

Mental strategies

A variety of mental strategies must be taught and practised, including counting on to find the difference where numbers are closer together.

Subtraction

Year 4

POS – Subtracting with up to 4-digit numbers.

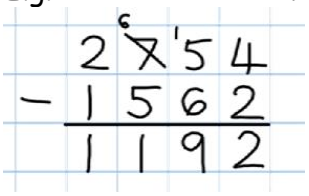
Allow children lots of opportunities to apply the partitioned column method or compact method to money and measures.

Key Vocabulary

equal to, take, take away, less, minus, subtract, leaves, difference between, how many more, how many fewer / less than, most, least, count back , how many left, how much less is_? difference, count on, strategy, partition, tens, units exchange, decrease, hundreds, value, digit, ***inverse, value, digit***

End of year expectation – Subtracting using the **compact column subtraction** method.

E.g. 2754 – 1562 = 1192



Give plenty of opportunities to apply this to money and measures.

Multiplication

Year 4

Multiplication in Year 4

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, array, column, row, commutative, groups of, sets of, lots of, equal groups, times, multiply, times as big as, once, twice, three times… partition, grid method, total, multiple, product, sets of, ***inverse***

Key skills for multiplication at Year 4

- Recognise place value of digits in up to 4-digit numbers
- Use place value, known facts and derived facts to multiply mentally, e.g. multiply by 1, 10, 100, by 0, or to multiply 3 numbers.
- Use commutativity (6 x 5 = 5 x 6), the associative law (2 x 6 x 5 = 6 x 10 10 x 6) and other strategies (39 x 7 = 30 x 7 + 9 x 7).
- Solve problems with increasingly complex multiplication in a range of contexts.
- Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and units)

Mental skills

Count in multiples of 6, 7, 9, 25 and 1000
Recall multiplication facts for **all multiplication tables up to 12 x 12.**

Multiplication

Year 4

POS – Multiply 2 and 3-digit numbers by a single digit.

Children should be able to:

- **Approximate before they calculate**, and make this a regular part of their calculating, going back to the approximation to check the reasonableness of their answer E.g. 346 x 9 is approximately 350 x 10
- Round any number to the nearest 10, 100 or 1000 and decimals with 1dp to the nearest whole number
- Multiply multiples of ten and one hundred by a single digit, using their multiplication table knowledge.
- Recall all times tables up to 12 x 12

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, array, column, row, commutative, groups of, sets of, lots of, equal groups, times, multiply, times as big as, once, twice, three times... partition, grid method, total, multiple, product, sets of, ***inverse***

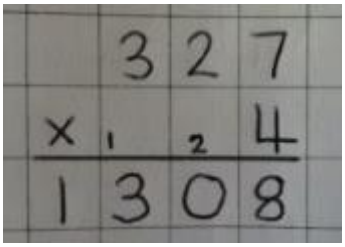
Emerging – Multiply 2 and 3-digits by a single number using the **grid method**.

E.g. 23 x 8 = 184

X	20	3
8	160	24

160 + 24 = 184

End of year expectation – Multiply 2 and 3-digits by a single number using the **short multiplication** method.



Steps to success:

- multiply the units
- multiply the tens
- multiply the hundreds

-carry 'on the doorstep'

-remember to add what you have carried over

Division

Year 4

Division in Year 4

Key Vocabulary

share, share equally, one each, two each…, group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, 'carry', remainder, multiple, ***divisible by, factor***

Key skills for division at Year 4

- Use place value, known and derived facts to multiply and divide mentally, including: multiplying and dividing by 10 and 100 and 1.
- Pupils practise to become fluent in the formal written method of short division with exact answers when dividing by a one-digit number
- Pupils practise mental methods and extend this to three-digit numbers to derive facts, for example 200 × 3 = 600 so 600 ÷ 3 = 200
- Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as three cakes shared equally between 10 children.

Mental skills

- Recall multiplication and division facts for all numbers up to 12 x 12.

Division

Year 4

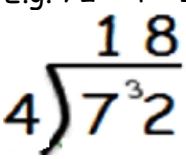
POS – Divide up to 3-digit numbers by a single digit (without remainders initially).

Note:
Short division should only be taught once children have secured the skill of calculating 'remainders'.

Key Vocabulary
share, share equally, one each, two each…, group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, 'carry', remainder, multiple, ***divisible by, factor***

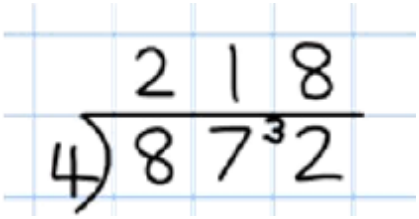
Emerging
Short division of 2-digit by a 1-digit (when numbers need to be carried within the calculation).

E.g. 72 ÷ 4 = 18



Children must be secure with the process of short division for diving 2-digit numbers by a single digit (those that do not result in a final remainder).

End of year expectation – Short division of 3-digit by a 1-digit (when numbers need to be carried within the calculation).



When the answer for the first column is zero, children could initially write a zero above to acknowledge its place and must always 'carry' the number over to the next digit as a remainder.

Short division of 3-digit by a 1-digit, including those with remainders.