

St. Michael's CE Junior School



Maths Booklet

Year 3



Year 3 National Curriculum Objectives

Addition and Subtraction

Objectives

- To add and subtract numbers with up to three digits using written columnar methods.
- To estimate an answer to a calculation.
- To use the inverse to check answers.
- To solve problems, involving missing numbers, place value and more complex addition and subtraction
- To add and subtract numbers mentally including: a three-digit and ones; a three-digit number and tens; a three-digit number and hundreds.

* Pupils practise solving varied addition and subtraction questions. For mental calculations with two-digit numbers, the answers could exceed 100.

*Pupils use their understanding of place value and partitioning, and practise using columnar addition and subtraction with increasingly large numbers up to three digits to become fluent.

Multiplication and Division

Objectives

- Recall and use multiplication and division facts for the 3, 4 and 8 times tables.
- Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including two- digit numbers times one- digit numbers, using mental and progressing to more formal written methods.
- Solve problems, including missing number problems involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

*Pupils continue to practise their mental recall of multiplication tables when they are calculating mathematical statements in order to improve fluency. Through doubling, they connect the 2, 4 and 8 multiplication tables.

*Pupils develop efficient mental methods, for example, using commutativity and associativity (for example, $4 \times 12 \times 5 = 4 \times 5 \times 12 = 20 \times 12 = 240$) and multiplication and division facts (for example, using $3 \times 2 = 6$, $6 \div 3 = 2$ and $2 = 6 \div 3$) to derive related facts (for example, $30 \times 2 = 60$, $60 \div 3 = 20$ and $20 = 60 \div 3$).

*Pupils develop reliable written methods for multiplication and division, starting with calculations of two-digit numbers by one-digit numbers and progressing to the formal written methods of short multiplication and division.

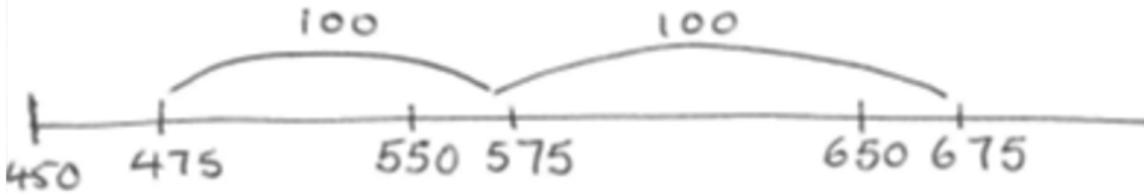
*Pupils solve simple problems in contexts, deciding which of the four operations to use and why. These include measuring and scaling contexts, (for example, four times as high, eight times as long etc.) and correspondence problems in which m objects are connected to n objects (for example, 3 hats and 4 coats, how many different outfits?; 12 sweets shared equally between 4 children; 4 cakes shared equally between 8 children).

These are some of the mental strategies your child will be expected to learn in Maths by the end of Year 3

Year 3 ADDITION

Using place value

Count in hundreds, e.g. knowing $475 + 200$ as 475, 575, 675



Adding multiples of 100, 10, 1 e.g. $746 + 200$, $746 + 40$ or $£6.34 + £5$

Using partitioning

Counting on

Add two 2 digit numbers by adding the multiples of ten then the ones e.g. $67 + 55$ as 67 add 50 (117) add 5 (122)

Add near multiples of 10 and 100 e.g. $67 + 39$ or $356 + 199$

Count on from 3 digit numbers e.g. $257 + 34$ as $257 + 30$ (287) then 287 add 4 =

Using numbers facts

Number bonds to 100 e.g. $36 + 64$, $83 + 17$ etc.

Adding to next ten and next hundred e.g. $176 + 4 = 180$, $435 + 65 = 500$

Doubles and Near doubles of 2 digit numbers

Year 3 SUBTRACTION

Count back to take away

Use place value to subtract, e.g. $348 - 300$ or $348 - 40$ or $348 - 8$

Take away multiples of 10, 100 or £1, e.g. $448 - 40$, $476 - 300$, $£4.76 - £2$

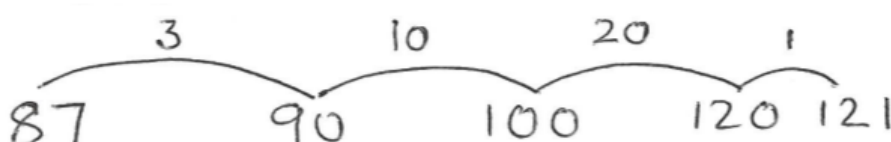


Count back in hundreds, tens then ones, e.g. $763 - 121$ as $763 - 100$ (663) then subtract 20 (643) then subtract 1 (642)

Subtract near multiples of e.g. $648 - 199$ or $86 - 39$

Count on to find the difference

Find the difference between two numbers by counting up from the smallest number to the larger, e.g. $121 - 87$



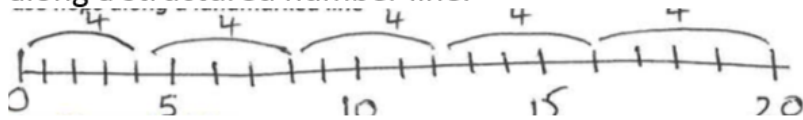
Using numbers facts

Number bonds to 100 e.g. $100 - 35$, $100 - 48$

Year 3 MULTIPLICATION

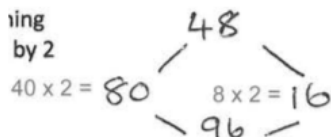
Counting in steps

Count in 2s, 3s, 4s, 5s, 8s and 10s, e.g. colour the multiples on a 1-100 grid or use hops along a structured number line.



Doubling and halving

Calculate doubles to double 50



Use doubling as a strategy to multiply by 2

e.g. 18×2 is Double 18 (36)

Grouping

Recognise that multiplication is commutative, e.g. $4 \times 8 = 8 \times 4$

Known facts

Know double to 20 and double of multiples of 5 to 100, e.g. double 45

Know doubles of multiples of 5 to 100, e.g. double 85 is 170

Know $\times 10$ of any integer and explain the effect when multiplying by 10

Known multiplication facts

Know 2x, 3x, 4x, 5x, 8x, 10x table facts

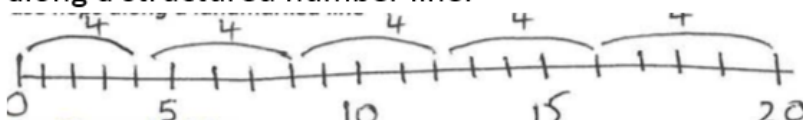
Related facts

Multiply multiples of 10 by single digit numbers, e.g. $30 \times 8 = 240$ because I know $3 \times 8 = 24$

Year 3 DIVISION

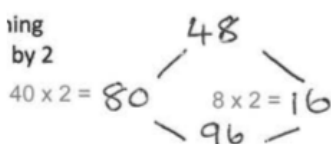
Counting in steps

Count in 2s, 3s, 4s, 5s, 8s and 10s, e.g. colour the multiples on a 1-100 grid or use hops along a structured number line.



Doubling and halving

Find half of even numbers to 100



Use halving as a strategy to divide by 2 e.g. $36 \div 2$ is half of 36

Grouping

Recognise that division is not commutative, e.g. $16 \div 8$ does not equal $8 \div 16$

Relate division to multiplication e.g. is the same calculation as $30 \div 5$ so we can count in 5s to find the answer

Known facts

Know halves of even number to 40 and halves of multiples of 10 to 200, e.g. half of 170 (85)

Divide by 10 and explain the effect

Divide multiples of 10 by single numbers, e.g. $240 \div 8 = 30$

Related division facts

Know 2x, 3x, 4x, 5x, 8x, 10x division facts

Use division facts to find unit and simple non unit fractions of amounts within the times tables e.g. $\frac{3}{4}$ of 48 is $3 \times (48 \div 4)$

Some ideas for helping your child at home

Here is a quick bank of quick-fire recall games that can be played at home to support children's mental fluency.

Regular practice of key facts can make all the difference.

Rock, paper...product (multiply) - This game is a little like rock, paper, scissors. Two or three can play and each person starts with both hands behind their back. Take it in turns to chant "one, two, show." On the word "show," everyone shows their hands, holding up between 1 and 10 fingers. The first person to say the product wins a point.

Fizz buzz - Choose a multiplication table to focus on. Count up from one, taking it in turns, then say fizz when you come across a multiple of your chosen number (e.g. for 5x table – 1,2,3,4,fizz,6,7,8,9 fizz...) Then add another multiple, e.g. 3x for which you say buzz. (1, 2, buzz, 4,fizz, buzz, 7, 8, buzz,fizz...)

What's my number/shape? - This is a great game for practising maths vocabulary. Choose a number or shape and make a list of 5 clues for a partner who has to guess the number or shape.

Number of the day - Choose a number then ask some questions about it. What is 100 more than your number? What is the value of the hundreds? How many to the next multiple of 10? What's the number rounded to the nearest 100?

Bingo - List 6 numbers from a chosen times table(s). The parent calls out multiplication questions and the child checks to see if they have the answer. This can be easily updated for addition/subtraction/division as well.

Memory - Using a pack of playing cards, choose two cards at random. Multiply them together. Try picking 3 cards to multiply. Or select 8 cards and quickly add them up. Start at 100, pick a card and subtract it then pick another and subtract that too.

How much is your name worth? - Give each letter of the alphabet a value e.g. A=1p, B=2p, all the way to Z=26p. Then work out the value of your name so MIKE would be $13p+9p+11p+5p=38p$. **Who has the most expensive name? How much more? Which celebrity has the most expensive name? What is the longest name you could buy for £1? Is there a name worth exactly £1?**

All about measures - Match different units of measures e.g. grams to kilograms and millimetres to centimetres. Measure the items around the house. Discuss and compare the measurements on food labels.

What different units of measures can you find?

Telling the time - What is the time on the clock? How many minutes until the next hour? Can you tell the time on digital and analogue? Match 12hr and 24hr clocks. Read and discuss timetables. Create your own time problems e.g. I had breakfast at 7:25am and a snack 3 hours and 15 minutes later. **What time did I have my snack?**

Using Times Table Rockstar - This online game can be used to promote fluency with times tables. Children have a login and can earn a different rock status.

Online Games - There are a variety of online games and apps that children can play to help with their Maths facts. Links to these can be found on our school website.

Times Tables

By the end of Year 3 children are expected to recall and use multiplication and division facts for the 2, 5, 10, 3, 4 and 8 multiplication tables

2 x	3 x	4 x	5 x	8 x	10 x
2 x 1 = 2	3 x 1 = 3	4 x 1 = 4	5 x 1 = 5	8 x 1 = 8	10 x 1 = 10
2 x 2 = 4	3 x 2 = 6	4 x 2 = 8	5 x 2 = 10	8 x 2 = 16	10 x 2 = 20
2 x 3 = 6	3 x 3 = 9	4 x 3 = 12	5 x 3 = 15	8 x 3 = 24	10 x 3 = 30
2 x 4 = 8	3 x 4 = 12	4 x 4 = 16	5 x 4 = 20	8 x 4 = 32	10 x 4 = 40
2 x 5 = 10	3 x 5 = 15	4 x 5 = 20	5 x 5 = 25	8 x 5 = 40	10 x 5 = 50
2 x 6 = 12	3 x 6 = 18	4 x 6 = 24	5 x 6 = 30	8 x 6 = 48	10 x 6 = 60
2 x 7 = 14	3 x 7 = 21	4 x 7 = 28	5 x 7 = 35	8 x 7 = 56	10 x 7 = 70
2 x 8 = 16	3 x 8 = 24	4 x 8 = 32	5 x 8 = 40	8 x 8 = 64	10 x 8 = 80
2 x 9 = 18	3 x 9 = 27	4 x 9 = 36	5 x 9 = 45	8 x 9 = 72	10 x 9 = 90
2 x 10 = 20	3 x 10 = 30	4 x 10 = 40	5 x 10 = 50	8 x 10 = 80	10 x 10 = 100
2 x 11 = 22	3 x 11 = 33	4 x 11 = 44	5 x 11 = 55	8 x 11 = 88	10 x 11 = 110
2 x 12 = 24	3 x 12 = 36	4 x 12 = 48	5 x 12 = 60	8 x 12 = 96	10 x 12 = 120