

St. Michael's CE Junior School



Maths Booklet

Year 4



Year 4 National Curriculum Objectives

Addition and Subtraction

Objectives

- Add and subtract numbers with up to 4 digits using the formal written methods of column methods of addition and subtraction where appropriate.
- Estimate and use inverse operations to check answers to a calculation.
- Solve addition and subtraction 2 step problems in context, deciding which operations and methods to use and why.

* Pupils continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency.

Multiplication and Division

Objectives

- Recall multiplication and division facts for multiplication tables up to 12×12 .
- Use place value, known and derived facts to multiply and divide mentally, including multiplying by zero and one; dividing by one; multiplying together three numbers.
- Recognise and use factor pairs and commutativity in mental calculations.
- Multiply two-digit and three-digit numbers by a one-digit number using a formal written layout.
- Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as which n objects are connected to m objects.

* Pupils continue to practise recalling and using multiplication tables and related division facts to aid fluency.

*Pupils practise mental methods and extend this to three-digit numbers to derive facts, (for example $600 \div 3 = 200$ can be derived from $2 \times 3 = 6$).

*Pupils practise to become fluent in the formal written method of short multiplication and short division with exact answers.

*Pupils write statements about the equality of expressions (for example, use the distributive law $39 \times 7 = 30 \times 7 + 9 \times 7$ and associative law $(2 \times 3) \times 4 = 2 \times (3 \times 4)$). They combine their knowledge of number facts and rules of arithmetic to solve mental and written calculations for example, $2 \times 6 \times 5 = 10 \times 6 = 60$.

*Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as the numbers of choices of a meal on a menu, or three cakes shared equally between 10 children.

These are some of the mental strategies your child will be expected to learn in Maths by the end of Year 4

Year 4 ADDITION

Using place value

Count in thousands, e.g. knowing $475+300$ as 475, 575, 675, 775

Using partitioning

Counting on

Adding 2 digit numbers by adding the multiple of ten then the ones, 3.g. $67+55$ as $67+50(117)$ add 5 (122)

Add near multiples of 10, 100 or 1000 e.g. $467+399$ or $3462+2999$

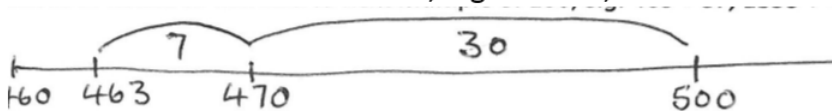
Count on to add 3 digit numbers and money e.g. $463+124$ as $463+100$ (563) $+20$ (583) $+4$ =587

Using number facts

Number bonds to 100 and to next multiple of 100, e.g. $463+37$, $1353+47$

Number bonds to £1 and to the next whole pounds, e.g. $£3.45+55p$

Add to the next whole number, e.g. $4.6+0.4$, $7.2+0.8$



Doubles and Near doubles of 2 and 3 digit numbers

Year 4 SUBTRACTION

Count back to take away

Use place value to subtract, e.g. $3749-3000=749$ or $7683-3$ etc.

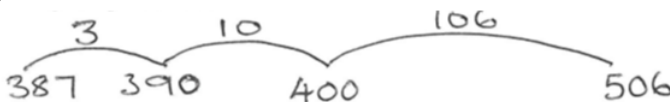
Take away multiples of 10, 100, 1000, £1, 10p or 0.1 e.g. $8392-50$ or $6723-300$ or $£3.75-30p$ or $5.6-0.2$

Count back in thousands, hundreds, tens then ones

Subtract near multiples e.g. $3522-1999$ or $£34.46-£19.99$

Count on to find the difference

Find a difference between two numbers by counting up from the smaller one to the larger e.g. $506-387$



Using number facts

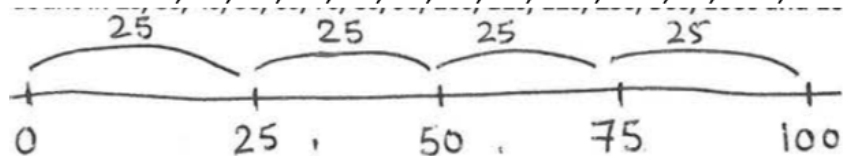
Number bonds to 10, 100 and derived facts e.g. $100-76$, $1.0-0.6$

Number bonds to £1 and £10 e.g. $£100-86p$, $£10-£3.40$

Year 4 MULTIPLICATION

Counting in steps – sequences

Count in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12, 25s, 50s, 100s, 1000s

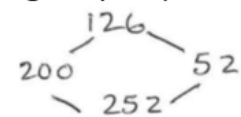


Doubling and halving

Calculate doubles to double 100 and beyond

Begin to double amounts of money e.g. double £3.50

Use doubling as a strategy to multiply by 2, 4, and 8, e.g. $34 \times 4 =$ double 34 (68) double again (136)



Grouping

Use partitioning to multiply TO by O

Multiply by using near multiples and rounding e.g. 24×19 ($24 \times 20 - 24$)

Known multiplication facts

Known facts up to 12×12

Known facts and place value

Calculate $\times 10$ or $\times 100$ times any integer or decimal to 2dp

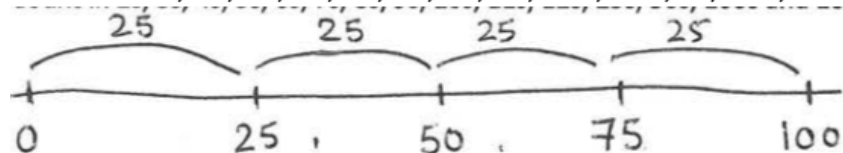
Related facts

Begin to multiply multiples of 0.1, 10, 100 by single digit numbers, e.g. $0.7 \times 6 = 4.2$ because I know $7 \times 6 = 42$

Year 4 DIVISION

Counting in steps – sequences

Count in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12, 25s, 50s, 100s, 1000s



Doubling and halving

Find halves of even numbers to 200 and beyond

Begin to half amounts of money e.g. £9 halved is £4.50

Use halving as a strategy to divide by 2, 4 and 8, e.g. $164 \div 4$ is half of 164 (82) and halved again (41)

Grouping

Use multiples of 10 times the divisor to divide by a number beyond the times tables,

e.g. $45 \div 3$ (may use jottings)

Divide by 100 and explain the effect

Divide multiples of 100 by single digit numbers using known division facts, e.g. $3200 \div 8 = 400$

Known facts

Know division facts up to 12×12

Use division facts to find unit and non unit fractions of amounts within the times tables e.g. $7/8$ of 56 is $7 \times (56 \div 8)$

$$45 \div 3 = \square$$

$$\square \times 3 = 45$$

$$10 \times 3 = 30$$

$$15$$

$$5 \times 3 = 15$$

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 4 children are expected to recall and use multiplication and division facts for all of their multiplication tables

| | | | | | |
|--------------------|--------------------|---------------------|----------------------|----------------------|----------------------|
| 1 x | 2 x | 3 x | 4 x | 5 x | 6 x |
| $1 \times 1 = 1$ | $2 \times 1 = 2$ | $3 \times 1 = 3$ | $4 \times 1 = 4$ | $5 \times 1 = 5$ | $6 \times 1 = 6$ |
| $1 \times 2 = 2$ | $2 \times 2 = 4$ | $3 \times 2 = 6$ | $4 \times 2 = 8$ | $5 \times 2 = 10$ | $6 \times 2 = 12$ |
| $1 \times 3 = 3$ | $2 \times 3 = 6$ | $3 \times 3 = 9$ | $4 \times 3 = 12$ | $5 \times 3 = 15$ | $6 \times 3 = 18$ |
| $1 \times 4 = 4$ | $2 \times 4 = 8$ | $3 \times 4 = 12$ | $4 \times 4 = 16$ | $5 \times 4 = 20$ | $6 \times 4 = 24$ |
| $1 \times 5 = 5$ | $2 \times 5 = 10$ | $3 \times 5 = 15$ | $4 \times 5 = 20$ | $5 \times 5 = 25$ | $6 \times 5 = 30$ |
| $1 \times 6 = 6$ | $2 \times 6 = 12$ | $3 \times 6 = 18$ | $4 \times 6 = 24$ | $5 \times 6 = 30$ | $6 \times 6 = 36$ |
| $1 \times 7 = 7$ | $2 \times 7 = 14$ | $3 \times 7 = 21$ | $4 \times 7 = 28$ | $5 \times 7 = 35$ | $6 \times 7 = 42$ |
| $1 \times 8 = 8$ | $2 \times 8 = 16$ | $3 \times 8 = 24$ | $4 \times 8 = 32$ | $5 \times 8 = 40$ | $6 \times 8 = 48$ |
| $1 \times 9 = 9$ | $2 \times 9 = 18$ | $3 \times 9 = 27$ | $4 \times 9 = 36$ | $5 \times 9 = 45$ | $6 \times 9 = 54$ |
| $1 \times 10 = 10$ | $2 \times 10 = 20$ | $3 \times 10 = 30$ | $4 \times 10 = 40$ | $5 \times 10 = 50$ | $6 \times 10 = 60$ |
| $1 \times 11 = 11$ | $2 \times 11 = 22$ | $3 \times 11 = 33$ | $4 \times 11 = 44$ | $5 \times 11 = 55$ | $6 \times 11 = 66$ |
| $1 \times 12 = 12$ | $2 \times 12 = 24$ | $3 \times 12 = 36$ | $4 \times 12 = 48$ | $5 \times 12 = 60$ | $6 \times 12 = 72$ |
| 7 x | 8 x | 9 x | 10 x | 11 x | 12 x |
| $7 \times 1 = 7$ | $8 \times 1 = 8$ | $9 \times 1 = 9$ | $10 \times 1 = 10$ | $11 \times 1 = 11$ | $12 \times 1 = 12$ |
| $7 \times 2 = 14$ | $8 \times 2 = 16$ | $9 \times 2 = 18$ | $10 \times 2 = 20$ | $11 \times 2 = 22$ | $12 \times 2 = 24$ |
| $7 \times 3 = 21$ | $8 \times 3 = 24$ | $9 \times 3 = 27$ | $10 \times 3 = 30$ | $11 \times 3 = 33$ | $12 \times 3 = 36$ |
| $7 \times 4 = 28$ | $8 \times 4 = 32$ | $9 \times 4 = 36$ | $10 \times 4 = 40$ | $11 \times 4 = 44$ | $12 \times 4 = 48$ |
| $7 \times 5 = 35$ | $8 \times 5 = 40$ | $9 \times 5 = 45$ | $10 \times 5 = 50$ | $11 \times 5 = 55$ | $12 \times 5 = 60$ |
| $7 \times 6 = 42$ | $8 \times 6 = 48$ | $9 \times 6 = 54$ | $10 \times 6 = 60$ | $11 \times 6 = 66$ | $12 \times 6 = 72$ |
| $7 \times 7 = 49$ | $8 \times 7 = 56$ | $9 \times 7 = 63$ | $10 \times 7 = 70$ | $11 \times 7 = 77$ | $12 \times 7 = 84$ |
| $7 \times 8 = 56$ | $8 \times 8 = 64$ | $9 \times 8 = 72$ | $10 \times 8 = 80$ | $11 \times 8 = 88$ | $12 \times 8 = 96$ |
| $7 \times 9 = 63$ | $8 \times 9 = 72$ | $9 \times 9 = 81$ | $10 \times 9 = 90$ | $11 \times 9 = 99$ | $12 \times 9 = 108$ |
| $7 \times 10 = 70$ | $8 \times 10 = 80$ | $9 \times 10 = 90$ | $10 \times 10 = 100$ | $11 \times 10 = 110$ | $12 \times 10 = 120$ |
| $7 \times 11 = 77$ | $8 \times 11 = 88$ | $9 \times 11 = 99$ | $10 \times 11 = 110$ | $11 \times 11 = 121$ | $12 \times 11 = 132$ |
| $7 \times 12 = 84$ | $8 \times 12 = 96$ | $9 \times 12 = 108$ | $10 \times 12 = 120$ | $11 \times 12 = 132$ | $12 \times 12 = 144$ |