



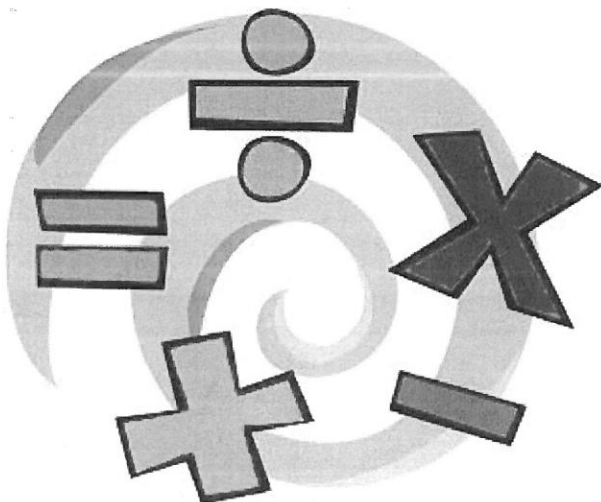
Callander

Primary School

Supporting

Maths

Homework



Part One - Addition,

Subtraction,

Multiplication and

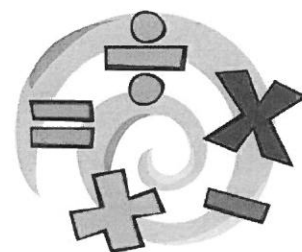
Division

The purpose of this guide is to help you support your child with homework as they move onto more complex concepts.

This guide focuses on addition, subtraction, multiplication and division. It shows you how the children are encouraged to make mental calculations and how they are taught to

present and

calculate written sums.



At Callander Primary School we support the children to develop their mental agility and discuss with the children that there may be several ways of finding an answer when working something out in our heads.

When we move on to teaching children to write out a sum we also teach specific strategies. This guide shows you strategies for both mental and written calculations.

Mental Agility

At Callander Primary we support children's number skills by developing their understanding that there may be many different ways of finding an answer to a sum. We support the children to develop different ways of making calculations in their heads.

To find the answer to $28+37$ some people may add up the tens numbers in their heads first then the units numbers e.g. $20 + 30=50$, $8+7 = 15$,

$$50+15=65$$

Some people may add up the units in their heads first and then the tens e.g. $8+7 = 15$, $20 + 30=50$,

$$15+50=65$$

Some people may round up the numbers in their heads first and then subtract e.g.

$$30+40 =70 - 2- 3= 65$$

Some people find it useful to draw a diagram or picture to help them.

All of these strategies and more are encouraged and discussed with the children. Encourage your child to share with you how they make mental calculations.

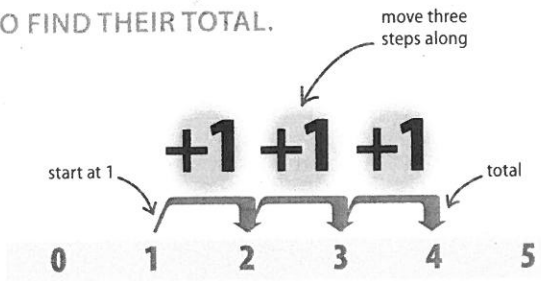
+ Addition

NUMBERS ARE ADDED TOGETHER TO FIND THEIR TOTAL. THIS RESULT IS CALLED THE SUM.

SEE ALSO	
Subtraction	17 >
Positive and negative numbers	34-35 >

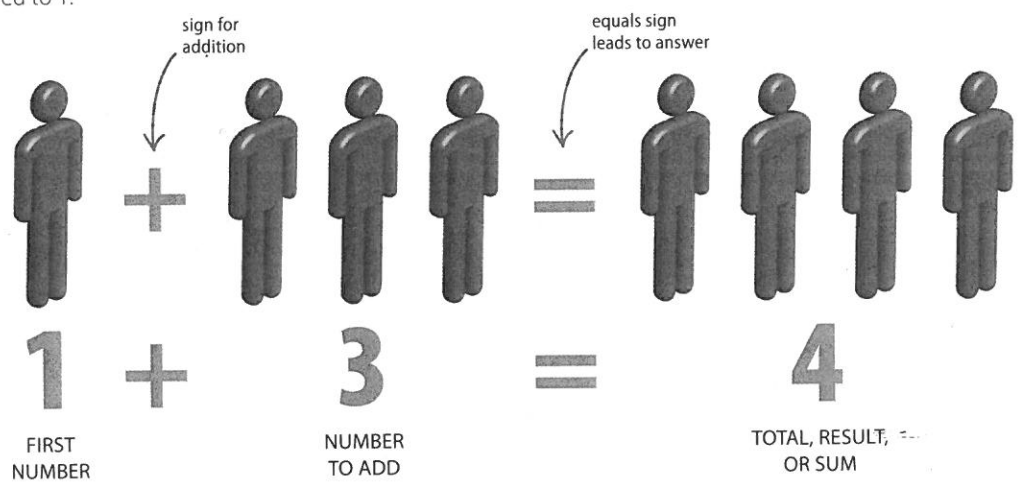
Adding up

An easy way to work out the sum of two numbers is a number line. It is a group of numbers arranged in a straight line that makes it possible to count up or down. In this number line, 3 is added to 1.



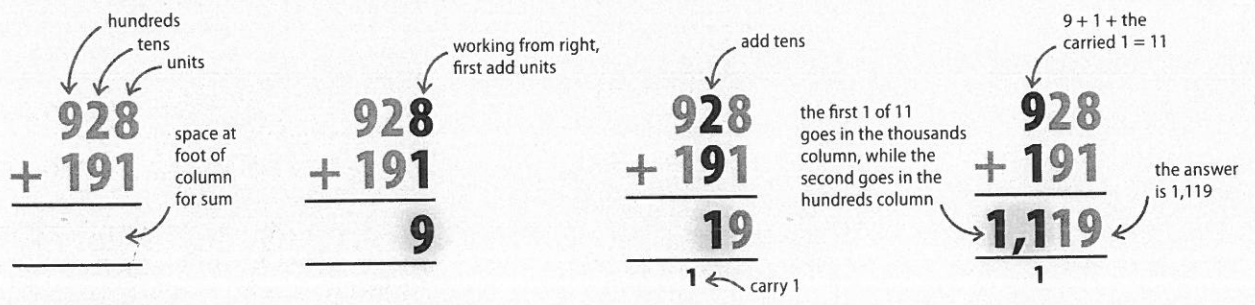
◁ Use a number line
To add 3 to 1, start at 1 and move along the line three times – first to 2, then to 3, then to 4, which is the answer.

▷ **What it means**
The result of adding 3 to the start number of 1 is 4. This means that the sum of 1 and 3 is 4.



Adding large numbers

Numbers that have two or more digits are added in vertical columns. First, add the units, then the tens, the hundreds, and so on. The sum of each column is written beneath it. If the sum has two digits, the first is carried to the next column.



- First, the numbers** are written with their units, tens, and hundreds directly above each other.
- Next, add the units 1 and 8** and write their sum of 9 in the space underneath the units column.
- As the sum of the tens has two digits,** write the second underneath and carry the first to the next column.
- Then add the hundreds and the carried digit.** As this sum has two digits, the first goes in the thousands column.

Subtraction

A NUMBER IS SUBTRACTED FROM ANOTHER NUMBER TO FIND WHAT IS LEFT. THIS IS KNOWN AS THE DIFFERENCE.

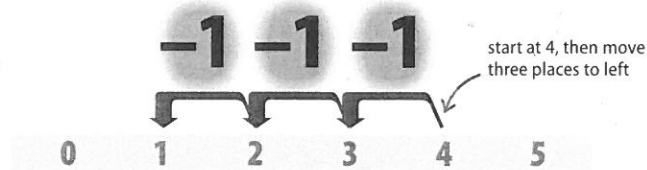
SEE ALSO

◀ 16 Addition

Positive and negative numbers **34-35**

Taking away

A number line can also be used to show how to subtract numbers. From the first number, move back along the line the number of places shown by the second number. Here 3 is taken from 4.



◀ **Use a number line**
To subtract 3 from 4 start at 4 and move three places along the number line, first to then 2, and then to

4
-
3
=
1

FIRST NUMBER
NUMBER TO SUBTRACT
RESULT OF DIFFERENCE

▷ **What it means**
The result of subtracting 3 from 4 is 1, so the difference between 3 and 4 is 1.

Subtracting large numbers

Subtracting numbers of two or more digits is done in vertical columns. First subtract the units, then the tens, the hundreds, and so on. Sometimes a digit is borrowed from the next column along.

First, the numbers are written with their units, tens, and hundreds directly above each other.

▶ **Next, subtract the unit 1** from 8, and write their difference of 7 in the space underneath them.

▶ **In the tens,** 9 cannot be subtracted from 2, so 1 is borrowed from the hundreds, turning 9 into 8 and 2 into 12.

▶ **In the hundreds** column, 1 is subtracted from the new, now lower number of 8.

the answer is 737

Short multiplication

Multiplying a large number by a single-digit number is called short multiplication. The smaller number is placed below the larger one and aligned under the units column of the larger number.

$$\begin{array}{r}
 196 \\
 \times 7 \\
 \hline
 2 \\
 \hline
 4
 \end{array}$$

6 written in units column
2 written in units column
4 carried to tens column

To multiply 196 and 7, first multiply the units 7 and 6. The product is 42, the 4 of which is carried.

$$\begin{array}{r}
 196 \\
 \times 7 \\
 \hline
 72 \\
 64 \\
 \hline
 64
 \end{array}$$

9 written in tens column
7 written in tens column
6 carried to hundreds column

Next, multiply 7 and 9, the product of which is 63. The carried 4 is added to 63 to get 67.

$$\begin{array}{r}
 196 \\
 \times 7 \\
 \hline
 1,372 \\
 64 \\
 \hline
 1,372
 \end{array}$$

1 written in hundreds column
3 written in hundreds column; 1 written in thousands column
1,372 is final answer

Finally, multiply 7 and 1. Add the product (7) to the carried 6 to get 13, giving a final product of 1,372.

Long multiplication

Multiplying two numbers that both contain at least two digits is called long multiplication. The numbers are placed one above the other, in columns arranged according to their value (units, tens, hundreds, and so on).

$$\begin{array}{r}
 428 \\
 \times 111 \\
 \hline
 428
 \end{array}$$

428 is multiplied by 1

First, multiply 428 by 1 in the units column. Work digit by digit from right to left so 8×1 , 2×1 , and then 4×1 .

$$\begin{array}{r}
 428 \\
 \times 111 \\
 \hline
 428 \\
 4,280
 \end{array}$$

428 is multiplied by 10
add 0 when multiplying by 10

Multiply 428 by 1 in the tens column, working digit by digit. Remember to add 0 to the product when multiplying by 10.

$$\begin{array}{r}
 428 \\
 \times 111 \\
 \hline
 428 \\
 4,280 \\
 42,800
 \end{array}$$

428 is multiplied by 100
add 00 when multiplying by 100

Multiply 428 by 1 in the hundreds column, digit by digit. Add 00 to the product when multiplying by 100.

$$\begin{array}{r}
 428 \\
 \times 111 \\
 \hline
 428 \\
 + 4,280 \\
 + 42,800 \\
 \hline
 = 47,508
 \end{array}$$

Add together the products of the three multiplications. The answer is 47,508.

LOOKING CLOSER

Box method of multiplication

The long multiplication of 428 and 111 can be broken down into simple multiplications with the help of a table or a box. Each number is reduced to its hundreds, tens, and units, and multiplied by the other.

► **The final step**
Add together the nine multiplications to find the final answer.

		428 WRITTEN IN 100S, 10S, AND UNITS		
		400	20	8
111 WRITTEN IN 100S, 10S, AND UNITS	100	$400 \times 100 = 40,000$	$20 \times 100 = 2,000$	$8 \times 100 = 800$
	10	$400 \times 10 = 4,000$	$20 \times 10 = 200$	$8 \times 10 = 80$
	1	$400 \times 1 = 400$	$20 \times 1 = 20$	$8 \times 1 = 8$

$$\begin{array}{r}
 40,000 \\
 2,000 \\
 800 \\
 4,000 \\
 200 \\
 80 \\
 400 \\
 20 \\
 8 \\
 + \\
 \hline
 = 47,508
 \end{array}$$

this is the final answer

Short division

Short division is used to divide one number (the dividend) by another whole number (the divisor) that is less than 10.

start on the left with the first 3 (divisor)

dividing line

396 is the dividend

result is 132

Divide the first 3 into 3. It fits once exactly, so put a 1 above the dividing line, directly above the 3 of the dividend.

Move to the next column and divide 3 into 9. It fits three times exactly, so put a 3 directly above the 9 of the dividend.

Divide 3 into 6, the last digit of the dividend. It goes twice exactly, so put a 2 directly above the 6 of the dividend.

Carrying numbers

When the result of a division gives a whole number and a remainder, the remainder can be carried over to the next digit of the dividend.

start on the left

divisor

2,765 is the dividend

divide 5 into first 2 digits of dividend

carry remainder 2 to next digit of dividend

carry remainder 1 to next digit of dividend

the result is 553

Start with number 5. It does not divide into 2 as it is a larger number. Instead, 5 will need to be divided into the first two digits of the dividend.

Divide 5 into 27. The result is 5 with a remainder of 2. Put 5 directly above the 7 and carry the remainder.

Divide 5 into 26. The result is 5 with a remainder of 1. Put 5 directly above the 6 and carry the remainder 1 to the next digit of the dividend.

Divide 5 into 15. It fits three times exactly, so put 3 above the dividing line, directly above the final 5 of the dividend.

LOOKING CLOSER

Converting remainders

When one number will not divide exactly into another, the answer has a remainder. Remainders can be converted into decimals, as shown below.

$$\begin{array}{r} \text{remainder} \\ 22 \text{ r } 2 \\ \hline 4 \overline{) 90} \end{array}$$

$$\begin{array}{r} 22. \\ \hline 4 \overline{) 90.0} \end{array}$$

Remove the remainder, 2 in this case, leaving 22. Add a decimal point above and below the dividing line. Next, add a zero to the dividend after the decimal point.

$$\begin{array}{r} 22. \\ \hline 4 \overline{) 90.0} \end{array}$$

Carry the remainder (2) from above the dividing line to below the line and put it in front of the new zero.

$$\begin{array}{r} 22.5 \\ \hline 4 \overline{) 90.0} \end{array}$$

Divide 4 into 20. It goes 5 times exactly, so put a 5 directly above the zero of the dividend and after the decimal point.

LOOKING CLOSER

Making division simpler

To make a division easier, sometimes the divisor can be split into factors. This means that a number of simpler divisions can be done.

$816 \div 6$ ← divisor is 6, which is 2×3 . Splitting 6 into 2 and 3 simplifies the sum

result is 136

$816 \div 2 = 408$ → $408 \div 3 = 136$

divide by first factor of divisor

divide by second factor of divisor

This method of splitting the divisor into factors can also be used for more difficult divisions.

$405 \div 15$ ← splitting 15 into 5 and 3, which multiply to make 15, simplifies the sum

result is 27

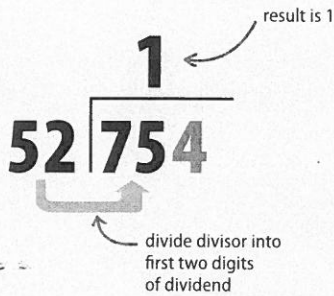
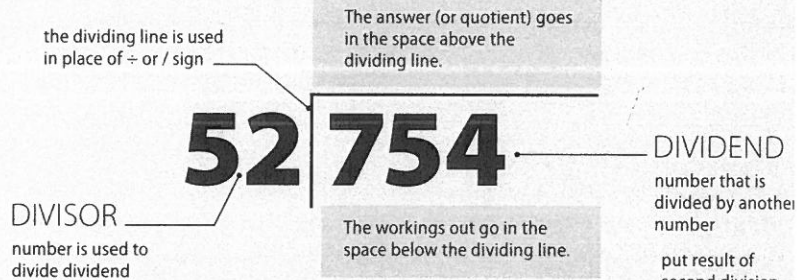
$405 \div 5 = 81$ → $81 \div 3 = 27$

divide by first factor of divisor

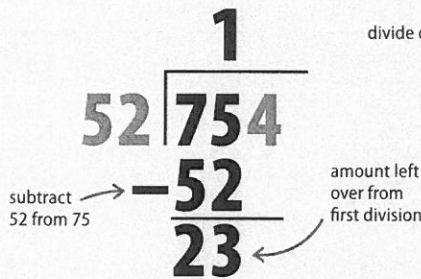
divide result by second factor of divisor

Long division

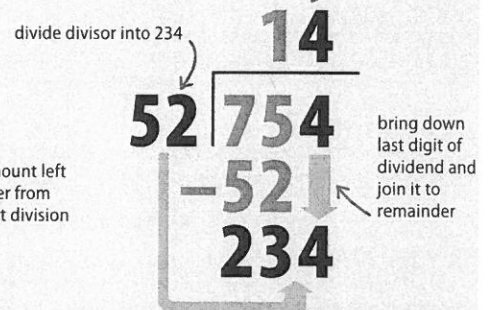
Long division is usually used when the divisor is at least two digits long and the dividend is at least 3 digits long. Unlike short division, all the workings out are written out in full below the dividing line. Multiplication is used for finding remainders. A long division sum is presented in the example on the right.



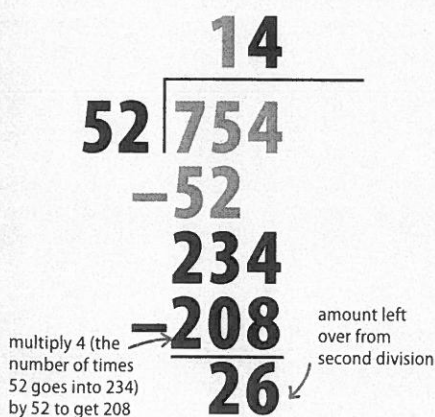
Begin by dividing the divisor into the first two digits of the dividend. 52 fits into 75 once, so put a 1 above the dividing line, aligning it with the last digit of the number being divided.



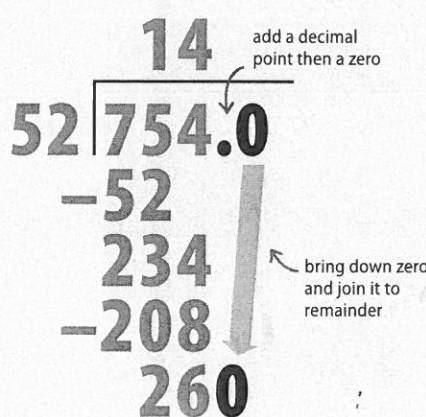
Work out the first remainder. The divisor 52 does not divide into 75 exactly. To work out the amount left over (the remainder), subtract 52 from 75. The result is 23.



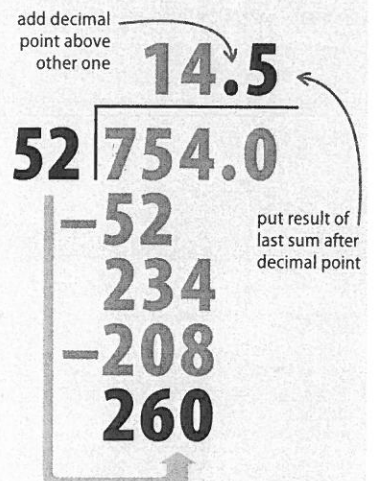
Now, bring down the last digit of the dividend and place it next to the remainder to form 234. Next, divide 234 by 52. It goes four times, so put a 4 next to the 1.



Work out the second remainder. The divisor, 52, does not divide into 234 exactly. To find the remainder, multiply 4 by 52 to make 208. Subtract 208 from 234, leaving 26.



There are no more whole numbers to bring down, so add a decimal point after the dividend and a zero after it. Bring down the zero and join it to the remainder 26 to form 260.



Put a decimal point after the 14. Next, divide 260 by 52, which goes five times exactly. Put a 5 above the dividing line, aligned with the new zero in the dividend.

When completing maths activities and tasks with your child remember to always encourage them to “have a go” even if they are finding things tricky.

If your child makes a mistake, don't tell them that they are just “wrong,”

Try saying “This looks tricky, can we try checking it?”

Or you might ask, “Can you tell me how you got that answer?”

Or “Can you draw a picture to explain your thinking?”

Or “There might be more than one way to solve this shall we try together?”

If we are positive about maths the children will be too.