Addition, subtraction, multiplication and division in

Year 4

Overview of the four operations in Year 4

- In year 4, pupils start to work with 4 digit numbers.
- They are expected to know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100, allowing them to identify and work out how many 100s there are in four digit multiples of 100.
- They are expected to recall multiplication facts and corresponding division facts up to 12 x 12.
- They will also add and subtract up to four digit numbers using column method.
- All of this learning wil need to be applied in problem solving.

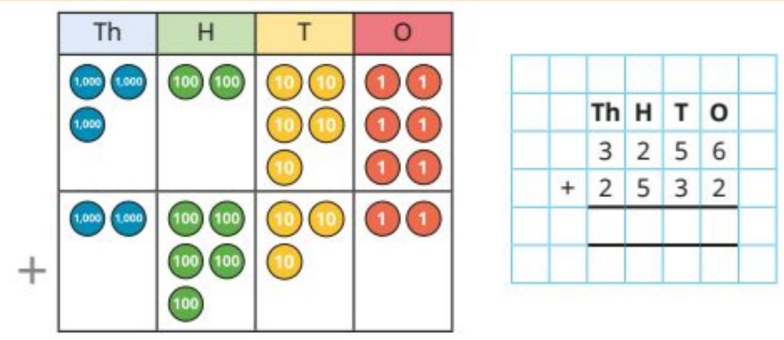
In 2025, schools must administer the MTC to all eligible year 4 pupils between Monday 2nd June and Monday 16th June.

How we teach addition

addend + addend = sum

Year 4

In year 3, children used the formal written method to add 2 or 3 digit numbers, with up to 2 exchanges. In Year 4, that learning will be extended to include 4 digit numbers. The number being added together may have a different number of digits, so children will need to carefully line up the digits.



Work out the missing numbers.

	Th	H	T	O
	4		6	
+	2	5		1
		7	8	9

Things to look out for: children may not use 0 as a placeholder when there are no hundreds, tens or ones.

How we teach addition

Year 4

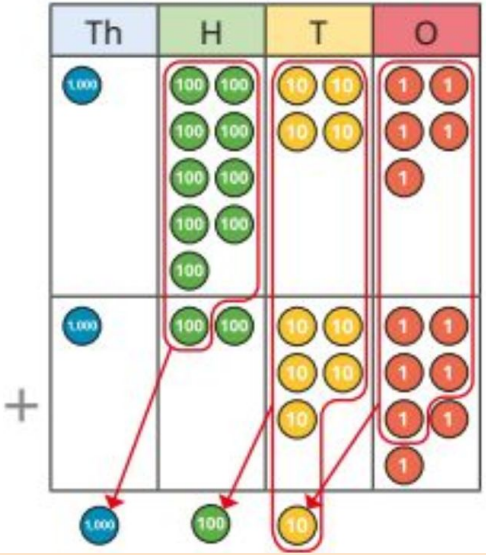
addend + addend = sum

Children begin to add four-digit numbers, with 1 or more exchanges.

The numbers are made using place value counters in a place value chart alongside the formal written method.

The addition begins from the smallest value column. After each column is added, ask, "Do you have enough ones/tens/hundreds to make an exchange?"

Jack uses place value counters to work out 1,945 + 1,257



		Th	H	T	O	
		1	9	4	5	
	+	1	2	5	7	
		3	2	0	2	
		1	1	1		

Language Focus: "I have _____ hundreds/tens/ones, so I do/do not need to make an exchange."

Th	H	T	O
1,000 1,000	100	10 10 10 10 10	1
1,000 1,000 1,000 1,000	100 100 100	10 10 10 10 10	1 1
6	5	0	3

100

	2	1	5	1	
+	4	3	5	2	
	6	5	0	3	
		1			

I have ___ hundreds, so I do not need to make an exchange.

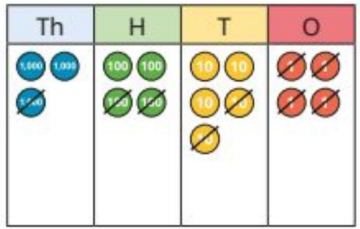
I have ___ tens, so I do not need to make an exchange.

How we teach subtraction

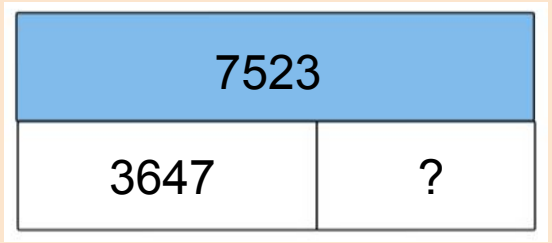
Year 4

When using column method to subtract numbers up to four digits, children should subtract from the smallest value column first. Before subtracting each column, ask, "Do you have enough ones/tens/hundreds to subtract ? " If not, an exchange is needed.

Dora uses place value counters to work out 3,454 – 1,224



	Th	H	T	O
	3	4	5	4
–	1	2	2	4
	2	2	3	0



minuend - subtrahend = difference

Things to look out for:

- Children may always subtract the smaller digit from the larger digit instead of making an exchange when needed. E.g. 1241 - 678 = 1437
- Confusion may arise with zero as a placeholder. E.g. 1**000** - 872 = ?
- The need for repeated exchanges may cause difficulty.
- When using the column method, children may arrange the numbers incorrectly.

$$4{,}154 - 1{,}522 =$$

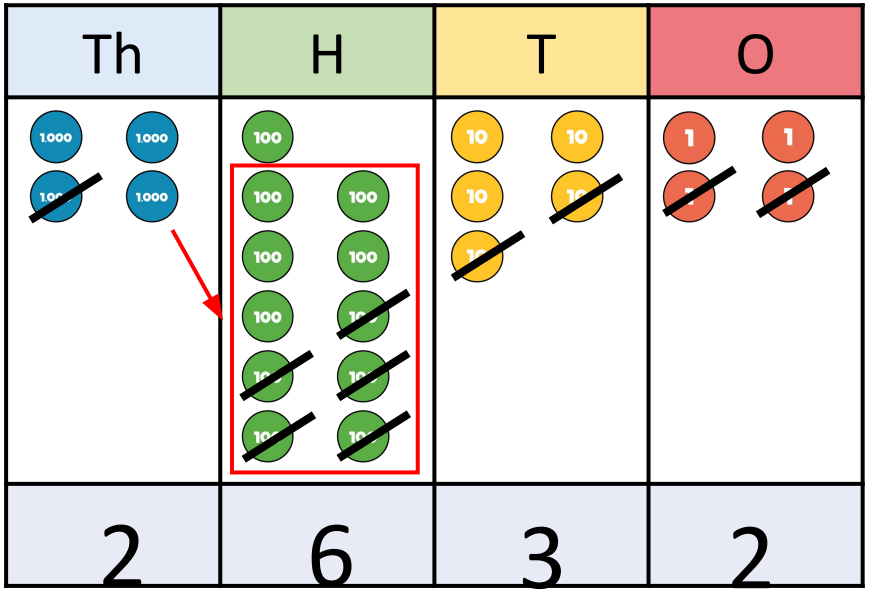
Th	H	T	O
1000 1000 1000 1000	100	10 10 ~~10~~ ~~10~~ ~~10~~	1 1 ~~1~~ ~~1~~
		3	2

	4	1	5	4	
−	1	5	2	2	
			3	2	

45 tens − 2 tens = 3 tens

An exchange is not needed

$$4{,}154 - 1{,}522 = 2{,}632$$



	3	1	5	4	
−	1	5	2	2	
	2	6	3	2	

3 thousands − 1 hundreds = 2 thousands

An exchange is not needed

Inverse operations

Year 4

To check their work, children can use the inverse calculation. Children in Year 4 know that addition is the inverse of subtraction, so to check an addition calculation, they can solve a subtraction calculation.

Things to look out for:

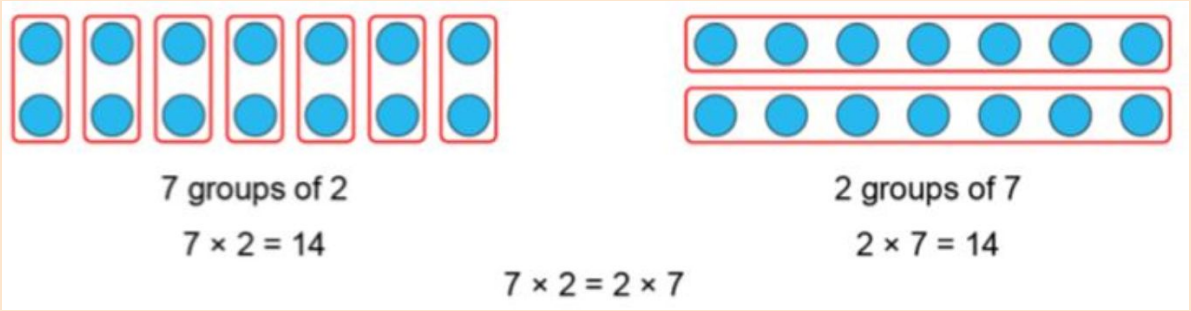
- Children may always subtract the smaller digit from the larger digit instead of making an exchange when needed. E.g. 1241 - 678 = 1437
- Confusion may arise with zero as a placeholder. E.g. 1**000** - 872 = ?
- The need for repeated exchanges may cause difficulty.
- When using the column method, children may arrange the numbers incorrectly.

How we teach multiplication

Year 4

At this stage, pupils should be able to solve multiplication problems, using their times table knowledge up to 12 x 12.

Pupils need to be able to apply the commutative property of multiplication. This can be summarised as 'one equation, two interpretations'. Here, pupils must understand that a single equation, such as 2 x 7 = 14, can be interpreted in two ways.



Language Focus:

- "2 groups of 7 is equal to 14."
- "7 groups of 2 is equal to 14."
- "2 groups of 7 is equal to 7 groups of 2."

multiplicand x multiplier = product

factor x factor = product

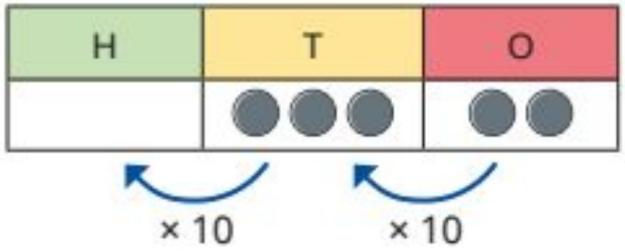
How we teach multiplication

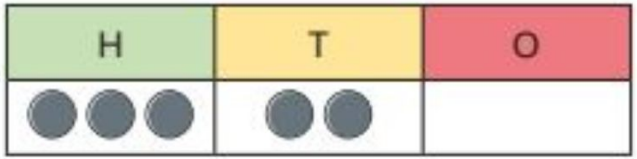
Year 4

Year 4 recognise that when multiplying by 10, the digits move one place value column to the left and zero is needed as a placeholder in the now blank column.

factor x factor = product

Dexter uses a place value chart to work out 32 × 10





32 × 10 = 320

Things to look out for:

Children may move only one digit and misplace the placeholder, for example 45 × 10 = 405.

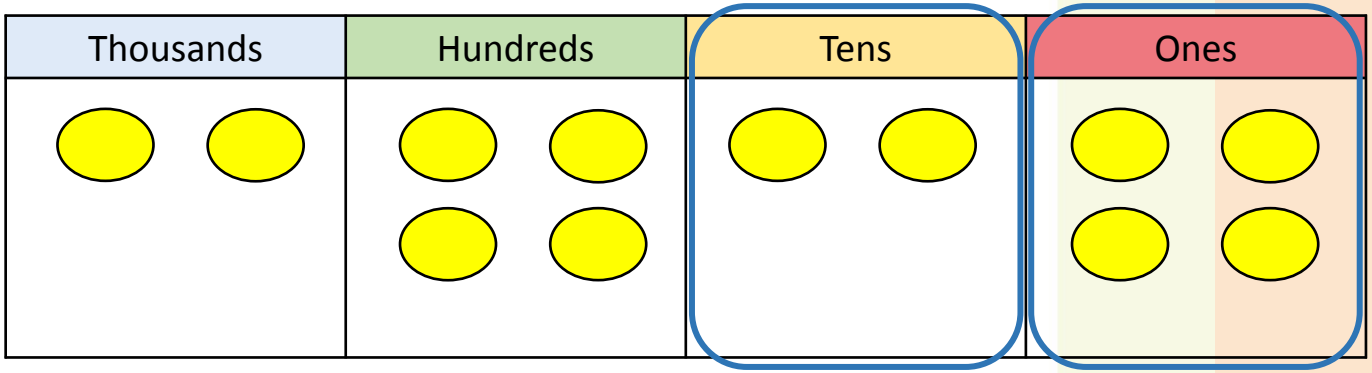
Thousands	Hundreds	Tens	Ones

10 times the size

10 times the size

10 times the size

$$24 \times 10 = 240$$



100 times the size

100 times the size

$24 \times 100 = 2{,}400$

Have a think

2,400 is 100 times the size of 24

$$251 \times 3 = 753$$

H	T	O
100 100	10 10 10 10 10	1
100 100	10 10 10 10 10	1
100 100	10 10 10 10 10	1

100

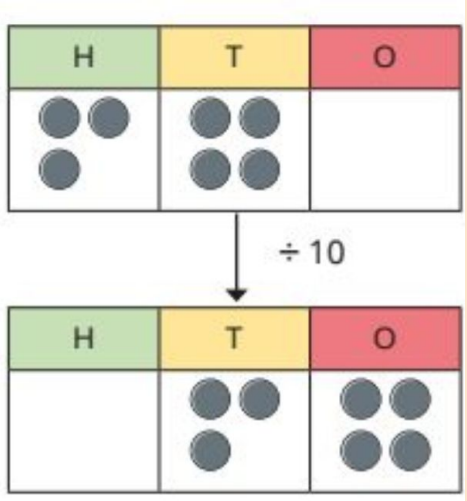
	H	T	O	
	2	5	1	
×			3	
	7	5	3	
	1			

How we teach division

dividend ÷ divisor = quotient

Year 4

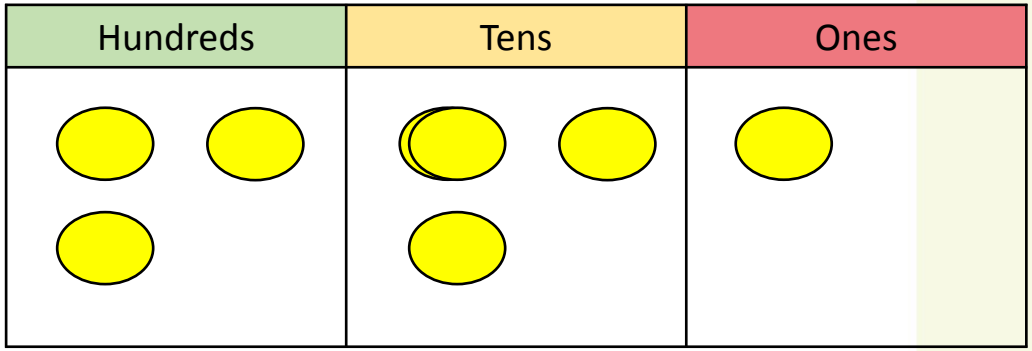
Children use concrete resources and a place value chart to see the link between dividing by 10 and the position of the digits of a number before and after the calculation. They recognise that when dividing by 10, the digits move one place value column to the right. They begin to understand that multiplying by 10 and dividing by 10 are the inverse of each other.



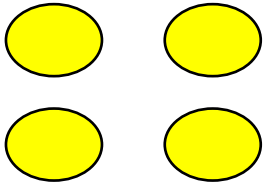
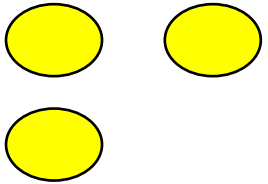
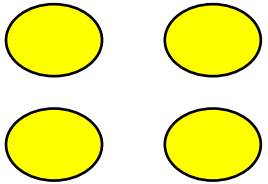
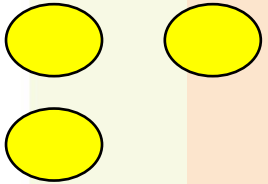
340 ÷ 10 = 34

Things to look out for:

Children may confuse multiplying and dividing by 10, and move the digits in the wrong direction in a place value chart.



$$310 \div 10 = 31$$

Thousands	Hundreds	Tens	Ones
			

$$4{,}300 \div 100 = 43$$

How we teach multiplication and division

Year 4

In 2024, schools must administer the MTC to all eligible year 4 pupils between Monday 2nd June and Monday 16th June.

What is the MTC?

The multiplication tables check (MTC) is a short computer-based test that all eligible Year 4 pupils in schools in England are required to take. It aims to determine whether these pupils can recall their 2-12 times tables fluently.

Mathematical language

Year 4

Children in Year 4 need to be able to identify which of the four operations to use. The use of key vocabulary supports children's understanding of this in order to be able to identify which one they should use

Addition:

addend + addend = sum

Subtraction:

minuend - subtrahend = difference

Multiplication:

factor x factor = product
multiplicand x multiplier = product

Division:

dividend ÷ divisor = quotient

Year 4

Pupil demonstrations

Year 4

Any questions?

Maths at home

Maths at home

Year 4

To promote maths skills in children, encourage them to play maths puzzles and games.

Teach them to have a positive attitude and believe they can improve with effort rather than focus on speed and involve them in everyday activities involving numbers and measurements, such as shopping and cooking.

Here are some good websites to help families learn maths together:

Maths at home

Year 4

Free Family Maths Toolkit | Resources For Schools, Parents & Carers

https://www.mathsontoast.org.uk/

Supporting Children with Maths

Maths Homework Guide For Helping Kids With Maths At Home

Maths at home

Year 4

- Times Tables Rock Stars Multiplication facts practice
- Daily 10 - Mental Maths Challenge - Topmarks
- Hit the Button - Quick fire maths practise for 6-11 year olds Mental maths practice
- Placing Numbers on a Number Line - Tablet Version - Mathsframe Placing numbers on a number line (select between multiples of 1000)
- Primary Students A range of games and problem solving activities
- Games and Resources - I See Maths A range of games and problem solving activities

Key takeaways

Year 4

Your child needs to be secure and confident in their foundational skills.

- Understanding and working with four-digit numbers, including the value of each digit
- Mastering basic addition and subtraction facts - solving contextual problems with these
- Recall their multiplication facts and associate division facts up to 12 x 12.

Key takeaways

Year 4

- Encourage a positive maths attitude
- Try to incorporate maths into daily activities such as cooking, shopping or playing board games
- Support home learning by offering guidance, but encourage independence by allowing your child to solve problems on their own
- Use maths apps and games
- Provide real-world examples
- Celebrate achievements - celebrate the small victories, boost their confidence and motivation
- Communicate with teachers