

The calculation requires one exchange.

	6	3	7
+	2	9	5

7 Work out the multiplication.

		T	O	
		4	8	
	×		4	

$$(8 \times 4 = \square)$$

$$(40 \times 4 = \square)$$

6 Work out the missing digits.

a)

		H	T	O	
		3	2		
	+	5	6	7	
		8		1	

c) Work out $72 \div 4$

Have a go on your whiteboard while you wait!

Answers

True or False?

Add up to two 4-digit numbers (across a 100)

White Rose
MATHS

False

The calculation requires two exchanges.

	6	3	7
+	2	9	5
	9	3	2
	1	1	

		T	O	
		4	8	
	x		4	
		3	2	
	1	6	0	
	1	9	2	

$$(8 \times 4 = \boxed{32})$$

$$(40 \times 4 = \boxed{160})$$

a)

		H	T	O	
		3	2	4	
	+	5	6	7	
		8	9	1	

72 ÷ 4 in
a bus stop method

$$\begin{array}{r} 18 \\ 4 \overline{) 72} \end{array}$$



Lower KS2 Maths

Parent Workshop

Session Objectives

- To show how skills progress between Year 3 and 4.
- To demonstrate the four core methods and the progression within them
- Give you practical strategies to support your child



Equipment

- On your table you should have:
- Handout 1 - progression overview
- Handout 2 - Calculation Policy
- Handout 3 - Worksheet
- Whiteboard, pen and eraser (if needed)
- Other Mathematics equipment



During KS1 and LKS2

YEAR GROUP	KEY FOCUS
Year 1	Number bonds, simple addition/subtraction Concrete and pictorial approach
Year 2	Place value, introduction to multiplication Concrete, pictorial and some abstract elements
Year 3	Fluency, problem-solving, reasoning
Year 4	Times tables fluency (up to 12×12), written methods for addition/subtraction, introduction to formal multiplication/division methods, deeper reasoning and problem-solving

Handout 1- Progression Grid

Primary Progression – Place Value



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value: Counting	- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number - Count numbers to 100 in numerals; count in multiples of twos, fives and tens Autumn 1 Autumn 4 Spring 2 Summer 4	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward Autumn 1	count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Autumn 1 Autumn 3	- count in multiples of 6, 7, 9, 25 and 1000 - count backwards through zero to include negative numbers Autumn 1 Autumn 4	- count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 - count forwards and backwards with positive and negative whole numbers, including through zero Autumn 1	
Place Value: Represent	- identify and represent numbers using objects and pictorial representations - read and write numbers to 100 in numerals - read and write numbers from 1 to 20 in numerals and words. Autumn 1 Autumn 4 Spring 2 Summer 4	- read and write numbers to at least 100 in numerals and in words - identify, represent and estimate numbers using different representations, including the number line Autumn 1	- identify, represent and estimate numbers using different representations - read and write numbers up to 1000 in numerals and in words Autumn 1	- identify, represent and estimate numbers using different representations - read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value Autumn 1	- read, write, (order and compare) numbers to at least 1 000 000 and determine the value of each digit - read Roman numerals to 1000 (M) and recognise years written in Roman numerals. Autumn 1	read, write, (order and compare) numbers up to 10 000 000 and determine the value of each digit Autumn 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value : Use PV and Compare	given a number, identify one more and one less Autumn 1 Autumn 4 Spring 2 Summer 4	- recognise the place value of each digit in a two-digit number (tens, ones) - compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs Autumn 1	- recognise the place value of each digit in a three-digit number (hundreds, tens, ones) - compare and order numbers up to 1000 Autumn 1	- find 1000 more or less than a given number - recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) - order and compare numbers beyond 1000 Autumn 1	(read, write) order and compare numbers to at least 1 000 000 and determine the value of each digit Autumn 1	(read, write), order and compare numbers up to 10 000 000 and determine the value of each digit Autumn 1
Place Value: Problems & Rounding		use place value and number facts to solve problems. Autumn 1	solve number problems and practical problems involving these ideas Autumn 1	- round any number to the nearest 10, 100 or 1000 - solve number and practical problems that involve all of the above and with increasingly large positive numbers Autumn 1	- interpret negative numbers in context - round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 - solve number problems and practical problems that involve all of the above Autumn 1	- round any whole number to a required degree of accuracy - use negative numbers in context, and calculate intervals across zero - solve number and practical problems that involve all of the above Autumn 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition & Subtraction: Recall, Represent, Use	• read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs • represent and use number bonds and related subtraction facts within 20	• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	• estimate the answer to a calculation and use inverse operations to check answers	• estimate and use inverse operations to check answers to a calculation	• use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	
	Autumn 2	Autumn 2	Autumn 2	Autumn 2	Autumn 2	

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition & Subtraction: Calculations	add and subtract one-digit and two-digit numbers to 20, including zero Autumn 2 Spring 1	- add and subtract numbers using concrete objects, pictorial representations, and mentally, including: - a two-digit number and ones - a two-digit number and tens - two two-digit numbers - adding three one-digit numbers Autumn 2	- add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds - add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Autumn 2	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate Autumn 2	- add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) - add and subtract numbers mentally with increasingly large numbers Autumn 2	- perform mental calculations, including with mixed operations and large numbers - use their knowledge of the order of operations to carry out calculations involving the four operations Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition & Subtraction: Solve Problems	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$	- solve problems with addition and subtraction: ➤ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ➤ applying their increasing knowledge of mental and written methods	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why - solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
	Autumn 2 Spring 1	Autumn 2	Autumn 2	Autumn 2	Autumn 2	Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & Division: Recall, Represent, Use		- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers - show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	- 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 0 and 1; dividing by 1; multiplying together three numbers - recognise and use factor pairs and commutativity in mental calculations	- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers - know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers - establish whether a number up to 100 is prime and recall prime numbers up to 19 - recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)	- identify common factors, common multiples and prime numbers - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
		Autumn 4 Spring 1	Autumn 3	Autumn 4 Spring 1	Autumn 4	Autumn 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & Division: Calculations		calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ($\times$), division ($\div$) and equals ($=$) signs Autumn 4 Spring 1	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods Autumn 3 Spring 1	multiply two-digit and three-digit numbers by a one-digit number using formal written layout Spring 1	- multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers - multiply and divide numbers mentally drawing upon known facts - divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Autumn 4 Spring 1 Summer 1	- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication - divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context - divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context - perform mental calculations, including with mixed operations and large numbers Autumn 2

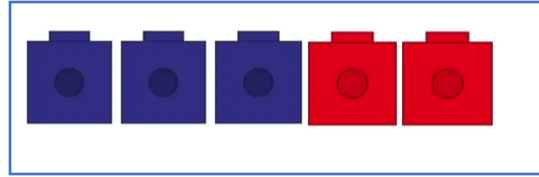


Calculation Policy

Handout 2

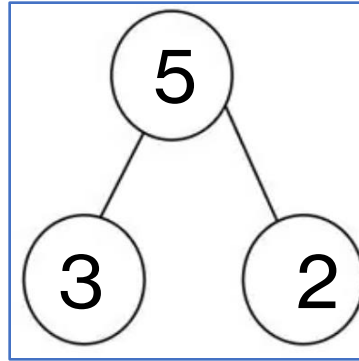
Concrete- Pictorial- Abstract Approach

The CPA approach is a highly effective way of teaching mathematics that helps children build a deep understanding of concepts. It moves through three stages: starting with hands-on experiences, then using visual representations, and finally progressing to formal mathematical symbols. This structured progression ensures that pupils develop confidence and fluency in their learning.



Concrete

- Children use physical objects (e.g., counters, cubes, beads) to understand mathematical concepts.
- This stage helps them see and touch what numbers represent.



Pictorial

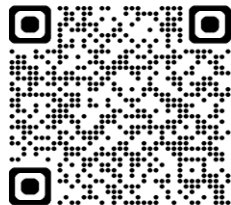
- Children move to drawing pictures or using visual representations (e.g., diagrams, bar models) of the objects.
- This bridges the gap between hands-on experience and symbolic understanding.

$$3 + 2 = 5$$

Abstract

- Children use numbers and symbols (e.g., $4 + 3 = 7$) without physical or visual aids.
- This is the formal stage where they apply concepts using mathematical notation.

Further information:



[Link: What is the CPA approach? | White Rose Education](#)

Concrete, Pictorial and Abstract Approach

Children move through these stages to help them *really understand* maths, not just memorise answers.

Think of it as:

👉 **touch it** → **see it** → **write it**

Why is CPA so important?

- ✓ Builds strong understanding
- ✓ Helps children explain their thinking
- ✓ Supports different learning styles
- ✓ Reduces “guessing” in maths
- ✓ Builds confidence

Children may move **back and forth** between stages – that’s normal and healthy learning.

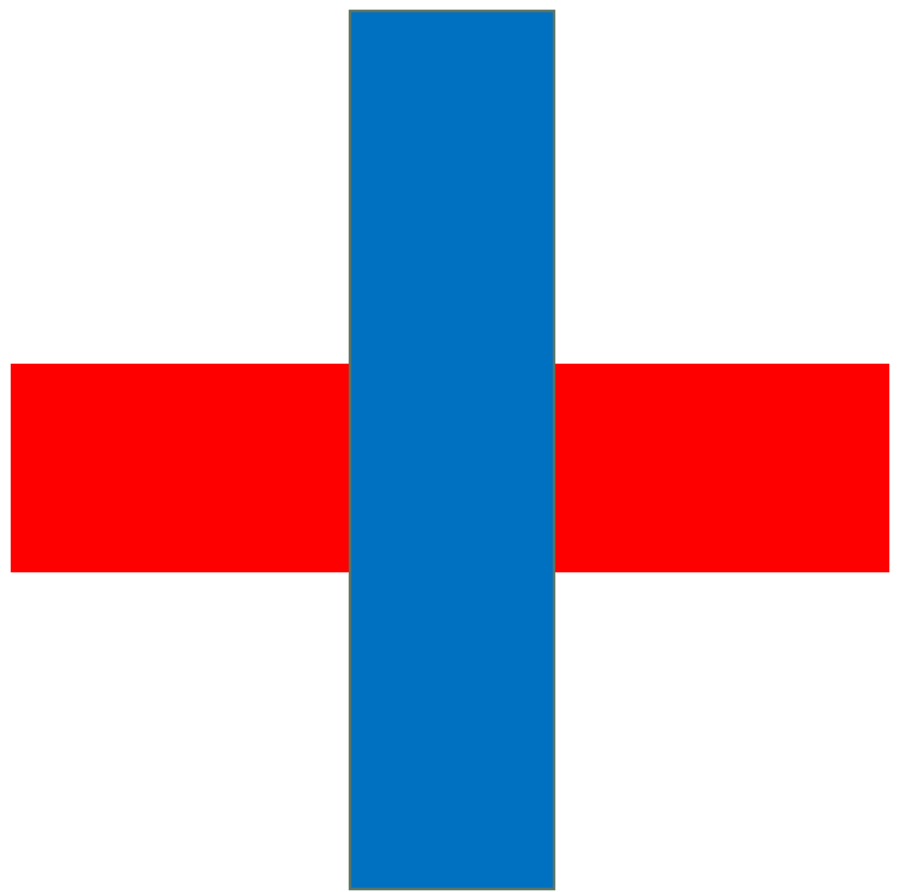
The image features ten large, colorful numbers from 0 to 9, each with a distinct woven texture. They are arranged on a dark, solid background. The numbers are: 1 (olive green), 2 (purple), 3 (blue), 4 (orange-red), 5 (green), 6 (dark green), 7 (red), 8 (yellow), 9 (lavender), and 0 (blue).

The Four Operations

National Curriculum Overview

Addition and Subtraction

- Year 3: 2- and 3-digit numbers
- Year 4: 4-digit numbers



Addition

Year 3 Addition

Further information:

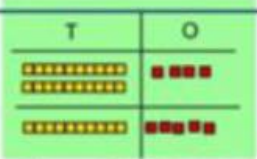
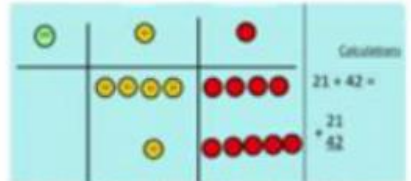
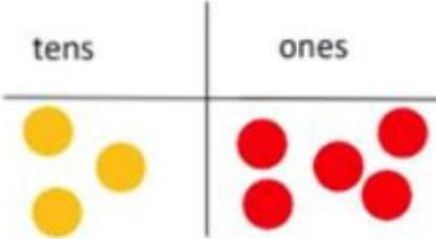
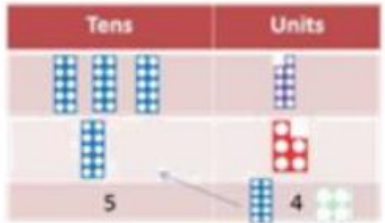
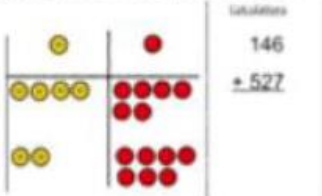
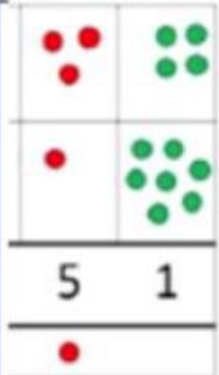
[Link- Adding and subtracting - Year 3 Maths - BBC Bitesize](#)



[Link- STEM- Maths at Year 3 and 4 Resource Collection](#)



Activate Windows
Go to Settings to activate W

Objective & Strategy	Concrete	Pictorial	Abstract
Column Addition—no regrouping (friendly numbers) Add two or three 2 or 3-digit numbers.	Model using Dienes or numicon  Add together the ones first, then the tens.   Move to using place value counters	Children move to drawing the counters using a tens and one frame. 	$\begin{array}{r} 223 \\ + 114 \\ \hline 337 \end{array}$ Add the ones first, then the tens, then the hundreds.
Column Addition with regrouping.	 Exchange ten ones for a ten. Model using numicon and pv counters. 	Children can draw a representation of the grid to further support their understanding, carrying the ten <u>underneath</u> the line 	$\begin{array}{r} 20 + 5 \\ 40 + 8 \\ 60 + 13 = 73 \end{array}$ Start by partitioning the numbers before formal column to show the exchange. $\begin{array}{r} 536 \\ + 85 \\ \hline 621 \\ 11 \end{array}$

Year 4-6 Addition

Objective & Strategy	Concrete	Pictorial	Abstract									
Y4—add numbers with up to 4 digits	Children continue to use dienes or pv counters to add, exchanging ten ones for a ten and ten tens for a hundred and ten hundreds for a thousand. <table border="1"><thead><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></tbody></table>	Hundreds	Tens	Ones								Continue from previous work to carry hundreds as well as tens. Continue from previous work, exchanging hundreds as well as tens.
Hundreds	Tens	Ones										
Y5—add numbers with more than 4 digits. Add decimals with 2 decimal places, including money.	As year 4 <table border="1"><thead><tr><th>tens</th><th>ones</th><th>tenths</th><th>hundredths</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td></tr></tbody></table> Introduce decimal place value counters and model exchange for addition.	tens	ones	tenths	hundredths					$2.37 + 81.79$	$72.8 + 54.6 = 127.4$	
tens	ones	tenths	hundredths									
Y6—add several numbers of increasing complexity Including adding money, measure and decimals with different numbers of decimal points.	As Y5	As Y5	$81,059 + 3,668 + 15,301 + 20,551 = 120,579$ Insert zeros for place holders.									

Further information: [Base Ten Size Explanation Links](#)



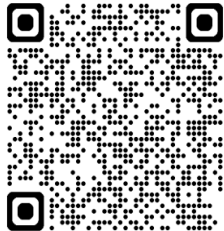
[Year 4](#)



[Year 5 and 6](#)

[Link- STEM- Adding and Subtracting at Year 3 and Year 4](#)

[B](#) [n](#)



[Link- STEM- Adding and Subtracting at Year 5 and Year 6](#)

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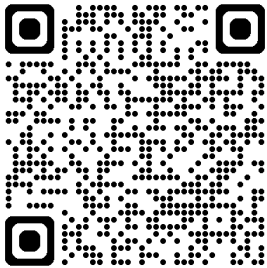


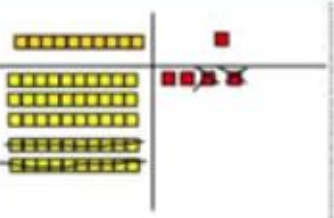
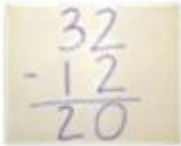
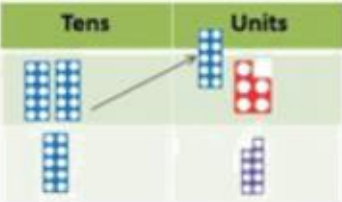
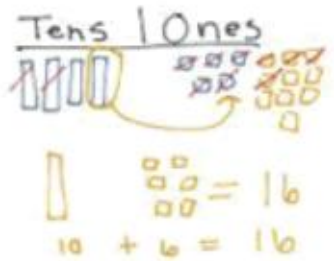


Subtraction

Year 3 Subtraction

Further information:
[Link- Adding and subtracting - Year 3 Maths - BBC Bitesize](#)

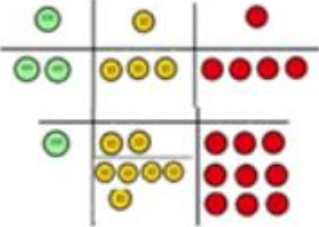
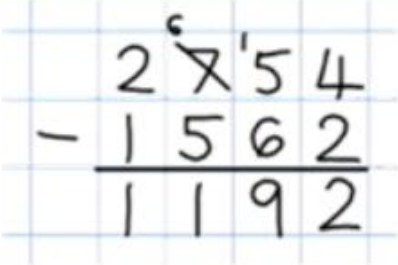
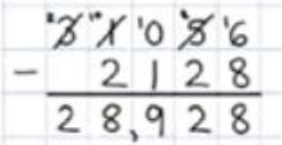
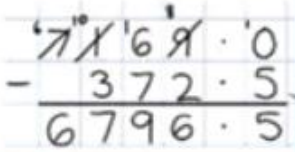
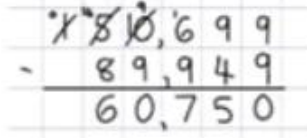
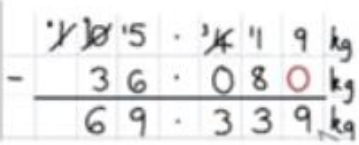


Objective & Strategy	Concrete	Pictorial	Abstract
Column subtraction without regrouping (friendly numbers)	 $47 - 32$  Use base 10 or Numicon to model	 Draw representations to support understanding	$47 - 24 = 23$ $\begin{array}{r} 40 + 7 \\ - 20 + 4 \\ \hline 20 + 3 \end{array}$ Intermediate step may be needed to lead to clear subtraction understanding. 
Column subtraction with regrouping	 Begin with base 10 or Numicon. Move to pv counters, modelling the exchange of a ten into ten ones. Use the phrase 'take and make' for exchange.	$\begin{array}{r} 45 \\ - 29 \\ \hline 16 \end{array}$  Children may draw base ten or PV counters and cross off.	$836 - 254 = 582$  Begin by partitioning into pv columns $728 - 582 = 146$  Then move to formal method.

[Link- STEM- Maths at Year 3 and 4 Resource Collection](#)



Year 4-6 Subtraction

Objective & Strategy	Concrete	Pictorial	Abstract
Subtracting tens and ones Year 4 subtract with up to 4 digits. <i>Introduce decimal subtraction through context of money</i>	234 - 179  Model process of exchange using Numicon, base ten and then move to PV counters.	Children to draw pv counters and show their exchange—see Y3	 Use the phrase 'take and make' for exchange
Year 5- Subtract with at least 4 digits, including money and measures. <i>Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal</i>	As Year 4	Children to draw pv counters and show their exchange—see Y3	 Use zeros for place-holders. 
Year 6—Subtract with increasingly large and more complex numbers and decimal values.			 

Further information: [Basic Size Explanation Links](#)



[Year 4](#)



[Year 5 and 6](#)

[Link- STEM- Adding and Subtracting at Year 3 and Year 4](#)

R



[Link- STEM- Adding and Subtracting at Year 5 and Year 6](#)

6



Addition and Subtraction in Year 3 and 4

We follow White Rose Scheme of Work

Year 3

Small steps

Step 1 Apply number bonds within 10

Step 2 Add and subtract 1s

Step 3 Add and subtract 10s

Step 4 Add and subtract 100s

Step 5 Spot the pattern

Step 6 Add 1s across a 10

Step 7 Add 10s across a 100

Step 8 Subtract 1s across a 10

Step 9 Subtract 10s across a 100

Step 10 Make connections

Step 11 Add two numbers (no exchange)

Step 12 Subtract two numbers (no exchange)

Step 13 Add two numbers (across a 10)

Step 14 Add two numbers (across a 100)

Step 15 Subtract two numbers (across a 10)

Step 16 Subtract two numbers (across a 100)

Step 17 Add 2-digit and 3-digit numbers

Step 18 Subtract a 2-digit number from a 3-digit number

Step 19 Complements to 100

Step 20 Estimate answers

Step 21 Inverse operations

Step 22 Make decisions

Addition and Subtraction in Year 3 and 4

We follow White Rose Scheme of Work

Year 4

Small steps

Step 1 Add and subtract 1s, 10s, 100s and 1,000s

Step 2 Add up to two 4-digit numbers – no exchange

Step 3 Add two 4-digit numbers – one exchange

Step 4 Add two 4-digit numbers – more than one exchange

Step 5 Subtract two 4-digit numbers – no exchange

Step 6 Subtract two 4-digit numbers – one exchange

Step 7 Subtract two 4-digit numbers – more than one exchange

Step 8 Efficient subtraction

Step 9 Estimate answers

Step 10 Checking strategies

Fluency, Reasoning & Problem Solving

- Fluency – Calculating accurately and confidently using secure methods.
- Reasoning – Explaining how and why an answer or method works using mathematical language.
- Problem Solving – Applying maths skills to real-life and unfamiliar situations.

Fluency, problem solving and reasoning examples

Year 3

Tommy makes this number.

100

100

100

10

10

10

10

10

1

1

100

100

100

10

10

10

10

1

1

1

He subtracts 40

What is Tommy's new number?

Key questions

- How can you show this question using base 10?
- How can you write this calculation using the formal written method?
- Have you put all the digits in the correct columns?
- Do you need to make an exchange?
- If you cannot exchange from the tens, what should you do?
- What could you write in the hundreds column if there are no hundreds?

Rosie wants to work out $102 - 98$ mentally.

Explain a method that Rosie could use.

Start

378	+ 100	+ 200	- 200	+ 300
- 100	+ 300	- 500	+ 100	- 100
+ 500	- 300	+ 200	+ 200	- 100
- 200	+ 100	+ 100	- 100	+ 200
- 100	+ 300	- 500	+ 200	778

Finish

Find a path from the start to the finish so that your end number is 778

Is there more than one path?

What if the finish number is 578?

Work out $453 + 537$

		H	T	O	
		4	5	3	
	+	5	3	7	

Fluency, problem solving and reasoning examples

Year 4

Key questions

- How can you represent the question using base 10?
- How can you put these numbers into a place value chart?
- Does it matter which columns you add together first?
- Do you have enough ones/tens/hundreds to make an exchange?
- What do you write in the tens column if there are no tens?

Here is a number on a place value chart.

Thousands	Hundreds	Tens	Ones
1,000 1,000	100		1 1 1 1

- Subtract 3 ones.
- Add 2 thousands.
- Subtract 1 hundred.

What is the new number?

Fill in the missing digits.

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

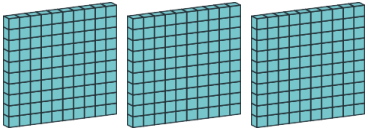
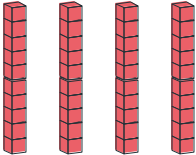
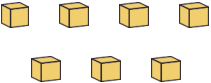
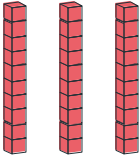
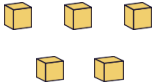
Rosie and Mo each have some points on a computer game.
Mo has 599 fewer points than Rosie.
Mo has 4,278 points.
How many points do they have altogether?

Find the missing 4-digit number.

	Th	H	T	O
+	4	6	7	8
	7	4	3	1

How did you find the answer?
Is there more than one way?

The 5 will go in the ones column because it has a value of 5.

hundreds	tens	ones
		
		

	H	T	O	
	3	4	7	
+		3	5	

Year 3 Subtraction example (With Exchange)

Let's take a look at this subtraction together.

356

-

28

=

How would you approach this question?

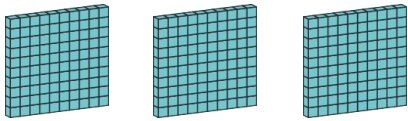
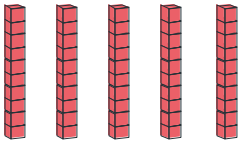
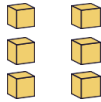
Let's take a look at this subtraction together.

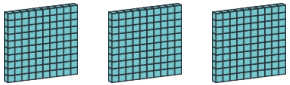
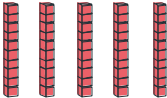
356

-

28

=

hundreds	tens	ones
		

hundreds	tens	ones
		

We are subtracting 28 so I need to think about where I will place the digits.

	H	T	O	
	3	5	6	
-				



Multiplication and Division in Lower Key Stage 2

Key mathematical skills developed in Year 2

1. Master basic number facts

Fluent addition and subtraction within 100 to build accuracy and speed.

2. Understand arrays and groups

Recognise equal groups and arrays to model repeated addition.

3. Build times table fluency

Focus on 2, 5, and 10 to support later multiplication strategies.

4. Link multiplication and division

Use sharing and grouping to see how division relates to multiplication.

Multiplication and Division in Year 3 and 4

We follow White Rose Scheme of Work

Year 3

Small steps

Step 1 Multiplication – equal groups

Step 2 Use arrays

Step 3 Multiples of 2

Step 4 Multiples of 5 and 10

Step 5 Sharing and grouping

Step 6 Multiply by 3

Step 7 Divide by 3

Step 8 The 3 times-table

Autumn term we build foundational knowledge of Times Tables as a key concept.

Step 9 Multiply by 4

Step 10 Divide by 4

Step 11 The 4 times-table

Step 12 Multiply by 8

Step 13 Divide by 8

Step 14 The 8 times-table

Step 15 The 2, 4 and 8 times-tables

Multiplication and Division in Year 3 and 4

We follow White Rose Scheme of Work

Year 4

Small steps

Step 1

Multiples of 3

Step 2

Multiply and divide by 6

Step 3

6 times-table and division facts

Step 4

Multiply and divide by 9

Step 5

9 times-table and division facts

Step 6

The 3, 6 and 9 times-tables

Step 7

Multiply and divide by 7

Step 8

7 times-table and division facts

Step 9

11 times-table and division facts

Step 10

12 times-table and division facts

Step 11

Multiply by 1 and 0

Step 12

Divide a number by 1 and itself

Step 13

Multiply three numbers

Fluency, problem solving and reasoning examples

Key questions

- How many equal groups are there?
- How many are in each group?
- How can you write a number sentence to show this?
- How many lots of 8 do you have?
- What is the relationship between multiplying by 4 and multiplying by 8?

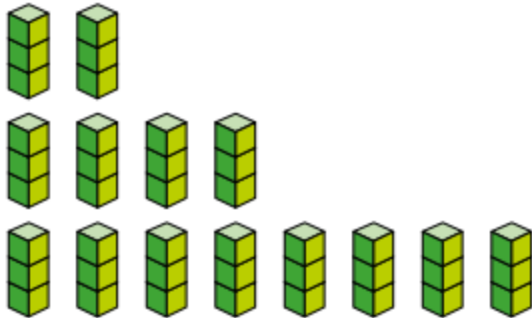
Year 3

- Complete the multiplications.

▶ $3 \times 2 = \underline{\hspace{2cm}}$

▶ $3 \times 4 = \underline{\hspace{2cm}}$

▶ $3 \times 8 = \underline{\hspace{2cm}}$



What do you notice?

Is the statement true or false?

Multiples of 8 are also
multiples of 4 and 2

Explain your answer.



146 is in the
8 times-table.



Do you agree with Tiny?
Explain your answer.



- Complete the table.

$\times$	2	4	8
3	6		
	10	20	
			72

What do you notice?

Fluency, problem solving and reasoning examples

Key questions

- What links can you see between the 3 and 6 times-tables?
- What links can you see between the 3 and 9 times-tables?
- What other times-tables can you use to help find the multiplication facts?
- If you know one multiplication fact, what other multiplication fact do you know? What division facts do you know?
- How do you know if a number is a multiple of 3/6/9?

Year 4

Kim rolls a 10-sided dice three times.

The product of her numbers is 40

What numbers could she have rolled?

Compare answers with a partner.

Is the statement true or false?

$$9 \times 8 = 9 \times 4 \times 2$$

Explain your reasoning.

- Alex and Teddy are working out $6 \times 5 \times 2$

Alex

$$\begin{aligned} 6 \times 5 \times 2 &= 6 \times 5 \times 2 \\ &= 30 \times 2 \\ &= 60 \end{aligned}$$

Teddy

$$\begin{aligned} 6 \times 5 \times 2 &= 6 \times 5 \times 2 \\ &= 6 \times 10 \\ &= 60 \end{aligned}$$

Whose method do you prefer?

Is one method more efficient than the other?

Choose the method you prefer to work out the calculations.

- Find the products.

$$5 \times 2 \times 6$$

$$8 \times 4 \times 5$$

$$2 \times 8 \times 6$$

We begin our lessons with Flashback 4 from White Rose aimed at strengthening those key concepts of multiplication and division

Flashback 4

Year 3 | Week 9 | Day 1

White Rose
MATHS

- 1) A café sells 220 doughnuts. 5×7
It sells 57 fewer muffins than doughnuts.
How many muffins does it sell?
- 2) What is the difference between 48 and 283?
- 3) Find the sum of 28 and 61
- 4) Represent 22 in tally marks.

On your tables...

This is the first page of an end of term assessment for multiplication (timetables) for Year 3

Have a go!

Version A

White Rose
MATHS

Multiplication and division A

Name: _____

1 Circle the multiple of 5

1 7 15 23

Circle the multiple of 10

30 35 37 39

2 Complete the sentences to match the picture.



There are equal groups of apples.

There are apples in total.

1 mark

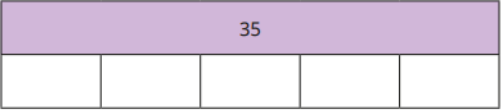
1 mark

2 marks

3 5 children have 4 grapes each.
How many grapes do the children have altogether?

1 mark

4 Complete the bar model.



1 mark

5 32 children are put into 8 equal teams.
How many children are there in each team?

1 mark

Answers

Version A

White Rose
MATHS

Multiplication and division A

Name: _____

- 1 Circle the multiple of 5

1 7 15 23

Circle the multiple of 10

30 35 37 39

- 2 Complete the sentences to match the picture.



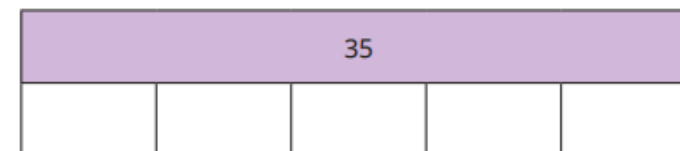
There are equal groups of apples.

There are apples in total.

- 3 5 children have 4 grapes each.
How many grapes do the children have altogether?

1 mark

- 4 Complete the bar model.



1 mark

- 5 32 children are put into 8 equal teams.
How many children are there in each team?

1 mark

1 mark

1 mark

2 marks

Times table learning in class across Year 3 and 4

Marvel

The multiplication table I am exploring is				Work out the number of groups linked to the table chosen using your known facts. How can this link to recall of division facts?	
2 (double 1 group)		4 (double 2 groups or half of 8 groups)		8 (double 4 groups)	
3 (the key)		6 (double the key)		9 (treble the key)	
10 (I know 10 groups!)		5 (half of 10 groups)		7 (can you remember or 5 groups + 2 groups)	
11 (10 groups + 1 group)		12 (10 groups + 2 or double 6 groups)		Multiply by 0	

ts!

Key Facts Chart

<u>Language</u>	<u>Number of equal groups</u>	
I know	1	
Double	2	
	3	
Double again	4	
	6	
	7	
Double again	8	
	9	
I know	10	
Half	5	

Multiplication and Division in Year 3 and 4

We follow White Rose Scheme of Work

Year 3

Small steps

Step 1

Multiples of 10

Step 2

Related calculations

Step 3

Reasoning about multiplication

Step 4

Multiply a 2-digit number by a 1-digit number – no exchange

Step 5

Multiply a 2-digit number by a 1-digit number – with exchange

Step 6

Link multiplication and division

Step 7

Divide a 2-digit number by a 1-digit number – no exchange

Step 8

Divide a 2-digit number by a 1-digit number – flexible partitioning

Spring term we build foundational upon our timestable and place value knowledge

Step 9

Divide a 2-digit number by a 1-digit number – with remainders

Step 10

Scaling

Step 11

How many ways?

Multiplication and Division in Year 3 and 4

We follow White Rose Scheme of Work

Year 4

Small steps

Step 1

Factor pairs

Step 2

Use factor pairs

Step 3

Multiply by 10

Step 4

Multiply by 100

Step 5

Divide by 10

Step 6

Divide by 100

Step 7

Related facts – multiplication and division

Step 8

Informal written methods for multiplication

Step 9

Multiply a 2-digit number by a 1-digit number

Step 10

Multiply a 3-digit number by a 1-digit number

Step 11

Divide a 2-digit number by a 1-digit number (1)

Step 12

Divide a 2-digit number by a 1-digit number (2)

Step 13

Divide a 3-digit number by a 1-digit number

Step 14

Correspondence problems

Step 15

Efficient multiplication

Fluency, problem solving and reasoning examples

Whitney is comparing calculations.



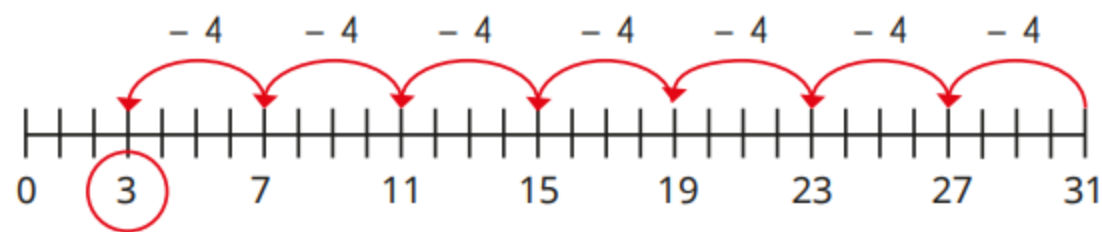
$4 \times 21 = 2 \times 42$

Is Whitney correct?
How does she know this?



Year 3

- Tommy uses repeated subtraction to work out $31 \div 4$



$31 \div 4 = 7 \text{ r}3$

Use Tommy's method to work out $38 \div 3$

- Work out the multiplications.

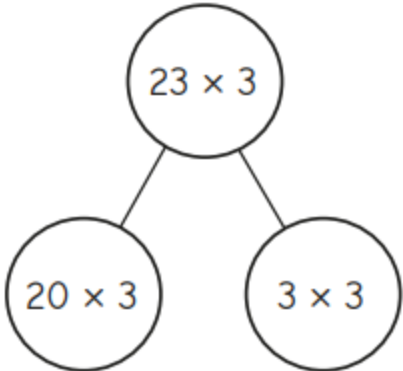
32×3

23×2

12×4

41×2

- Ron has used a part-whole model to multiply 23 by 3



$20 \times 3 = 60$
 $3 \times 3 = 9$
 $23 \times 3 = 69$

Use a part-whole model to help you work out the multiplications.

21×5

42×2

52×2

21×6

Fluency, problem solving and reasoning examples

Here are three incorrect multiplications.

		H	T	O	
			6	1	
	x			5	
			3	5	

		H	T	O	
			7	4	
	x			7	
			4	9	8

		H	T	O	
			2	6	
	x			4	
			8	2	4

What mistakes have been made?
Complete the calculations correctly.



Year 4

Complete the multiplications.

		H	T	O	
			4	3	
	x			5	

		H	T	O	
			3	6	
	x			4	

		H	T	O	
			7	4	
	x			5	

Annie uses place value counters to divide 639 by 3

Hundreds	Tens	Ones
100 100	10	1 1 1
100 100	10	1 1 1
100 100	10	1 1 1

$639 \div 3 = 213$

Use Annie's method to work out the divisions.

$862 \div 2$

$884 \div 4$

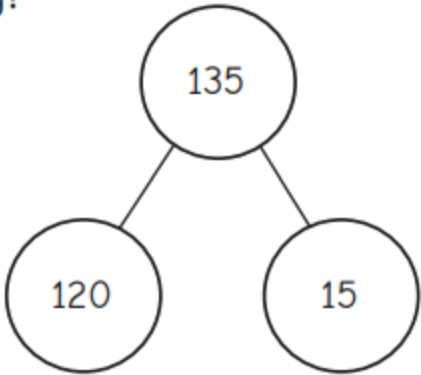
$906 \div 3$

$630 \div 3$

Tiny is using a part-whole model to work out $135 \div 3$

Why has Tiny partitioned 135 this way?

Complete Tiny's workings.



End of unit assessment for Year 3 Spring

You don't need to do this one!

Version A

Multiplication and division B

White Rose MATHS

Name: _____

- 1 Circle all the multiples of 10

60 66 106 160 600

☐ 2 marks

- 2 Work out the missing numbers.

$$23 \times 10 = \square$$

☐ 1 mark

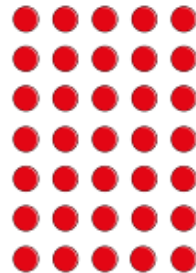
$$19 \times 10 = \square$$

☐ 1 mark

$$\square \times 10 = 370$$

☐ 1 mark

- 3 Complete the calculations to match the array.



$$\square \times \square = \square$$

$$\square \times \square = \square$$

$$\square \div \square = \square$$

$$\square \div \square = \square$$

☐ 2 marks

- 4 Complete the multiplications.



$$6 \times 4 = \square$$

☐ 1 mark



$$6 \times 40 = \square$$

☐ 1 mark

- 5 Work out 3×13

Tens	Ones
10	1 1 1
10	1 1 1
10	1 1 1

☐

☐ 1 mark

Our Calculation Policy – Multiplication

Year 3

Abstract

Start with multiplying by one digit numbers and showing the clear addition alongside the grid.

×	30	5
7	210	35

$$210 + 35 = 245$$

Moving forward, multiply by a 2 digit number showing the different rows within the grid method.

	10	8
10	100	80
3	30	24

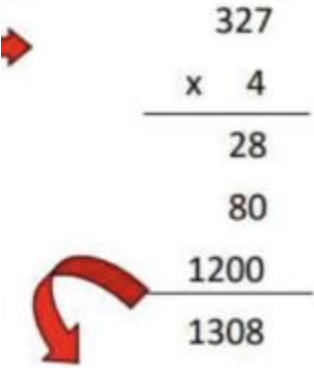
Abstract

Start with multiplying by one digit numbers and showing the clear addition alongside the grid.

×	30	5
7	210	35

$$210 + 35 = 245$$

Year 4


$$\begin{array}{r} 327 \\ \times 4 \\ \hline 28 \\ 80 \\ 1200 \\ \hline 1308 \end{array}$$

	3	2	7	
×			4	
	1	3	0	8
		1	2	

This may lead to a compact method.

My Turn!



Place Value Grid

Calculation

Thousands	Hundreds	Tens	Ones

34 × 5

Your turn - on your whiteboards!



Place Value Grid

Calculation

Thousands	Hundreds	Tens	Ones

$$245 \times 4 =$$

Our Calculation Policy – Division

Abstract

How many groups of 6 in
24?

$$24 \div 6 = 4$$

Year 3

Abstract

Complete written divisions and show the remainder using r.

$$\begin{array}{ccccccc} 29 & \div & 8 & = & 3 & \text{REMAINDER} & 5 \\ \uparrow & & \uparrow & & \uparrow & & \uparrow \\ \text{dividend} & & \text{divisor} & & \text{quotient} & & \text{remainder} \end{array}$$

Year 4-

Find the inverse of multiplication and division sentences by creating eight linking number sentences.

$$7 \times 4 = 28$$

$$4 \times 7 = 28$$

$$28 \div 7 = 4$$

$$28 \div 4 = 7$$

$$28 = 7 \times 4$$

$$28 = 4 \times 7$$

$$4 = 28 \div 7$$

$$7 = 28 \div 4$$

My Turn!

Place Value Grid

Calculation



Thousands	Hundreds	Tens	Ones

$$36 \div 3 =$$

Your turn - on your whiteboards!

Place Value Grid				Calculation
Thousands	Hundreds	Tens	Ones	
				42 ÷ 3 =

Counting Stick



- Use to count forwards and backwards in a given times table.
- Colour-coded numbers link to KFC
- Link to songs and have competitions.
- Gradually remove numbers.

Number of equal groups										
0	1	2	3	4	5	6	7	8	9	10
0	3	6	9	12	15	18	21	24	27	30

Children are introduced to and explore the partial tables chart to build upon counting stick rules and patterns of **start, groups of, halfway, end, double, double again, double again.**

Key facts chart (KFC)

Language	Number of equal groups	3
I know	1	3
Double	2	6
Double again	4	12
Double again	8	24
I know	10	30
Half	5	15

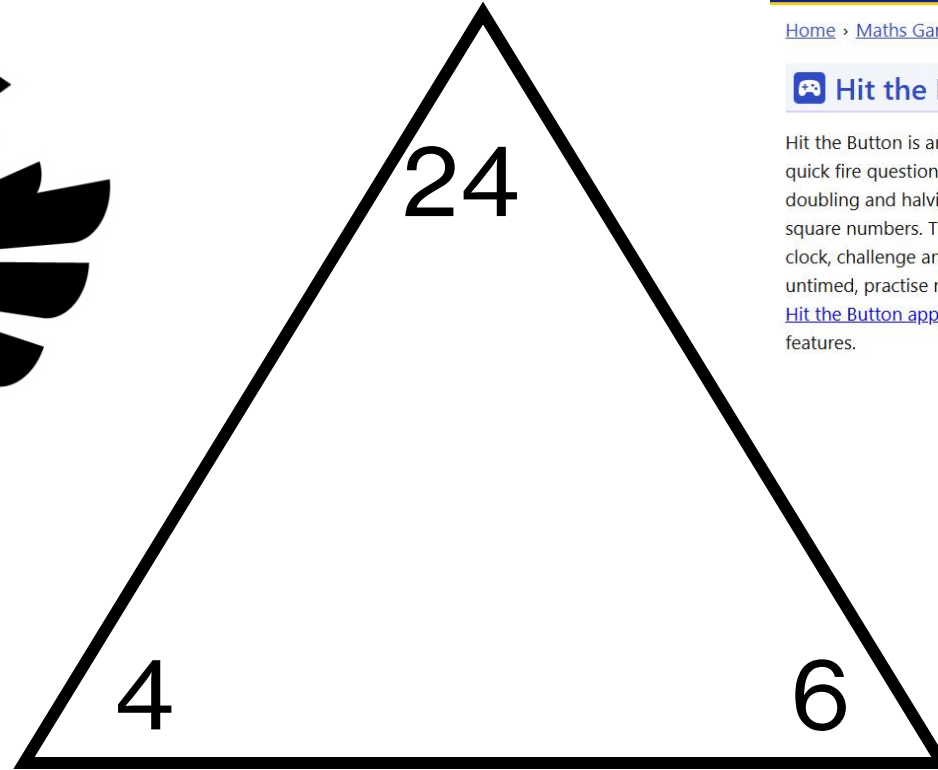
These are taught explicitly so that children can use known facts to work out other facts, e.g. 7×3 (5 groups + 2 groups), 15×3 .

They can also be used to support scaling, e.g. 'If I know 10 groups of 6 is 60 I can make it ten times the size ($60 \times 10 = 600$) and 100 times the size ($60 \times 100 = 6000$).'

KFC	
 x 3	
1	
2	
4	
8	
10	
5	
 ÷ 3	

Children begin to use KFC with more independence.

Practicing Multiplication Facts



Topmarks

Topmarks

Games &

Search

Interactives

Wo

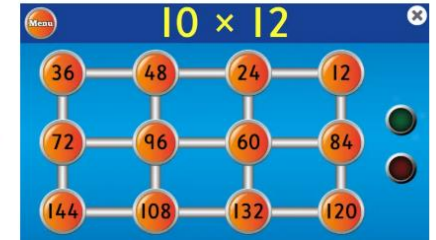
[Home](#) > [Maths Games](#) > Hit the Button



Hit the Button

[▶ Play Game](#)

Hit the Button is an interactive maths game with quick fire questions on number bonds, times tables, doubling and halving, multiples, division facts and square numbers. The games, which are against the clock, challenge and develop mental maths skills. An untimed, practise mode is available in our [Hit the Button app](#) along with lots more extra features.



Timestables.co.uk

Learn the times tables here!



A GUIDE TO THE MTC

GUIDE



TODAY



- What is the MTC?
- MTC key facts
- Preparing pupils



WHAT IS THE MTC?



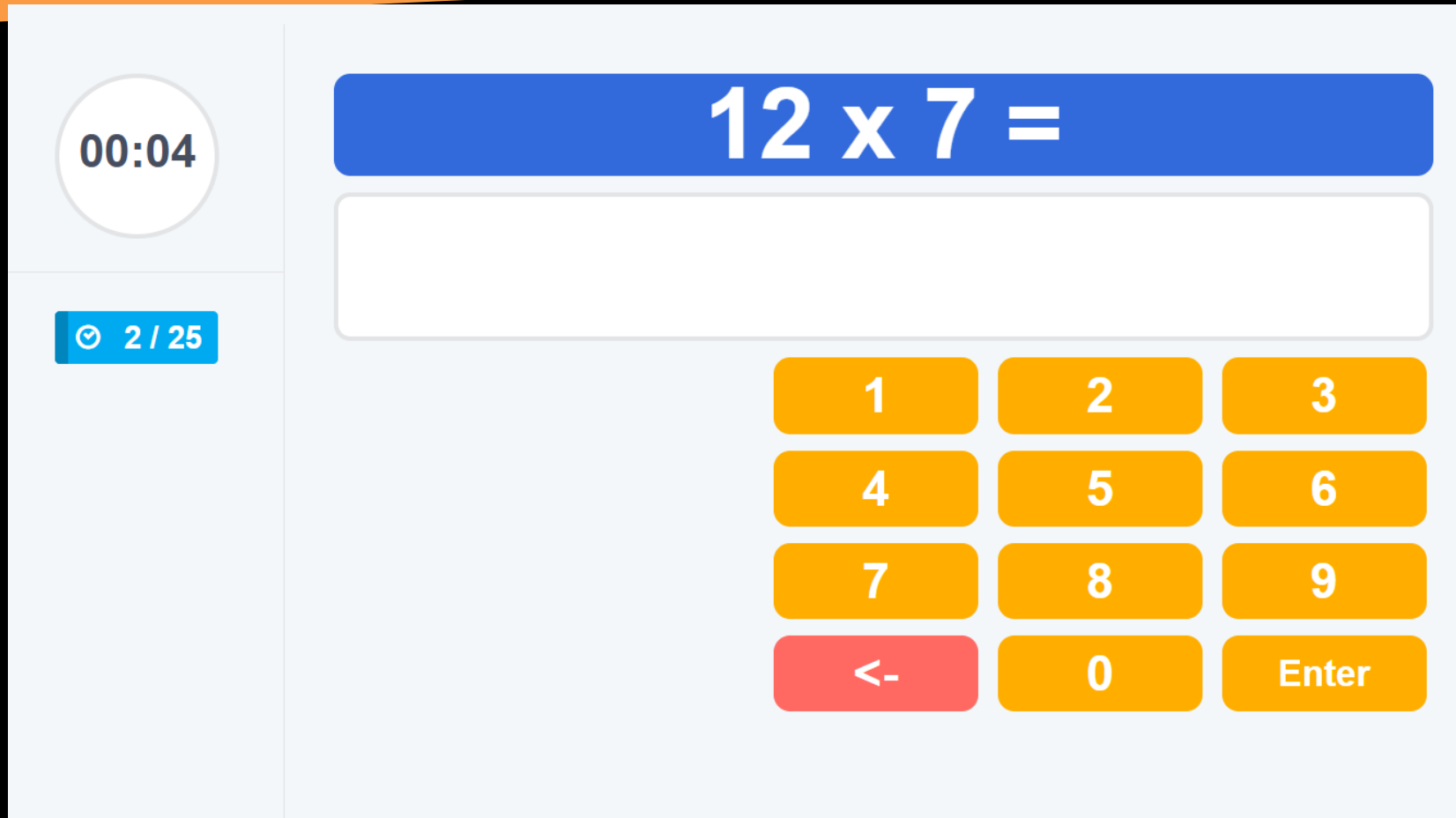
- MTC stands for 'Multiplication Tables Check'.
- Online quiz for year 4 children in England, set by the government.
- Pupils demonstrate their times tables skills, which they've been practising for years.
- Helps us to know your children are ready for year 5 maths



MTC KEY FACTS

- Must be taken in school between 1st and 12th June 2026
- Start with 3 practice questions
- Then 25 multiplication questions (no division)
 - For each question, you must enter an answer within 6s
 - 3s pause between questions

WHAT THE MTC LOOKS LIKE



The image shows a digital interface for a math test. On the left, there is a sidebar with a circular timer showing '00:04' and a blue button with a clock icon and '2 / 25'. The main area features a blue header bar with the equation '12 x 7 ='. Below this is a large white input box. At the bottom right is a numeric keypad with buttons for digits 1-9, 0, a red '<-' button, and an 'Enter' button.

00:04

🕒 2 / 25

12 x 7 =

1 2 3

4 5 6

7 8 9

<- 0 Enter

MTC RESULTS



- Full marks is 25/25 but there's no pass mark
 - Your child's results will be shared via the End of Year Report.
 - Each school finds out the Local Authority and National average but not each other's results.
- 

PREPARING PUPILS : SCHOOL



We might...

- spend a little more time learning times tables in class
 - set times tables homework
 - organise class tournaments
- 

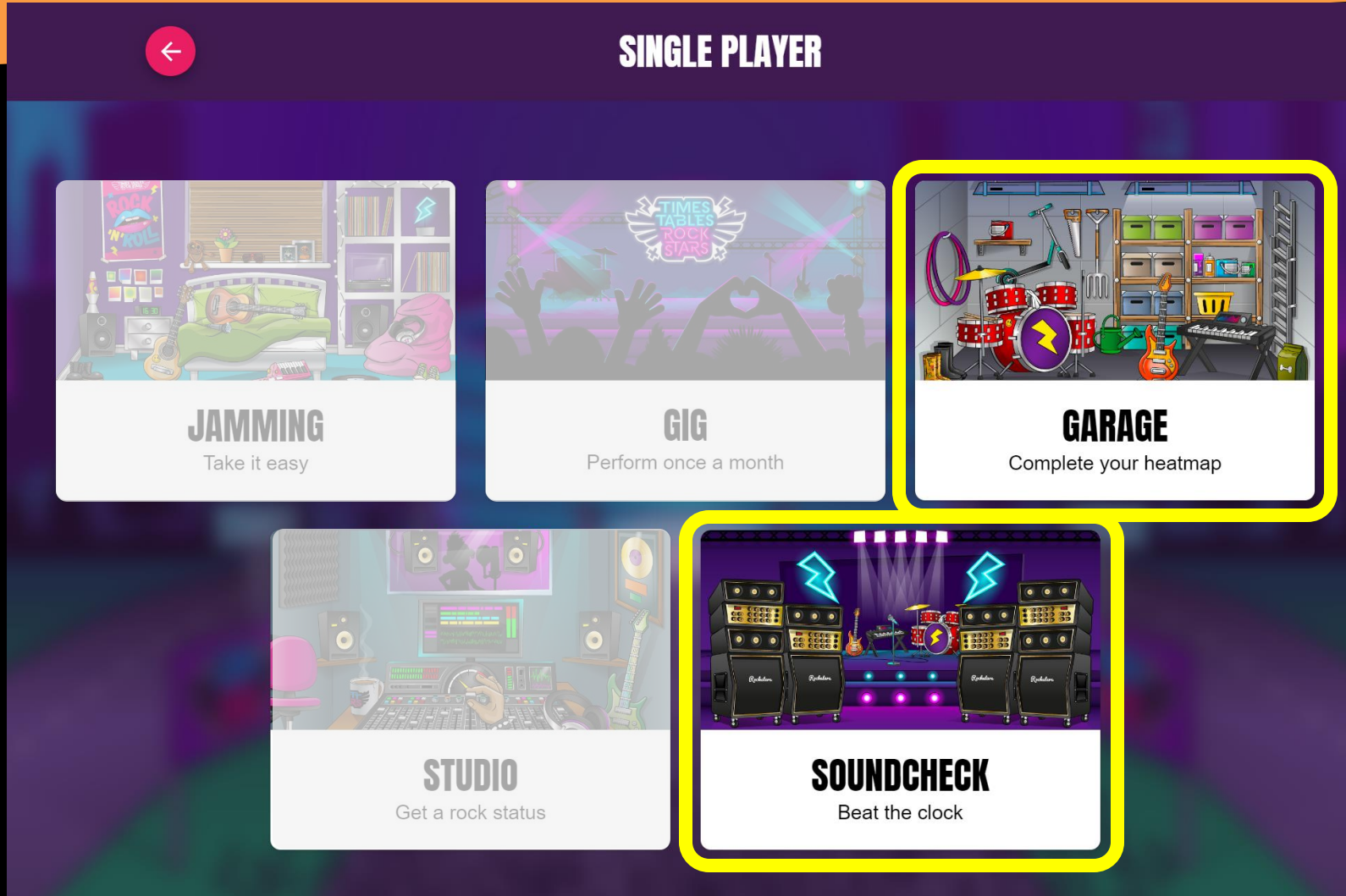
PREPARING PUPILS : OUT OF SCHOOL



- Regular, *short* verbal times tables practice
 - Kitchen, bathroom, bedroom, walking
- Play TTRS on mobile/tablet/computer
 - Those who scored 25 last year typically played 6 minutes three times a week.



BEST GAME MODES FOR YEAR 4



Home Support Strategies

You don't need worksheets!



1. Use numbers on car number plates to solve multiplication calculations

2. Find numbers in your environment such as on lampposts, house numbers and traffic signs



3. There are also board games and card games available and many apps also available online

Helpful questions to ask:

- ☐ “Can you show me with objects?”
- ☐ “Prove it!”
- ☐ “How do you know?”



Around the house



- Cooking. Measure ingredients and set the timer together. Get your child to work out how much more food you will need if extra people are coming for dinner. How much will the ingredients cost? How much change?
- When you are sharing food like pizza or cake, ask your child to help you share it equally between the number of people eating.
- Solve problems at home. For example, ask your child how many apples to buy at the shop and why, or how long it will take you to get to Gran's house if you go to the library on the way.

Any questions, comments or feedback?

Thank you for coming!