



Mathematics Information Evening

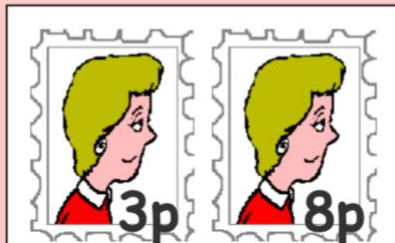
Information evening based around the teaching and progression of multiplication and division across KS1 and KS2

Can you solve this problem?

Aunt Sophie has 3p and 8p stamps only.

It will cost 73p to post a parcel.

How many of each type of stamp should she put on the parcel?



				25
				20
			26	

Can you work out the missing numbers?

Which skills and knowledge have you used to solve this puzzle

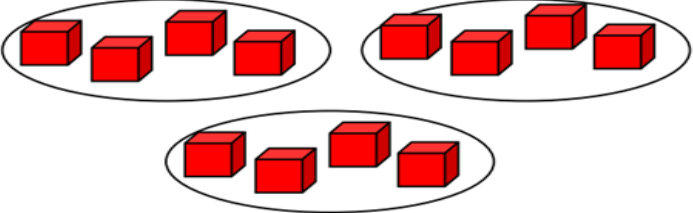
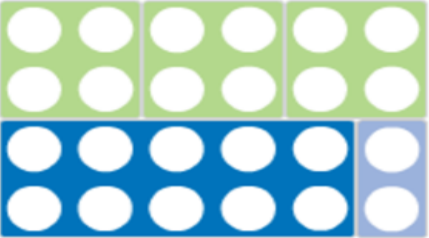


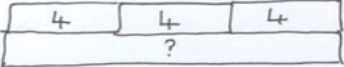
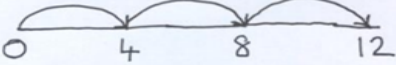
Aims of the evening:

- **Look at how multiplication and division is taught in the classroom through a CPA approach (Concrete - Pictorial-Abstract)**
- **Look at the the concrete resources/manipulatives that we use at school to support mathematical teaching and learning.**
- **How to support your children at home with their maths learning including the learning of times tables.**

Calculation: Multiplication

Key language: double, times, multiplied by, product, groups of, lots of, equal groups, arrays, factor, multiple, partition, commutative, column, value, multiple, multiplicand

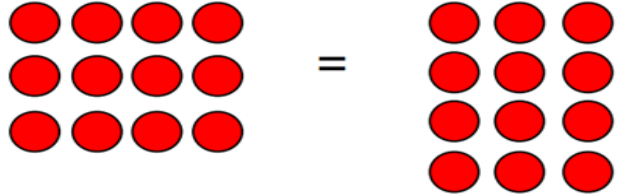
Key representations: place value counters, base 10, bead strings, multilink, counters, Numicon, bar model, number line

Concrete	Pictorial	Abstract	Stem Sentences
<p>Equal groups:</p> $3 \times 4 = 12$ $4 + 4 + 4 = 12$   	$3 \times 4 = 12$ $4 + 4 + 4 = 12$   	$3 \times 4 = 12$ $4 + 4 + 4 = 12$	<p><i>'There are ___ equal groups.'</i></p> <p><i>'There are ___ in each group.'</i></p> <p><i>'There are ___ equal groups of ___.'</i></p> <p><i>'If there are ___ equal groups, we can use the ___ times table.'</i></p>

Arrays to show commutativity:

$$3 \times 4 = 4 \times 3$$

$$4 + 4 + 4 = 3 + 3 + 3 + 3$$



3 groups of 4 = 4 groups of 3

$$3 \times 4 = 4 \times 3$$

$$4 + 4 + 4 = 3 + 3 + 3 + 3$$



$$3 \times 4 = 4 \times 3$$

$$4 + 4 + 4 = 3 + 3 + 3 + 3$$

'I can see 3 groups of 4 and I can see 4 groups of 3.'

'3 times 4 can represent 3 groups of 4.'

It can also represent 4 times 3.'

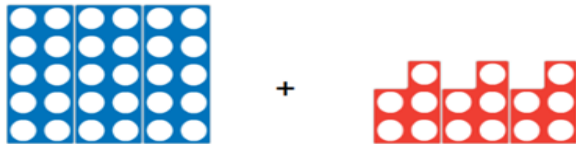
'If there are ___ equal groups, we can use the ___ times table.'

Partition to multiply:

$$3 \times 15 =$$



becomes



$3 \times 10 + 3 \times 5$

$$3 \times 15 =$$

15	15	15
?		



$$3 \times 15 =$$

$$3 \times 10 = 30$$

$$3 \times 5 = 15$$

$$30 + 15 = 45$$

x	10	5
3	30	15

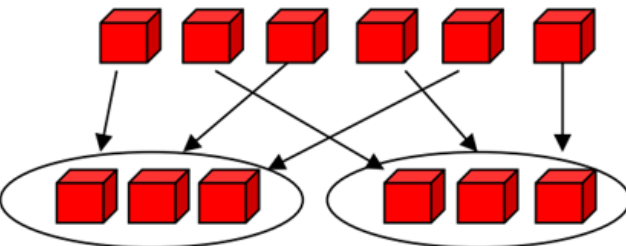

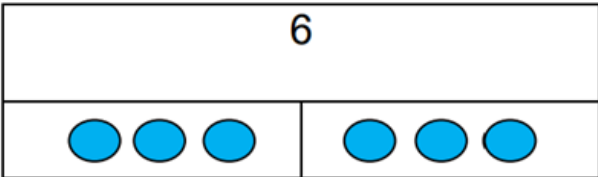
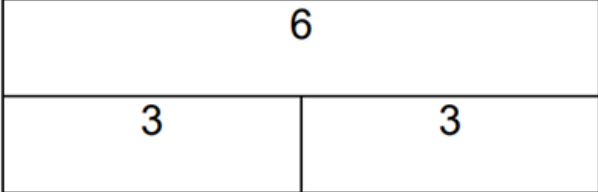
'15 is equal to 10 plus 5.'

So 3 times 15 is equal to 3 times 10 plus 3 times 5.'

Calculation: Division

Key language: share, group, divide, divided by, half, equal, dividend, divisor, quotient, factor, multiple, remainder, dividend

Key representations: place value counters, base 10, bead strings, multilink, counters, Numicon, bar model, number line

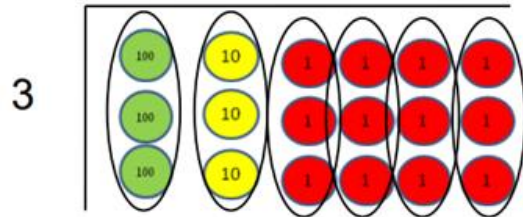
Concrete	Pictorial	Abstract	Stem Sentences
<p>Sharing-Partitive: using a range of discrete concrete objects</p> <p>$6 \div 2 = 3$</p> 	<p>$6 \div 2 = 3$</p>   	<p>$6 \div 2 = 3$</p>	<p><i>'6 divided between 2 is equal to 3 each.'</i></p> <p><i>'6 shared into 2 equal groups, there are 3 in each group.'</i></p> <p><i>'6 is the dividend 2 is the divisor 3 is the quotient.'</i></p>

Short division: quotitive 2 digit by 1 digit (with exchange)
(Only use when the dividend is beyond the twelfth multiple. Before the twelfth multiple, times tables facts should be used).

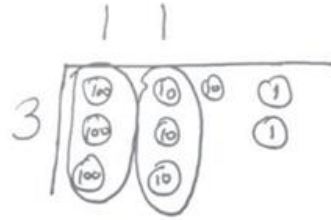
$$342 \div 3 = 3 \overline{)342}$$



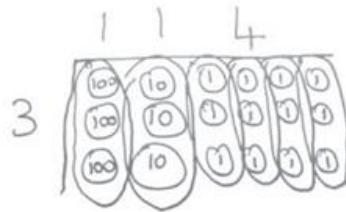
1 1 4



$$342 \div 3 = 3 \overline{)342}$$



100s 10s 1s



$$342 \div 3 = 114$$

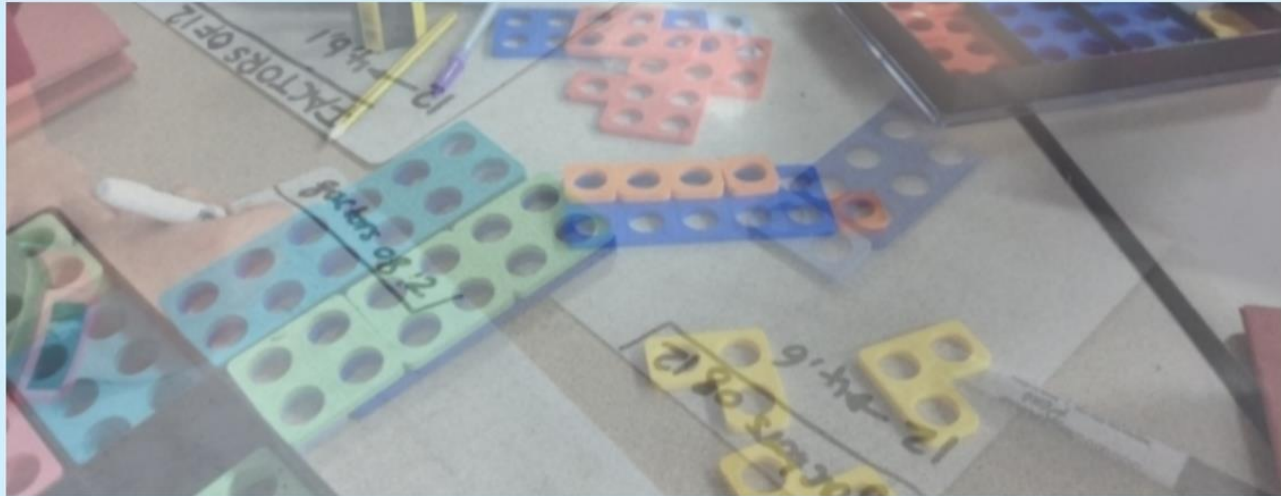
$$\begin{array}{r} 100s \quad 10s \quad 1s \\ 3 \overline{)342} \\ \underline{3} \quad \underline{1} \quad \underline{1} \quad \underline{4} \\ 0 \quad 0 \quad 0 \end{array}$$

'3 hundreds divided by 3 is 1 hundred.

4 tens divided by 3 is 1 group remainder 1 ten.

Exchange 1 ten for 10 ones.

12 ones divided by 3 is equal to 4.'

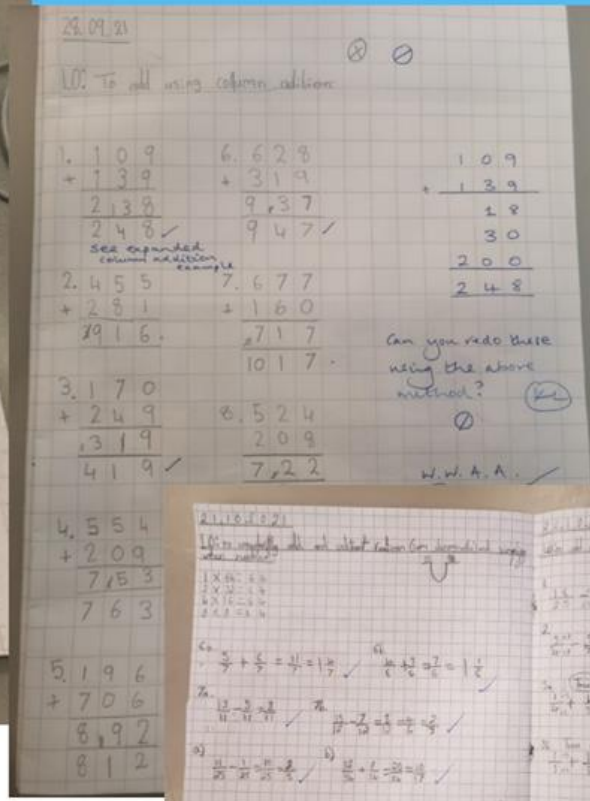
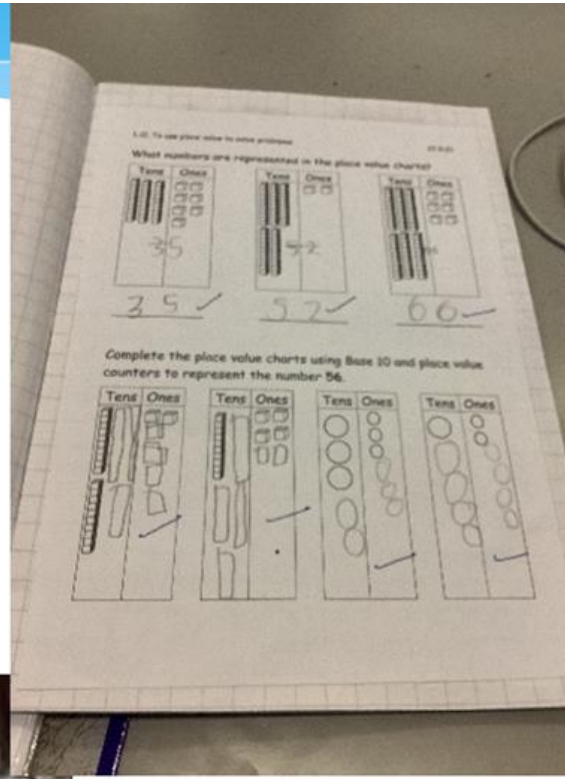


Maths

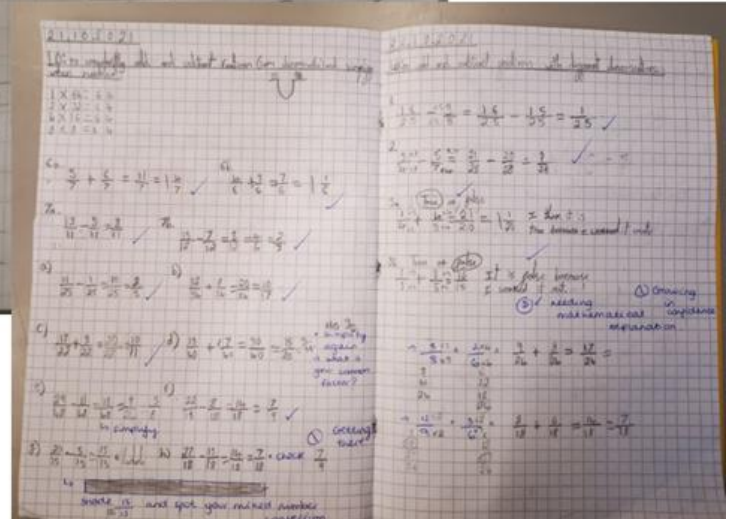
Why Teach Mathematics?

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high quality mathematics education therefore provides a foundation for understanding the world, the

What does Maths look like?



Concrete
Pictorial
Abstract



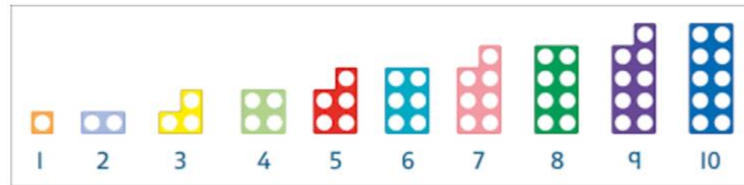
CPA Approach: Concrete, Pictorial, Abstract

Concrete

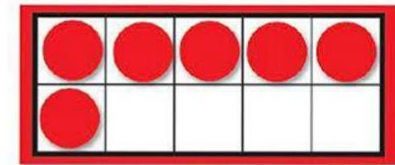
Concrete resources (also referred to as manipulatives) are objects or physical resources that children can handle and manipulate to aid their understanding of different maths concepts. Children are able to 'see' the Maths and make sense of what is happening.



Bead strings



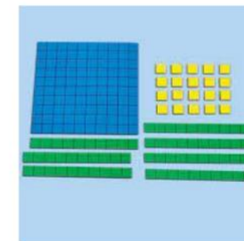
Numicon



Ten frames



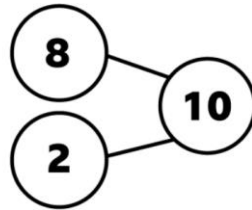
Place value counters



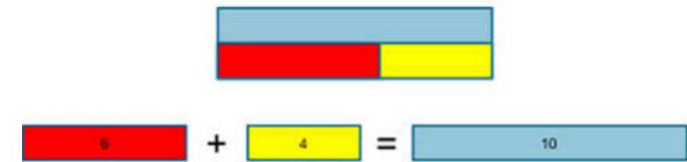
Base 10

Pictorial

Once children are confident with a concept using concrete resources, they progress to drawing pictorial representations or quick sketches of the objects. By doing this, they are no longer manipulating the physical resources, but are still benefiting from the visual support the resources provide.



Part whole model



Bar model

Abstract

Once children have a secure understanding of the concept through the use of concrete resources and visual images, they are then able to move on to the abstract.

Why is C-P-A so important?

- In the past, children were taught procedures, but not why or how the procedure worked. In other words, children learnt the methods to get to an answer, without any understanding of the maths behind each method or procedure.
- While there are children who are able to access the maths through just learning a procedure by rote, many others have great difficulty coping with the abstract nature of it.
- Teaching methods without meaning leads to misconceptions, errors and difficulties in retaining the methods. Once children can actually 'see' the maths, they are much more likely to understand and accurately remember the methods.

Multiplication/division - an overview of skills in different year groups.

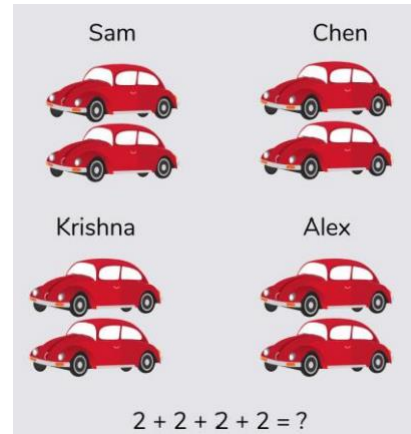
Year 1	Count in multiples of 2, 5 and 10. Recall and use all doubles to 10 and corresponding halves.
Year 2	Recall and use multiplication and division facts for 2, 5, and 10 times tables.
Year 3	Recall and use multiplication and division facts for 3, 4 and 8 times tables.
Year 4	Recall and use multiplication and division facts for 6, 9, 7, 11 and 12 times tables. It is the expectation that children will know all of their multiplication and division facts up to 12 x12
Year 5	Revision of all multiplication and division facts up to 12 x 12
Year 6	Revision of all multiplication and division facts up to 12 x 12

Factual fluency progression

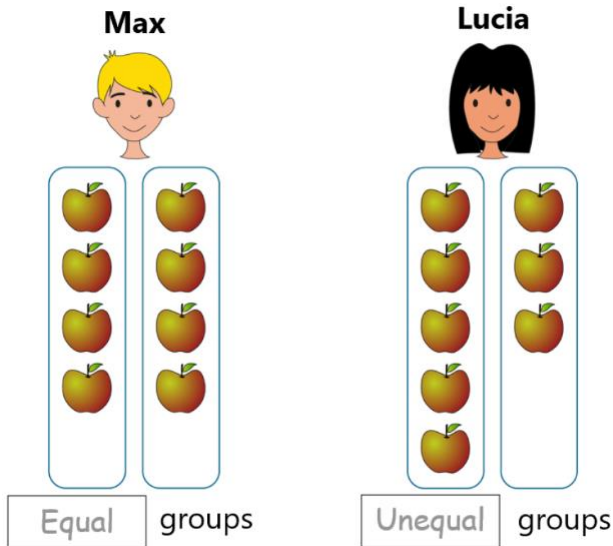
	Year 1	Year 2	Year 3	Year 4	Year 5
Additive factual fluency	Addition and subtraction within 10.	Addition and subtraction across 10.	Secure and maintain fluency in addition and subtraction within and across 10, through continued practice.		
Multiplicative factual fluency			Recall the 10 and 5 multiplication tables, and corresponding division facts.	Recall the 3, 6 and 9 multiplication tables, and corresponding division facts.	Secure and maintain fluency in all multiplication tables, and corresponding division facts, through continued practice.
			Recall the 2, 4 and 8 multiplication tables, and corresponding division facts.	Recall the 7 multiplication table, and corresponding division facts.	
				Recall the 11 and 12 multiplication tables, and corresponding division facts.	

Using concrete and pictorial methods to help learn times tables at home.

Using play or objectives e.g pair up toys cars and count them

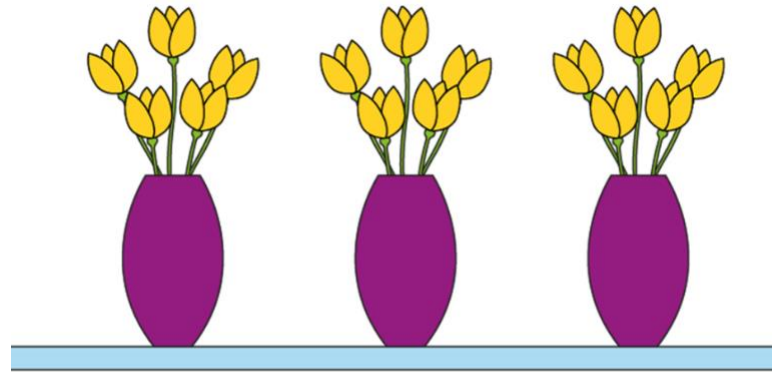


Helping with the laundry! How many pairs of socks will I have if there are 20 socks in total?



How many shoes are there?
Count in groups of two.







$$5 + 5 + 5$$

$$3 \times 5$$

$2 \times 3 = 2 + 2 + 2$




2 eggs multiplied by 3 is the same as adding 2, 3 times.




$= 6$

Arrays for 2×3

3 lots of 2 = 6



2 lots of 3 = 6

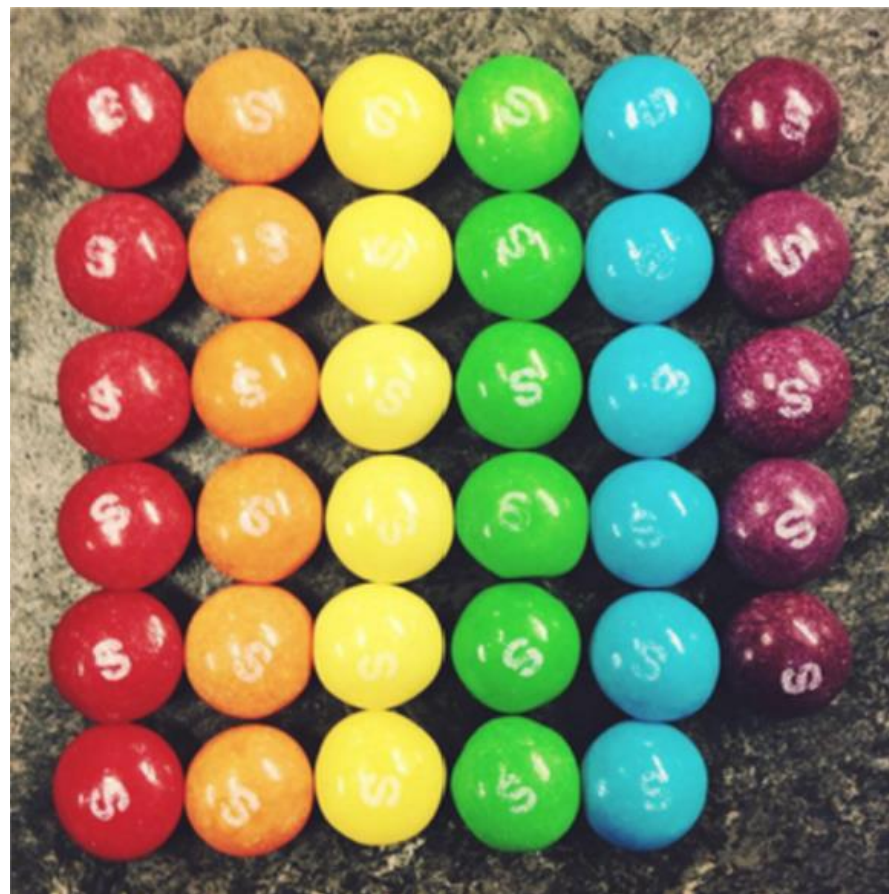


Help to understand that it is repeated Use a number line to help visualise the jumps. addition: $2 \times 3 = 2$ lots of 3.

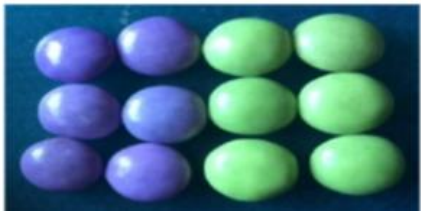
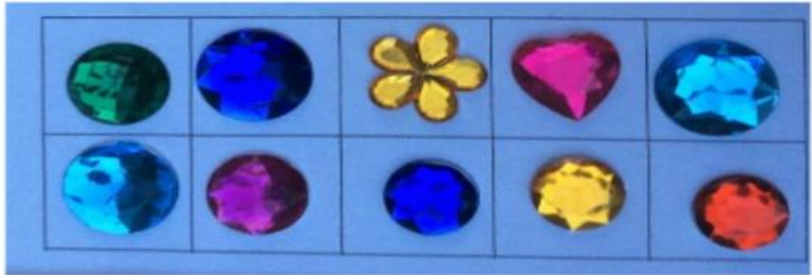
Draw/use practical equipment to create arrays



What can you see?

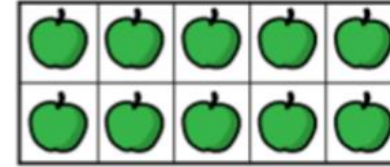
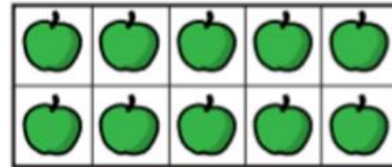
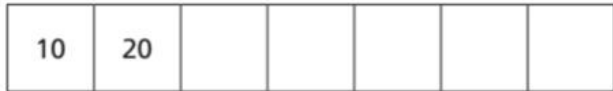


Arrays are all around us



Year 1 National Curriculum expectations

Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

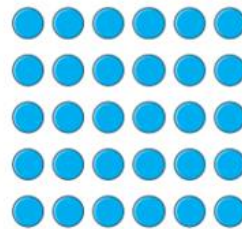


a)



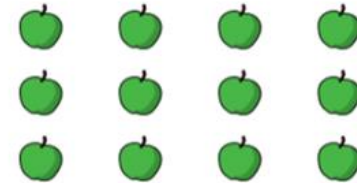
There are equal groups of

Use 30 counters.

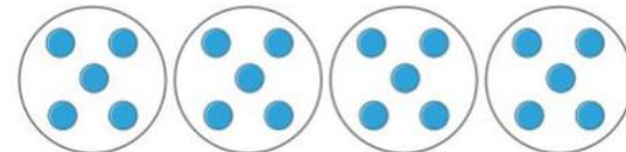


a) Share the counters between 2 friends.
How many counters does each friend get?

Circle each column of apples.



How many columns are there?

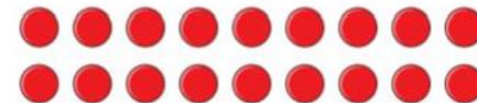


Year 2 National Curriculum Expectations

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
 - calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs
- show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

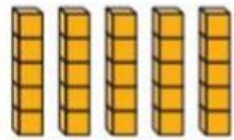
Addition	Multiplication
$2 + 2 + 2 + 2$	4×2
$5 + 5 + 5$	
$3 + 3 + 3 + 3 + 3$	
	2×10

Write two multiplications for this array.

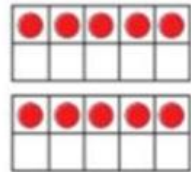


Year 2 - what does this look like

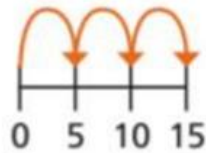
a) Match the picture to the times-table fact.



3×5



2×5

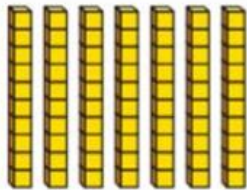


1×5



5×5

Dexter makes the number 70 from base 10



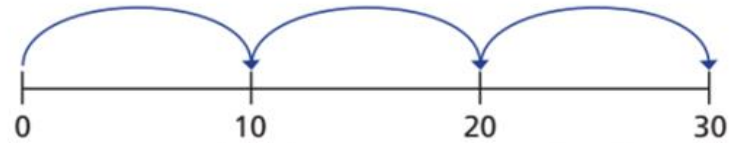
What mistake has Dexter made?

70 is odd as you cannot share into 2 equally.



Use the number line to help you.

a) $30 \div 10 = \square$



30 is made of \square equal groups of \square

Complete the number sentences for each array.

a) $\square \times 5 = 20$
 $20 \div 5 = \square$

b) $\square \times 5 = \square$
 $\square \div 5 = \square$

$20 \div 2 = \square$





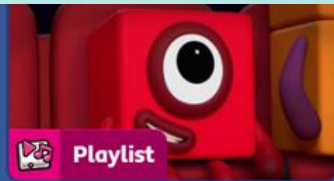







Is there another way to work this out?

<https://www.bbc.co.uk/cbeebies/shows/numberblocks>



A grid of video thumbnails for the Numberblocks series, each with a title, a play button icon, and a view count.

 Numberblocks Vs Captain Hexbeard Jigsaw 122	 The Numberblocks Set Sail 579	 Ten Times Table Song 461	 Five Times Table Song 324	 Watch clips from Numberblocks 59
 Four Times Table Song 742	 Three Times Table Song 394	 Numberblocks Jigsaw 531	 Two Times Table Quiz 350	 One Times Table Quiz 259

<https://www.bbc.co.uk/cbeebies/watch/numberblocks-ten-times-table-song>

Year 3- National Curriculum Expectations

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- 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
- 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.

Year 3 - what does this

look like

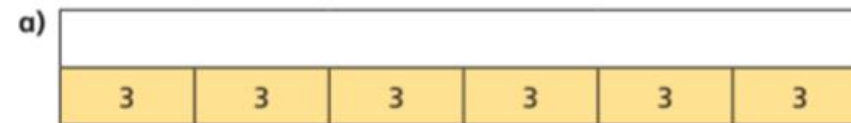
Tens	Ones

How many marbles are there in total?

Tens	Ones

		T	O	
		2	4	
	x		3	
		<hr/>		
		<hr/>		

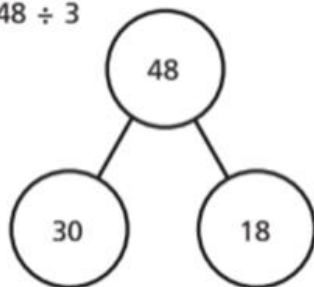
Work out the missing values in each bar model.



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

What two patterns do you notice?

a) $48 \div 3$

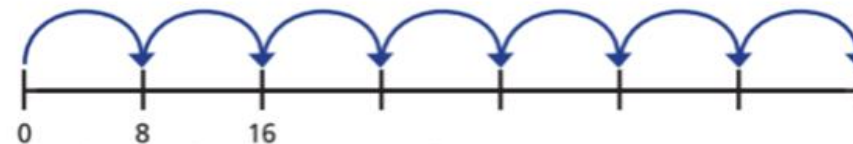


$30 \div 3 =$

$18 \div 3 =$

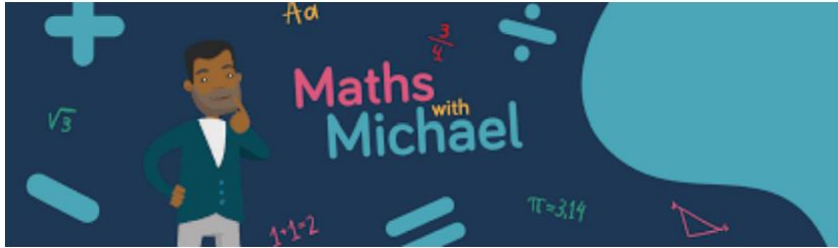
$48 \div 3 =$

a) Amir draws 7 jumps of 8 on a number line.




What number does Amir end on?

Explain how you worked it out.



- <https://whiterosemaths.com/maths-with-michael>

Has maths changed? 1. Place Value 2. Subtraction 3. Multiplication 4. Division 5. Fractions 6. Algebra



Has maths changed?

We understand that many parents feel like maths has changed and that it's sometimes difficult to keep up to date with modern teaching methods. Well don't worry, we're here to help.

With over 80% of primary schools and a growing number of secondary schools using our free schemes of learning, supporting resources and assessments, we can help you bridge the gap between school and home.

NEXT →

The image shows a video player interface on an orange background. At the top, there is a navigation menu with the following items: 'Has maths changed?' (underlined), '1. Place Value', '2. Subtraction', '3. Multiplication', '4. Division', '5. Fractions', and '6. Algebra'. Below the menu is a video player showing a man in a light purple shirt sitting at a desk with a laptop, smiling. The video player has a play button, a progress bar, and a timestamp of 04:04. To the right of the video player, the title 'Has maths changed?' is displayed in large white text. Below the title, there are two paragraphs of text explaining the website's purpose. At the bottom right, there is a 'NEXT' button with a green arrow pointing to the right.

Maths with Michael: Parent's guide to division

1

We are going to divide 471 by 3 using place value counters and a place value grid to help us.

2

First build the number 471 on a place value grid and record the calculation as a short division on a whiteboard or piece of paper.

3

Ask "How many groups of 3 hundreds are there in 4 hundred?" They should be able to tell you that there is 1 group of 3 hundreds and there is 1 hundred left over.

4

Show this in the place value grid and in the calculation. There aren't any more groups of 3 hundreds so the remaining hundred counter is placed in the tens column.

5

Ask "How many tens can we exchange 1 hundred for?" 1 hundred is equal to 10 tens so replace the hundred counter with 10 tens.

6

Ask "How many groups of 3 tens are there in 17 tens?" There are 5 groups of 3 tens and 2 tens left over. These tens are placed in the ones column.

7

Ask "How many ones can we exchange each ten for?" 1 ten is equal to 10 ones so we can exchange 2 tens for 20 ones.

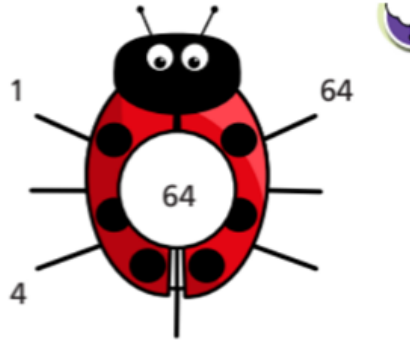
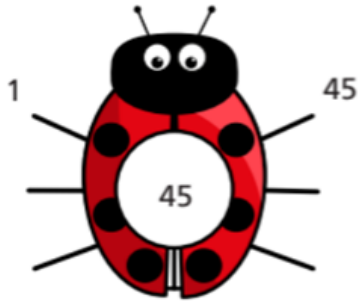
8

Ask "How many groups of 3 ones are there in 21 ones?" There are 7 groups of 3 ones and no ones left over. 471 divided by 3 is equal to 157

Year 4 - National Curriculum Expectations

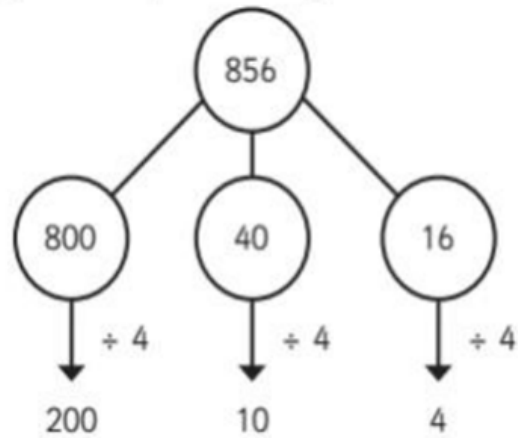
- recall multiplication and division facts for multiplication tables up to 12×12
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using 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 n objects are connected to m objects.

Year 4 - what does this look like



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

1



3 times-table

$$0 \times 3 = \square$$

$$1 \times 3 = 3$$

$$2 \times 3 = 6$$

$$3 \times 3 = 9$$

6 times-table

$$0 \times 6 = \square$$

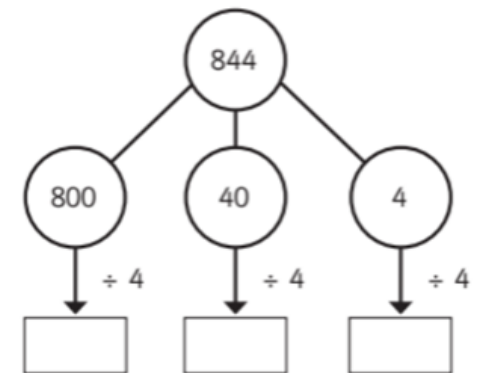
$$1 \times 6 = \square$$

$$2 \times 6 = 12$$

$$3 \times 6 = \square$$

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

	H	T	O	
	2	1	5	
x			3	



Year 5- National Curriculum Expectations

- 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
- 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

Year 5 - what does this look like

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

a) $52 \times \square = 5,200$

b) $95 \times \square = 950$

c) $136 \times \square = 1,360$

f) $\square \times 370 = 3,700$

g) $\square \times 100 = 8,200$

h) $\square \times 100 = 82,000$

a)

Th	H	T	O
			7

7×10

b)

Th	H	T	O
		3	9

39×10

c)

Th	H	T	O
	2	0	5

205×10

x	20	6
30		
2		

$26 \times 32 = \square$

			4	3	
	x		1	3	
		1	2	9	
		4	3	0	

(43×3)

(43×10)

	4	8	4	0	4

9,415						
a	a	a	a	a	a	a

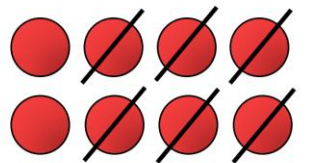
120	120	120	120
c	c	c	c

b	b	b	b	b	b	b	b
5,328							

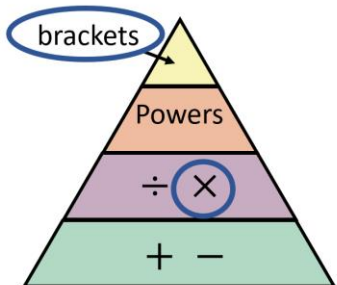
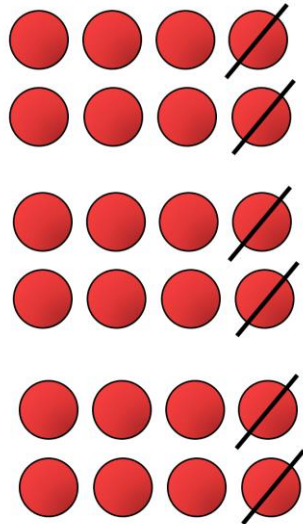
Year 6- National Curriculum Expectations

- 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
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Year 6 - what does this look like

$$8 - 2 \times 3 = 2$$


$$(8 - 2) \times 3 = 18$$



		0	3	6	
1	2	4	3	2	(×30)
	-	3	6	0	
			7	2	(×6)
	-		7	2	
				0	

!

$$512 \div 16 =$$

16	32	48	64	80	96	112	128	144	160
----	----	----	----	----	----	-----	-----	-----	-----

		3	2
16	<u>5</u>	<u>1</u>	2
-	4	8	↓
		<u>3</u>	2
-		3	2
			0

1) Which is the best estimate to use to check the answer to 488×32 ?

500×40

400×30

500×30

2) $12 \times 6 = 72$

3) $1,200 \times 6 = 7,200$

4) $12 \times 600 = 7,200$

End Points

2019 Arithmetic Paper: Multiplication and Division

- $9 \times 41 =$
- $180 \div 3 =$
- $120 \div 12 =$
- $213 \times 0 =$
- $91 \div 7 =$
- $1210 \div 11 =$
- $25.34 \times 10 =$
- $60 \div (30-24) =$
- $3^3 =$
- $101 \times 1,000 =$
- $20\% \text{ of } 3000 =$
- $0.9 \div 100 =$
- $836 \times 27 =$
- $888 \div 37 =$
- $35\% \text{ of } 320 =$
- $51\% \text{ of } 900 =$
- $3468 \times 62 =$
- $36\% \text{ of } 450 =$
- $8051 \div 83 =$

22 marks from 40 based on
multiplication and division

White Rose - Small Step Approach

- Each block is broken down into a series of small learning steps. Together, these small steps cover all the curriculum content that your child needs to know.
- Your child will remember more by learning maths in small, related chunks

Step 1 Recognise equal groups

Step 2 Make equal groups

Step 3 Add equal groups

Step 4 Introduce the multiplication symbol

Step 5 Multiplication sentences

Step 6 Use arrays

Step 7 Make equal groups — grouping

Step 8 Make equal groups — sharing

Step 9 The 2 times-table

Step 10 Divide by 2

Step 11 Doubling and halving

Step 12 Odd and even numbers

Step 13 The 10 times-table

Step 14 Divide by 10

Step 15 The 5 times-table

Step 16 Divide by 5

Step 17 The 5 and 10 times-tables

Mathematical Vocabulary

<p>Multiplication</p> <p>X An operation that finds the total of repeated equal groups. (Repeated addition)</p>	<p>Factor</p> <p>$5 \times 4 = 20$</p> <p>The numbers that are being multiplied together.</p>
<p>Product</p> <p>$5 \times 4 = 20$</p> <p>The answer to a multiplication equation.</p>	<p>Multiple</p> <p>10 20 30 40 50</p> <p>All the products of a certain number. (Example x 10)</p>

<p>Division</p> <p>An operation that finds how many things are divided equally into groups</p>	<p>Divisor</p> <p>$20 \div 5 = 4$</p> <p>The number that does the dividing.</p>
<p>Dividend</p> <p>$20 \div 5 = 4$</p> <p>The number that will be divided.</p>	<p>Quotient</p> <p>$20 \div 5 = 4$</p> <p>The answer to a division equation.</p>

Prime Numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Cube Numbers

$1^3 = 1$
 $2^3 = 8$
 $3^3 = 27$
 $4^3 = 64$

Square Numbers

$1^2 = 1$
 $2^2 = 4$
 $3^2 = 9$
 $4^2 = 16$
 $5^2 = 25$
 $6^2 = 36$

Fluency, reasoning and problem solving skills

What is fluency?

Fluency starts with the ability to apply procedures accurately and efficiently. This means that children quickly become confident in the methods they will later need to use to solve more complex problems.

What is reasoning?

Reasoning enables children to make use of all their other mathematical skills; it could be described as the glue that helps mathematics make sense. Reasoning is children understanding mathematics well enough that they can apply it to new situations and explain it.

What is problem solving?

Problem solving is applying the mathematics children have learnt to solve problems. If children are fluent in the mathematical procedures required for each topic, problem solving becomes much easier. When approaching problems, children must first work out what the problem is asking them to do, before then applying their procedural knowledge to find a solution.

Using and applying these multiplication and division skills

With 40 counters you can only make equal groups of 4 and 10



Is Ron correct? _____

Use counters to show how you know.

A sandwich costs £2 and a box of crayons costs £5



Jack buys 5 sandwiches and 3 boxes of crayons. How much does he spend in total?

Jack spends £ in total.

Here are some calculation cards.

$30 \div 6$	4×6	$27 \div 3$	4×8
8×3	12×2	5×6	$18 \div 3$

Write each calculation in the table.

Less than 6×4	Equal to 6×4	Greater than 6×4

Write one more calculation in each column.

Use the clues to work out all the calculations?

Year

Kim buys ^{TWO} 5 lollipops.



It costs 50p.

How much do 2 lollipops cost?

True or false? ✓ ✗

$4 \times 5 = 20$ ✓

$20 \times 4 = 5$

$20 = 4 \times 5$

20			
5	5	5	5

$20 \div 4 = 5$

$20 \div 5 = 4$

$5 \div 20 = 4$

8 The children are weighing out flour.



Use the clues to match the children to the scales.

- Eva has twice as much flour as Alex.
- Dexter has 9 times as much flour as Alex.
- Annie has 3 times as much flour as Eva.
- Tommy has twice as much flour as Eva and 4 times as much flour as Alex.

Complete the table.

	Alex	Eva	Dexter	Annie	Tommy
Scales					

Year Three

Which Answer?

Which number sentence matches this array?



$20 \times 7 = 140$

$20 \times 70 = 140$

$2 \times 70 = 140$

Year Four

Tiny is working out 18×7



$$\begin{aligned} 18 \times 7 &= 10 \times 8 \times 7 \\ &= 10 \times 56 \\ &= 560 \end{aligned}$$

- What mistake has Tiny made?
- Use a factor pair to work out 18×7

Teddy is working out $57 \div 3$

This division will need an exchange.



How does Teddy know this? Talk about it with a partner.

Fill in the missing digits.

a)

		2	2		1
		8	9	6	

b)

		3		6	
		6	5		4

Amir scores 4,680 points in a computer game for 12 games in a row.
Whitney scores 2,512 points every game for 24 games.
Who scores more points?
Show your workings.

Here is a number puzzle.

$$\square \times \square \times \triangle = 81$$

Find three different possible values for the square and the triangle.

$$\triangle = \square \quad \triangle = \square \quad \triangle = \square$$

$$\square = \square \quad \square = \square \quad \square = \square$$

Correct or Incorrect? ✓ or ✗

$72 \times 10 = 702$
 $54 \times 10 = 450$
 $70 \times 100 = 7000$

$92 \times 100 = 9200$
 $10 \times 36 = 360$
 $100 \times 27 = 270$

Correct the mistakes.

I know... so...

$72 \div 3 = 24$

$84 \div 6 = 14$

$78 \div 3 = \square$

$168 \div 6 = \square$

Year Five

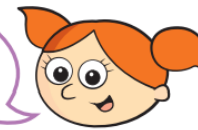
Mo and Alex are talking about prime numbers.



Mo

Prime numbers are always odd.

I think prime numbers can be even.

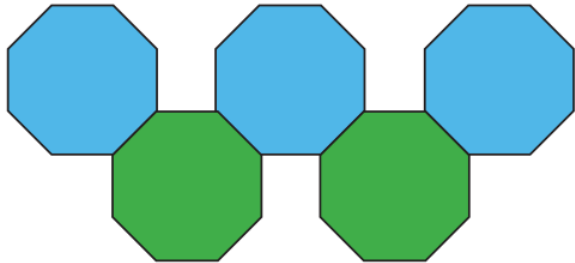


Alex

Who is correct?

How do you know?

A pattern is made up of regular octagons that are all the same size.



The perimeter of the whole pattern is 640 cm.
What is the perimeter of each octagon?

Eva is thinking of a number.

I multiply it by 6,
then multiply the answer
by 8, then subtract 500.
The result is 9,100



What number did Eva start with?

Year
Six



Use the cards to make the number 120 in different ways.
You can use each number card once only in each calculation.
You can use each operation as many times as you want.
Each calculation should involve a multiplication and/or a division.

Correct or Incorrect?

Example A:

$$\begin{array}{r} 240 \\ 14 \overline{) 3514} \\ \underline{28} \\ 71 \\ \underline{70} \\ 14 \\ \underline{14} \\ 0 \end{array}$$

Example B:

$$\begin{array}{r} 342 \\ 14 \overline{) 4788} \\ \underline{42} \\ 58 \\ \underline{56} \\ 28 \\ \underline{28} \\ 0 \end{array}$$

Example C:

$$\begin{array}{r} 321 \\ 14 \overline{) 5494} \\ \underline{42} \\ 29 \\ \underline{28} \\ 14 \\ \underline{14} \\ 0 \end{array}$$

Explain the mistakes.

Multiplication Check – End of Year Four

Information for parents:

2023 multiplication tables check



https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1116420/2023_Information_for_parents_Multiplication_tables_check_Nov_22_PDF.pdf

The purpose of the check is to determine whether your child can fluently recall their times tables up to 12, which is essential for future success in mathematics.

It is an on-screen check consisting of 25 times table questions.

They will then have 6 seconds to answer each question. On average, the check should take no longer than 5 minutes to complete.

<https://mathsframe.co.uk/en/resources/resource/477/Multiplication-Tables-Check>



<https://trockstars.com/>

Multiplication and division facts

The full set of multiplication calculations that pupils need to be able to solve by automatic recall are shown in the table below. Pupils must also have automatic recall of the corresponding division facts.

1×1	1×2	1×3	1×4	1×5	1×6	1×7	1×8	1×9	1×10	1×11	1×12
2×1	2×2	2×3	2×4	2×5	2×6	2×7	2×8	2×9	2×10	2×11	2×12
3×1	3×2	3×3	3×4	3×5	3×6	3×7	3×8	3×9	3×10	3×11	3×12
4×1	4×2	4×3	4×4	4×5	4×6	4×7	4×8	4×9	4×10	4×11	4×12
5×1	5×2	5×3	5×4	5×5	5×6	5×7	5×8	5×9	5×10	5×11	5×12
6×1	6×2	6×3	6×4	6×5	6×6	6×7	6×8	6×9	6×10	6×11	6×12
7×1	7×2	7×3	7×4	7×5	7×6	7×7	7×8	7×9	7×10	7×11	7×12
8×1	8×2	8×3	8×4	8×5	8×6	8×7	8×8	8×9	8×10	8×11	8×12
9×1	9×2	9×3	9×4	9×5	9×6	9×7	9×8	9×9	9×10	9×11	9×12
10×1	10×2	10×3	10×4	10×5	10×6	10×7	10×8	10×9	10×10	10×11	10×12
11×1	11×2	11×3	11×4	11×5	11×6	11×7	11×8	11×9	11×10	11×11	11×12
12×1	12×2	12×3	12×4	12×5	12×6	12×7	12×8	12×9	12×10	12×11	12×12

Pupils must be fluent in these facts by the end of year 4, and this is assessed in the multiplication tables check. Pupils should continue

Useful Websites to support children's Maths skills

<https://www.bbc.co.uk/cbeebies/grownups/help-your-child-with-maths> - have lots of fun and interactive games and activities to help get our younger children excited about Maths

Hit the Button (<https://www.topmarks.co.uk/maths-games/hit-the-button>)

– children love this game as it helps to increase confidence through practising times tables and number bonds.

<https://mathszone.co.uk/> – this site is jam-packed with fun ways to learn more about maths.

<https://www.bbc.co.uk/bitesize/subjects/z826n39> – lots of information alongside short videos help to make the learning enjoyable and accessible for all children.

https://www.transum.org/Software/Fun_Maths/ - KS2 challenges

<https://wild.maths.org/> - KS2 challenges

<https://whiterosemaths.com/parent-resources> - free printable workbooks

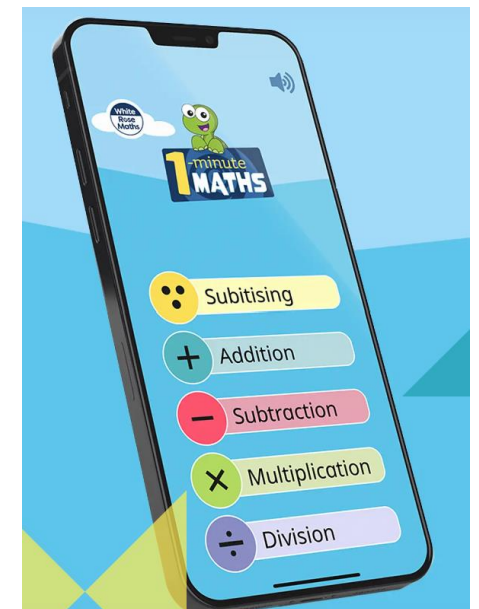


<https://trockstars.com/> Games for all - (Year 1 - 6) have an account (TT Rockstars and Numbots)

<https://whiterosemaths.com/resources/1-minute-maths> - free app to download

<https://www.mymaths.co.uk/> - Year 1 – 6 have an account

<https://play.edshed.com/en-gb> - Mathshed (same password as Spellingshed)



TT Rockstars

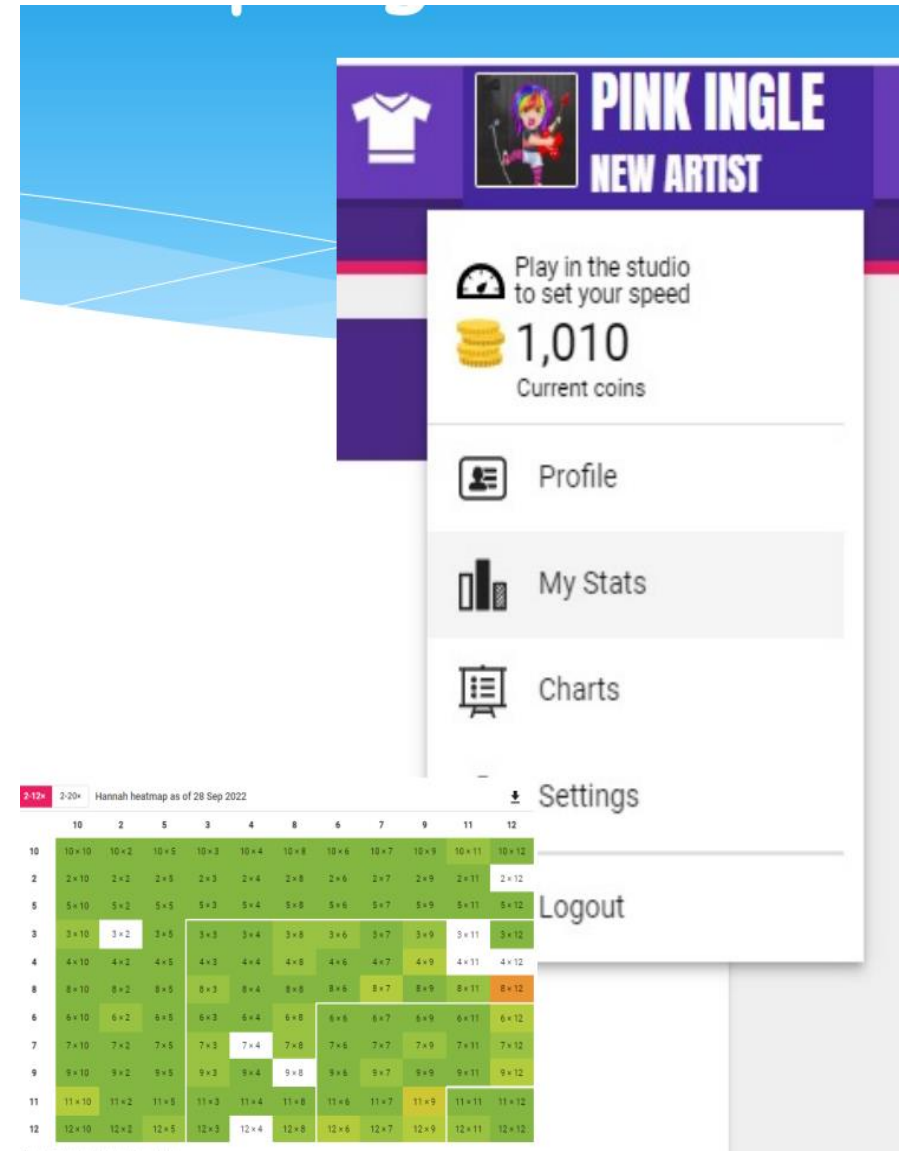
Checking your child's progress is easy:

When your child has logged in, select their avatar in the top right hand corner and then select the 'My Stats' option.

In the effort tab, you can see how many minutes the children have played.

Under fluency, you can see how quickly your child is able to answer each question and how confident they are with their individual times table knowledge.

The URL on the right will help show you this process in more detail



The screenshot shows the user interface for a child named 'PINK INGLE NEW ARTIST'. The user has 1,010 current coins. The interface includes a navigation menu with options: Profile, My Stats, Charts, Settings, and Logout. Below the menu is a heatmap titled 'Hannah heatmap as of 28 Sep 2022' showing multiplication facts from 10x10 down to 12x12. The heatmap uses a color scale from green (fast) to red (slow) to indicate performance. The 3x2 fact is highlighted in white, and the 8x12 fact is highlighted in red.

	10	2	5	3	4	8	6	7	9	11	12
10	10x10	10x2	10x5	10x3	10x4	10x8	10x6	10x7	10x9	10x11	10x12
2	2x10	2x2	2x5	2x3	2x4	2x8	2x6	2x7	2x9	2x11	2x12
5	5x10	5x2	5x5	5x3	5x4	5x8	5x6	5x7	5x9	5x11	5x12
3	3x10	3x2	3x5	3x3	3x4	3x8	3x6	3x7	3x9	3x11	3x12
4	4x10	4x2	4x5	4x3	4x4	4x8	4x6	4x7	4x9	4x11	4x12
8	8x10	8x2	8x5	8x3	8x4	8x8	8x6	8x7	8x9	8x11	8x12
6	6x10	6x2	6x5	6x3	6x4	6x8	6x6	6x7	6x9	6x11	6x12
7	7x10	7x2	7x5	7x3	7x4	7x8	7x6	7x7	7x9	7x11	7x12
9	9x10	9x2	9x5	9x3	9x4	9x8	9x6	9x7	9x9	9x11	9x12
11	11x10	11x2	11x5	11x3	11x4	11x8	11x6	11x7	11x9	11x11	11x12
12	12x10	12x2	12x5	12x3	12x4	12x8	12x6	12x7	12x9	12x11	12x12

https://www.youtube.com/watch?v=phxP5_OhOtk

Learners with different needs

How can I hide the timer?	Start a game and press ⚙ > Hide Practice Clock. You could also play a game in Jamming.
How can I increase the length of Garage games?	Single player > Garage > press the little arrow below “play solo” > choose 1, 2 or 3 minutes.
The tables are too hard	Make sure your child is playing in Garage or Arena game modes. If this does not resolve the issue, please speak to your child’s teacher. Remember that Jamming mode allows the child to choose the tables themselves.
My child gets anxious	Try the three above plus: setting mini goals (e.g. complete 2 minutes today, get 1 more point in the next game, pass 1 level); having a break from online play (come back in a couple of days); and reminding them of Baz’s words: “A good rock star stays chillaxed by accepting they make mistakes.”
My child has visual impairments; what settings are available?	Head to the Profile page where you can: change the colour scheme; reduce the visual stimuli with Declutter mode; increase the font size or switch to a dyslexia-friendly font called Lexie. play.trockstars.com is also screen reader compatible.
Can I turn off division?	Yes in Jamming mode but not in the other games. The reason for that is that practising multiplication and division at the same time supports the recall of both and is the most successful approach. If your child is finding division confusing, please speak to their teacher about starting with the 10s only and for advice on how to help at home.

Super Fingers!

This is a game for two players!

The game is basically a version of rock, paper, scissors but with numbers. Two players count to 3 and then make a number using their fingers.

Both players then have to multiply both numbers together and the quickest wins.

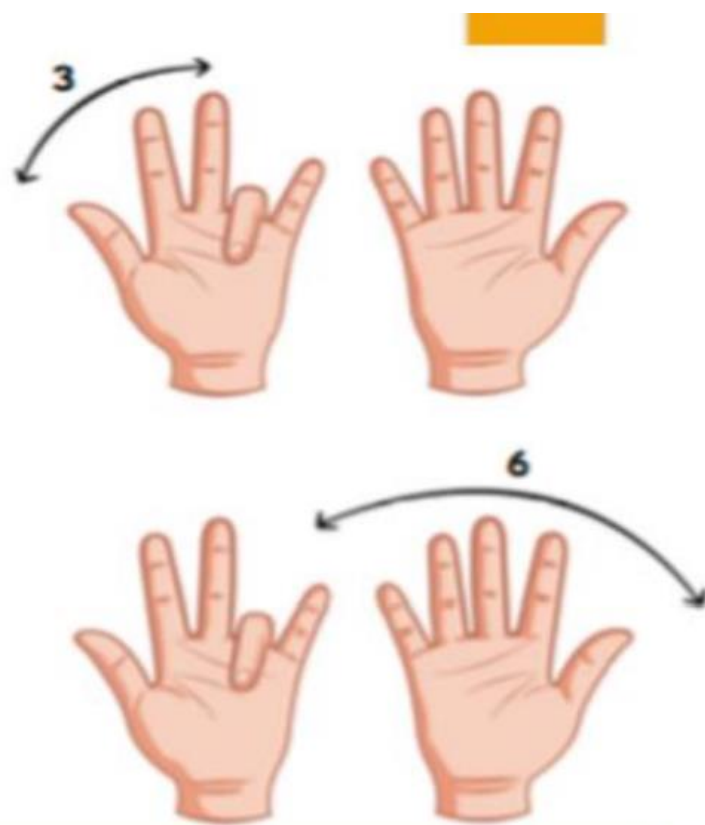


You can:

- Adapt other games to focus on multiplication tables, or create some totally new tables games with your child.
- Start the game by giving children a copy of the times table to refer to if they need it. Then, when they're ready for the challenge, they can try the game without.

9 Times Tables on your Fingers!

1. Hold your hands in front of you with your fingers spread out.
2. For 9×4 bend your 4th finger down (like the picture).
3. You have 3 fingers in front of the bent finger and 6 after the bent finger. Thus the answer must be 36!
4. The technique works for the 9 times table up to 10.



You can:

- Explore with your child which method helps them most with the 9 times table – the more physical hand trick, or the more visual exploration of number patterns.

Bingo!

This game will need 2 players!

Make a grid of six squares on a piece of paper and ask your child to write a number in each square from the target tables. Give them a question and if they have the answer, they mark them off. First one to mark off all their numbers is the winner!



You can:

- Turn this into a family game and include a reasonable reward/incentive to entice your child.

Four Facts

Use the three numbers in the bubbles to make four facts.



$$4 \times 7 = 28$$

$$28 \div 4 = 7$$

$$7 \times 4 = 28$$

$$28 \div 7 = 4$$



How can you help your child with Maths at home?

Take away their fear.

Reassure and praise whenever possible. Positive mindset...

Let them see you using Maths in your everyday routines – portioning meals between the family, chopping vegetables into halves and quarters etc.

Seeing mistakes as an opportunity to learn and using them as a discussion point.

Recognising the importance and value of Maths in our everyday lives e.g. managing money and telling the time