

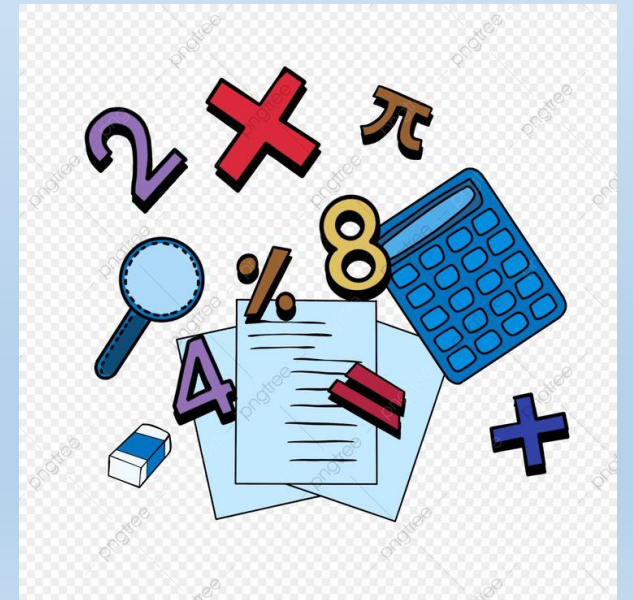
Welcome to Lower Key Stage 2 Maths Session

Helping you to understand how maths is taught
in Colerne C of E Primary School



Session Aims:

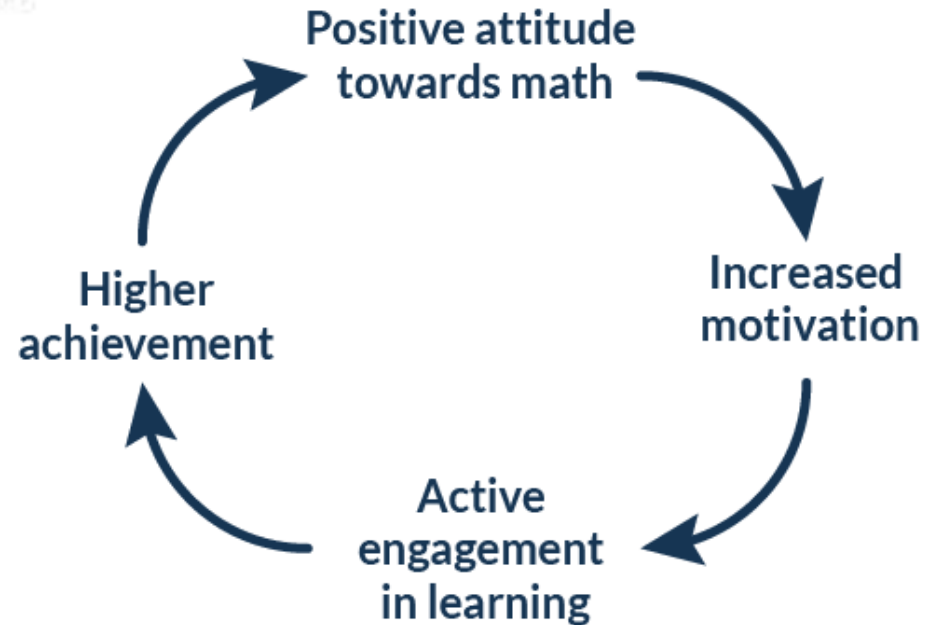
- Attitude
- Resources
- Overview of the core National Curriculum learning across Year 3 & 4.
- 4 calculation methods progression.
- Times Tables
- Doodlemaths
- Games to play at home
- Any questions.



Why a



is Key in Learning



Good *Mathematics* is *not about* how many *answers you know...* It's how you *behave* *when you don't know.*



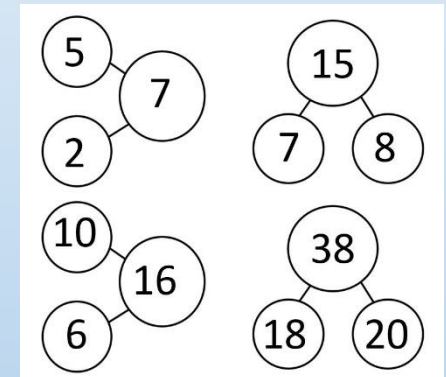
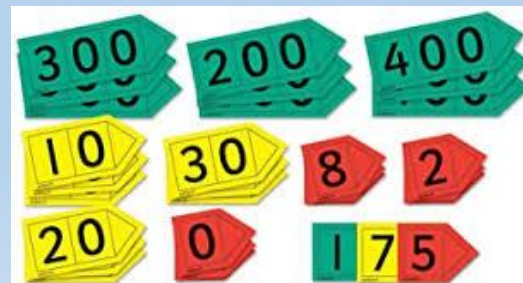
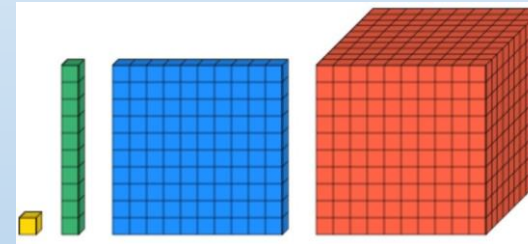
www.mathrider.com

Resources in the classroom

- Number lines – on table and wall
- Number & times table squares – in books and trays
- Dienes blocks
- Place value counters
- Arrow cards
- Part-Part Whole models
- Fraction walls

Times Tables

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



Core Learning



Year 3 & 4 Autumn Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	<div>Number</div> <div>Place value</div> <div>VIEW</div>			<div>Number</div> <div>Addition and subtraction</div> <div>VIEW</div>				<div>Number</div> <div>Multiplication and division</div> <div>VIEW</div>				
Autumn term	<div>Number</div> <div>Place value</div>				<div>Number</div> <div>Addition and subtraction</div>			<div>Measurement</div> <div>Area</div>	<div>Number</div> <div>Multiplication and division</div>			<div>Consolidation</div>

Maths resources for teachers | White Rose Maths - Google Chrome

Year 3 & 4 Spring Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Spring term	<div>Number</div> <div>Multiplication and division</div> <div>VIEW</div>			<div>Measurement</div> <div>Length and perimeter</div> <div>VIEW</div>			<div>Number</div> <div>Fractions</div> <div>VIEW</div>			<div>Measurement</div> <div>Mass and capacity</div> <div>VIEW</div>		
Spring term	<div>Number</div> <div>Multiplication and division</div>			<div>Measurement</div> <div>Length and perimeter</div>		<div>Number</div> <div>Fractions</div>			<div>Number</div> <div>Decimals</div>			

Year 3 & 4 Summer Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Summer term	<div>Number</div> <div>Fractions</div> <div>VIEW</div>		<div>Measurement</div> <div>Money</div> <div>VIEW</div>		<div>Measurement</div> <div>Time</div> <div>VIEW</div>			<div>Geometry</div> <div>Shape</div> <div>VIEW</div>		<div>Statistics</div> <div>VIEW</div>		<div>Consolidation</div>
Summer term	<div>Number</div> <div>Decimals</div>		<div>Measurement</div> <div>Money</div>		<div>Measurement</div> <div>Time</div>	<div>Consolidation</div>		<div>Geometry</div> <div>Shape</div>	<div>Statistics</div>		<div>Geometry</div> <div>Position and direction</div>	

Recapping knowledge and learning

Year 3 example

Flashback **4**

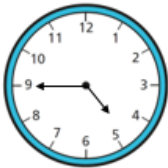
Year 3 | Week 1 | Day 3

3×10


1) $59 = 9 + \square$

2) How many hours are there in 1 day?

3) Write the time shown on the clock.



4) $80 = 100 - \square$



Year 4 example

Flashback **4**

Year 4 | Week 3 | Day 3

3×6


1) Use $<$, $>$ or $=$ to compare the numbers.

$5,455 \bigcirc 4,555$


2) Partition 5,387 into thousands, hundreds, tens and ones.

3) How many more children walked than travelled by car?

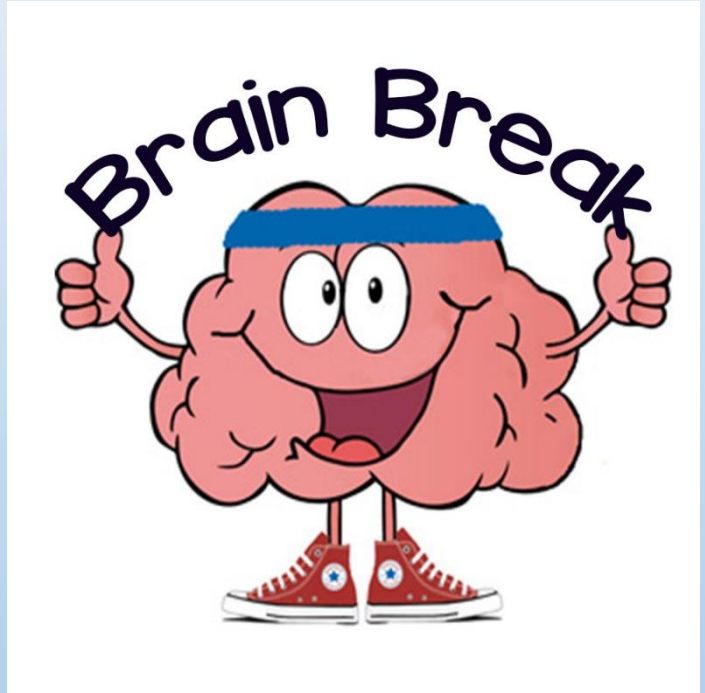
4) How many hours are there in 2 days?



Travel	Number of children
Walk	8
Car	6
Bike	10



Brain break!



The 4 operations

Addition



add more plus
increase total
sum altogether

Teaching 101
www.teaching101.co.uk

Subtraction



subtract minus
less take away
decrease leave
fewer difference

Teaching 101
www.teaching101.co.uk

Multiplication



multiply lots of
times groups of
multiplied by array
repeated product
addition

Teaching 101
www.teaching101.co.uk

Division

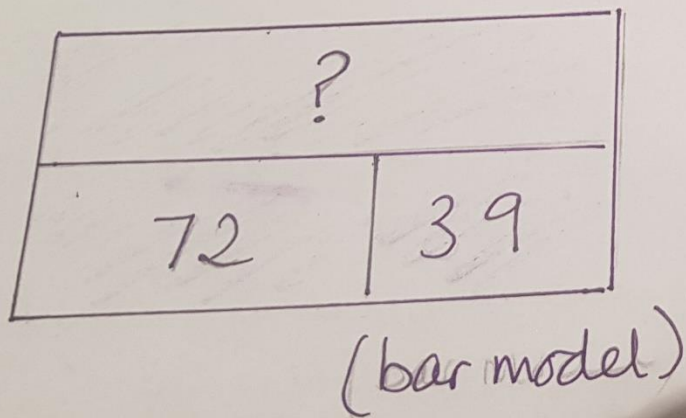
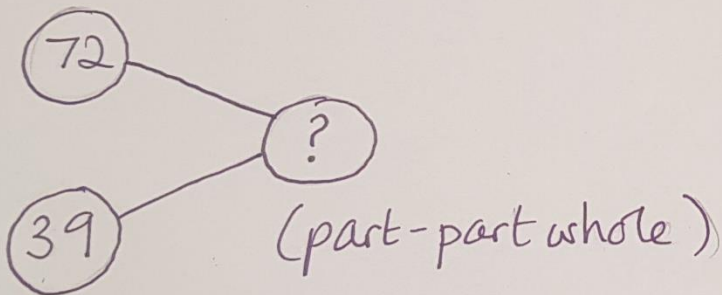
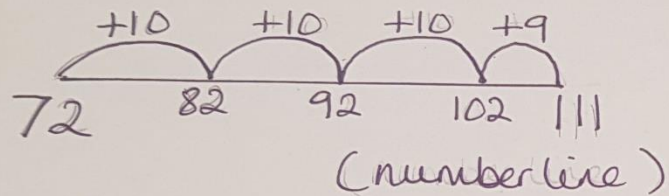


divide remainder
share share equally
groups of divided by
repeated each
subtraction

Teaching 101
www.teaching101.co.uk

Addition Methods

+ + + + + ADDITION + + + + +
72 + 39 same as 39 + 72, therefore addition is commutative



$$\begin{array}{r} 72 + 39 \\ / \quad \backslash \quad / \quad \backslash \\ 70 \quad 2 \quad 30 \quad 9 \end{array}$$

$$70 + 30 = 100$$

$$2 + 9 = 11$$

$$100 + 11 = 111$$

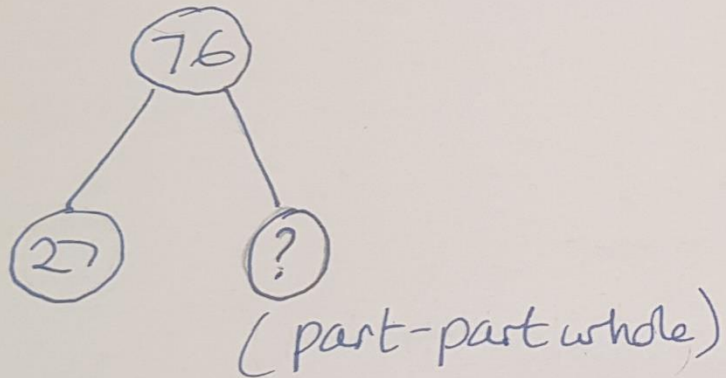
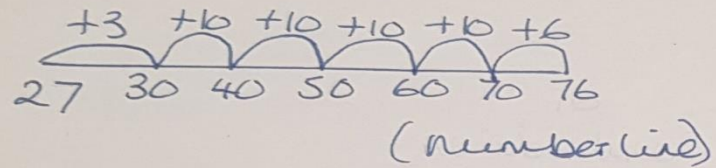
(partitioning)

$$\begin{array}{r} 72 \\ + 39 \\ \hline 111 \end{array} \rightarrow \begin{array}{r} 726 \\ + 181 \\ \hline 907 \\ \hline 1 \end{array} \rightarrow \begin{array}{r} 4621 \\ + 3789 \\ \hline 8410 \\ \hline 111 \end{array}$$

(formal column method)

Subtraction Methods

$$76 - 27 = 49$$



76	
27	?

SUBTRACTION

$$\begin{array}{r} \text{T O} \\ 6 \overline{) 76} \\ - 27 \\ \hline 49 \end{array}$$



(formal column method)

$$\begin{array}{r} \cancel{27} 124 \\ - \quad 163 \\ \hline \quad 161 \end{array} \rightarrow \begin{array}{r} 4 \cancel{6} 109 \\ - 2632 \\ \hline 2077 \end{array}$$

Then check answer with inverse operation (addition)

Multiplication Methods

X X X X X MULTIPLICATION X X X X X

73×4 is the same as 4×73 , therefore multiplication is commutative.

73×4 is $73 + 73 + 73 + 73$ (repeated addition)

or
 $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4$ etc. (7 times)

?			
73	73	73	73

$$\begin{array}{r} 73 \times 4 \\ 11 \\ \hline 70 \ 3 \end{array}$$

$$70 \times 4 = 280$$

$$3 \times 4 = 12$$

$$280 + 12 = 292$$

(partitioning)



X	70	3
4	$70 \times 4 = 280$	$3 \times 4 = 12$

$$280 + 12 = 292$$

(grid method)



(expanded
column
method)

$$\begin{array}{r} 73 \\ \times 4 \\ \hline 1 \ 2 \ (3 \times 4) \\ 2 \ 8 \ 0 \ (70 \times 4) \\ \hline 2 \ 9 \ 2 \end{array}$$

(contracted
column
method)

$$\begin{array}{r} 73 \\ \times 4 \\ \hline 292 \end{array}$$

3 digit \times 1 digit
 4 digit \times 1 digit

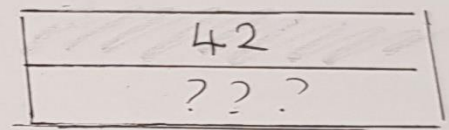
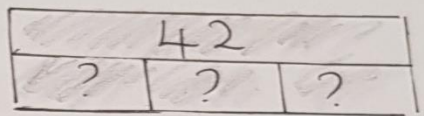
Division Methods

÷ ÷ ÷ ÷ ÷ ÷ ÷ DIVISION ÷ ÷ ÷

$42 \div 3 = 14$

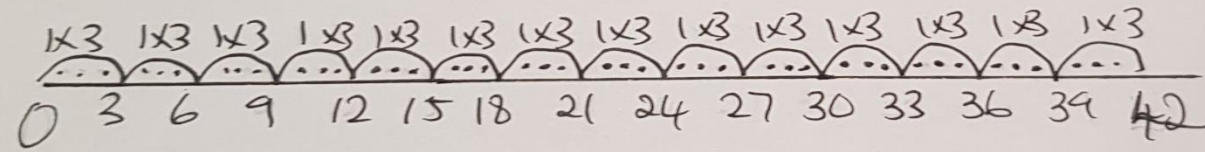
42 shared by 3

How many groups of 3 in 42

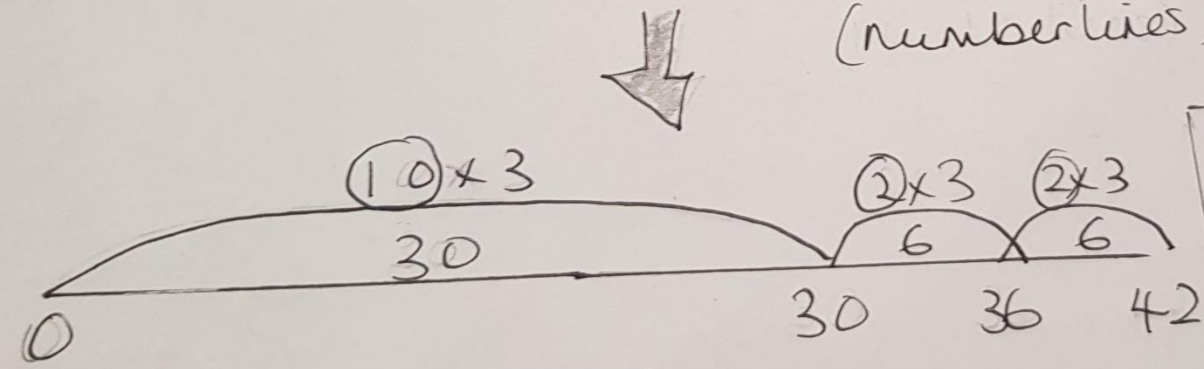


(bar model)

$42 \div 3 = 14$



(number lines)



$10 + 2 + 2 = 14$

Toolkit

- $1 \times 3 = 3$
- $2 \times 3 = 6$
- $5 \times 3 = 15$
- $10 \times 3 = 30$

$3 \overline{) 42}$ (bus stop method)



Step 1: How many groups of 3 will 40 go into?

Step 2: Exchange the ten for tens.

Step 3: How many groups of 3 will 12 go into?

$3 \overline{) 42}$

$3 \overline{) 42} 14$

Arithmetic half papers and full papers

- Once children are becoming confident in the 4 calculation methods we keep skills sharp by setting weekly arithmetic papers.
- The results are shared with the children and we then work through the papers together to explore misconceptions and support the children.



Times tables

- **Year 1:** count in multiples of 2, 5 and 10.
- **Year 2:** be able to remember and use multiplication and division facts for the **2, 5 and 10** multiplication tables, including recognising odd and even numbers.
- **Year 3:** be able to remember and use multiplication and division facts for the **3, 4 and 8** multiplication tables, including recognising odd and even numbers.
- **Year 4:** be able to remember and use multiplication and division facts for the multiplication tables up to **12 x 12**.
- **Year 5:** revision of all multiplication and division facts for the multiplication tables up to **12 x 12**.
- **Year 6:** revision of all multiplication and division facts for the multiplication tables up to **12 x 12**.

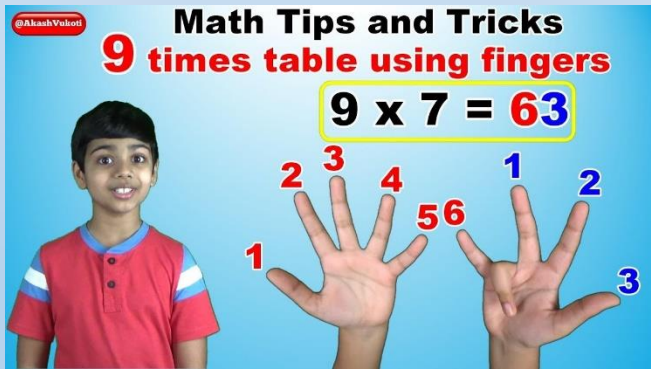
1 x	2 x	3 x	4 x	5 x	6 x
1 x 1 = 1	1 x 2 = 2	1 x 3 = 3	1 x 4 = 4	1 x 5 = 5	1 x 6 = 6
2 x 1 = 2	2 x 2 = 4	2 x 3 = 6	2 x 4 = 8	2 x 5 = 10	2 x 6 = 12
3 x 1 = 3	3 x 2 = 6	3 x 3 = 9	3 x 4 = 12	3 x 5 = 15	3 x 6 = 18
4 x 1 = 4	4 x 2 = 8	4 x 3 = 12	4 x 4 = 16	4 x 5 = 20	4 x 6 = 24
5 x 1 = 5	5 x 2 = 10	5 x 3 =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



<https://www.youtube.com/watch?v=9C4EN7mFHck>

<https://www.youtube.com/watch?v=e7rYbk9PNuM>

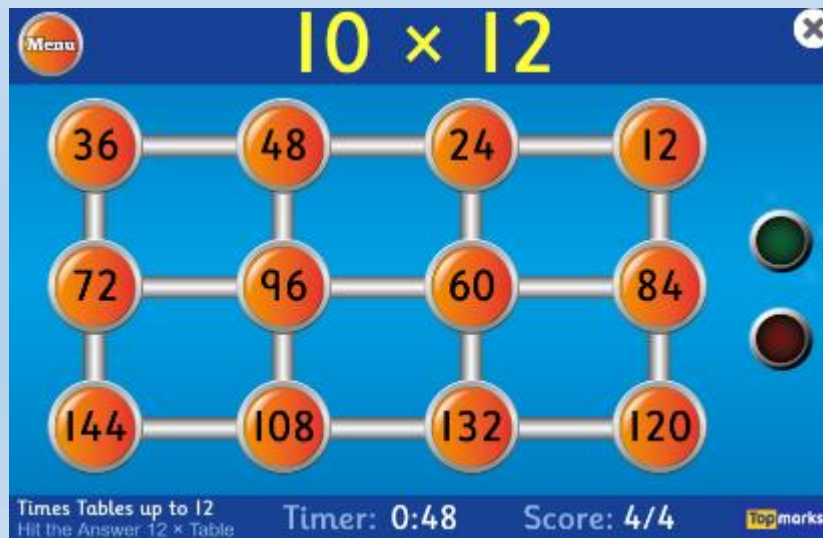
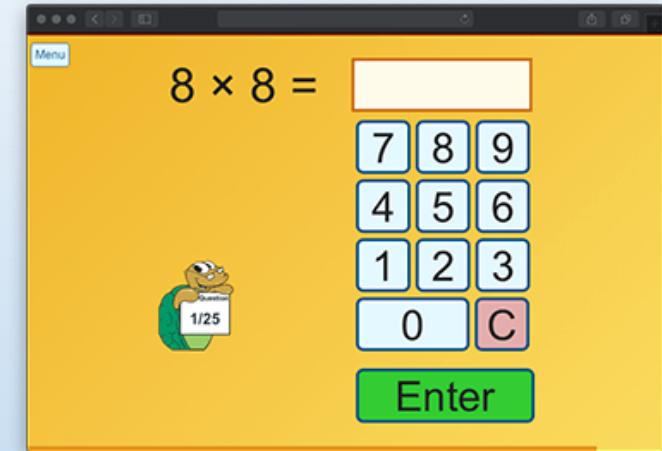
<https://www.youtube.com/watch?v=9XzfQUXqiYY>



4 x 12 and 12 x 4	<ul style="list-style-type: none"> • I went to the park with my mate... 4 times 12 is 48 • I left the park a little late... 12 times 4 is 48
11 x 11	<ul style="list-style-type: none"> • I banged my toe so had a funny run... 11 times 11 is 121
8 x 12 and 12 x 8	<ul style="list-style-type: none"> • I saw a magician doing cool tricks... 8 times 12 is 96 • This magician had walking sticks... 12 times 8 is 96

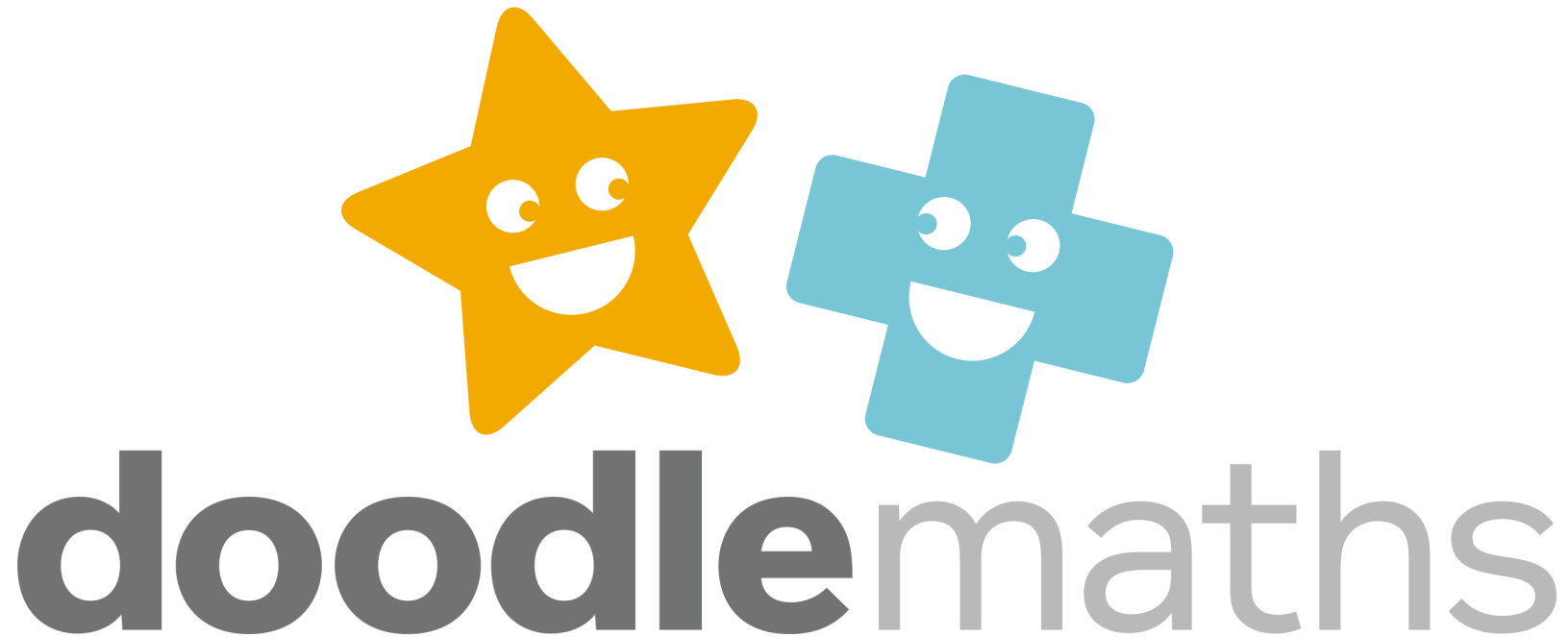


Other online times table resources



Doodlemaths

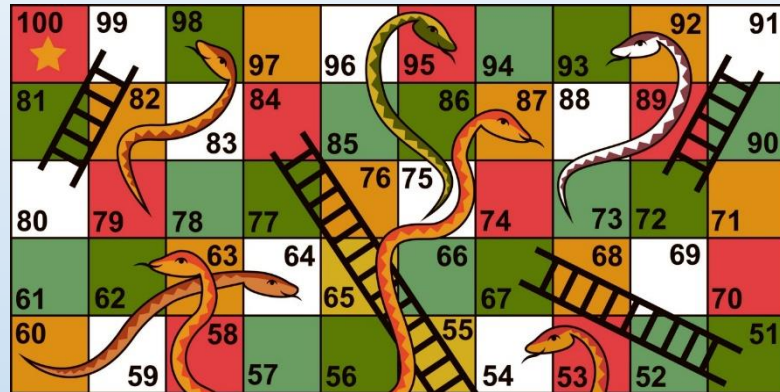
<https://help.doodlelearning.com/en/articles/5089264-how-do-i-link-my-parent-email-to-my-child-s-school-account>



Great websites

- <https://whiterosemaths.com/maths-with-michael>
- This is a brilliant series of short videos explaining the methods we use in White Rose Maths.
- <https://www.mathsisfun.com/>
- This explains all areas of Maths and will continue to be useful into secondary school.

Games to play at home



How to Play KenKen®

Your goal is to fill in the whole grid with numbers, making sure no number is repeated in any row or column.

5+		3+
4+	3+	3

➔

5+		3+
2	3	1
4+	3+	
3	1	2
1	2	3



The Bare Necessities

Key Stage 2



Wiltshire Council
Where everybody matters



