

Times Tables Sorted!

An Ofsted report into productive methods in primary mathematics highlighted the importance of learning times tables.

"Understanding of place value, fluency in mental methods, and good recall of number facts such as multiplication tables and number bonds are considered by the schools to be essential precursors for learning traditional vertical algorithms (methods) for addition, subtraction, multiplication and division."

According to a study entitled *Improving Basic Multiplication Fact Recall for Primary School Students* by the University of Sydney, the following strategies show how to make children feel confident with maths:

Direct counting: Physical materials are used to model the problem and the objects are simply counted without any obvious reference to the multiplicative structure.

Rhythmic counting: Counting follows the structure of the problem (e.g., "1, 2; 3, 4; 5, 6" or "6; 5, 4; 3, 2."). Simultaneously with counting, a second count is kept of the total number of groups.

Skip counting: Counting is done in multiples (e.g., "2, 4, 6" or "6, 4, 2"), making it easier to keep count of the number of groups.

Additive calculation/ Repeated Addition: Counting is replaced by calculations (e.g., $2 + 2 = 4$, $4 + 2 = 6$).

Multiplicative calculation: Calculations take the form of known facts (e.g., "3 times 2 is 6" or derivatives from a known fact e.g., $3 \times 2 = 2 \times 2 + 2$).

Commutative law: Changing the order of two numbers in a multiplication equation does not change the answer (e.g., $7 \times 9 = 9 \times 7$).

Pupils should be able to recite their times tables up to 12×12 by the age of nine.

In the academic year 2019-2020, year 4 pupils will sit a new times table test to check their fluency and recall of key multiplication and division facts as part of national testing.

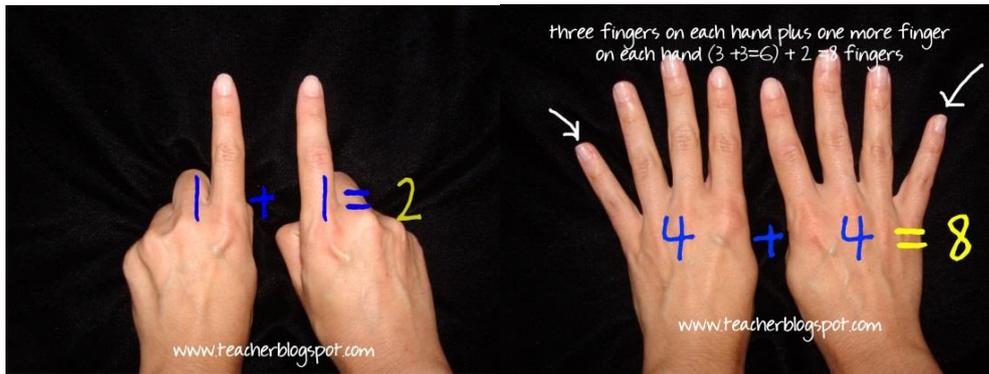
To help your child succeed with their times tables, I have collated a number of key strategies which may help you to practise together at home.

It is important to keep times tables as a fun activity, so if your child is not remembering their times tables by reciting the full number sentence, it may be because $1 \times 2 = 2$ has too many digits and they have forgotten which multiple they are on. Try skip counting, songs and some of the tips on the following pages- they're easy when you know how!

2s

0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24

Skip counting. Use the language 'doubles'. The first 5 multiples can be counted by pairing fingers from either hand together:



5s

0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60

Children are generally quick to spot the pattern and skip count.

10s

0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120

When you multiply by ten you move a place value to the left. **IMPORTANT TO STRESS** that you **DO NOT ADD A ZERO**, e.g. 5.4×10 is not 5.40 . If children understand early on that the digits move together, they will not have any problems when it comes to multiplying decimals by 10 in Y3.

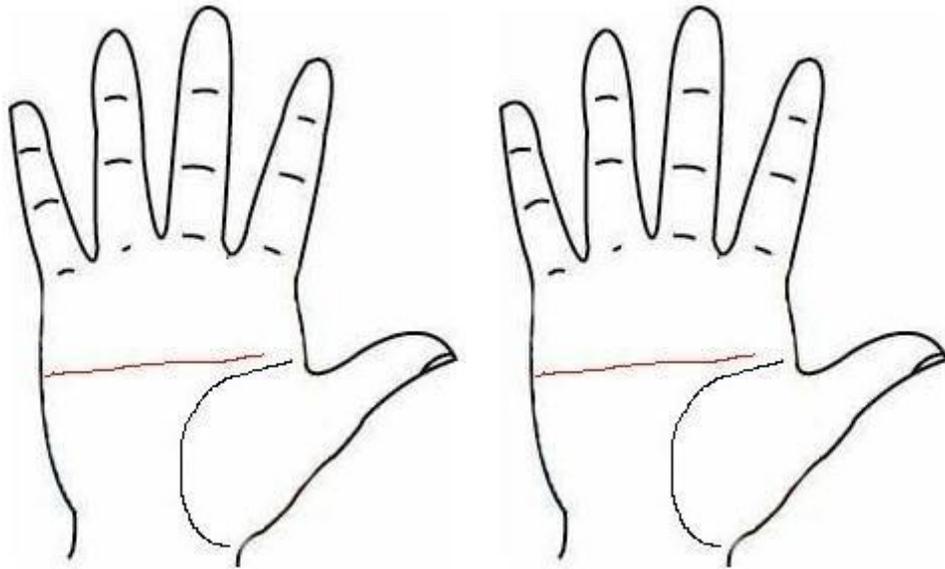
Hundreds	Tens	Units
	2	3
2	3	0

$23 \times 10 = 230$

4s

0, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44,
48

Skip count the doubles, and/or count lines and tip of fingers. Whisper count the numbers until you get to the tip of the finger: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12k



$1 \times 4 = 4$	$6 \times 4 = 24$	$11 \times 4 = 44$
$2 \times 4 = 8$	$7 \times 4 = 28$	$12 \times 4 = 48$
$3 \times 4 = 12$	$8 \times 4 = 32$	
$4 \times 4 = 16$	$9 \times 4 = 36$	
$5 \times 4 = 20$	$10 \times 4 = 40$	

The units digit repeats itself after 5.

8s

0, 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96

- Again, this is largely about using what you know. If you know your 4 times table you can double the answer to get your 8s. Also, look for patterns- what do the units do? 0, 8, 6, 4, 2, 0, 8, 6, 4, 2, 0
- "I ate and I ate 'til I was sick on the floor! 8 x 8 is 64!"
- If you enjoy singing, try this song by Mr DeMaio- a cover of Meghan Trainor's song

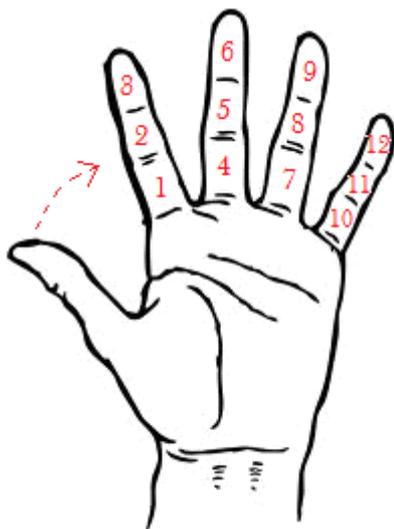
<https://www.youtube.com/watch?v=OX620leUkYE> The lyrics can be found by clicking on the details for the video.

3s

0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36

Count lines on fingers- you can take your fingers anywhere! Try whisper counting until you get to the final space on the finger, e.g. 1, 2, 3, 4, 5, 6, 7, 8, 9. Children will soon recognise that they know the first five multiples. Then encourage to skip count the first hand, and continue whisper counting on the second hand until the facts are secure.

If you enjoy singing, why not try Mr DeMaio's cover of Uptown Funk for the 3 times table: <https://www.youtube.com/watch?v=9XzfQUXqiYY>



6s

0, 6, 12, 18, 24, 30, 36, 42,
48, 54, 60, 66, 72

"6 times 6 is 36!"

A firm favourite of Class 2's is Mr DeMaio's cover of Cheerleader-
<https://www.youtube.com/watch?v=9os1VUUp5io>

7s

0, 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84

A brilliant mnemonic from Guardian Education to help with tricky 7s. Write down these three columns:

7 4 1
8 5 2
9 6 3

This gives the final digit of each item in the table in order.

$1 \times 7 = 7$	$2 \times 7 = 14$	$3 \times 7 = 21$
$4 \times 7 = 28$	$5 \times 7 = 35$	$6 \times 7 = 42$
$7 \times 7 = 49$	$8 \times 7 = 56$	$9 \times 7 = 63$
$10 \times 7 = 70$	$11 \times 7 = 77$	$12 \times 7 = 84$

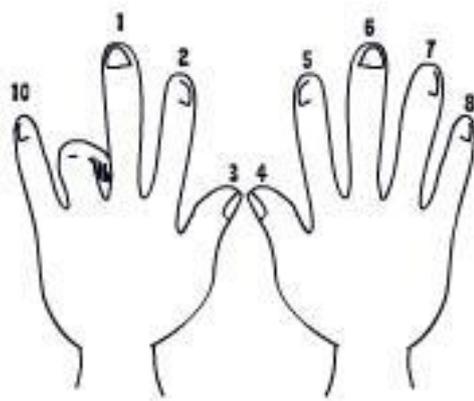
Sergeant 7 chanting: <https://www.youtube.com/watch?v=8gcX24FzU4c>

9s

0, 9, 18, 27, 36, 45, 54, 63, 72, 81, 90, 99, 108

Try this finger trick up to 10×9 . All digits add up to 9.

$$2 \times 9 = 18$$



- Each finger to the left of the curled finger represents 10.
 - Say 10,
- Each finger to the right of the curled finger represents one.
 - Count 1, 2, 3, 4, 5, 6, 7, 8. (Or 11, 12, 13, 14, 15, 16, 17, 18)
- $2 \times 9 = 18$

Mr DeMaio again! This time with a 90s music mashup-

<https://www.youtube.com/watch?v=cGsrC6ZPVGM>

11s

0, 11, 22, 33, 44, 55, 66, 77, 88, 99, 110, 121, 132

When written down, children spot the pattern quickly. However, if given a calculation $\times 11$ before learning the pattern it's a good idea to encourage pupils to work with what they know, i.e. that 11 is made up of TENS and UNITS so a good strategy is to multiply by ten and add one lot respectively.

12s

0, 12, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132, 144

Many children think that they can't do their twelves and that they have to learn them from scratch, but in reality, once they reach the point of being tested on their twelves, they have already learnt them without realising! Simply put, the twelve times table is the last number in each of their known times tables!

Typically, the times table facts children (and adults!) usually struggle to recall are:

	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Master them and you've got them!

For example $7 \times 8 = 56$. Turn that calculation around and what do you spot? $56 = 7 \times 8 \dots 5678!$

$6 \times 7 = 42$ (how can you remember that's the answer to 6×7 and not 7×7 , well $4+4=6$)

Finally, try counting forwards and backwards through the times table to ensure the pattern is well remembered- try it! It's tougher than it sounds!