

Times Tables in Years 2, 3 and 4



Why are times tables important?

- The ability to retrieve some basic mathematical facts without effort, including times tables, decreases cognitive load – Professor Jenny Field
- It is still very important for children to develop automaticity in recall of number facts in order to facilitate high-order processing in problem solving – Feter Westood
- A secure understanding and quick recall of times tables can help children:
 - ✓ Solve more complex mathematical problems without cognitive overload
 - ✓ Identify patterns in fractions quicker and easier
 - ✓ Help with telling the time
 - ✓ Help in the real world!

What do we teach?

The National Curriculum 2014 states pupils should be taught to:

Year 1	Year 2	Year 3	Year 4	Year 5
Count in multiples of twos, fives and tens	Count in steps of 2, 3, and 5 from 0 Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables	Count from 0 in multiples of 4, 8, 50 and 100 Recall and use multiplication facts for the 3, 4 and 8 multiplication tables.	Count in multiples of 6, 7, 9 Recall multiplication and division facts for tables up to 12 x 12	Multiply and divide numbers mentally drawing upon known facts

How do we build on prior learning?

	10	2	5	3	4	8	6	7	9	11	12
10	10 x 10	10 x 2	10 x 5	10 x 3	10 x 4	10 x 8	10 x 6	10 x 7	10 x 9	10 x 11	10 x 12
2	2 x 10	2 x 2	2 x 5	2 x 3	2 x 4	2 x 8	2 x 6	2 x 7	2 x 9	2 x 11	2 x 12
5	5 x 10	5 x 2	5 x 5	5 x 3	5 x 4	5 x 8	5 x 6	5 x 7	5 x 9	5 x 11	5 x 12
3	3 x 10	3 x 2	3 x 5	3 x 3	3 x 4	3 x 8	3 x 6	3 x 7	3 x 9	3 x 11	3 x 12
4	4 x 10	4 x 2	4 x 5	4 x 3	4 x 4	4 x 8	4 x 6	4 x 7	4 x 9	4 x 11	4 x 12
8	8 x 10	8 x 2	8 x 5	8 x 3	8 x 4	8 x 8	8 x 6	8 x 7	8 x 9	8 x 11	8 x 12
6	6 x 10	6 x 2	6 x 5	6 x 3	6 x 4	6 x 8	6 x 6	6 x 7	6 x 9	6 x 11	6 x 12
7	7 x 10	7 x 2	7 x 5	7 x 3	7 x 4	7 x 8	7 x 6	7 x 7	7 x 9	7 x 11	7 x 12
9	9 x 10	9 x 2	9 x 5	9 x 3	9 x 4	9 x 8	9 x 6	9 x 7	9 x 9	9 x 11	9 x 12
11	11 x 10	11 x 2	11 x 5	11 x 3	11 x 4	11 x 8	11 x 6	11 x 7	11 x 9	11 x 11	11 x 12
12	12 x 10	12 x 2	12 x 5	12 x 3	12 x 4	12 x 8	12 x 6	12 x 7	12 x 9	12 x 11	12 x 12

Year 2 = 30 new facts

Year 3 = 21 new facts

Year 4 = 15 new facts

How do we teach times tables in Yr1?

In Year 1:

- Before learning any formal multiplication tables, children are first taught to count in multiples. This is also known as skip counting.
- Children begin with counting in 2s, then 10s then 5s.
- Children explore practical items that come in 2s, 10s or 5s, such as socks, cakes in a tray, fish in a tank.
- Children begin to explore patterns with these multiples using number lines, hundred squares and bead strings.
- Children will begin to use language associated with multiplication, for example "There are ____ equal groups of _____. There are ____ altogether."
- Children begin multiplying two numbers by making and counting equal groups, and develop these groups into arrays.

How do we teach times tables in Yr2?

In Year 2:

- Children are formally introduced to the multiplication symbol 'x'. Lots of work is done to link their learning in Year 1, from the mainly verbal expression of 'groups of' or 'lots of', to formal recording in a number sentence e.g. $2 \times 2 = 4$.
- Children explore their times tables practically using concrete resources and images, establishing patterns in the multiples, for example all 10s multiples end with 0, all 5s end in 5 or 0 etc.
- Children are also introduced to practical division, but make links to their multiplication knowledge, and understanding the inverse, for example if a child knows $2 \times 7 = 14$, they also $14 \div 2 = 7$.
- Children will also explore links between their tables to develop their understanding, such as identifying that numbers can appear in both the 5 and 10 times tables, and that the 10 times table is double the 5 times table.

How do we teach times tables in Yr3 &4?

In Years 3 and 4:

- Children are taught as in Year 2, exploring their tables before attempting to learn any key facts.
- Children explore links between further tables, linking the 2, 4 and 8 and the 3, 6, 9 and 12 times tables.
- Children are encouraged to use links between facts to help them solve problems, for example knowing they can double and double again to multiply by 4
- Pattern spotting continues, encouraging children to see where patterns repeat, such as in the 6 times table seeing the ones digit repeat, or the pattern in the 11 times table.

How do we make learning stick?

- As well as exploring these tables in their maths lessons, daily practise is given to recalling the facts quickly.
- We use songs, games and skip counting to practise and develop our quick recall of facts and multiples.
- We also use Times Tables Rock Stars in lessons and as part of our homework offer to develop children's recall and monitor their progress.
- Children are encouraged to use links and relationships between known facts to find ones they might find trickier, such as using $10 \times 6 - 1 \times 6$ to find 9×6 .

The Multiplication Tables Check (MTC)

Year 4 Only

- The MTC determines if Year 4 children can fluently recall their multiplication tables.
- It is designed to help schools identify which children require more support to learn their times tables.
- There is no 'pass' rate or threshold which means that children will not be expected to re-sit the check whatever their score.
- All eligible Year 4 children in England will be required to take the check.
- Children will not see their individual results when they complete the check, scores are reported to parents in their child's school report at the end of the year.

The Multiplication Tables Check (MTC)

- The check will be fully digital, with children entering their answers using a keyboard, by pressing digits using a mouse or using an on-screen number pad.
- There are 3 practice questions and 25 questions assessed questions with a 3 second pause in-between questions.
- The children will have 6 seconds from the time the question appears to input their answer.
- There will only be multiplication questions in the check, not division facts.
- The 6, 7, 8, 9 and 12 times tables are more likely to be asked.

More information about the questions in the MTC

5.2.1 Table 1 – Multiplication table limits in the MTC

Multiplication Table	Minimum number of items in each form	Maximum number of items in each form
1	Not applicable	Not applicable
2	0	2
3	1	3
4	1	3
5	1	3
6	2	4
7	2	4
8	2	4
9	2	4
10	0	2
11	1	3
12	2	4

The Standards and Testing Agency (STA) state that they are classifying the multiplication tables by the first number (multiplier) in the question. For example, 8×3 would fall within the 8 times table.



How can you support
your child at home?

Counting and looking for patterns

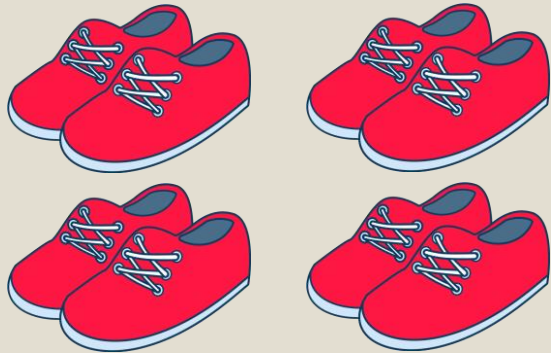
Example: Counting in 2s
2, 4, 6, 8, 10...

- Ensure children have a strong understanding of counting in groups first.
- When children are secure with counting, they can then look for patterns.

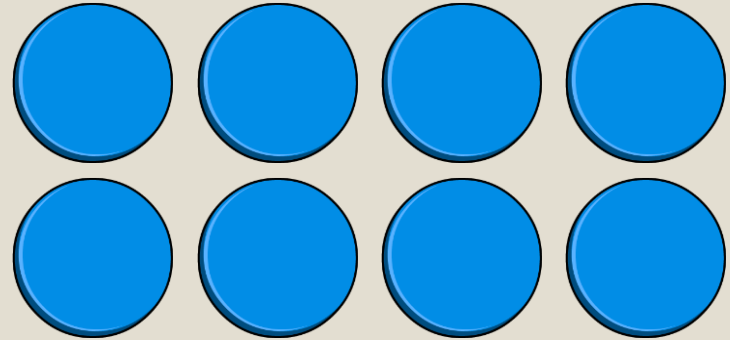


Repeated addition

Knowing that 2×4 is the same as $2 + 2 + 2 + 2$



$$2 + 2 + 2 + 2 = ?$$

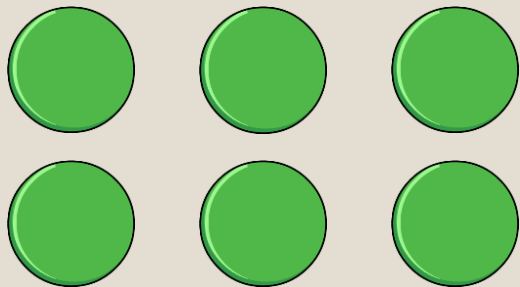


$$2 \times 4 = ?$$

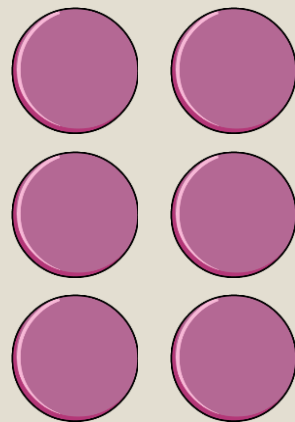
Multiplication is commutative

3 x 2 is the same as 2 x 3

Children need to understand that multiplication can be completed in any order to produce the same answer.



3 lots of 2 = 6

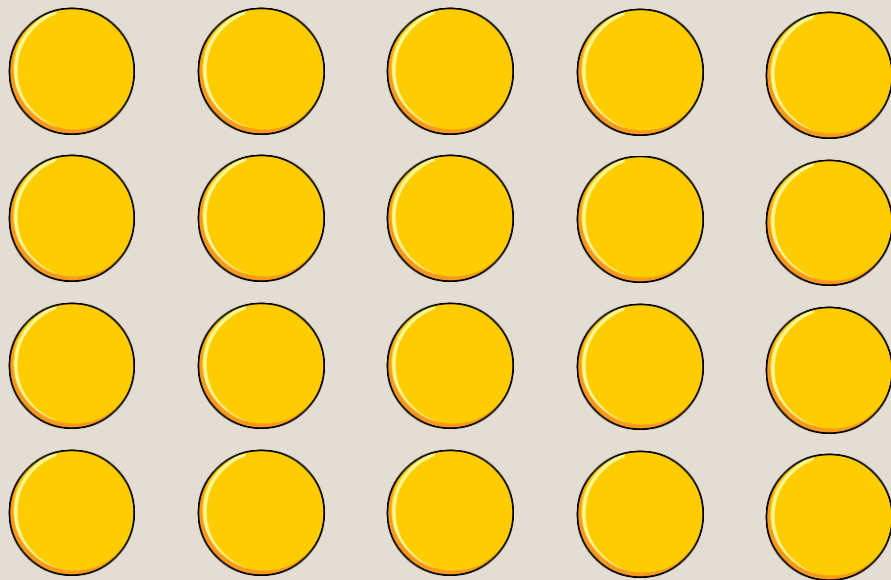


2 lots of 3 = 6

Multiplication is the inverse of division

$20 \div 5 = 4$ can be worked out because $5 \times 4 = 20$

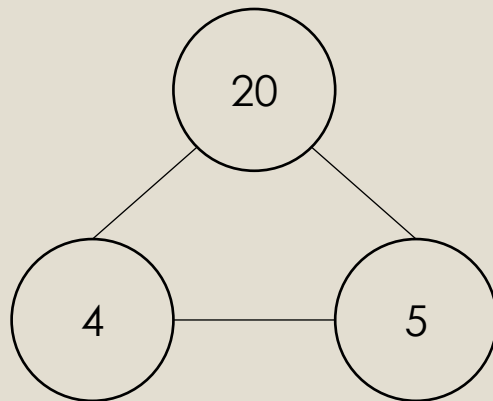
Using pictorial representations (such as arrays) is useful here for children to see the link between multiplication and division.



Fact families

$$4 \times 5 = 20, 5 \times 4 = 20, 20 \div 5 = 4, 20 \div 4 = 5$$

Due to their commutative understanding, children should also be able to see whole number families. For many children this will need to be pointed out and discussed.



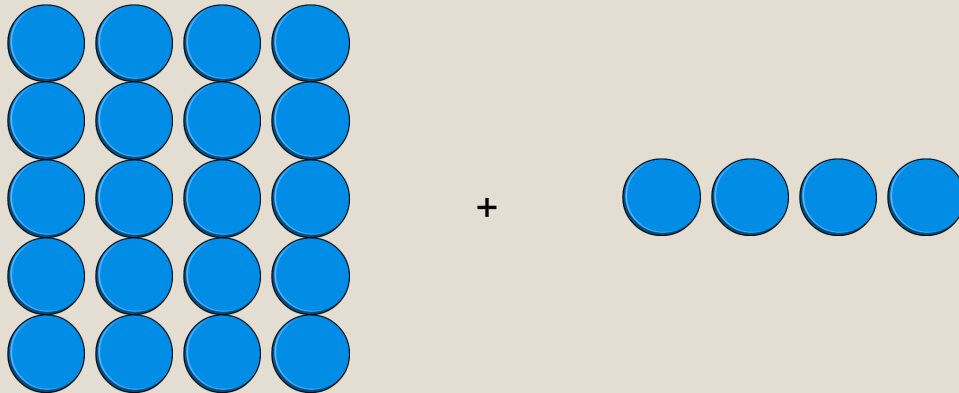
Using known facts

$$4 \times 6 = ?$$

I know $4 \times 5 = 20$

Therefore, $20 + 4 = 24$

By using known facts from 'easier' times tables, children should be able to find answers with increasing speed.



Songs

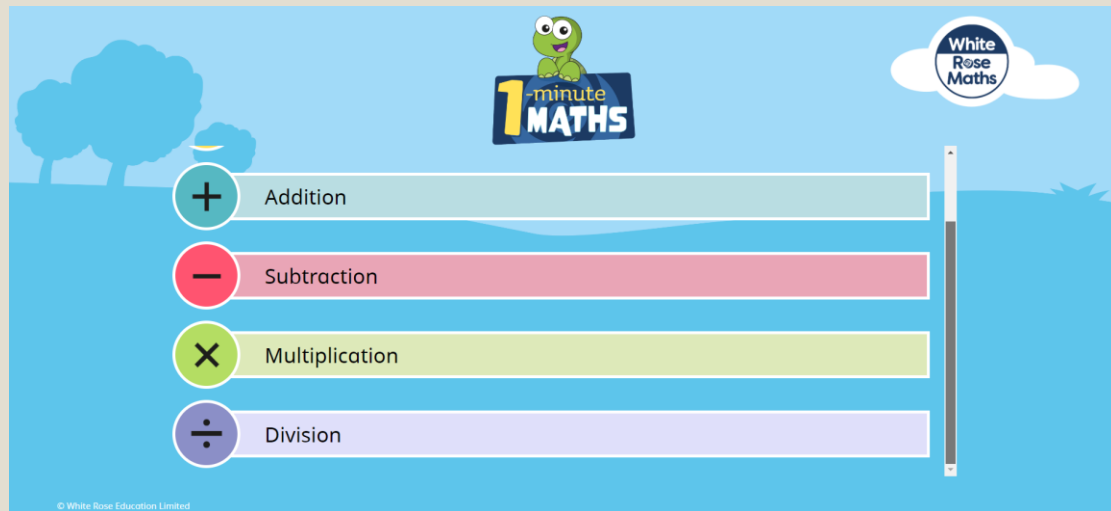
- Times tables facts are stored in verbal memory, which makes using songs a great way to help your child recall their tables.
- Some songs we use in school are:
 - ❖ Go Noodle (Skip counting to 100) - <https://www.gonoodle.com/videos/PXo1Jw/skip-count-to-100>
 - ❖ BBC Supermovers - <https://www.bbc.co.uk/teach/supermovers/times-table-collection/z4vv6v4>
 - ❖ Laugh Along and Learn on Youtube - <https://www.youtube.com/@laughalongandlearn>
 - ❖ Mr Walker Mr Walker on Youtube - <https://www.youtube.com/@MrWalkerMrWalker>

Playing Offline Games

- Climb the stairs counting in multiples
- Take it in turns to say times tables in funny voices.
- Bingo
- Speed tables – compete against a friend or family member to write the multiplication facts the quickest
- Roll the dice – roll 2 dice and multiply the numbers together

Playing Online Games

- Topmarks - <https://www.topmarks.co.uk/maths-games/7-11-years/times-tables>
- ICT Games - <https://ictgames.com/mobilePage/index.html>
- White Rose Math 1-Minute Maths app



Any Questions

