

Multiplication information for parents

September 2023

Multiplication not times tables!

A multiplication chart is a way to represent multiplication facts. Remembering multiplication facts is a rote learning method which has its place but we are learning the concept of multiplication.

| Multiplication Chart | | | | | |
|----------------------|--------------------|---------------------|----------------------|----------------------|----------------------|
| ONE | TWO | THREE | FOUR | FIVE | SIX |
| $1 \times 1 = 1$ | $2 \times 1 = 2$ | $3 \times 1 = 3$ | $4 \times 1 = 4$ | $5 \times 1 = 5$ | $6 \times 1 = 6$ |
| $1 \times 2 = 2$ | $2 \times 2 = 4$ | $3 \times 2 = 6$ | $4 \times 2 = 8$ | $5 \times 2 = 10$ | $6 \times 2 = 12$ |
| $1 \times 3 = 3$ | $2 \times 3 = 6$ | $3 \times 3 = 9$ | $4 \times 3 = 12$ | $5 \times 3 = 15$ | $6 \times 3 = 18$ |
| $1 \times 4 = 4$ | $2 \times 4 = 8$ | $3 \times 4 = 12$ | $4 \times 4 = 16$ | $5 \times 4 = 20$ | $6 \times 4 = 24$ |
| $1 \times 5 = 5$ | $2 \times 5 = 10$ | $3 \times 5 = 15$ | $4 \times 5 = 20$ | $5 \times 5 = 25$ | $6 \times 5 = 30$ |
| $1 \times 6 = 6$ | $2 \times 6 = 12$ | $3 \times 6 = 18$ | $4 \times 6 = 24$ | $5 \times 6 = 30$ | $6 \times 6 = 36$ |
| $1 \times 7 = 7$ | $2 \times 7 = 14$ | $3 \times 7 = 21$ | $4 \times 7 = 28$ | $5 \times 7 = 35$ | $6 \times 7 = 42$ |
| $1 \times 8 = 8$ | $2 \times 8 = 16$ | $3 \times 8 = 24$ | $4 \times 8 = 32$ | $5 \times 8 = 40$ | $6 \times 8 = 48$ |
| $1 \times 9 = 9$ | $2 \times 9 = 18$ | $3 \times 9 = 27$ | $4 \times 9 = 36$ | $5 \times 9 = 45$ | $6 \times 9 = 54$ |
| $1 \times 10 = 10$ | $2 \times 10 = 20$ | $3 \times 10 = 30$ | $4 \times 10 = 40$ | $5 \times 10 = 50$ | $6 \times 10 = 60$ |
| $1 \times 11 = 11$ | $2 \times 11 = 22$ | $3 \times 11 = 33$ | $4 \times 11 = 44$ | $5 \times 11 = 55$ | $6 \times 11 = 66$ |
| $1 \times 12 = 12$ | $2 \times 12 = 24$ | $3 \times 12 = 36$ | $4 \times 12 = 48$ | $5 \times 12 = 60$ | $6 \times 12 = 72$ |
| SEVEN | EIGHT | NINE | TEN | ELEVEN | TWELVE |
| $7 \times 1 = 7$ | $8 \times 1 = 8$ | $9 \times 1 = 9$ | $10 \times 1 = 10$ | $11 \times 1 = 11$ | $12 \times 1 = 12$ |
| $7 \times 2 = 14$ | $8 \times 2 = 16$ | $9 \times 2 = 18$ | $10 \times 2 = 20$ | $11 \times 2 = 22$ | $12 \times 2 = 24$ |
| $7 \times 3 = 21$ | $8 \times 3 = 24$ | $9 \times 3 = 27$ | $10 \times 3 = 30$ | $11 \times 3 = 33$ | $12 \times 3 = 36$ |
| $7 \times 4 = 28$ | $8 \times 4 = 32$ | $9 \times 4 = 36$ | $10 \times 4 = 40$ | $11 \times 4 = 44$ | $12 \times 4 = 48$ |
| $7 \times 5 = 35$ | $8 \times 5 = 40$ | $9 \times 5 = 45$ | $10 \times 5 = 50$ | $11 \times 5 = 55$ | $12 \times 5 = 60$ |
| $7 \times 6 = 42$ | $8 \times 6 = 48$ | $9 \times 6 = 54$ | $10 \times 6 = 60$ | $11 \times 6 = 66$ | $12 \times 6 = 72$ |
| $7 \times 7 = 49$ | $8 \times 7 = 56$ | $9 \times 7 = 63$ | $10 \times 7 = 70$ | $11 \times 7 = 77$ | $12 \times 7 = 84$ |
| $7 \times 8 = 56$ | $8 \times 8 = 64$ | $9 \times 8 = 72$ | $10 \times 8 = 80$ | $11 \times 8 = 88$ | $12 \times 8 = 96$ |
| $7 \times 9 = 63$ | $8 \times 9 = 72$ | $9 \times 9 = 81$ | $10 \times 9 = 90$ | $11 \times 9 = 99$ | $12 \times 9 = 108$ |
| $7 \times 10 = 70$ | $8 \times 10 = 80$ | $9 \times 10 = 90$ | $10 \times 10 = 100$ | $11 \times 10 = 110$ | $12 \times 10 = 120$ |
| $7 \times 11 = 77$ | $8 \times 11 = 88$ | $9 \times 11 = 99$ | $10 \times 11 = 110$ | $11 \times 11 = 121$ | $12 \times 11 = 132$ |
| $7 \times 12 = 84$ | $8 \times 12 = 96$ | $9 \times 12 = 108$ | $10 \times 12 = 120$ | $11 \times 12 = 132$ | $12 \times 12 = 144$ |

Multiplication in the curriculum

Year 1 – Count in multiples of twos, fives and tens

Year 2 – Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables

Year 3 – Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables

Year 4 – Recall multiplication and division facts for multiplication tables up to 12 x 12



Play as frequently as possible.
Over-learning for fluent recall.

Look at your
child's heat
map for
targeted
support.

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

Multiplication Check

The multiplication tables check (MTC) is statutory for all year 4 pupils registered at state-funded maintained schools, special schools or academies (including free schools) in England.

The purpose of the MTC is to determine whether pupils can recall their times tables fluently, which is essential for future success in mathematics. It will help schools to identify pupils who have not yet mastered their times tables, so that additional support can be provided.

Multiplication tables check

Schools must administer the multiplication tables check within the 2-week period from Monday 3 June 2024.

Important information about multiplication tables check (MTC)

- The MTC determines if Year 4 children can **fluently** recall their multiplication tables.
- They are 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, unlike the Phonics Screening Check, children will not be expected to re-sit the check.
- The Department for Education (DfE) will create a report about the overall results across all schools in England, not individual schools.



When the check will take place

- There will be a **2 week window** from **Monday 3rd June 2024** for schools to administer the check.
- There is **no set day** to administer the check and children are not expected to take the check at the same time.
- All eligible Year 4 children in England will be required to take the check.



How the check is carried out

- The check will be **fully digital**.
- Answers will be entered using a keyboard, by pressing digits using a mouse or using an on-screen number pad.
- Usually, the check will take less than **5 minutes** for each child.
- The children will have **6 seconds** from the time the question appears to input their answer.
- There will be a total of **25 questions** with a **3 second pause** in-between questions.
- There will be **3 practice questions** before the check begins.



Specific arrangements for the check

Some children will be eligible for specific arrangements:

- Colour contrast;
- Font size adjustment;
- 'Next' button (alternative to 3-second pause);
- Removing on-screen number pad;
- An adult to input answers;
- Audio version;
- Audible time alert.



The check questions

- Each child will be **randomly assigned** a set of questions
- 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.
- Reversal of questions (e.g. 8×6 and 6×8) will not be asked in the same check.
- Children will not see their individual results when they complete the check.



More information about the questions

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

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 |

Ways to support times table knowledge

- Count and look for patterns.
- Understand that multiplication is repeated addition.
- Remember that multiplication is commutative.
- Remember that multiplication is the inverse of division.
- Recall and utilise number families.

Use different representations to represent multiplication, such as:

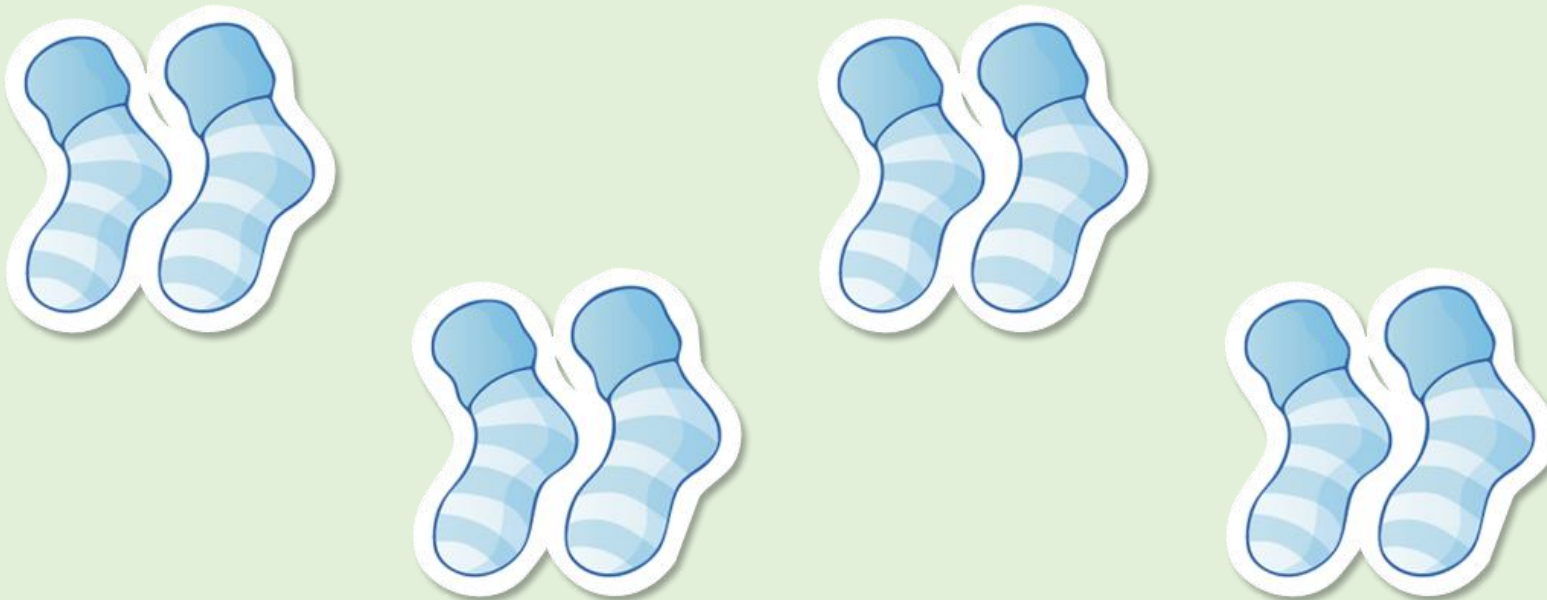
- Concrete manipulatives such as multilink cubes or counters.
- Create pictorial representations such as arrays.



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.

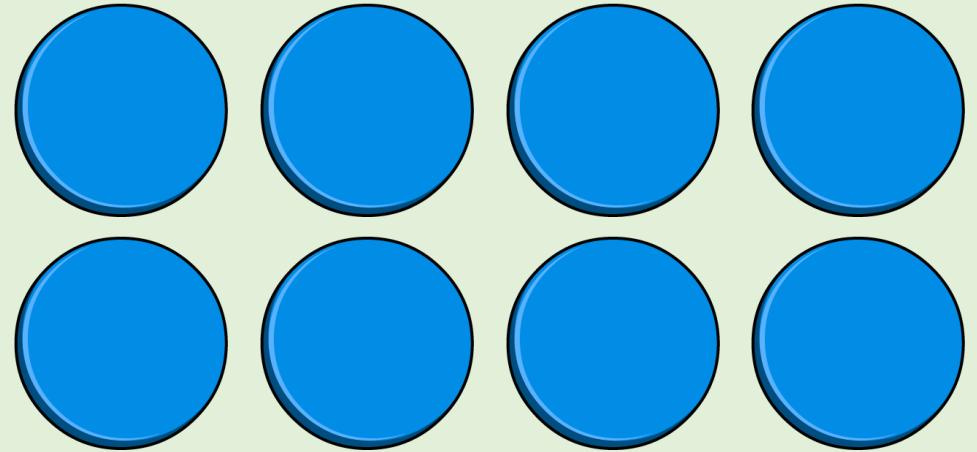


Repeated addition

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



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



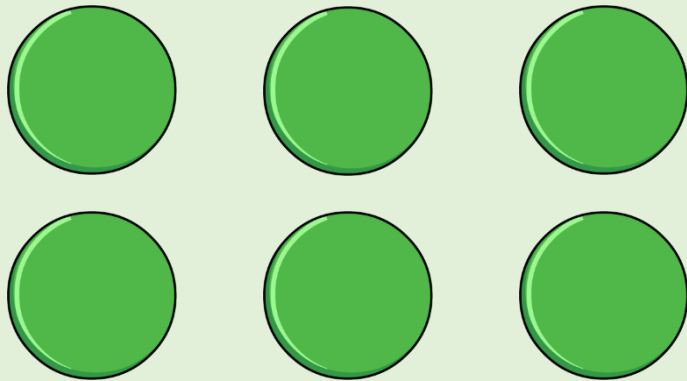
$$2 \times 4 = ?$$



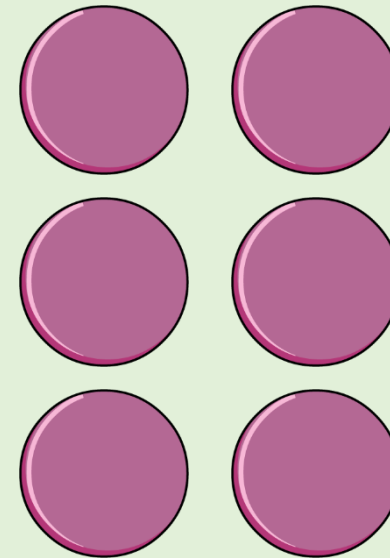
Multiplication is commutative

3×2 is the same as 2×3

Children need to understand that multiplication can be completed in any order to produce the same answer. Sometimes this link needs to be made explicit.



3 lots of 2 = 6



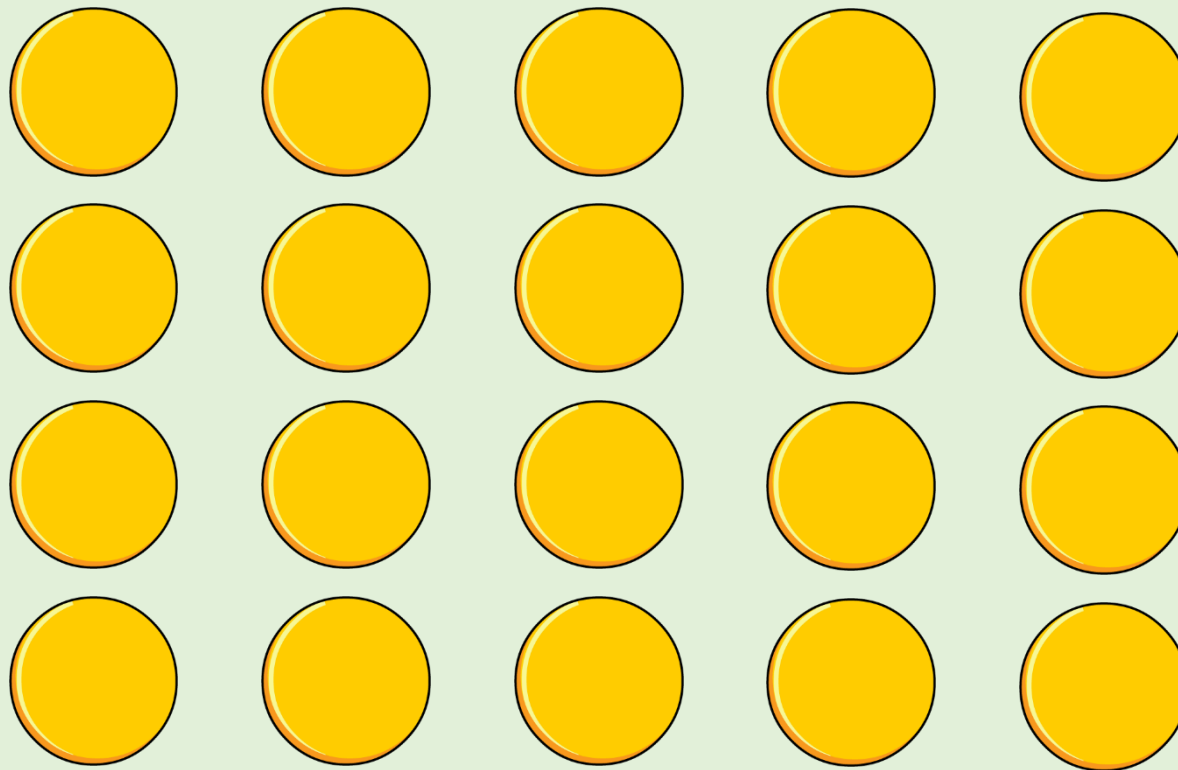
2 lots of 3 = 6



Multiplication is the inverse of division

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

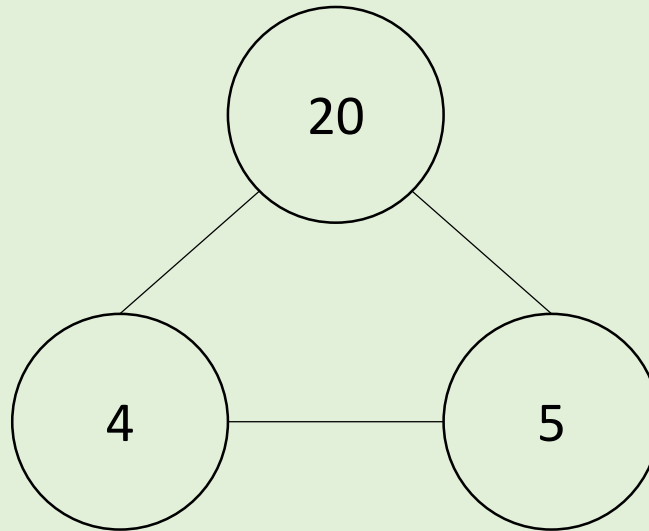
Using pictorial representations (such as arrays) is useful here for children to see the link between multiplication and division.



Number families

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

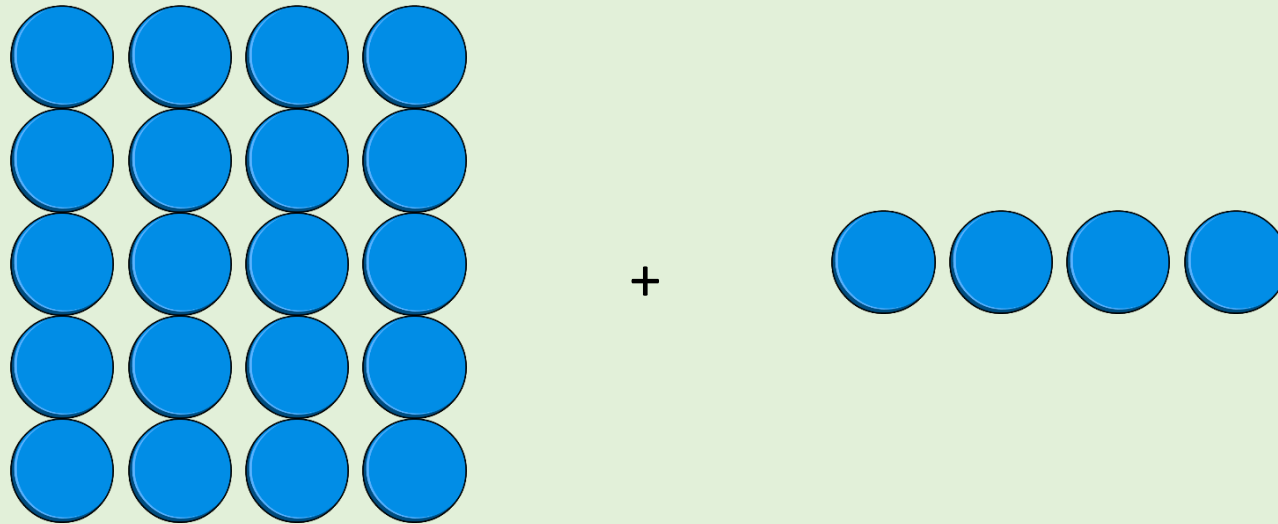
Due to their commutative understanding, children should also be able to see whole number families. For many children this will need to be pointed out and discussed.



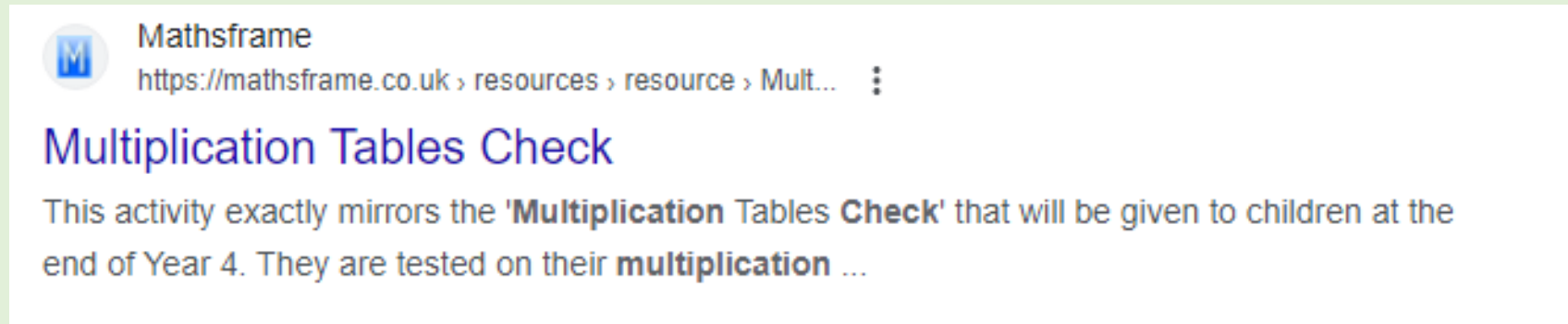
Using known facts

$4 \times 6 = ?$
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.



Multiplication check practice app



We will begin to use this app, which mimics the experience, in January after they have completed their multiplication unit. You can then use it at home too. Using it too early will not be helpful. We will continue using TTRS all year.



This blog has been written for teachers but can be shared by schools with their parents as the ideas within it are useful for the learning of multiplication tables at home.

<https://www.hfleducation.org/blog/starting-beginning-how-learn-times-tables>