## Year 4 Multiplication Tables Check 2024 Presentation for Parents, Carers \& Guardians

## Information for parents:

2023 multiplication tables check

## Year 4 MTC

- The multiplication tables check is delivered as an online assessment; there are multiple, equivalent forms and each pupil is randomly assigned one.
- Each form consists of 25 questions worth one mark each and pupils have six seconds to enter a response to the question.


Why?

## Avoiding cognitive overload!


$6 \times 7=42$
$30 \times 7=210$
$800 \times 7=5400$
$6 \times 20=120$
$30 \times 20=600$
$800 \times 20=16000$


## Making connections



## Making connections

- $10 \%$ of $£ 400$
- $£ 400 \div 10=£ 40$
- $3 \mathrm{x} £ 40=£ 120$
- Halving
- $5 \%$ of $£ 400=£ 20$
- $£ 120+£ 20=£ 140$


## Jack has $£ 400$

He spends $35 \%$ of his money on a new bike.


How much does Jack spend on his new bike?
(a)

What is the volume of this standard size box of salt?


## A machine pours 250 millilitres of juice every 4 seconds.

## How many litres of juice does the machine pour every minute?

Lara has some identical rectangles.
They are 7 centimetres long and 2 centimetres wide.


Not actual size

She uses five of her rectangles to make the large rectangle below.


What is the perimeter of the large rectangle?

Lin has five blocks which are all the same.
She balances them on the scale with two weights.


Calculate the weight of one block.

The area of a rugby pitch is 6,108 square metres.
A football pitch measures 112 metres long and 82 metres wide.
How much larger is the area of the football pitch than the area of the rugby pitch?


## How have

 we done atEvelyn Street?

- In 2021/2022 children scored an average of 20.89 out of a possible 25
- In 2022/2023 children scored an average of 23.16
- The national average was 20.17 out of 25
- $43 \%$ of the children in Year 4 at Evelyn Street scored the top score of 25 . The national average was 31\%


## How would we do?

Time for a quick quiz...

## 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.


## When the check will take place

- Schools must administer the MTC to all eligible year 4 pupils from Monday 3 June over a 2 week period
- There is no set day to administer the check and children are not expected to take the check at the same time.
- The check will be fully digital - we complete on ipads as this is how they are used to accessing it in school


## How the <br> check is <br> carried out

- 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.

There is an emphasis on the

## Key stage 2

 $6,7,8,9$ and 12 multiplication tables because these have been determined to be the most difficult multiplication tables.
## Multiplication tables check

## assessment framework

From academic year 2021/2022
For Test Developers

| Multiplication <br> Table | Minimum number <br> of items in each <br> form | Maximum number <br> of items in each <br> form |
| :---: | :---: | :---: |
| $\mathbf{1}$ | Not applicable | Not applicable |
| $\mathbf{2}$ | 0 | 2 |
| 3 | 1 | 3 |
| 4 | 1 | 3 |
| $\mathbf{5}$ | 1 | 3 |
| 6 | 2 | 4 |
| $\mathbf{7}$ | 2 | 4 |
| 8 | 2 | 4 |
| 9 | 2 | 4 |
| $\mathbf{1 0}$ | 0 | 2 |
| $\mathbf{1 1}$ | 1 | 3 |
| $\mathbf{1 2}$ | 2 | 4 |

## Time to look at research



## Time to look at research...

Why is automaticity with maths facts important?
...automaticity comes by means of direct retrieval, rather than following a procedure
... frees up cognitive resources and attention

How fast is fast enough to be automatic? ...consider facts to be automatic when a response comes in two or three seconds.

## Time to look at research...

What type of practice effectively leads to automaticity?

Not too much to be learnt

Developing strong associations between small sets of facts

Recalling vs deriving

How we teach multiplication facts

## Year 1 Overview

Number: Place Value (within 10)

Number: Addition and Subtraction (within 10)

Geometry:
Shape

Number: Place Value (within 20)

Multiplication tables - Count in 2, 5, 10

Number: Place Value (within 50) includes counting in $2 s$ and $5 s$

Measurement:
Length and Height

Measurement: Mass and Volume

Multiplication tables - Count in 5, 10 and recite 2

| Number: Place Value (within |
| :---: | :---: | :---: | :---: |
| 10) |$\quad$| Number: Addition and Subtraction |
| :---: |
| (within 10) |$\quad$| Geometry: |
| :---: |
| Shape |$\quad$| Number: Place Value |
| :---: |
| (within 20) | Subtraction (within 20)


|  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
| ber: | Geometry: <br>  <br> Direction | Number: <br> Place Value <br> (within 100) | Measures: <br> Money | Measurement: Time |

Year 2 Overview

| Number: Place Value | Number: Addition and Subtraction | Measurement: <br> money | Number: <br> Multiplication and |
| :---: | :---: | :---: | :---: |
| division |  |  |  |

Multiplication tables - Recite 5, 10 and multiply 2 and count in 4s
2NF-1 Secure fluency in addition and subtraction facts within 10, through continued practice.

|  |  |  |  |
| :---: | :---: | :---: | :---: |
| Number: Multiplication and <br> Division | Statistics | Geometry: Properties of <br> Shape | Number: Fractions |

Multiplication tables - Multiply 5, 10 and divide 2 and count in 4s
2NF-1 Secure fluency in addition and subtraction facts within 10, through continued practice.

| Geometry: <br> Position and <br> Direction | Problem <br> solving |  <br> Height |
| :---: | :---: | :---: |

Measurement:
Measurement: Time

Mass, Capacity anc Temperature

## Year 3 overview

| Number: | Number: |
| :---: | :---: |
| Place Value | Addition and Subtraction |

## Number:

Multiplication and Division

| Number: <br> Place Value | Number: <br> Addition and Subtraction |  | Number: <br> Multiplication and Division |
| :---: | :---: | :---: | :---: |
| - Language of 25, 50, 75, 100 must be needs to be a fluent spoken language pattern <br> - Yr 3= Multiplication tables - Divide 2, 5, 10 and recite in 4, 8, count 3, 11 |  |  |  |
| Number: Multiplication and Division | Measurement: Length and Perimeter | Number: Fractions | Measures: Mass and Capacity |

Yr 3= Multiplication tables - Divide 2, 5, 10 and multiply 4, 8, recite 3, 11

Measure: Money

| Measurement: <br> Time | Statistics | Geometry: <br> Properties of shape |
| :---: | :---: | :---: |
| Yr $3=$ Multiplication tables - Divide $2,4,5,10$ and multiply $8,3,11$ |  |  |

## Year 4 overview

| Number: <br> Place Value | Number: <br> Addition and Subtraction |  | Number: <br> Multiplication and Division |
| :---: | :---: | :---: | :---: |
| - Language of 25, 50, 75, 100 must be needs to be a fluent spoken language pattern <br> - Yr 4 = Multiplication tables - Divide 2, 4, 5, 10, 11 and multiply 3, 8 and recite 6, 7, 9, 12 |  |  |  |
| Number: Multiplication and Division | Measurement: Length, Perimeter and area | Number: Fractions | Measures: Mass and Capacity |
| Yr 4 = Multiplication tables - Divide 2, 3, 4, 5, 8, 10, 11 and multiply 6, 7, 9, 12 |  |  |  |


| Number: Decimals <br> Measure: Money | Measurement: <br> Time | Statistics | Geometry: Properties of <br> shape <br> Position and direction |
| :---: | :---: | :---: | :---: |
| Yr $4=$ Multiplication tables - Divide all to $12 \times 12$ |  |  |  |

Geometry: Properties of shape Position and direction

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.

| $1 \times 1$ | $1 \times 2$ | $1 \times 3$ | $1 \times 4$ | $1 \times 5$ | $1 \times 6$ | $1 \times 7$ | $1 \times 8$ | $1 \times 9$ | $1 \times 10$ | $1 \times 11$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $2 \times 1$ | $2 \times 2$ | $2 \times 3$ | $2 \times 4$ | $2 \times 5$ | $2 \times 6$ | $2 \times 7$ | $2 \times 8$ | $2 \times 9$ | $2 \times 10$ | $2 \times 11$ |
| $2 \times 12$ |  |  |  |  |  |  |  |  |  |  |
| $3 \times 1$ | $3 \times 2$ | $3 \times 3$ | $3 \times 4$ | $3 \times 5$ | $3 \times 6$ | $3 \times 7$ | $3 \times 8$ | $3 \times 9$ | $3 \times 10$ | $3 \times 11$ |
| $4 \times 1$ | $4 \times 2$ | $4 \times 3$ | $4 \times 4$ | $4 \times 5$ | $4 \times 6$ | $4 \times 7$ | $4 \times 8$ | $4 \times 9$ | $4 \times 10$ | $4 \times 11$ |
| $4 \times 12$ |  |  |  |  |  |  |  |  |  |  |
| $5 \times 1$ | $5 \times 2$ | $5 \times 3$ | $5 \times 4$ | $5 \times 5$ | $5 \times 6$ | $5 \times 7$ | $5 \times 8$ | $5 \times 9$ | $5 \times 10$ | $5 \times 11$ |
| $6 \times 1$ | $6 \times 2$ | $6 \times 3$ | $6 \times 4$ | $6 \times 5$ | $6 \times 6$ | $6 \times 7$ | $6 \times 8$ | $6 \times 9$ | $6 \times 10$ | $6 \times 11$ |
| $7 \times 1$ | $7 \times 2$ | $7 \times 3$ | $7 \times 4$ | $7 \times 5$ | $7 \times 6$ | $7 \times 7$ | $7 \times 8$ | $7 \times 9$ | $7 \times 10$ | $7 \times 11$ |
| $8 \times 1$ | $8 \times 2$ | $8 \times 3$ | $8 \times 4$ | $8 \times 5$ | $8 \times 6$ | $8 \times 7$ | $8 \times 8$ | $8 \times 9$ | $8 \times 12$ | $8 \times 11$ |
| $8 \times 12$ |  |  |  |  |  |  |  |  |  |  |
| $9 \times 1$ | $9 \times 2$ | $9 \times 3$ | $9 \times 4$ | $9 \times 5$ | $9 \times 6$ | $9 \times 7$ | $9 \times 8$ | $9 \times 9$ | $9 \times 10$ | $9 \times 11$ |
| $10 \times 1$ | $10 \times 2$ | $10 \times 3$ | $10 \times 4$ | $10 \times 5$ | $10 \times 6$ | $10 \times 7$ | $10 \times 8$ | $10 \times 9$ | $10 \times 10$ | $10 \times 11$ |
| $11 \times 1$ | $11 \times 2$ | $11 \times 3$ | $11 \times 4$ | $11 \times 5$ | $11 \times 6$ | $11 \times 7$ | $11 \times 8$ | $11 \times 9$ | $10 \times 12$ |  |
| $12 \times 1$ | $12 \times 2$ | $12 \times 3$ | $12 \times 4$ | $12 \times 5$ | $12 \times 6$ | $12 \times 7$ | $12 \times 8$ | $12 \times 9$ | $12 \times 10$ | 10 |
|  | $12 \times 11$ | $11 \times 12$ |  |  |  |  |  |  |  |  |

Fluency in the 36 highlighted facts should be prioritised.
Together with an understanding of commutativity will enable pupils to multiply any pairs of number in formal written methods of multiplication.

## Mathematics guidance: key stage 1 and 2

Non-statutory guidance for the national curriculum in England page 332

- We can discount the 1 times table facts, because generally children know these.
- Because each product is repeated we can halve the number of facts we need to learn. We now have 36 as shown in this grid
- Once children can recall these, and apply them to commutative calculations, for example recognise that $5 \times 7$ has the same product as $7 \times 5$, they have learnt the essential facts for written multiplication and division.
- Children who have not learnt all times table facts before the MTC should prioritise these in year 5 .



## Learning Multiplication Facts The research

Multiplicative facts are stored in our verbal memory; saying (and hearing) the sound pattern of the phrase (e.g. seven threes are twenty one) is important.


## A suggested strategy: <br> Principles for Learning Multiplication Facts

Learn as a memorised phrase by repeating sound pattern out loud.

Don't try to derive. If you don't know - copy down then learn later.

Say the greater number
 first.

## A suggested strategy: Principles for Learning Multiplication Facts

Learn each fact one way round only, then get confident at switching factors.


A suggested strategy:
Principles for Learning Multiplication Facts

When trying to recall a fact, say the WHOLE number sentence out loud and see if the answer trips off your tongue. If not, try the commutative and see if it comes then.

Hearing and saying the sound pattern is key

## How Can We Help Children to Learn Key Number Facts?

- Frequent practice
- Multi-sensory approach
- Visual prompts
- Over-learning

- Build on known number facts
- Engage in practical activities and concrete resources
- Active learning
- Motivate, encourage and enthuse
- Make it real
- Make it fun!


## Grab Three

## Multiplication facts

- Place three things on the table

- Player 1 rolls two 1-6 dice and calculates the product.
- Player 2 repeats
- The player with the highest score takes a 'thing'.
- Continue playing and taking a 'thing', a player can take a 'thing' from the other player.
- The first player to have all three 'things' wins.


## 8 rolls to 100

## Multiplication facts



- Take turns to roll $2 \times 1-6$ die
- Multiply the two numbers that come up and record the product.
- Repeat 8 times.
- After 8 rounds each player adds up their products and finds their total.
- The player to get over 100 is the winner.


## Multiplication War

## Multiplication facts



- Shuffle playing cards/digit cars
- Divide the set between two players
- Players place their cards face down in a pile.
- Players turn over the top card at the same time.
- The first player to say the product of the two cards facing up, keeps both cards
- The player with the most cards wins


## Any questions/queries...

standards


