TMET
The Mead Educational Trust

Teaching Times Tables in TMET Primary Academies

FOSSE MEAD PRIMARY ACADEMY

ROWLATTS MEAD PRIMARY ACADEMY

KNIGHTON MEAD PRIMARY ACADEMY

THURNBY MEAD PRIMARY ACADEMY

WILLOWBROOK MEAD PRIMARY ACADEMY

KESTREL MEAD PRIMARY ACADEMY

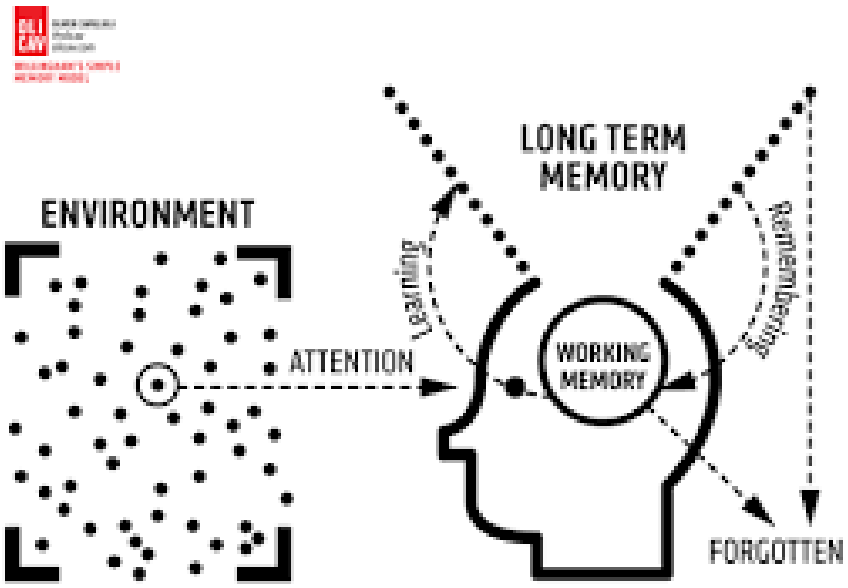
NORTH MEAD PRIMARY ACADEMY

ABBEY MEAD PRIMARY ACADEMY

Times Tables

Times tables are a key piece of understanding for any pupil in their mathematical journey. Without them, there are many parts of the mathematical process which will allude them. More challenging mathematical concepts such as fractions can only be fully secured with a strong understanding of times tables before beginning this new learning.

A secure understanding of times tables also allows for pupils to free up more of their working memory. We can only hold a finite amount of information in our working memory and we need this space to understand what a specific mathematical question is asking of us. As such, we should work to teach times tables in a way to move them to a pupil's long term memory. This means they become instantly recalled allowing a child to confidently face the rest of a mathematical task.



Children must have opportunity to rehearse and repeat times table facts in order for them to transfer to the long term memory ready to be remembered and not forgotten.

Year 1

The skill of counting- Before any explicit times table learning is completed, it is essential that children have a secure understanding of counting. This begins as counting along from different numbers to others before progressing to counting groups of objects. By doing this, children are being introduced to the underlying mathematical concept of times tables.

Repeated addition- When learning addition, it is important that Year 1 pupils are introduced to the concept of repeated addition.

2+2+2=6

By learning this mathematical idea, the pupils are beginning to understand the way that multiplication works.

Year 2

0s, 2s, 3s and 5s, 10s

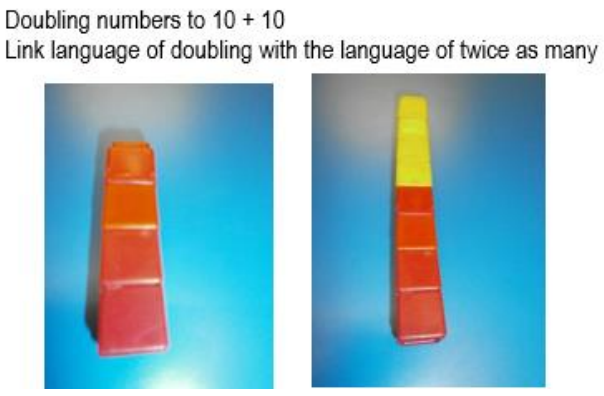
Before teaching the concept of the 2 times table introduce doubling to the pupils.

Use practical and visual resources to show doubling. Use vocabulary of double and twice as many (the same again)

Build towers

Repeated Numicon shapes

Counting groups of objects and making another group with the same amount.



Teach x10 before x5 and explicitly refer to the connections between these times tables.

Year 3

4, 8 and 11s

POSSIBLE- 6 and 9 for confident and secure pupils

Year 4

6, 7 and 9, 12

Link 6 and 9 to their understanding of the 3 timestables

12 is only 12x12 as by this point they know all other x12 multiples.

Years 5 and 6

Securing the understanding of all times tables in a range of contexts including x50 x0.5 etc…

10s, 100s, 1000s

The order in which we should teach facts:

Teaching the facts within a times table should be done in a particular order to ensure that the children have a confident understanding and not just one where they can chant their way through.

Start with x2- this allows the children to secure their understanding of doubling and how this can influence the times table.

X10- This underpins place value understanding.

X5- teach as half of x10 for speed and understanding using apparatus and visuals

X3 using a numberline or counting

X4- teach as double x2

X9- find x10 then take one lot off

X11- find x10 then add another lot

X8- double x4

X6- double x3

X7- understood using the commutative law

Commutative understanding

Using arrays introduce how 2 x 4 gives you the same as 4 x 2. Talk about commutativity and help the children to make the link that multiplication is repeated addition and that addition is also commutative.

If the children understanding commutativity they need to know less facts to recall their times tables.

Counting sticks:

Using a counting stick is one of the best methods to help children to move from repetition to rapid recall. When using the counting stick, it is important to work systematically in order to ensure that children have a secure understanding.

Watch the linked video for a brilliant example of teaching an entirely new times table in just ten minutes. The idea of building the table with the children before counting and removing multiples is essential as this helps them to see the connections between different multiples.

https://www.youtube.com/watch?v=yXdHGBfoqfw

Using the method in the video allows the children to develop a strong understanding of a specific times table. You can then extend this understanding by mixing up the multiples and the children helping you to reorder them or removing multiples and the children identifying what is missing and how they know.

How else can we teach times tables?

It is vital that times tables are explicitly taught to pupils and are not simply practiced by them using online platforms etc…

The teaching methods here can be used with pupils of all ages and the use of them in KS2 should not be diminished.

Counting objects-

Physical objects are key to understanding the idea of multiplication being a number of groups of. When counting objects, it is important that children see a wide range of physical resources not just mathematical equipment. They should be given the opportunity to count items that create a times table to secure a concrete understanding as well as an abstract one.

Learning styles and the way that they can be engaged- Times Table songs, visuals and practicals.

Whenever we are teaching times tables, we can use the wealth of online resources to explore them and engage multiple parts of the brain which helps to secure understanding for pupils. The BBC super movers series is particularly effective for suing songs and movement to rehearse times tables and help to move them to the long term memory.

KS1 Maths Collection - BBC Teach

KS2 Maths Collection - BBC Teach

Arrays

Interpreting and making them.

Looking for arrays in the environment – e.g. the number of panes of glass in a window

By exploring arrays in the environment, children will start to see the way that they can 'spot' maths every day. You can them move this on to children making their own arrays to represent a particular multiplication fact.

<u>Blank multiplication grids</u>

Providing multiplication grids for the pupils to complete allows them to rehearse their facts. These can be part filled initially and slowly you reduce the number of facts in the grid so the pupil is completing the entire thing.

These then extend to quick times table recall challenges with short in class tests where the times table itself is mixed up for the pupils to recall.

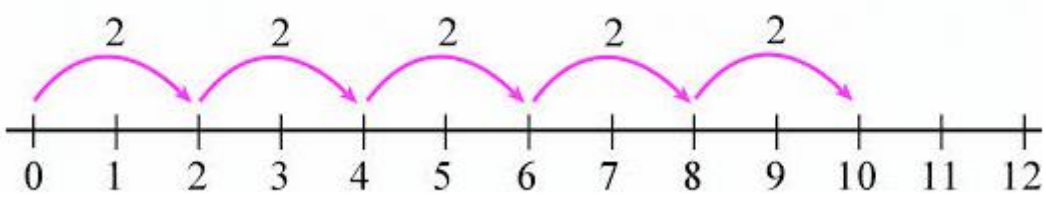
Name: _____

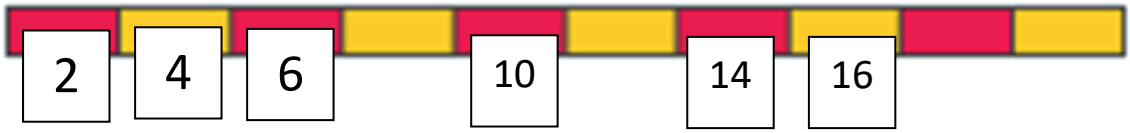
X	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

Change the context

When children are exploring a times table, it is important to regularly change the context they are experiencing. This is done with different equipment, the counting stick, numberlines and arrays all showing the same times table being learnt to ensure that the children are not simply connecting the one context with their understanding of that times table.

Below is an example of showing the 2x table in multiple contexts.



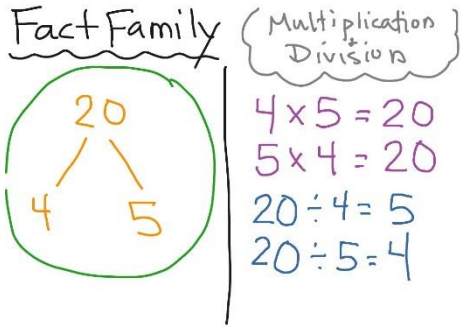


Other Considerations

1x1	Reduce the facts - understand the relationships										
2x1	2x2										
3x1	3x2	3x3									
4x1	4x2	4x3	4x4								
5x1	5x2	5x3	5x4	5x5							
6x1	6x2	6x3	6x4	6x5	6x6						
7x1	7x2	7x3	7x4	7x5	7x6	7x7					
8x1	8x2	8x3	8x4	8x5	8x6	8x7	8x8				
9x1	9x2	9x3	9x4	9x5	9x6	9x7	9x8	9x9		12x11	
10x1	10x2	10x3	10x4	10x5	10x6	10x7	10x8	10x9	10x10	12x11	12x12

Refer to division facts

Whenever you are teaching times table facts, it is important that you explicitly refer to the connected division as this will help children to secure an in depth understanding. This ability to link a times table fact to the inverse will allow children to become more effective at calculating in many other contexts.



Encouraging revisiting

It is vital that times table learning is part of every maths lesson in order to ensure that children are regularly revisiting and rehearsing their facts. This will make sure that the times tables become second nature and are easily pulled into the working memory when they are needed.

- TT Rockstars
- In class tests
- Chanting in class
- Quick games for recall against each other