Times tables

Wednesday 20th November 2019

Times tables

What is the times tables check?

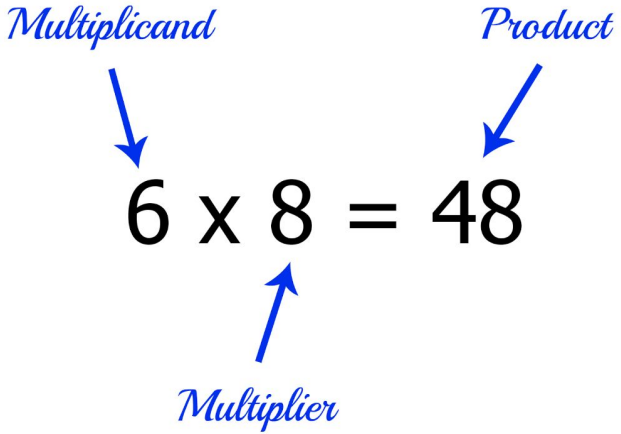
How do we teach times tables at Stapleford?

How do we track times table and fluency?

How can I help by child at home?

Vocabulary

- **Multiplicand**
- **Multiplier**
- **Product**
- Factor
- Commutativity
- Arrays
- Divisible by
- Repeated addition
- Distributive law



The multiplicand is the size of the group.

The multiplier is the number of groups.

They are both factors of the product.

Vocabulary

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- Multiplier
- **Product**
- **Factor**
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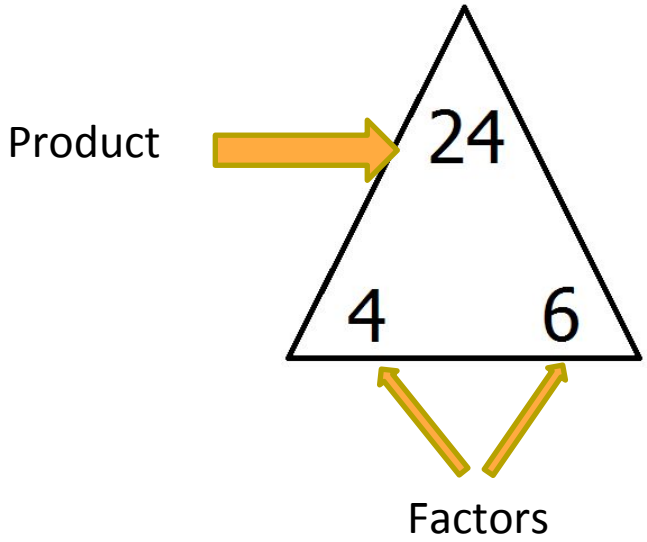

The product is made by multiplying the factors.

The product is divisible by both factors.

Vocabulary

- Multiplicand
- Multiplier
- Product
- Factor
- **Commutativity**
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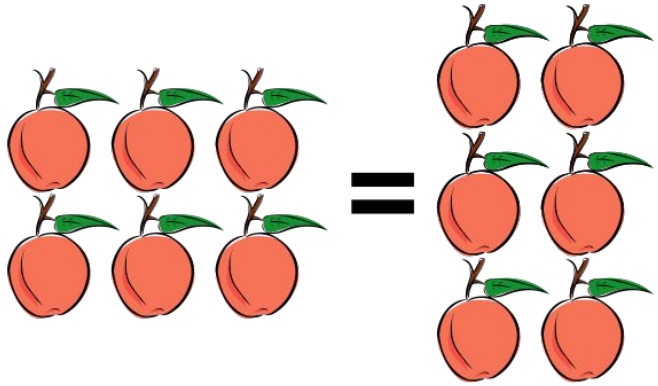
The product of two factors is the same either way round, e.g. 3 x 2 = 6 and 2 x 3 = 6



Arrays can help us to represent and calculate multiplication facts. Arrays can help us to show the factors, product and related division facts. Arrays also link closely to calculating area, and to the grid method.

What is the times tables check?

From the **2019/20 academic year onwards,** all state-funded maintained schools and academies (including free schools) in England will be required to administer an **online multiplication tables check (MTC) to year 4 pupils in June.**

The national curriculum specifies that pupils should be taught to recall the multiplication tables up to and including **12 × 12 by the end of year 4.**

Schools will have a **3-week window** to administer the MTC. Teachers will have the flexibility to administer the check to **individual pupils, small groups or a whole class at the same time.**

What is the test's format?

The Multiplication Tables Check has been described as **"an online, on-screen digital assessment"** – meaning the children will take the test on a desktop computer, laptop or tablet at school. The test runs on will automatically mark each child's times tables test.

What is the test's format?

The times tables test will be timed, with the entire assessment lasting approximately 5 minutes in total. The children will be set a handful of practice questions to begin with – mostly from the one times table. Following the practice questions, the test itself will comprise of 25 questions, all formatted, for example, as 2 x 5 = with the child required to input the product or result.

How long for each question?

Children will be given six seconds to answer each of the questions, with a three second blank gap between each question.

Times tables rockstars
https://www.timestables.co.uk/multiplication-tables-check/
https://mathsframe.co.uk/en/resources/resource/477/Multiplication-Tables-Check
https://play.edshed.com/mtc

What tables will be checked?

The questions will be randomly selected by the testing programme from 121 different options, ranging from 2 x 2 = up to 12 x 12. The test's software has been programmed to show children more questions from the 6, 7, 8, 9 and 12 times tables, as these are trickier times tables focused on more in Years 3 and 4. (The 2s, 5s and 10s are more of a focus in Years 1 and 2.)

What tables will be checked?

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

How will the results be reported?

Each child's result will be passed on to their school, and the DfE will create a report on overall results across all schools in England to measure whether national times tables results improve over the coming years.

At the end of the assessment window, a total score out of 25 will be reported to each school for all of their pupils who took the check. There will be no expected standard threshold for the MTC.

A school's results will not be published in any public way, nor will they be used in informing any type of league or performance table.

How do we teach times tables at Stapleford?

What do we mean by Mastery?

- **Deep** and sustainable learning – **for all**

  Depth is the key to avoiding the need to repeat teaching.

  It doesn't feel like we're starting again each term.

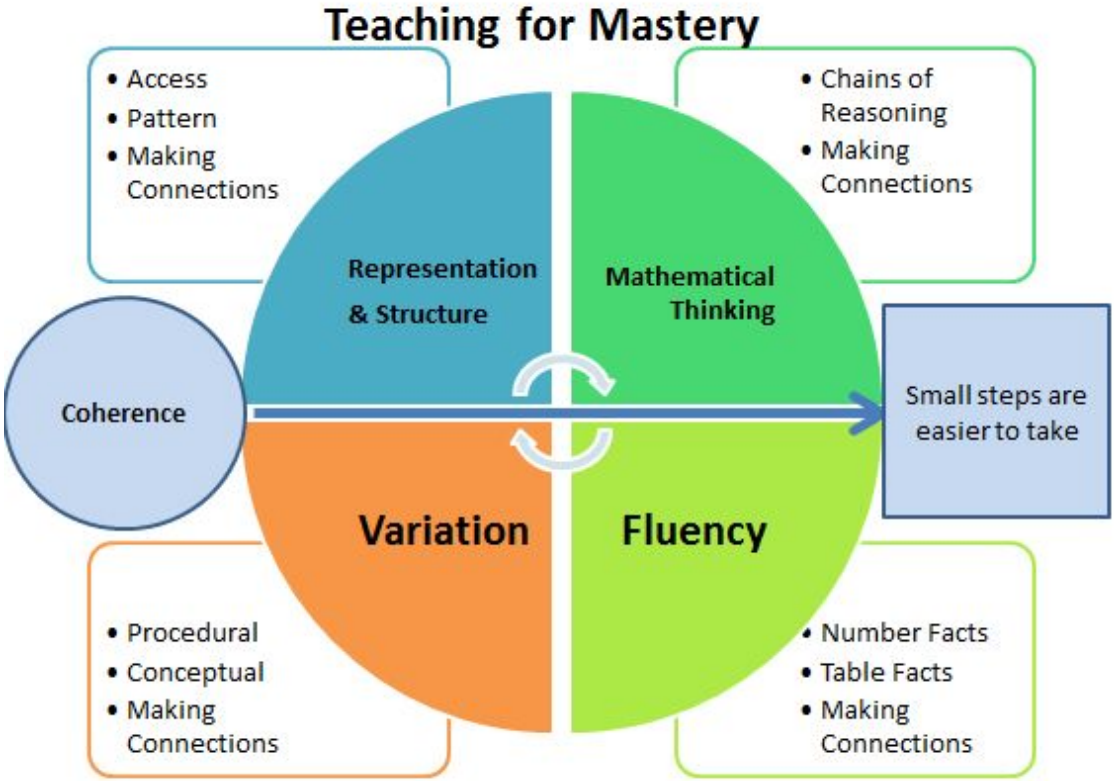
- The ability to build on something that has already been sufficiently mastered

  …for this stage of learning - Mastery is a continuum

How do we teach times tables at Stapleford?

- **The ability to reason about a concept and make connections**
  - **Cuts down on the amount I need to learn**
    eg relating concepts of division, fractions and ratio
  - **Deepens conceptual understanding.**
- **Conceptual and procedural fluency**
  - **Move maths from one context to another. Recognise concepts in unfamiliar situations.**
  - **Know number facts and tables, have efficient procedures**

How do we teach times tables at Stapleford?



How do we teach times tables at Stapleford?

Fluency

- Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics

Fluency in this area will draw in elements of mathematical thinking.

Fluency

Big Ideas of Mastery: Fluency

Messages

1. Fluency demands more of learners than memorisation of a single procedure or collection of facts. It encompasses a mixture of efficiency, accuracy and flexibility.
2. Quick and efficient recall of facts and procedures is important in order for learners' to keep track of sub problems, think strategically and solve problems.
3. Fluency also demands the flexibility to move between different contexts and representations of mathematics, to recognise relationships and make connections and to make appropriate choices from a whole toolkit of methods, strategies and approaches.

For example:

Quick and accurate recall of all multiplication facts up to 12 × 12 is important in order to free working memory to see the big picture and make decisions about when to use this knowledge to solve certain problems.

However, if a pupil only knows these facts as an unconnected collection of memorised phrases and does not know:

- that 8 × 6 is the same as 6 × 8 or twice 4 × 6 or 12 less that 10 × 8;
  or
- does not know the connection between 6 × 8 and 16 × 8 or 6 × 80 or 0.6 × 8;
  or
- when faced with a problem of finding how many books are in a bookcase with 8 shelves and 6 books on each shelf, does not know what mathematics to use

… then they have not attained fluency.

Fluency

What curriculum areas are these topics important in?

Number bonds

Doubling and Halving

Times tables

Fluency

Converting units

What curriculum areas are these topics important in?

Number bonds

Written methods

Addition and subtractions

Fractions

Doubling and Halving

Times tables

Area and perimeter

Times tables

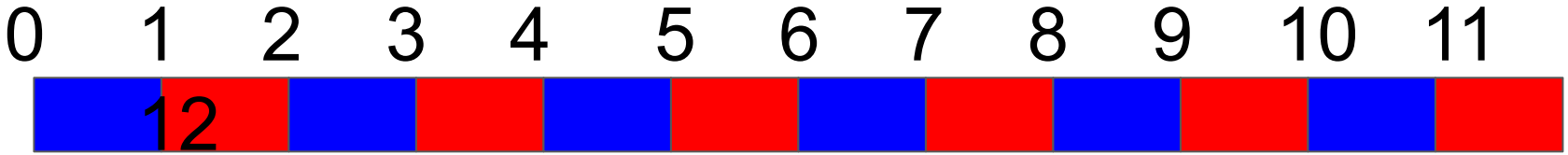
Measure

percentages

Related facts - half of 1, 3000 etc

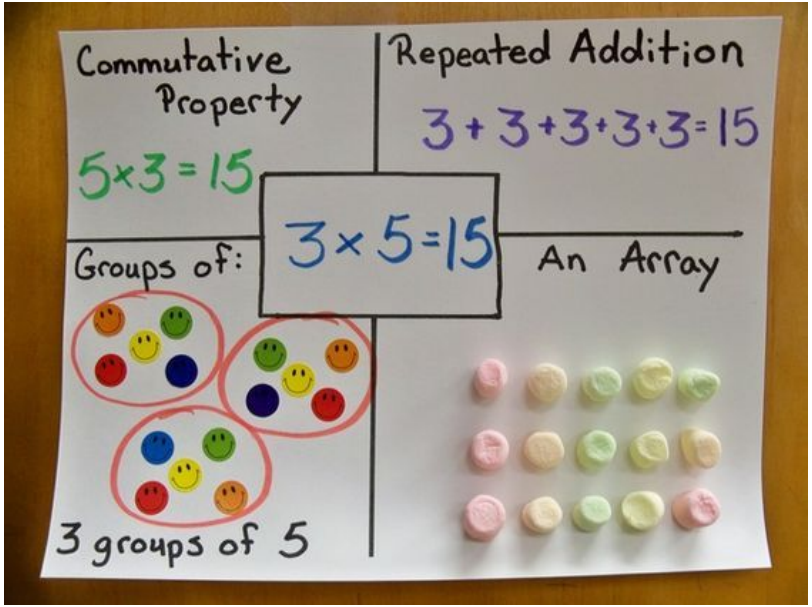
Multiplying and dividing by 10

How do we teach times tables at Stapleford?



Mathematical thinking

Looking for patterns



How do we teach times tables at Stapleford?

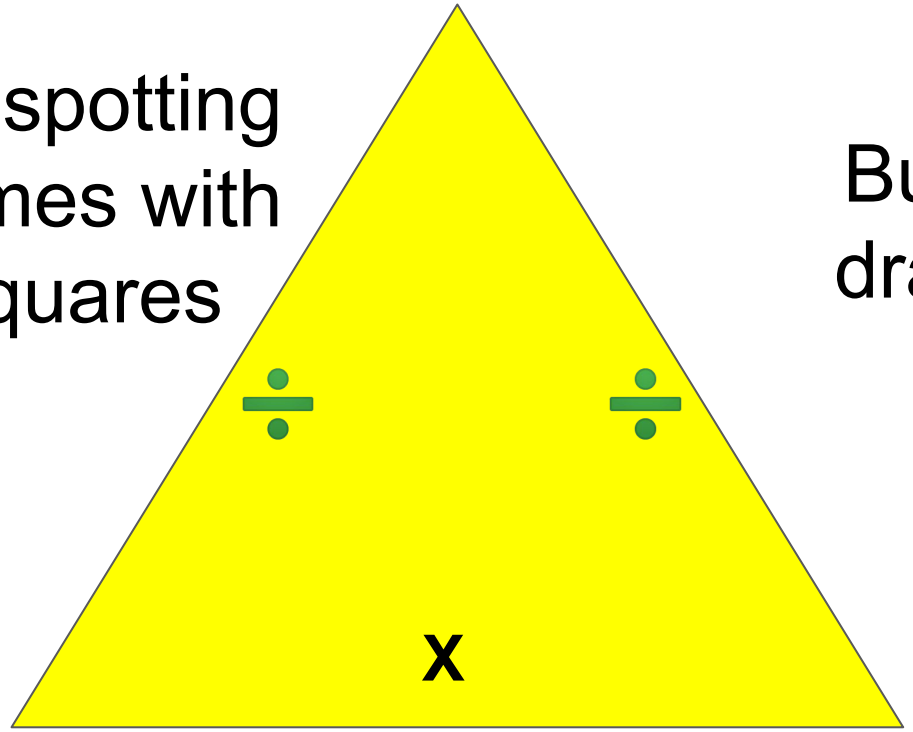
	23
1 x	
2 x	
3 x	
4 x	
5 x	
10 x	

Using known facts

If I know …, I also know ...

How do we teach times tables at Stapleford?

Pattern spotting and games with 100 squares



Build it, say it, draw it, write it

How do we track times table and fluency?

Lilac	Pink
Number bonds to 10	Number bonds to 20
End of Foundation Stage/ Year 1	Year 1

How do we track times table and fluency?

Red	Yellow	Blue	Green	Orange	Turquoise	Purple	Bronze	Silver	Gold
10x	10x 5x	10x 5x 2x	10x 5x 2x 3x	10x 5x 2x 3x 4x	10x 5x 2x 3x 4x 8x	10x 5x 2x 3x 4x 8x 6x	10x 5x 2x 3x 4x 8x 6x 11x 9x	10x 5x 2x 3x 4x 8x 6x 11x 9x 7x	10x 5x 2x 3x 4x 8x 6x 11x 9x 7x 12x
Year 2 children (+ any Year 1 children that are working above age related expectations)			Year 3 children			Year 4 children.			

How do we track times table and fluency?

diamond	Rainbow
Related multiplication facts *can be tested altogether or in separate grids for each table - see below*	**Related division facts** *can be tested altogether or in separate grids for each table - see below*
Year 5/6	

How do we track times table and fluency?

10x = 1 minute		
3 x 10 =	12 x 10 =	6 x 10 =
10 x 9 =	10 x 10 =	10 x 4 =
4 x 10 =	10 x 11 =	11 x 10 =
5 x 10 =	3 x 10 =	2 x 10 =
10 x 7 =	8 x 10 =	

How do we track times table and fluency?

Red	Yellow	Blue	Green	Orange	Turquoise	Purple	Bronze	Silver	Gold	Diamond	Rainbow
10x	10x 5x	10x 5x 2x	10x 5x 2x 3x	10x 5x 2x 3x 4x	10x 5x 2x 3x 4x 8x	10x 5x 2x 3x 4x 8x 6x	10x 5x 2x 3x 4x 8x 6x 11x 9x	10x 5x 2x 3x 4x 8x 6x 11x 9x 7x	10x 5x 2x 3x 4x 8x 6x 11x 9x 7x 12x 14	Related multiplication facts	Related division facts
14 Qs in 1 minute	14 Qs in 1 minute	14 Qs in 1 minute	21 Qs in 1 minute	24 Qs in 1 minute	27 Qs in 1 minute	27 Qs in 1 minute	27 Qs in 1 minute	30 Qs in 1 minute	30 Qs in 1 minute	30 Qs in 1 minute	30 Qs in 1 minute

How can I help my child at home?

Activity pack
Maths at home pack

Online games

Times tables rockstars

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https://mathsframe.co.uk/en/resources/resource/477/Multiplication-Tables-Check

https://play.edshed.com/mtc

Any Questions?